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MUAMMOLARI**

**АКТУАЛЬНЫЕ ВОПРОСЫ СОВРЕМЕННОЙ НАУКИ,
ОБРАЗОВАНИЯ И ВОСПИТАНИЯ**

**ACTUAL PROBLEMS OF MODERN SCIENCE,
EDUCATION AND TRAINING**





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UDC:631.5.445.152.559

INFLUENCE OF TILLAGE DEPTH AND IRRIGATION REGIMES ON SOIL WATER PERMEABILITY BETWEEN COTTON ROWS

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Аннотация: Мақолада ғўза қатор ораларига ишлов бериш чуқурлиги ва суғориш тартибларини тупрокнинг сув ўтказувчанлик қобилиятига таъсири тадқиқотлар асосида ёритилган.

Калит сўзи: ғўза, чигит, суғориш, ўтказувчанликқобилияти, технология, тупроқ, тадқиқот.

Аннотация: В статье на основе исследований описывается глубина обработки междурядий хлопчатника и влияние режимов орошения на водопроницаемость почвы.

Ключевые слова: хлопок, семена, орошение, водопроницаемость, технология, почва, исследования.

Abstract: On the basis of research, the article describes the depth of cultivation of cotton rows and the effect of irrigation regimes on soil permeability.

Key words: cotton, seeds, irrigation, water permeability, technology, soil, research.

Introduction. In the study, the distance between the rows of cotton was 27-30 cm with seed germination 70-80%, cotton at a depth of 3-4 leaves at a depth of 25-27 cm, and when using irrigation technology about 70-75-60% relative to limited soil water capacity (LSWC), soil water permeability, productivity is high and it has been found to be the most effective measure to provide cotton with sufficient water during the growing season..

Literature review. The main problem to be solved in any technology is to ensure adequate water supply for the normal growth and development of plants, increase the efficiency of mineral fertilizers and create opportunities for efficient use of available resources. The main issue is soil conditions, which is an important measure to increase the efficiency of mineral fertilizers, while reducing the number of irrigations due to longer retention of soil moisture by various tillage methods. In this regard, V.E.Eremenko [4], A.A.Rode [1], M.P.Mednis [5] O.Ruzimurodov [2], S.N. Ryjov [3] and other scientists have conducted extensive research on various regimes of crop irrigation. According to them, the water permeability of the soil depends on its

mechanical composition, bulk density, porosity, the amount of reserve moisture in it and the depth of location of mercury, which plays an important role in the cultivation of cotton and other crops. These problems in 2013-2015 on the light gray soils of the experimental farm of the Andijan branch of the Research Institute of Cotton Growing, Seed Agrotechnology of the Asaka District of the Andijan Region, the effect of deep tillage technology on soil permeability at a depth of 27-30 cm with 70-80% seed germination between rows of cotton was studied, 25-27 cm in the period of 3-4 main leaves of cotton.

Research methodology. The experiment consisted of 4 options and was placed in 3 reps. In variant 1, cotton was processed between rows in the usual way and irrigated in the order of 70-70-60% relative to LSWC (control variant 1). In variant 2, the inter-row spacing of cotton was 27-30 cm at 70-80% germination, the cotton was deep at 25-27 cm during 3-4 main leaves, and it was irrigated at 70-70-60% relative to LSWC (control variant 2). In variant 3, cotton was treated at a depth of 27-30 cm when the seeds germinated at 70-80% of the row spacing, cotton at a depth of 3-4 leaves at a depth of 25-27 cm and irrigated at 70-75-60% relative to LSWC. In variant 4, the inter-row spacing of cotton was 27-30 cm when the seeds germinated at 70-80%, the cotton was deep at 25-27 cm during the 3-4 leaf period and irrigated at 70-75-65% relative to LSWC. The area of each option was 400 sq.m, the calculated area was 100 m. All calculations, observations and analyzes were carried out on the basis of the method "Conducting field experiments" (2007), adopted at the Research Institute of Cotton Breeding, Seed Production Agrotechnologies. The obtained data on the yield were mathematically analyzed on the basis of BA Dospekhov's method "Methodology of field experiment" (1985). In the experiment, cotton was planted in the spring every year against the background of winter wheat.

In the experimental variants, the water permeability of the soil was determined annually at the beginning of the cotton period and before and after the 1st watering period. Because both methods of deep processing between rows of cotton were carried out at the beginning of the application period, their positive properties were fully manifested before the 1st water. Under the influence of subsequent watering of cotton and other factors, their positive properties may change.

Analysis and results. According to the experimental results, the water permeability of the soil for 6 hours at the beginning of the period of cultivation of cotton after autumn wheat in 2013 was 632.4 m³/ha in total. Of this, 50% of the total absorbed water or 379.4 m/ha was water for the first 3 hours. Of this, 50% of the total absorbed water or 379.4 m / ha was water for the first 3 hours. As the density of the subsoil (30-50 cm) increased, it was observed that in the following hours the water permeability of the soil decreased (table 1).

Under the influence of deep tillage and irrigation procedures between the rows of cotton, a specific appropriate water permeability property was identified in each variant. For example, in the control variant (option 1), in which cotton was treated between rows in the usual way and irrigated in the order of 70-70-60% relative to LSWC, the water permeability for 6 hours before the 1st water was 534.0 m/ha water permeability was reduced by 98.4 m/ha compared to the end of the application period and by 181.4 m³/ha compared to the end of the application period.

Table 1

The depth of the soil to the pallet, which prevents rooting influence on the water permeability of the experimental field m³/ha.

№	Irrigation regimes relative to LSWC%.	At the beginning of the application period		before 1-watering		At the end of the application period	
		at the third hour	In total 6 hours	at the third hour	In total 6 hours	at the third hour	In total 6 hours
1	70-70-60	379,4	632,4	267,0	534,0	216,0	439,0
2	70-70-60	379,4	632,4	224,9	562,2	221,2	454,4
3	70-75-60	379.4	632.4	239.3	598.3	215,0	537,1
4	70-75-65	379,4	632,4	270,7	541.4	241,2	482,4

When the seeds germinate at 70-80%, the row spacing of cotton is 27-30 cm, and the cotton is deepened to 25-27 cm in the period of 3-4 leaves and in variant (2) irrigated in the order of 70-70-60% relative to LSWC, the water permeability for 6 hours before the 1st water was 562.2 m³/ha, water permeability decreased by 70.2 m³/ha at the beginning of the application period and by 178.0 m³/ha at the end of the application period. Or, 12.0 m³/ha of water absorption was observed between the rows compared to the control method treated in the usual way.

Between rows of cotton seeds are sown at a depth of 27-30 cm, when the seeds germinate 70-80%, cotton at a depth of 3-4 main leaves 25-27 cm and in the variant (3) irrigated in the order of 70-75-60% relative to LSWC, the water permeability for 6 hours before the 1st water was 598.3 m³/ha, water permeability decreased by 34.1 m³/ha at the beginning of the application period and by 95.3 m³/ha at the end of the application period. 86.1 m³/ha, deep between the rows, compared to the control option and 82-7 m³/ha in the order of 70-70-60% in relation to ChDNS (2), 27-30 and 25-27 cm in the row spacing, and 70-75-65% in the order of 70-75-65% in relation to ChDNS (4) was found to decrease by 54.7 m³/ha. In this option, as mentioned above, more water absorption was observed than in the other options due to less decrease in soil volume mass and porosity.

At this point, it is necessary to emphasize another aspect of the water permeability of the soil in the options, in the deep-cultivated variants of cotton row spacing, especially when the seeds germinate 70-80%, the cotton is deep-seeded to 27-30 cm, and in the period of 3-4 main leaves 25-27 cm and in the variant irrigated in the order of 70-75-60% relative to LSWC (variant 3) it was found that 40-45% of the total water was broken in the first 3 hours both at the beginning of the validity period and in the subsequent observation periods. This indicates that the consumed water is absorbed into the subsoil (30-50 cm) layers of the soil. Seeds are sown at a depth of 27-30 cm at 70-80% germination, cotton at a depth of 25-27 cm during 3-4 main leaves and in the irrigated variants of 70-70-60% and 70-75-65%, respectively, relative to LSWC, a decrease in soil water absorption was observed, and 50-55% of the total water was found to be broken in the first 3 hours. Hence, a decrease in the water permeability of

the soil was observed in these variants.

The results of 2014 and 2015 on the effect of deep tillage and irrigation procedures on the permeability of the soil between the rows of cotton received the same confirming data as in 2013.

Conclusion. In short, the interval between rows of cotton is 27-30 cm when the seeds germinate by 70-80%, and the cotton is sown at a depth of 25-27 cm during the period of 3-4 main leaves and when the irrigation technology was applied in the order of 70-75-60% relative to LSWC, the water permeability of the soil was high and it was found to be the most effective measure in providing adequate water to the cotton during the growing season.

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UDC631.6:338.1:631.1

THEORETICAL BASES OF INTERRELATION OF IRRIGATION SERVICES AND RECLAMATION MEASURES

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Аннотация. Мақолада қишлоқ хўжалигини барқарор ривожланиши кўп жиҳатдан ушбу тармоқнинг ишлаб чиқаришида ер ва сув ресурсларидан оқилона ҳамда самарали фойдаланишга боғлиқлиги асосланган. Биринчи марта суғориладиган ерлардаги ирригация ва мелиорация субъектлари фаолиятини таҳлил этишга назарий жиҳатдан ёндашилган. Олимлар фикрлари асосида ирригация хизматлари ва мелиоратив тадбирларнинг моҳияти ва асосий йўналишлари ишлаб чиқилган. Сув сарфига сизот сувлари чуқурлигига қараб тақсимланган экин майдонларининг ўзгариши ва сув сарфига сизот сувларининг шўрланиш даражаси бўйича тақсимланган экин майдонларининг ўзгариши таъсирини эконометрик баҳолаш формулалари ишлаб чиқилган.

Калит сўзлар. Ирригация хизматлари, мелиоратив тадбирлар, ўзаро боғлиқлик, сув сарфи, сизот сувлари, шўрланиш даражаси, корреляцион-регрессион усул.

Аннотация. Статья основана на том, что устойчивое развитие сельского хозяйства во многом зависит от рационального и эффективного использования земельных и водных ресурсов в производстве этого сектора. Впервые применен теоретический подход к анализу деятельности ирригационных и мелиоративных организаций на орошаемых землях. На основании взглядов ученых разработаны сущность и основные направления ирригационных услуг и мелиоративных

мероприятий. Разработаны формулы для эконометрической оценки влияния изменения посевных площадей на водопотребление в зависимости от глубины залегания грунтовых вод и изменения площади распределенных культур на водопотребление в зависимости от солености грунтовых вод.

Ключевые слова. Ирригационные услуги, мелиоративные мероприятия, взаимозависимость, водопотребление, подземные воды, уровень засоленности, корреляционно-регрессионный метод.

Abstract. The article is based on the fact that the sustainable development of agriculture largely depends on the rational and efficient use of land and water resources in the production of this sector. For the first time, a theoretical approach was taken to the analysis of the activities of irrigation and land reclamation entities on irrigated lands. Based on the views of scientists, the essence and main directions of irrigation services and reclamation measures have been developed. Econometric formulas have been developed to assess the effect of changes in distributed crop areas on water consumption depending on the depth of groundwater and changes in distributed crop areas on water consumption based on the salinity of groundwater.

Keywords. Irrigation services, reclamation measures, interdependence, water consumption, groundwater, salinity, correlation-regression method.

Introduction. The success of agrarian reforms carried out on the basis of the Action Strategy for the further development of the Republic of Uzbekistan, the sustainable development of agriculture largely depends on the rational and efficient use of land and water resources in the production of this sector. In this context, special attention should be paid to the interconnected use of land and water resources, irrigation services and reclamation measures related to the efficient use of water resources. In particular, the fact that agriculture is based on irrigation and the irreversible use of most of this water, the need for different amounts of water to grow the same crop per 1 hectare, the direct connection of water sources with transboundary rivers, the natural factors of water supply during the growing season non-guaranteed and the need to use artificial water resources, limited water use, the growing demand for water resources and the lack of available water resources, the constant lack of water to consumers at the end of irrigation networks, the quality of irrigation services on irrigated lands. Circumstances such as adverse impacts require the constant interconnection and development of irrigation services and reclamation measures in the network.

Literature review. It should be noted that the study of any socio-economic reality requires, first of all, its theoretical study. Practice makes the appropriate changes. Therefore, first of all, it is necessary to take a theoretical approach to the analysis of the activities of irrigation and land reclamation entities on irrigated lands. Although much research has been done on irrigation services and reclamation activities in the research work done so far and in the existing scientific literature, the issue of studying and developing the interrelationship of these services has been neglected by researchers. It should be noted that the concepts of "irrigation", "land reclamation", "irrigation services" and "reclamation activities" are interpreted differently by different scientists and experts, there is no single opinion.

In particular, F.M.Rakhimbaev, S.I.Khalikov include a set of measures related to the development of irrigation reclamation and development of irrigated lands in the phrase "irrigation" (Latin irrigation - irrigation). "Amelioration" (Latin mellioratio - improvement) is considered to be the improvement of unfavorable natural (soil, hydrogeological and climatic) conditions for the successful development of agriculture and high and sustainable yields of agricultural crops [5].

According to A.Kadirov, "Irrigation is a set of technical means, technologies, organizational work, practical experience in this field, etc., which serve to achieve this main goal of irrigation, the use of water in the cultivation of crops" [9].

A.I.Golovanov and others consider the concept of "amelioration" as an integral part of the balance of nature, which includes complex measures [2].

Article 1 of the Law of the Republic of Azerbaijan "On Amelioration and Irrigation" entitled "Basic Concepts": "Irrigation is the supply of water to areas where there is a lack of natural water through engineering and other activities. Land reclamation is the radical improvement of lands through the implementation of hydraulic, and other measures". The law also includes amelioration, irrigation systems and separate hydraulic structures, design, construction, reconstruction and operation of joint reclamation and irrigation activities [12].

X.Shukurlaev, A.Mamataliev, R.Shukurlaeva describe "reclamation" as a means of improving unfavorable soil, hydrogeological and climatic conditions in order to obtain consistently high yields of agricultural crops [8].

Another serious problem with the activities of water consumers' associations is the inability to provide all consumers with water equally during the growing season. It is known that the associations determine the limited amount of water consumption depending on the type and area of crops grown in the area, which provides irrigation services and reclamation activities, based on the data of the District Irrigation Departments. It is worth noting the views of foreign scientists on this situation, showing that the equal supply of water to consumers depends on the natural-climatic and organizational-economic conditions. In particular, Ch.Rollins and D.Raats argue that the development of irrigation services and land reclamation depends on two factors: the degree of soil saturation, which affects the ability to distribute water on their plots and crops, and the cost of soil moisture measures. believe that [6].

K.V.Dolgoplov, E.F.Fyodorova include natural-climatic conditions and water resources as one of the important factors in the specialization of agricultural production [3].

According to R. Nimmer and F. Bubentser, the timeliness and timeliness of irrigation are determined by natural and economic factors [4].

E.P.Ushakov, A.A.Golub, Yu.P.Belichenko: "The study of the problems of rational use and protection of water resources means a comprehensive solution to it, targeting the final socio-economic results, taking into account the long-term prospects, a deep scientific justification of the solutions" [7].

Research methodology. The scientific article used methods of analysis and synthesis, systematic approach, economic analysis, grouping, expert evaluation and comparison.

Analysis and Results. Based on the views of the above scientists and the concepts of foreign law, taking into account the existing legal framework of the country and the activities of water management practices, irrigation and land reclamation measures in terms of the sector serving agricultural production the nature and directions of irrigation services and reclamation measures can be summarized as follows (see Table 1).

Table 1.

Irrigation services and reclamation measures essence and main directions [13]

Naming	The essence and direction of services and activities
Irrigation services	<p>A set of measures for the design, construction, maintenance and operation of hydraulic structures, supply of water for agricultural crops, development of irrigated lands.</p> <p>Directions:</p> <ul style="list-style-type: none"> - design, construction and repair of hydraulic structures; - cleaning of irrigation networks from sediments; - planning and organization of irrigation; - development of irrigated lands; - emergency work and so on.
Reclamation activities	<p>A set of works on the design, construction, maintenance and operation of reclamation facilities, drainage of irrigated lands and saline leaching.</p> <p>Directions:</p> <ul style="list-style-type: none"> - design, construction and repair of reclamation facilities; - cleaning of collector-drainage networks from sediments; - planning and organization of drainage and saline leaching of irrigated lands; - adjusting the flow and improving the quality of collector-drains; - emergency work and so on.

In the international experience of providing fair and effective irrigation services and reclamation measures on irrigated lands, it is advisable to base these services on non-profit activities. This is due to the lack of supply and demand criteria for water supply in irrigated agriculture.

There can be no competition in water supply because water is supplied from a single canal or source, where market relations are limited, in other words, it is a natural monopoly. In particular, in 2019, 2756.2 million m³ of water was required for the cultivation of agricultural products in Andijan region, while in reality 2040.4 million m³ or 74% of the planned volume of irrigation was consumed [10]. This represents a lack of supply of water resources on appropriate irrigated lands.

In this current situation, the most appropriate way is to entrust the management of irrigation services and reclamation measures Water Consumers Associations (WCA) to irrigated lands on the rational use of land water and increase their efficiency. It should be noted that regardless of the direction of both domestic and foreign investment in irrigation services and reclamation activities, it is necessary to establish strict control and economic impact measures on water consumption and water use. The current legislation does not provide the WCA administration with the authority to take measures against violations by water consumers, water users in water consumption and water use, affecting land reclamation (these powers are vested only in the water control inspection).

Therefore, the financial provision of WCAs serving on irrigated lands is not at the level of demand. This, in turn, leads to various conflicts in the use of water,

contributes to the deterioration of land reclamation, ultimately, it has a negative impact on crop yields and the economic condition of farms.

Due to untimely payment of irrigation services by water consumers and inability of WCAs to take adequate measures against this, the manager in them is causing the employees not to be paid for the month. This is due to the fact that the employees of the irrigation service organization use the land at the expense of secondary crops on cotton and grain farms (often for rice cultivation), it is natural to take interest in wheat, straw, cotton stalks, fruits, honey, firewood from horticultural farms, vegetables from vegetable farms, and so on.

In particular, most farms or landowners use water without a contract with the association. From year to year, their number and the amount of water used is increasing, and the soil and reclamation status of lands is changing.

Based on the opinions of the above scientists and the current situation, we emphasize that irrigation services and reclamation activities are inextricably linked, and that the activities of one have a direct impact on the activities of the other. This is because irrigation services alter or in most cases disrupt the working condition of domestic reclamation networks, the soil-reclamation status of irrigated lands. This requires that irrigation services on irrigated lands be carried out on a regular and systematic basis in conjunction with land reclamation services.

As a result, the work was carried out to clean the network from sediments, saline leaching, construction of new reclamation facilities, adjustment of collector-drainage water flow, improvement of collector-drainage water quality. All the above work has led to the organization of reclamation services and increased the scope of reclamation activities from year to year. In particular, during 2010-2018, reclamation measures carried out in the region increased from 2540.72 million soums to 17840.45 million soums or 720.2% [11].

H.Berkinov, A.Berkinova, B.Sultonov, H.Kholdorov write that one of the most important issues in economic and statistical research is to find a statistical relationship between two random quantities X and U. Economists also point out that mathematical models are constructed and used for three different purposes: to explain, predict, and control [1]. Based on this, we consider it expedient to study the statistical relationships between irrigation services and reclamation measures using correlation-regression methods.

In particular, as a result of the existing shortcomings in the above-mentioned irrigation, there is a change in the distributed areas depending on the depth of groundwater and the salinity of groundwater. In practice, depending on the type of crop in the hydromodular regions, water consumption is determined based on the irrigation standards of the fields. Hence, the water consumption of the branches depends on the depth of the groundwater location and the areas distributed depending on the salinity level of the groundwater, and it has its own effect. using the method of correlation-regression analysis of irrigation and soil-reclamation conditions, it is possible to obtain results of real significance.

The formula for the econometric assessment of the effect of changes in crop area on water consumption depending on the depth of groundwater has the following form:

$$Y = C \pm r_1 * X_{CCq1} \pm r_2 * X_{CCq2} \pm r_3 * X_{CCq3} \pm r_4 * X_{CCq4} \pm r_5 * X_{CCq5}$$

$$R^2 = 0 \dots n. \dots F = 0 \dots n.$$

U - water consumption,

$X_{CC\text{Ч}}1$ - crop areas with groundwater depth of 0-1.5 meters,

$X_{CC\text{Ч}}2$ - crop areas with groundwater depth of 1.5-2 meters,

$X_{CC\text{Ч}}3$ - crop areas with groundwater depth of 2-3 meters,

$X_{CC\text{Ч}}4$ - crop areas with groundwater depth of 3-5 meters,

$X_{CC\text{Ч}}5$ groundwater crops with a depth of 5 meters and above,

S - is a constant number,

r_1, r_2, r_3, r_4, r_5 - regression coefficients,

R^2 - coefficient of determination,

F - Fisher index.

The formula for the econometric assessment of the effect of changes in the area of crops distributed on the water consumption by the salinity of groundwater consists of the following equations:

$$Y = C \pm r_1 * X_{CC\text{ШД}}1 \pm r_2 * X_{CC\text{ШД}}2 \pm r_3 * X_{CC\text{ШД}}3 \pm r_4 * X_{CC\text{ШД}}4$$

$$R^2 = 0 \dots n. \dots F = 0 \dots n.$$

$X_{CC\text{ШД}}1$ - crop areas with groundwater salinity 0–1 g/l,

$X_{CC\text{ШД}}2$ - crop areas with groundwater salinity 1–3 g/l,

$X_{CC\text{ШД}}3$ - crop areas with groundwater salinity 3–5 g/l,

$X_{CC\text{ШД}}4$ - crop areas with salinity of groundwater from 5 to 0 g/l.

A negative value of the correlation coefficient indicates an inverse relationship between the above events. In particular, the positive effect of changes in water consumption in the context of irrigation services and reclamation measures on the depth of groundwater and the distribution of areas according to their salinity represents a negative relationship between them, and a negative effect on the correct relationship. That is, the increase in the depth of groundwater to 1.5–2 m and 2–3 m, and the increase in areas with their salinity of 1–3 g / l can lead to water savings, in other cases, the deterioration of land reclamation due to excessive water consumption.

Conclusion and Recommendations. Based on the above, the interdependence of irrigation services and reclamation measures, in our opinion, stems from:

1. The fact that the amount of precipitation is less than the amount of evaporation necessitates the implementation of irrigated agriculture. This leads to the establishment of a limited water use regime in the context of a shortage of used water resources and the introduction of strict austerity measures.

2. The fact that agricultural production is based on irrigation services leads to an increase in groundwater levels and the inflow of degraded water into reclamation networks. This, in turn, increases the scale of reclamation activities

3. As a result of the long or close location of water consumers to the existing irrigation network, water conservation and the reclamation of lands lead to a different formation of the relationship.

4. Effective planning, organization and management of irrigation services and reclamation activities on irrigated lands creates the need for interdependent development of WCAs that have emerged over the past 12-13 years and the state unitary enterprise "Davsumaxsuspudrat" established 9 years ago.

5. Introduction of market principles and mechanisms in the activities of economic entities on irrigated lands will further strengthen the relationship between them.

6. Creates a permanent state participation in the regulation and financing of irrigation services and reclamation management.

7. Differences in the technical and financial provision of irrigation services to water consumers and the implementation of reclamation activities by the state unitary enterprise "Davsuvmaxsuspudrat", Amelioration Expedition strengthen the interdependence of their activities.

8. The interdependent development of irrigation services and reclamation measures will increase the efficiency of agricultural production, promote the efficient use of land and water potential, material and technical resources, specialists and financial resources of our country, which has limited natural resources.

Based on the above data, the views of scientists and the current situation in practice, irrigation services and reclamation activities are inextricably linked, as the activities of one directly affect the activities of the other, it makes it necessary to implement them in an interconnected manner. An econometric assessment of the impact of changes in crop area on water consumption depending on the depth of groundwater and their salinity, it is possible to substantiate the interdependence of irrigation services and reclamation measures.

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UDK: 338.43

THE ROLE AND IMPORTANCE OF CLUSTERS IN THE AGRICULTURAL ECONOMY

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Аннотация. Мақолада кластерларнинг қишлоқ хўжалиги иқтисодиётидаги, жамият тараққиётидаги аҳамияти ва ўрни асосланган. Ихтисослашган ҳудудларда қайта ишлаш қувватларидан самарали фойдаланиш ҳисобидан етиштирилаётган мева-сабзавот сифати ва рақобатбардошлигини ошириш орқали мамлакатга валюта тушумини кўпайтириш, янги иш ўринларини яратиш, озиқ-овқат ҳавфсизлигини таъминлашга кўмаклашиш ҳамда аҳоли даромадларини оширишга йўналтирилган ихтисослашган агрокластерларни ташкил этиш ва ривожлантириш масаласи илгари сурилган.

Калит сўзлар. Агробизнес, ихтисослашган агрокластерлар, қишлоқ хўжалиги маҳсулотларини қайта ишлаш, янги иш ўринларини яратиш, озиқ-овқат ҳавфсизлиги, валюта тушуми, аҳоли даромадларини ошириш.

Аннотация. Статья основана на значении и роли кластеров в аграрной экономике, развитии общества. Повышая качество и конкурентоспособность фруктов и овощей, выращиваемых на специализированных участках, за счет эффективного использования производственных мощностей, был выдвинут вопрос о создании и развитии специализированных агрокластеров, направленных на увеличение валютных поступлений, создание новых рабочих мест, продвижение продовольственной безопасности и увеличение доходов населения.

Ключевые слова. Агробизнес, специализированные агрокластеры, переработка сельхозпродукции, создание новых рабочих мест, продовольственная безопасность, валютная выручка, увеличение доходов населения.

Abstract. The article is based on the importance and role of clusters in the agricultural economy, the development of society. By improving the quality and competitiveness of fruits and vegetables grown in specialized areas through the efficient use of processing capacity increase foreign exchange earnings to the country, create new jobs, help ensure food security and the establishment and development of specialized agro-clusters aimed at increasing the income of the population.

Keywords. Agribusiness, specialized agro-clusters, processing of agricultural products, creation of new jobs, food security, foreign exchange earnings, increase of incomes of the population.

Introduction. The globalization and deepening of integration processes in the world economy requires a comprehensive study of the internal strengths and

weaknesses of agribusiness, as well as its external opportunities and risks in the market. One of these opportunities is the establishment of agro-clusters.

In this regard, the organization and development of agro-clusters through the efficient use of processing capacity in the specialized regions of the country, increasing foreign exchange earnings, creating new jobs and increasing incomes of the population through export-oriented to improve product quality and competitiveness. Therefore, in our opinion, it would be more correct to call clusters organized in specialized regions as specialized agro-clusters.

Further increase in exports of goods and services created by domestic producers, modernization of existing production facilities to take a worthy place in world markets, the need for comprehensive diversification of the economy. Development of new technical and organizational-technological solutions, decision-making on their application, improvement of enterprises on the basis of innovative projects will create additional opportunities for modernization of reproduction processes and economic growth.

Literature review. The word cluster translates from English to mean “collection”. In economics, the word cluster is understood as an association formed voluntarily from several independent companies to produce a product. For example, in fruit and vegetable growing, from the planting of fruits and vegetables to its transformation into a finished product, joint ventures work together: farms, farmers and private farms, fruit and vegetable processing plants, logistics centers, markets and so on.

Today, the organizational, economic and legal relations in the fruit and vegetable system of our country and regions are not based on developed market relations. This can be seen in the current structure of the fruit and vegetable industry.

From a theoretical and practical point of view, one of the main directions of increasing economic efficiency at the level of industries and enterprises in a market economy is the adherence to the principles of regional development. Such an approach to the development of fruit and vegetable growing is based on the results of scientific research conducted by many agrarian economists. However, the research conducted does not meet today’s requirements mainly due to the fact that it was conducted during the planned economy period.

The law of constant movement of socio-economic development is also observed in the process of gradual development of scientific research in the field of economic development of enterprises of the fruit and vegetable industry of the republic. In other words, the first scientific research on the development of agriculture on the basis of a cluster approach is being carried out, and the first proposals and recommendations are being given by our scientists [9].

According to foreign economists, in the current context of accelerated globalization of the economy and the intensification of competition, regions and territories that form the economy on the basis of a cluster approach are leading in economic development [3,4,5]. Such a region and prospects determine the level of competitiveness of the state and national economy in which they are located. Regions that do not use the cluster approach to economic development, that is, those that use

the traditional approach, are failing to achieve significant results and are becoming secondary areas.

The organization of clusters in the processing industry creates a number of competitive advantages in the development of entrepreneurship and increase their competitiveness: firstly, to increase productivity of firms and industry enterprises in the cluster, secondly, increase opportunities for innovative development, thirdly expand new types of entrepreneurship and cluster activities.

Research methodology. The scientific article used methods of analysis and synthesis, systematic approach, economic analysis, grouping, expert evaluation and comparison.

Analysis and results. The importance and role of agro-clusters in the country's economy is enormous. Its place is determined primarily by its share in the country's GDP. Today, more than 70% of the country's GDP is produced in the agro-industrial complex [5].

The importance of a complex is determined primarily by the value of the products it produces. The fact is that the final product of the agro-industrial complex is food for human daily consumption and personal clothing, household items. More than 99% of food is grown in the country's agro-industrial complex [6]. The complex will ensure the food security of the country.

Today, about 2/3 of the export-oriented products grown in the country are grown by agro-clusters and are actively involved in providing solid foreign exchange earnings necessary for the development of the country's economy. The hard currency flowing into the country's economy is used to deepen economic reforms, make profound structural changes in the economy, ensure national security, and develop social spheres. Currently, more than 60% of hard currency comes from the sale of products of this complex [5].

President Shavkat Mirziyoyev called for improving the management system in the horticulture sector and greenhouses, introducing effective mechanisms of state support, establishing cooperation in agriculture, increasing the production of high quality, competitive and export-oriented products based on modern resource-saving technologies, food industry a number of decrees and resolutions were adopted in order to develop rapidly.

According to the President, at a time when the sale of fruits and vegetables on the world market amounted to 205 billion dollars, the share of our country in it is less than one percent. Therefore, the goal is to increase fruit and vegetable exports to \$ 2.5 billion by 2020 and \$ 5 billion over the next three years. To achieve this, it is necessary to choose the right crops and varieties, increase productivity and income at least two to three times, prevent waste, product storage, logistics, proper organization of exports [2].

Today, the world markets are in high demand for products such as cherries, apricots, plums, pomegranates, grapes, almonds, citrus fruits, and these products make up the bulk of export earnings.

To meet the food needs of the population and increase exports, it is necessary to increase fruit and vegetable production by 8-10% per year and produce more than 1 million tons of additional products [6]. Therefore, in order to ensure food security in

our country, special attention is paid to the integrated development of agriculture and processing industry.

At present, a total of 47 clusters specializing in fruit and vegetable growing have been established in the country, which are allocated 13.5 thousand hectares of land. The clusters have refrigerated warehouses with a capacity of 15.9 thousand tons, 7810 tons of sorting, 800 tons of calibration, 4 modern laboratories, 119.8 thousand tons of fruit and vegetable processing, 23201 tons of fruit and vegetable sorting and packing shops, 1046 permanent, 1,085 seasonal jobs were created.

As the President noted, the development of horticulture requires, first of all, seedlings, so it is necessary to grow and export 20 million seedlings per year. To this end, starting next year, it is necessary to start planting apricot, cherry, peach, sorghum and industrial grape, pomegranate, walnut and almond seedlings, which are in high demand in the world market.

It is known that on February 7, 2017, the President of the Republic of Uzbekistan issued a decree on "Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021." According to him, the modernization and accelerated development of agriculture envisages deepening structural reforms and continuous development of agricultural production, further strengthening the country's food security, expanding the production of environmentally friendly products, significantly increasing the export potential of the agricultural sector.

It also includes the implementation of investment projects for the construction of new processing enterprises, reconstruction and modernization of existing ones, equipped with the latest high-tech equipment for the production of agricultural products, semi-finished and finished food products, as well as packaging. , taking systematic measures on storage and transportation of agricultural products (agrologistics) and sales.

Consequently, the role of industries and services in the production, processing and sale of agricultural products in the employment of the country's population is immeasurable. The development of these sectors will alleviate the problem of unemployment in the country and expand the opportunities to eliminate it, prevent the destruction of agricultural products. According to the President, up to 30% of some types of agricultural products are being destroyed [2]. One of the main reasons for this is that agroclusters are underdeveloped. Given the above, in our opinion, the importance of agroclusters and their place in the economy can be determined by:

- prevents the destruction of agricultural products and, as a result, provides great economic benefits;
- improves employment, optimizes the solution of social problems;
- provides agriculture with financial resources to the extent possible;
- increases the living standards of the population;
- frees agriculture from non-specific functions (storage, transportation, etc.);
- increases the country's export potential;
- improves the provision of the population with quality products in different seasons;
- improves the labor skills of the rural population;

- ensures the quality of food security of the country.

At present, agricultural products grown in the Republic of Uzbekistan are processed in the following volumes: fruits - 15%, vegetables - 10%, melons - 5%, grapes - 23%, leather - 26%, wool - 15%, meat - 25%, milk - 5%, raw cotton - 25% [6].

Conclusion and Recommendations. In conclusion, the establishment and development of specialized agro-clusters is one of the main directions of the country's economic strategy. The main focus will be on the development of the agricultural processing industry and providing the market with cheap, high-quality, competitive food products. Attention will be paid to attracting foreign investment through the establishment and development of specialized agro-clusters. Emerging new joint ventures in this area will lead to the introduction of new equipment and technology. It also serves to increase employment and incomes.

It should be noted that in order to achieve the above, it is necessary to take the following measures, such as the organization of specialized agro-clusters and equipping them with modern technologies, their spiritual renewal, structural and technical restructuring:

1. Technical modernization of the production process of enterprises.
2. Introduction of innovative technologies in production based on local resources.
3. Expanding the range of manufactured products by adding new export-oriented products.
4. Reducing production costs through innovation and saving resources.
5. Introduction of a quality management and certification system that meets international requirements for production.
6. Introduction of low-waste and environmentally friendly technologies in production processes, etc.

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UDC 338.1

WAYS OF PERSPECTIVE DEVELOPMENT OF WALNUT PRODUCTION IN ANDIJAN REGION

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Аннотация. Ёнғок бозорининг миллий ва минтақавий даражалардаги ўрни ва улар фаолиятини ривожлантириш зарурлигини ўрганиш мавжуд манбаларни ҳар томонлама чуқур таҳлил қилиш асосида илмий-амалий аҳамиятга эга. Ёнғок ишлаб чиқаришнинг ташкилий-иқтисодий асосларини, шунингдек, бозор муносабатлари шароитида қишлоқ жойларда ёнғокзорларни ташкил этиш усулларини ўрганишга муҳим ҳисса қўшилди. Андижон вилоятида ёнғок ишлаб чиқариш тизимининг ташкилий-иқтисодий асосларини такомиллаштириш ва янада ривожлантириш бўйича илмий асосланган тавсиялар ишлаб чиқиш ушбу мавзунинг энг муҳим жиҳатларидан биридир

Калит сўзлар: ёнғок ишлаб чиқариш, ёнғок ҳосилдорлиги, ялпи ҳосил, самарадорлик, агрослустер, озиқ-овқат бозори

Аннотация. Изучение роли рынка грецкого ореха на национальном и региональном уровнях и необходимости развития их деятельности имеет научное и практическое значение на основе всестороннего углубленного анализа имеющихся источников. Важный вклад внесен в изучение организационно-экономических основ производства грецкого ореха, а также методов организации ореховых рощ на селе в условиях развития рыночных отношений. Одним из важнейших аспектов данной темы является совершенствование организационно-экономических основ системы производства грецкого ореха в Андижанской области и разработка научно обоснованных рекомендаций по дальнейшему развитию.

Ключевые слова: производство грецкого ореха, урожайность грецкого ореха, валовой сбор, урожайность, агрокластер, продовольственный рынок

Abstract. The study of the role of the walnut market at the national and regional levels and the need to develop their activities is of scientific and practical importance through a comprehensive in-depth analysis of available sources. An important contribution to the study of the organizational and economic basis of walnut production, as well as the methods of organizing walnut groves in rural areas in the context of the development of market relations. One of the most important aspects of this topic is the improvement of the organizational and economic framework of the system of walnut production in Andijan region and the development of scientifically based recommendations for future development.

Keywords: walnut production, walnut yield, gross yield, efficiency, agrocluster, food market

Аннотация. Ёнғоқ бозорининг миллий ва минтақавий даражалардаги ўрни ва улар фаолиятини ривожлантириш зарурлигини ўрганиш мавжуд манбаларни ҳар томонлама чуқур таҳлил қилиш асосида илмий-амалий аҳамиятга эга. Ёнғоқ ишлаб чиқаришнинг ташкилий-иқтисодий асосларини, шунингдек, бозор муносабатлари шароитида қишлоқ жойларда ёнғоқзорларни ташкил этиш усуллариини ўрганишга муҳим ҳисса қўшилди. Андижон вилоятида ёнғоқ ишлаб чиқариш тизимининг ташкилий-иқтисодий асосларини такомиллаштириш ва янада ривожлантириш бўйича илмий асосланган тавсиялар ишлаб чиқиш ушбу мавзунинг энг муҳим жиҳатларидан биридир

Аннотация. Изучение роли рынка грецкого ореха на национальном и региональном уровнях и необходимости развития их деятельности имеет научное и практическое значение на основе всестороннего углубленного анализа имеющихся источников. Важный вклад внесен в изучение организационно-экономических основ производства грецкого ореха, а также методов организации ореховых рощ на селе в условиях развития рыночных отношений. Одним из важнейших аспектов данной темы является совершенствование организационно-экономических основ системы производства грецкого ореха в Андижанской области и разработка научно обоснованных рекомендаций по дальнейшему развитию.

Abstract. The study of the role of the walnut market at the national and regional levels and the need to develop their activities is of scientific and practical importance through a comprehensive in-depth analysis of available sources. An important contribution to the study of the organizational and economic basis of walnut production, as well as the methods of organizing walnut groves in rural areas in the context of the development of market relations. One of the most important aspects of this topic is the improvement of the organizational and economic framework of the system of walnut production in Andijan region and the development of scientifically based recommendations for future development.

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Keywords: walnut production, walnut yield, gross yield, efficiency, agrocluster, food market

Introduction. In recent years, consistent arrangements have been taken to reform agriculture and introduce market mechanisms in the sector.

In particular, the cluster method of production in agriculture has been introduced, which allows to deliver to the consumer in the form of final products as a result of processing of raw materials grown in the cluster method.

Today, more than 80 types of agricultural products grown in Uzbekistan are exported to 66 countries around the world. In 2010, cotton fiber accounted for 11.3% of exports, but by 2018 this figure had dropped to 1.6%. [5]

At the same time, the lack of systematic effective market mechanisms, especially in the development of horticulture and viticulture in the industry, the lack of a scientific approach leads to underutilization of the existing potential of the industry.

According to assessments, there is an opportunity to earn 7 times more from grapes, 6 times more from cherries and 5 times more from walnuts than from raw cotton grown on 1 hectare. [4]

The Fergana valley, including the Andijan region, is characterized by rapid population growth and high density, limited land and water resources, and high demand for food products. One of the most pressing issues today is the reform of the agricultural sector in the region and the development of scientific and methodological bases for the formation of the food market and the preparation of practical proposals.

The food market determines the state of the economy and the social stability of society, so its development depends on the existing potential in all countries, the formed economic relations and the implementation of policies in accordance with market principles by the documents on their implementation. For this, it is necessary to consider it theoretically, to analyze it in order to develop practical proposals. Prospective indicators developed by foreign scientists on the basis of the study of links specific to market conditions in this regard provide an idea of the strategic directions of world food markets. [3]

The research of the role of the walnut market at the national and regional levels and the need to develop their activities is of scientific and practical importance through a comprehensive in-depth analysis of available sources. An important contribution to the research of the organizational and economic basis of walnut production, as well as the methods of organizing walnut groves in rural areas in the context of the development of market relations. [13] The consideration of the current state and economic efficiency of growing walnut products in rural areas for the food market, the possibility of stimulating investment activity in the development of walnut production in rural areas, as well as improving the mechanism of support for the development of walnut exports and foreign experience. One of the most important aspects of this topic is the improvement of the organizational and economic framework of the system of walnut production in Andijan region and the development of scientifically based recommendations for future development.

Literature review. The research of many foreign scientists is devoted to the development of walnut cultivation. In particular, the dissertation of the Iranian researcher Mahmoud Bakhshinejad "Comparative advantages of crops of the nut family in Iran" states that Iran has a high potential to increase the existing relative

advantage in the production and export of nuts. it is expedient to develop and implement a set of measures to create favorable conditions for efficient production.[11]

Australian H. Adem & Peter H. Jerie's "Walnut Industry. Research & Best Practice Implementation" looks at the prospects for increasing economic efficiency through the organization of production in the form of an association of nut growers. It focuses on organizational issues, emphasizing that the preparation, planting and processing of walnut seedlings are important factors in achieving efficiency. It also compares the annual income and expenses during the development of the coconut and suggests that this can be achieved through special investment programs, tax incentives.[12]

Indicators of economic efficiency of walnut production in Uzbekistan are a relatively new direction, which has been partially studied in a number of studies in the field of fruit growing.

Research methodology. The article uses abstract-logical thinking, comparative analysis, expert evaluation methods. In studying the factors influencing the efficiency of the walnut industry in Andijan region, it is important to prepare recommendations based on the analysis of local walnut growers and foreign experience.

Analysis and results. The areas where walnuts can bear fruit are quite limited - only 7% of the planet's land area is suitable for this. Uzbekistan is one of the few countries in the world that is suitable for growing walnuts. In recent years, our country has become one of the leaders in the production of walnuts.

The fact that Uzbekistan has risen to 8th place in the world in the production of walnuts in 2019 with a figure of 56,116 tons indicates a significant increase in production, but shows that we are not using the natural resources of our country wisely. At present, the first steps are being taken in our country to create conditions for the creation of intensive walnut groves, to achieve the development of the sector by providing farmers with the necessary advice and guidance, and to take a worthy place in world markets.[2]

Despite the fact that walnuts, which are in high demand in the world market and even prices are increasing from year to year, local farmers grow and sell in relatively small quantities.

By the Decree of the President of the Republic of Uzbekistan dated June 1, 2017 "On the establishment and organization of the Association of Walnut Producers and Exporters", the Association of Walnut Producers and Exporters was established in Uzbekistan. The decision is aimed at encouraging the use of arable land and further increasing its efficiency, increasing the production of walnuts, which are competitive in local and foreign markets, building modern walnut orchards through the widespread attraction of foreign investment and the widespread introduction of science-based methods and intensive technologies.

In Andijan, Kashkadarya, Jizzakh, Namangan, Samarkand, Surkhandarya, Tashkent and Fergana regions, it is planned to allocate land plots with a total area of up to 10,000 hectares, suitable for planting walnut seedlings, according to natural and climatic conditions and soil composition. .

Up to \$ 50 million in loans will be provided for projects to build walnut plantations through soft loans from international financial institutions. Until 2020, the

members of the Association will be exempted from customs duties on imported drip irrigation equipment, special agricultural machinery, walnut seedlings, grafts, maternity materials, which are not produced in Uzbekistan.

Analysis by the International Council of Nut and Dried Fruit shows that in many developing countries, traditional horticulture is giving way to specialized industries.

In particular, intensive walnut growing is being developed. In the 2017-2018 season, the world produced more than 4.2 million tons of walnuts, which is 11% more than last season and 30% more than the average for the last decade.

Therefore, today in Andijan region, active work is being carried out in several areas of fruit growing. In particular, targeted efforts have been launched to form and develop the walnut industry.

In accordance with the abovementioned Decree, a total of 557 hectares of new walnut orchards were planted in Andijan region, a total of 223,000 walnut saplings were planted on 151 hectares in 2017 and 406 hectares in 2018.

In Andijan region, 572,000 walnut seedlings were planted on a total of 2,397 hectares under the project to create walnut plantations in 2018-2019. As a result, 552 jobs were created.

In recent years, the gross yield of walnuts has grown significantly. We can analyze the data in Table 1, which shows that today the volume of walnut production in Andijan region in 2020 increased by 1.8 times compared to 2016.

In 2016, Andijan region produced 3,746 tons of walnuts, and by 2020 this figure was 6,980 tons. Among the districts, Oltinkul district produced 1,744 tons of walnuts in 2020, which is higher than other districts.

Demand for this product is growing as more and more people around the world are focusing on healthy and wholesome nutrition, including walnuts.

According to the analysis of the walnut market by experts, the average annual increase in the price of unrefined walnuts over the last decade has been 8%, while that of refined ones is 10%. Even exotic products cannot show such a steady increase in price. Unfortunately, national producers do not benefit enough from this. In this context, the modernization of a perspective sector of the economy will have to wait a long time.

Many countries in the world, which import this product from Uzbekistan, also grow large quantities of walnuts. But unlike us, it is mainly sold in the local market. People who are wealthy and care enough about their health are eager to buy cheap Uzbek walnuts, even if they are not of good quality.

According to the comparative data of the Association of Walnut Producers and Exporters, the average annual consumption of walnuts in Europe and the Gulf countries is 4.2-5.6 kg per capita, while in Uzbekistan this figure is only 1.8-2.4 kg.

Table 1. Volume of walnut production in Andijan region (tons)[2]

T/r	Districts	2016 year	2017 year	2018 year	2019 year	2020 year	growth in 2020 compared to 2016 (%)
1.	Andijan	443	550	612	743	874	197

2.	Asaka	165	212	236	286	337	204
3.	Balyqchi	210	237	263	320	376	179
4.	Buloqboshi	38	46	51	61	72	188
5.	Bo'ston	40	49	54	66	77	193
6.	Jalaquduq	192	214	237	288	339	177
7.	Izboskan	201	226	251	305	359	179
8.	Ulugnor	185	196	218	264	311	168
9.	Markhamat	191	212	236	286	337	176
10.	Oltinkul	901	1099	1221	1483	1744	194
11.	Pakhtaobod	336	375	416	506	595	177
12.	Khujaobod	65	60	67	81	95	146
13.	Shakhrikhan	449	504	559	679	799	178
14.	Kurgantepa	130	168	186	226	266	205
15.	Andijan town	163	198	220	267	314	193
16.	Honobod town	37	53	59	71	84	227
	Total	3746	4397	4886	5933	6980	186

One of the experts pointed out the essence of the problem - Uzbekistan has enough walnuts, but the population does not have the financial resources to buy them. This environment increases the price gap in the local and foreign markets and strengthens the desire to export high-income products from our country in any way.

World market conditions and favorable natural and climatic conditions create conditions for the development of national nuts. However, Uzbekistan's role in the production and export of high-demand products is unsustainable. This is hampered by disparities in production and pre-sales preparation for demanding consumers.

When we considered the yield of walnuts per hectare in different categories of farms in Andijan region, the highest share fell to the share of dekhkan farms (small households) until 2019, and in 2020 this figure fell to the share of farms. From this we can conclude that in 2017, due to the increased attention paid by the head of our state to this area, the newly established walnut farms have achieved high yields.

Table 2. Yield of walnuts grown in Andijan region (centner / ha)

№	Farms (organizations)	Years					year 2020 compared to 2016 (%)
		2016	2017	2018	2019	2020	
1.	Farms	86,3	98,3	79,5	157,3	540	625,7
2.	Dehkan (personal assistant) farms	195	216,1	266,0	258,8	340	174,4
3.	Other farms	3	8	3,4	3,9	6	200,0
	Total by region	195,2	202,1	253,3	239,5	297,4	152,4

World experience shows that high-quality product can be obtained only from seedlings of selected varieties grown industrially. At the same time, the harvest should be sorted, dried and packed in modern forms in well-equipped enterprises. However, this sector of the economy in Uzbekistan is underdeveloped. Walnut production is mainly carried out on private farms, which, according to various analyzes, account for more than 80-85% of the gross harvest. Large enterprises engaged in processing and preparation of nuts can be counted on the fingers of one hand. This means that the production, processing and export of most of the nuts falls on the black market.

Insufficient organization of production on the basis of market requirements, low level of control, enrichment of some categories due to the labor of small producers.

Every year in the autumn in the farmers' markets there is an increase in the number of buyers of nuts from the rural population at low prices. The fact that prices in the local market are much lower than in the foreign market makes them more attractive. Due to the lack of preparation points in the villages, small producers cannot trade wholesale. They are forced to accept the terms of those they think are entrepreneurs. Walnuts, which cost \$ 2-2.5 on the world market, are sold in local markets for only 5-6 thousand UZS per kilo. These illegal intermediaries embezzle additional income that makes up at least 50% of the initial price of the wholesale product. Those who then dry and sort it will have an added value of 300 percent or more. In doing so, they present themselves as privileged and do not pay income tax.

There have been significant shifts in the organizational work of the Walnut Association. The Association of Walnut Producers and Exporters has a significant impact on the solution of certain problems by involving scientists and practitioners in its work, in addition to informational and explanatory work.

The systematic work carried out since the establishment of the Walnut Association has shown full results. The work of the Association of Walnut Producers and Exporters, such as the modernization of the industry, the organization of industrial walnut groves, began to bear fruit. As a result of the analysis, it is planned to establish walnut orchards in almost every district for the last 3 years to increase walnut production by 10 times.

According to the Association of Walnut Producers and Exporters of Uzbekistan, the area of new orchards created by the walnut family in 2019 will be 10.7 thousand hectares, which is almost 3 times more than in 2015. The largest number of new coconut groves is located in Samarkand, Kashkadarya and Surkhandarya regions on an area of more than 5.9 thousand hectares.

Conclusions and suggestions. Taking into account the specifics of the food market, a special approach to its development is required. In this regard, the potential and characteristics of each region is an important factor. In this regard, the development of the food market in Andijan region, which we are analyzing, taking into account its natural and economic and labor potential, as well as its specific demographic characteristics, should be carried out in the following areas:

- Self-sufficiency in quality food through the development of agricultural production and processing in the region;

- Improving the organizational, economic and legal framework for creating conditions for the development of trade in manufactured food products, as well as the creation of comprehensive infrastructure facilities.

The implementation of these arrangements is of great practical importance in ensuring the full functioning of the regional food market, which serves as an important factor in ensuring food security in the region.

Large industrialized walnut orchards in Andijan region can be established on a cooperative basis. As an example of such an approach, entrepreneurs have the experience of combining efforts to plant and use walnuts, acquiring 2 hectares of land for agricultural entrepreneurship. Cooperation allows small producers to form large batches that serve to increase the value of the product, and they participate in all trade and economic processes of the product they grow. Thus, by reducing the activity of the shadow market, budget revenues will increase.

It is expedient to establish large industrialized walnut orchards in all regions of the region, which can significantly change the situation for the better, and to organize them in cooperatives of farms, agro-firms, small landowners.

Production and export of high-demand and highly efficient agricultural products in the world is one of the important directions of further development of the agricultural sector through the efficient use of land. If these cooperatives receive real mechanisms for the use of the resources given to them, it will be possible to radically improve the situation in the nut industry.

In the transparent system of procurement and export, the newly established procurement points will play an important role. By operating in the form of a service cooperative, they will be able to form wholesale batches of products, sell them on the local market or export them. This will help increase the welfare of the population by creating new jobs in rural areas.

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UDC: 633.85

**THE INFLUENCE OF BIOLOGICAL PRODUCTS ON THE GROWTH
DEVELOPMENT AND YIELD OF RE-SOWING SUNFLOWER**

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Abstract: As a result of our research, the high efficiency of the joint use of Enosis 50 g / l, Eco gum complex and Eco gum FC preparations when mowing the Velia sunflower variety for seeds was revealed.

Keywords: bio preparation; sunflower; rate of using of the drug; control; option; reiteration; Eco sil 50 g / l; Eco gum complex; Eco gum FC; Gumi.

Аннотация: В результате наших исследований была выявлена высокая эффективность совместного использования препаратов Эко сил 50 г/л, Эко ГУМ комплекс и Эко ГУМ ФК при выращивание сорта подсолнечника «Валя» для получения семян.

Ключевые слова: биостимуляторы; подсолнечник; норма использования препарата; контроль; вариант; повторение; Эко сил 50 г/л; Эко ГУМ комплекс; эко ГУМ ФК; гуми; почва.

Аннотация: Буғдойдан кейин такрорий экилган кунгабоқарнинг «Валя» навини уруғи учун етиштирилганда Экосил 50 г/л, Экогум комплекс ҳамда Экогум ФК препаратлари биргаликда қўллаш самарали бўлган.

Калит сўзлар: биопрепаратлар; кунгабоқар; Экосил 50 г/л; Экогум комплекс; экогум ФК; гуми; вариант; қайтарик; қўллаш меъёри; хосилдорлик.

Introduction. It is known that sunflower is one of the most important oilseeds in most European and Asian countries. An additional product in the production of oil from seed-cakes is a valuable feed for cattle due to its high protein and fat content. It is also used in soap and other industries.

Literature data indicate that the seeds of modern sunflower varieties contain 50-54% semi-dry quality oil. Industrial oils are used directly in food, in the preparation of canned vegetables. In the production of margarine, bakery and confectionery.

Literature review. The composition of the oil contains such valuable acids as oleic -75-80% or non-acidic 12-27%. Such oils are very close in quality to olive oil, in addition, sunflower oil contains the value of vitamins A, D, E, K and phosphatides. Low-quality sunflower oil is used in the production of linoleum, oilcloth, as well as electrical engineering, paint, varnish and others. [3], [4]

At present, the harvest of cultivated plants in agriculture all over the world, including the Republic of Uzbekistan, meets the needs of the population for food. It should be emphasized that agriculture in Uzbekistan, as well as throughout the world, is focused on the production of agricultural products based on the intensive use of mineral fertilizers and other chemical plant protection products in ever increasing rates.

Unfortunately, such an intensive use of high rates of chemicals and fertilizers lead to an imbalance between nutrients in the soil. On the other hand, these negative changes with the soil require a significant increase in the cost of fertilizers, the cost of production while reducing its quality. And this is the road to nowhere. [2], [3], [4], [14]

According to the literature facts, this level of chemicalization of agriculture is causing more and more concern among representatives of science and consumers. There was a theory of the so-called biological farming. This movement gained particular popularity among farmers in Western Europe, Canada, Australia, the United States and others. [1]

Organic farming contributes to the preservation of the environment, socially and economically supports the production of economically frequent, healthy food.

The use of biopreparations in the cultivation of agricultural crops stimulates the growth and development of plants, improves their nutrition, the humus state of the soil, as a result, helps to increase the yield and quality of the products obtained, and also creates a favorable background for increasing soil fertility. The indicated ones indicate the relevance of the study. In this regard, we conducted field experiments to develop an effective technology for increasing the productivity of meadow soils and sunflower yields in the educational and experimental farm of the Andijan Institute of Agriculture and Agricultural Technologies using biological products Eco sil 50 g / l, Eco gum complex and Eco gum FK, that is, elements of organic farming.

Research Methodology. The purpose of this research is to develop a technology for the use of organic biological products on irrigated meadow soils of the Andijan region.

In addition, the purpose of the research is to study the biological products "Bel Universal Product" of the Eco sil series on the agrochemical properties of the studied soil, growth, development, as well as the yield of re-culture of sunflower.

Analysis and results. To determine the influence of biological products Eco sil 50 g / l, Eco sil complex and Eco sil FK on the agrochemical properties of irrigated meadow soils and increasing the fertility of irrigated meadow soils;

- To establish the influence of biopreparations on the growth, development and productivity of sunflower seeds;

- Calculate the economic efficiency of the payback of the use of these drugs when growing sunflower varieties Velia.

Methods for conducting field experience and agrochemical research. Field experiments for the solution of the post of tasks were carried out under the introduced conditions with the use of biological products in the irrigated meadow soils of the educational and experimental farm of the institute. The mechanical composition of the soil is medium loamy, very slightly saline. The groundwater mirror is located at a depth of 1.5 - 2.0 meters.

The experiments were carried out in 4-fold repetition consisting of 6 variants. The area of one plot is equal to 180 m² (25m X 7.2 m = 180 m²). All the counts, phonological observations and determinations carried out in the field studies were carried out according to the method of B.A. Dospekhov. (1964) "Methodology of field experiments" and Uznykh (2007) "Methodology of conducting field experiments". The

following analyzes were carried out in soil samples taken before laying the field experiment:

- The content of humus in the soil - according to the method of IV Turin;
- Total nitrogen, phosphorus and potassium - according to the method of Maltese and Gritsenko;
- Nitrate nitrogen of the soil - according to Grand Wald - Lyaju;
- Movable phosphorus - according to B.P. Machigin;
- Exchangeable potassium - on a flame photometer.

For chemical analyzes, soil samples up to 1 meter were selected layer by layer (0 - 30 cm, 30 - 50, 50 - 70 and 70 - 100 cm) and agrochemical analyzes were carried out in laboratory conditions.

The total nitrogen content in the arable horizon (0 - 30 cm) of the soil is determined to be 0.152%, and the smallest amount of nitrogen is in the 70 - 100 cm horizon and is equal to 0.023 percent.

The content of total phosphorus and potassium along the horizons of the profile also retains a regularity, as it was with total nitrogen. This is explained by the fact that these elements migrate little to the lower horizons of the soil, and the anaerobic process predominates in the lower horizons. This means that the microbiological activity of soils in the indicated horizons is low.

Table 1.

Agrochemical properties of the experimental site.

No. p / p	Depth layer, cm	Humus content, %	Content of gross nutrients, %			Content of plant nutrients, mg / kg		
			nitrogen	phosphorus	potassium	N- NO ₃	P ₂ O ₅	K ₂ O
1	0-30	1,60	0,152	0,142	1,75	19,8	30,6	200
2	30-50	1,03	0,092	0,120	1,47	10,2	21,5	180
3	50-70	0,42	0,039	0,057	1,03	3,9	10,0	175
4	70-100	0,27	0,021	0,021	1,04	next	7,3	175

Mobile nutrients in the soil before laying the field experiment were determined in the following quantities: nitrate nitrogen in the arable soil horizon is 19.8 mg / kg, mobile phosphorus is 30.6 mg / kg, and exchangeable potassium is 200 mg / kg of soil. As the above data show, the content of mobile nutrients in the soil: nitrate nitrogen corresponds to low-supply soils, according to the amount of mobile phosphorus to medium-supply, and the content of exchangeable potassium to low-supply soil.

In field studies, the annual rates of mineral fertilizers were applied according to the recommendations adopted for the given soil and climatic region. All agro technical activities for growing sunflower were also carried out with good qualities in optimal terms.

Research results. In order to achieve the set tasks and solve problems, we conducted field experiments with re-sowing of sunflower consisting of six variants in four replicates in irrigated meadow soils, Valya. plant varieties: Treatment with biological products Eosin 50 g / l, Eco hum complex and Eco hum FC sunflower re-

sowing were carried out 4 - times in the next phases of plant development, - the formation of 3-4 x true leaves, - phase 6 - 8leaves, - at the beginning of the star stage (leaf set) and - during the flowering period.

After the first treatment of sunflower plants in the phase of 3-4 true leaves, phonological observations of growth and development were carried out. According to the results of the survey, the height of the main stem and the number of leaves were determined: At the beginning of August (08/05/2019), comparatively better results for the height of the main stem were observed in option four, where Eosin was 50 g / l. Eco hum complex and Eco hum FK were used together (table 2). The above data show the use of these biological products positively influenced the growth of the main stem, that is, the height of the main stem of the sunflower, in variants 2, 3 and 4 was higher by 14.0 - 18.8 cm than in the control variant. In comparison with the local biological product, Gumi is 6.3 - 11.1 cm more. 9 cm lower than the variant plant - 4.

The average weight of the seeds of one basket according to the variants of the experiment also differ between the Saba, so the largest weight of the seeds was set on variant 4, where all three biological products were used together and was equal to 98.3 grams. The very minimum yield of sunflower seeds was determined on the control variant without the use of biological products, only 52.8 g. from one basket, this figure is 45.5 grams lower. than on 4 - option. The same pattern is observed in the percentage of seed yield, since it reflects the yield of seed grains as a whole, and here the smallest seed yield was determined in the control variant, only 19.1%.

Table 2.

The influence of biostimulants on the growth and structure of sunflower.

Options	Density of rasters, pcs / ha	Average plant height, cm.	St. Plant height, cm.	Wed weight basket + seeds, gr.	Wed weight of one basket, gr.	Seed yield,%	Weight of 1000 seeds, gr
1	56565	119,1	25,2	388,3	73,2	18,8	70,1
2	56566	152,0	22,6	286,7	55,8	19,4	65,0
3	56567	151,2	24,8	355,0	74,5	20,9	65,4
4	56568	156,0	28,9	413,1	98,3	23,8	90,0
5	56569	144,9	28,3	375	93,3	24,8	80,0
6	56570	137,2	22,1	276,6	52,8	19,1	63,1

In our study on the use of bio preparations "Bel Universal product" the best results the best results in terms of the weight of 1000 grains, positive results were observed again in the 4th variant, which was 90 g, which is 26.9 g more than in the control. It was noted that the same indicator was 10 g higher than the result with biologicals obtained from the variant in which the local drug Gumi was used.

Agrochemical measures used in agricultural production without fail ultimately affect the composition, properties of soil, yield of agricultural crops, quality of products and soil ecology, etc. Therefore, these results did not go unnoticed by us and we calculated their impact on the yield of seeds of re-crop sunflower after winter wheat.

For this, we separately collected and determined the yield of the field experiment for each repetition of the options. Preliminary data on the yield of sunflower are shown in Table 3.

According to the data obtained on the average yield of the variants, the comparatively highest yield was observed in option four, where the biological products Ecosil 50 g / l, Eco gum and Eco gum FC were used in situ and amounted to 5.55 t / ha. This indicator, in comparison with the control option, is higher by 2.57 t / ha, and in comparison with the local preparation Gumi, it is 0.48 t / ha.

Table 3

Primary data on the effect of bio stimulants on sunflower yield.

No.	Variants	Yield c / ha				Avg. yield c / ha	Increase in yield c / ha
		I-repeat	II-repeat	III-repeat	IV-repeat		
1	Eco forces 50 g / l	41,1	41,5	41,4	41,6	41,4	11,60
2	Eco GUM complex	31,0	31,6	31,7	31,3	31,4	1,60
3	Eco GUM FC	42,0	41,7	42,4	42,3	42,1	12,50
4	Eco forces 50 g / l, Eco GUM complex, Eco GUM FC	55,3	55,8	55,5	55,4	55,5	25,6
5	Gumi	52,5	52,9	52,6	52,8	52,7	22,90
6	Control	29,5	30,2	30,1	29,3	29,8	-

Among the experimental options, in addition to the control option, a relatively low yield indicator is observed in option 2, where one Eco gum complex was used and is equal to 3.14 t / ha. Here, an additional yield of sunflower seeds of 0.16 t / ha was obtained.

Conclusion. Based on field experiments with sunflower, the following preliminary conclusions can be drawn:

-Use of biological products produced by the company “Bel universal Product” in the Republic of Belarus in combination with mineral fertilizers has a positive effect on the amount of nutrients in the soil. The increase in mobile nutrients in the soil creates an opportunity for the growth, development and harvest of sunflower seeds.

-The joint use of all biological products can increase the yield of sunflower. In the experimental variants, due to the use of the preparations, an additional yield of 11.6 - 25.6 c / ha was obtained in comparison with the control variant.

- Based on the initial results, we believe that the combined use of 50 g / l Eco sil, Eco gum complex and Eco gum FC biological products in sunflower growing will provide good results.

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UDC 63.001.76

IMPROVING THE NUTRITIONAL BALANCE OF SOILS WITH THE HELP OF FEEDING OF WINTER WHEAT AND RETRACTED CORN

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Abstract. The norms of mineral fertilizers applied on re-crops to corn sown after winter wheat and fed with different rates depending on soil conditions have been scientifically substantiated, and the optimal effect on soil fertility in farms located in the area of irrigated light gray-earth soils in the Andijan region has been studied.

Keywords. Light gray earth soils, soil fertility, rates of mineral fertilizers, winter wheat, re-culture - corn.

Аннотация. Научно обосновано нормы минеральных удобрений вносимых на повторной культуре кукурузе посеянной после озимой пшеницы подкормленной разными нормами в зависимости от почвенных условий и изучено оптимальное влияние на плодородие почвы в хозяйствах размещенных на ареале орошаемых светлых сероземных почв Андижанской области.

Ключевые слова. Светлые сероземные почвы, плодородие почвы, нормы минеральных удобрений, озимая пшеница, повторная культура - кукуруза.

Аннотация: Андижон вилоятининг суғориладиган оч тусли бўз тупроқлари ареалида жойлашган хўжаликларда тупроқ шароитига кўра турлича меъёрларда озиклантирилган кузги ғалладан кейин экиладиган маккажўхорини ўғитлаш меъёрлари илмий асосланиб, тупроқ унумдорлигига макбул таъсири ўрганилган.

Таянч сўзлар: оч тусли бўз тупроқлар, тупроқ унумдорлиги, маъдан ўғит меъёрлари, кузги буғдой, такрорий экин – маккажўхори

Introduction. Crop yield is highly dependent on the ratio of plant, soil and fertilizer. In addition to achieving high yields using mineral fertilizers, it is important to determine the most efficient crop standards and maintain and improve soil fertility using these standards.

Since the early years of independence, winter wheat has been grown on more than 1 million hectares of irrigated land in Uzbekistan. It is important to grow a second crop using irrigated land freed from wheat. However, in order to increase soil fertility, planting several different crops and developing the most effective methods for feeding them is one of the most important tasks, since crop nutrition standards and other agrotechnological elements serve not only to grow abundant crops, but also to maintain and increase soil fertility. this is the big question of the day.

Literature review. According to the experiments of B.M. Khalikov on agrotechnics and other measures on winter crops, at the end of the growing season,

winter wheat left 1.18-1.65 t / ha of manure, 2.18-2.66 t / ha of root residues when re-sowing. per month these indicators were 0.64-0.95 t / ha and 1.17-1.94 t / ha, respectively.

It should be noted that in our country, almost no scientific research has been carried out on the preservation of soil as a secondary crop, maintenance and relative increase in soil fertility, depending on the rates of applied mineral fertilizers and economic efficiency by reducing the amount of fertilizers used in cereals and legumes.

Research methodology. In the complex of measures to increase soil fertility and yield, fertilization on a scientific basis is of paramount importance, and in this case the planned yield is achieved, which leads to an optimal balance of nutrients in the soil.

Productivity largely depends on soil fertility and the type of crops grown in the pit. Therefore, it is advisable to select and grow on the basis of biological needs, taking into account the characteristics of secondary crops. In our scientific research, winter wheat + transplanted corn; The study of the norms of mineral fertilizers of winter wheat crops + repeated sowing-mosh (in turn 1: 1) is also one of the urgent problems of the day. Since corn is a nutrient-demanding plant, when planting the main crop, 250-300 kg of nitrogen, 150-200 kg of phosphorus and 120-150 kg of potash fertilizers are applied per hectare. However, in our study, since this crop was planted on repetitive, that is, on backgrounds created after winter wheat, we used three different fertilizer standards to determine the optimal doses of mineral fertilizers.

Depending on the three different fertilizer standards applied to winter wheat and the amount of manure and root residues it leaves in the soil, 3 backgrounds were created in the field experiments, and the transplanted corn applied three different fertilization standards to these backgrounds: N120:P90:K60 kg / ha, N180:P120:K90 kg / ha and N240:P:160 They are planted to obtain a grain yield with the introduction of K120 kg / ha.

Table 1.

Expanded experiment system

backgrounds	Crop types						
	Autumn wheat			The order of options	corn		
	N	P	K		N	P ₂ O ₅	K ₂ O
I	120	80	60	1	120	80	60
				2	180	120	90
				3	240	160	120
II	180	120	90	4	120	80	60
				5	180	120	90
				6	240	160	120
III	240	160	120	7	120	80	60
				8	180	120	90
				9	240	160	120

Analysis and results. Experiments were carried out in a new field every year for three years, but it was still observed that the scientific data obtained over the years were close to each other. Therefore, we limited ourselves to describing the indicators of the second year.

Therefore, N120 in corn sown after winter wheat; P90; In the variant with K60 kg / ha, the total humus content in the upper (0-30 cm) and lower (30-50 cm) soil layers at the end of the application period was 1,008-0,098%, which is 0.001% higher than before the first sowing winter wheat. This was found to be 0,002% higher than post-war wheat, as it was relatively low at the end of the winter wheat application period.

This means that soil fertility was restored, albeit marginally, after re-sowing maize, with a slight decrease in soil fertility after winter wheat, which is still a consequence of hulls and root debris left behind by winter wheat and not maize. Under the influence of the experimental fertilizers applied for corn, it was found that the content of total nitrogen in the soil is 0,098-0,088%, phosphorus 0,132-0,118 and potassium 1,760-1,657%. These indicators were also analyzed for their slight improvement over their baseline.

Mineral fertilizers N180:P120. With an increase in K90 kg / ha, the amount of total nitrogen, phosphorus and potassium increased by 0,1-0,1%, while the amount of humus remained practically unchanged. Fertilizers N240 have similar indicators; P160; It turns out when using K120 kg / ha.

Mineral fertilizers N120 in corn on the background of II, created after winter wheat; P90; In option 4, with the introduction of K60 kg / ha, it was found that the total humus content in the soil layers 0-30 and 30-50 cm was 1010-1097%, respectively, and increased by 0,004-0,000% in comparison with post-war wheat. This situation testifies to the optimal accumulation of root and root residues remaining in the soil under the influence of mineral fertilizers applied under winter wheat. In this variant, the total nitrogen was 0,098-0,089% in relation to the soil layers, phosphorus – 0,134-0,120, potassium – 1,760-1,657%. These numbers show an increase of 0,000-0,002%, 0,003-0,002% and 0,001-0,001%, respectively, from baseline.

Comparing the differences between options 1 and 4, in which the same amount of mineral fertilizers was applied on the I-background and II-background created after winter wheat, the humus content in the 0-30 cm soil layer was 1,008-1,010%, nitrogen 0,098-0,098% in proportion. In options 1 and 4, phosphorus was 0,132–0,134% and potassium 1,760–1,760%, with a slight increase in humus and an increase in total phosphorus, which, we assume, depends on the fertilizer standards used for winter wheat against this background.

Mineral fertilizers H-180 against background II were relatively acceptable indicators in the experiment; P120; K90 kg / ha was observed in option (5), where the total humus content was 1,010-1,098% in relation to the soil layers, the total nitrogen content was 0,101-0,090%, phosphorus 1,135-1,121 and potassium 1,760-1,659%. These indicators were 0,003-0,000%, 0,003-0,003%, 0,004-0,003 and 0,001-0,003% higher than the pre-sowing state of winter wheat.

This means that for winter wheat and corn, when mineral fertilizers are applied in acceptable doses (N180:P120:K90 kg / ha), the decomposition of humus in the soil decreases, we can say this, the amount of nutrients slightly increases or remains soil fertility.

In winter wheat and maize, when mineral fertilizers are applied in relatively high doses (N240:P160:K120 kg / ha), the decomposition of humus is accelerated, which leads to a slight increase in total nitrogen, but a decrease in the content of soil

organic matter from - by increasing the absorption of other elements by plants. Mineral fertilizers N240:P160; With K120 kg / ha in option 9 against background III, the amount of humus (by 0-30 cm) at the end of the application period of corn decreased by 1,007%, nitrogen by 0,001%, potassium by 0,001%, while only total phosphorus increased by 0,01%.

Conclusion. Based on data on changes in the total content of nutrients in the soil, under conditions of light gray soils of the Andijan region in a market economy and intensive agricultural technology to preserve and improve soil fertility, obtain high-quality grain and green mass of agricultural crops, mineral fertilizers N180:P120:K90 kg / ha, N180 in re-sowing corn; P120:K90 kg / ha is recommended.

Thus, according to the results of field studies with the introduction of mineral fertilizers in different doses (3 species) under winter wheatgrass varieties "Krasnodar - 99" in conditions of light gray-earth soils of the Andijan region showed that with an increase in doses of mineral fertilizers from N120:P80:K60 kg/ha to N-180:P120:K90 kg/ha improved agrochemical properties for plant growth and development.

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UDC 633.11/631.816.1

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Аннотация: Республикамизни тупроқ-иқлим шароитлари суғориладиган ерлардан бир йилда икки марта дон ҳосили ва чорвачилик учун тўйимли озиқа олишга, такрорий экинларни кузги буғдойдан кейин экиш тупроқ унумдорлигини яхшилашда қулай шароит яратади. Айниқса дуккакли экинлардан мош, ловия соя ўсимлиги нафақат тупроқ унумдорлигини оширибгина қолмасдан чорва хайвонлари учун тўйимли озуқа ҳисобланади. Яъни тажрибада мош ўсимлигини донида (15,2 ц/га) 1991,1 кг/га, пичанида (32,2 ц/га) 1032,3 кг/га ҳаммаси–3023,4 кг/га озиқа бирлиги ҳамда 443,8 кг/га ва 89,8 ҳаммаси 533,6 кг/га протеин борлиги аниқланди.

Таянч сўзлар: дуккакли экинлар, унумдорлик, мош, соя, илдиз ва анғиз қолдиқлари, озиқа унсурлари, озиқа бирлиги, кузги буғдой, хазим бўлувчи протеин, ҳаракатчан азот, ҳаракатчан фосфор, ҳаракатчан калий, ялпи азот, маккажўхори, ҳосилдорлик, ўтлоқи соз тупроқ, пичан ҳосили.

Аннотация: Почвенно-климатические условия страны создают благоприятные условия для получения зерна и питательного корма для скота два раза в год с орошаемых земель, посев второстепенных культур после озимой пшеницы создает благоприятные условия для повышения плодородия почв. В частности, бобовые, пюре, фасоль и соя не только повышают плодородие почвы, но и являются питательным кормом для скота. Иными словами, в эксперименте было выявлено, что в затормозном зерне (15,2 ц / га) 1991,1 ц / га, в затормозном сене - (32,2 ц / га) 1032,3 кг / га, всего 3023,4 кг. / га питательной единицы, а также было определено 443,8 кг / га и 89,8 кг / га белка, соответственно, и всего 533,6 кг / га белка.

Ключевые слова: бобовые, плодородие, сусло, соя, корневые и стерневые остатки, элементы питания, единица питания, озимая пшеница, легкоусвояемый белок, подвижный азот, подвижный фосфор, подвижный калий, валовой азот, кукуруза, урожайность, луговая почва, сенокос.

Abstract: The soil-climatic conditions of the country create favorable conditions for obtaining grain and nutritious food for livestock twice a year from irrigated lands, sowing of secondary crops after winter wheat creates favorable conditions for improving soil fertility. Especially from legumes, mash, beans and soybeans not only increases soil fertility, but is also a nutritious fodder for livestock. In other words, in the experiment, it was revealed that in mash grain there is (15,2 c/ha) 1991.1 kg/ha, in mash hay – (32.2 c/ha) 1032.3 kg/ha, a total of 3023.4 kg/ha of the nutrient unit, and it was also determined 443.8 kg/ha and 89.8 kg/ha of protein, respectively, and a total of 533.6 kg/ha of protein.

Keywords: legumes, fertility, mash, soybeans, root and stubble residues, nutrient elements, nutrient unit, winter wheat, digestible protein, mobile nitrogen, mobile phosphorus, mobile potassium, gross nitrogen, corn, yield, meadow soil, hay harvest

Introduction. As we know, from the first years of independence in our country, the land issue has risen to the level of state policy. Because the land is the greatest wealth of the people, the state, the source of our livelihood, the continuity of our descendants, the backbone of our country. At the same time, one of the most important factors in strengthening the independence of the republic, increasing its economic potential, bringing it into the ranks of strong developed countries is the efficient use of available land resources, maintaining, increasing and restoring soil fertility.

In order to use irrigated lands efficiently, it is necessary to develop and introduce into production agro-techniques for resowing a large number of grain, fodder, oilseeds and other crops.

Planting legumes as a secondary crop is important because these plants solve the problems of grain, protein and oil. In addition, the high annual temperatures in the country, the use of accelerated soil cultivation during cultivation of crops, as well as the cultivation of crops under irrigation conditions leads to the rapid depletion of the natural reserves of humus accumulated in the soil. As a result, the biological properties of the soil deteriorate, the microorganisms that cause bacterial and fungal diseases increase in the soil, and the yield of crops decreases. The role of alfalfa in maintaining and improving soil fertility, in obtaining high yields from crops, in effective crop

rotation is endless. However, the area under alfalfa has declined sharply in recent years. In addition, the widespread introduction of intensive technologies (winter wheat sowing after repeated sowing) is a guarantee of high-quality grain production on irrigated lands. Growing grain on the basis of this technology requires the simultaneous growth and development of the plant to provide all the factors. The effective use of irrigated land throughout the year allows not only to increase productivity, but also to increase soil fertility, improve the dangerous conditions associated with this. However, agro-technical measures in the agriculture of the republic, in particular, the nutritional standards of cereals, are not determined depending on the amount of residual roots left by secondary crops in the soil. Therefore, we conducted field experiments to study the productivity of secondary crops (corn, mash, beans and soybeans) in the conditions of meadow soils of the Ferghana region and the effectiveness of the application of fertilizer norms in winter wheat planted after them.

Literature review. The content of the issue. Field experiments were conducted at the Fergana branch of the Uzbek Cotton Research Institute. In the field experiment with repeated sowing, there are 5 options, each option with a total area of 720 sq. m and the estimated area of 360 sq. m, in the field experiment with winter wheat, 15 options were planted, the area of each plot is 240 sq. m, the calculation area is 120 sq. m. Experimental options were performed in 4 repetitions in 1 tier.

The soil-climatic conditions of the country create favorable conditions for obtaining grain and nutritious food for livestock twice a year from irrigated lands, sowing of secondary crops after winter wheat creates favorable conditions for improving soil fertility. [1]

In our study, we determined the nutrient units and the content of the digested protein in the grain, green mass (corn) and hay (mash, soybeans) repeated crops. It was revealed that in three years in corn grain there is (38,2 c/ha) 5042,2 kg/ha, in corn stem – (307,3 c/ha) 4837,3 kg/ha, a total of 9879,5 kg/ha of the nutrient unit, and 297,5 kg/ha and 338,9 kg/ha of protein, respectively, and a total of 636,4 kg/ha of protein.

It was revealed that in mash grain there is (15,2 c/ha) 1991.1 kg/ha, in mash hay – (32.2 c/ha) 1032.3 kg/ha, a total of 3023.4 kg/ha of the nutrient unit, and it was also determined 443.8 kg/ha and 89.8 kg/ha of protein, respectively, and a total of 533.6 kg/ha of protein.

Nutrient units and the content of digestible protein in grain (kg/ha), stems and hay of secondary crops

Option	Secondary crops	Grain yield, centner/ha	Hay yield c / ha	Feed unit per 1 ha		Total	Amount of digestible protein, kg		Total
				In grain	In stem and hay		In grain	In stem and hay	
1	Control	-	-	-	-	-	-	-	-

2	Corn	38,2	307,3	5042,2	4837,3	9879,5	297,5	338,9	636,4
3	Mash	15,2	32,2	991,1	1032,3	3023,4	443,8	89,8	533,6
4	Beans	12,3	12,3	1611,2	393,4	2004,6	357,9	39,3	397,2
5	Soybean	23,5	33,5	3078,4	1071,6	4150,0	687,2	93,5	780,7

It should be noted that during the growing season the corn plant absorbs 200-250 kg/ha of nitrogen from the soil, so its nutrient content and digestible protein content in grains and stems were found to be 6856.1 kg/ha and 102.8 kg/ha higher, respectively, than that of mash. This means that corn is a nutritious food for cattle. . [2]

The nutritional unit content in bean grain was 1611.2 kg / ha, and in hay (393.4 kg / ha), and the amount of digestible protein was 357.9 kg / ha and 39.3 kg / ha, respectively.

It should be noted that among the secondary crops, beans were characterized by low yields and low nutrient content, protein content.

It was revealed that in soybean grain there is (23.3 c/ha) 3078.4 kg/ha, in hay (33.5 c/ha) 1071.6 kg/ha, a total of 4150.0 kg/ha of nutrient units and, respectively, 687, 2 kg/ha and 93.5 kg/ha - a total of 780.7 kg/ha of digestible protein.

This means that for livestock, soybeans rank 2nd after corn in terms of nutritional value, but it is not possible to draw a complete conclusion without studying the stubble and roots residues that left in the soil.

It is known that any agricultural crop removes a significant amount of nutrients from the soil during the growing season. Once the plants have been harvested, a certain amount of nutrients remain in their root and stubble residues. In addition, the remnants of secondary crops quickly decompose and become inorganic matter. [3]

In our study, when we studied the amount of stubble and root residues in the soil of secondary crops planted for 3 years, after corn, an average of 17.2 c/ha of stubble residues and 35.0 c/ha of the root residues (a total of 52.2 c/ha) were found in a layer of 0-50 cm of soil.

It was found that mash plant can leave an average of 11.8 c/ha of stubble residues in 3 years and 29.8 c/ha and 3.9 c/ha of root (total 45.5 c/ha) residues, respectively, in layers of 0-30 and 30-50 cm of soil.

A relatively smaller number of indicators were obtained for bean residues - 8.9; 21.5 (0-30 cm) and 2.5 kg / ha (30-50 cm), a total of 32.9 kg / ha.

From soybean, an average of 10.4 c/ha of stubble, 32.0 c/ha of roots and a total of 42.4 c/ha of residues were observed per hectare.

When the amount of nutrients accumulated in the mass of these residues was studied, 20.8 kg of nitrogen, 9.5 kg of phosphorus and 12.8 kg of potassium were left after one hectare of corn. However, the corn plant absorbs 200-220 kg / ha of nitrogen. It is therefore necessary to pay attention to the norms of fertilization of the plant to be planted later. But it has been written before that corn is a great food crop for livestock.

It was found that the root and stubble residues of the mash plant accumulated an average of 71.0 kg/ha of nitrogen, 51.0 kg/ha of phosphorus and 60.9 kg/ha of

potassium in an average of 3 years. This creates good nutritional conditions for the winter wheat that is then planted.[4]

So, among the secondary crops, the one that leaves the most nutrients is the mash plant. It was followed by soybeans, beans and finally corn.

In addition, there are reports in the literature that legumes accumulate biological nitrogen in the soil under the influence of nodule bacteria.

It was found that the root and stubble residues of beans and soybeans leave 30.7 kg of nitrogen, 11.8 kg of phosphorus, 21.0 kg of potassium and 45.7 kg of nitrogen, 16.7 kg of phosphorus, 30.5 kg per hectare of land potassium, respectively.

When we determine the nutrient content in the stubble and root residues left over from winter wheat sown after repeated sowing, it was found that more stubble and root residues were 15.5 and 19.3 kg/ha, respectively, compared to the control variant, when fertilizers N -200, P-140, K-100 kg/ha were used in moderate amounts, and the amount of NPK in them, respectively, 1570; 0.930 and 2.130%.

The root and stubble residues of winter wheat sown after corn were 35.3 c/ha. 1.715% of total nitrogen, 1.080% of phosphorus and 2.180% of potassium were found in them.

High results in this regard were obtained from winter wheat sown after mash. In the variant where fertilizers N-150, P-105, K-75 kg/ha were applied normally, the root and stubble residue was 39.8 c/ha. They were found to contain 2,000% total nitrogen, 1,200% phosphorus and 2,280% potassium.[6, 10p]

These values were 5.0 c/ha, 0.430%, 0.720% and 0.90%, respectively, compared with the control and 4.5 c/ha 0.285%, 0.130% and 0.100%, respectively, in wheat after corn. . [5]

In winter wheat grown after re-sowing mash, the fertilizer rate of N-150, P-105, K-75 kg/ha was acceptable, and a relatively large number of root and stubble residues were collected, which contained the more common NPK forms.

One of the main factors in maintaining and increasing soil fertility is the rotation of these crops. In addition, the application of optimal standards of organic and mineral fertilizers is also important in this regard. Therefore, the main goal of our research is to determine the effect of mineral fertilizer application rates on soil fertility on repeated plantings and winter wheat.

If the humus content in the (plowed) soil layer of 0–30 cm was 1.940% before the start of the experiment and 1.670% by 30–50 cm, then in the control variant (wheat planted after wheat) at the end of the experiment (after 3 years), the humus content was 1770 ; 1780 and 1760%, respectively (N-150, P₂O₅-105, K₂O-75 kg/ha; N-200, P₂O₅-140, K₂O-100 kg/ha and N-250, P₂O₅-175, K₂O-125 kg/ha). Relatively high values (1,780 %) were observed with the use of N-200, P₂O₅-40, K₂O-100 kg/ha. This is 0.160% less than the initial state. This means that if wheat is planted after wheat, the amount of humus in the soil is found to decrease from year to year. Even in the underlying plowing layer, a slight decrease in the humus content was observed, which is mainly associated with the mineralization of humus and the assimilation of plants.

In the variant in which winter wheat was planted for three years after corn, a decrease in the amount of humus from the initial state was observed, regardless of fertilizer norms. These fertilizer norms were observed when N-250, P₂O₅-175, K₂O-

125 kg/ha were applied, but this was also 0.110% less than the initial condition and 0.05% higher than the control.

In the experiments, relatively high values of humus content were observed when winter wheat was planted after mosh plant and fertilizers N-150, P₂O₅-105, K₂O-75 kg/ha were applied. This is 0.050% higher than the initial state and 0.210% higher than the control; 0.160% higher than the corn variant.

As a result of planting winter wheat after soybean, the amount of humus was found to be higher than in the control, corn and bean planted options, but lower than in the mash planted options.

In the variant planted after soybean, the humus content was 0.009% higher than in the initial case (0-30cm), 0.169% higher than in the control, 0.119% higher than in the corn variant, and 0.026% higher than in the bean variant..

Changes in total nitrogen and phosphorus were also found to replicate humus data on variants.

This means that when moss is planted as a secondary crop and then winter wheat is sown, when fertilizers were applied in quantities of N-150, P₂O₅-105, K₂O-75 kg/ha, it was found that soil fertility improved compared to the initial state, this situation was also observed after soybean planting, when wheat was sown after corn (wheat), and a relative decrease in soil fertility was found.

Secondary crops also had a positive effect on the mobile nutrients in the soil. Studies have shown that the amount of nitrate nitrogen in the soil at the end of the growing season of winter wheat in 2013 (June) was 17.0 mg/kg in the initial state of nitrate nitrogen in the plowed layer (0-30 cm), whereas in the control version at the end the period of application of winter wheat, N-150, P₂O₅-105, K₂O-75 kg/ha and N-200, P₂O₅-140, K₂O-100 kg/ha and N-250, P₂O₅-175, K₂O-125 kg/ha were 17,8; 18,0 and 19.2 mg/ha, respectively, when used in moderation. In 2014 and 2015, these figures were 18.2; 19.5; 19.8 and 19.0, 20, 21.2 mg/kg, respectively. Thus, it was found that the amount of nitrate nitrogen increased slightly, even with increasing fertilizer standards, even when winter wheat was sown again after winter wheat, instead of re-sowing crops. In these options (1-3), relatively high amounts of nitrates in the norm of N-250, P₂O₅-175, K₂O-125 kg/ha used in option (2015) are 21.2 mg/kg, it was noted that assimilation for plant development increased by almost 4.2 mg / kg from the initial state. . [6]

In the case of winter wheat planted after corn (4-6), optimal conditions were created when N-250, P₂O₅-175, K₂O-125 kg/ha were used in moderation, and the nitrate content according to the years of research was 18.1, 19.0 and 21.8 mg/kg, respectively. This last (2015) figure was only 0.6 mg/kg higher than the control.

Conclusion. From the above data, we can conclude that if winter wheat is planted again after winter wheat, the nutritional conditions will be created as if it was planted after corn. In both cases, high amounts of nitrate nitrogen were detected when applied N-250, P₂O₅-175, K₂O-125 kg/ha. However, it should be noted that in the control, the norms of fertilizers N-200, P₂O₅-140, K₂O-100 kg/ha had an optimal effect. In all other variants, relatively large amounts of nitrate nitrogen were observed when high fertilizer standards were applied.

When we analyzed humus, a key indicator of soil fertility, it was concluded that the most favorable conditions were observed in winter wheat planted after the mash plant. However, a relatively high amount of nitrate nitrogen was observed at the end of the growing season of winter wheat planted after soybean production and in 2015 it was 25.5 mg/kg. In winter wheat planted after mash, the figure was 24.5 mg / kg. We express this situation by the fact that the plants assimilate more nitrate nitrogen in this (9 var.) variant.

To maintain and increase soil fertility, it is advisable to plant mash or soybean as a secondary crop in meadow loam soils, and then to plant winter wheat using optimal fertilizer standards.

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UDC 338.439

PROBLEMS OF FOOD SECURITY IN CENTRAL ASIA REGION

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Абстракт: в настоящее время раздробление сельско-хозяйственного производства и продовольственной промышленности в Центрально-Азиатском регионе создает проблемы для продовольственной безопасности. Создавшейся ситуация требует создание новых систем для продовольственной безопасности. Это должно включить внедрение Западноевропейских стандартов продовольствия для товаров и улучшение рыночной инфраструктуры.

Ключевые слова: продукты продовольствия, ценовые колебания, дефицит воды, производительность сельского хозяйства.

Абстракт: Бугунги кунда кишлок хўжалиги ишлаб чиқаришини ва саноатини ўзаро алоқаларини узилиб кетиши минтақада озиқ-овқат хавфсизлиги учун муаммолар келтириб чиқармоқда. Вужудга келган вазият озиқ-овқат хавфсизлиги учун янги тизимларни тақозо этмоқда. Бу тизим ўз ичига озиқ-овқат маҳсулотлари учун Европа Иттифоқи стандартларини жорий этиш ва бозор инфратузилмасини такомиллаштиришни ўз ичига олмоғи лозим.

Калит сўзлар: озиқ-овқат маҳсулотлари, нарх тебранувчанлиги, сув тақчиллиги, кишлок хўжалиги унумдорлиги.

Introduction: To the end of XX century food security problems in developing countries became one of the most actual issues of social – economic development. The main reason for the appearance of this problem is low agriculture productivity, water resources deficit as a result of climate change, and price volatility of foodstuffs because of the increasing demand for food primary products as a result of using of biofuel in advanced countries. Besides, Improving of the technology of product growing is basic factor for increasing product volume in order to ameliorate of ensuring world people with food staffs [1]. Under the present circumstances it is necessary to work out preventing measures of food insecurity in the Central Asia region, In this paper, we shall consider some problems of food security in Central Asia countries and to suggest possible solutions to them.

Literature review. A concept of food security had been developed in the early 70th years of 20 century when food crisis seriously affected on social-economic situation in many countries of the world. At present time, accordance of an opinion Maxwell and Smith, food security has more than 200 definitions [8]. UN FAO organization characterizes food security as: "food security is - availability of foodstuff in terms of physic volume and economic accessibility for a normal lifetime of the peoples"[2]. Though physics availability is considering as the production ability of the country and its' importing from abroad, in the conditions of market economy it depends on the relative advantage of national production and its' productivity. However, in many cases, this opinion is forgetting because nowadays foodstuffs normal accessibility not only productivity in farm facilities, but a volume of added cost. The added cost of foodstuff is forming in processes of storing, packing, transporting, and selling. It means that country may produce foodstuffs in enough volumes but the low quality of infrastructure may cause its physical deficit.

Accordance of the United Nations approach, food security described in the next terms – “Every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop fully and maintain their physical and mental

faculties”[10]. This approach pays attention on the necessity of ensuring equal access to foodstuff in the worldwide and to avoid discrimination.

Research methodology. The research works of some researchers, showed sharp heightening prices of foodstuff during 2008-2009 years and made different comments. A professor of the Trento University of Italy K.L.Gilbert after observing prices of 5 main food products (wheat, maize, palm oil, rice, and soya bean) for 1991-2011 years did the next conclusions. Initial growth of the prices happened between 1995-1998 years and the growth rate consisted 50% with comparing 1991 year [7]. Though prices of soya bean and rice rose with relatively low rates, other product prices heightened fast and were high. Nevertheless, next years' prices getting down and by 2000 they had a stable level. Even, in 2001-2002 years they got a low level. But, in 2004-2005 years they began growing again. In 2006-2007 years prices getting down relatively and rose sharply in 2008-2009 and with comparing of 2000 years heightened 2,5 times. This situation is illustrated in the below table statistical data. It is possible to see from statistical data of the above-illustrated table, price levels growth rates only between 1999-2000 and 2005-2006 years were lowest. But in crisis years were significantly high. So, foodstuffs price volatility nowadays the main threat to the food security of Central Asia region countries.

Price volatility dynamics of some food products

Years	Maize	Palm oil	Rice	Soya been	Wheat
1971-74/1974-75	22,4%	38,9%	22,7%	34,0%	33,7%
1999-2000/2005-06	15,8%	23,3%	11,5%	19,9%	16,2%
2006-2007/2010-11	28,5%	31,8%	28,0%	24,7%	32,4%

Source: Gilbert Christopher L, 2011, Food reserves in developing countries: trade policy options for improved Food security, ICTSD Program on Agricultural Trade and Sustainable Development, Issue paper № 37.

If to look at the problem theoretically, a solution to this problem seems importing from abroad food products. Because of in advanced countries foodstuffs stores very huge. However, foodstuffs import depends on the country's payment balance situation. If a country has enough currency for paying import food products it may satisfy its demand to count foreign products. But, last years' increasing volatility of foodstuffs on the world markets cat downing possibility of baying food products for developing countries in guaranteed volumes. In such cases some countries try to organize food production by taking land for rent in foreign countries though some of them have enough financial resources for import. For example, China took the land for lease in the Africa continent and Tajikistan, and Arab countries of the Persian Gulf in Ukraine for increasing food production and guaranteed import.

Food product production can't satisfy internal demand in the Central Asia region. That is why they must import some foodstuff from abroad. However, price volatility makes them sensitive to the negative circumstances of the price policy world market. First of all, income lack brings to the deficit of food products import. This situation shows itself differently in countries of the region. This situation is conditioned with very bad food production capacities of the region – Tajikistan and Kirgizstan. For last years these countries added by international organizations to the list of low food sufficiency states of the world. The poverty level in other states of the region is lower but scale big. Though, per capita income growth, but its rates low, and stability is missing [3].

For example, Kazakhstan is one of the leading producers of wheat in the Central Asia region and world. Today's Kazakhstan faces the problem of getting access to the world markets of wheat. Kazakh companies have transit problems because of transportation wheat through Russian and Ukraine territories. But, high prices of the world markets stimulate Kazakh companies' interest in wheat export by comparing the regional market. This case causes a wheat deficit in the Central Asia region. Neighboring Kirgizstan state adapted to import hard sort of wheat flour and national production disappeared. As a result, Kazakh companies' interest in the world markets brings to losses of Kirgiz consumers from hard sort wheat flour. Attempts of organizing local production don't give waited for results. Because Kirgiz farms have had specialized to growing cheapest sorts of wheat. Some countries of the region try to stimulate the production and consumption of local wheat. For example, the Turkmenistan government pushes slightly consumers to buy local wheat but this policy doesn't give a positive impact. Besides Kazakhstan, no one in the Central Asia region has favorable natural conditions for growing high-quality wheat. Neighbor countries of Kazakhstan don't have historically formed experience of growing hard wheat and their product hasn't comparative advantages and non-competition able.

The economic accessibility of food products is a function of income and its justice distribution. If there are many poor people or destitute is very big in the country, so some peoples who are underfed will be too much. Some specialists for solving this problem suggest increasing the income of the population and rising prices for farm products. But, price rise brings to the limitation of the urban population consumes. A conclusion from this situation is that in agriculture it is possible to raise the income of employed people only by increasing the productivity of production factors [4]. Production factors productivity raise supposed introducing new technologies into the practice of farms. In ones turn new productive technologies oust labor from agriculture production and make contributions to unemployment increasing. Some unemployed peoples can find job places in other branches but many of them will migrate to cities. It means that the hungry problem of rural replacement to the cities. Finally, the low quality of food products is a barrier to its physic and economic accessibility. That is why improving the quality of food products and upgrade the security level is another important element of food security.

In Turkmenistan and Uzbekistan, the main competitor of wheat growing is cotton. Because income received from cotton export is gross than wheat. This situation is very actual for Turkmenistan because it grows cotton thin fiber and its price high. In

this situation, it is naturally low state attention to the wheat growing. In the former Soviet Union times, Kazakhstan and Kirgizstan were big producers of meat in the region. In the process of market reforms of agriculture, big farms were liquidated totally and despite government attempts to increase meat production, all countries import meat from other countries. Milk production is mainly concentrated in households. But this situation is creating serious problems in product security. Besides, fruits and vegetables also traditionally producing in households and they don't observable security standards. Import exists only for big cities.

The main problem of the region – Central Asia region states has a very low level of agriculture production among post-Soviet countries and growth rates too very low. Thus, without serious attempts on reforming agriculture food security problems can't be solved. Countries of the region don't have the necessary economic potential for increasing food production and organizing its export. In this case, the optimal way of problem-solving is to improve the productivity of agriculture products small producers. This matter claims of developing special institutes of infrastructure. They will occupy distribution skills, improve marketing infrastructure, wholesale markets, and create milk collectors, small slaughterhouses, and controlling the quality of raw materials. These measures require legislative bases and preparation specialists.

Conclusions

1. At present time in the Central Asia region fragmentation of agriculture production and food industry creating problems for the food security of the countries. This situation requires developing additional systems of food security. Control the quality of food products producing by households' claims introducing adapted to world advanced countries like EU level quality control measures and improving market infrastructure.

2. Food products' production can't satisfy internal demand In the Central Asia region, This situation conditioning import some foodstuff from abroad. However, price volatility makes them sensitive to the negative circumstances of the price policy world market. First of all, income lack brings to the deficit of food products import. Price volatility threat is main source food insecurity in Central Asia region.

3. Main milk producers are households. Households' milk production is creating serious problems in product security. And, fruits and vegetables also traditionally producing in households and they don't observable security standards. Only big cities able to import foodstuffs.

4. An economic potential of the region countries isn't enough for increasing food production and organizing its' export. The most optimal way of problem-solving is seeming improving the productivity of agriculture products small producers. This matter claims of developing special institutes of infrastructure for improving distribution missing skills and know-how and market infrastructure performance.

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UDC: 338.1

ISSUES OF EFFECTIVE MANAGEMENT OF FOOD MARKETING IN AGRICULTURE OF UZBEKISTAN

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Аннотация: Ушбу мақолада Ўзбекистон қишлоқ хўжалигида озиқ-овқат маҳсулотларини етиштириш, истеъмолчиларга энг қулай шартларда етказиб беришни ташкил этиш ва уни такомиллаштириш, қишлоқ хўжалик маҳсулотлари етиштирувчи субъектлар фаолиятига маркетинг бошқарув тизимини жорий этиш каби масалалар ёритилган.

Калит сўзлар: Маркетинг, озиқ-овқат, экспорт, нарх, самарадорлик, барқарорлик, воситачилар, сотиш, товар ҳаракати

Аннотация: В статье рассматриваются такие вопросы, как выращивание продуктов питания в сельском хозяйстве Узбекистана, организация и улучшение снабжения потребителей в наиболее выгодных условиях, внедрение системы управления маркетингом в деятельность сельхозпроизводителей.

Ключевые слова: маркетинг, продукты питания, экспорт, цена, эффективность, устойчивость, посредники, продажи, движение товара.

Annotation: This article covers issues such as the cultivation of food products in agriculture in Uzbekistan, the organization and improvement of supply to consumers in the most favorable conditions, the introduction of a marketing management system in the activities of agricultural producers.

Keywords: Marketing, food, export, price, efficiency, sustainability, intermediaries, sales, movement of goods

Introduction. In recent years, significant reforms have been carried out in the agricultural sector, as well as in all sectors of the economy. At the same time, these measures include the delivery of food products grown in the agricultural sector to consumers without destroying them. In recent years, the concept of "Food Marketing Management" is often used in this industry. One of the main reasons for the attention paid to this issue is that the majority of food products in this industry are essential necessities for consumption. Therefore, even if prices rise, demand for them will not decrease. Domestically produced products are closely linked to human activities. At the same time, food expenditures have a significant share in the total expenditures of the population. That is why it is important to deliver food products to consumers in the most efficient ways and to use marketing in this regard.

Research Methodology

The following priorities set out in the Decree of the President of the Republic of Uzbekistan dated October 23, 2019 "On approval of the Strategy of agricultural development of the Republic of Uzbekistan for 2020-2030" PF-5853 are the basis for attention to this issue at the state level.

➤ Development and implementation of state food safety policy, including food security and improving the diet, the production of the required amount of food;

➤ Wide introduction of market principles in the purchase and sale of agricultural products, development of quality control infrastructure, export promotion, creation of a favorable agribusiness environment and value chain providing competitive, high value-added agricultural and food production in target international markets;^[1]

The organization and management of marketing activities are directly related to such measures as the creation of all conditions for the sale of products to intermediaries supplying food to consumers, the establishment of economic relations with farmers and

farms. The main purpose of this activity is to improve the financial and economic performance of the market by providing quality products to customers at low prices.

This problem belongs to the group of problems that have only just begun to be studied scientifically and is a topical research topic of scientific and practical importance, given the demands of the ongoing reforms.

Literature review. The problems of food marketing development in Uzbekistan are reflected in the work of many researchers today. One of the most notable is a 2012 study by experts from the Food and Agriculture Organization of the United Nations, led by Stepan Tanich. In this research, the development of agricultural production in Uzbekistan is studied and analyzed in detail. The main focus is on structural changes in agricultural production and changes in output. Foreign scientists M.D.Baker, F.Kotler, B. Berman, P. Drucker, and others, economists from the Commonwealth of Independent States G.V.Astratova, G.A.Bagiev, P.K.Belyavsky, In the scientific work of TS Bronnikova and others, the issues of marketing research, organization and management of marketing in enterprises were studied. Scientific researches on marketing problems in Uzbekistan G.Akhunova, A.Bekmurodov, M.Boltaboev, J.Jalolov, I.Ivatov, M.Kosimova, D.Mukhitdinov, A.Soliev, Sh.Sharifkhodjaev, Sh.Ergashkhodjaeva, L.Abdukhalilova and done by others. [2]

Analysis and results. The bulk of food delivered to the population in Uzbekistan is created in agriculture. We can divide agriculture into two sectors depending on the type of food grown. These are: agriculture and animal husbandry.

In particular, in the agricultural sector in 2018 in agriculture 187425.6 billion. In 2019, 216283.1 billion soums worth of agricultural products were produced. sum. By 2020, this figure was 93587.0 billion soums in January-June. In the livestock sector in 2018, 89019.2 billion. In 2019, 104378.3 billion soums worth of goods were produced. soums worth of products. The figure for 2020 is 102.7 percent higher than last year. Despite the fact that the volume of agricultural products is growing from year to year, there is an increase in prices for this type of goods. This is due, firstly, to population growth, and secondly, to the growing demand for agricultural products in the world market. Another reason for the increase in demand for food is the global pandemic, which began in 2019. In this context, the issue of increasing food production becomes a daily issue.[4],[8]

Table 1

The composition of agricultural products [3]

	Farms	Dehkan (personal assistant) farms	Organizations engaged in agricultural activities	Farms	Dehkan (personal assistant) farms	Organizations engaged in agricultural activities
	Agriculture			Animal husbandry		
2017	49.2	49.1	1.7	3.7	93.1	3.2
2018	45.3	52.2	2.5	4.6	92.3	3.1
2019	49.2	46.8	4.0	5.1	91.2	3.7
2020 year January- June	40.4	55.9	3.7	5.1	91.8	3.1

If we look at the structure of agricultural production by sector (Table 1), the share of farms in the production of agricultural products is 40.4%, dehkan farms - 55.9%, organizations engaged in agricultural activities - 3.7%. In the production of livestock products, farms have a share of 5.1%, dehkan farms - 91.8%, agricultural organizations - 3.1%. As can be seen from the table, while the difference between farmers and dehkan (personal helper) farms in the production of agricultural products is relatively small, the share of dehkan (personal helper) farms in the production of livestock products is clearly high. This information should be taken into account when supporting agricultural entities and implementing marketing activities.

Analyzing the definitions given to the marketing, today the task of modern marketing includes not only how to deliver products to consumers in favorable conditions, but also the stages from the planning of the production of the same product until the consumer has consumed the product, and again the issue of the emergence of the sense of purchase in the same product. [5]

The above sentence raises issues that need to be addressed:

First, to determine the demand of the population for agricultural products. There are many problems in agriculture in Uzbekistan on this issue. For example, a person named A plants potatoes in his garden this year and earns a high income this year due to the increase in the price of potatoes. A person named B grows carrots this year, but the price of carrots in the agricultural market is going down. A person named B grows potatoes the following year when he hears that a person named A has a high income from potatoes. Along with a person named B, several other individuals also plant potatoes. The increase in the supply of potatoes in the agricultural market next year will lead to a decrease in prices. The price of carrots goes up in this case.

To overcome this problem, a marketing consulting center for agricultural producers should be established. The task of the Advisory Center should be to determine the demand for agricultural products in the country in the coming years and in exporting countries by type of product, to determine the area under agricultural crops in the regions this year and the amount of harvest. Agricultural producers buy information from these counseling centers on which crops will be planted on less land next year and which products will increase in demand. By setting up this process, it will be possible to grow agricultural products in the country in a balanced way. That is, a crop grown in large quantities in one year will be reduced to the next year. At the same time, information is provided on the countries with the largest export potential in relation to the products grown.

Second, the fact that the bulk of agricultural products increase supply in the consumer market at the time of harvest, ie in the summer and autumn, leads to a sharp decline in prices. During the winter and spring months, the supply of these products decreases and the demand increases, resulting in higher prices. For example, horticultural products (apricots, peaches, apples, grapes, etc.), vegetables (tomatoes, cucumbers, etc.) and the like. In this case, the task of marketing is to preserve the products, to organize sales when the supply in the market is normal, as well as to develop measures to process agricultural products, to increase the range of products.

Third, an agricultural enterprise needs to find optimal ways to deliver its products to consumers. This process is called brand movement in marketing. When planning a brand move, you can choose one of the following methods:

- Communicating directly with its consumer, without product intermediaries. Our agricultural producers lack experience in this area. Contact between farmers, ranchers or landowners and consumers has been severed. It is common for a farmer to sell his produce to a retailer at a wholesale low price in the market..

- sale of products through an independent intermediary (firm). In this regard, agro-firms have been established, but these agro-firms face difficulties in adapting to the demands of a market economy, and in practice, informal intermediaries are engaged in this work;

- through a mixed method, with the participation of the investment of the producer and the intermediary trade organization.[6]

An enterprise producing agricultural products should pay attention to the following when organizing the movement of goods:[7], [8], [9]

- Determining sales policy in relation to the movement of goods;
- selection of methods and types of movement of goods to suit all goods and market segments;
- find the joints of the movement of goods and the total distance;
- identification of participants in the chain of goods movement - independent intermediaries;
- creation of a commodity movement management system;
- find the main link in the movement of goods;
- When choosing the most effective type of brand movement, consider complementing each other by linking variety.

In our opinion, it is necessary to choose an optimal way of delivering the grown product to consumers, in which the agricultural enterprise or group of enterprises should hire separate sales agents to unite in the sale of the product. The responsibilities of these agents should be how to deliver the product to consumers at low prices in affordable ways.

In short, today the process of food production in agriculture of our country is developing rapidly. One of the main factors is the experience of our people, who have been engaged in agriculture for many years. However, in today's era of scientific and technological progress, the purpose and motto of the economy has changed, that is, the more productive it used to be, the more consumer-oriented policy is developing today. This is considered to be the main goal of producing what the consumer wants. Our current task is to sell agricultural products to consumers at a high profit through processing, storage and processing. To do this, we need to form and develop a modern marketing management system that can penetrate the food market with new marketing strategies.

Conclusion. Based on the above ideas and conclusions, we propose the following:

- 1) a marketing consulting center should be established for agricultural producers

2) it is necessary to develop measures to preserve the products and sell them when the supply in the market is normal, as well as to increase the range of products through the processing of agricultural products

3) An agricultural enterprise must find optimal ways to deliver its products to consumers, choosing one of the following ways: without intermediaries, direct contact with its customers, selling products through an independent intermediary (firm), mixed method, production enterprise and through the participation of the intermediary trading organization's investments

4) it is necessary to choose an optimal way of delivery of the grown product to consumers, in which the enterprise or group of the enterprises growing agricultural products should hire separate sales agents for joint sale of products.

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UDC 330.012.13;330.14

MANAGING THE EFFECTIVE USE OF HUMAN RESOURCES IN THE DEVELOPMENT OF INTEGRATION PROCESSES

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Annotatsiya. Integratsiya jarayonlarini rivojlantirishda kadrlar salohiyatidan samarali foydalanishni boshqarish muhim ahamiyatga ega. Kadrlar salohiyatining mohiyati mehnatga layoqatli, ma'lumotga ega bo'lish, kasbiy bilim, ko'nikma, salomatlikni o'z ichiga oladi va jamiyatning ijtimoiy-iqtisodiy tizimi tarkibi bilan belgilanadi. Bugungi kunda dunyo bo'ylab integratsiya va globallashtirish jarayoni tez rivojlanmoqda. Bu jarayon nafaqat yangi mustaqil davlatlar, balki dunyoning rivojlangan davlatlari uchun ham jiddiy ilmiy va amaliy qarashlarni shakllantirish va bu jarayonda ishtirok etishning eng optimal yo'llarini ishlab chiqish davri hisoblanadi.

Kalit so'zlar. Agrosanoat integratsiyasi, intellektual salohiyat, klaster, integratsiya, inson kapitali, mehnatga layoqatli, ma'lumot, kasbiy bilim, samaradorlik, sifatli mutaxassis.

Аннотация. Управление эффективным использованием кадрового потенциала имеет важную роль в развитии интеграции. Суть кадрового потенциала заключается в том, что он трудоспособен, обладает знаниями, профессиональными знаниями, навыками, здоровьем и определяется составом социально-экономической системы общества. Сегодня процесс интеграции и глобализации быстро развивается во всем мире. Этот процесс является периодом формирования серьезных научных и практических взглядов не только для новых независимых государств, но и для развитых стран мира и выработки оптимальных способов участия в этом процессе.

Ключевые слова. Интеграция агропромышленного комплекса, интеллектуальный потенциал, кластер, интеграция, человеческий капитал, трудоспособный, образование, профессиональное знание, эффективность, качественный специалист.

Abstract. Management of effective use of human resources is important in the development of integration. The essence of human resources includes the ability to work, education, professional knowledge, skills, health, and is determined by the structure of the socio-economic system of society. Today, the process of integration and globalization is developing rapidly around the world. This process is a period of formation of serious scientific and practical views not only for the newly independent

states, but also for the developed countries of the world and the development of the most optimal ways to participate in this process.

Key words. Agricultural integration, intellectual potential, cluster, integration, human capital, workable, educated, professional knowledge, effective, fruitful, qualified, specialist.

Introduction. Management of effective use of human resources is important in the development of integration. The essence of human resources includes the ability to work, education, professional knowledge, skills, health, and is determined by the structure of the socio-economic system of society. Today, the process of integration and globalization is developing rapidly around the world. This process is a period of formation of serious scientific and practical views not only for the newly independent states, but also for the developed countries of the world and the development of the most optimal ways to participate in this process.

Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev dated February 7, 2017 No PF-4947 "On the Action Strategy for the further development of the Republic of Uzbekistan" was adopted. The "Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021", developed on the basis of this decree, is a document that defines our socio-economic, legal and political development for the next five years. Paragraph 4.1 of Part 4, entitled "Priorities for the development of the social sphere", provides for a gradual increase in employment and real incomes of the population in the next five years, and for this purpose: "... creation of new jobs and, above all, Ensuring the employment of graduates of secondary special and higher education institutions, ensuring the balance of the labor market and the development of infrastructure "is an important priority, and in order to achieve such goals," the employment of able-bodied people and creating conditions for the full implementation of entrepreneurial activity, improving the quality of the workforce, expanding the system of vocational training and retraining of people in need "[1].

Integration processes lead to co-operation between the components of the systemic division of labor and the basis of integration. Integrated components have different levels of autonomy.

Integration is a very broad concept. Today, people need to better understand the essence of the integration process. "Integration" is derived from the Latin word "integration", which means "whole"; Integration means to develop in an interconnected way, to unite as a whole, to make it whole. Integration refers to the integration of different parts and elements into the same system [3].

Literature review. In the philosophy of Herbert Spencer (1820–1903), integration is understood to be the consolidation of scattered internal processes into a single whole, while disintegration is the opposite of the disintegration of a dense object as a result of the acceleration of motion. Spencer often uses the word "integration" in the same sense as the concept of aggregation. is the result of [4].

In the psychology of Jens (1883–1940), integration is understood as the influence of certain features of spiritual life on the whole complex of spiritual life.

In Smend's doctrine of the state, integration means the constant renewal of the state as a result of the interaction of its forms of activity. Social integration means the

existence of an orderly relationship between individuals, groups, organizations, and states.

The analysis of the integration process takes into account the complexity of the system or industry associated with it. For example, integration in society, integration of civilization, integration in science, etc. The integration of society or individual states is introduced on the basis of mandatory mutual interest or purpose, aspiration, value, etc. [3]. At present, the process of interstate integration is developing.

Research methodology: This process is a period of formation of serious scientific and practical views not only for the newly independent states, but also for the developed countries of the world and the development of the most optimal ways to participate in this process. Our country occupies a worthy place in the world arena with its economic potential and scientific and technical capabilities. Forms and mechanisms of integration are comprehensive.

World experience shows that the formation and development of integration processes covers a relatively long period. The mechanism of action of these processes is formed in a logical sequence, step by step [9].

Analysis and Results. In our opinion, agro-industrial integration is a single organizational-technological and technological support of agricultural production, storage, processing, sales and services in order to meet the needs of the population in food products. integration into the socio-economic system and the process of establishing interconnected and mutually beneficial economic relations [7].

With the division of labor between sectors, different farms, enterprises and sectors are involved in the creation of material products, resulting in inter-farm economic integration, resulting in specialization in the regional economy and the supply of goods and services to each other.

Based on the Resolution of the President of the Republic of Uzbekistan № 2909 dated April 20, 2017 "On measures to further develop the system of higher education" and Resolution №3151 ("Further expansion of the participation of industries and sectors of the economy in improving the quality of higher education" On measures to improve the quality of education in order to increase integration, One of the current issues is the implementation of integration between higher education and sectors of the economy in order to train qualified personnel [9] [10].

There have been a number of changes in the system of higher education in order to train quality professionals. According to this decision, it is aimed at developing intellectual potential in order to increase integration. Intellectual potential is the economic efficiency of the human factor [8].

In order to develop social partnership in the framework of the project of social cooperation in the field of teaching and education in Uzbekistan. In today's highly competitive environment, it is not only the main way to ensure the compatibility of science and production, but also the guarantee of training competitive personnel that fully meet the requirements of world standards. One of the most pressing issues today is the implementation of educational programs in educational institutions, not in the old traditional way, but in the development of social partnership with enterprises. At present, enterprises are trying to use new technologies and materials to produce products in accordance with market demand [2]. But at the same time, students are far

behind because their practical knowledge is passed on to the curriculum. In order to further strengthen the practical knowledge of students, it is necessary to develop a program for the transition to practical training in collaboration with industrial enterprises.

Curricula should focus on building a bridge between theoretical knowledge and production practice. It is advisable to change the curricula given in the curricula. The reason is that it is necessary to increase the amount of practical training hours. As long as the practical classes are conducted with the branches of the economy, they should be extended for at least 15-30 days, depending on the course topics.

Along with the internship, the student gets acquainted with the activities of the enterprise, seeks to study in depth the direction of the industry and helps to solve the problem of employment.

The organization of management, the choice of organizational structure, the formation of management apparatus and bodies - all this depends on the effective use of the labor potential of the enterprise [6].

The activation of the human factor in the socio-economic sphere of society contributes to the development of democracy. In other words, the activity of the human factor is determined by the level of consciousness and culture of each citizen, his participation in the management of the state and society. Therefore, the process of liberalization and democratization in the socio-economic sphere in the country is associated with human resources.

Since the purpose of renewal and reform is to ensure the interests of the people, it is necessary to create ample opportunities to increase the activity of citizens in addressing them. It does not require large sums of money or effort. But there is great hope for him. That is, the process of socio-economic development cannot take place without the active participation of man. [7] [9] [10]

It is no secret that the purpose of labor capacity management today is to ensure the effective organization of labor resources within the enterprise. For example, the views of W. Grant and J. Smith state: "The function of personnel management is associated with the identification, evaluation, coordination and control of the human factor, which is a key element of the management system of the enterprise" [4]. However, there are proponents of a broader understanding of the problem of labor potential. For example, Wandel, a professor of management and organization at the University of Washington, is one of the most ardent advocates of the French concept of universal human resource management. The book "Human Resource Management: Human Resource Management" describes the overall management process as "a dynamic aspect of human resource management".

It should be noted that the concept of labor capacity management, which is the main tool for achieving organizational goals, was developed much earlier.

Later, Henri Fayol's popular five-link management scheme (planning, organizing, managing, coordinating, controlling) is replaced by a more complex management process and a model of the interdependence of goals and resources of operations.

Management of the use of labor potential in the development of integration processes is a set of principles, methods, forms and means of influencing the interests,

behavior and activities of personnel in order to make the most effective use of mental and physical abilities in the performance of these tasks.

Conclusion and Recommendations. The development of integration processes requires the implementation of a number of measures to work with personnel to manage the use of labor potential. Based on the above considerations, the following can be concluded: in particular:

- The development of network integration requires attention to the quality of labor management. In this context, special attention should be paid to managing the use of human resources.
- it is necessary to improve the salary structure and develop a system of incentives and benefits in order to retain staff in the enterprise;
- it is necessary to improve the organization of working conditions, ie to improve the quality of work;
- In the study, the study of the distribution of young people by age group to determine their level of professional knowledge and skills will help to study the composition of the effective use of human resources.

In conclusion, in the development of integration processes, the system of managing the use of human resources is primarily aimed at the selection and placement of personnel in accordance with modern requirements, as well as their effective use.

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UDC 624.131.54:626/627

THE DEFORMATION CHARACTERISTICS OF LOESS SOIL UNDER THE SOIL DAMS

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Аннотация. Мақолада лёссли грунтларни лаборатория шароитида одометр ва центрифугада таққослаш синов натижалари келтирилган. Грунтларни центрифугада хажмий синаш, иншоот замини грунтларининг ишлаш характеристикалари тўғрисида одометрда олинган маълумотларга нисбатан аниқроқ натижаларни беради. Грунтларни лаборатория шароитида центрифугада синаш методикаси ёритилган.

Калит сўзлар. Одометр, центрифуга, деформация, лёссли грунтлар, компрессион синашлар, грунтнинг ўтириши, монолит, фильтрацион консолидация, тўғоннинг чўкиши.

Аннотация. В статье приведены сопоставительные лабораторные испытания лёссовых грунтов в одометре и на центрифуге. Объёмные испытания на центрифуге дают достоверные результаты работы грунта основания под сооружением чем результаты полученные в одометре. Приводятся методика лабораторного испытания на центрифуге.

Ключевые слова. Одометр, центрифуга, деформация, лёссовые грунты, компрессионное испытание, просадочность грунта, монолит. фильтрационная консолидация, осадка плотины.

Abstract. The article presents comparative laboratory tests of loess soils in an odometer and on a centrifuge. Volumetric tests on a centrifuge give reliable results of the work of the Foundation soil under the structure than the results obtained in the odometer. The method of laboratory testing on a centrifuge is given.

Key words. Odometer, centrifuge, deformation, loess soils, compression test, soil subsidence, monolith. filtration consolidation, the sediment dam.

Introduction. Observations of ground structures show that the formation of cracks in various zones of structures occurs as a result of the appearance of a stress-strain state in their bodies and bases.

The latter are caused by uneven precipitation of various parts of structures, sharp changes in the deformation properties of the material of embankments or foundations. The same phenomena are observed in the foundations of structures, but they are caused by other reasons: the presence of seismic influences, shifting forces from the structure. All these examples show that the deformation state is not exclusive for connected soils and rocks, which in many cases determines the strength and stability of ground structures and foundations.

Literature review. The need to perform such comparative experiments was caused by the fact that, as is known, the deformation characteristics obtained as a result of standard compression tests, during stamp tests, as well as those obtained by recalculation from field observations of the precipitation of structures [1],[2],[5],[6],[7],[8] differ significantly from each other. The same difference was observed when testing loess soils, where, according to Yu. M. Abelev [3], the difference in deformation characteristics in compression and field experiments can reach 300 %.

Comparative experiments were necessary for two other reasons. First, because loess soils have a significant natural heterogeneity and, as experiments have shown, the parameters of subsidence even within a single monolith can differ very significantly [4],[9],[10]. Secondly, another significant factor established By J. D. Gilman [1971] is that the existing method for determining the characteristics of soil subsidence, when soaking occurs for 3-4 days, does not ensure the implementation of the entire subsidence.

Research methodology. The use of the centrifugal modeling method for conducting compression tests, due to its features, has significantly reduced the role of these factors, which has increased the reliability of determining the deformation parameters of the subsidence soil. Specifically, this was reflected in the fact that, first, during the test on a centrifuge, the representativeness of the samples increased, since the tests were performed not on a small cut-out sample, but on a whole monolith. Secondly, the centrifuge tests were carried out under the influence of only the sample's

own weight without the use of external load devices. Third, although the tests were carried out for a relatively short time (several hours in total), due to the acceleration of the time processes on the centrifuge, which were mentioned above, the filtration consolidation process was almost completely completed in the monolith during this period.

Analysis and Results. All soil compression tests were performed in parallel in standard instruments and on a centrifuge. For testing, monoliths of soil were used, selected in a pit that was passed at the base of the dam of the Nizhne-Ala-archinsky reservoir. Laboratory studies performed during the sinking of the pit showed that the highest subsidence is in the upper zone of loess soil to a depth of about 20 m. from the surface. Within this zone, individual layers of soil have different subsidence, reaching 10% or more. Given the heterogeneity of the soil not only in depth, but also in the area of the base, it was considered inappropriate to accurately model the entire subsidence thickness. Parameters averaged over all conducted compression tests of the soil were used for modeling the base.

Method of compression testing on a centrifuge. As already mentioned, the tests were carried out on monoliths of undisturbed soil brought from the construction site. The monoliths processed for experiments had dimensions of approximately (100-200) x200x200 mm. Testing was conducted in the cassette to the centrifuge, having a size of 200x400x800 mm. The monolith installed in the middle of the cassette was covered with sand on both sides with a seal to prevent free lateral deformations. The monolith was soaked through the same sand to determine the subsidence properties of the soil.

Surface and side marks were used to measure the strain during the experiment. Measurements on surface marks were carried out with the help of a coordinator. Moving side brands that are installed in the ground at the side of the monolith was measured using a binocular grid, caused by lateral sheer mesh tapes. Side and surface marks allowed to determine the residual deformations of the monolith.

Two-component strain sensors designed specifically for use in a centrifuge were used to measure precipitation and horizontal movements of its surface during loading (Fig.1). These sensors made it possible to measure precipitation and horizontal movements of the sample with an error of up to 0.05 mm in both continuous and discrete measurement modes.

Tests on the centrifuge were carried out using a step loading mode. The loading stages were determined by the values of centrifugal accelerations, which were: 25,50,75,100,120,140,160 g. The last stage corresponded to the amount of household load in the selected soil monolith in the real base. At each stage, the sample was kept until the precipitation stabilized. After stabilization at the last loading stage, the centrifuge was slowed down and sedimentary deformations of the monolith were determined.

The soil density was determined before and after the tests. In this mode, a sample of undisturbed structure and natural humidity was tested at the beginning. Then the sample was watered through a sand backfill for about a day, after which the second stage of testing began. At the second stage, the centrifuge was accelerated in a minimum time (about 3 minutes) to accelerations that provide a household load on the sample, and then it began loading with the design load (from the weight of the

structure), which corresponded to an acceleration of 245 g. Loading was also carried out in stages with a delay at each stage until the deformations were stabilized.

Comparative compression tests were carried out in the compression device of NIS Hidroproekt according to the methodology regulated by GOST, so the description of this technique is not given in the article.

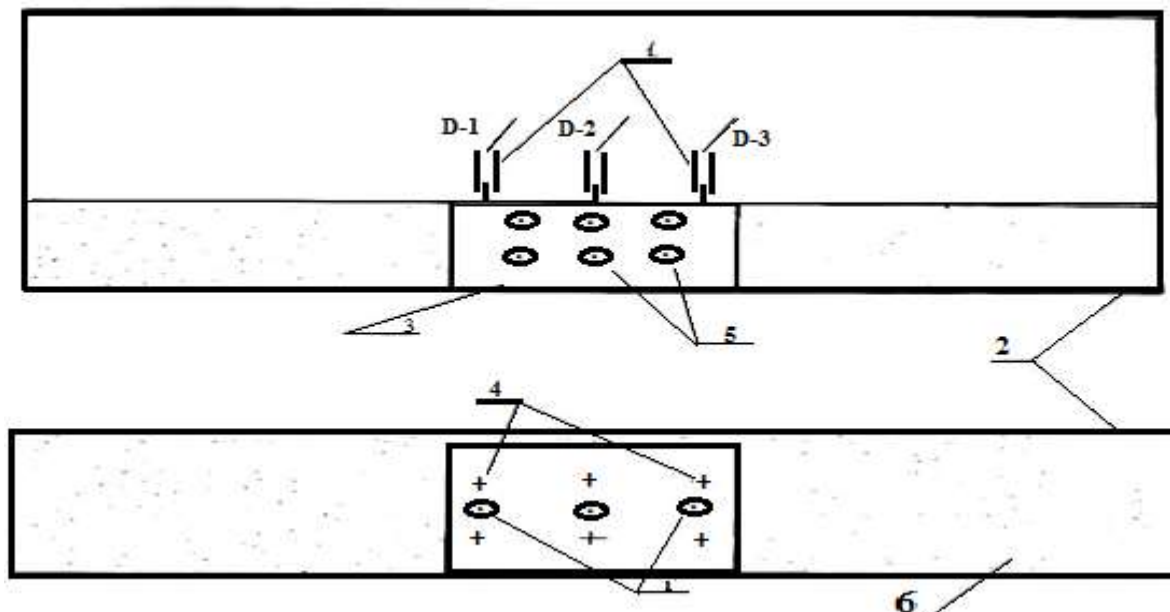


Fig. 1. location of the loess soil sample in the centrifuge cassette

a) side view of the cassette; b) top view of the cassette;

1-two-component strain sensors (DDD - 1); 2-cassette;

3-soil sample; 4-surface marks; 5-side marks; 6-compacted sandy soil.

Test result. For rice.2.the results of compression tests of two soil monoliths by the method of centrifugal modeling and odometer are presented. Significant differences are observed for the first branch of loading corresponding to the test of the sample of natural humidity. So, in experiments on a centrifuge, the relative

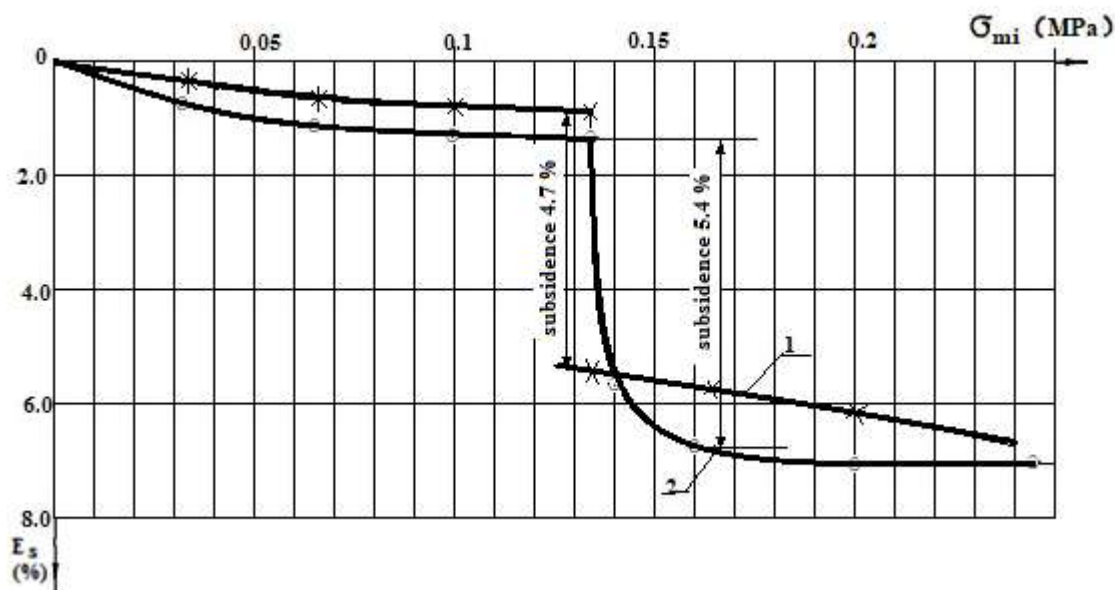


Fig. 2. compression tests of loess soils in an odometer (1) and in a centrifuge (2)

sediment of a monolith at an average stress in it is 1.5 kg/sm^2 was about 1%, and in experiments in the odometer only 0.5%. To evaluate the compression characteristics in a larger stress range, monoliths were tested in a centrifuge loaded with a stamp on top. In that case, this scheme was close to the odometer test scheme (Fig. 3).

The results obtained were also close to the data obtained in the odometer: at a load of 1.5 kg/sm^2 relative precipitation was about 0.5%. While increasing the load up to 8.0 kg/sm^2 precipitation growth was almost linear and at maximum load the relative precipitation was 3%. It should be noted that the load on the base from the weight of the dam of the second stage of construction is 6.2 kg/sm^2 , which corresponds to a relative draft of 2.3%. However, during testing, the jump in sediment (see the figures) characterizes the subsidence properties of the soil.

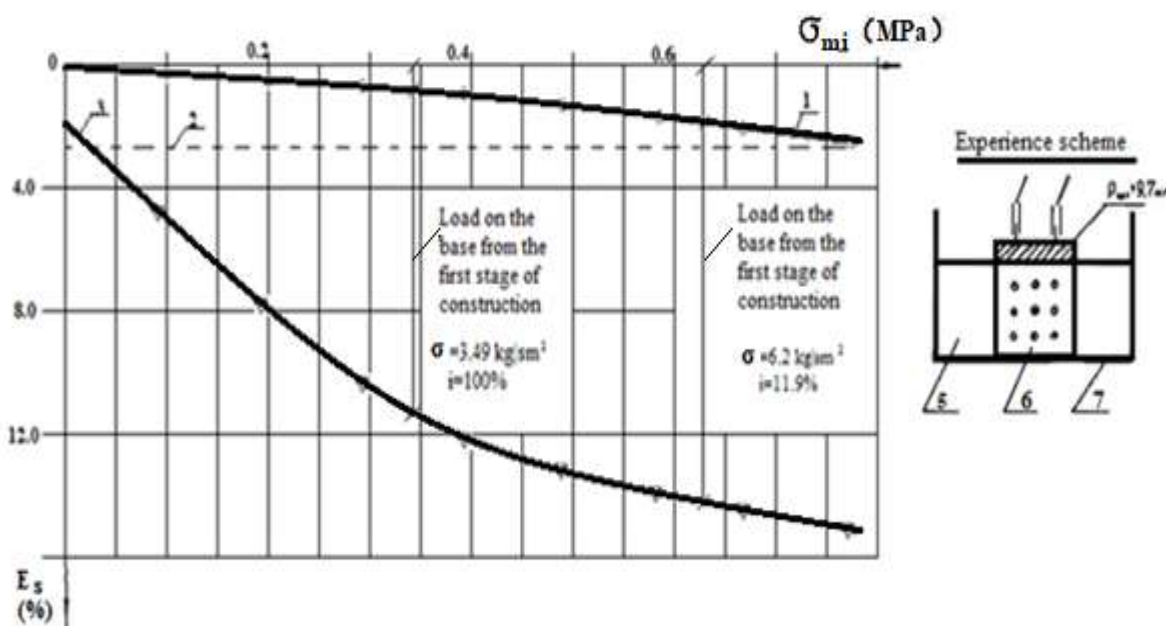


Fig. 3. compression tests of soil in a centrifuge. 1 - first loading of natural moisture soil with a stamp; 2 - unloading; 3-water saturation with a stamp; 4-second loading of water-saturated soil with a stamp; 5-compacted sand; 6-soil sample; 7 - centrifuge cassette

In the experiments, when the samples were watered, the drawdown was 5.0-5.5%. The second part of the loading branch corresponds to the sample sediment when the load increases to the calculated one in the watered state. Here, the values obtained in the odometer differ from the precipitation obtained in the centrifuge by only 10-15%. At the same time, the graphs of changes in precipitation from the load have a different slope, therefore, with an increase in the level of stress in the ground that is, during the construction of the second stage of the dam, the differences in the precipitation of the watered soil will be significantly large.

Tests of the soil under high stresses have shown that the full sediment of the subsidence base under operating load (after the completion of the second stage of the dam) it was about 14%, of which 10% of the precipitation will be realized when the first stage of construction is completed. If we assume, as experiments have shown, that

when pre-soaking the base under household loads, approximately 40% of the subsidence deformation will be realized, then during the construction and operation period (the first stage of construction), the base will receive a draft of 6% of the depth of the compressive subsidence thickness of the base.

In addition to compression tests of the base monoliths, the centrifuge was used to study the deformability of the soil of the dam body laid at the design density and humidity (Fig. 4).

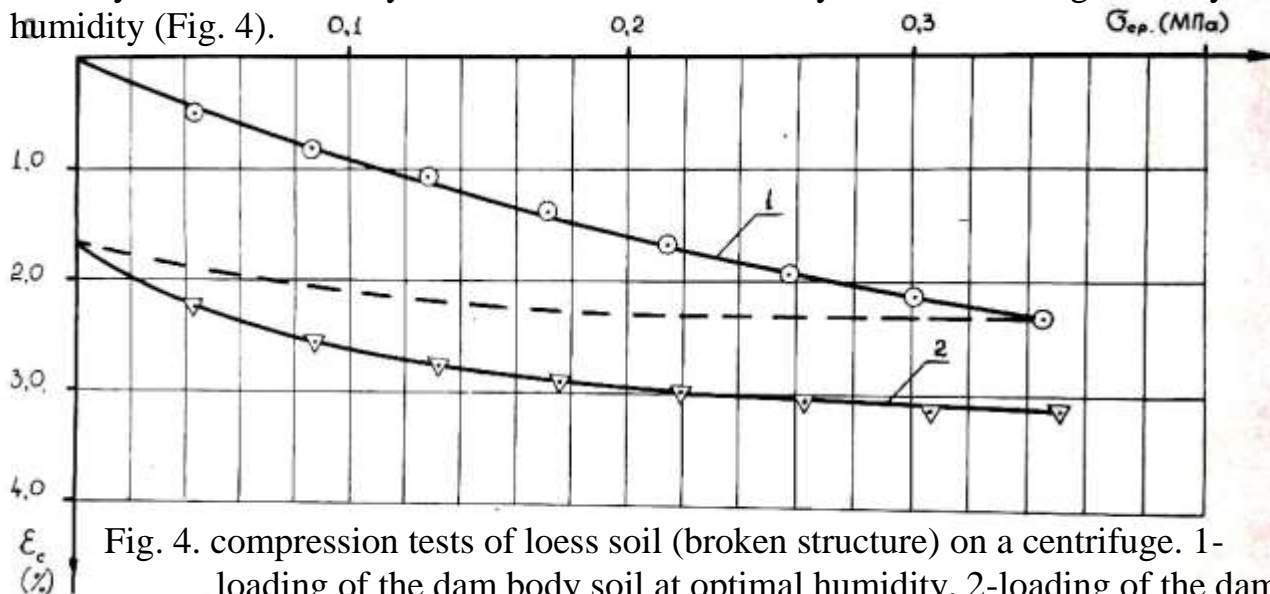


Fig. 4. compression tests of loess soil (broken structure) on a centrifuge. 1- loading of the dam body soil at optimal humidity, 2-loading of the dam body soil at water saturation.

Tests were also carried out on samples 200x170x185 mm. These samples were equipped with side and surface markers and sensors for measuring sediments and displacements. The samples were made from natural loess soil of disturbed structure, laid with a moisture content of 16% and a density of the soil skeleton of 1.75 g/sm^3

In contrast to the ground when nagoski 1.6 kg/sm^2 the soil sediment of the dam body was 2.7%, and with the design load of the first stage dam's own weight (2.68 kg/sm^2 , the relative sediment was 4.55%.

Conclusion and Recommendations. Based on the results obtained, we can state:

1) Comparison of soil compression tests performed on a centrifuge with compression performed in an odometer according to the standard method showed that compressibility differs almost twice for soil of natural humidity of an undisturbed structure. The values of subsidence in both types of tests are close to each other, and when loading water-saturated soil at low stresses, precipitation is close, and with increasing stresses, the difference between them increases significantly. Given that the method of centrifugal modeling allows you to test soil monoliths of considerable size and without external load devices, the results of determining deformations by this method should be considered more reliable.

2) loess Foundation Soils of undisturbed natural moisture structure under the design load from the weight of the constructed structure (second stage of construction) will have a draft of about 3% of the depth of the compressible zone.

3) Subsidence deformations during flooding of loess soils at a load of 1.5 kg/sm^2 is about 5.5% of H (where H is the height of the test model-sample), and the subsequent precipitation with a further increase in the load to the design, including due to soil consolidation, is 12% of H .

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UDK 591.575-16

IMPROVING ECONOMIC EFFICIENCY OF FISH FARMING IN ARTIFICIAL PONDS

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Аннотация: Рыбоводство играет важную роль в сельском хозяйстве Узбекистана. Однако в последние годы развитие этой отрасли несколько

замедлилось. Реализация мероприятий, предусмотренных несколькими указами будет способствовать созданию единой системы управления, охватывающей все отрасли рыбной промышленности, и ее быстрому развитию, созданию новых рабочих мест, резкому увеличению производства рыбы, соблюдению потребности населения в рыбной продукции и повышение экспортного потенциала отрасли. В статье рекомендации, как создание небольших рыбоводных хозяйств на засоленных землях, не используемых для сельскохозяйственных целей; создание в каждом районе инкубаторно-племенных хозяйств, систематически обеспечивающих хозяйства мальками; бесперебойное обеспечение рыбных хозяйств комбикормами; внедрение технологии интенсивного рыбоводства в бассейнах, обеспечивающих инфильтрацию воды с учетом рельефа каналов и водоемов в существующих бассейнах района.

Ключевые слова: рыба, производство рыбы, рыбоводные хозяйства, монополия, приватизация, Узбекистан, искусственные водоемы.

Аннотация: Балиқ етиштириш Ўзбекистон қишлоқ хўжалигида муҳим ўрин тутди. Бироқ, сўнгги йилларда ушбу соҳанинг ривожланиши бироз сустлашди. Охирги бир нечта фармонларда кўзда тутилган чора-тадбирларнинг амалга оширилиши балиқчилик саноатининг барча соҳаларини қамраб олган ягона бошқарув тизимини яратишга ва уни жадал ривожлантиришга, янги иш ўринларини яратишга, балиқ ишлаб чиқаришнинг кескин кўпайишига, аҳолининг балиқ маҳсулотларига бўлган талабини қондиришга ва саноатнинг экспорт салоҳиятини оширишга ёрдам беради. Мақолада шўрланган ерларда қишлоқ хўжалиги мақсадларида фойдаланилмайдиган кичик балиқ хўжаликларини шакллантириш; фермер хўжаликларини чавоқ билан мунтазам равишда таъминлаб, ҳар бир минтақада инкубация-наслчилик фермер хўжаликларини яратиш; балиқчилик хўжаликларини аралаш ем билан узлуксиз таъминлаш; минтақанинг мавжуд ҳавзаларидаги каналлар ва сув омборлари рельефини ҳисобга олган ҳолда ҳавзаларда интенсив балиқ етиштириш технологиясини жорий этиш бўйича тавсиялар берилган.

Калит сўзлар: балиқ, балиқ ишлаб чиқариш, балиқчилик хўжаликлари, монополия, хусусийлаштириш, Ўзбекистон, сунъий сув ҳавзалари.

Abstract: Fish farming plays an important role in the agricultural economy of Uzbekistan. However, in recent years, the development of this industry has slowed down somewhat. The implementation of the arrangements envisaged by the few Decrees in Uzbekistan will contribute to the creation of a unified management system covering all sectors of the fishing industry, and its rapid development, the creation of new jobs, a sharp increase in fish production, meeting the needs of the population in fish products and increasing the export potential of the industry. Here are provided such recommendations such as establishment of small fish farms on saline lands not used for agricultural purposes; establishment of incubator-breeding farms in each district, which systematically provide farms with small fish fry; uninterrupted supply of fish farms with compound feed produced by Uzdonmahsulot enterprises and Chinese special fish feed enterprises; introduction of intensive fish farming technology

in the pools that provide water infiltration, taking into account the relief of canals and reservoirs in the existing pools in the district sheds.

Keywords: fish, fish production, fish farms, monopoly, privatization, Uzbekistan, artificial ponds

Introduction. Qualified medicals recommend consuming nutritious fish products 6-8 kilograms in a year. This means that increasing the production, processing, and multiplication of consumption of fish products among the population serves in the improvement of the health of millions of people.

Since river fish is commonly consumed in Uzbekistan, the population is more familiar with species such as carp, catfish, snakeheads. Experts say that a slice of dietary meat is useful in cardiovascular diseases, high blood cholesterol levels, anemia, fatigue and physical exertion, neurosis, skin diseases, gout, and rheumatism, as well as vision loss. When children eat meals prepared from fish, they get rid of caries, hair loss, and goiter.[1]

Therefore, the government is paying great attention to the development of this sector and carrying out some reforms. Its legal framework is being completely changed, the old-fashioned state-owned fisheries are being privatized, competitive fish farms that meet the requirements of market relations are being set up, and much attention is being paid to fish processing and canning. If we look at the legal foundations of the development of this sector in Uzbekistan, we can see that modern fishery farms began to be established based on the Resolution #350 of the Cabinet of Ministers dated August 13, 2003, "On arrangements to deepen the exclusion of monopolies and privatization in the Fishing industry".

Literature review. M.A Abdullayev, A.Kh. Khasanov, G.M Sayfullayev[6] noted that the fauna of the Todakol reservoir consists of more than 30 species of fish. According to B.G.Komilov, in the conditions of our republic, it is noted that carp fish grow very well and a good product is obtained from them. Carp fish in the natural waters, reach 2 kg weight and 30-35 cm body length at the age of 2-3. According to the author, growing Karp based on polyculture along with white amur and perch fish gives good results in the condition of Uzbekistan.

Several scientists have conducted research and observations in reservoirs in different [16] parts of Uzbekistan. One of these, M.R Ergashev researched the biology and economic importance of fish in the Tagchamar reservoir, which is mainly important for hunting. A.Kh. Khasanov conducted scientific research on fish, which are mainly important for hunting in the Quyimozor and Todakol reservoirs. As a result of the launch of the Amu-Bukhara canal, 9 species of fish from the Amudarya were passed into the Kuyimozor and Todakol reservoirs: the great Amudarya snout, white amur, black amur, quail, island whitefish, swordfish, white-tailed deer, and maple.

Analysis and results. Since 2009, the country has been consistently implementing a number of programs for the development of fisheries, along with all sectors of animal husbandry, to provide the population with cheap fish products.

According to statistics, about 60 million of the world's population are engaged in fishing, and these aquatic animals account for 9% of agricultural exports. As fish is one of the most sought-after and perishable food products in the world, its processing, canning, packaging, storage, and transportation require special attention. Two-thirds of

the fish intended for consumption in Europe, North America, are delivered to people in frozen, ready-made, or canned form. Fish are sold in smoke form in Africa and most of the time alive in Asia. [26]

Obviously, until recently, many people in Uzbekistan were skeptical about the prospects of the fishing industry. They were trying to prove that the cost of this product was more than the income, and this route has enough troubles. However, due to the availability of sufficient water resources for the development of the industry in our country and the dedication of many entrepreneurs interested in fishing, the industry has begun to grow. The fact that in 2017 it is produced 105 thousand tons of fish is can be shown as proof of our opinion. [2]

For example, the limited liability company "Ulugnor Balik" in Andijan region raised 925 tons of fish in an open area last year. The motley fish raised on this farm weighs up to 8 kilograms, its meat is delicious and has little scales. Raising white grass carp is also having a positive effect. In the ponds of fisheries, the plant quarrel grows fast. White grass carp eat this grass in this kind of situation, besides it keeps the water of the ponds clean and moderate. Recently, Japanese carp has begun to be taken care of as an experiment. They are resistant to cold and heat, their meat is very delicious and in great demand abroad.

At the same time, the analysis shows that the production of fish shells as well as the inefficient use of natural water bodies and artificial lakes are considered as the weakest section in the fishing industry. As a result, the productivity of artificial lakes does not exceed 20 quintals per hectare, which is much lower than the world average. The study of advanced foreign experience in the field of fisheries, the widespread introduction of intensive technologies, and the use of high-tech methods of fish farming require special attention.

Although the Republic of Uzbekistan is not directly connected with open water areas (sea and oceans), it has the opportunity to grow a sufficient amount of fish products from the account of internal water areas. For this reason, as an object of the observation, we selected the reservoirs in the territory of the Republic, and the main components of the pond fish farm-carp, white amur, hawthorn fish are selected as the main subject.

Economic reforms in various sectors of the economy, including agricultural reforms, have also necessitated the development of the fishing industry. On August 13, 2003, the Cabinet of Ministers of Uzbekistan adopted the 350-decision on the purpose of deepening the process of privatization and development of private property in fisheries, the introduction of market principles and mechanisms in the organization of fishing and fishing enterprises, de-monopolization and competitive environment, as well as fishing since the reform of property in agriculture is considered as one of the main reforms. Later, to fully meet the demand of the population for fish products and increase the production of fish products, the Cabinet of Ministers of the Republic of Uzbekistan approved the "Program of measures for the development of the fishing industry in the country in 2009-2011" Resolution of the President of the Republic of Uzbekistan Sh. Mirziyoyev dated November 6, 2018, PP-3657-"On measures to improve the management system of the fishing industry" was adopted.[3] During the same period, in 2009-2011, fish production in the country increased from 9235.7 to

16882.1 tons. In 2011, commercial banks provided 8 billion 525 million soums (an increase of 213.1%) for the provision of farms and enterprises leasing natural lakes with modern technological equipment, granulated fodder, mineral fertilizers, and seasonal working capital. 11,973 tons (169.1%) of feed products were delivered to fish farms on a contractual basis by the enterprises of the company of “Uzdonmahsulot” and Chinoz feed production plant.

The small fish farms, which are newly established and functioning, are systematically organized for the production of fish shells. Farms specializing in the cultivation of small fish seeds in the country received 221 million larvae, of which 29.2 million one-year fish seed material was grown.

Table 1 below provides an analysis of the dynamics of fishing in the country in recent years on all categories of farms, personal subsidiary plots of the population, as well as organizations engaged in agricultural activities. The analysis of the data in the table shows that in 2011-2019 there were sharp changes in fisheries in the country, fishing increased by 7 times in all categories of farms, and 9 times in farms.

Table 1. Indicators of fishing in Uzbekistan by all categories (ton)

Categories of farms	Years				In 2019 compared to 2011, %
	2011	2014	2017	2019	
All categories	16882,1	46534,6	83900	121717	721,0
Share to total, %	100,0	100,0	100,0	100,0	0,0
Farms	4778,6	13636,4	25757,3	43209,5	904,2
Share to total, %	28,3	29,3	30,7	35,5	+7,2
Small households	1886,3	8877,9	10571,4	17283,1	916,2
Share to total, %	11,2	11,8	12,6	14,2	+3,0
Other organizations	10217,2	24020,3	47517,3	62440,8	611,1
Share to total, %	60,5	53,6	56,7	51,3	-9,2

* Source: State Statistics Committee of Republic of Uzbekistan. Annual statistical collection materials.

In the pre-market economy, fish farming and sales were not well developed and were organized thoroughly. Importantly, no serious attention was paid to the recognition of this network and to ensure that the population's consumption of it at the level of medical standards. Nowadays, the establishment of individual fisheries, their provision with sufficient land, water, material, labor, and other resources, in turn, requires them to work effectively to achieve the result.

To facilitate the implementation of fishing development programs through co-financing of industry projects, as well as consulting, information, analytical and marketing services, the resolution approved the creation of the investment company Ipoteka-Bank and its share of at least 51% of the authorized capital in the newly created regional Baliksanoat.

To financially support the Association "Uzbekbaliksanoat", its regional limited liability companies "Baliksanoat" and legal entities included in the association, until January 1, 2023, exemptions from the payment of a single tax on income from growing seeds, fry, and commercial fish, processing and processing of fish products. The decree also created a working group to develop and implement program measures for more comprehensive development of the fishing industry for 2017-2021, aimed at increasing the volume of fish growing and processing, providing fry, and introducing modern fish

farming methods. was found. Thanks to the scientific organization of the climatization of high-yielding fish species, the reproduction of African fish, tilapia, trout, Hungarian carp, and sturgeon fish will be established. This, in turn, ensures uninterrupted supplies of a wide range of cheap and high-quality fish products to domestic markets.

The implementation of the arrangements envisaged by the decree will contribute to the creation of a unified management system covering all sectors of the fishing industry, and its rapid development, the creation of new jobs, a sharp increase in fish production, meeting the needs of the population in fish products and increasing the export potential of the industry.

The development of the industry will not only satisfy the needs of the population for protein but also have a positive effect on food security, improve living standards, and create new jobs.

With the further expansion of the level of processing and canning of fish, meeting the needs of the population in fish and meat products in our country will improve.

Conclusions. The following factors, recommendations, and opportunities should be used wisely to grow and sell more, better, and cheaper fish products in the future:

Fish farming in artificial ponds:

1. Establishment of small fish farms on saline lands not used for agricultural purposes;
2. Establishment of incubator-breeding farms in each district, which systematically provide farms with small fish fry;
3. Uninterrupted supply of fish farms with compound feed produced by Uzdonmahsulot enterprises and Chinese special fish feed enterprises;
4. Introduction of intensive fish farming technology in the pools that provide water infiltration, taking into account the relief of canals and reservoirs in the existing pools in the district sheds;
5. District government and territorial area administrations should clearly define their work to ensure the required amount of water for fish farms in artificial reservoirs.

On fishing in natural reservoirs:

1. Re-inventory of natural water bodies that can be used in the fishing industry and organize the rational use of fish stocks in lakes;
2. Identify specific measures to organize the lease of vacant land in natural water basins at the regional and district levels;
3. Ensuring timely payment of rent for the use of natural water bodies;
4. Establish a centralized organization of fishing in natural water bodies near water bodies;
5. To apply administrative penalties to persons engaged in illegal poaching in the districts in the manner prescribed by law;
6. Attracting funds from foreign and local investors for the introduction of technology for fish farming in artificial cages in natural lakes to ensure employment.
7. On the organization of continuous processing of fish products and sale of fish products in the district markets and the allocation of seasonal bank loans:

8. Construction of special fish stalls and fish aquariums for the sale of live fish in the central markets of the district and the organization of regular fish sales in them;
9. Construction of small enterprises for processing live fish into semi-finished products and organization of their equipment with special equipment, refrigerators, freezers;
10. Ensuring the consistency of fish dishes on the menus and the diversity of fish dishes in the restaurants of the district.
11. In order to develop the fishing industry, to update the material and technical base, to introduce new technologies, to establish control over the issuance of bank loans to fisheries to organize processing.

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UDC 633,11,631,175

THE IMPACT OF PLANTING DATES AND THEIR CRITERIA FOR YIELD AND GROWTH OF WINTER WHEAT VARIETIES

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Аннотация: Ушбу мақола кузги буғдойнинг Гром навини мақбул экиш муддат ва меъёрларини ўсимликнинг ўсиш-ривожланиши ҳамда дон ҳосилдорлигига таъсирини аниқлаш мақсадида тадқиқот натижаларига асосан энг мақбул экиш муддат ва меъёрлари аниқлашга бағишланган.

Калит сўзлар: Тупроқ, экиш меъёри, кузги буғдой, экиш муддатлар, ўсиш ва ривожланиш, фенология, нав, ҳосил.

Аннотация: В целях определения влияния сроков и норм посева на рост и развитие а также урожайность проведены полевые опыты с озимой пшеницей сорта Гром. На основе результатов исследований выяснились самые приемлемые сроки и критерии посева пшеницы.

Abstract: In order to determine the effect of the timing and sowing norms on the vegetation and the development of winter Grom wheat, on the basis of the research results, the most acceptable terms and criteria for sowing wheat were found.

Key words: Soil, planting dates, winter wheat, planting dates, growth and development, phenology, variety, crop.

Introduction. Relevance of the research: Scientific substantiation of the influence on the growth and development of plants, yield and grain quality by determining the optimal timing and criteria for sowing winter wheat of the Grom variety in the meadow soils of the Andijan region. To meet the needs of people for grain products, it is of particular importance to grow a high-quality and high yield of grain in all zones of the globe.

Literature review. Romanenko A.A., Bepalova L.A., Kudryashov I.N. (2005)

The main requirement for sowing rates when growing winter wheat is to provide a certain area of land with optimal seedling thickness and productive stems. For sown fields, it is necessary to choose planting rates so that the number of stems in this area is 90-95%.

R.I. Siddikov (2004) studied the timing and rates of sowing soft winter wheat varieties Kroshka and Mars-1 in the Andijan region and found that the optimal seeding rate for these varieties is 4-5 million seeds per hectare, and the sowing period is October 10-25.

According to V. N. Lukyanenko (1980), the seeding rates of different wheat varieties are not the same. In experiments carried out by Z. Umarov, Kh. Atabayeva and A. Alimov (1994) in the irrigated lands of Uzbekistan when sowing durum wheat

varieties Bakht, Ali Parus, Nasimi, Marvarid from 180-200 kg of seeds per hectare, the highest grain yield was 61.0 c / ha and 31.0 c / ha with Nasimi.

In the experiments of R.I. Siddikova (2005) to prepare a solution for foliar feeding of winter wheat, 25-30 kg of urea per hectare were used. Before starting work, the solution was prepared in 40 L of water, mixed with 250 L of water and sprayed in the wheat germ phase. Increase in gluten by 1.5-2.0 and 2-4 percent. G. Kurbanov (1998), Kh. Ataboeva, A. A. Omonov (2005), Sh. Kuzibaev (2000) and others are among the scientists who have contributed to the development of grain growing in Uzbekistan, working in the field of grain seed production, seed production.

In the experiments of R.I. Siddikova (2011), 25-30 kg of urea per hectare was obtained as a solution for feeding winter wheat with foliar feeding. Increase in gluten by 1.5-2.0 and 2-4 percent. G. Kurbanov (1998), Kh. Ataboeva, A. A. Omonov (2005), Sh. Kuzibaev (2000) and others are among the scientists who have contributed to the development of grain growing in Uzbekistan, working in the field of grain seed production, seed production.

Egamov, I. Adashev, G. Mamadalieva. (2015) Late planting of winter wheat varieties leads to lower yields. Also, when sowing in the late period, the phase of complete accumulation takes place in early spring, which negatively affects the formation of productive stems due to the forced acceleration of the phases as a result of a sharp increase in air temperature.

Analysis and results. To do this, select the appropriate varieties for soils and zonal natural conditions, their placement and determine the timing and norms of sowing on a scientific basis, taking into account the biological characteristics of each variety, will become the basis for obtaining a stable high and high-quality grain yield.

Taking into account the above, in order to determine the timing and norms of sowing a mid-season variety of winter wheat, Grom, created at the Krasnodar Agricultural Institute named after P.P. Lukyanenko, in 2017-2018, in the central fields of the Kuyganyar experience of the Research Institute of Grain and Leguminous Crops of the Andijan region, scientific -experimental work.

Studied in field experiments of winter wheat variety Grom, 4 types of sowing dates (09.15, 01.10, 10.15.01.11.), 4 types of sowing rates (3.4.5 and 6 million more productive seeds) were established in 4 repetitions, placing in the 1st tier the area of each part is 50 m²

Table 1

Experience order

Variants	Sowing rates mln, more productive seeds	Sowing time			
		Grom			
1	3	15.09	01.10	15.10	01.11
2	4	15.09	01.10	15.10	01.11
3	5	15.09	01.10	15.10	01.11
4	6	15.09	01.10	15.10	01.11

The experiment is carried out on the basis of the methodological manuals of the Cotton Growing, Plant Growing and Krasnodar Scientific Research Institutes on phenological observation, assessment, selection and damage level. According to the experiments of the differential method of B. Dospekhov, the level of research accuracy is carried out. A significant difference was observed in the timing of sowing the intensity of the growth phases in the seedlings of the experimental crops.

In the timing of sowing, the intensity of the growth phases in the seedlings of the Grom variety did not differ significantly. But in terms of sowing dates, significant differences were observed in the rates of sowing for growing of the Grom variety.

Table 2

Indicators of fertility of winter wheat Grom (2018)

Variants	Planting rate mln, more productive seeds Sowing repetitions	Sowing			
		Repetitions			
		I	II	III	IV
15 September					
1	3	63.0	69.0	66.7	60.9
2	4	63.5	69.8	65.5	61.4
3	5	64.0	67.3	64.8	62.0
4	6	62.8	65.6	65.6	63.3
1 October					
1	3	73.4	72.9	71.0	70.2
2	4	74.0	73.8	72.8	70.8
3	5	74.7	75.0	74.4	73.6
4	6	73.8	74.5	71.9	72.2
15 October					
1	3	72.8	73.3	72.8	69.0
2	4	70.9	72.3	73.0	70.0
3	5	71.8	73.4	72.6	71.2
4	6	70.0	72.9	71.1	69.8
1 November					
1	3	50.9	51.8	52.1	48.9
2	4	53.0	52.5	52.9	47.6
3	5	52.9	53.0	50.0	49.0
4	6	52.7	52.1	51.9	47.8

At 1 term of the winter wheat variety Grom, the seedlings of crops took place in 3-4 days, 2-term 5-6 days, 3-term 7-8 days and 4-term 9-12 days. In observations, the differences were determined with a delay between the timing of sowing and the intensity of seedlings of sowing. In the artisanal phase of winter wheat in variants

planted in 1-3 terms, in autumn they completely turned into a bush, and in 1-2 terms, 5-6 bushes, in 2-3 terms, 2-3 bushes switched to winter, i.e. during the rest period. In the experiments, the seedlings of the crops planted on November 1 fully germinated, in the spring days of March 7-12 they switched to the full shrub phase.

The carried out phenological observations showed that in Grom litters planted in 1-3 terms, the transition in all phases took place in acceptable normal conditions, and in variants planted in late terms, the coefficient indicators were low. That is, since the phase of transition to shrub formation took place in early spring, and the shrub formation period is forced, this negatively affects the formation of fertile stems.

When analyzing the fertility indicators of experimental variants of mid-season winter wheat Thunder planted on October 1 with 5 million more productive seeds, 75 centners of the crop were obtained. Based on the research results, it can be concluded that the timely planting of the Grom winter wheat variety in Andijan conditions provides high yields. And the untimely planting of the Thunder variety will lead to a decrease in the level of grain yield.

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UDC: 633.34+631.54

THE AMOUNT OF ROOT AND STEM RESIDUES LEFT BY INTERMEDIATE CROPS IN THE SOIL, AND ITS EFFECT ON THE WATER PERMEABILITY OF THE SOIL

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Аннотация. Ушбу мақолада кузги буғдойдан кейин оралиқ экинларни экилиши, тупрокда кўп микдорда органик массани (анғиз ва илдиз) тўпланишидаги ахамияти атрофлича таҳлил қилинган. Бу эса ўз навбатида тупроқ унумдорлигини, агрофизик ва агрохимёвий хоссаларини яхшиланишига олиб келади.

Калит сўзлар: Ўтлоқи бўз тупроқ, тупроқ унумдорлиги, оралиқ экин, рапс, вика, анғиз ва илдиз қолдиқлари, сув ўтказувчанлик.

Аннотация. В данной статье приводится подробный анализ важности посадки промежуточных культур после озимой пшеницы и накопления большого количества органической массы в почве (корневых и стеблевых остатков). Это, в свою очередь, приводит к улучшению плодородия почвы, агрофизических и агрохимических свойств.

Ключевые слова: Луговые серозёмы, плодородие почвы, промежуточные культуры, рапс, вика, стеблевые и корневые остатки, водопроницаемость.

Abstract. In this article analyzes the importance of planting intermediate crops after winter wheat, and the accumulation of large amount of organic matter (root and stem residues) in the soil. This, in turn, will improve the soil fertility, agrophysical and agrochemical properties.

Keywords: Meadow gray soil, soil fertility, intermediate crops, rapeseed, vetch plant, stem and root residues, water permeability.

Introduction. Today, 33.7 million hectares of rapeseed and 550 thousand hectares of vetch are grown from catch and green manure crops, 64.1 million tons of rapeseed and 838.8 thousand tons of vetch seeds are grown and widely used in agriculture. According to the Food and Agriculture Organization of the United Nations

(FAO) in 2016, rapeseed production amounted to 18.4 million tons in Canada, 15.3 million tons in China, 6.8 million tons in India and 4.7 million tons in France, 4.6 million tons in Germany, 297.1 thousand tons in Ethiopia, 148.3 thousand tons in Russia, 119.8 thousand tons in Mexico, 63.1 thousand tons in Spain, 43.2 thousand tons in Belarus¹.

Studies have shown that the planting of intermediate crops accelerates biological processes in the soil, improves the agrophysical and agrochemical properties of the soil. Therefore, increasing soil fertility through intermediate crops is one of the current issues.

Literature review. In agriculture, crop yields depend primarily on soil fertility, but soil fertility does not last a lifetime, it is constantly changing under various influences. In this regard, a lot of scientific research is being conducted in the country to determine the effectiveness of the selection of secondary, intermediate and siderate crops, including R.Aripov, H.Atabaeva, O.Mahmudov, M.Tojiev, N.Urazmatov, R.Tillaev, B.M.Khalikov, F.Khasanova, M.Mannopova, I. Khoshimov, I. Karabaev, F.Namozov, A.A.Iminov, G.Urinbaeva, I.Isroilov, N.N.Urazmatov and others.

The most important property of soil is its fertility. Fertility includes soil nutrient supply, water permeability, moisture capacity, mechanical composition, physical and chemical properties.

The research conducted by M.Tojiev, K.Tadjiev studied soil moisture, density and water permeability after repeated, intermediate and siderate crops before sowing and at the end of the growing season [1; 28]. After repeated, intermediate crops, the water permeability of the soil before sowing was 4-13 m³ higher than in the control option, and 32-91 m³ after siderate crops.

According to R.O.Aripov, repeated and intermediate crops increase the solubility of phosphates in the soil. When rapeseed, perco and other intermediate crops were planted, the amount of phosphorus in the driving layer of the soil was 11.8-16.6 mg / kg [2, 60-64]

Research methodology. The field experiment was conducted in 2014-2017 at the farm "Yangi Zafar Maksat" Altynkul district of Andijan region. The experimental field soils have long been irrigated, non-saline meadow gray soils, and the groundwater table is 1.5–2 m deep.

The manual "Methods of agrophysical research" was used in the experiments to conduct agrophysical analysis of the soil.

- The volumetric mass of the soil was determined by weighing in the method of N.A.Kachinsky.

- soil water permeability was determined at the beginning and end of the application period by means of a square frame for 6 hours in each variant separately by S.N.Ryjev method.

- the change in soil moisture was determined by thermostatic weighing by taking samples from every 10 cm layer to a depth of 0-100 cm before each irrigation.

The experiment on the effect of intermediate crops on soil fertility and cotton yield consisted of 4 variants, and experiments were conducted on 4 replicas. The total

¹ <http://www.fao.org>, <https://mel.cgiar.org>, <https://www.sciencedirect.com>, <http://agro.uzrecommendations>

area of one option was 1440 sq m, of which the area to be taken into account was 720 sq m.

Analysis and results. The aim of our research is to increase soil fertility by planting intermediate crops after winter wheat in crop rotation systems and plowing them with root and stem residues in autumn. As a result, in the areas with high productivity, the main crop is cotton, which is abundant and of high quality, with positive results.

In his research on typical gray soils of Tashkent region, B. Khalikov added 9-10 tons of organic residue per hectare in the soil during one rotation as a result of the addition of triticale from intermediate crops, and mash, as a repeat crop in the system of short-rotation (1: 1, 2: 1) rotation. It was also found that the amount of humus in the soil increased by 0.020-0.035%, nitrogen by 0.018-0.022%. [3;452]

According to F.Namozov, in the 1: 2 system of crop rotation, the amount of organic residues (roots and stemss) left in the soil when sowing soybeans after winter wheat, two-component intermediate crops (oats, green peas) after soybeans, relative to the combined organic residues of winter wheat and soybeans 38-40% (4.4 t / ha) and three-component intermediate crops (oats, green peas, rye) left 45-47% (5.2 t / ha) more organic residues. [4; 30]

According to the research data of O. Ibragimov, M. Botirov, as an intermediate green manure of crops, due to the fertilization of rape with green manure, an increase in insoluble phosphorus up to 56-61%, potassium 12-13%, nitrate nitrogen up to 18% and the humus content on average 8 -18% in soil [5; 29-30].

According to our data (Table 1), a total of 35.6 c/ha was collected in the rapeseed variant, and a total of 31.8 c/ha in the vetch planted variant, while this figure was 58.6 c/ha in the mixed variant of rapeseed and vetch, it was found that planting rapeseed and vetch as two-component rather than one-component as a secondary crop was more effective in accumulating more organic mass in the soil.

On areas cleared of winter wheat, in the first half of July, a mixture (two-component) of rapeseed and vetch seeds is planted using a fertilizer rate of 60-40-30 kg/ha for individual crops and 100-70-50 kg/ha for mixed crops, during the growing season with 4-fold irrigation when sowing mixed (two-component) crops, 119.1 t/ha of rape seeds, 112.4 t/ha of vetch and 224.3 t/ha of green mass were grown, and it was found that 35.6 31.8 , 58.6 c/ha of stem and root residues, respectively.

Table 1

Stem and root residues of winter wheat and repeat crops, c/ha

Options	Annual norm of fertilizers, kg/ha			Stem residues	Root residues		All of the residues of stem and roots
	N	P ₂ O ₅	K ₂ O		0-30 cm	30-50 cm	
Winter wheat							
1-6	200	140	100	18,4	15,4	1,6	35,4
7-10	200	140	100	19,2	14,8	1,2	35,2
11-14	200	140	100	21,7	16,2	2,0	39,9

15-18	200	140	100	20,2	15,4	1,6	37,2
Repeated crop – rapeseed							
7-10	60	40	30	14,3	19,9	1,4	35,6
Repeated crop – vetch							
11-14	60	40	30	11,7	18,3	1,8	31,8
Repeated crop – rapeseed + vetch							
15-18	100	75	50	21,4	35,0	2,2	58,6

In our research, it was observed that the water permeability of the soil also improved due to the large accumulation of residue and root residues in the soil. (Table 2).

If it was determined that the initial water permeability of the experimental field soil was 701 m³/ha for 6 hours before repeated rapeseed and vetch planting (in summer), the water permeability of the experimental field was found to be 742, 765, 796 and 819 m³/ha in 6 hours before sowing the seeds (in spring) in the place of rapeseed and vetch care. Based on the results of our observations, it was observed that the water permeability of the soil was higher in the intermediate rapeseed and vetch planted options compared to the non-planted control option. That is, while the control for a total of 6 hours was 742 m³/ha in the variant, it was 765, 796, 819 m³/ha in proportion to the variants.

In our study, it was observed that the water permeability of experimental field soils was 23, 54, 77 m³/ha higher in the variants planted with rapeseed and vetch than in the control variant, which was not planted in the intermediate crop.

Table 2

Effect of replanted rapeseed and vetch on the permeability of experimental field soil, (m³/ha).

Fixed time, hours	Before planting intermediate crops	Before sowing the seeds, at the beginning of the period of application of cotton			
		In the control option, the crop is not planted after the winter wheat	In the area planted with intermediate rapeseed	In the area planted with intermediate vetch	In the area planted with intermediate rapeseed+vetch
1	218	231	246	264	268
2	144	156	174	172	195
3	121	133	122	136	124
4	78	86	86	84	96
5	72	72	78	72	72
6	68	64	59	68	64

In total 6 hours	701	742	765	796	819
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Conclusion: So, based on the results of experiments and data from scientific sources, we can say that planting rapeseed and vetch as an intermediate crop after winter wheat left a large amount of organic residue in the soil, as well as improved soil permeability.

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UDC: 632.936.2

PROTECTING POMEGRANATES AGAINST THE MAIN DRYING PEST

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Аннотация. Мазкур мақолада анор ширасининг биологияси ва зарари бўйича илмий тадқиқотлар натижалари келтирилган бўлиб, анорзорларда анор ширасининг зарар келтириш даражасига етишини кутмасдан барг ёза бошлаганда ёппасига қирувчи заҳарли кимёвий моддалардан ишлов бериш мақсадга мувофиқ. Анор ширасига қарши барча хлорникотиноид препаратлар ҳар гектарига 0,2 л (кг) сарф этилганида энг юқори самара 14 кун мобайнида 97-99 % гача бўлди.

Калит сўзлар: анор, анорзор, зарарқунанда, зарарланиш, анор шираси, личинка, қарши кураш

Аннотация. В этой статье представлены результаты научных исследований биологии и вреда гранатовой тли и рекомендуется обрабатывать её токсичными химическими веществами, которые массово убивают его, когда он начинает сбрасывать листья, не дожидаясь, пока гранатовая тля достигнет уровня повреждения. Поскольку в это время количество полезных насекомых невелико, тля не успевает спрятаться внутри деформированных листьев.

Ключевые слова: граната, гранатовый сад, вредитель, вредоносность, гранатовая тля, личинка, меры борьбы

Annotation. In this article is presented the results of scientific research on the biology and harm of pomegranate juice, and it is advisable to treat pomegranate juice with toxic chemicals that kill it en masse when it starts to shed leaves without waiting for the pomegranate juice to reach the level of damage. When all chlornicotinoid drugs were consumed against pomegranate juice at 0.2 l (kg) per hectare that the maximum effect was 97-99% in 14 days.

Key words: Pomegranate, pomegranate pest, pest, pomegranate juice, larvae, control.

Introduction. Horticulture is the most labor-intensive branch of agriculture in the country. Since the first years of independence, special attention has been paid to the development of the horticultural industry.

On the basis of the proposals of President Sh. M. Mirziyoyev on the creation of intensive parks, expansion and development of territories on the territory of the republic, large-scale work is being carried out.

After all, ensuring the country's food security, growing quality fruits and vegetables for the population is one of the main foundations of well-being.

Literature review. Grace table and pomegranates planted it in accordance with the requirements of the fruits of development, in addition to a number of pests - the arguments actually became directly related to protection [5].

Methodology. Pomegranate trees affect the pomegranate aphid (*Aphis punicae*), the pomegranate scale insect (*Aspidiotus hederae*, *Coccus magnoliarum*, *Lepidosaphes ulmi*), the moth (*Euzophera punicaella* Mooze), the comstock worm (*Pseudococcidae*); Diseases include phomopsia, gray rot of fruits (Kulkov, 1986; Nabiev, 1991; q / x encyclopedia, 1949; Popov, 1961).

In 2018-2019, we studied the biological properties of the pomegranate aphid (*Aphis punicae* Pass), one of the most significant and persistent pomegranate pests, as well as its harmfulness.

This pest lives only on the pomegranate plant. Size 1.75 - 2.00 mm, the body is ovoid, light green, with dark green spots on the abdomen. Winged spreaders are dark green and stand out from the rest. Aphids live in the newly emerged shoots of the plant, in the lower and upper parts of new leaves, in parts of the flower and feeds, sucking the sap [3]. Fallen leaves curl and become dirty, under the influence of aphids they stop functioning and dry up [1]. Attacking young twigs and pomegranate leaves, the colony forms clusters. The normal state of the plant is disturbed, growth slows down, young branches wither.

Under the influence of aphids, the yield decreases, the fruits fall off unripe, the quality of ripening deteriorates. The skin of the fruit darkens and becomes infected with aphids. Homemade syrup is formed in a full cycle. Winters in an ovoid state around the buds of branches. The founders of this sap begin to emerge from winter, when the buds begin to wake up in early spring when the pomegranate leaves begin to write. The awakening of the buds coincides with the moment the larvae emerge from the egg, and in most cases occurs simultaneously. The clutch of eggs by the founders depends on the weather and lasts 15-20 days. The total amount of useful temperature is 400 - 4200C. Observations have shown that the larvae of the first founders begin to emerge at an average air temperature of + 140C and a relative humidity of 64% [2].

From the above, it can be seen that the release of pomegranate aphids from eggs depends on natural climatic factors, biological properties of plants and many other factors. The founder of the generation of aphids that emerged from overwintered eggs and gave rise to all the next generations. These insects hatch in spring, grow rapidly, and upon reaching the imago station reproduce several parthenogenetic generations of wingless insects. [3]. As a rule, the founders hatch from the eggs at the same time as the buds open or the shoots of the primary food plant appear. This usually occurs in late March or early April (for example, melon aphids leave their wintering grounds when the air warms up to 12 degrees). Within about 2 weeks, and under favorable conditions, aphids after 5-8 days, they grow up, and the next 2 weeks they multiply. During this time, one aphid is capable of spawning from 40 to 200-300 larvae of the next generation. [1] Depending on the type of plant on which the pest feeds, the founder lays 5-15 larvae per day. This is especially true in mountainous and foothill areas. The intensive development of the founders of the pomegranate aphid occurs in the second half of April, and they occur until the end of April - the first half of May.

Wingless female - reproduce by parthenogenesis. Wingless insects appear among both migratory and non-migratory aphids. They are born from the founding female and themselves, in turn, give several spring-summer generations of insects. The appearance of wingless insects and their further reproduction is due to a combination of certain abiotic factors: an increase in air temperature and an increase in the duration of daylight hours [1].

Analysis and results. Wingless live reproductive aphids can be found in large numbers in the last 10 days of April. From one viviparous wingless aphid, 160-210 aphids are born in 5-6 days. The founding aphids and wingless viviparous aphids give

birth more often in the dark part of the day than in the light one. In years with favorable weather, it is observed that every 8-10 days, separate aphids are formed, which begin to multiply. By mid-May, aphid development is at its peak, during which time it forms a large colony on the leaves, at three points of growth, flower-based, fruit-based.

Among these colonies, a winged individual (or a winged female) is formed - the phase of the life cycle of aphids, which ensures the dispersal of the colony and migration to other plants. They fly to other intact plants and spread throughout the pomegranate plantation. In general, for good development of the second and new generations of pomegranate aphids, the maximum air temperature is 24-26°C, the minimum is 16-18°C, and the relative humidity is 78-85%. And vice versa, at high or low air temperatures, the life processes of aphids slow down, the interval between peeling of the peel lengthens, and nutrition deteriorates.

In pomegranate gardens from mid-May to late June, aphids strongly affect the pomegranate plant. An increase in the number of aphids at this time takes into account 4-6 generations, depending on conditions. The pomegranate aphid reaches the level of pomegranate infestation in the last 10 days of April.

At this time, when the number of the pest is two mature insects per leaf, when it reaches up to 35-40 pieces, then the shine of the leaves begins to disappear, the color changes from green to light green. The edges of the leaves begin to curl inward.



Picture 1. Damage to the pomegranate aphid (*Aphis punicae*)

Under the influence of the pest, the fruits and leaves of the pomegranate begin to darken. At the time of growth, reddish leaves begin to turn yellow, growth slows down, especially when leaves with aphids are closed under the influence of pest juice, leaf respiration and metabolic process deteriorate. The pressure of turgor in them, the tension of the leaves disappears.

Concsulusion/Recommendations. In pomegranate orchards, it is recommended to treat against the pomegranate aphid from toxic chemicals (nitrophenol, imidol) when it begins to shed its leaves without waiting for it to reach a level of damage. Since at this time the number of beneficial insects is small, the aphid does not have time to hide inside the deformed leaves. Other arthropods do not lay eggs. The absence of this time

leads to a rapid increase in the number of pests and widespread use of pesticides, which destroy all insects in this agrocenosis and pollute the environment. Processing at the specified time does not have a negative impact on the beneficial entomo fauna.

1) Parasites and predators enter pomegranate gardens later than weeds. Control observed trees will not undergo chemical treatment until the end of April, which will lead to a sharp increase in the number of pests. 2) At this time, the grenade is severely damaged by the pest. Pomegranate orchards aged 5 to 6 years are severely damaged. Young seedlings are damaged before drying out. 3) The leaves and fruits of the plant are strongly shaken under the influence of the liquid secreted by the pest. Ripe fruits fall from some trees. 4) At this time, chemical treatment of pomegranate plantations is effective.

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UDC: 361.9 (575.122)

PROBLEMS OF PREVENTING A CRISIS IN LABOR ACTIVITY

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Annotatsiya. Maqolada mamlakat taraqqiyotining asosiy shartlaridan biri bu malakali kadrlarning ishlashi ekanligi yoritilgan. Ushbu tizim yuqori darajada rivojlangan jamiyatda ijtimoiy va shaxsiy, ijtimoiy-siyosiy hayotda faol mustaqil qaror qabul qilishga qodir bo'lgan, umumiy kasbiy madaniyatga ega yangi avlodni shakllantirish imkoniyatini yaratadi.

Kalit so'zlar. Mehnat, inson resurslari, xodimlar, tanazul, iqtisodiy hodisa, ishchi kuchi.

Аннотация. В статье исследуется тот факт, что одним из главных условий развития страны является функционирование квалифицированных кадров. Эта система подчеркивает возможность формирования нового поколения людей с общей профессиональной культурой, способных принимать независимые решения в социальной и личной активной социально-политической жизни в высокоразвитом обществе.

Ключевые слова. Труд, человеческие ресурсы, кадры, кризис, экономическая ситуация, рабочая сила.

Abstract. The article examines the fact that one of the main conditions for the development of the country is the functioning of advanced personnel. This system emphasizes the possibility of forming a new generation of people with a common professional culture, capable of making independent decisions in social and personal active socio-political life in a highly developed society.

Keywords. Labor, human resources, personnel, crisis, economic situation, labor force.

Introduction. The economic situation in our country cannot be radically changed by various decisions or orders without changing people's attitude to work. This is a long evolutionary process, therefore, due to the need for personal development, employees need to be approached comprehensively, taking into account their interests and personal characteristics.

Most of human activity is based on conscious, that is, internal motives created by the intellect. The performance results depend on the qualifications of the performers, which includes theoretical knowledge, professional skills, as well as spiritual and economic aspects.

Literature review. Classical representatives of economics - A. Smith, W. Petty, D. Riccardo - also viewed wealth as mother earth, father labor. In Smith's 1716 book, A Study of the Nature and Causes of the Wealth of Nations, he wrote that "the main stimulus that activates a person is self-interest."

The Australian economist Schumpeter writes in his book *The Theory of Economic Development* that "the driving force of the economy is entrepreneurship." The influence of the human factor as human capital on various aspects of economic and social development has been the subject of fundamental research.

According to A. Marshall, "work is any mental or physical force that is used, in whole or in part, to achieve a result, except for the satisfaction of what he does." From the description of A. Marshall, we can conclude that a person will use all his mental and physical strength to achieve any result.

According to V. Inozemtsev, "labor is an activity that is performed correctly or relatively under the influence of external material needs."

Russian economist B.M. Genkin proposes to describe labor as: "Labor is the process of transforming natural resources into material, intellectual and spiritual goods, and a person controls this process or controls it either through coercion, or through internal motivation, or through both". According to B.M. Genkin's definition, labor can be viewed as a result.

As L.P. Vladimirova: "Labor is a human activity focused on the transformation of natural materials. Source of wealth. This is a necessary and necessary condition for human survival.

Labor is multifaceted, diversified, and people are constantly developing their workforce, creating new value that is much higher than the cost of living required to rebuild the workforce. Labor, as in the case of various phenomena, is a single whole, but it is divided into different categories that make up labor, so it is easy to master. "

According to P. Ye. Shlender and Professor Yu. K. Kokin: "Labor is a material or spiritual activity aimed at producing a product useful to society. From an economic point of view, these people deliberately work to adapt their needs to meet their needs. Labor is a special system consisting of three components: subjects of labor, means of labor and a person, in which processes are transformed into products. Labor is a process of consumption of a person's nervous and energy energy, and as a result, it creates value for the life and development of society. "

According to A.Kh. Abdurakhmanov, "labor is only a human activity to transform existing natural, material and intellectual resources into necessary products for personal and social needs. The concept of work, physiologically, is a process of mechanical activity of nerve and muscle movements and proteins, which is caused by the life energy accumulated in the body. "

Research methodology. One of the most pressing tasks in Uzbekistan today is to support and encourage civil labor and entrepreneurial initiatives, provide social guarantees in the field of employment and provide social guarantees and protection against unemployment. "

The effective use of the human factor is directly related to the labor policy and employment policy in the country. That is why control over the implementation of demographic forecasts and the implementation of a consistent policy aimed at employment of the able-bodied population and the formation of the labor market is one of the priorities in the near future.

The economic situation in our country cannot be radically changed by various decisions or orders without changing people's attitude to work. This is a long

evolutionary process, therefore, due to the need for personal development, employees need to be approached comprehensively, taking into account their interests and personal characteristics. At present, there is a crisis of labor activity, and on the basis of this crisis is understood the departure from work, the loss of perception by the majority of workers of the role that constitutes the content of labor. As a result, a special type of social protection is formed, in which a person overcomes the crisis, manifests himself as a person, adopting a new profession and takes a new place in life, and at the same time acquires a new social status. It should also be noted that most employees are in conflict with their employers due to their inability to comply with labor laws.

The employee sells his labor force - the ability to work, and the manager sells services for the organization of production activities. After the conclusion of the agreement, the employee becomes the executor, and the manager becomes the head of the enterprise. The basis of a manager's income is remuneration for the performance of the company he heads.

An employee is a natural person (labor force) whose only work ability is the subject of his right. But this ability, of course, belongs to him, that is, the employee himself is not the object of anyone's rights. He: a) receives the right to free choice and b) reproduces the products of his activity.

Entrepreneurship provides a comprehensive solution to the problem of employment from a socio-economic point of view. At the same time, a person is not only provided with a clear workplace, but also his attitude to work changes, passive dependence is replaced by active positive work.

It is entrepreneurship that allows you to increase human initiative, improve as a person. To develop this, he begins to creatively work on himself.

Concepts such as progress, regression, stagnation, crisis and stabilization of the personnel system are important for understanding the modern nature, essence, characteristics of personnel innovations, as well as the personnel system.

Consideration of these concepts is necessary for a better understanding of the reasons for innovations in the personnel system, the role of personnel development in the case of any socio-economic systems and structures (country, region, ministry, organization). All of these systems and their personnel can be in different situations at different times (from full prosperity to crisis).

Knowledge of these situations will allow you to make the right decision, develop the necessary strategies, tactics, methods of development and personnel renewal. At the same time, labor is a complex socio-psychological process, which is an indefinable natural necessity for human life. Labor is a process between man and nature, in which man directly expresses, regulates and controls the exchange of substances between himself and nature.

After the Marxist concepts of labor, which for many years were recognized in our country as "the ultimate truth", the theory of labor has developed very carefully. Several fundamental internal works devoted to labor can be called as a phenomenon.

We consider labor as a socio-economic and legal category. It has been studied since ancient times by many scientists around the world, who considered purposefulness and creativity the most important sign of work. In the process of labor, people create material and spiritual wealth.

Let's consider the difference between the concepts of "labor" and "activity" of a person. Labor is a type of activity, but the concept of "activity" is broader than the concept of "labor", because any activity does not turn into labor. The same can be said for functions - the process by which people perform certain functions. In fact, labor and activity are equivalent concepts, synonyms.

Qualifications, professional knowledge, skills, abilities. First of all, in addition to the moral level determined by the culture of work, this also includes economic training, which is so necessary for everyone. Gives an idea of the simplest skills of economic analysis, comparing the totality of costs with the results of labor, reveals the features of the formation of a market economy. The higher the level of economic knowledge of direct producers of material goods, the greater their role in achieving positive results in production.

Analysis and results. Labor potential is the ability of a person to work to ensure the production activities of the organization; human potential is characterized by professional and personal qualities and human abilities in general. At the same time, human capital includes the implementation of work skills, knowledge and human abilities, which, in turn, make a profit through the enterprise.

Human capital is a single whole with a person, and with its help the enterprise achieves high profitability. Labor potential is the ability of a person to work to ensure the production activities of the organization; human potential is characterized by professional and personal qualities and human abilities in general. At the same time, human capital includes the implementation of work skills, knowledge and human abilities, which, in turn, make a profit through the enterprise. Human capital is a single whole with a person, and with its help the enterprise achieves high profitability.

In the modern economy, there are social standards of living standards, some of which can be used to assess the human potential of an enterprise and stimulate its transition to human capital: labor protection (percentage of those employed in hazardous working conditions,%); industrial injuries (in% of dynamics); occupational diseases (dynamics,%); costs of the enterprise for labor protection (dynamics, in%). This, on the one hand, and on the other hand, the reason why any work should be standardized, is that a person must know the requirements and limits of the work task performed by him. You should also believe in changing positions in the work process and receive more material and spiritual rewards. As a rule, competent leaders skillfully use and develop human potential for human capital. But in this enterprise, the employee receives his own income (salary).

Only purposeful activity can be work that represents the desire to obtain a useful result. The expediency of the activity lies in the understanding that the result is necessary both for the person performing the activity and for other people. Wrong activity is a useful, harmful, useless activity for anyone, it is a waste of a person's energy and does not lead to positive results.

At every moment of life, a person is in one of two states - activity or inactivity. Activity (as well as action, movement, movement as part of an activity) is one of the existing forms of the human being, an active process in which the physical and mental abilities of a person are manifested, which is focused on too many actions to satisfy any need. Inactivity is a passive process associated with periods of recovery (sleep,

passive rest), as well as periods of voluntary or obligatory (period of severe illness, time of arrest, etc.).

Conclusion and Recommendations. Thus, labor is a conscious, purposeful and useful (legal and obligatory) human activity to obtain or create vital (material and non-material) benefits to meet personal and (or) social needs.

The use of the worker's labor should be based on the principle of creating broad opportunities for him to obtain material benefits by increasing labor productivity. Of course, in connection with structural changes in the economy as a whole and the introduction of advanced technologies, problems of efficient use of labor continue to arise. The challenge for economists is to make full use of the labor force given the resources available. This requires the development of a rapidly growing workforce, especially labor-intensive industries, in order to provide employment for young people.

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UDC 94(575.1)

THE ROLE OF INTERNATIONAL RELATIONS IN IMPROVING FOREIGN LANGUAGE TEACHING

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Аннотация. Мақолада Ўзбекистондаги олий таълим муассасаларида жаҳоннинг етакчи илмий-таълим муассасалари билан яқин ҳамкорлик алоқалари ўрнатиш, ўқув жараёнига халқаро таълим стандартларига асосланган илғор педагогик технологиялар, ўқув дастурлари ва ўқув-услубий материалларини кенг жорий қилиш, малака ошириш курсларига хорижий ҳамкор таълим муассасаларидан юқори малакали ўқитувчилар ва олимларни жалб қилиш, уларнинг базасида тизимли асосда республика олий таълим муассасалари магистрант, ёш ўқитувчи ва илмий ходимларининг стажировка ўташларини, профессор-ўқитувчиларни қайта тайёрлаш ва малакасини оширишни ташкил қилиш ҳақида сўз борган.

Калит сўзлар: таълим, ислоҳот, хорижий тил, IELTS, CEFR, ҳамкорлик, ўқув дарслик, дастур, PRESETT, АҚШ, Буюк Британия, стажировка, қайта тайёрлаш, малака ошириш.

Аннотация. В статье показана особая роль совершенствования обучения иностранным языкам в налаживании тесного сотрудничества Высших учебных заведений Узбекистана с ведущими зарубежными научными и образовательными учреждениями, в широком внедрении в учебный процесс передовых педагогических технологий, учебных программ и учебно-методических материалов на основе международных образовательных стандартов, в привлечении на курсы повышения квалификации из зарубежных образовательных и научных учреждений высококвалифицированных преподавателей и учёных, в создании на этой базе стажировок магистрантов, молодых преподавателей и научных сотрудников а также в организации переподготовки и повышении квалификации профессорско-преподавательского состава.

Ключевые слова: образование, реформа, иностранный язык, IELTS, CEFR, сотрудничество, учебник, программа, PRESETT, США, Великобритания, стажировка, переподготовка, повышение квалификации.

Annotation. The article establishes close cooperation with the world's leading scientific and educational institutions in higher education institutions of Uzbekistan, the widespread introduction of advanced pedagogical technologies, curricula and teaching materials based on international educational standards, highly qualified teachers from foreign partner educational institutions and the involvement of scientists,

on the basis of which on a systematic basis to organize internships, retraining and advanced training of masters, young teachers and researchers of higher education institutions of the republic.

Key words: education, reform, foreign language, IELTS, CEFR, collaboration, textbook, education program, PRESETT, USA, UK, internship, retraining, training.

Introduction. Peoples who speak different languages began to learn each other's language, customs and way of life at the same time as the establishment of neighborly relations. Due to the revival of trade and cultural ties, the study of foreign languages for practical and educational purposes has been developed. In ancient Syria and Egypt, Greece and Rome, it was customary to study the languages of another nations during the periods of cultural development [1.63-66].

The great achievements of Uzbekistan as a result of large-scale reforms are widely recognized by the world community. In particular, the practical work on educating young people, the introduction of modern pedagogical technologies in language teaching, in particular, the acquisition of language skills on the basis of world and European educational standards, strengthens the position of Uzbekistan in the international arena. In the increasingly modern world, not only economic interests, competition, scientific and technological progress, but also the language attracts the attention of other nations.

Also, as a result of established diplomatic relations, the need for specialists with a deeper knowledge of foreign languages is growing. The experience of some countries in this regard is based on strategic goals, close neighborly relations, and forecasting the level of world development. For such purposes, in addition to the mother tongue, Russian and English are taught in China, English and French in India, and English, German, and Russian in South Korea from the lower levels of education.

As in all parts of the world, in the territory of Uzbekistan, from ancient times there has been an interest and need to know the languages of other peoples besides their native language. Indeed, multilingualism is a powerful tool of our people "serving the interests of international friendship, brotherhood and cooperation, the expansion of economic, political, scientific, cultural and literary ties between peoples" [2.3]. As well as "Language is the most important communication tool in human society, created and served by society. ... every word in a foreign language reflects the culture, spirituality, "experience of knowing the world" of the people who speak that language [3.46-47]. Therefore, it can be seen from the information about historical figures that in all times there was a need and interest in learning a foreign language. It is no secret that the Uzbek people have always been spiritually and physically tolerant and international. All people living on earth are not only witnesses of the rapidly changing world, but also direct participants in complex and continuous processes such as the development and advancement of world culture, science and technology. Currently, the issue of teaching and learning foreign languages in Uzbekistan is receiving attention at the level of state policy. A new stage, a new era in the teaching of foreign languages has begun in our country.

Today, the most important condition for the development of the intellectual potential of the youth of independent Uzbekistan is the acquisition of broad knowledge and professional skills, active communication with their peers abroad, comprehensive

awareness of all events, innovations and changes in the world. Great importance is attached to the further improvement of international cooperation for the in-depth study of foreign languages.

Research Methodology. The article is based on the principles of generally accepted historical methods - historical, comparative-logical analysis, sequence, problem-chronological and interdisciplinary approach, statistical research and impartiality. The historical aspect of the matter is shown.

Literature review. A group of scholars conducted research on the use of technical means in teaching foreign languages [4.184] Some scholars recommend the use of teaching aids and programmatic teaching materials in foreign language teaching, as well as designating the textbook as a means of teaching and learning English to students [5.255]. J. Buronov published a number of textbooks and manuals on comparative grammar of foreign languages [6.268]. Orientalist Yu.Abdullaev and A.Bushuylar [7.272, 150] published works on the importance of knowing a foreign language in modern times. At present, research work is being carried out on the basis of a completely new approach and views on the theory of translation and its various aspects, scientific-practical conferences are being held on topical issues [8.352]. Dictionaries play an important role in the quality of translation, as well as in language learning [9.947]. There are also works on the history of foreign language learning [10.328].

At the level of state policy, Uzbekistan pays special attention to the training of competitive personnel who have mastered foreign languages, modern science, radically change the educational process, update the quality of education on the basis of international experience. In particular, the Action Strategy for the five priority areas of development of Uzbekistan for 2017-2021 pays special attention to "in-depth study of other important and demanding subjects, such as radical improvement of the quality of education, foreign languages, computer science ..." [11] Therefore, in recent years, Uzbekistan has paid serious attention to the national education system, making radical changes in the system of teaching foreign languages and conducting research aimed at overcoming the existing problems, analyzing the results achieved in this regard.

Analysis and results. Through a foreign language, the world becomes aware of the innovations that lead to development, and conditions are created to keep pace with development. At the same time, it is in that language that the culture of a nation can be spread around the world.

Today, it is time to teach a foreign language to children in a way that does not interfere with national identity. The great achievements of large-scale reforms in Uzbekistan are deservedly recognized by the world community. In particular, practical work is being done to educate young people, to introduce the use of modern pedagogical technologies in language teaching, in particular, the acquisition of language skills on the basis of world and European educational standards. Radha Krishnan, Chairman of the Gandhi Memorial Foundation, a Malaysian guest from abroad, said: "Every time I visit Uzbekistan, I am amazed and delighted by the achievements in all areas, especially in the field of education. I was especially impressed to see that young people in your country are fluent in many foreign languages, especially English, due to the attention paid to learning foreign languages

in your country. The introduction of English language teaching in Uzbekistan from the first grade is one of the most positive steps taken to ensure the maturity of the younger generation, thinking about the future of the country. Li Ji, a Chinese scholar and director of the Central Asian Institute at Shaanxi Pedagogical University, also noted that Uzbekistan has a great potential in the world, including in the system of international relations, democracy and rapid economic growth. therefore, many countries around the world are seeking to expand cooperation with your country [12], he said.

Indeed, today the international prestige and position of Uzbekistan is growing, as socio-economic processes in the country are rising to a new, higher level and becoming a decisive force. In particular, the Uzbek State University of World Languages, which specializes in foreign languages, is working hard to further improve the teaching and learning of different languages, to raise the level of training. In 2001, together with foreign experts, 150 students with English language skills were selected from among the students on the basis of a special program. The ELIT department later began teaching at the IELTE Institute for English Language Teacher Education. The department is provided with textbooks published abroad and in the republic. All teachers who teach at IELTE have been trained in special courses and have started teaching new subjects in the program in an interactive style in English only. The department was taught by more than 20 experts from the UK, USA, Hungary, Turkey and New Zealand. Various meetings with students were organized in cooperation with embassies and international organizations. More than 2,500 textbooks, scientific and fiction literature were provided for the department [13.11].

According to the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 124 of May 8, 2013, in cooperation with international experts, based on the European requirements for continuing education (CEFR), new state educational standards for foreign languages and teaching two hours a week in primary school a new curriculum was developed. Accordingly, textbook sets (textbook, teacher's book, exercise book and DVD disc) for 1st and 4th grades were created and published on the basis of DTS and curriculum and distributed to students free of charge. These textbooks were created by local authors with the help of foreign consultants, taking into account the psychological and age characteristics of school-age children. These new generation textbooks have been reviewed and improved by foreign experts in direct cooperation with the British Council in Tashkent, the Goethe Institute and the French Embassy. , 28 in German and 28 in French. It should be noted that the experimental testing of the textbook complex "Kids' English-4" for 4th grade students was conducted in previous years by experimental teachers with some experience in this area [14]. One of such important experiments was the basic research conducted a few years ago by OOMTV, the Uzbek State University of World Languages and the British Council to study the training of English language teachers. The survey project, aimed at continuously improving the quality and level of English language teaching in Uzbekistan, improving the process of training future English teachers and mastering the exact and world-class requirements for graduates, has the following main conclusions: - Increased interest in the profession of English teacher , the majority of graduates choose this profession. Along with the implementation of the Council of

Europe's Common European Framework of Reference (CEFR), the requirements for learning foreign languages in the system of continuing education of the Republic of Uzbekistan have been developed. It stipulates that graduates majoring in foreign language teaching must have at least a S1 level in a foreign language they are studying at the end of their four-year study at a higher education institution, as is the case in many countries. These reforms were implemented in the framework of cooperation between the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan and the British Council. The project involved 18 universities specializing in the training of English language teachers in the country, and the Uzbek State University of World Languages acted as a coordinator. The Norich Language Teaching Institute in the United Kingdom and the University of East Anglia participated as foreign international partners in the project, known as PRESETT. The word PRESETT actually means 'pre-service teacher training' and is an internationally recognized term. The PRESETT program is a four-year undergraduate curriculum designed to train teachers for primary and secondary special education institutions and has been gradually implemented in the country's universities specializing in the training of foreign language specialists [15,97].

Each higher education institution has established close cooperation with the world's leading scientific and educational institutions, the widespread introduction of advanced pedagogical technologies, curricula and teaching materials based on international educational standards in the educational process, educational activities, master classes, training. Active involvement of highly qualified teachers and scientists from foreign partner educational institutions in their courses, on the basis of which on a systematic basis to organize internships, retraining and advanced training of masters, young teachers and researchers of higher education institutions of the republic A "Roadmap" has been developed [16].

Participation in the International Congress in Avila at the invitation of the European Association of Spanish Teachers (AEPE), Spanish culture and history, modern methods of teaching Spanish, exchange of experience with Spanish language experts on European educational standards, application of new experiences in our national education system Young teachers of the Uzbek State University of World Languages (B. Hamrakulova, S. Sharipova) have been trained. A special seminar for French language teachers on interactive methods of teaching a foreign language throughout the country was held at the University of Methodists of Primary and Secondary Schools (P. Buassonne, L. Alexandre, P. Muanar) of the Higher School of Pedagogy and Education (ESPE) under the French Academy of Versailles. held a video conference, a seminar-training on the Erasmus + project to improve the skills of professors and teachers of French, German, Spanish and English languages. In recent years, the British Council has implemented projects on English Language Teacher Training and Curriculum Reform, the US Embassy has partnered with School Teachers and Trainers, and the Primary School Assessment Complex.

In 2016, 37 professors and teachers were sent to foreign universities and research institutions from the Uzbek State University of World Languages for training and exchange of experience, as well as 60 students for internships and language courses organized in foreign countries. During 2017, the university had 16 foreign specialists

to teach students in English, Spanish, Italian, Chinese, Japanese, Korean, Indonesian, Russian and conduct seminars and trainings for professors and teachers. Twelve foreign experts were invited to conduct short-term seminars [17.17].

Conclusion. In conclusion, it is appropriate to state the following:

- Theoretical, conceptual, scientific bases and strategic perspectives of the state policy on education in Uzbekistan from the point of view of historical perspective;
- Analysis of the adopted normative and legal acts on international relations of Uzbekistan, the growing interest in learning foreign languages in the education system and the radical improvement of the system of foreign language teaching is confirmed by historical sources;
- The radical reform of the quality of education in the national development of the country is reflected in the growing need for training specialists in foreign languages;
- The mechanism of modern approaches to international relations in improving the teaching of foreign languages.

Also, suggestions and recommendations include:

- Teaching foreign languages to the younger generation in the education system of Uzbekistan in the process of globalization using modern pedagogical and information and communication technologies, training of specialists who are fluent in the language they have learned;
- Strengthening international cooperation of higher education institutions with foreign languages and prestigious universities;
- Development of a “Roadmap” for the organization of internships, retraining and advanced training of young scientists in educational institutions.

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UDC: 263.060.1:130.511.1

SOCIO-PEDAGOGICAL PURPOSES OF MODERN PHYSICAL EDUCATION.

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Аннотация: Ушбу мақолада таълим олувчилар жисмоний маданиятини ривожлантириш, ҳар томонлама баркамол шахс бўлиб улғайишларида замонавий жисмоний тарбия дарсларига қўйиладиган талаблар, жисмоний ривожланиш, саломатликни мустаҳкамлаш, соғлом турмуш тарзини тарғиб қилишда янги ёндашув асосида жисмоний таълим беришнинг ижтимоий-педагогик мазмуни таҳлил қилинган.

Калит сўзлар: таълим, таълим олувчилар, тарбия, жисмоний тарбия, жисмоний тарбия дарслари, замонавий ёндашув, методика, спорт, педагогика.

Аннотация: В данной статье анализируется социально-педагогическое содержание обеспечения физического воспитания на основе требований, предъявляемых к современным занятиям физической культурой, физическому развитию, укреплению здоровья, новому подходу к пропаганде здорового образа жизни в развитии физической культуры педагогов, вырастающих как всесторонне компетентная личность.

Ключевые слова: образование, педагоги, воспитание, физическое воспитание, занятия физической культурой, современный подход, методология, спорт, педагогика.

Annotation: This article was analyzed based on the socio-pedagogical content of education, the development of Physical culture of students, the requirements for modern Physical education lessons in their development as a comprehensively developed person, a new approach to physical development, health promotion, promotion of a healthy lifestyle.

Key words: education, students, physical education, physical education lessons, modern approach, methodology, sport, pedagogy.

Introduction: In the world, researches are underway to create innovative models to study of human health, physical perfection and capabilities, to study of the impact of physical maturity on human mental and social activity, in particular, the development of physical culture of students of higher education. The UN General Conference on education, science and culture was adopted on November 21, 1978 in Paris. The conference aims to develop the physical maturity and culture of the nations of the world through sports. The task of improving the socio-pedagogical environment in every society, educating the next generation, students and staff, both mentally and physically, is of global importance.

There is need to create a modern scientific and pedagogical methodology for the development of physical culture of students in higher education institutions of the country. Therefore, reforms are being carried out in our country to protect the health of the nation, a healthy outlook of the population of all ages, physical, spiritual and intellectual health and a healthy life style in society.

Literature Review: P.S.Salomov and F.A. Kerimov researched the improvement of state educational standards in physical education in the country on the basis of a component approach. T.S.Usmanxodjayev from Uzbekistan, V.A.Maslyakov, V.S.Matyajov from the CIS countries, D.Sudgen, M.Talbot from European countries. They researched the methodological aspects of improving the state requirements for the content and quality of professional development of physical education teachers.

I.A.Koshbaxtiyev, E.Y.Rozin, T.M.Solovyev, L.A.Xasin, V.Y.Volkov and A.Y.Zlyubin researched the methods of teaching Physical Education and the problems of using information technology in that process.

Research Methodology: In the course of the research were used scientifically-philosophical principles and methods such as systematics, theoretical-deductive conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis

Analysis and Results: Physical Education is a process aimed at achieving physical maturity. Physical education focuses on the development of movement, skills, abilities and average physical qualities. Mental, moral, aesthetic and labor education are carried out simultaneously in Physical Education lessons.

Physical maturity characterizes complete health. The process of physical maturity consists in the manifestation of person's physical and abilities in any external environment, the development of physical and volitional qualities, motor skills and body shape.[15].

Physical education is one of the key factors in the future of society by ensuring the physical well-being of student in each country. However, according to evolution of social development the traditions of physical culture did not developed in a short time. «The history of the development of modern physical culture dates back to ancient period. Nowadays, the universal system provides a full opportunity to develop human physical perfection»[16]. As a result of foreign experience and historical development, a methodology for the development of physical culture is being formed in our country.

It should be noted that in the development of methods of physical education, a lot of research have been conducted to study the role of physical culture in the world and in the private education system of each country and analyze its importance in integrating into the lifestyle of each person. As a result of scientific research, physical culture has proved its role in the world and in every country in it, and the principles of physical culture have been developed. These principles include the following:

- The principle of functional-healthing that development of the qualities of physical perfection of physical culture in human;
- The principle of developing human both spiritually and physically;
- The principle of the connection of physical culture with labor and military practice[17].

Foreign scientific and methodological literature shows that many universities around the world use physical education focused on one sport.

Table 1

The system of physical education of students in different countries.

Countries	Compulsory courses	Faculty courses (compulsory participation)	Competitions
USA	4 hours a week – total 144 hours In 1 st and 2 nd courses Football, volleyball, basketball	72 hours a year swimming, tennis, karate, basketball, athletics, gymnastics.	swimming, tennis, basketball, athletics, racketball, american football
China	4 hours a week – total-144 hours In 1 st and 2 nd courses Football, ushu, basketball, volleyball	72 hours a year swimming, football, tennis, ushu, basketball, athletics, gymnastics, sti-gun, badminton, bodybuilding, volleyball In high courses	swimming, football, tennis, ushu, basketball, athletics, table-tennis
Russian	4 hours a week– total 144 hours In 1 st and 4 th courses	swimming, mini-football, basketball, athletics, gymnastics, UJT, volleyball	Students League: Mini-football, volleyball, basketball, athletics
Uzbekistan	2 hours a week – total 72 hours In 1 st and 2 nd courses wrestling, basketball, athletics, football, volleyball	_____	Every three years, the Republican Universiade competitions are held for students.

In recent years, at a new stage of development of Uzbekistan, Decrees of President and decisions of the Cabinet of Ministers have been adopted in the field of physical culture and sports. All of them became the basis for the creation of a system of improving the physical culture of young people in our country. The system of development of physical culture in our country has created opportunities for all segments of the population to engage in physical culture[15]. The pedagogical system of development of physical health and education is created by implementing the these reforms in students. Reforms based on the principles of public health are aimed at creating a socially healthy environment and harmoniously developed people and healthy culture in our country. Strengthening the health of the people will be achieved through further improvement of living standarts. Ensuring public health is related to state of the natural environment and the social environment. So, human health is the property of the state.

Therefore, ensuring the state of the social environment by preserving human biosocial health is an important task of the state.[18]. While it is also possible to have impact on the nation's gene pool by ensuring the physical health of community members, it will be possible to influence society as a whole by developing physical culture in students.

The purpose of the development of physical culture in students is to demonstrate the energy, enthusiasm and strong will of young people in economic, political and socio-innovative changes in our country. Based on scientific research and opinions, physical culture is considered an integral part of universal and national culture.

Today, the physical and mental development of young people is of great importance in our country. Therefore, the purpose is to increase training personnel in line with world standards by the physical and mental capacity of students through the combination of physical education and sports. Nowadays, modern and comfortable sports infrastructure is being built in all regions of the country, even in the most furthest districts. Over the past two years, the number of people who regularly training with sports has doubled in our country»[20]. This is one of the important changes in the development of physical culture skills among young people through physical culture and sports in our country.

Engaging in physical education and sport develops students' personalities and beautifies their stature. As well as morphological and functional changes in their physical education and body composition, weight, muscle strength, vital capacity of the lungs, chest excursion will have a high index in them. Students' mental and spiritual qualities are nurtured. The role of physical education is important in this regard. Therefore, special attention should be paid to physical education and sports.

The role and importance of national and folk games is high in the development of physical culture of students and the development of skills of commitment to national value. The teacher-coach teaches students the methodology of movement games on the basis of the plan for the organization and conduct of national and folk movement games in the training courses and recommends literature for independent reading. In order to form pedagogical skills in the organization and conduct of national and folk movement games attention is paid to the following key aspects. Conducting action games provides the teacher with knowledge, skills and competencies through methodological foundations and using from them. Games that organized properly improve health. Outdoor games provide being tempered»[15]. Hence, it is expedient that the specific methodology in the national education system should have a strong ideological significance.

Mass sports games and competitions held in educational institutions have a play important role in improving the quality of physical culture in students, improving their physical capabilities, bringing them up as healthy and strong-willed people. Physical education activities with students are organized for the purpose of their health and physical development. Physical training, sports, health-improving activities are carried out in accordance with the normative documents of physical specialists on the basis of a plan approved by the pedagogical staff of the educational institutions. Physical education activities are organized on the basis of the state educational standard and the

program for physical education[21]. These activities will help students in consistent, orderly, rigorous pedagogical exercises and preparatory work.

The theoretical knowledge section of the physical education program, which serves to develop the qualities of physical culture in students, describes the beneficial effects of exercise and natural factors on the body. This program provides theoretical knowledge about the types of sports, their history and about them. The program also explains the importance of a healthy lifestyle and the negative impact of harmful habits on the body

The materials section of physical lessons in the education system explains the study of exercises and sports, skills, techniques and tactics. These include gymnastics, athletics, movement and sport games, swimming and rhythmic gymnastics exercises. The norms of control of physical fitness are explained in these sports[22]. Proper planning of physical education activities on the basis of the physical education program in the pedagogical process has a positive impact on the level of education and development of physical culture skills in students. The organization of physical education classes in educational institutions on the basis of advanced foreign technologies is highly effective in educating students in a healthy way and along with physical development, to become mature professionals. Also, physical education is one of the important components of the system of social education aimed at the formation of physical and volitional qualities in students, their mental and physical development. Ensuring the healthy development of young people has been the main idea of the works of our national pedagogy and folklore[23]. Therefore, one of the main tasks is to study, analyze and apply them to the education system.

Conclusion: The main socio-pedagogical purposes of modern physical education courses are:

1. Students can develop social and pedagogical activity through interest in the profession, conscientious working, respect for people and good relations with them.
2. Strong enthusiasm, courage, organizational skills are developed in students.
3. In students with well-developed central nervous system, cardiac circulation, respiratory system, vision, hearing.
4. Improving student health, protecting against various diseases and boosting immunity.
5. Overcoming mental instability, increasing physical exertion, increasing the general and static endurance of the body, waist and muscles, performing various difficult movements quickly and accurately and increasing agility in students.
6. To develop the quality of concentration, quick thinking, will, purposefulness, discipline, initiative, perseverance.

The main purpose of the development of physical culture in students is to improve their health, improve their physical qualities, prepare them for mental and physical labor and defense of the Motherland. Indeed, the physical maturity of young people has been glorified and valued in all aspects of historical development. «The concept of physical culture has been considered part of folk culture. Physical culture is the material and spiritual wealth accumulated by human society, which means its use for the perfection of people»[24] Therefore, at the new stage of development of society, the tasks are being discussed that creating a healthy lifestyle and creating social development

among the population through reforms in the field of physical culture, as well as reforms in all areas.

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UDC: 372.22

METHODOLOGICAL CHARACTERISTICS OF FORMATION OF TOLERANCE SKILLS IN PRIMARY SCHOOL PUPILS

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Аннотация: Мазкур мақолада толерантлик тушунчасининг фалсафий-педагогик мазмуни, бугунги глобаллашган дунёда толерантлик тарбияси, ундан кўзланган педагогик мақсадлар, таълим олувчилар, хусусан бошланғич синф ўқувчиларида толерантлик кўникмаларини шакллантиришнинг методик хусусиятлари, индикаторлари, тамойиллари тадқиқ қилинган.

Калит сўзлар: глобаллашув, толерантлик, таълим, тарбия, толерантлик тарбияси, методика, миллат, ирк, миллатлараро мулоқот, ўзга динлар, ўқувчи, бошланғич синф ўқувчилари, толерантлик кўникмаси.

Аннотация: В статье раскрывается философско-педагогическое содержание концепции толерантности, воспитание толерантности в современном глобализированном мире, его педагогические цели, методологические особенности формирования навыков толерантности у учащихся, особенно младших школьников.

Ключевые слова: глобализация, толерантность, образование, воспитание, воспитание толерантности, методология, нация, раса, межэтническое общение, другие религии, студенты, учащиеся начальной школы, навыки толерантности.

Annotation: The article deals with the philosophical and pedagogical content of the concept of tolerance, the education of tolerance in today's globalized world, its pedagogical goals, the methodological features of the formation of tolerance skills in pupils, especially primary school pupils.

Key words: globalization, tolerance, education, upbringing, tolerance education, methodology, nation, race, interethnic communication, other religions, pupils, primary school pupils, tolerance skills.

Introduction: Conditions for the formation of tolerant thinking in the world, the formation of a set of knowledge and skills, the formation of a set of knowledge and skills based on modern, science-based, national and universal values, the relationship between religion and the state, its characteristics, functionality, efficiency and uniqueness. scientific research has been launched. At the 28th Session of UNESCO (November 16, 1995, Paris), 185 participating States and officials signed the Declaration on the Principles of Tolerance [1]. The United Nations has also declared 2003 the International Year for Tolerance. November 16 was declared the International Day for Tolerance and began to be celebrated around the world. Therefore, at all levels of the education system, the formation of tolerance in the minds and thinking of young people, who are the future of Uzbekistan, has become a requirement of the times. In the process of globalization and internationalization of the educational environment in advanced research institutions in developed countries [2] as the most effective means of ensuring an environment of stability in the international community, the concept of scientific-pedagogical, preventive system of tolerance formation of young people research is underway. This research is based on the fact that tolerance as a factor against various harmful ideas and concepts embodies the modern principles of human involvement in economic, spiritual and ideological, religious relations in society. After all, the future of the world is one of the urgent tasks for educators around the world to study the skills of the culture of tolerance, its components, forms and levels of manifestation in pupils studying in educational institutions today.

Literature Review: The social encyclopedic dictionary states: "Tolerance is the governing principle of social work, the recognition of cultural, racial and other differences between individuals, groups and social communities, tolerance of people's appearance, behavior, values and differences" [3]. . Tolerance connects people, nations, social groups, peoples and people of different religions, creating a friendly environment in relations between them and ensuring the sustainable development of the country [4].

Philosophers and scholars have also interpreted tolerance differently, including G. Eysenck, who argues that there are three meanings to this concept: tolerance, perseverance, and allowing the other world to come closer to one another and to communicate. [5] According to the medieval Arab historian Ibn Khaldun, an intolerant person is a "dangerous animal." Socially "tolerance" is a kind of tolerance that is tolerance of the existence of others, their way of life, customs, ideas, behavior, thoughts, people, nation, reality.

Sociological research has shown that tolerance is viewed as a philosophical category, and it should not be overlooked that matter finds expression in the mind as a form of objective action, that is, as a concept. Tolerance - being able to capture our own feelings about another person or thing, or a stranger, or a different person - to an event. Self-restraint means having willpower. Tolerance is a will expressed through self-restraint, and it means the ability to look at others with benevolence - tolerance [7].

Psychologically, tolerance is a manifestation or expression of human tolerance, which means the absence or weakness of a firm response to a factor that is unpleasant or unpleasant for a person. No matter how much a person dislikes that situation or factor, he or she will tolerate it, be calm, and adapt if necessary.

According to scholars Zekiy Sarigil and Ekrem Karakoch, who study the issue of tolerance, the creation of a high culture of interethnic communication in each country and the failure to create conditions for sincere dialogue can turn ethnic conflicts into political struggles. . Tolerant communication involves the parties:

- pleasantness (sympathetic communication) - G.G.Shpet;
- empathy (empathic communication) - MM Bakhtin;
- Conscious understanding (conscious communication) - V.F. Humboldt, should be based on [10].

Research Methodology: In the course of the research were used scientifically-philosophical principles and methods such as systematics, theoretical-deductive conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis.

In Uzbekistan, as part of reforms aimed at enhancing the role and place of the country as an equal subject of international relations, ensuring religious tolerance and interethnic harmony in joining the ranks of developed democracies, making young people active participants in reforms, higher education institutions are introducing competent approaches. At the same time, serious attention should be paid to the upbringing of a spiritually, morally and physically harmoniously developed generation from primary school pupils, measures to raise their education system to a qualitatively new level, "preserving the atmosphere of friendship and harmony, mutual respect and solidarity between different nationalities." and to further strengthen the work we are

doing to strengthen it ”[11]. Based on the socio-pedagogical necessity of tolerance, the first stage of school education is the development of modern methods of developing tolerance skills in primary school pupils, improving its didactic, axiological and acme logical content, identifying features of pedagogical cooperation and integration factors, optimizing pedagogical activity in the existing system. creates the need.

Tolerance education teaches pupils to be resilient, tolerant, communicative, tolerant in social life.

Measures to build tolerance in pupils in grades 1-4 include:

- To acquaint pupils with the principles of protection of the dignity of all religions and nationalities in society;
- pedagogical support for each person to realize that nature and society are unique wonders;
- Understanding that the basis of spiritual and cultural differences between nations and religions is the principle of mutual harmony;
- The basis of the cooperation movement is to promote the organization of subject-subject relations. At this point, the pupil should be taught to work together to solve problems that arise while completing the task and to distribute the work correctly. It is advisable for pupils to fully feel that they are complementary elements, each of which is a unique find for this group.

As a result of following these principles, pupils gradually acquire elements of a culture of peace. As a result of cultivating the ability to respect others, to be tolerant of their values, to build peace in society in the future, the ability to live in harmony with different nationalities and religions, to cultivate tolerance in the educational process:

- to bring up the pupil who carries out interaction and solidarity in school and classroom community;
- to bring up a pupil who resists tolerant attitudes.

Measures to help pupils develop tolerance should be implemented in the following sequence:

1. Fostering feelings of empathy and empathy in pupils in grades 1-4 by engaging them in action based on mutual understanding.
2. Develop 4th grade pupils' skills of debating, debating and resolving disputes peacefully, based on open communication.
3. At the same time, through interactive teaching methods, tolerance education is carried out on the basis of the pupil's interaction with parents, classmates, the environment, teachers.

Tolerance thinking, which should be formed in young people in the process of pedagogical education, means the presence of indicators of tolerance thinking, which includes the following emotional and intellectual states.

Indicators of the formation of tolerance skills in primary school pupils

	<i>Indicators</i>	<i>Features</i>
<i>1</i>	<i>Perseverance</i>	<i>In emotional perception of a situation, it is the ability to evaluate it correctly, to behave, to overcome the emotional contradictions associated with the situation, to behave correctly in relation to external situations and influences.</i>

2	Understanding	<i>To know and accept the application of certain human norms in behavior, to clean one's speech from negative expressions, to be constantly prepared for communication, to be able to react on the principles of tolerance to external situations.</i>
3	Independence	<i>Discipline, perseverance, self-confidence, ability to cope independently in conflict situations, to be able to apply the principles of tolerance in such cases, to adhere to them constantly, to behave, to organize the dialogue and relationships in their lives</i>
4	Thinking and intelligence	<i>To be able to express one's thoughts on the basis of tolerance, to always be sincere for communication and influence, to respect the principles of religious, cultural, secular tolerance, to be sensitive, to be critical of one's own views, to accept the good influence of others, to be respected .</i>
5	Kindness	<i>Kindness is a manifestation of tolerance, which is the social support, assistance, material and spiritual support of people.</i>
6	Respect for the language, religion, customs, traditions and values of different nations	<i>To be friendly to the representatives of different nationalities living in the vicinity, to establish close neighborly relations with them. Respect for the language, religious customs and traditions of different nations.</i>
7	Being polite	<i>To be able to listen to the opinions of others, to listen carefully to the opinions of others.</i>
8	Being able to listen to someone's opinion	<i>1. Attention, look, thought, memorization to something. 2. To draw attention to someone. 3. Reputation is a manifestation of tolerance in people, which is a reputation gained by a sense of respect from others.</i>
9	Attention to others	<i>The manifestation of religious tolerance, gaining an understanding of the socio-economic, epistemological and psychological roots of different religions.</i>
10	The study of the history of peoples of different nationalities	<i>It is an activity aimed at ensuring tolerance, activity between different nations, unity of aspiration, inseparability.</i>
11	Solidarity between nations	<i>The priceless beauty of human morality, the jewel of virtues, the thought and worldview is to honor a sincere and loyal people.</i>
12	Poets and writers of other nations to arouse interest in learning about the culture of different nations by lovingly reading their works	<i>Acquaintance with poets and writers of other nations, acquaintance with the culture of different nations by increasing the interest in reading their works, enriching their ideas about the way of life, worldview. Forming a tolerant attitude towards the culture of other peoples.</i>

Conclusion/Recommendations: In our opinion, the goals of forming the concept of tolerance in pupils of grades 1-4 are:

- develop empathic skills in teachers, parents, people around them and pupils, get used to being tolerant of the opinions and views of others;
- Formation of communicative, ie elements of communication culture in pupils who have some tolerance skills;
- Educate pupils in grades 1-4 in the spirit of combating aggression against nature, members of society and the environment.

As a result of identifying the perceptions of tolerance that have developed in pupils, it is expedient to develop measures to prevent anxiety, inability to adapt to school life, high levels of fear.

The need to define the content of tolerance education based on the characteristics of the pupil's work, opportunities, daily needs and the social order of society is becoming increasingly important.

Introducing the concepts of tolerance to pupils in grades 1-4 on the basis of a certain coherent system is important for the dynamic development of the pedagogical process, the continuous development of the pupil.

The results of the analysis of events in the life of society show that in cases where the sense of tolerance is not sufficiently formed, the process of fear, apprehension, exposure to various fleshly influences is easier. Therefore, the problem of inculcating the concept of tolerance in pupils on the basis of a coherent system is becoming increasingly important.

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UDC: 370 .014

FOREIGN EXPERIENCE OF FINANCING AND ENSURING FINANCIAL AUTONOMY OF HIGHER EDUCATION

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Аннотация: Мақолада хорижий мамлакатлардаги олий таълим тизимини молиялаштириш моделлари, олий ўқув юртларини бошқариш муаммоларининг қиёсий таҳлили, олий таълим тизимини халқаро таълим тизими билан боғлиқликда такомиллаштириш ва уларнинг молиявий автономлигини таъминлаш борасидаги хорижий тажрибалар таҳлил қилинган.

Калит сўзлар: таълим, олий таълим, молиялаштириш, автономия, молиявий автономия, таълим хизматлари бозори, олий таълим тизимини молиялаштириш, молиялаштириш моделлари, олий ўқув юртларини бошқариш.

Аннотация: В статье анализируются модели финансирования системы высшего образования в зарубежных странах, проводится сравнительный анализ проблем управления высшими учебными заведениями, совершенствования системы высшего образования в связи с международной системой образования и зарубежным опытом обеспечения их финансовой автономии.

Ключевые слова: образование, высшее образование, финансирование, автономия, финансовая автономия, рынок образовательных услуг, финансирование системы высшего образования, модели финансирования, управление высшим учебным заведением.

Annotation: The article analyzes the models of financing of the higher education system in foreign countries, comparative analysis of the problems of management of higher education institutions, improvement of the higher education system in connection with the international education system and foreign experience in ensuring their financial autonomy.

Key words: Education, Higher Education, Financing, autonomy, financial autonomy, education services market, higher education system financing, financing models, higher education institution management.

Introduction: The education is acknowledged main impetus of development and important activity leading to sustainable development goals in the world. [1], one of the priorities is improving managing process of education and assessing its quality, the implementation of mechanisms to determine the results achieved. In the action strategy for further development of the republic of Uzbekistan adopted prior duties on the issue “improving the quality and efficiency of higher education based on

introduction international standards of assessing educating and teaching quality” [2], it plays main role deepening the integration of functional management and improving managing efficiency in higher education system. In this regard, it is vital to improve the mechanisms of integration of strategic and functional management in the system.

In the enlarged meeting of the Cabinet of Ministers on the main results of socio-economic development of the country in 2016 and the most important priorities of the economic program for 2017 the president SH. M. Mirziyoyev noted that "the material and technical base of scientific institutions should be significantly strengthened at the level of advanced foreign centers." Today, in addition to higher military education, there are 119 higher education institutions in Uzbekistan, including 7 academies, 58 universities and 5 higher religious education institutions and branches.

The amount of fund that taken from budget for higher education in Uzbekistan are increasing every year. If the industry in 2018 will receive 879 billion. In 2019, this figure will reach 1 trillion soums. 288 billion soums, 1 trillion soums this year. 888 billion soums [4]. While the salaries of professors have been increased by an average of 25 per cent in 2018, they have been increased by another 20 per cent since January 1, 2019, and by 25 per cent from 1 July 2019, and by another 10 per cent from 1 February 2021.

It can be seen that the training of intellectual highly qualified specialists who can be responsible for the development of the national economy, the knowledge is taught by qualified professors and teachers in higher education and mastered by students, masters ensures the socio-economic competitiveness of the republic's innovation in the world market. So, on the basis of innovation of the national economy, our country could be raised to the ranks of advanced countries. It can be seen in the example of the most developed countries - the United States, Japan, France, Britain, the European Union.

Literature Review: Theoretical views on the evaluation of the effectiveness of management in the educational process are described in the works of Professor of the University of Mumbai S. Hedekar [5], Russian researchers O. Homeriki [6], V.S. Lazarev [7], V.I. Zvereva [8], P.I. Tretyakov [9], A.S. Krasikov [10], Dr. G. Kertesi of the Hungarian Academy of Sciences [11], researchers from the University of Washington Bradley S. Portin, S. Feldman and S. . Klapps [12].

American economist E. Denison [13] has learned completely American economy. According to Denison's opinion, the cost factor directed to human capital is not a prior factor, but their resulting quality indicators are one of the main factors of economic growth. Denison analyzes the American economy from 1929-1982 and put the workforce to higher ranks in the economy. According to Denison's research, education system is the main factor influencing the quality of the workforce, i.e. the education system is the main factor influencing the formation of human capital.

In his textbook, AP Pankrukhin emphasizes the importance of marketing strategy in the analysis and prospects of the results of a significant part of the business environment and the organization's multidimensional thinking and implementation in

accordance with market changes, taking into account the strengths and weaknesses of its activities [14].

According to D. Cravens's view, "strategic marketing is a producing process of developing a strategy, taking into account the changing environmental factors. Strategic marketing works for linking the manufacture with the external environment, is the process of developing a strategy, taking into account the changing external environmental factors "[15].

The analysis of the competitive environment in the strategic planning of the educational services market is described the research of M. Porter [16].

Research Methodology: The formation of the organization of higher education in developed countries, the analyzing of funding models, using experience in the provision of higher education services in foreign countries in Uzbekistan based on statistical, comparative, empirical methods.

Analysis and Results: Huge experience is accumulated in increasing the effectiveness of financing higher education in foreign countries. Importance of studying, generalizing them and evaluating their creative usage in the practice of Uzbekistan play essential role.

Universities are mainly funded from three sources, in developed countries:

- state grants;
- The amount of tuition fees charged to students;
- Income from commercial activities.

In France and Germany, avoiding being dependent higher education to marketing the main expenditure are supplied by the state budget. The educational process is monitored comprehensively by the state.

Because of the fact that higher education institutions well-established working on commercial activities in the United States of America and Canada, the share of public funds in total sources of financing for higher education is low. Higher education is funded from five sources in the United States: funds allocated from the federal budget, budgets of states and local government;

- Tuition fees for students;
- Income from commercial activities of higher education institutions
- Donations in the form of charity;
- percentages received from special funds

The usage of endowment investment funds to finance higher education is very common in the United States. (Endowment Fund of the National University of Science and technology "MISIS"). An endowment is an investment fund, the proceeds of which are donated to charity and are tax-exempt. This resource capital supplies the long-term financial stability of the university. The oldest endowment in the world is the endowment of Harvard University, which received its first payment from graduates in the form of a plot of land in 1649. Proceeds from the management of investment assets will be used to pay salaries to teachers and researchers, scholarships to students and to finance the university library and museums [17]. The fund receives income from charity, inheritance of property, permanent and one-time contributions of the founders of the fund and other sources. Proceeds from the foundation will be donated to

charitable causes, including the salaries of teachers and researchers, scholarships for students, and the funding of university libraries and museums.

In recent years, a shortage in public funding for higher education in many countries around the world is processing. This reduction is explained by two reasons:

1. Increasing the level of the state budget deficit.
2. The prevailing view is that the share of public funds in the total sources of funding for higher education must be reduced.

The reduction in public funding for higher education has led to a growth in paid education. Even in countries where paid higher education is not available (China, Thailand, etc.), paid education has been established. Only Sweden and Finland did not establish tuition fees in the higher education system. Because the Establishing paid education in these countries is prohibited by the Constitution [18].

It is characteristic that in developed countries the share of state funds in the sources of financing higher education is high. However, due to the high level of solvency of the population in these countries, the amount of tuition fees for students is high, reaching 2.0% of GDP.

In the United States, Canada, Australia, and South Africa, universities have independence in setting amount of salaries. Therefore, the salaries of professors in these countries are significantly different among universities.

These students have enough knowledge to enter higher education but they faced with financial problems when they start studying at universities. For this reason, scholarships have been established to students who has economically problems in most countries. For example, financial support program covers 28,000 students in Chili.

There is a demand in Bangladesh and Mexico, according to this students of private universities should receive scholarships at least 5 percent. However, due to the limited amount of funds allocated by the state, the ability of the state to provide financial support to low-income students is also limited. But necessity to solve this issue is noted a lot. Because financial support for low-income but talented students will allow the country to supply thousands of educated personnel in the future. This plays an important role in the socio-economic development of countries.

On June 8, 2012, the Ministry of Higher Education and Science of Luxembourg annouced a bill to change the procedure for allocating state financial assistance to students at the age of 21 [19].

The world higher education system has formed several models of financing their development over the last 30-40 years. Of these, the first model of funding the higher education system is the neoliberal model, which was studied by M. Fidlin, F. Chaba and F. Husk and is mainly used in the United States, Japan, Australia, South Korea, New Zealand and South Africa. For example, in the 21st century, 42.5% of the cost of the U.S. higher education system is covered by the state budget, including 27.5% from the federal budget and 2.6% from the local state budget. Private universities do not have this right if 50% of public universities are funded by the state. Representatives of this model work together with universities and state-owned enterprises to solve existing problems in the higher education system [20]. However, the autonomy of higher

education institutions requires control over the use of state budget funds. Solving the problem of stabilizing the relationship between higher education services in connection with the transformation of the market economy in Western European countries The Bologna Process is a common problem related to the transformation of higher education into a key tool in human knowledge activities [21].

This model of the higher education system is based in part on market relations, with declining levels of public funding and increasing private funding [22].

At present, 33% of funding comes from the state budget and the remaining 67% from private sources (earnings from higher education from citizens, fees paid by private firms to train their employees) [23].

This education model is used in Germany, Norway, Denmark, France, Sweden, Finland and other countries of Western Europe. This model of the education system is against for the privatization of higher education institutions. That is why most universities in Germany are state-owned and tuition and scholarships are paid by the state.

30% of students receive a stipend, or 33% from the federal budget, 44.6% from the land budget, and 22.4% from the community.

In particular, the policy of development of the higher education system in the UK is mainly intended at reducing public funding in universities and colleges and increase of revenues from other non-governmental entities, based on the fact that university and university professors are paid based on their academic performance.

The public education system is governed by a centralized and adopted law and instructions issued by several higher organizations.

Curricula are administered by the Ministry of Higher Education and the Directorate of Higher Education. The tasks are carried out in coordination with the Ministry of Education and the university administration in Austria.

The Institute of International Education was founded in 1919, it's main task is to establish cooperation with higher education institutions of the countries in the field of higher education, to organize academic freedom for them, to train teachers in international education, to publish scientific papers at the international level. It also provides international conferences, information centers and consulting services in the field of higher education. The main task of the International Institute of Education is to provide high-level training of professors and teachers on the basis of 250 educational programs. Up to now, 18,000 people from 175 countries have been able to improve their skills.[24].

Conclusion/Recommendations: We believe that one of the main problems in solving the higher education system in our country is to ensure that the internal higher education system is linked to the international education system.

- The organization of forms of development of higher education on the basis of market requires and the origin of national traditions in the integration with the international system of higher education;
- Basing on new integration standards for the development of higher education on the basis of world standards;

• The knowledge acquired in higher education institutions should be evaluated not as a diploma, but as a practical application of the theoretical and practical knowledge acquired by students.

Based on a study of the global higher education system, the followings can be suggested.

• Experience in higher education institutions in the United States to cover up to 50% of the funds at the expense of the state administration and the other part of the expense of joint enterprises with universities;

• The second model of the higher education system is based on the amount is reduced the level by state, which guarantees the individual's education and future career;

• In order to improve the quality of training of personal with higher education, carrying out research work at the departments of higher education institutions together;

• Improving higher education system in republic with developed higher education system of the world;

• organization of specialists with higher education in research laboratories and large industrial enterprises in research institutes in their specialties;

• We believe that it is necessary to pay attention to the training of specialists in cooperation with higher education institutions.

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UDC: 37;377(077)

METHODS OF USING SOFTWARE TEACHING AIDS IN THE DEVELOPMENT OF COMMUNICATIVE COMPETENCE OF FUTURE TECHNOLOGY TEACHERS IN THE FIELD OF MATERIALS SCIENCE

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Annotation: systems for training future teachers of "Technology" in the composition of software training tools, which allow them to develop multimedia based on software training tools, which are important in the training of qualified, highly qualified personnel; audio training materials; video tutorials; practical work; electronic libraries; teaching aids based on expert training systems, the use of e-exhibitions in the classroom, ideas on improving the quality and efficiency of the educational process.

Key words: Materials science, innovative technologies, information, computer technology, virtual laboratories, programmed educational tools.

Introduction

Modernization of the education system in our country creates a need to improve the educational process in higher education institutions, aimed at training competitive professionals who meet the requirements of educational standards of developed countries. Therefore, the introduction of modern information technologies, virtual laboratories, full satisfaction of students' information needs, access to the global information community and access to global information resources in the "training of highly qualified personnel with modern knowledge and independent thinking" for the development of specific disciplines serious attention is paid to creating conditions [1].

This article will serve to a certain extent in the implementation of the tasks set out in the Decree "On approval of the Concept of development of science until 2030" and other regulations related to this activity [2].

An important task for future teachers of "Technology" is to develop the skills of teaching "Materials science" on the basis of virtual education, effective preparation for creative activities, the successful implementation of the educational process.

Blast furnaces used in the metallurgical industry of the Republic of Uzbekistan are available at the Navoi Mining and Metallurgical Plant, Zarafshan Hydrometallurgical Plant, Bekabad Metallurgical Plant. It is known that in the educational institutions of the educational system of the Republic of Uzbekistan, where the subject "Materials Science" is taught, first of all, mining of metals is taught in the form of ore, and then in the processing of ores and their delivery to the metal industry as semi-finished products. used.

Given the fact that today blast furnaces are not available in educational institutions, we can not imagine the processes observed inside the blast furnaces, it is

impossible to see in real life, the processes are based on computer tools (video, 3D animation, virtual laboratories). the organization of educational processes is one of the urgent tasks of today [3].

In order to perform the above-mentioned tasks, the real virtualized views of the processes that take place in the blast furnace can be represented on the basis of the following animations.

Literature review

Further development of the system of continuing education, improving the quality of educational services and opportunities for students, training qualified personnel is one of today's innovative tasks. The importance of creating an e-learning environment while emphasizing the integration of science, education and industry in radically improving the quality of education was emphasized. Therefore, the development and implementation of software training tools, virtual laboratories in the professional training of future technology teachers is one of the important issues to prepare the younger generation at a high level in the implementation of the established requirements [4].

Proceeding from the important tasks described above, in the future to train teachers of "Technology" as teachers with high intellectual potential in the field of "Materials Science", professionally mature, creative thinking and innovative achievements of science. creating a new generation of virtual learning tools programmed to train competitive, highly qualified personnel [5].

A.R. Juraev in the dissertation of the Doctor of Philosophy (PhD) in pedagogical sciences "Improvement of methods of formation of professional competencies of future teachers on the basis of curricula", on the basis of the programmed textbooks (convenience, visual, practical direction) didactic opportunities for the formation of general technical skills in the qualification requirements through the use of programmed teaching aids in the training of future teachers (expansion-computational-graphic, technological-design, creative design), improving the development of interactive teaching methods . basics of virtual reality laws [7].

Research Methodology

Importance, properties and qualities of metal in life and national economy

It is very difficult to imagine human life and the development of society without metal objects. Humans have long used metals such as iron, copper, silver, tin, gold, mercury, and lead. Metals differ mainly in physical, mechanical and technological properties.

Physical properties: density, fluidity, thermal expansion, thermal conductivity, electrical conductivity.

Mechanical properties: strength, elongation, compressibility, flexibility, torsion, viscosity, stiffness, stiffness.

Technological features: ductility, ductility, fluidity in the liquid state, weldability, cutability.

In industry, metal products are produced by rolling and casting. Metals and metal alloys are obtained by hot or cold rolling, ie by crushing between opposite rotating rollers [6].

Mechanical properties of ferrous metals and alloys

Metals found in nature and in life are divided into ferrous and non-ferrous metals. Ferrous metals include cast iron and steel. They consist of an alloy of iron and carbon. Pure iron is rarely used. List metals consist of thin metals with a thickness of 0.5 to 2 mm. The metal sheets are white and black, which is why they have and do not have a thin thick coating.

Mechanical properties of non-ferrous metals and alloys

Non-ferrous metals and their alloys are widely used in domestic production. Non-ferrous metals include all metals except iron and its alloys. They are divided into four groups: 1) heavy metals; 2) light metals; 3) original metals; 4) rare metals.

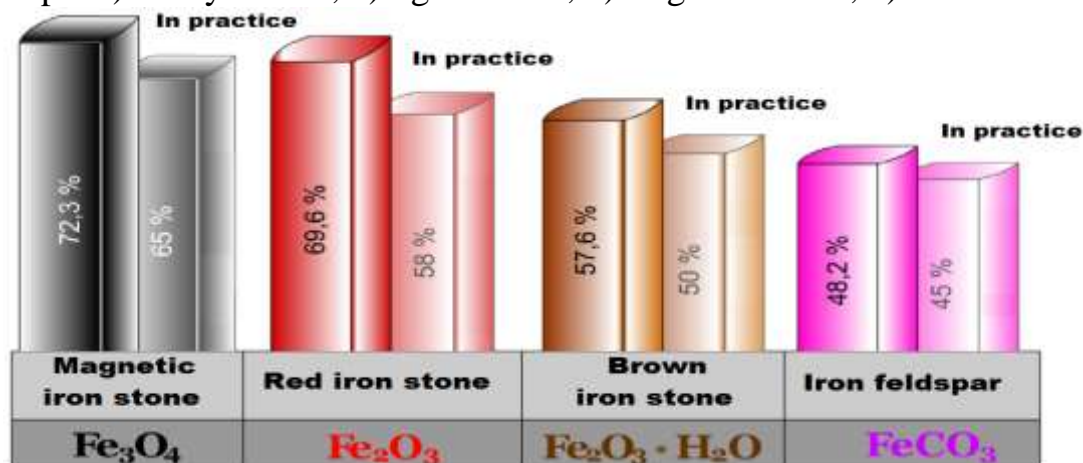


Figure 1. A sheet from the animated version of "Flash" for the determination of the composition of iron ore.

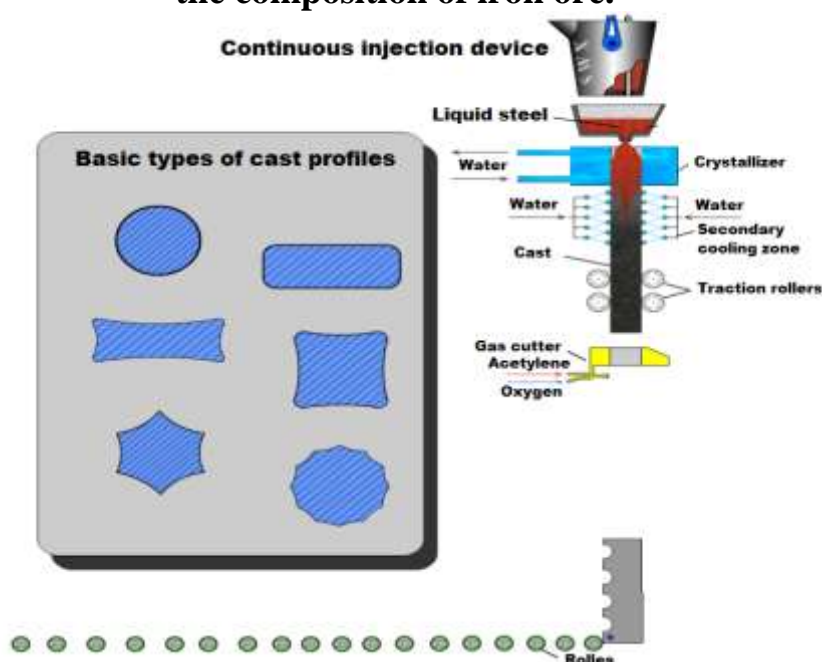


Figure 2. Picture from the process of demonstration of the steel casting mechanism by means of "Media training".

There are many types of iron ores, of which magnetic ironstone, red ironstone, brown ironstone, and iron feldspar are of great importance. The amount of iron in their chemical formula is 72.3% in magnetic ironstone, 69.6% in red ironstone, 57.6% in brown ironstone, and 48.2% in iron feldspar. In practice, the content of iron in the ore,

along with loose rocks, is 65% in magnetic ironstone, 58% in red ironstone, 50% in brown ironstone, and 45% in iron feldspar.

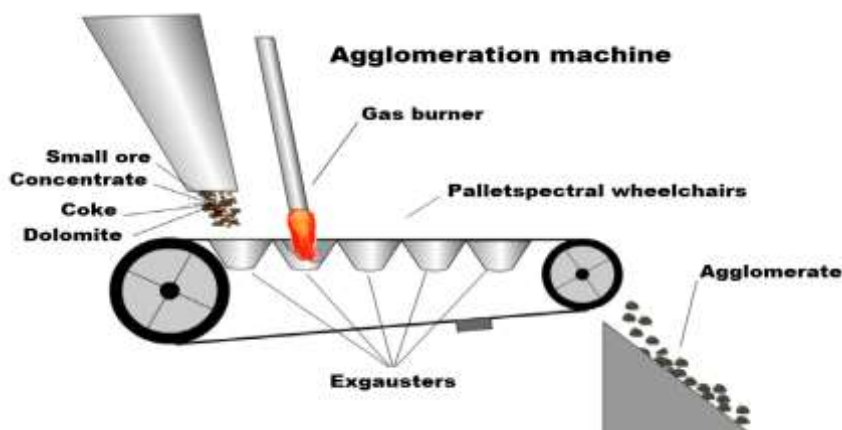


Figure 3. Plate from the processing process of the agglomeration machine in the production of cast iron.

The liquid steel is continuously poured from the bucket to the intermediate bucket and through it into the copper crystallizer, which is cooled by water. In the crystallizer, the steel begins to harden, and the rollers of the device pull the hardened steel down. When the liquid steel passes through the rollers and reaches the desired size and shape, it is cut with a gas cutter. This process continues automatically without interruption. The cut cast is sent to the warehouse. In this case, the cut castings come in different shapes. Compared to other types of devices, waste output is reduced by 5-8 times [9].

A mixture of fine ores, concentrate, kaloschnik dust, coke and limestone is moistened with water and heated to 300-1500 degrees. This process of heating cast iron is called agglomeration.

“Ideological heuristic scale” methods

“Ideological heuristic scale” methods- allows students to determine their level of knowledge using special (heuristic) non-standard test tasks at the beginning and end of the topic.

Students' task is to determine their knowledge at the beginning and end of the lesson on a special scale based on the results of surveys, questionnaires and non-standard test assignments.

Non-standard test tasks are used in monitoring and evaluating students on the Bloom taxonomy to determine the level of achievement of learning objectives related to cognition, comprehension, application of knowledge in practice, analysis, synthesis of knowledge and inference.

The definition of learning objectives in the educational process, the use of non-standard test tasks in monitoring and assessing the level of achievement of learning objectives of students, ensures the validity and comprehensiveness of control [10].

In order for students to achieve this learning goal, they will need to find solutions to the problems being studied on the topic, understand their importance, and highlight the main idea. Determining, monitoring, and evaluating the degree to which students have achieved this learning objective requires them to generalize their ideas about the learning material, process the main idea, give examples, express their opinion, and

defend it. As noted above, these levels cannot be determined using standard learning and test tasks, it is recommended that they be determined only using multi-answer non-standard test tasks. Non-standard test tasks are conducted using iSpring, MyTest, easy Quizzy and other similar control software training tools [11].

Non-standard test tasks are divided into easy (reproductive) tests, moderately difficult (productive) tests, difficult (partially exploratory) tests, and most difficult (creative) tests.

Conclusion

Integrated virtual learning can be used to improve students' knowledge, skills, and competencies in conducting laboratory and hands-on activities in material science that do not have sufficient capacity. By using the subject "Material science" in the direction of 5112100-Technological education in higher education institutions on the basis of virtual education, it is possible to increase the effectiveness of students' learning. The content of the virtual laboratory on the subject of "Material science" consists of a large database, video-animation, multimedia files, from which the teacher perfects the imagination of students in the conduct of lectures, practical and laboratory classes. It is recommended for use in the formation and effective organization of the course process.

Using innovative and pedagogical technologies, it is possible to improve the methods of formation of knowledge, skills and abilities of students in the conduct of laboratory and practical classes on the subject of "Materials Science".

Teaching the subject "Materials Science" in higher education institutions on the basis of innovative pedagogical technologies serves to increase the effectiveness of pedagogical, psychological and physiological development of students.

The content of the programmed electronic textbook on the subject of "Materials Science", developed on the basis of innovative technologies, consists of a large database (video-animation), which allows the teacher to use the imagination of students in the classroom. it is recommended to use it for complete formation and effective organization of the course process.

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UDC: 373.5:(37.013:316.776.4)

DIDACTIC POTENTIAL OF E-LEARNING COMPLEXES IN THE TRAINING OF FUTURE TEACHERS

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Annotation: Today, information in higher education institutions is considered as an environment of interaction with the educational environment, aimed at meeting the needs and requirements of students, graduate students and researchers for information and software. The main information resources of higher education institutions are electronic teaching aids for the study of various disciplines. EEMC allows you to combine almost all information materials into a single information complex. In addition, it provides the necessary interactivity, visualization, mobility, compactness and low cost of reproduction, versatility, multi-stage and a large volume of tasks and tests for testing.

Key words: Software, e-learning tool, e-textbook, virtual laboratory, 3D animation.

Introduction

Professionals operating in today's market economy are required to be competitive and adapt more quickly to the environment. From this point of view, the content, goals and objectives of the educational process of vocational training of future vocational students have changed, labor education has become a priority, the system of vocational guidance has been updated, a number of didactic tasks will be solved. The content is in a complex dialectical relationship with the tasks of the professional sciences, and the tasks of the sciences are set and solved at different levels. The most important task of future vocational students is to form in students a positive attitude to work and profession. This task, which applies to both the educational process and the

extracurricular activities of the entire teaching staff, is performed by all subjects without exception.

Programmed learning tools are didactic tools designed to partially or completely automate the learning process using computer technology. They are one of the promising forms of increasing the efficiency of the educational process and are used as a teaching tool of modern technologies. Pedagogical programmed tools are created using programs that implement effects such as dynamic illustrations, sound processes, animations.

Programmed learning tools are divided into the following types: teaching programs, test programs, exercise machines, programs that form a virtual learning environment with the participation of the teacher.

The structure of programmed teaching aids includes: programmed (set of programs), technical and methodological support, additional aids aimed at achieving specific didactic goals in the subject.

Literature review

Considering the above commenting on important tasks, it is easy to understand that training future teachers of the subject “Technologies” as highly intellectual, professionally mature, competitive, requires free-thinking teachers the creation of programmed electronic educational-methodical complexes [4,5].

V. Parondjanov in his work entitled “The Textbook of the XXI Century” states such thoughts: “The new generation of today must have modern knowledge and necessary information. We'll have to learn a huge amount of knowledge that is not comparable with the previous standards in the fields of natural, technical and social sciences and humanities. The methods of education, technology and educational literature of today's time do not meet these criteria” [6,7].

Research Methodology

The effectiveness of the use of programmed teaching aids as a didactic tool in the education system is determined by the following:

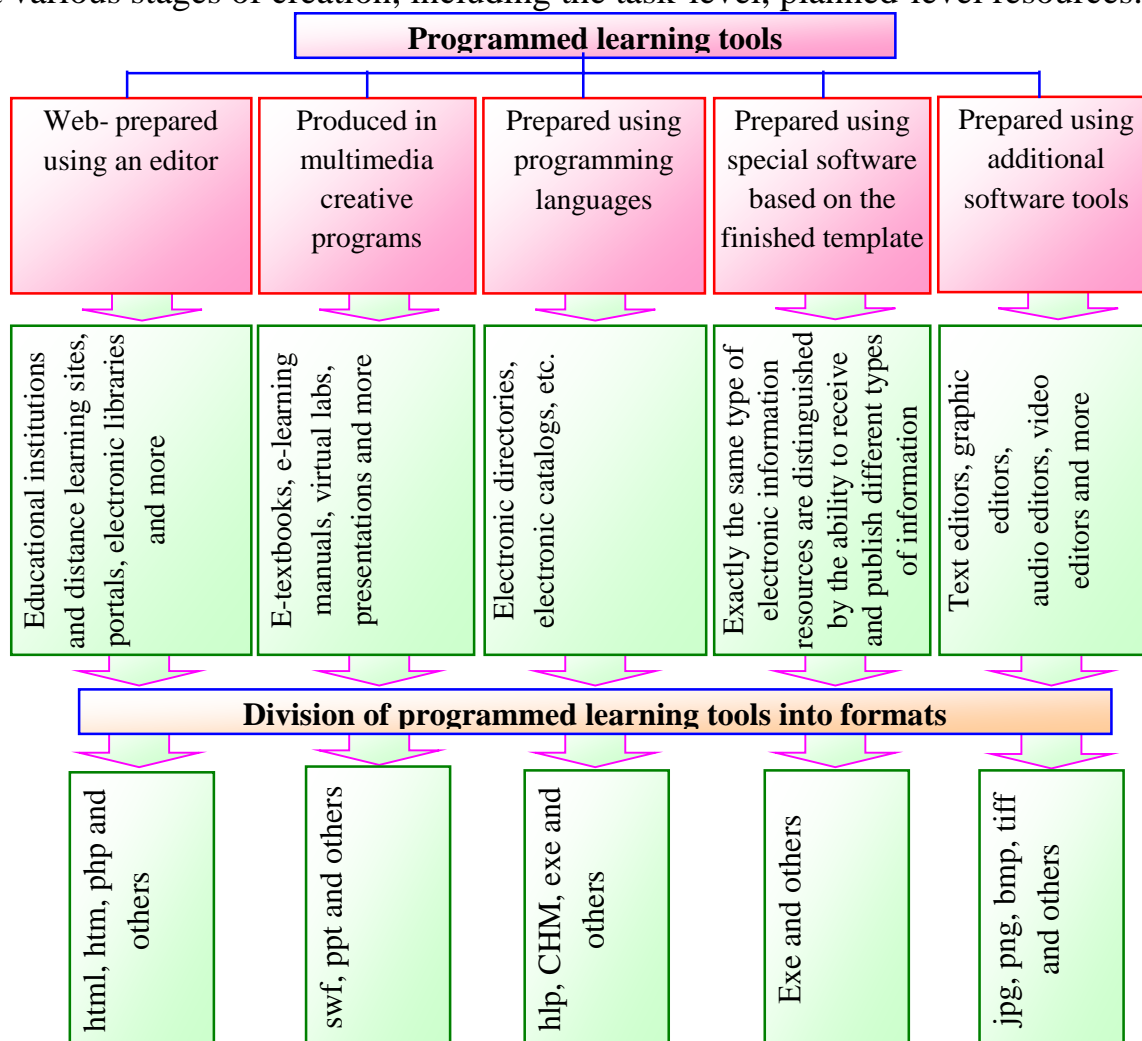
1. Teaching based on programmed teaching aids opens up opportunities for students to access non-traditional sources of information, increases the effectiveness of independent work and creates ample opportunities for creative activity.

2. Programmed learning tools allow the teacher to use different forms of teaching and their combination, ie to create the necessary learning environment to achieve the set methodological goals. When using programmed teaching aids, the teacher will be able to make changes and additions depending on the circumstances of the computerized teaching and control programs.

3. As a result of the use of programmed teaching aids based on the use of automated teaching and information systems, teachers will not only increase their level of information availability, but also have access to information sets from almost all over the world.

There are two types of programmed tools in the education system: those that are related to the organization and management of education are called programmed tools, and those that are only related to the learning process are called programmed learning tools. Today, there are many programmed learning tools for use in the educational process, such as e-textbooks, e-learning manuals, e-journals,

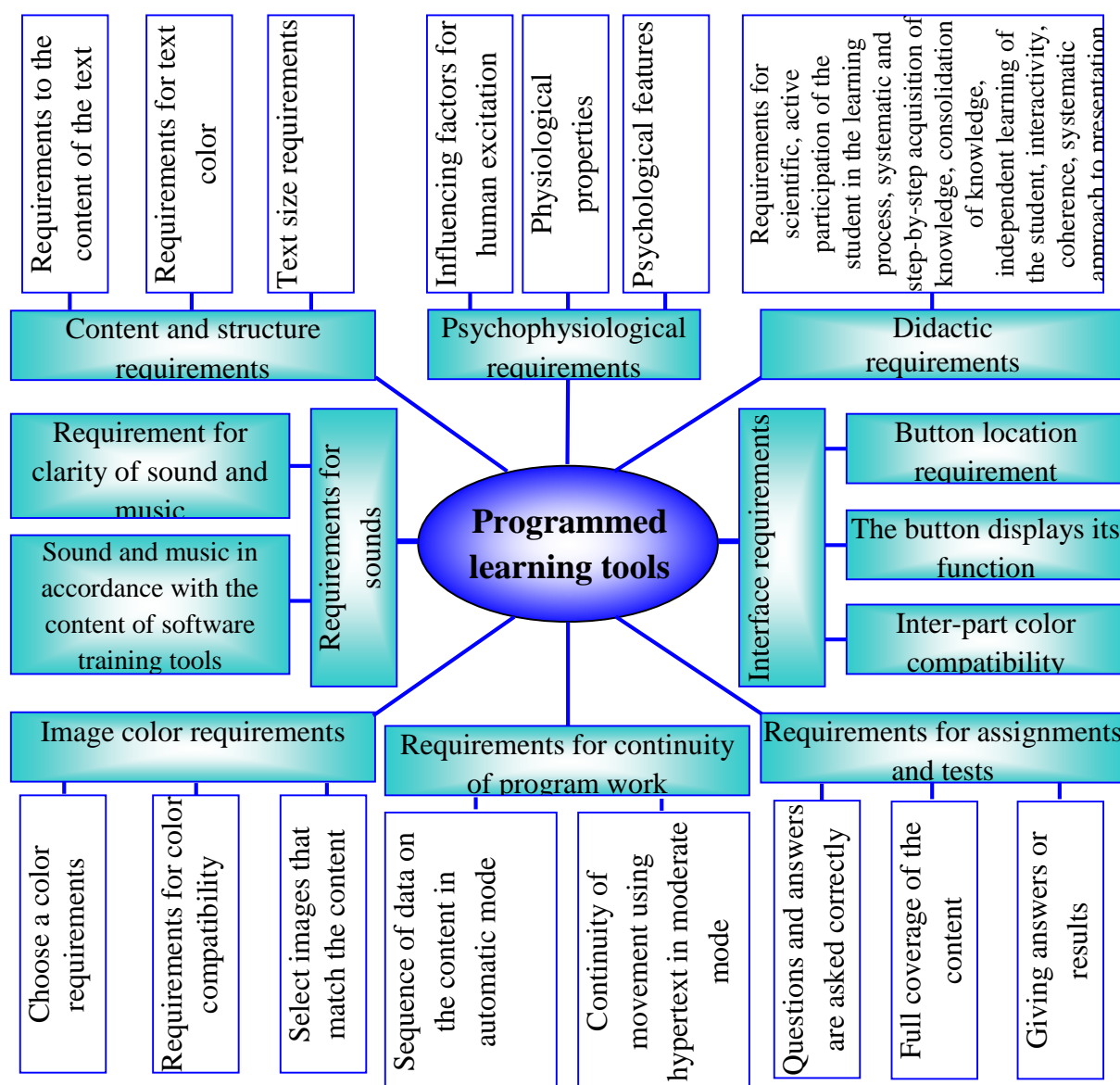
e-encyclopedias, e-libraries, virtual libraries, e-catalogs, e-learning methodological sets and other programmed tools. Programmed educational tools are publications published at a high scientific, methodological and technical level, located on magnetic optical media or computer networks (local, regional, global) and containing the electronic form of educational information. Programmed learning tools are information on teaching and learning methods, provided in electronic form, which serves to ensure the learning process. When programmed tools are compared to programmed learning tools, the general concept is that the intended electronic manuals, but also the resources at various stages of creation, including the task-level, planned-level resources.



Picture-1. Types of programmed learning tools.

As noted in the "Concept of creating a new generation of educational literature for the system of continuing education", requires the creation of a new generation [1, 2].

One of the most pressing issues today is the development of ways to create programmed educational tools, pedagogical and psychological requirements, the necessary programmed tools, their functions, place and importance in the education system, as well as the basis of methodological support. The requirements for programmed learning tools can be divided into several groups: technical, technological, didactic, psychological, content and structure, and others.



Picture-2. Requirements for the development of programmed learning tools.

There are a number of challenges in the development and implementation of programmed learning tools that need to be addressed based on world experience and the needs and requirements of today. The causes of such problems are being studied, and in order to eliminate them, a number of laws have been developed and implemented in the country. In solving problems, first of all, it is necessary to pay attention to the education system. Because only highly qualified personnel can guarantee the introduction of modern information technologies, the creation and use of programmed educational tools. One of the effective ways to develop the creation and implementation of programmed tools is to teach the sciences that teach their creation in accordance with modern requirements [3, 4].

The use of these tools by students in the process of independent preparation changes the typical situation in which the usual teaching task in the education system belongs only to the teacher. The teacher's teaching function is transferred to the student in the free reception of educational information provided to the student by the EOM, their mastery according to the nature of individuality. In doing so, the teacher not only supports the student, but also helps to effectively use the flow of educational

information and solve problems that arise. Structured electronic educational-methodical complexes have a working program for the course, logical classification of theoretical material on the subject, a typical problem, assignments and tests, questions for control or tests, the necessary normative-reference for students to acquire independent knowledge and self-control. Detailed information and examples should be provided. In addition, it must clearly indicate the information about the author (surname, name, patronymic, contact phone, e-mail address), the name of the subject, specialty code, as well as the approximate number of hours required for the entire course. The software platform of the electronic educational-methodical complexes must work flawlessly and correctly under the management of the existing operating system and software products training center. When creating e-learning complexes, it is necessary to pay special attention to some of its important aspects. Today, the content of the e-learning complex must meet the requirements of the new generation, as well as meet the level of modern scientific and technological progress in the field of knowledge. The structure of e-learning complexes must consist of two logically interconnected elements or modules. While developing or reviewing a separate module, they should be open to the content of a separate general-purpose e-learning material, even if they are feature-oriented. The interface of the e-learning complex is organized in such a way that it has a strictly expressive appearance, the visual toolbar is simple for the user to master the technology of operation. When using the electronic educational-methodical complex it is necessary to take into account the possibility of further improvement and modernization of the content of the course without technological complexity. The electronic educational-methodical complex should be as interactive as possible, have sufficient multimedia information, be easy to search for the necessary educational information.

Conclusion

The e-learning complex has been described as a programmed innovative e-learning tool that can fully meet today's requirements, including lectures, workshops, videos, animations, pictures, new technologies and modern methods. It differs from the traditional books it uses today in its high efficiency, decoration, completeness of information, availability of a search button, and richness of different techniques.

A professional science teacher who is able to resolve the problems and conflicts mentioned should have the following professional qualities:

1) high ideology. As an educator of the younger generation, a teacher must educate students in the spirit of unconditional devotion to our state, to form in them a national outlook;

2) high technical knowledge, skills and qualifications. In order to effectively organize the process of vocational training, they must have a deep mastery of the elements of carpentry, lathe work and electrical engineering, master the basics of 2-3-digit locksmith, electrician and other similar professions, constantly improve their skills in subsequent practical activities;

3) high pedagogical and psychological training. A professional science teacher should not only acquire the necessary knowledge, skills and competencies at a high level, but also impart knowledge to students in order to structure certain skills. The

process of acquiring knowledge and skills has its own laws, and school education is organized on the basis of these laws.

A teacher of professional sciences must be able to master the important rules of pedagogy, psychology, which are the basis of the educational process [8, 9].

The above-mentioned views and contradictions are the main reasons for the need for radical renewal and reform of education. The main reason for this is that the existing programs of preparation of students for work cannot meet the needs and interests of the younger generation growing up in the current conditions.

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UDK: 811.162.1/// 10.00.00**SCIENTIFIC INTERRELATION BETWEEN DISCOURSE ANALYSIS
AND CRITICAL DISCOURSE ANALYSIS IN LINGUISTICS**

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Аннотация. Турли фанларнинг кесишиш чорраҳаси ҳисобланган тилшуносликнинг бир бўлими дискурс таҳлил (Discourse analysis) ёки дискурс тадқиқи (Discourse studies) ҳисобланади. У асрлар давомида тиллараро ўзаро муносабат риторика, нотиклик санъати, стилистика, адабиётшунослик каби соҳаларнинг тадқиқот предмети бўлиб келган бўлса, XX асрда тил ҳақидаги йўналишлардан нутққа оид йўналишларни ажратиш мақсадида дискурс таҳлил деб аталмиш илмий тадқиқот йўналиши мустақил фан соҳаси сифатида шаклланди. Гарчи дискурс таҳлили тилшуносликнинг мустақил йўналиши сифатида фаолият олиб боришини барча фан соҳалари тўлиқ тан олмаган бўлсада, бироқ яқин келажакда бунинг эҳтимоли жуда ҳам юқори. Ушбу мақолада дискурс ва танқидий дискурс таҳлилининг пайдо бўлиш тарихи, турлари ва улар ўртасидаги тафовутлар ҳақида фикр юритилади.

Таянч сўзлар: дискурс таҳлили, танқидий дискурс, дискурс тилшунослиги, диалог, невербал воситалар, оғзаки ва ёзма нутқ, фрейм.

Аннотация. Одна из ветвей лингвистики, которая считается пересечением различных дисциплин, это анализ дискурса или исследования дискурса. На протяжении веков межъязыковые отношения были предметом исследований в таких областях, как риторика, публичные выступления, стилистика и литература. Хотя не все дисциплины полностью признают, что анализ дискурса действует как независимый раздел лингвистики, весьма вероятно, что это произойдет в ближайшем будущем. В данной статье обсуждаются история, типы и различия между анализом дискурса и критическим анализом дискурса.

Ключевые слова: анализ дискурса, критический дискурс, лингвистика дискурса, диалог, невербальные средства, устная и письменная речь, фрейм.

Abstract. One branch of linguistics that is the intersection of different disciplines is considered as Discourse analysis or Discourse studies. For centuries, interlinguistic relations have been the subject of research in such areas as rhetoric, public speaking, stylistics, and literature. In the twentieth century, the so-called discourse analysis was formed as an independent field of science in order to distinguish speech from language. Although not all disciplines fully recognize that discourse analysis operates as an independent branch of linguistics, whilst, it is very likely that it will happen in the near

future. This article discusses the history, types, and differences between discourse and critical discourse analysis.

Keywords: discourse analysis, critical discourse, discourse linguistics, dialogue, nonverbal means, oral and written speech, frame.

Introduction. If we speak about the analysis of linguistic discourse, it is possible to divide this specific field of science into at least two historical periods. The ethnolinguistic tradition, originally based on the analysis of oral texts available in different languages, originated in the American school of ethnolinguistics, founded by Franz Boas. Later, in the Czech school of linguistics, concepts such as the subject/rema and the communicative structure of the text were first studied by U.Matezius. It should be noted that representatives of the Russian school of linguistics, such as L.P.Yakubinsky, V.Ya.Propp, N.A.Figurovsky, N.S.Pospelov, also made a significant contribution to the development of the concept of discourse analysis.

Literature review. The term “discourse analysis” was first introduced in 1952 by Zellig Harris in a paradoxical way (it was this scientist who gave the idea to N.Chomsky on the syntactic analysis of compositional devices). However, discourse analysis was only formed as a science by the 1970s, it was at this stage that the representatives of the European School of Text Linguistics T.A.van Dijk, W.Dressler, J.S.Petofi, T.M.Nikolaeva, W.Labov, J.Grimes, R.Langacker, T.Givón, W.Chafe and others carried out their own investigation. In the 1980s and 1990s, generalized co-authorship research became the norm, including T.Brown and George's Discourse Analysis (1983), J.M.Atkinson and J.Herritage's “The Structure of Social Behavior: An Analysis of Dialogues in Everyday Life” (1984), T.van Dyke's four-volume “Handbook of Discourse Analysis” (1985), W.Mann and S.Thompson's “Description of Discourse” (1992), J.Dubois and S.Cumming's “Discourse Transcription” (1993), J.Renkema's “Discourse Studies” (1993), D.Schiffrin's “Approaches to Discourse” (1994), W.Tchef's “Discourse, Thinking and Time” (1994), T.van Dijk's two-volume “Discourse Studies: Introduction to Science”(1997). A number of monographs appeared on textual linguistics in Russia in the 1980s (I.R.Galperin (1981), E.A.Referovskaya (1983), Z.Ya.Turaeva (1986), M.I.Otkupshchikova (1982), T.M.Nikolayeva (1978), V.Z.Demyankov (1995))), but these discourse studies generally lag behind Western, American studies.

Discourse is an object of interdisciplinary research, where discourse analysis is perceived as a field of young scientific rich field through different forms of approaches. Discourse analysis is inextricably linked with other fields such as psychology, computer linguistics, artificial intelligence, philosophy and logic, sociology, anthropology and ethnology, literature and semiotics, history, theology, jurisprudence, pedagogy, translation theory and practice, communicative research, political science. Each of these disciplines has a unique approach to the study of speech, some of which have a significant impact on the analysis of linguistic discourse. There are different methods of discourse analysis, for example, the Conversation analysis approach, originally based on the study of everyday dialogues by a group of American sociologists and ethnomethodologists, published in the work “Simple Taxonomy of Replication Continuity” by H.Sachs, E.Sheglof, G.Jefferson the early 70's. The peculiarity of this type of analysis is that it is not limited to making corrections and

explanations to the replicas in the dialogue. Dialogues are also enriched with nonverbal and nevolocal (silent actions - rhythm, laughter, gestures, look) behaviors.

Research methodology. In discourse based psycholinguistic research, however, natural live speech is not chosen as the material for empirical research, but more precisely statistical tests play crucial role in experimental data. The methodological issues of discourse are related to its oral type of transcription. Not only words, but also situations related to pauses, laughter, prosody, and remarks are of great importance in the recording of oral speech, because through these phenomena it is possible to make a meaningful analysis of oral speech. According to T.A.van Dijk, discourse analysis mainly involves textual and contextual aspects. The author also notes that the discourse consists of frames [2]. Prospective areas of discourse analysis that combine linguistic and nonlinguistic approaches are different, such as content analysis, conversation analysis, Foucault analysis, critical discourse analysis, Bakhtin analysis, interaction analysis, simlog, communication ethnography analysis, categorization method, automatic analysis of discourse [10]. The purpose of discourse analysis is to identify the social context that is hidden behind oral or written speech.

The ideological source for discourse analysis is the theory of speech acts developed by J.Serl [8]. Critical analysis of discourse is based on a critical study of social inequality in language / discourse. Consequently, concepts such as power, history, and ideology predominate in any critical analysis of discourse. This analysis does not allow for the establishment of a simple deterministic relationship between text and society. Since 1979, a comprehensive approach to critical discourse analysis has been revised and modified by scholars who have remained faithful to various linguistic traditions. In addition to studying sociolinguistic, linguistic, socio-psychological, and literary problems, scholars have specified areas such as racism, ethnic and gender discrimination, and language policy. The theory of critical analysis of discourse and its basis is based on Marxism, Frankfurt school theorists (T.Adorno, W.Benjamin, P.Burde, G.Marcuse, J.Habermas, S.Hall, M.Horkheimer), critical linguistics (J.Kress, R.Fowler, B.Hodge) and system-functional linguistics (M.Halliday). Methods of critical analysis of discourse have emerged in three main schools:

1. Cognitive analysis of discourse created by T.van Dijk;
2. N.Farklow's discourse analysis;
3. German School of Critical Analysis of Discourse (Z.Eger, U.Maas, Yu.Link);
4. Analysis of R.Wodak's sociolinguistic discourse and the Viennese school where his colleagues (G.Weiss, H.Ludwig, P.Novak, I.Pelikan, M.Sedlak) work emerged.

In critical discourse analysis, special emphasis is given to dominant nature of discourse, as each discourse dominates a particular time and space. It sometimes analyzes situations where the pressures, forces, and social conventions exerted by the authorities. In a critical analysis of discourse, T.van Dijk interprets shortcomings observed in most works in the field of critical discourse analysis / critical linguistics as the importance of various elements of extralinguistic reality and the neglect of social / cognitive factors [1].

Analysis and results. Another type of critical analysis of discourse was proposed by the British scientist N.Fairclough, which is characterized by the important role of heuristic analysis and the fact that a single communicative phenomenon is perceived

differently by different audiences [4; 5; 6]. In contrast to T.van Dijk's critical discourse analysis, proposed by N.Fairclough his followers gave up the study of the cognitive model and took into account the influence of a particular social discourse (globalization discourse, neocapitalism discourse, neo-liberal discourse).

In German-speaking European countries, R.Wodak's theory of critical analysis became popular, according to which the anti-Semitic nature of discourse gave rise to this said approach. In this case, all the available data (oral and written texts) through the socio-historical method of discourse is systematically combined and analyzed at all levels [9, 209]. Discourse is always historical, it takes a synchronous or diachronic approach to communicative events that are happening now or have happened before. O.M.Morgan emphasizes that the main factor hindering the critical analysis of discourse is its excessive subjectivity [7, 122-128]. When comparing studies conducted with discourse studies and critical analysis of discourse, it can be seen that in critical analysis the identification of complex relationships between social stratum and discourse structure predominates [3, 21-22]. Similar discourse analyzes are traditionally related to linguistic (phonological, grammatical, syntactic, lexical, semantic), pragmatic (speech and communicative acts), rhetorical, stylistic analysis (genre based), structural (stories, news, parliamentary debates, lectures, advertising texts), conversation (based on conversation), semiotic (audio, visual and other multimodal parameters).

Conclusion/Recommendations. Discourse studies mentioned above are examples of the use of discourse analysis in interdisciplinary research and are of great practical importance for researchers not only in Germany, but also all over the world. As even this brief overview shows, discourse analysis and methods of its application in interdisciplinary projects in the last decade are often ranked among the most popular research methods in the social sciences and the humanities.

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UDC 801.8

EXPRESSION OF NEGATION IN UZBEK AND ENGLISH PROSE

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Annotation: This article is about expression of negation in Uzbek and English prose. Expression of negation is widely applied in written English and Uzbek at the present time, with its occurrence determined by the specific style of the prose; Therefore, if negatives are employed properly according to the style, the sentence pattern will be greatly varied with it language more vivid as well in prose.

Key words: Negation, prefixes, productive, language, parts of speech, and borrowed words.

Introduction. At the end of the centuries, there has been great intellectual and theoretical importance in negation. The facts that much of the literature is in English mean that many problems of negation in English have been treated, although this is of course unintentional. Such difficulties typically have to do with negative possibility when negation and quantifiers co-occur (as in *All schoolboys didn't leave.*), neg-raising (as in *I don't think he's upcoming*) or double or multiple negation (I don't know nothing no more), depending on the particular interests and backgrounds of individual scholars. In this article, it is treated negation in English, but we focus on implied negation which has not been given too much attention in the literature, even though this phenomenon is ubiquitous. However, we believe they are important for our understanding of negation in English and of negation in natural language in general. We deal with the use of implied negation in written language, and we address the question of how and why we use implied negation from a quantitative point of view.

Literature review. A wide range of material is exemplified, including newspaper articles, fictions, religious writing and so forth. According to Longman dictionary of language teaching, negation is contradicting the meaning or part of the meaning of a sentence. The main negation in English is *not*, often in its contracted form *n't* and combined with an auxiliary. Quirk Randolph, et, (1985) in *A Comprehensive Grammar of English Language*, deals with negation as a syntactic process within the clause. They classify negation into three types: (Quirk, 1985)

a. Clause negation, through which the whole clause is syntactically treated as negative (1).

(1) I have finished. (Positive) I have *not* finished. (Negative)

b. Local negation, in which one constituent (not necessarily a clause element) is negated, as in sentence (2)

(2) They made some *not unintelligent observations*.

c. Predication Negation, a minor type applying only after certain auxiliaries, in which the predication is negated (3):

(3) They may *not go swimming*. (They are allowed not to go swimming)

Research methodology: In the article, analysis and synthesis, systematic approach, abstract-logical thinking and comparison methods were used.

Analysis and Results. Decree of President of Republic of Uzbekistan DP-6084 are accepted "On measures to further develop the Uzbek language and improve language policy in our country", 20.10.2020. Decision is about at radically raising the prestige of the Uzbek language in the social life of our people and internationally, educating our young people in the spirit of patriotism, devotion to national traditions and values, ensuring the full introduction of the state language in our country.

In order to make a further understanding of negation, three concepts need to be drawn a distinctive line, negative sentence, negative form and negative meaning.

I) Negative sentence

It belongs to grammatical category which refers to a sentence that contains negative words like *not, never, or nowhere*. The list of negative words in English is: *neither, never, no nobody, none, no one, nor, not, nothing and nowhere*. They are also called "*Full negatives*". In addition, we can form a negative sentence with Quasi negatives, such as *hardly, scarcely, seldom, barely, few, little*, etc. The adverbs of negation convey the idea that the action or state being described "usually" does not or did not happen or exist, but could have occasionally. They are negative, though not in the absolute sense as sentences with *not* and *never* are.

A sentence is called a negative sentence in that it must share the following syntactic features:

a) It is followed by positive checking tag questions:

(4) She doesn't work hard, does she?

b) It is followed by negative tag clauses, with additive meaning:

(5) I haven't finished, {and neither} have you.

c) It gives rise to auxiliary-subject inversion when applied to the initial position.

(6) Never have I thought of such a strange idea.

(7) Little need I dwell upon the joy of that reunion.

d) It is followed by nonassertive items, such as *ever, any*

(8) He won't notice any change in you.

II) Negative form

Negative form marks a clause as negative, even if the word *not* (*-n 't*) does not occur in it. Though varied in actual patterns, negative form can be primarily divided into two categories: one is with negative words such as *not, no, never, nor*, and so on, and the other with negative affixes, such as *un-, ab-, dis-, il-, im-, ir-, in-, mis-, non-, -less* etc. In certain contexts, clauses with affixal negation are approximately synonymous with clauses negated by the clause negator *not*. For example:

(9) That is not true. = That is untrue.

(10) You are not careful. = You are careless

(11) She is not active. = She is inactive.

III) Negative meaning

It differs from the former two in that it means to negate a situation, whatever forms it may take. That is to say, it can be represented in various forms. Mainly there are two ways to achieve negative meaning. First, it can be achieved by using negative sentences. E.g.

(12) I *don't* want anything else. (Negative sentence indicating negative meaning)

Second, it can be achieved through words negative in meaning.

a) Quasi negative words, like *hardly*, *barely*, *seldom*, *few*, *little*, etc. e.g.

(13) The dormitories could *barely* house one hundred students.

(14) He *hardly* ever goes to bed before midnight.

b) Words with negative affixes as those mentioned in (ii) above.

c) Implied negatives, such as *fail*, *prevent*, *reluctant*, *deny*, *absent*, etc. e.g.

(15) She *refused* to accept his gift.

(16) She is *too* excited *to* say anything.

Such sentences are in affirmative forms but they can also be employed to express negative meaning. There is no doubt that many other types of this kind can be found other than the above mentioned, upon which we shall dwell in detail in this paper.

So far, it is clear that *negative sentence* is not the same as *negative form* when negative meaning is involved. Sentences (13) and (14) negated respectively by Quasi negative words *barely* and *hardly* are negative sentences and furthermore they are negative in meaning and behavior although they do not appear negative in forms. Furthermore, *negative meaning* is not always indicated by *negative form*. Sentences (15) and (16) imply negative meaning without any negative form.

After making the three concepts clear, it is necessary to clarify the types of negation. As for the classification of negation, linguists who have researched into words implying negative sentences are of the view that these words can be classified in the following ways.

(I) *Full negatives*: no, not, none, never, nothing, nobody, nowhere, neither, nor

(II) *Absolute negatives*: not at all, by no means, in no way, nothing short of, etc.

(III) *Quasi negatives*: hardly, scarcely, seldom, barely, few, little

(IV) *Partial negatives*: not every, not all, not much, not many, not always, etc.

(V) *Words with negative implication*: fail, without, beyond, until, unless, lest, ignorant, refuse, neglect, absence, instead of, etc.

In terms of negative formation, there are two major categories. One is grammatical, the other semantic.

First, grammatically it refers to sentences containing negative words, such as *not*, *no*, *neither*, *never*, *none*, *nobody*, *nothing*, *by no means*, etc. That is, that is obvious negator *no* or *not* in the sentence as in sentences (1)-(8) above.

Second, semantically it relates to sentences containing words with negative meaning, such as *few*, *little*, *far from*, *fail to* and so on. There is no obvious negator in the sentences as in (13)-(16)

According to the two categories, negation is classified five types: general negation, special negation, negation in forms and in meaning, negation in form but not in meaning, and negation in meaning but not in form.

General negation is the most common form of negation. In this case, a simple positive sentence (or clause within a complex sentence) is negated by inserting the

clause negator *not* between the operator, and the predication, thus making the whole sentence negative. The operator here is the first auxiliary verb of a complex verb phrase or with either *or* (especially in British English) stative *have* as the verb in a simple sentence. Thus the negation of *They are noisy* is *They are not noisy*, and the negation of *He has enough money* is *He has not enough money*. More examples:

(17) I have *not* told the students.

(18) You *mustn't* go to work today.

(19) Peter *cannot* swim.

If an operator is not present in a positive sentence, it can be made by „creating" the auxiliary *do* as an operator. This is referred to as the *do-construction* or *do-support*. E.g. (20) They like to watch TV. They do not (don't) like to watch TV. In addition, absolute negator *never* can also be used to negate verbs and made the whole sentence negated, which is referred to as General negation as well, e.g.

(21) I will *never* go to visit him.

Special negation is contained in sentences that one constituent (not necessarily a clause element) is negated. The negation may be accomplished either by using a negative word such as *no* or by negating a word or phrase except the verbs. So Special negation is more complicated than General negation not only in formation but also in meanings:

a. Special negation with general negator *not*.

The negative word *not* can be used with almost any word or word group in a clause to achieve Special negation, with a view to being more forceful, careful, polite or hesitant. For example, it can be put to use with nouns, adjectives, adverbs, prepositional phrase and quantifiers. E.g.

(22) The policeman told the boys *not to* play with fire.

b. Special Negation with absolute negator *never*. E.g.

(23) He warned the children *never* to play with fire.

c. Special Negation with *no* and *no-words*:

(24) I have *no* time to chat with you now.

(25) I saw *nobody* in the street.

d. Special Negation with prefixes *un-*, *in-*, *dis-* *non-* and suffixes, such as *-less* etc before or behind the negated words:

(26) It is *impossible* for you to finish the task in two days.

Negation in forms and in meaning is the general and most common way of making a negative state in English. On basis of the semantic meanings and functions that negators perform in different contexts, there are full negation, partial negation transferred negation and so on:

a. Full Negation signifies total no-existence of men, matter, time, place, and so on. In most cases, the negation is constituted by using absolute negative words or other synonymous expressions:

(27) *Neither* of them can swim.

(28) He was *no* way responsible for that accident.

(29) A dog *cannot* fly.

b. Partial Negation negates a part of the whole. Therefore, when it is used together with pronouns, adjectives, adverbs, numerals that carry meaning of universal

like *All*, *Every*, and *Both*; adverbs like *Always*, *Often*, *Quite*, and *Entirely*, not usually does not result in absolute negation but partial affirmation and partial negation. E.g.

(30) Not many of us will go there tomorrow.

(31) Money is not everything.

(33) All is *not* gold that glitters.

c. Transferred Negation: This form of negation is particularly common in informal style. It is the transfer of the negative from a subordinate clause (generally a *that* clause) when semantically it belongs to the matrix clause. (Quirk, 1985)

(34) I *don't think* it's a good idea. (I think it *isn't* a good idea)

(35) I *don't believe* I've met you before. (I believe I *haven't* met you before.)

Negation in form but not in meaning mainly refers to double negation, which is constructed when *no*, *not* and *so on* are used together with other words expressing negative meaning. E.g.

(36) *Nobody* has *nothing* to eat. = Everyone has something to eat.

(37) *No* man is *without* enemy. = Everyone has enemy.

Besides. There are some other patterns negative in form but not in meaning:

(38) He *didn't* speak any word *until* he saw his mother. (Not.. *until*)

(39) He likes *not only* Uzbek *but also* English. (Not only *but also*)

Negation in meaning but not in forms is called by some grammarians *Indirect Negation or Implied Negation*. (Quirk, 1985). There are dozens of English words and phrases, though do not look like negative words in forms, are negative in meaning and are widely applied. So the original (either Uzbek or English) must be studied carefully to grasp its dialectical approach to acquire an accurate comprehension; also it is of vital importance to see how the thought of original can be best rendered into idiomatic English.

Thus, we know that implied negation is one branch of negation, which refers to those sentences with negative meaning but in affirmative form from semantic point of view.

Types of implied negation in words and structure: As for the vocabulary and sentence structures, it is impossible for us to cover all in English. Therefore, we will mainly deal with those that are frequently discussed by grammarian and those regularly used in English. All words and structures analyzed and are derived from various grammar books related to this topic.

Classification of Words with Implied Negative meaning is that there are a large number of words with negative meanings (Klima, 1964). On the basis of their attribute, they can be divided into the following groups:

1. Noun or noun phrase with negative meaning.

These kinds of nouns include: *failure*, *lack*, *shortage*, *refusal*, *negation*, *ignorance*, *absence*, *reluctance*, *neglect*, *loss*, *denial* and *exclusion*. Besides, when some noun is combined with preposition *from*, it also can imply negative meaning, such as *freedom from*, *deviation from*, *prevention from*, *protection from* and *departure from*. E.g.

(1) FAILURE - Success is important because of the *failure* of the previous attempt to adopt an HNS Convention.

(2) LACK - One factor is the *lack* of physical breaking facilities, suitable yards and

downstream logistics to handle the scrap materials.

(3) SHORTAGE -Towards year-end growing cautiousness was again experienced, due to low economic activity and uncertain prospects, *shortage of* finance and lack of long-term employment, but not without hopes of the economic locomotives getting the steam up in 1992.

(4) FROM - For *freedom from* vibration the propeller must turn in a smooth flow of water.

(5) IGNORANCE - Nautical professionals should be competent to ensure that no ship is put at risk through *ignorance* or inadequate training.

2. Verbs of negative meaning.

There are four kinds of verbs of negative meaning. First type consists of words like *fail, miss, escape, defy, baffle, resist, decline, negate, negative, doubt, wonder, lack, grudge, spare, neglect, cease, exclude, ignore, loathe, overlook, deny, and forbid*. These words can make a sentence negative in meaning. Negation in this case is called *inherent negation*. (Zeng, 1993)

(1) FAIL - Directors can be personally liable if they *fail* to exercise the skill and expertise that may reasonably be expected of someone in their position, having regard to their capabilities and experience.

(2) MISSED - Unfortunately, she *missed* her opportunity to become the eyes of the Grand Fleet, but the principle of aircraft at sea was now firmly established and moves were afoot to commission more aircraft carriers.

(3) SPARED - Fortunately it *spared* us from the usual spate of silly resolutions which in the past have made Georgia look like anything but "the empire state of the South".

(4) RESIST - He said that some Justice Act 1993 *forbids* a manipulation of price-sensitive information, which has not been made public, for personal advantage.

Second type refers to verbs such as *intend, mean, plan, hope, and think*. When these verbs are used in past perfective aspect, they can imply negative meaning. E.g.

(1) I *had expected* that things would turn out like this. (Actually, things didn't turn out like this)

(2) I *had planned* to go abroad. (In fact, I didn't go)

The third type of words involves those that can convey negative meaning when they are combined with *from*, such as:

refrain\excuse\save\persuade\protect\prevent\keep\free ...from. E.g.

(1) A Policy might be that Board members and employees should *refrain from* involving themselves in situations which bring them into a conflict of interest with the corporation.

(2) We are grateful to those who saved them *from* the breakers yards - a tribute to their builders and the men who served in them both in war and peace.

The fourth type comprises verb phrases such as *give up, lose sight of, shut one's eye to, keep off, keep out, turn a deaf ear to and keep... dark*. E.g.

(1) Given up - In some cases, such as for whales and dolphins, also for insects generally, despite our continuing efforts we have been unable to find replacement correspondents for those that have *given up* doing this for us.

(2) Lost sight of - I have *lost sight of* the survival vessel.

There are other expressions with the same function.

(1) Please *keep* the news *dark*. (Don't tell others the news)

Moreover, words like lose, forget, and shun can also indicate negation sometimes. For example,

(1) She *forgot* to mail the letter. (...didn't mail the letter)

(2) He just lost the train. (. didn't catch the train)

3) The lazy man shunned work. (. didn't work.)

3. Adjectives

The adjectives we often come across are, far from, clear of\from, free from\of, short of, devoid of, absent (from), different from, safe from, a far cry from, alien to, foreign to, Greek to, ignorant, reluctant (to), blind to, dead to, deficient (in), exclusive of, loath, far and few between, and all thumbs. E.g.

(1) *Far from* - Even if berthed alongside or if special moorings are used a ship may be *far from* secure.

(2) *Clear of* - Stand *clear of* the ropes as they run.

(3) *Free from* - Food handlers should be *free from* communicable diseases.

(4) *Deficient* - Where the parties have limited liability and allocated risk by agreement, tort remedies should not be allowed to supersede the parties prior understanding of the consequences of *deficient* performance.

Alike sometimes can also be used to express negative meaning. E.g.

(5) All music is *alike* to me. (I don't understand music at all.)

4. Adverb

There are two types of adverbs of negative meaning. First type is defined as Quasi negatives such as *hardly*, *seldom*, *rarely*, *scarcely*, *few and little*. E.g.

(1) *Hardly* - Sorry, I can *hardly* accept the course you advised me steer.

(2) *Rarely* - Details of her movements were *rarely* reported and it must be assumed that voyages were largely confined to her home waters.

(3) *Few* - Exercise and boredom very *few* seamen aboard ship exercise hard enough to cause them to become breathless or to increase the rate of their heart-beat.

(4) *Little* - It should be borne in mind, however, that very *little* warning of the approach of an intense storm of small diameter may be expected.

These sentences are usually classified in syntactic negation not lexical one, because co-occurrence tests show that they tend to function like explicit negatives. Therefore, these words will be excluded in the following corpus analysis.

Second type only refers to those individual adverbs or adverbial phrases functioned as adverb such as *vainly*, *in vain*, *otherwise*, *the least*, *least of all*, *the last*, *the limit* and *out of the question*

(5) I informed the foreman to stop using hooks, but *in vain*.

(6) *The last* - A strike's *the last* thing I want.

(7) *Out of the question* - This made trawling *out of the question* in the areas the Icebergs grounded.

5. Preposition

Some preposition are named negative preposition, such as *away from*, *out of*, and *off*. E.g.

(1) Ann drove *away from* home. ~Ann is *away from* home.

(2) The book fell *off* the shelf. ~The book is *off* the shelf.

- (3) Tom got *out of* the water. ~Tom is *out of* water.

The negative prepositions may be defined simply by adding the word *not* to the corresponding positive preposition: away from (not *at*), off (not *on*), out of (not *in*). (Quirk, 1985)

There are other preposition that possess negative meaning in certain occasion, such as *past, above, without, beyond, instead of, against, below, beside, but, except, from, under, within(not beyond), and beneath(not worthy of)*. E.g.

- (4) *Off* - This compulsory piece of equipment monitors the international distress channel automatically while the radio officer is *off* watch.

- (5) *Out of* - Fuel settling-tanks, being generally placed *out of* sight, high up in the engine-room, are apt to escape attention until a ship has put to sea and begins to roll.

- (6) *Beyond* -I assure you it was *beyond* my control.

- (7) *Against* -The Third parties may direct a claim *against* the parties involved in the charter agreement.

Furthermore, some implied negation can be achieved by the combination of preposition and other words, such as at one's wit's end, at the end of one's rope, at the end of one's row at variance with; but for; in default of, in place of, in the dark about, in spite of, in vain, in lieu of, in defect of; out of one's range, out of order, out of plumb, out of practice, out of shape, out of reason, out of sight, out of square, out of sorts, out of hearing, out of common, out of the corners of one's eye, out of ordinary, out of the picture, out of touch with, out of whack, out of fashion, out of politeness, out of one's element, and out of place,.

But for is not used in the sense of exception, but rather that of negative condition:

- (8) *But for* Gordan, we would have lost the match. (if it hadn't been for Gordan....; if Gordan hadn't played as he did.)

6. Conjunction (mainly subordinators)

Words in this type include *unless (if not), lest, for fear (in order that...should not occur), in case (in order not), and before (rather than)*.

Unless introduces a negative condition; the unless-clause is usually roughly similar to a negative if-clause. With *unless* there is a greater focus on the conditions as an exception (only if...not). There are therefore contexts in which the *unless- clause* cannot occur:

I'll feel much happier if he doesn't come with us.

I'll feel much happier *unless* he comes with us.

Here are more examples:

- (1) *Unless* - Geographical positions refer to the largest scale chart "- *unless* otherwise stated.

Negative purpose is expressed in the infinitive clauses by *so as not to* and *in order not to*:

- (2) Turn the volume down *so as not to* wake the baby.

- (3) I ignored the remark *in order not to* prolong the dispute.

While in finite clauses it is expressed by *in order that.not*, but also by specific subordinators: *for fear (that)(formal), in case (BrE)*, or the very formal *lest*:

- (4) They left early *for fear (that) they would* meet him.

(5) They evacuated the building *in case the wall collapsed*.

For fear (that) conveys also the meaning of apprehension and requires a modal auxiliary, but *in case* need not have a modal auxiliary. In (5) there is an implicit negative purpose „in order that, if the wall collapsed, they would not be affected. Archaic *lest* tends to have a modal auxiliary or the present subjunctive:

(6) Earthen mounds were being hastily erected *lest* an attack *should be/be* (*esp AmE*) *launched that night*.

Before marks the time before which the situation in the matrix clause applies, but the matrix clause need not be durative: “I started my meal before Adam arrived.” But before-clauses are not always true. Nonfactual before-clauses may imply preference, as in (7); or implausibility as in (8): He’ll beg for food *before he ’ll ask his parents’ for money*. (He won’t ask his parents for money; he would rather beg for food than ask his parents for money)

(7) Pigs will fly *before* he’ll become a mathematician. (He will never become a mathematician) (8) Or the situation in the matrix clause may prevent that in the before-clause from taking place:

He died *before writing a will*.

(9) Sally stopped Ted *before he had a chance to reply*. (Ted didn’t have a chance to reply)

Some before-clause may be interpreted as either factual or nonfactual:

(10) You still have time *before you have any need to register*. (You don’t have any need to register now)

(11) I sent a donation *before I was asked to*.

The implication can be paraphrased by the negative conditional clause:

Give me some money. If you don’t give me some money, I’ll shoot.

According to the addition of suffixes to the words the negative features of formation words is formed and as a result of grammatical changes of words that to change of word meanings from one category to another are also reflected in our national literature. Top representatives of the Uzbek national literature who express the non-division in comics, satire, parables, and short stories by various lexical means.

In particular, parables are one of the most widespread literary genres in the literature of the peoples of the world, written in poetic form or prose and the content is written with the intention of figuratively describing human characteristics and relationships between them and usually express images of animals or plants. From a story or narrative comes a definite contribution that makes a conclusion. Thus, various interpersonal relationships are transferred to animate and inanimate objects- events. On this basis, universal values are glorified, anti-human qualities are condemned.

One of such writers is A.Avloniy, a great scholar who made a great contribution to today's world literature, who left a deep mark on the traditions of oriental literature. In his parable of "The fox and the crow" these qualities are vividly illustrated. The author's parable of "The fox and the crow" was written in 1916. The parable condemns ignorance, foolishness, deceit, ingenuity, and entrepreneurship. In this play, the category of negation is expressed by words and phrases and affixes. The play depicts the ancient problems of the time through figurative images such as the Stork, the Fox and the Crow. The parable is told in the language of these figurative images.

The fox said:

Bu daraxt, yer meros menga otadan,
O'zga joyni in qo'yib yotasan.
Ket bu yerdan bo'lak yerga in sol,
Men kesarman chinorimni alhol.
Laylak aytdi: -Birodarim jonim,
Buzub uyumni, qilmag'il giryon,
Uyi yiqqanlar bo'lur xonavayron.
Marhamat qil bu yosh go'daklarima,
Mone o'lma butun tilaklarima.
Bir bolamni beray, yebon to'yg'il,
Honavayron qilmay, tinch qo'yg'il
Laylakka o'rgatay, dedi bir fan:
Xo'b uzundir bo'yingu aqling oz,
Qishga yo'q toqating, tilarsan yoz.
Tulkining korimi o'tin kesmoq,
Shunga ham yetmas aqling, ey ahmoq.
Yo'qg'a bir bola aylading qurbon,
Befarosat, tushunchasiz, nodon

“Bevatan, bego'ru kafan Qarg'a Laylakka yaxshilik edan Qarg'a!”....

The parable “The fox and the crow” is readable. Although the parable was written at the beginning of the century, the poet does not use complex words and phrases in it. On the contrary, he has skillfully used the adjectives "stubborn" and "stupid" to describe the stork.

As we read the parable, we regret that the stork did not use her mind, and we hate her cruelty to her child. Enjoy the crow's ingenuity, or the fox's "regret and sigh" for what he did. In fact, this is the purpose of the poet to write parables.

In this parable, words with negative meanings: qilma-do, o'lma-die, qilmay-do, yo'q-not, oz-little, yo'q-no, yetmas-not enough, befarosat-foolish, tushunchasiz-incomprehensible, bevatan- mother landless, begor-tombless are represented by prefixes and suffixes. That is, the suffixes: -ma, -may, -mas, -siz, the adverbs: oz and yo'q, prefixes “be- and no-” were added to form the negative meaning of the words.

In English literature, the concept of negation is also expressed by using a variety of lexical means. In the interesting English story "A train journey" the negative meanings are also expressed as follows.

In the story of “A train journey” is about:

“The people on the train were hot and tired. A tall young man sat next to three small children and their aunt. The aunt and the children talked. When the aunt spoke she always began with ‘Don’t... .When the children spoke they always began with ‘Why... ?’ The young man said nothing.

The small boy whistled loudly. ‘Don’t do that, Cyril,’ said his aunt. Cyril stood up and looked out of the window at the countryside.

‘Why is that man taking those sheep out of that field?’ he asked.

‘Perhaps he’s taking them to another field where there’s more grass,’ said the aunt.

‘But there’s lots of grass in that field. Why can’t the sheep stay there?’

‘Perhaps the grass in the other field is better.’

‘Why is it better?’

The young man looked annoyed.

‘Oh dear,’ thought the aunt, ‘he **doesn’t** like children.’

‘Sit down quietly, Cyril. Now, listen, I’m going to tell you all a story.’

The children looked bored **but** they listened. The story was very boring indeed. It was about a very beautiful little girl, who worked hard and behaved beautifully.

Everybody loved her. One day she fell into a lake and everyone in the village ran to save her. ‘Why did they save her?’ asked the bigger girl.

‘Because she was so good,’ said the aunt. ‘But that’s stupid,’ said the girl. ‘When people fall into lakes, it **doesn’t** matter if they’re **good or bad**, you run to save them.’

‘You’re right,’ said the young man, speaking for the first time. ‘That’s a ridiculous story.’ ‘Well, perhaps *you* would like to tell a story,’ said the aunt coldly. ‘OK,’ said the man. The children looked interested and he began.”²

In this story, the negative meaning of the words is also expressed through various linguistic means. As the story shows, there are no complex language units in this story. The story is written in simple-folk language. In our story, the concept of negation is mainly created with the word "not", negative conjunction "but", pronoun "nothing" and antonymous adjectives: good and better. These tools ensured that the meanings in the text did not contradict each other.

When we are analyzing story we have paid attention to the meaning. it is advisable to study the antonymic pairs of words, word-building antonymic syllabus and antonymic phrases. Everyone knows that antonyms are the opposite meaning words.³ For example: ‘When people fall into lakes, it **doesn’t** matter if they’re **good or bad**, you run to save them.

In English some negative is also expressed using the following terms.

It belongs to grammatical category which refers to a sentence that contains negative words like *not*, *never*, or *nowhere*. The list of negative words in English is: *neither*, *never*, *no nobody*, *none*, *no one*, *nor*, *not*, *nothing* and *nowhere*. They are also called “*Full negatives*”.⁴

The adverbs of negation convey the idea that the action or state being described “usually” does not or did not happen or exist, but could have occasionally. They are negative, though not in the absolute sense as sentences with *not* and *never* are.

In this story, the negative meaning of the words is also expressed through various linguistic means. As the story shows, there are no complex language units in this story. The story is written in simple-folk language. In our story, the concept of negation is mainly created with the word "not", negative conjunction "but", pronoun "nothing" and antonymous adjectives: good and better. These tools ensured that the meanings in the text did not contradict each other.

Combining possibilities of negative prefixes what kind of parts of speech that it

² Liz and John Soars. New headway- elementary student’s book. A story “A train journey”. Pages 102-103.//Oxford university press, 2000 y.

³ Toshonov L.T., Gofurova H.T. Role of antonym in the development of students' speech. // Electronic journal “Вопросы науки и образования” № 15 (99), 2020, page 57.

⁴ Toshonov L.T. Negation In Sentence “Экспериментальная наука: механизмы, трансформации, Регулирование”// Сборник статей по итогам Международной научно-практической конференции 18 апреля 2020 г. Page 60

is necessary to make a syntactic calculation on the base of dictionary in English and Uzbek. The task of word-formation in all the main parts of speech — nouns, adjectives, verbs and adverbs — enter into antonymic oppositions. However, they were especially widespread in the field of adjectives and verbs.”⁵

Because, determining productive negative prefixes in the compared languages also allows for more accurate information. When we compared Uzbek and English, the number of suffixes in Uzbek are 171, and the number of suffixes in English are 67.⁶ However, the number of prefixes in English is much more than in Uzbek. They are: dis- (**dis**loyal), un- (**un**happy), in- (**in**visible), il- (**il**legal), anti- (**anti**war), mis- (**mis**understand), a- (**a**moral), dys- (**dys**function), im- (**im**materal), un- (**un**wise), contra- (**contra**ception). Prefixes with negative meanings in Uzbek are be- (**be**nom, **be**ish), no- (**no**maqbul, **no**iloj), gayri- (**g’ayri**ilmiy, **g’ayri**qonuniy), bad- (**bad**havo, **bad**mehr).

In Uzbek prefixes “be-“ and “no-“ with negative meaning, the word “**bad**” and the word “**bad**” and “**non-**” which in some places is considered as a prefix, is the result of the development of science, technology and other fields. Due to the needs of translation of some Russian words into Uzbek, negative prefix “**ne-**” express events represented by words with **non**-prefixes.

Today, a lot of words have been borrowed from Russian into Uzbek. In linguistics prefixes can be classified according to their origin. They can be divided into native and borrowed.⁷ For example: **no**-standart, **no**-kapitalistik.

O.Usman uses the Russian prefix “**ne-**” to emphasize the indivisibility of some words using the Uzbek prefix “**no-**”: no-standart, **no**-rentabel. In modern Uzbek lexicology the prefix “**no-**” is an active negative word-forming prefix. It is known that all these negative prefixes in Uzbek grammar are derived from Arabic and Persian-Tajik languages, these prefixes play an important role in the formation of negative words in the Uzbek language.

Conclusion and Recommendations. To conclude from the above, 1) In Uzbek language, on the basis of the five-volume “Explanatory Dictionary of the Uzbek language” (-Tashkent: OME. 2006-2008), we analyzed the possibilities of adding negative prefixes to parts of speech.

Table 3.16

№	Prefixes	Total	%	Noun	%	Adjective	%	Verb	%	Adverb	%
1	be-	238	23.9	86	36.3	140	58.8	3	1.2	9	3.7
2	no-	993	78	22	38.2	51	65.3	3	3.8	2	2.5
Totally		1231	101.9	108	74.5	191	124.1	9	5	11	6.2

⁵ Toshhonov L.T., Gofurova H.T. Role of antonym in the development of students' speech. Electronic journal of “Вопросы науки и образования” № 15 (99), 2020, Page 56

⁶ O.Mo'minov. Lexicology of the English Language. -Tashkent. 2008. Page 32

⁷ Toshhonov L.T., G'ofurova H.T. Forming negation with the prefixes. Electronic Journal. Вопросы науки и образования № 7 (91), 2020. Page 36

In the Uzbek language, words with the negative prefixes “be-“ and “no-” are found in 1231 words in the Explanatory Dictionary of the Uzbek Language. From them the active prefix “be-” is 23.9%, “no-” is 78%. The most productive prefix in English is “un-”, while the most active prefix in Uzbek is “no-”.⁸

2) There are more negative prefixes in English than in Uzbek. In English a number of negative prefixes have been borrowed from other languages too, such as Uzbek. For example: ab-, ad-, anti-, con-, de-, dis-, pro-, pre-, be-, un-, in- and others.

Most Latin prefixes are learned in English. For example: ab- (absent, absolve, abduct, abstract, abuse, avert), ad- (admit, adhere, accord, accept), ante- (antecedent, antedate, anticipate), de- (descend, depart, decompose, deface), dis- and di- or dif- (dissent, divide, differ, diffuse), re- (recede, return, recost, recommend, reassert, reform), in- (invalid, incline, irradiate), un- (unanimouse, unsound, uneasy, unreal).

English negative prefixes are divided into productive and nonproductive prefixes, as in Uzbek. Among the productive prefixes we can take the prefixes a-, dis-, dys-, il-, im-, in-, ir-, non / non-, un / un-. For example: unexpected, unwise, dysfunction, amorphous, dislike, impossible, unreliable.

The following table is based on the English Macmillan Essential Dictionary (Midsomer Norton. Radstock. United Kingdom. London, 2007), which analyzes prefixes and suffixes that are added to words to form a negative meaning.

Table 3.17

No	Prefixes	Total	%	Noun	%	Adjective	%	Verb	%	Adverb	%
1	Ab-	6	0.4	1	50	1	50	-	-	-	-
2	Dis-	227	13.8	78	34.3	43	18.9	101	44.4	5	2.2
3	Non-	60	3.8	31	51.6	29	49.3	-	-	-	-
4	In-	287	17.5	90	31.3	193	67.2	1	0.3	3	10
5	Im-	73	4.5	25	34.2	45	61.6	2	2.7	1	1.3
6	Il-	41	2.4	11	26.8	28	68.2	2	4.8	-	-
7	Ir-	40	2.5	10	25	30	75	-	-	-	-
8	Un-	644	39.1	19	2.9	604	93.7	9	1.3	12	1.8
9	Mis-	97	5.8	43	44.3	6	6.1	48	49.4	-	-
Totally		1475	89.8	308	300.4	979	490	163	102.9	21	15.3

In the English language, according to the Macmillan essential dictionary , words with negative affixes are 1475 words, the number of words formed using the prefix ab- is 0.4%, “dis-” is 13.8%, “non-“ is 3.8%, “in-” is 17.5%, “im-“ is 4.5%, “il-“ is

⁸ Qayumova M.S. Syntactic analysis of category of negation in Uzbek and English language. Candidate of philology of science... dissertation. -Tashkent. 2010. page 125

2.4%, “ir” is 2.5%, “un-“ is 39.1%, “miss-“ is 5.8% in the dictionary.⁹

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UDK 37.013.8///13.00.00

INNOVATIVE METHODS OF TEACHING FOREIGN LANGUAGES IN POST TEACHING ERA

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Аннотация. Британиянинг тил ўқитишда тадбиқ қилувчи методлари ўзига хос хусусиятга эга бўлиб, уларнинг аксарияти анъанавий ва замонавий ўқитиш усуллари бирлаштириш асосида ишлаб чиқилган. Ўқитишнинг ғарб

⁹ Qayumova M.S. Syntactic analysis of category of negation in Uzbek and English language. Candidate of philology of science.dissertation.-Tashkent.2010. page130

услугларининг барчаси, шубҳасиз, ўқиш, ёзиш, гапириш ва тинглаш каби тўрт тил кўникмаларини ривожлантиришга асосланади. Шунингдек, аудио, видео ва интерактив ресурслардан фойдаланишга катта аҳамият берилади. Барчасида бўлмагани каби баъзи қўлланилувчи методлар асосида аутентик материалларни яхши тизимлаштириш услуги ётади. Мақолада тилга олинган методлар инглиз ўқитиш услуги бўлиб, улар ҳақиқий инглиз тилини ўрганишни ёки конкрет лингвистик тайёргарликни мақсад қилганлар учун энг яхши имкониятдир.

Таянч сўзлар: хорижий тилни ўқитиш, методлар, тилни билиш, аутентик матнлари, интенсив ўқитиш.

Аннотация. Британские методики имеют ряд отличительных черт. Большинство их разработано на основе интеграции традиционных и современных методов преподавания. Все без исключения британские методики нацелены на развитие четырех языковых навыков: чтения, письма, говорения и аудирования. При этом большой акцент делается на использование аудио-, видео- и интерактивных ресурсов. Некоторые (но далеко не все) методики отличаются хорошей систематизацией аутентичного материала. Методы, которые описываются в статье, являются британскими и они считаются лучшим вариантом для тех, кто хочет изучать "real English" или преследует узкоконкретную цель лингвистической подготовки.

Ключевые слова: обучение иностранного языка, методы, языковые навыки, аутентичные тексты, интенсивное обучение.

Abstract. British methods of teaching foreign languages have a number of distinctive features. Most of them are developed based on the integration of traditional and modern teaching methods. Undoubtedly, all British methods are aimed at developing four language skills: reading, writing, speaking and listening. At the same time, great emphasis is placed on the use of audio, video and interactive resources. Some (but not all) techniques are distinguished by a good systematization of the authentic material. Methods described in the article are purely British methods and they are the best option for those who want to learn "real English" or are pursuing a narrowly specific goal of linguistic training.

Key words: teaching foreign language, methods, language skills, authentic texts, intensive teaching.

Introduction. Since the builders of the Tower of Babel began to speak different languages, society began to feel the need of translators. Interpreters were appreciated everywhere. Until recently, acquiring foreign languages was more of a hobby than a cruel reality. To know a foreign language meant to be an esthete, to belong to a certain circle, or (the most harmless option) - to be known as an eccentric. But time is changing ... Any house, as you know, begins with an architectural plan. Now we are less and less frightened by a huge fortress called "Foreign Language", at the top of which a flag (most often British) flies proudly. And, in this case, knowledge of modern study methods will serve as a necessary tool. Recently, when the educational technology market is replete with proposals for a wide variety of methods of learning English, the question "What method do you use to teach?" becomes more and more relevant, which indicates an increase in the culture of consumption of intellectual products.

Literature review. The fact remains that at the end of the XX century there was a "revolution" in the methods of teaching English. Previously, all priorities were completely given to grammar, almost mechanical mastery of vocabulary, reading and literary translation. These are the principles of the "old school", which (to give it its due) still bore fruitful results, but at what cost? Language acquisition was carried out through long routine work [5]. The tasks were quite monotonous: reading the text, translating, memorizing new words, retelling, and exercises through working with text. Sometimes, for the sake of some necessary activities, such as essay or a dictation, plus phonetic drills used to bring good results. When priority was given to reading and working on "topics", only one function of the language was realized – informative function [9]. It is not surprising that very few people knew the language well: only very purposeful and hardworking people could master it at a high level. But in terms of grammar proficiency they could easily compete with Cambridge graduates! True, they received good compensation for their work: the profession of a foreign language teacher or translator was considered very prestigious.

Now, to achieve this still high social status, a lot of diligence, perseverance and daily work were also required. But what is truly "revolutionary" is that language has become accessible to the majority [3]. The main question remains to be solved: what are the content of the course, its structure and teaching methods? Who is the author of the proposed material, where was this material developed and by whom was it tested? Language teaching has acquired an applied character; while earlier it was comparatively abstract and theorized. Even Aristotle brought out the famous triad of teaching ethics, which correlates perfectly with modern requirements: logos - the quality of presentation, pathos - contact with the audience, ethos - the attitude towards others. This rule is true for the orator, and for the actor, and for the teacher of a foreign language, whose role presupposes the first two hypostases [8]. The functions of the teacher in the educational process have changed significantly. A teacher-mentor, a teacher-dictator, is not able to provide students with freedom of choice and provide the "freedom of learning" necessary in comprehending such a subtle matter as language. Therefore, such a negative pedagogical image is gradually becoming the property of history. It was replaced by a teacher-observer, a teacher-mediator, a teacher-"peacemaker" and a leader.

Research methodology.

Fundamental methodology

This is indeed the oldest and most traditional technique. The fundamental methodology is seriously relied on language universities. A translator is never sure of his knowledge of a foreign language; he perfectly understands the unpredictability of emerging speech situations. Studying according to the classical method, students not only operate with a wide variety of lexical layers, but also learn to look at the world through the eyes of a "native speaker" [6]. Perhaps the most famous representative of the classical method of teaching a foreign language is book by N.A. Bonk. Her English textbooks, written jointly with other authors, have long become classics of this genre and have withstood the competition of recent years. The classical technique is otherwise called fundamental: no one promises that it will be easy, that you will not

have to study at home and the teacher's experience will save you from mistakes in pronunciation and grammar.

The classic approach to learning a foreign language

In this regard, the classical approach to the study of a foreign language has also somewhat transformed, but the unshakable principles of the "classics" of language methods have been preserved. Sometimes they are actively used in schools of other methodological directions [4]. The classic course focuses on the students of different ages and most often involves learning the language "from scratch". The tasks of the teacher include traditional, but important aspects of the formulation of pronunciation, the formation of a grammatical base, the elimination of the psychological and language barriers that impede communication. "Classics" did not change the goals, but the methods, due to the new approach, are already different [10]. The classical approach is based on the understanding of language as a real and full-fledged means of communication, which means that all language components - oral and written speech, listening - need to be developed in students in a systematic and harmonious manner. The methodology involves classes with teachers, but this order (although not entirely "fashionable") cannot be considered a disadvantage: a teacher who is not a native speaker has the ability to analyze and compare two language systems, compare constructions, convey information better, explain grammar rules, prevent possible errors.

Linguistic sociocultural method

One of the most serious and comprehensive methods of learning a foreign language is linguistic-sociocultural, involving an appeal to such a component as the social and cultural environment. Proponents of this method firmly believe that a language loses its life when teachers and students aim to master only "lifeless" lexical and grammatical forms. The linguistic sociocultural method takes into account the simple fact that 52% of mistakes are made under the influence of the native language, and 44% are hidden within the studied language [2]. Teachers used to monitor the correctness of speech; now, in addition to this, teachers seek to increase its content. The meaning of the transmitted information is important, that is, the communicative level, because in any case, the ultimate goal of communication is to be understood. The linguistic-socio-cultural method includes two aspects of communication - linguistic and intercultural. The linguistic socio-cultural method was born at the intersection of the concepts of language and culture. The authors of the method (among them S.G. Ter-Minasova occupies one of the main places) approached these definitions in a different way. The classics, in particular Ozhegov, understood language as "an instrument of communication, exchange of thoughts and mutual understanding of people in society". We believe that the supporters of the linguistic-socio-cultural method do not exaggerate the strength and significance of language in the modern world. In their opinion, language is "a powerful social tool that forms the flow of people into ethnos, forming nation through the storage and transmission of culture, traditions, social consciousness of a given speech complex.

Communicative approach

The first line in the rating of the popularity of methods is actively taken by the communicative approach, which, as its name implies, it is aimed at the practice of

communication. This technique works great in Europe and the USA. Of the 4 "whales" on which any language training (reading, writing, speaking and listening comprehension) increased attention to any learner [1]. You will not hear particularly complex syntactic constructions or serious vocabulary in class. Oral speech of any literate person is quite different from written speech. Those who want to be a professional in a particular field regularly read publications on their topic in foreign publications. Possessing a large vocabulary, they can easily navigate the text, but it costs them enormous efforts to maintain a conversation with a foreign colleague on the same topic. The communicative method is designed, first of all, to remove the fear of communication. A person, armed with a standard set of grammatical constructions and a vocabulary of 600-1000 words, will easily find a common language in an unfamiliar country.

Intensive technique

Learning English intensively allows enrichment of language with a high degree of stereotyped phrases, approximately English language consists of 25% clichés [9]. Memorizing and practicing a certain range of "fixed expressions", you will be able to explain and understand the interlocutor. Of course, those who choose the intensive course will not be able to enjoy reading Byron in the original, but the goals of this course are completely different. The intensive method is aimed at the formation of "expressive speech behavior" [7], and therefore often has a linguistic character. Good courses are likely to provide you with unlimited communication and maximum potential, and the focus of the course is on your needs. As for the timing, it is difficult to learn English even at the simplest level "in two weeks" is a fantastic dream, but in 2-3 months is already more real.

Conclusion and recommendation. Progress and fundamental changes in the methods of language learning are undoubtedly associated with innovations in the field of personality and group psychology. Now there are noticeable changes in the consciousness of people and the development of new thinking: the need for self-actualization and self-realization, proclaimed by A.Maslow appears. The psychological factor in the study of foreign languages is promoted to a leading position. Authenticity of communication, balanced demands and claims, mutual benefit, respect for the freedom of other people - this is a set of unwritten rules for building constructive relationships in the "teacher-student" system. The teacher can now select, create, combine, modify.

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UDC 801.9

EXPRESSION OF NOT IN THE SENTENCE

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Annotation. This article is an attempt to give a unified account of the syntax and semantics of negation, and in particular, of the lexical item **not**. Two analyses are presented and discussed: the first providing for the deep structure occurrence of **not** in the specifier of adverbials and noun phrases and deep structure interpretation of the scope of negation, and the second providing for generation of **not** in sentence initial position and derived structure scope interpretation. It is argued that the second analysis provides a better description of two adverbial classes that are superficially parallel but differ in significant syntactic and semantic respects. Further, it is suggested that a comprehensive theory of scope semantics would require derived structure scope interpretive rules. The semantics of the quantifier **any** are considered and Quine's proposal that **any** is the "universal quantifier is supported, and evidence is presented that its distribution can be predicted if it is regarded as the marked form of the universal quantifier.

Key words. Syntactic, formation, determiner, passive transformation, lexical items, quantifier

Introduction. Today, learning foreign languages and expressing thoughts in other target languages, which is very necessary for any modern person. Related to this is the history, culture and traditions of other languages. In this state, we cannot express

our thoughts. A more efficient way of forming negation is with a prefix. It creates new words by adding prefixes before the root.¹⁰

Literature review. During the past year, I have received a great deal of help and encouragement having nothing to do with linguistics, although without which it would have been impossible for me to finish this thesis, I am glad to have this opportunity to express my deep gratitude to Roberta Kent, Carlos Quicoli, Bob Fiengo and Mary-Louise Kean, Paul and Carol Kiparsky, and Gary and Kathy Milsark. In the preparation of the thesis itself, the suggestions and criticisms of my advisor, Noam Chomsky, have been invaluable. In addition, useful suggestions for the improvement of an earlier draft were provided by Wayles Browne, Haj Ross, Paul Kiparsky, Morris Halle, and Ken Hale.

Research methodology: In the article, analysis and synthesis, systematic approach, abstract-logical thinking, grouping and comparison methods were used. We intend to examine the distribution of the lexical item “not” in surface structure, and the implications of this distribution for the base rules and transformations involved in sentences containing “not”. In the course of the discussion, two syntactic schemas will be presented. In the first, which I call the Determiner Theory, “not” is generated on NP’s (Noun phrase) and Adverbials and, in - some circumstances, transformationally relocated into the Aux. In the second, the Pre-S Theory, not is generated in a “pre-S” node as in Klima (1964). Both analyses will be shown to require an Auxiliary base position for “not”.

Analysis and Results. We will first consider phrases containing “not” and a quantifier, for example “not many” and “not often”. One logical possibility is that the base rules can generate determiners on noun phrases of the form “not + Quantifier”, and adverbials of the form not + adverb, and that only the rules normally involving NP’s and adverbs apply to such NP’s. we will argue that this possibility is untenable. Consider the following pair of sentences;

1. The student solved not all of the problems.
2. Not all of problems were solved by the student.

Sentence 1 is particularly interesting because it is fully interpretable and seems potentially quite a useful construction, but my intuition is that there is something wrong with it. In general, when a sentence is interpretable and violates no selectional restrictions, but still seems to be a “bad” sentence, I will assume that the syntax fails to generate it. We will assign to such a sentence.

Suppose that “not” is generated on noun phrases and the syntax has no transformations affecting that “not”. Then in order to account for the contrast between 1 and 2, a condition on the passive transformation would be required making passive obligatory just in case the object NP has “not” in its determiner.

Now consider sentences 3 and 4.

3. Not everyone saw the play
4. The play was seen by not every one

¹⁰ L.T.Toshonov, H.T.G’ofurova “Forming negation with the prefixes”, Вопросы науки и образования № 7 (91), 2020 Москва ” on page 32

4, like 1, is grammatical if “not” is absent. To rule out sentence 4, another condition on the passive transformation would be required stipulating that just in case the subject NP has “not” in its determiner, the transformation blocks. A similar, but even more problematic case arises with verbs that generally resist passivization, such as *want*. Sentence 5 is analogous to 1 and 4 in its ungrammaticality, but 5 produces an ungrammatical sentence even if it is passivized.

Hence, within the analysis under discussion, the well-formed deep structure underlying 5 and 6 produces only ill-formed surface structures.

5. John wants not many books

6. Not many books are wanted by John

In sentence 2, not all of the problems seem to be a constituent. Since 1 is ungrammatical, this constituent has no apparent source. Similarly, in sentence 3, “not everyone” seems to be a constituent. But **if** the passive transformation operates on this constituent, the resulting string is ungrammatical. Note that when “not” is absent, sentences corresponding to 1 through 4 are all grammatical.

1. The students solved all of the problems

2. All of the problems were solved by the students

3. Everyone saw the play

4. The play was seen by everyone

In the above sentences, the constituent with “not” can only occur in subject position, while the corresponding constituent without “not” can occur freely.

Consider now the adverb often. There are three major positions where “often” can occur, indicated by 8, 9, and 10.

8. Often, I cut astronomy class

9. I often cut astronomy class

10. I cut astronomy class often

“Not often” is a potential constituent, since most speakers accept sentences like 11.

11. Not often do I cut astronomy class

But in the non-initial adverb positions, “not often” is ungrammatical.

12. I not often cut astronomy class

13. I cut astronomy class not often

On the surface, then, not all adverb positions are available to adverbs with “not”. In particular, just as only subject position permitted “not+Quant+NP”, only initial position permits “not+adverb”. We claim that these two facts are elements of the same phenomenon, and that significant generalizations would be missed if the rules of passive and adverb movement were constrained so as to be obligatory or prohibited just in case the wrong choice would produce one of the proscribed outputs we have described.

An alternative to constraining the transformations in various *ad hoc* ways is to hypothesize various lexicalization rules that are optional in subject or initial adverb position but obligatory elsewhere. Such an analysis would have transformational rules like the following.

14. not many —> few [optional in subject position]

15. not often —> seldom [optional in initial position]

This proposal faces several difficulties, some of them apparently insurmountable. First, sentence 1 above is ungrammatical because its object has the determiner not all. But in this case, the ungrammaticality cannot be accounted for by making some lexicalization rule obligatory, because not all has no corresponding single lexical item. Similarly, there are no single lexical items corresponding to the phrases not every, not always. Further, even the phrases that do have similar lexical items, as in 14 and 15 raise several difficulties, since not many and few, for example, differ in significant syntactic ways. Few can be modified in ways that not many cannot as the correspondences below show.

16. rather few - rather not many
surprisingly few - surprisingly not many

Similarly, seldom occurs in frames in which not often cannot occur.

17. rather seldom - rather not often

Also, few can be compared, while the corresponding phrase cannot.

18	fewer	not many-er
		more not many
	fewest	not many-est
		most not many

Finally, not many and not often can be modified in ways that do not correspond to any modification of few and seldom. Not very many, for example, is quite different from very few, and not very often is not equivalent to very seldom. But the not phrases so modified behave syntactically just like the unmodified phrases in examples 1 - 13 above. That is, such phrases are ungrammatical except in initial position, even though the structural description for the hypothesized obligatory lexicalization transformation is presumably never met.

19. I cut classes not very often
20. The police arrested not very many of the demonstrators
21. The desired answer was given by not very many of the witnesses

On the basis of 16 - 20, I conclude that the ungrammatical sentences I have presented cannot be accounted for by a lexicalization transformation changing phrases with not into single lexical items.

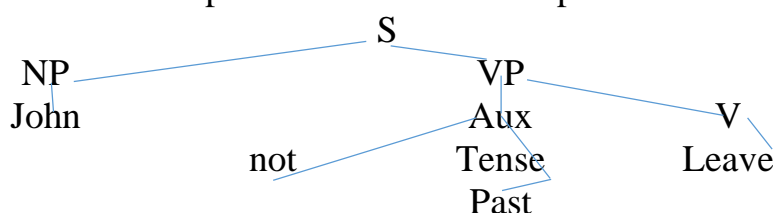
Klima (1964) suggested that not is generated sentence- initially, dominated by a node labelled Pre-S. The Pre-S deep structure position for not would then be the source of not in the examples I have been discussing. This proposal has many virtues in the description of the syntax of sentence with not, but it has one major shortcoming. In particular, it fails to account for grammatical sentences with two occurrences of not. Examples of this phenomenon are sentences 22 and 23.

22. Not many of the arrows didn't hit the target
23. Not many of the demonstrators weren't arrested
24. Not often do I not do my homework

22 and 23 suggest that at least two deep structure sources for not are required, one of them in the Auxiliary. I propose that the base rules expanding Aux can optionally generate not in the initial position of the Aux, and I will argue that such a base rule underlies the occurrence of not in 25.

25. John didn't leave

The relevant aspects of the deep structure for 25 are represented in 26.



Some statistical confirmation of the relative grammatically judgements I have been using as evidence appears in Whitman (1971). In this interesting study, Whitman tabulate acceptability judgements concerning various syntactic frames with not. One of the results is that not on an NP to the right of the verb, i.e. on an object or prepositional NP, produces the least acceptable sentences.

In general, he finds that an increase in the number of riot's tends to decrease acceptability. But even allowing for this fact, sentences with a not on the subject and one in the Aux are far more acceptable than sentences with only one not if that not is in object position. Sentence W1 obtained twice as many acceptable ratings as W2, against 7 on one sample.

Even W3, a sentence of considerable apparent complexity, had twice as many acceptable ratings as W2, again, 14 against 7.

W3 Not many girls don't like Rock Hudson, do they?

Further, when a sentence pattern involving an object not is compounded by a second not, the resulting sentence is universally rejected. W4 received only one acceptable rating out of 24 responses, and W5 received no acceptable ratings.

W4 Not many girls like not many boys

W5 John didn't see not many girls

Whitman collected interpretability judgements, as well, which are not, unfortunately, reported in his note. Significantly, however, he states that a sizeable proportion of the relatively unacceptable judgements were judged to be relatively easily understood. It seems quite likely that such sentences as W2 above fall into that category.

Conclusion and Recommendations. To conclude from the above, we turn now to a discussion of the deep structure source of not in phrases like not many and not often. we will examine two theories, which I call the Determiner Theory (DT) and the Pre-S Theory (PT), respectively.

1. Determiner Theory

In the Determiner Theory (DT), is generated optionally in the determiner of Noun Phrases and certain types of Adverbial Phrases, The presence of not in the determiner of a NP, for example, would be contingent upon other aspects of the form of the determiner. 27 would be a possible deep structure under either option, but 28 would be excluded by subcategorization,

27. (not) many people

28. not people

The determiner of a count noun could include 29, then.

29.

	many	
	every	
((not)	all)
The determiner	a lot of	of a mass noun,
similarly, could		include 30.
30.		
	much	
((not)	all)
	a lot of	

Determiners generated by the base rule underlying 29 appear in sentences 31.

31. a. Not many people arrived
- b. Not every student passed the test
- c. Not all of the analyses were acceptable
- d. Not a lot of demonstrators were arrested

The determiners in 30 appear in sentences 32.

32. a. Not much foliage survived the frost
- b. Not all of the crops were destroyed
- c. Not a lot of thought went into your explanation

The first problem facing DT is illustrated by examples 1 - b above. In particular, a phrase generated by **29** or 30 can be the subject of a passivized sentence, but not the object of an active sentence. And such a phrase can be the subject of an active sentence but not the by-phrase of a passive one. This distribution of facts can be accounted for within DT by a transformation ordered after passive, and whose operation is obligatory, which would shift a not occurring in the determiner of a NP to the right of the Aux into the Aux.

The generalization covering those sentences is that when the particular set of adverbs under discussion have not in their determiner, the fronting of the adverbial phrase fulfills the environment for Subject Auxiliary Inversion (SAI). One consequence of this observation, which we note in passing, is that Adverb Fronting must precede SAI.

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UDC 336**THE ESSENCE AND IMPORTANCE OF EUROBONDS IN
ATTRACTING FOREIGN INVESTMENT**

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Аннотация: Ушбу мақолада еврооблигацияларнинг моҳиятини ҳар томонлама кўриб чиқилган: ушбу инструментнинг инвесторлар ва эмитентлар учун афзалликлари очиқ берилган, евробонларни чиқаришнинг афзалликлари ва камчиликлари келтириб ўтилган. Шунингдек Ўзбекистон Республикасида еврооблигациялар бозори ривожланишининг қисқача шарҳи ёритиб берилган, ривожланишининг асосий тенденциялари аниқланган.

Калит сўзлар: хорижий инвестицияларб еврооблигациялар, молия бозори, эмитент, инвестор.

Аннотация: В статье всесторонне рассмотрена сущность еврооблигаций: выявлены преимущества данного инструмента для инвесторов и эмитентов, выделены преимущества и недостатки различных схем эмиссии еврооблигаций. Также проводится краткий обзор развития рынка еврооблигаций в Республике Узбекистан, выявлены основные тенденции развития.

Ключевые слова: иностранные инвестиции, евробонды, финансовый рынок, эмитент, инвестор.

Abstract: The article comprehensively examines the essence of Eurobonds: reveals the advantages of this instrument for investors and issuers, highlights the advantages and disadvantages of various schemes for issuing Eurobonds. It also provides a brief overview of the development of the Eurobond market in the Republic of Uzbekistan, identifies the main development trends.

Key words: foreign investments, eurobonds, financial market, issuer, investor.

Introduction. On the path of active development of the domestic stock market diversification of debt instruments is one of the main conditions for meeting global trends in the development of financial markets. At a time of rapid development of the global financial market, investors are looking at the stock market as an area of placement of accumulated funds. One of the most popular and large-scale segments of the stock market in developed and developing countries is the Eurobond market. These types of securities allow private investors to save and increase cash in times of instability in global financial markets and low interest rates on bank deposits. It will allow the issuing states to attract additional funds. At the same time, attracting funds

through Eurobonds has several advantages over raising funds through other credit instruments.

Literature review. According to the definition presented by O.Khmyz, "Eurobonds are bonds issued in the international stock market and denominated in Euro-currencies - currencies foreign to the issuing country".¹¹ L.G.Chuvakhina gives a slightly different definition: "Eurobonds are debt securities denominated in foreign currency in relation to the issuing country and intended for placement simultaneously on several foreign stock markets".¹² Thus, a Eurobond is a debt security issued and traded on the international stock market, the face value of which is denominated in foreign currency. Eurobonds can have a maturity of 1 to 30 years.

Research methodology. Eurobonds are usually bonds issued by the issuer to foreign investors using an international syndicate of underwriters, usually for foreign investors as well as in foreign currency. The economic essence of Eurobonds, as well as bonds in general, is that these types of securities represent a debt relationship between the investor and the issuer.

The advantage of Eurobonds over national bonds and other areas of investment is characterized by the following features:

- relatively reliable financial instruments;
- characterized by high liquidity;
- giving issuers the right to enter a much larger number of investors of different profiles than in national markets, etc.

On February 13, 2019, the Republic of Uzbekistan for the first time entered the world financial markets for a period of 5 and 10 years with a total value of 1 billion soums. The primary issuer of international bonds of the Republic of Uzbekistan in the amount of US dollars has been placed.

For the first time, the rating was given a "BB-" rating by Fitch Ratings and Standard & Poor's.

The yield on \$ 500 million in 5-year securities was 4.75% per annum, while the yield on \$ 500 million in 10-year securities was 5.375%. This placement was in high demand and received applications from 15 institutional investors. Geographically, diversification has also been achieved, with British investors buying 39 per cent of five-year bonds and 32 per cent of 10-year bonds, American investors 23 per cent and 31 per cent hiccups, European investors 32 per cent and 37 per cent, and Asian investors 6 per cent and 10 per cent, respectively.

The main investors were management funds (75% and 78%). Insurance companies and pension funds received 20 per cent and 16 per cent, respectively, of five- and ten-year bonds, while banks received 5 per cent and 6 per cent, respectively.¹³

Analysis and results. The proceeds from the first Eurobonds in the Republic of Uzbekistan were distributed in accordance with the decree of the President of the Republic of Uzbekistan No. 4258 of April 2, 2019 "On the efficient use of funds

¹¹ Хмыз О. В. Международные ценные бумаги — еврооблигации / О. В. Хмыз // Финансовый менеджмент. — 2003. — № 2

¹² Чувакина Л. Г. Еврооблигации и рынок евробумаг / Л. Г. Чувакина // Вопросы современной науки и практики. Университет им. В. И. Вернадского. — 2011. — № 2. — С.322–326

¹³ Official website of the Ministry of Finance of the Republic of Uzbekistan. www.mf.uz

received from the placement of the first sovereign international bonds of the Republic of Uzbekistan" as follows:

\$889.2 million was placed on deposits of commercial banks through auction bidding;

The Ministry of Finance of the Republic of Uzbekistan has opened a credit line to Agrobank JSCB in the amount of \$ 20 million;

\$89.9 million was allocated to the Navoi Mining and Metallurgical Combine as a budget loan in foreign currency.¹⁴

The Uzbek government did not need to raise these funds, as the issuance of sovereign Eurobonds is usually done to cover the state budget deficit, to cover the country's balance of payments deficit or to direct it to a social sector. In the Republic of Uzbekistan, a large amount of proceeds from Eurobonds was transferred to the banking sector. However, the issuance of sovereign Eurobonds has increased the share of public external debt and the share of sovereign debt in external debt (Figure 1).

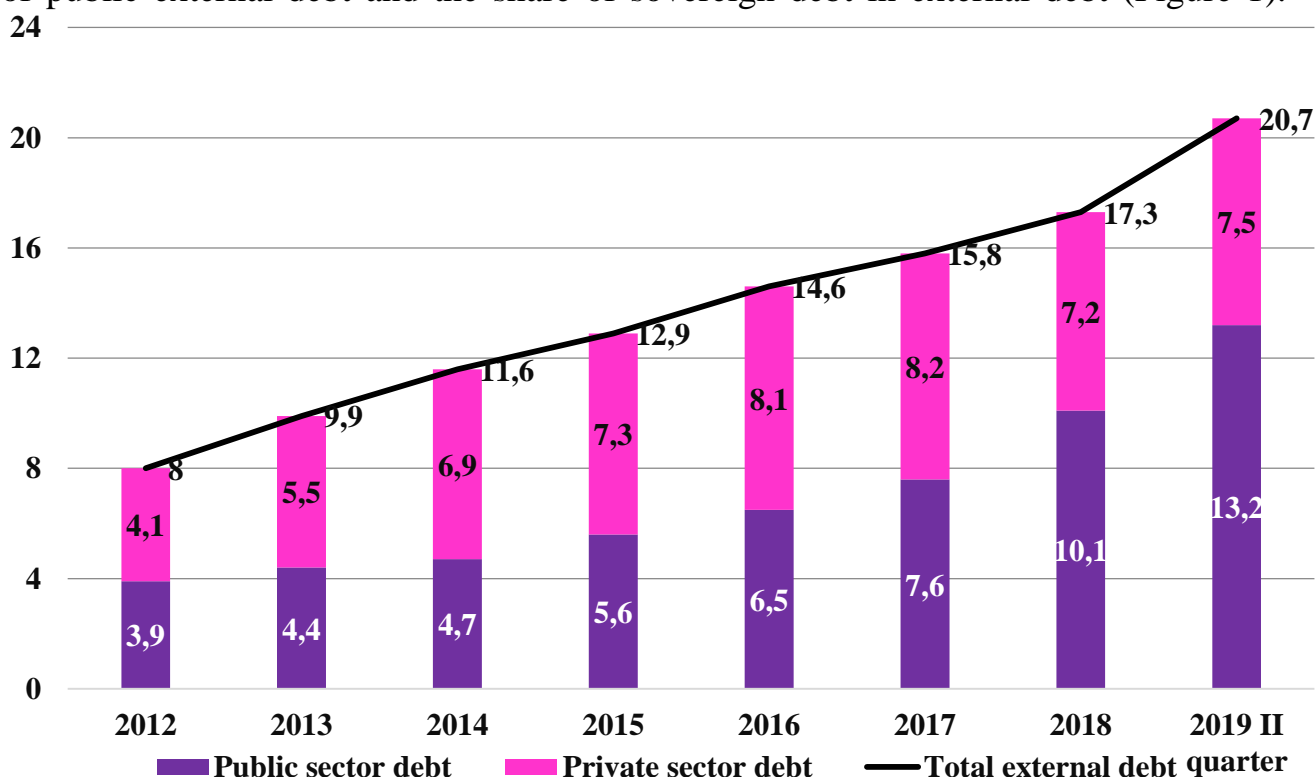


Figure 1. Dynamic series of total external debt of the Republic of Uzbekistan. (billion dollars)

As can be seen from Figure 1, there was no significant difference in the volume of private sector debt and public sector debt in 2012-2016. But we can see that the gap between them has widened dramatically in the last 2 years. This means that the increase in state-guaranteed loans in recent years means a decrease in the volume of foreign direct investment in the structure of foreign investment. In addition, sovereign Eurobonds placed in international financial markets also contributed to this increase. In this regard, the issuance of corporate Eurobonds is expedient, because, firstly, from a legal point of view, the state is not responsible for the obligations of its legal entities;

¹⁴ Resolution of the President of the Republic of Uzbekistan No. 4258 dated April 2, 2019 "On the efficient use of funds received from the placement of the first sovereign international bonds of the Republic of Uzbekistan"

second, sovereign foreign debt is repaid from the state's gold and foreign exchange reserves. This leads to a decrease in gold and foreign exchange reserves, an increase in the sovereign risk of the state, a decrease in credit ratings. Debts of legal entities are paid from their income and profits. Here it is necessary to point out some important aspects of corporate Eurobonds. (Figure 2.)

Positive aspects	Negative aspects
Convenient for issuers who do not have a large capital market	There is a big currency risk
No government guarantee or bail is required	Requires disclosure of information about enterprises
It is usually long-term and the interest rate is low	Requires financial information to be brought into line with international standards.
It has a positive impact on the image of the company in the global financial market	It will be necessary to obtain a credit rating
The company can freely dispose of funds	In turn, it requires large expenditures
In the national stock market, it leads to an increase in the value of company's securities.	

Figure 2. Important aspects of corporate Eurobonds.¹⁵

Figure 2 shows important aspects of corporate Eurobonds. This financial instrument has a number of advantages over other debt instruments. In this regard, it is expedient to issue Eurobonds of joint-stock companies and place them on world financial markets.

It is known that the issuance of Eurobonds involves several stages:

1. It is important that the joint-stock company, which intends to issue Eurobonds, conducts an audit of its activities with the involvement of international auditors.

2. The financial statements of a joint-stock company are required to be presented in a transparent manner in accordance with international standards.

3. Not one, but several investment banks are engaged in the issuance of Eurobonds, ie a syndicate is formed. One of them will be given the task of leading manager, that is, one will be given a mandate.

4. A joint-stock company wishing to place its securities on the world financial market must obtain a credit rating from international rating agencies. Investors can assess future risk based on this credit rating.

5. The marketing process is the most important process. At this stage, the management of the joint stock companies will meet with potential investors and demonstrate the financial condition of the enterprise, its performance, dividend policy and, of course, its future strategy.

¹⁵ Author's development

6. At this stage, the process of listing a security on the stock exchange is carried out.

7. At this stage, on behalf of the company, the lead manager places the Eurobonds on the financial market.

Conclusion. It should be noted that not all elements of the mechanism of attracting foreign investment are being implemented in the country. The issuance of Eurobonds by our government has been an important step in attracting foreign capital. Following the issuance of credit ratings to government Eurobonds, a number of joint-stock commercial banks have also entered the international capital market with their Eurobonds.

- Thus, sovereign Eurobonds are an additional financial instrument for the country in attracting foreign investment;

- However, sovereign Eurobonds increase the country's external sovereign debt. In this regard, corporate Eurobonds are a good instrument for diversifying the structure of government debt.

- corporate Eurobonds allow issuers to diversify sources of attraction financing, open access to foreign exchange resources,

- corporate Eurobonds contribute to the development of the domestic securities market and the attraction of foreign investors,

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UDC:631.11(575.1)339.13.027.5

FEATURES OF ACCOUNTING OF EQUITY CAPITAL AND ANALYSIS OF THE EFFICIENCY OF USING EQUITY CAPITAL

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Аннотация. Ушбу мақолада хўжалик юртувчи субъектларда хусусий капиталдан фойдаланиш ва уни ҳисобга олишнинг ўзига хос хусусиятлари келтирилган. Хусусий капиталдан фойдаланиш самарадорлиги ҳам таҳлил қилиниб, хулоса ва таклифлар келтирилган.

Калит сўзлар. Хусусий капитал, асосий воситалар айланма маблағлар, қўшилган капитал, резерв капитал, устав капитали, самарадорлик.

Аннотация. В данной статье представлена специфика использования собственного капитала и его учета в субъектах хозяйствования. Также была проанализирована эффективность использования собственного капитала, подготовлены выводы и рекомендации.

Ключевые слова. Собственный капитал, основной фонд, оборотный фонд, добавочный капитал, резервный капитал, уставный капитал, эффективность.

Abstract. This article presents the specifics of the use of equity capital and its accounting in business entities. The efficiency of using equity capital was also analyzed, conclusions and recommendations were prepared.

Keywords. Equity capital, fixed assets, working capital, additional capital, reserve capital, authorized capital, efficiency.

Introduction. The relevance of the chosen topic is that the basis of the activity of any business entity is capital, a certain amount of money. At the beginning of its activity, the organization forms its capital, in the future it must constantly monitor its sufficiency, take measures to maintain and increase its value. The possibilities of establishing economic activity and its further development can be realized only if the owners reasonably manage the capital invested in the enterprise. The equity capital formed at the beginning of the establishment of the enterprise allows organizing the production process and the possibility of making a profit. The growth of profit, and, accordingly, the growth of the company's equity capital, while maintaining the solvency and creditworthiness in conditions of an acceptable level of risk, allows to ensure the financial stability of the enterprise and the ability of its further development in the changing internal and external environment. Not only the financial condition of the company, but also the efficient use of equity capital is important for both internal and external users.

In order to successfully carry out its business, the management of an enterprise must be well aware of the legislation regulating this activity, clearly understand from what sources of resources it will carry out its activities and in which areas of activity it will invest its capital. Therefore, taking care of finances is the starting point and the end result of any business.

The financial well-being of the enterprise and the results of its activities depend on what capital a business entity has, how optimal its structure is, how expediently it is transformed into fixed and circulating assets.

Literature review. The problems of studying capital found a place in the works of the classics of economic science: F. Quesnay, A. Smith, D. Ricardo, K. Marx, J. Clark, J. Schumpeter, J. S. Mil and others. They examine the role and importance of capital, its constituent parts, its essence as a fundamental economic category.

Currently, in the economic literature, discussions continue on the formation and use of fixed capital of enterprises, depreciation and investment policy of the state and its impact on the efficiency of enterprises. The works of foreign scientists are devoted to these and other problems related to fixed assets: A.I. Barbashin, Ya.M. Blyankman, E.I. Borodin, V.V. Bocharov, V.D. Gribov, V.A. Dobrynin, L.A. Drobozina, P.P. Dunaeva, I.N. Lazareva, Yu.I. Mayorova, I.A. Minakova, Yu.V. Sedykh, P.I. Chuzhinova, A.D. Sheremet and works domestic scientists such as N. Zhuraev, F. Gulyamova, O. Babozhanov, A. Karimov, I. Zavalishina, B. Itkin, Sh. Ergasheva and others. However, a number of issues of this problem have not been fully investigated, especially in relation to the conditions for stabilizing market processes in the economy. Currently, there is no single generally accepted view on the content of the concept of fixed assets of an enterprise. The issues of increasing the efficiency of the use of fixed capital in modern conditions have not been sufficiently studied.

Research methodology. Authorized capital - the amount of funds invested in a commercial organization by investors who take on the commercial risk and intended to ensure statutory activity in the amount determined by the constituent documents. Depending on the form of organization, it can have a different type and features of formation (share capital, contributed capital).

Additional capital - sources not related to economic activity that increase the organization's own funds. These include: excess of the amount of funds as a result of the sale of shares over their par value; results of revaluation of the organization's assets, etc. As a rule, the bulk of additional capital in agricultural enterprises is formed through the revaluation of fixed assets. [1]

Reserve capital is the insurance capital of an enterprise, intended to compensate for losses from economic activities, as well as to pay income to investors and creditors if there is not enough profit for these purposes.[2] Reserve capital funds act as a guarantee of the smooth operation of the enterprise and the observance of the interests of third parties. In the course of economic activity, the enterprise may acquire new property or the book value of the existing property may increase. This leads to an increase in the assets of the enterprise. To account for sources of new material assets or an increase in their book value, the concept of "additional capital" has been introduced in accounting.

Retained earnings - Part of the profit remaining after all mandatory withdrawals have been made: payment of income tax, payment of dividends and other deductions. Retained earnings are formed on an accrual basis and upon liquidation of the enterprise it is subject to distribution among the participants. This source covers the company's losses. [3]

Analysis and results. The analysis of the efficiency of using the company's equity capital is carried out by determining the results obtained from the use of the company's equity capital. At the same time, the indicators reflecting the ratio of equity and borrowed funds in the formation of the company's assets, as well as various indicators of turnover and profitability of the company's equity capital, are studied. [4] When analyzing the efficiency of using the company's equity capital, we will consider the sources of financing the company's assets. As you know, the total assets of an enterprise are long-term assets (fixed assets and intangible assets) and current assets (working capital), the value of which is reflected in the company's independent balance sheet.

Table 1. Analysis of equity capital of JV "Orient Mebel" for the period 2017-2019.

№	Indicators	2017	2018	2019	Deviation of 2019 to 2017	
		Amount, thousand sوم	Amount, thousand sوم	Amount, thousand sوم	Amount, thousand sوم	IN %
	1	2	3	4	5	6
1	Sources of equity. All of them:	7455475	7021040	9581489	2126014	28,5%
-	Authorized capital	937618	3937618	3937618	3000000	4,1 pa3
-	Added capital	112798	112798	112798	-	-
-	Reserve capital	1674486	1799215	2209819	535333	31,9%
-	retained earnings	4727025	1171408	3321254	1405771	-29,7%
-	Targeted receipts	3530	-	-	-	-

From Table 1, sources of equity in 2019 increased by 28.5%. This was influenced by the increase in the authorized capital of JV "ORIENT MEBEL" in 2019 by 4.1 times. Reserve capital increased marginally by 7.44% in 2018 and by 31.9% in 2019. But such indicators as retained earnings and targeted receipts had negative indicators. Retained earnings decrease in 2018 by 75.2% and by 29.7% in 2019 compared to 2017. Target receipts in 2018 and 2019 fell to zero.

The working capital of the enterprise is formed both at the expense of its own capital and at the expense of short-term borrowed funds. The main source of financing is equity capital, which includes authorized capital and accumulated capital (reserve and additional capital, retained earnings). The amount of the company's own working capital can be calculated as follows: subtract the amount of current liabilities from the total amount of current assets. Using this method, we will calculate the sources of financing of working capital at the JV "Orient Mebel" for 2017-2019. The calculation results are reflected in Table 2.

Table 2. Calculation of sources of financing of working capital at the enterprise JV "Orient Mebel" for the period 2017-2019.

Indicators	2017	2018	2019
Total current assets	740757	770529	769410
The total amount of current liabilities of the enterprise	415655	468586	385281
Own working capital amount	325102	301943	384129
Share in the total of current assets,%:	43,89	39,19	49,93
Equity amount	1020906	1035309	1080752
The amount of borrowed capital	415655	468586	385281

The data given in Table 2 show that at the end of 2018 the working capital of the enterprise JV "Orient Mebel" was formed by 55.23% from its own funds, in 2019 the share of borrowed funds in the formation of current assets was 64.59%, and - 35.41%. This indicates an increase in the financial dependence of the enterprise JV "Orient Mebel" from external sources of financing.

To summarize the characteristics of the efficiency of using equity capital are profitability ratios. The economic meaning of the return on equity indicators is to determine how many monetary units of net income are in the monetary unit of equity. Return on equity is calculated as the ratio of net income to the average annual cost of equity.

The return on equity ratio is determined by the formula:

$$R_{CK} = \frac{P}{AA_{CK}} \cdot 100 \quad (2),$$

where P - profit (net income) of the enterprise is found by the difference between the sum of the enterprise's income and the sum of expenses

R_{CK} – the return on equity of the enterprise.

AA_{CK} – average annual equity capital.

This ratio shows what profit the company receives from each sum invested in equity capital.

In table 3, we will calculate the profitability indicators for the enterprise JV "Orient Mebel" for 2018 and 2019 and the dynamics of their change. To calculate the indicators, the value of the average annual cost of equity capital was used, which is calculated by the formula:

$$CB_{CK} = \frac{O_H + O_K}{2} \quad (3),$$

Where, O_H , O_K - the value of assets at the beginning and end of the period.

The values of income and expenses were taken from the statement of income and expenses of JV "Orient Mebel" for 2018-2019. All indicators are listed in table 3.

Table 3. Return on equity indicators for JV "Orient Mebel" thousand soums.

Content	2018	2019	Change
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Profit (loss), thousand UZS	5183190	3321254	1861936
Average annual cost of equity, thousand UZS	12689198	13706875	1017677
Return on equity, %	0,41	0,24	-0,17

Analyzing the data in Table 3, it can be noted that the return on equity of the Orient Mebel JV decreased in 2019, which negatively characterizes the efficiency of using equity capital.

Conclusions. There are still unresolved problems in the theory and practice of equity accounting. This article discusses and outlines the theoretical and practical issues of accounting for equity capital in financial statements, analysis of the effectiveness of its use. The capital of an enterprise is the main measure of its market value. In this capacity, primarily the company's own capital, which determines the volume of its net assets, acts. At the same time, the volume of equity capital used by the enterprise characterizes the potential of attracting borrowed funds by it, providing additional profit.

Reflection in the financial statements of the amount of equity capital provides its owner with control over the expected capital increase. It helps to assess the real financial condition of the enterprise, which is important for both internal and external users, as well as for making certain business decisions. The methodology for the efficiency of using equity capital is presented in the form of a process of researching the main ratios and absolute indicators of the functioning of equity capital, identifying the sources of forming equity capital and assessing the impact of their dynamics on the financial stability of the organization.

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UDC 631

WAYS TO INCREASE THE ECONOMIC EFFICIENCY OF POTATO GROWING IN THE CONTEXT OF IMPROVING THE FOOD SUPPLY OF THE POPULATION

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Аннотация. Kartoshkadan, asosan, xushxo'r va to'yimli oziq-ovqat sifatida foydalaniladi, uni me'yor darajasida iste'mol qilish inson tomonidan iste'mol etiladigan ko'pgina mahsulotlarni yaxshi hazm bo'lishiga ham yordam beradi. Yevropa va Lotin Amerikasi mamlakatlarida dehqonchilik oziq-ovqatlar balansi tarkibida kartoshka don mahsulotlaridan keyin ikkinchi o'rinda turadi. O'zbekistonda ham aholining kartoshkaga bo'lgan talabi va uni qondirish darajasi ko'tarilib bormoqda. Kartoshkani qayta ishlash jarayonida kraxmal va spirt olinadi. Ulardan, asosan, shirinlik va alkogol ichimliklar ishlab chiqarishda foydalaniladi.

Калит сўз: озиқ-овқат баланси, картошка етиштириш, уруғлик туганаклари, sprinkler (masofadan turib)aylanma sug'orish, almashlab ekish, kartoshka urugining ulgurji bozori, servis xizmati, ilgor va tejamkor texnologiya

Аннотация. Картофель в основном используется в качестве сытной и питательной пищи, его употребление в умеренных количествах также помогает хорошему перевариванию большинство продуктов, потребляемых человеком. В странах Европы и Латинской Америки картофель занимает второе место в продовольственном балансе сельского хозяйства после зерновых продуктов. В Узбекистане растет потребность населения в картофеле и уровень ее удовлетворения. В процессе переработки картофеля получают крахмал и спирт. Они в основном используются для производства сладостей и алкогольных напитков.

Ключевые слова: продовольственный баланс, выращивание картофеля, сеялки, спринклерное (дистанционное) ротационное орошение, севооборот, оптовый рынок семян картофеля, сервис, передовые и экономически эффективные технологии

Annotation. Potatoes are mainly used as a sweet and nutritious food, and consuming them in moderation also helps to better digest many of the foods consumed by humans. In European and Latin American countries, potatoes ranks second in the agriculture food balance after grain products. In Uzbekistan, the demand of population for potatoes and its satisfaction level is growing. In the process of recycling potatoes, starch and alcohol are obtained. They are mainly used in the manufacture of sweets and alcoholic beverages.

Keywords: food balance, potato cultivation, seed drills, sprinkler (remote) rotary irrigation, crop rotation, wholesale potato seed market, service, advanced and cost-effective technology

Introduction. Potatoes are mainly used as a sweet and nutritious food, and consuming them in moderation also helps to better digest many of the foods consumed by humans. In European and Latin American countries, potatoes ranks second in the agriculture food balance after grain products. In Uzbekistan, the demand of population for potatoes and its satisfaction level is growing. In the process of recycling potatoes, starch and alcohol are obtained. They are mainly used in the manufacture of sweets and alcoholic beverages.

Intensive development of potato growing in Uzbekistan will create conditions to increase the efficiency of land, water, labor and other resource use.

Literatures review. Regardless of the period of cultivation of potatoes, the preparation of seed pods for sowing, the correct choice of sowing time and depth, as well as a clear definition of the norms and timing of feeding are of great practical importance to increase economic efficiency. When potatoes are planted at different times, the seedlings are harvested late and slowly due to lack of soil temperature. This, in turn, will increase the demand for potatoes.

Here are the opinions of scientists and experts who have conducted research in different climatic zones. According to N.S. Boyko [1981], B.A. Pisarev [1986], if the harvested seeds are sown early, the cold days of spring have little effect on the rate of seedling formation. According to Y. Skrinskaya, L. Degtyarova [1980], B.A. Pisarev [1986], E.E. Brown [1985], growing seeds in a bright, warm place before planting can help determine if they are infested with fungal, bacterial, and viral diseases, and prevent these diseases from infecting and spreading early potatoes.

Pre-sowing preparation of seeds is recognized as an incomparably important agro-technical measure that ensures high and early yields, and growing seeds in a bright place is one of the most important measures in the cultivation of early potatoes. B.P. Pisarev [1986] analyzed the results of experiments conducted in Russia on pre-sowing sowing of potato tubers and reported the following. Sowing early potato seeds in the spring will increase yields by 40-60%, while in the northern and northeastern zones it will increase by 2-3 times.

L.Ilchuk [1983] studied the effect of sowing time, depth and number of bushes per hectare on the yield of potatoes and the increase in starch content in the tuber. In other words, if 80,000 seeds were sown at a depth of 10-12 cm per hectare on April 1 and 30, the starch content of potatoes in Verkhovina increased by 2.3% compared to April 20, and in Yubel - by 1.9%. There is a lot of information about the effect of mineral fertilizers on potato yields. However, their effectiveness depends on the sort of crop, the type of soil in which the experiments were performed, other agronomic practices used to grow potatoes, the type of fertilizer, and other factors.

For example, while the average yield was 21.7 tons in areas of given 200 kg of nitrogen, 200 kg of phosphorus and 100 kg of potassium per hectare, in the control option this figure was 17.6 tons [Ostonakulov T.E., 1991], or the efficiency of mineral fertilizers provided an extra yield of average 4.1 tons per hectare. In other experiments,

the average yield of the sort Priyekulsky ranniy was 209 quintal from the area of potatoes grown without fertilizer, while in the option given of mineral fertilizers N200P160K75 this figure was 227 quintal [Abdulkarimov D.T., etc., 1984].

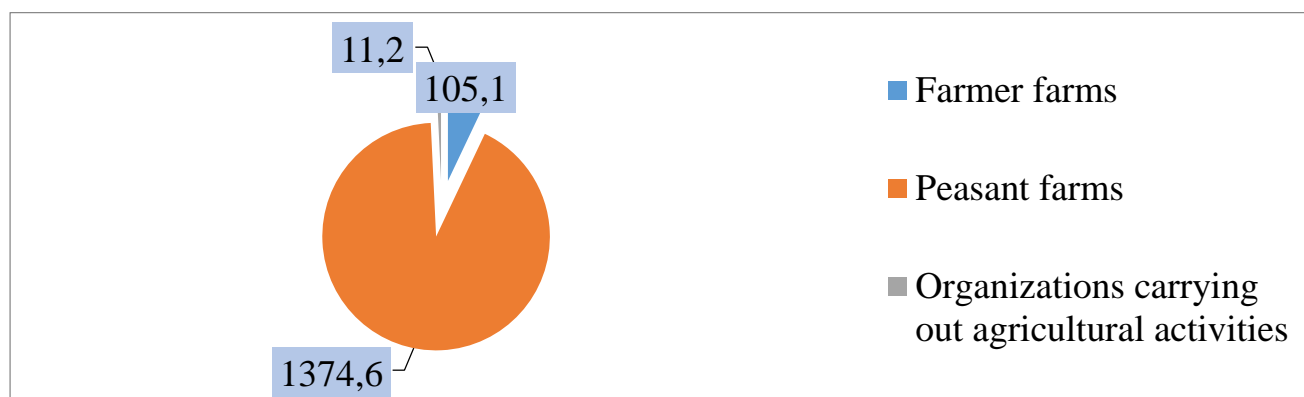
Research methodology. Potato is one of the most important social products. In the past, only imported potatoes predominated in Uzbekistan, and all local production depended on farm produce. This crop is very difficult to grow in our climate and requires frequent and regular watering of potatoes. That's why farmers initially preferred cotton, wheat and legumes.

In recent years, potato production has grown rapidly. In 2009, one of the leaders in the potato market, "Agrover" LLC agro-holding, was established. The company annually supplies the potato market for consumption with elite seed potatoes and the best potato products. Resolution of the President of the Republic of Uzbekistan dated February 23, 2018 №PP 3558 "On measures to further develop the cultivation of seed potatoes in the country" served to further improve the measures taken in this regard.

Analysis and results. In our country, a number of systemic measures are being developed to meet the food needs of the population in the context of a pandemic.

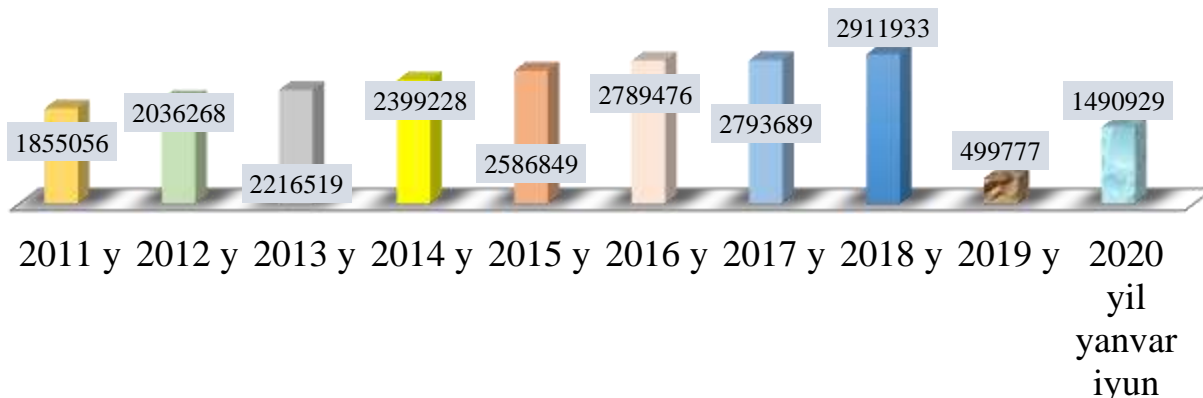
Due to the climatic conditions of our region, the cultivation of potatoes in Uzbekistan is very difficult. For example, in hot and dry weather, we need to take important agro-technical measures to ensure that the potato roots grow evenly and uniformly. The traditional method is to irrigate the furrows, where water is poured from a high point and poured into the lower part of the field through ditches. However, in this method, the human factor is very important. To get a good harvest, you need to distribute water equally over the land and keep the soil at a certain humidity and temperature. If this is not done, the potato will grow poorly and rot as a result of water overcrowding or vice versa.

Therefore, the introduction of automated irrigation method in our country has begun. Nowadays, Agrover LLC, an agroholding, has purchased expensive technology from Israel that allows sprinkler (remote) circulating irrigation of nearly 600 hectares of land. The holding also uses Frigate sprinklers in the fields. It is planned to gradually update all the fields with this modern system. An important factor in the development of agriculture is the proper organization of crop rotation. For this reason, a unique method of crop rotation has been developed, in which the selected potato seeds are sown alternately in the same area. Potatoes, wheat, corn and various legumes are planted on a plot. This helps maintain soil fertility and efficiency.



In 2020, the forecasted production of about 2.8 million tons of potatoes on 130,000 hectares in the country was set. In January-June 2020, 1,490.9 thousand tons of potatoes (1.4% more than in January-June 2019) were grown by all categories of farms. In particular, 105.1 thousand tons of potatoes were grown on farms, 1374.6 thousand tons on peasantry farms and 11.2 thousand tons by other agricultural enterprises, were delivered to the people.

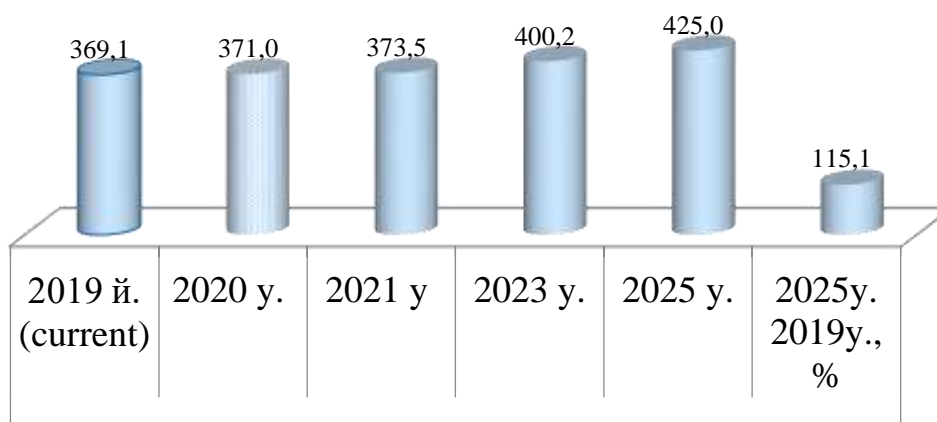
In the production of potato products in the Republic of Uzbekistan (tons)



When we analyze the data (tons) of potato products produced in the Republic of Uzbekistan for the last ten years, the highest potato production is in 2018. In 2019, potato production is at its lowest level in a decade due to climate change.

As a result of the above analysis, a plan for potato cultivation in Andijan region for 2021-2025 was developed.

The plan for potato production in Andijan region in 2021-2025 is one thousand tons



According to it, taking into account the needs of the population in food products, including potatoes, it is planned to produce 425,000 tons of products, which is expected to be 15.1% higher in 2025 than in 2019.

Conclusions and suggestions. In order to improve the food supply of the population, it is necessary to pay special attention to the use of the following opportunities to obtain high and quality crops and increase the economic efficiency of the production of cheap potatoes:

- Creation of a territorial system of potato production that meets the natural and economic conditions and scientifically based of the existing regions of the country;
- Expansion of the crop areas of potato and increase the yield by at least 150 quintals per hectare by taking into account the biological properties of potatoes and the demand of the population for it;
- Large-scale development of potato growing on farms in order to reduce the cost, increase the efficiency and bring the volume of potato production to the level of regulatory requirements;
 - formation and expansion of the wholesale market of potato seeds by the state;
- increase and improve the number of service points for potato farms;
- Accelerate the introduction of advanced and cost-effective technologies and mini-equipment in potato growing.

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UDC 330.190.2

**DEVELOPMENT OF SMALL BUSINESS AND PRIVATE
ENTREPRENEURSHIP FACTORS AFFECTING THE EFFICIENCY OF
SPENT INVESTMENT AND THEIR CHARACTERISTICS.****(On the example of a cattle network)**

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Аннотация. Ушбу мақолада кичик бизнес ва хусусий тадбиркорлик фаолиятининг қорамолчилик тармоғига сарфланаётган инвестициялар самарадорлигини оширишда таъсир қилувчи баъзи омиллар кўриб чиқилган. Қорамолчилик тармоғининг бугунги ҳолати таҳлил қилинган.

Калит сўзлар. Кичик бизнес ва хусусий тадбиркорлик, инвестиция, маҳсулдорлик, ветеринария.

Аннотация. В данной статье рассматриваются некоторые факторы, влияющие на эффективность деятельности малого бизнеса и частного предпринимательства на эффективность инвестиций в животноводческую сеть. Проанализировано современное состояние сети животноводства.

Ключевые слова. Малый бизнес и частное предпринимательство, инвестиции, производительность, Ветеринария.

Abstract. In this article examines some factors that influence the effectiveness of small business and private entrepreneurship activities on the efficiency of investment in the Cattle Breeding Network. The current state of the cattle network has been analyzed.

Keywords. Small business and private entrepreneurship, investment, productivity, veterinary.

Introduction. Development of small business and private entrepreneurship study of the economic impact of attracting expended investments and study of theoretical and practical aspects of increasing efficiency has an important scientific and practical significance. It is known that the development of small business and private entrepreneurship as the essence of increasing the efficiency of investment spent consists in the production, services, profit and national income of greater volume of material, labor and financial expenditure evasion in each unit.

The study of small business and private entrepreneurship, which is one of the main pillars of the state, supporting the population in social and economic terms, affects the efficiency of the livestock sector on the development of factor and their characteristics is one of the pressing issues of today.

Literature review. The effective functioning of the investment sector of the economy is justifiably constantly in the focus of attention of scientists. Of particular theoretical and methodological significance is the analysis of problems and patterns of

accumulation in the process of reproduction, which is given in the fundamental research of the classics of economic theory, J. Galbraith, K. Marx, J. Keynes, P. Samuelson. The system of state regulators and strategic planning is scientifically disclosed in the works of A. Wagner, V. Sombart, V. Kahn, V. Leontiev, F. Modigliani, S. Fischer, and D. Hyman. Problems of economic dynamics, optimal measurement of costs and results of labor, the ratio of fundamental products and capital productivity, macroeconomic forecasting, scientific and technological development and of the methodology of investments, update of the production apparatus, the intensification of the investment process and innovative production sector occupy an important place in the works of N. D. Kondratiev, A. I. Anchishkin, V. V. Novozhilov, A. I. Notkin, V. G. Lebedev, A. V. Bachurin, V. I. Kushlina, V. P. Loginov, J. A. Rekitar, Y. V. Yakovets. [6]

Research methodology: In the scientific paper, analysis and synthesis, systematic approach, abstract-logical thinking, economic analysis, grouping, expert evaluation and comparison methods were used.

Analysis and Results. The government of the Republic develops many programs aimed at the development of livestock in all spheres of the country and implements a number of measures to implement them into practice. In particular, the PP - 4576-decision of the president of the Republic of Uzbekistan "on additional measures to support the state livestock network" adopted in January in 2020 was an important factor in the development of livestock. [1] The decision envisages the implementation of systematic measures and strategies aimed at increasing the efficiency of investments made by the state in the livestock sector, as well as being a program for today:

- development of measures to support the livestock and breeding sector by the state, to increase productivity and to develop the seed production of feeding crops;
- to organize an analysis of the effective use of land allocated to livestock farms and control the allocation of arable land in proportion to the number of cattle heads;
- to organize the activities of all branches of livestock on a scientific basis, to introduce the results of research and innovative works into the practice of product production and breeding-selection;
- addressing issues related to the development of the livestock processing sector, including the launch of new capacities and the expansion of the range of products;
- Organization of systematic training of personnel, improvement of their skills and retraining.

In the agricultural network, three main factors of production are the use of Natural Resources (Land and Water Resources), Capital (basic funds) and labor (employees of agricultural enterprises). These factors are the most important among these, without words-the Earth. At present, more than 20 million hectares of agricultural land, including 3.2 million hectares of irrigated land use in the Republic, food products for the needs of the population, the necessary raw materials for economic sectors are grown.

In particular, the agricultural areas of Andijan region comprise 26.1 thousand hectares of land, of which 23.4 thousand hectares are irrigated, the non-irrigated areas 3.1 thousand hectares, and the feed for livestock 3 thousand hectares. One of the

peculiarities of the region is that its population is the most densely populated in the Republic (up to 01.01.2020) the total population is 3127.7 thousand people, of which 47.7 percent live in villages. 1 sq.it is 727,4 people per km. The main feature of the Cattle Breeding Network of cattle breeding is that a large part of its products are produced in households. "The average size of the land plots belonging to them is 0,15 hectares. 94 percent of cattle accounts for the share of households. [2]

"The lack of the right to own land, the limitation of the granting of land to the subparagraph, makes it difficult for the formation of a redistribute market mexanizm between their owners and users. As a result, land users do not have the opportunity to manage land plots at their own discretion – that is, it is difficult to sell additional land for the purpose of expanding production. [3]

Land users who do not operate in this regard and are working inefficiently can not dispose of the excess land by transferring it to users who work actively or efficiently. In addition, the existing land use procedure does not provide for the possibility of using land as a guarantee in obtaining a loan, which seriously limits the financial capabilities of agricultural producers.

It is worth noting that while fermers do not fully believe that their right to land is inviolable, they will not invest in increasing labor productivity as well as improving the productivity of the land provided for the use of local government. It is important to balance the use of agricultural land as one of the factors affecting the efficiency of investment in the Cattle Breeding Network.

As is known, 70 per cent of the crop areas of Uzbekistan are used for cultivation of cotton. In the last few years, some land plots were removed from the cultivation of cotton and Willow. In our opinion, the additional fields used for planting these two products in the development of livestock should be used as a later date. Their area decreased by 40 percent due to the abundant and unsystematic feeding of livestock, the replacement of feedings was eliminated, and the quality of feedings was not restored. Part of the Emir Springs was transferred to the reserve land category, another part to the forest fund.

Cattle breeding is embodied mainly in peasant and farmer farms operating in irrigated areas, these farms are cultivated forage, creating a ground for the development of cattle breeding. Cattle breeding, in turn, contributes to the development of other sectors of farms. This means that it is desirable that the economic networks will be developed interrelated. But, at present, this situation is deteriorating due to the complete non-compliance with the requirements of **scientific** and practical-based crop rotation. Indeed, the salinity of fodder crops in the composition of crop fields has been reduced to the standard. For example, "in 2010-2019 years, the salinity of fodder crops in crop fields was only 5.3 per cent. 3.7 percent of this corresponds to the contribution of perennial crops. [11], [12]

In most part of the agricultural enterprises of the Republic, the fact that the livestock feed base is not at the required level, they are not sufficiently specialized affects not only the decrease in the head numbers of cattle, but also their productivity, as a result-a decrease in the volume of products grown in the network.

As a result of these cases, the number of livestock products grown in the enterprises of processing agricultural products has been increasing year by year. The increase in the

cost of livestock products was influenced by other factors than those mentioned above. For example, the material and technical base of cattle breeding is weak in demand. This situation leads to an increase in the expenditure of manual labor. Feed produced in processing enterprises, the rapid increase in the prices of products, etc. [13] [14]

It should also be noted that the Cattle-Breeding Network performs a specific function, such as raising funds for peasant and farmer farms and increasing it. Due to the low rate of bank deposits in Uzbekistan and the lack of confidence in banks in the past periods, the population does not widely use services such as spending the accumulated funds on profitable bank deposits and securities. This is especially true of rural people who do not have wide access to financial infrastructure. Although peasant farms do not have the qualifications and skills in the field of cattle breeding, the purchase and maintenance of livestock for them is one of the methods of spending and breeding their own funds. The number of livestock is the main indicator of the scale of livestock. In other words, the larger the size of the livestock farm, the more productive it is on average. In connection with the fact that 80% of farmer farms in the Republic specialize in grain and cotton production, 5.6 percent of cattle and 4.4 percent of cows are embodied in them. Such a situation can not meet the demand for organic fertilizers of grain and corn fields. Therefore, it is necessary to pay special attention to this issue in the future.

Cattle imported from abroad for the purpose of the development of breeding in the Republic are presented without fertilization (abduction). For this purpose, funds are provided from the state budget. In order to develop livestock, there is also a trust in the construction of specialized livestock complexes. It is necessary to pay great attention to them for further development in the future. In order to develop livestock, in recent years, additional lands have been allocated for the purpose of strengthening their nutrient base, increasing the amount of nutrients by planting additional fodder crops on these lands. In recent years, the number of infrastructure entities in livestock production has also been developing. For example, in 2019, zooveterinary Punks, which provide various services to livestock, as well as those who sell feed materials, operate. But their activities have not been effective enough. Because the services rendered are at a much higher level.

The measures implemented ensure an increase in the amount of livestock products. As a result of this, livestock networks are also making a certain amount of profit. But the current state of the development and efficiency of livestock production does not fully meet the demand. Because the population of the Republic has not yet been fully provided with quality livestock products at the required level. Therefore, it is desirable to develop livestock in the future and to give priority to its effectiveness. It is time to pay special attention to the step-by-step development of the material and technical base of livestock farms meeting modern requirements. Taking into account the achievements of Science and technology in livestock buildings and facilities, it is necessary to adapt them, to provide them with appropriate means, to introduce new techniques, advanced technologies in the production of quality products with good care of livestock animals. It is only in the network that production processes are improved and labor productivity is increased. Development of breeding business, creating

viable livestock breeds, ensuring that they are more quickly applied to production, bunda breed, the opportunity to achieve the expected result, which is also not forgotten to use the option of purchasing viable cattle extension.

Conclusion and Recommendations.

1. In order to strengthen the feed base of livestock, it is necessary to develop fields forage cultivation extension, crop rotation. It is necessary to attach special importance to the water supply of the fields in which the Bunda forage crops are planted, to improve the melioration condition and to use organic and mineral fertilizers at the required level. To solve this issue, it is also necessary to establish the receipt of the required level of nutritious nutrients produced at the enterprises of the processing industry on the basis of ration of the nutrients formed in livestock on time. Taking into account the urgency of this issue, the government of the Republic has developed ways of economic assistance to farms. In particular, to allocate preferential credits for the development of food production, for this purpose they are exempted from customs duties and other measures are established if imported technical and technological resources from abroad.

2. It is necessary to pay special attention to the attraction of foreign investments in this process. Because at the moment this issue is being solved very quietly. Along with the above, it is also desirable to provide state support for the increase in the contractual prices of livestock products, taking into account the level of inflation. Because these products are mainly purchased by state-owned enterprises.

3. The positive solution of all the issues mentioned directly depends on the relations, knowledge, experience and encouragement of the workers and employees working in the networks. Therefore, it is necessary to further develop the mechanisms and ways to solve these issues. It is desirable to give workers' wages on time, as well as to organize a Real way of rewarding them taking into account the amount and quality of the products they have grown.

As a result of the solution of the above issues, livestock sectors will develop and their efficiency will increase.

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UDC 63.001.76

**SCIENTIFIC AND THEORETICAL BASES OF FORMATION OF
INNOVATIVE PROCESSES IN THE SYSTEM OF RURAL
INFRASTRUCTURE**

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Аннотация. В статье обоснованы особенности и объективная необходимость инновационного развития инфраструктуры села в условиях модернизации и диверсификации сельскохозяйственного производства и осуществления структурных изменений. Обсуждались также вопросы дальнейшего совершенствования системы интегрированного управления процессами инновационного развития в инфраструктурных отраслях.

Ключевые слова. инновации, инвестиции, инфраструктура, инновационный процесс.

Annotatsiya. Maqolada qishloq xo`jaligida ishlab chiqarishni modernizatsiya va diversifikatsiyalash hamda tarkibiy o`zgarishlarni amalga oshirishda qishloq infratuzilmasini innovatsion rivojlantirishning o`ziga xos xususiyatlari va obektiv zaruriyati asoslab berilgan. Shuningdek, infratuzilma tarmoqlarini innovatsion

rivojlantirish jarayonlarini majmuaviy boshqarish tizimini yanada takomillashtirish masalalari o'rganilgan.

Kalit so'zlar. Innovatsiya, investitsiya, infratuzilma, innovatsion jarayon.

Abstract. The article substantiates the features and the objective need for innovative development of rural infrastructure in the context of modernization and diversification of agricultural production and the implementation of structural changes. They also discussed issues of further improving the system of integrated management of innovative development processes in infrastructure industries.

Keywords. Innovation, investment, infrastructure, innovation process.

Introduction. Ensuring the country's food security in the context of global integration requires that the sector be flexible, adapt to the changing external environment, and influence various innovations and scientific and technological developments on the basis of sustainable agricultural development.

The modern stage of agricultural development in many developed countries of the world is the transition to an innovative model that provides a systematic integration of the agricultural sector and science and technology to increase its efficiency.

In particular, it is necessary to create a "smart agriculture" to optimize production and distribution systems and introduce new business models that allow more efficient use of land, energy and other natural resources and focus more on needs [1].

By 2050, world population will reach 9.7 billion. The global human population represents a global problem. These problems pose a serious threat to the right to adequate nutrition and the basic right of everyone to be free from hunger. Feeding the growing population and achieving the goals of sustainable development requires agricultural producers to produce more food. In this regard, innovation is about reforming the food system, saving family farmers from poverty, food security, sustainable agriculture, and the "Changing the World: September 25, 2015," adopted by the United Nations General Assembly. Sustainable Development Goals 2030". Decree "On Approval of the Innovation Development Strategy of the Republic of Uzbekistan for 2019-2021", dated May 7, 2018, PK-3698 No. 2460 "On Measures for Further Reform and Development of Agriculture in 2016-2020", as of May 29, 2018, No. PK-3751 "Mechanization and Service Providers for Agricultural Products" This research will serve to some extent in fulfilling the objectives set out in the Decree "On Additional Measures for Improving Dental Efficiency" as well as other regulations related to this activity.

As the first President of the Republic of Uzbekistan IA Karimov said: "... The main task for us is continuous technical and technological renewal of production, constant search for domestic opportunities and resources, deep structural changes in the economy, modernization and diversification of industry. should consist of a consistent continuation of the work "[2]

This important task is reflected in the Decree of the President of the Republic of Uzbekistan Sh.M.Mirziyoev "On the Strategy for further development of the Republic of Uzbekistan": strengthening macroeconomic stability and maintaining high economic growth, increasing the competitiveness of the national economy, modernization of agriculture. and rapid development

.... [3]

Indeed, in the context of modernization of the country, through the improvement of organizational and economic mechanisms for the innovative development of rural infrastructure, it is necessary to provide services to agricultural and agricultural producers at the level of demand and fully meet their needs.

Literature review. Some scientific and theoretical and organizational and economic aspects of innovative development of various sectors of the economy, including agriculture, are provided by foreign economists: D.Aschauer, R. Wethersfield, I.R. Bright, A. Stow, L.I.Abalkin, I.Ansoff, P.Baranchev, I.K.Belyaevsky, J.Bright, W.P. Krasovsky, K.R. Mackonel, L. Bru, M.Porter, Research of scientific works of IS Sandu, B. Santo, A. Smith, R. Taker, B. Twiss, R.A. Fatkhudinov, V.F. Fedorenko, M. Huchek, FK Shakirov, I. Schumpeter was made.

Some of these issues are from the economists of the Republic of Uzbekistan B.B. Berkinov, K.D.Mirzaev, Ch. Partially studied in scientific works of Choriev, R.H. Ergashev, SS Gulomov, A.M. Kodirov [4] and others.

Research Methodology. In Uzbekistan, too, much attention is paid to the provision of all the conditions for activating innovation processes in all sectors of the economy, including agriculture. Innovative development will allow solving existing problems in agriculture, as well as radically changing its appearance, and moving to a new stage in the development of agriculture and its infrastructure. In the context of modernization of the country, it is necessary to "restore the lost old varieties, rational and effective selection, wide introduction of scientific achievements and innovations in the field"[5] and "farmers who are well versed in modern technologies of production and innovation in agricultural technologies." water and air needed" [6]. At the same time, the methods and mechanisms of innovative infrastructure development must meet not only the modern market principles of the national economy, but also take into account the specifics of each region. In general, a comprehensive review of innovation activities and processes in the agricultural infrastructure sector, critical review of the practice and innovative development of the agricultural infrastructure are becoming an objective necessity.

Investment and innovative development of agriculture is a wide-ranging process, using financial resources, attracting additional sources of financing, investing in new knowledge and ideas, applying new technologies, introducing services, and introducing new forms of infrastructure management. are closely related. This problem can be solved only when investment is compatible with innovation, and balanced development of investment and innovation processes.

This approach entails studying investment and innovation as a system, and its successful development and functioning is closely linked to the infrastructure and services provided by agriculture and the level of economic growth and sustainable development.

The concepts of innovation, innovative activity, innovative process and so on are firmly entrenched in our daily lives, business activities and various aspects of the economy. Innovation is one of the important factors in increasing the competitiveness of enterprises in developed countries, strengthening its position in the market and the production of consumer goods.

In the implementation and implementation of innovative activities, first of all, it is necessary to clarify the basic terms and concepts.

In our opinion, innovation is an investment based on the use of scientific achievements and best practices, the process of improving and developing social production, the formation of new consumer products (goods, products, equipment, technology, other organizational forms and tools), implementation and is the materialized end result of creative activity, contributes to the satisfaction of market and social needs, saves costs, and ensures that people are productive in different areas of life and activity.

Innovative development of rural infrastructure is a system of measures aimed at increasing the level of competitiveness of the industry, improving the quality of services, increasing profitability, conducting a set of research and development, creation and implementation of innovations.

Innovation policy in infrastructure development is part of the state's innovation policy in the agricultural sector and is a form of implementing the country's innovation strategy to modernize the country, achieve the sector's stability and competitiveness.

Innovative infrastructure is a set of organizational and economic institutions that provide the conditions for the implementation of direct innovation processes based on the principles of economic efficiency. Management of the process of formation and development of innovative infrastructure is one of the main tasks of the problem of effective management of the agricultural sector.

Innovation is described in the economic literature as follows. Innovation is the end result of innovative activity, a product that emerges and is introduced to the market in a new or improved form, a new or improved technological process used in practice, interpreted as a new approach to social services based on the results of the latest research or inventions.

Innovative activity is the introduction of a new or improved type of product in production, the introduction of a new or improved technological process, the production of products with a higher quality content for consumers or to increase the competitiveness of the product.

Innovative infrastructure - consists of organizations that provide services for the organization of the introduction of new or improved products in production, the introduction of new or improved technological processes.

Innovative development of rural infrastructure and increasing its economic efficiency requires a thorough and comprehensive study of innovations.

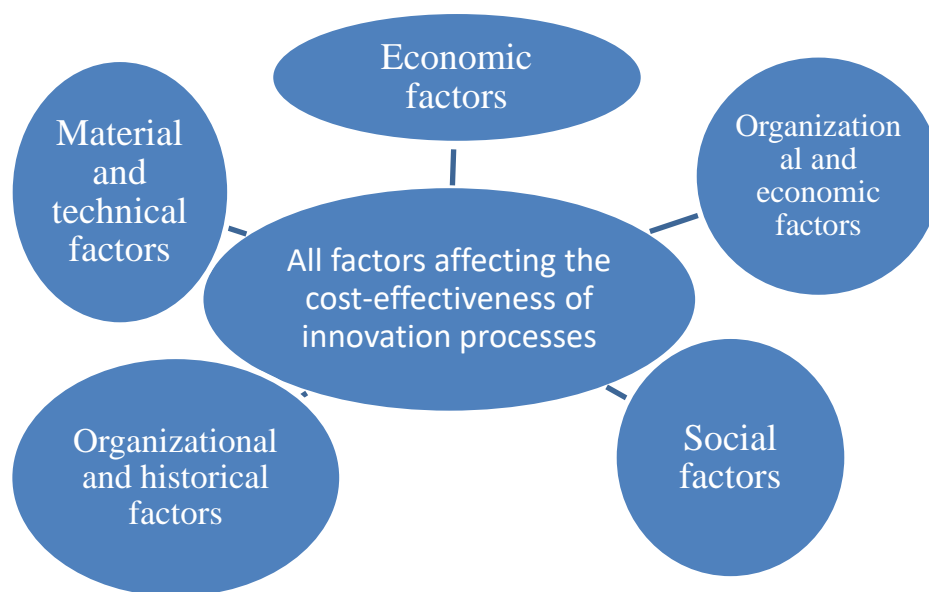


Figure 1: All factors affecting the cost-effectiveness of innovation processes

All the factors affecting the cost-effectiveness of innovation processes, taking into account the specifics of the industry, can be divided into the following groups: (Figure 1)

- natural-historical factors: improvement of soil-climatic conditions by means of chemical, ameliorative, irrigation and other means, selection, genetics and other means and factors in the field of animal husbandry and agriculture;

- social factors: factors related to the identification and development of human abilities - physical, psychological, intellectual, factors related to the development of positive attitudes to work and its results, and the exclusion of negative ones;

- organizational and economic factors: organization of production, its specialization, concentration, application of best practices, the nature and level of management systems and methods, etc .

In the current conditions of our country, the reform of the agricultural sector is one of the most important strategic goals and priorities of economic change. As mentioned above, the growth of production efficiency is influenced by such factors as soil - climatic, organizational - productive (production), technical, technological and socio-economic. Economic research focuses on the first group of factors, and the impact of socio-economic factors on production results is poorly understood. One of the reasons for this is the difficulty of quantifying them, as well as the sudden inability to determine the impact of certain socio-economic factors.

In accordance with a number of resolutions of the President and the Government of the Republic of Uzbekistan, relevant ministries, companies, commercial banks and local authorities have created a number of infrastructure facilities in rural areas, taking into account factors such as natural and economic conditions. Various benefits (tax

benefits, soft loans, etc.) were also provided to infrastructure facilities, provided that they were provided with the necessary machinery and equipment, as well as qualified personnel. As a result of these benefits, practical assistance was provided to the effective implementation of the initial activities of rural businesses. In the context of modernization of the economy and the introduction of innovations, it is necessary to focus on the acceleration of innovation processes and production activities in the development of sectors of the economy, including rural infrastructure.

It is estimated that three different types of technologies will be used to intensify agricultural production:

The first is simple, traditional technologies used in farms with low economic efficiency and capacity.

Older generation machines are mainly used when operating using simple technologies.

The second is intensive technologies, which are mainly designed for high-yielding farms.

The third is high-intensity technology, which is the future of competitive agricultural production in the country.

In general, in the introduction of innovations and scientific and technological advances in agriculture, on the one hand, given the conditions for the introduction of these innovations, on the other hand, it is necessary to determine what measures should be developed for the introduction of innovations in agriculture.

The reason is that GDP growth today can be achieved, first of all, through the development of small and large innovative businesses. Given the great role and importance of agriculture in the country, the innovative development of production will bring the industry to a new level of quality. At present, there are many directions in the development of agriculture, including rural infrastructure, due to various conditions and factors, the main of which are inertial and innovative development. Inertial development is a process that takes into account the stagnation in the economy, the slowdown in economic growth, the rise in prices, the crisis associated with inflation and unemployment.

Innovative development is associated with accelerated economic growth, increased sector efficiency, expanded reproduction and improved quality of life.

Analysis and results. The specificity of innovative processes in agriculture stems from the specific nature of the industry. At the heart of the distinctive features of the industry are, first of all, the natural-biological characteristics of agricultural production (land is the main tool, the use of living organisms as a means of labor - plants and livestock, dependence on natural-climatic conditions, etc.). Due to natural and biological factors, the technical and technological characteristics of the industry (seasonality of production, length of work, etc.). Due to these differences, in the process of long-term development, specific socio-economic features and characteristics of the industry have been formed. From the point of view of the innovation process, they are:

- Due to limited land resources, instead of extensive development in agriculture, it is necessary to pay attention to intensive factors, ie to get more per unit of land;

- The level of specialization of agricultural enterprises is lower than in other sectors, which is due to the need for efficient use of land, the seasonal nature of agricultural production, resulting in the organization of full use of labor, machinery and other means of production throughout the year; > Peasants, farms and private farms are not able to independently develop measures to develop production, which, as is well known, requires significant investment;

- At present, a number of works in the production process are carried out by special services, ie infrastructure facilities (tractor fleets, agrochemical service, fuel and lubricants sales outlets, processing plants, veterinary services, etc.); Special forms of state support and influence are required in different ownership conditions (scientific and technical policy, information base, tax and credit policy, etc.);

- The specificity of agricultural production and the introduction of innovations increases the need for highly qualified personnel or professional advice;

- A part of agricultural products is directed to agriculture itself for reproduction, and the fund for reproduction is formed on the basis of this product and the state. However, the volume of production varies over the years, so it is necessary to establish large insurance funds in order to ensure the continuity of the production process;

- the length of the technological process and its dependence on natural and climatic conditions make it difficult to predict the outcome of production;

- The probabilistic nature of production leads to the probabilistic nature of the results of the introduction of innovations. Changes in factors of production or the economic situation in general can lead to unintended negative consequences, so a thorough in-depth analysis is required before introducing innovation achievements into agricultural production.

In agriculture, in addition to the sectoral characteristics of innovation processes, it is necessary to take into account the essence of the innovation process itself. An innovative process is a single and integral stream of transformation of separate technical or technological ideas based on scientific developments into new technologies and their delivery directly to the use in the production process in order to obtain a new quality product. Through the implementation and implementation of innovation policy, society manages innovation processes in whole or in part in each area. The main purpose of this is to put scientific and technical developments into practice.

The innovation process is cyclical. The economic and technological impact of innovation processes is only partially reflected in new products and technologies. The main part is manifested in the increase of economic and scientific-technical capabilities (purchase of new equipment), ie the technological level of the innovation system increases, which leads to an increase in demand for innovation.

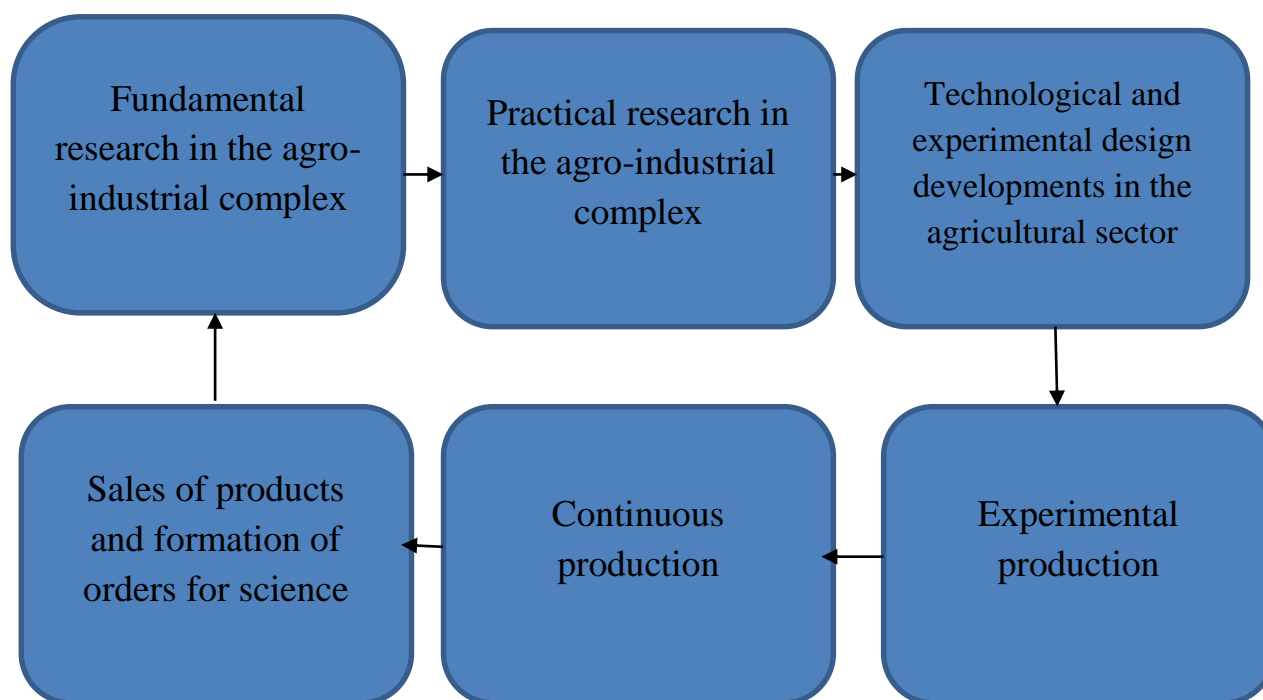


Figure 2. Stages of formation of the innovation process in AIC^[16]

A simple view of innovation processes in AIC (Agro-industrial complex) can be illustrated by the following figure (Figure 2).

The starting point of the innovation process is fundamental research, the purpose of which is to identify and study the basic laws of the compatibility of nature and technology. Fundamental research results in fundamental scientific knowledge in the form of basic principles, laws, and theories.

The purpose of applied research is the purposeful use of fundamental and derived knowledge obtained as a result of scientific and applied research. They will focus on improving new or existing hardware, technologies and products. The targeted focus of applied research and the high probability of obtaining the final result allow planning innovative activities in advance.

Technological and experimental design developments are a set of activities aimed at rigorous scientific research, design, construction, creation and testing of an experimental model. Production materializes a scientific product and then forms an order for the field of science. The common task for all stages is to process technological and managerial data in order to sell the product of scientific and technical developments in the form of a new product, a new device, a new method, a new technological process and a new system of agro-industrial complex management. In a well-designed and well-managed innovation process, all attention is focused on the sale of finished products from the field of scientific and technical research. At the same time, the elements of innovation are constantly interconnected throughout the innovation process through the exchange of information and the implementation of their processing.

¹⁶ Developed by the author.

As a result of the innovation process and the implementation of appropriate innovation policies in the AIC, the process of modernization of production based on scientific results is underway. This process is objective and continuous. Its foundations go back to a time when agriculture was simple and relied solely on natural factors.

Organizational forms of the innovation process in agriculture include:

- > research and production associations;
- > research and production systems;
- > small innovative firms;
- > engineering firms;
- > innovative development centers;
- > information and consultation centers and outlets;
- > agro-firms, agro-techno parks and other similar forms.

Conclusions. Positive (contributing to the development of innovative processes) and negative (impeding the development of innovative processes) factors affecting the innovative development of agriculture were identified. Obstacles:

- limited funds allocated by the state to finance science and technology, research institutes and universities;
- high interest rates on loans for innovations;
- high risk of innovative processes in agriculture;
- Lack of interaction between agricultural producers and science;
- Insufficient development of the mechanism of financial incentives for those engaged in innovative activities;
- Research is not sufficiently developed in agriculture.

The factors that stimulate innovation processes are:

- availability of natural resources;
- development of business entities based on market relations;
- scientific potential;
- capacity of the domestic food market;
- Opportunity to produce environmentally friendly, natural food products.

Investment and innovation development of agriculture is a comprehensive and active process, involving the use of financial resources, attracting additional sources of funding, the process of finding investors with new knowledge and ideas, the application of new technologies, the organization of services and new forms of governance in infrastructure. closely related. This problem can be solved only in the context of the compatibility of investments with innovations, the balanced development of investment and innovation processes.

Such an approach imposes the obligation to study investment and innovation as a system, the successful development and operation of which is closely linked to the infrastructure serving agriculture and the economic growth and sustainable development of agriculture.

According to the analysis, the volume of innovations in the agricultural sector of Uzbekistan is 0.00004% of total agricultural output, while in the field of agricultural infrastructure this figure is even lower, while in other developed countries this figure is 20-25 times higher. During 2009-2018, expenditures on technological, marketing

and organizational innovations in the agricultural sector increased by 354 times, but the share of innovation expenditures in gross agricultural output decreased by 8.5 times. These funds are certainly not enough for the innovative development of the network.

Investment and innovation development of agriculture is a comprehensive and active process, closely related to the use of financial resources, attracting additional sources of funding, searching for investors, application of new technologies, organization of services and application of new forms of governance in infrastructure.

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UDC 631.11:631.162

ACCOUNTING FOR THE COSTS OF CARRYING OUT PRODUCTION ACTIVITIES OF FARMS IN THE DIGITAL ECONOMY

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Аннотация: Ушбу мақолада рақамли иқтисодиёт шароитида фермер хўжаликларининг ишлаб чиқариш фаолиятини амалга ошириш харажатларини ҳисобга олиш масалалари кўриб чиқилган. Фермер хўжаликларининг тармоқ хусусиятлари, уларда маҳсулот таннархи ва харажатлар ҳисоби бўйича меъёрий хужжатлар ҳамда уни тўғри ташкил этиш масалалари ёритиб берилган.

Калит сўзлар: фермер хўжалиги, харажат, таннарх, калькуляция, оддий усул, жараёни усул.

Аннотация: В статье рассматриваются вопросы учета затрат на производственную деятельность фермерских хозяйств в условиях цифровой экономики. Описана отраслевая характеристика фермерских хозяйств, нормативные документы по стоимости продукции и затратам, а также вопросы ее правильной организации.

Ключевые слова: фермерские хозяйства, затраты, себестоимость, калькуляция, простой метод, попроцессный метод.

Abstract: The article discusses the issues of accounting for the costs of production activities of farms in the digital economy. The sectoral characteristics of farms, regulatory documents on the cost of production and costs, as well as issues of its correct organization are described.

Key words: farms, costs, prime cost, calculation, simple method, process-by-process method.

Introduction. The distinction between personal consumption costs and production costs associated with agricultural activities requires a corresponding systematization of accounting. Since the goal of the farm is to produce agricultural products, production accounting is central to its overall accounting system. Correct and reliable accounting of production costs is necessary for a farmer to analyze production efficiency, substantiate the range and structure of products in relation to the emerging market conditions, to predict the development of his economy and prevent unreasonable actions, that is, to make management decisions in his business.

In the conditions of market competition of agricultural producers, the role of production accounting is invariably increasing, which should facilitate operational cost management, respond to changes in market prices, the farmer needs to keep accurate cost accounting and promptly calculate the cost of production in a given period of time

in order to compare it with the market price and determine the financial result. Any entrepreneur needs such operational accounting of costs to justify the most effective terms for obtaining and selling products and ensuring maximum profit. For example, a farmer can collect part of the apple harvest and sell it in the fall, or leave the entire crop for storage and sell it only in winter at a higher price. Therefore, it is important for the farmer to know the actual costs of producing the resulting product, as well as further costs for its storage and processing. In addition, market relations force the farmer to orient production to market demand for products and to reduce production costs. Prompt and objective cost management will allow you to make management decisions faster and more reasonably, which should help to strengthen the farm economy.

Literature review. The issues of cost analysis, the provision of working capital and the analysis of the solvency of economic entities have been the focus of many scientists, and a lot of scientific and methodological work has been done to improve various aspects of this issue. In particular, in the context of economic modernization, the issues of cost analysis and analysis of solvency were discussed by foreign scientists L.A.Bernstein, L.V.Dontsova, R.Karlin, V.V.Kovalev, N.P.Lyubushin, V.B.Leshcheva, B.A.Needles, N.V.Rodionov, A.Ionova, O.V.Efimova have a wide range of scientific works. In the scientific works of the scientists of our country I.T.Abdukarimov, E.A.Akramov, A.V.Vakhobov, A.Usanov, A.T.Ibrokhimov, E.Ergeshev, M.K.Pardaev and many other scientists, certain methodological aspects of this direction. containing

Research methodology: In the scientific paper, analysis and synthesis, systematic approach, abstract-logical thinking, economic analysis, grouping, expert evaluation and comparison methods were used.

Analysis and Results. Analysis of the currently valid regulatory documents on cost accounting and calculating the cost of production indicates that they do not solve many accounting issues in modern conditions. The development of new forms of management in agricultural production, in particular, farms, requires improving the accounting of production costs. Discussion questions are about the objects of cost accounting, the feasibility of calculation, the inclusion of wages, deductions, some taxes and payments provided for by the current legislation in the costs of farms.

Agriculture is a very specific industry with its own characteristics of production. These features also affect the organization of accounting for production costs in farms.

The main production areas in the activities of the farm are crop production, animal husbandry, or a combination of both. Each of these industries has its own specific characteristics. Crop production, to a greater extent than livestock, has a seasonal nature of production. This leaves a significant imprint on the circulation of funds in crop production. This is where the gap is greatest between the periods of cost and output. Production costs in crop production are made for a long time, and it is extremely uneven: the reimbursement of funds - the yield of production - occurs at a time determined by the natural conditions of plant maturation. Therefore, the farmer, carrying out cost accounting, must differentiate these costs for the current year's harvest and for the next year's harvest. In animal husbandry, as a rule, there are no long gaps in the timing of inputs and outputs. The farmer may consider that all expenses of a

calendar year are related to the production of products of the same year (excluding incubation of eggs, stocking of ponds and some other similar expenses). Consequently, the farmer will have mainly work in progress for the production of agricultural products only for crop production.

The farmer will be able to obtain correct and reliable information about the costs of production and the cost of production by making the right choice of cost accounting objects.

In the guidelines for planning, accounting and calculating the cost of products, works and services in agriculture, it is noted that the accounting of costs and output is carried out by objects and elements, cost items. In farms, cost accounting can be carried out not for individual crops and types of animals, but for cost elements and, in general, for the production of final products sold to consumers.

We believe that for an enterprising farmer, collecting information on the costs of production in the context of each cultivated crop and raised animals will allow more efficient production activities by selecting the optimal specialization of their farm.

Consequently, in farms it is advisable to keep detailed production records by types of crops (cotton, grain crops, vegetables, etc.), species and groups of animals (dairy herd of cows, raising young animals, etc.), types of other industries. This will make it possible to determine the actual cost of the produced product, as well as its profitability and, on the basis of this, adjust the specialization of production, optimize the combination of industries and cultivated crops.

The system of accounting for costs in farms, especially those working in market conditions, is the central link of the entire enterprise management system, since it collects information on actual costs and creates the basis for calculating actual profits.

The most common method of accounting for production costs in agriculture is the simple (process-by-process) method. With this method, costs are written off directly to the corresponding accounting object to which they relate, and the cost is determined by the level of costs attributed to the corresponding costing object. The cost accounting objects and the cost estimate may or may not coincide, in which case the costs are allocated between the costing objects within the corresponding cost accounting objects according to the established method.

No matter how we strive to simplify the accounting of production costs in a farm, the classification of production costs by the way they are included in the cost of direct and indirect costs will take place. Direct costs are directly related to the production of a specific product, while indirect ones are not. Direct costs arise only in the case of production of a specific type of product. Their value is in direct proportion to the volume of production, they are easily taken into account for each analytical production facility.

Conclusion and Recommendations. The farmer should organize the accounting of production costs by types of crops and animals raised, and if necessary, then by each field. Calculation of the cost of a unit of production is necessary to determine the efficiency of its production and make management decisions for the future. In this case, the farmer must be guided in calculating the cost of a unit of production, the current accounting and calculation of the cost of production (work, services) in agriculture.

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UDC 336.1

ORGANIZATION OF INTERNAL AUDIT SERVICE IN BUDGET ORGANIZATIONS BASED ON FOREIGN EXPERIENCE

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Abstract: The article widely highlights scientific proposals and practical recommendations in solving existing problems in practice on the application of foreign experience in organizing an internal audit system in budgetary organizations of the Republic of Uzbekistan, the procedure for conducting an internal audit in budgetary organizations, theoretical and methodological foundations for organizing an internal audit service in higher educational institutions. that are budgetary organizations.

Keywords: internal audit, internal audit in budget organizations, composition structure, stages of internal audit, Regulation "On the organization of internal audit in budget organizations".

Аннотация. В статье широко освещаются научные предложения и практические рекомендации в решении существующих проблем на практике по применению зарубежного опыта в организации системы внутреннего аудита в бюджетных организациях Республики Узбекистан, порядок проведения внутреннего аудита в бюджетных организациях, теоретические и методологические основы организации службы внутреннего аудита в высших учебных заведениях, являющихся бюджетными организациями.

Ключевые слова: внутренний аудит, внутренний аудит в бюджетных организациях, составной состав, этапы внутреннего аудита, Положение «Об организации внутреннего аудита в бюджетных организациях».

Annotatsiya. Maqolada O'zbekiston Respublikasining byudjet tashkilotlarida ichki audit tizimini tashkil etishning xorijiy tajribasini qo'llash, byudjet tashkilotlarida ichki auditni o'tkazish tartibi, oliy o'quv yurtlarida ichki audit xizmatini tashkil etishning nazariy va uslubiy asoslari bo'yicha amaldagi mavjud muammolarni hal qilish bo'yicha ilmiy takliflar va amaliy tavsiyalar keng yoritilgan.

Kalit so'zlar: ichki audit, byudjet tashkilotlarida ichki audit, tarkibi tarkibi, ichki audit bosqichlari, "Byudjet tashkilotlarida ichki auditni tashkil etish to'g'risida" gi Nizom.

Introduction. Currently, the introduction and reform of the internal audit system is improving at the same piece, because the desire of business entities to have a fast, reliable and accurate database on their financial and economic activities is associated with the fact that the entity has an internal audit unit, that is, the organization's use of accounting consulting services or outsourcing services increases the risk in a certain sense..

How important is it to establish and reform the internal audit system in budget organizations, because, unlike the private sector, the activities of budget organizations, in particular financial and economic activities, are fully regulated by the public sector and its control is vested in the highest state departments.

In turn, the organization of internal audit in budget organizations is explained by the assessment of the effectiveness of the internal control system and the assessment of the level of implementation of management decisions. In fact, internal audit is part of the organization's internal control system, and its inclusion in the management system increases the efficiency of the organization.

In budget organizations, the internal audit service should not be only a partial inspection of the organization's activities, In addition, internal auditors working in budget organizations must ensure that there are no irregularities in the activities of the budget institution. The internal audit is also responsible for checking the effectiveness of the organization's internal financial control system, providing practical assistance to accounting and related services. Therefore, the management or governing bodies of the budget organization must provide all the necessary conditions for conducting an internal audit in the organization. In view of the above, it should be noted that the

effective organization of the internal audit system in budget organizations is one of the most important, necessary and key measures today.

Literature review. According to V.S. Suxix, "Internal audit at a federal university is an internal audit that is regulated by internal documents and carried out in the interests of the Supervisory Board and the federal university administration to monitor and analyze all evidence of economic activity in order to comply with applicable laws. evaluation of the control system. development of various recommendations aimed at minimizing risks and consultation with employees on various issues of economic life " (2016) [9].

According to EV Anfyorova and VA Grekova, "Internal audit is an activity aimed at improving the management system of one of the divisions of the budget organization, the prevention of illegal, inefficient use of budget funds, errors or other shortcomings in the activities of budgetary institutions." (2017) [2].

According to DR Giniyatullina, "In the budget legislation it is expedient to define internal financial audit as an activity of the General Manager of Budget Funds to provide independent and objective information on the quality of the budget management system." (2019) [4].

According to NI Danilenko, "Internal audit is an additional independent source of information for managers about the situation in the organization, which allows them to make management decisions aimed at improving the organization and its efficiency. Internal financial audit in the general public sector has its own characteristics and includes an analysis of the performance of public functions, as well as an analysis of the activities of public sector institutions" (2012) [6].

According to Yu.A. Kutyrev, "Internal audit is the activity of providing management departments with independent and objective information on the activities of the Federal Treasury, the tasks and powers, including the reliability of the internal control system." (2016) [7].

According to NV Vasina, AN Danilov and NG Ivanova, "Internal audit in public sector organizations is the effectiveness and reliability of internal financial control in the public body (local government) and subordinate public sector organizations. is an independent assessment of the level of achievement of programs and the reliability of accounting (budget) reporting " (2018) [3].

According to the Uzbek scientist SU Mehmonov, "Internal audit is the control over the preparation and implementation of estimates by the organization through verification and monitoring of compliance with the legislation, ensuring the reliability of financial statements, compliance with budgetary discipline, targeted allocation of funds. and rational spending. " (2019) [8].

Research methodology. Establishment and effective functioning of the internal audit service in budget organizations requires the solution of the following organizational and methodological issues:

- determine the compliance of the goals and objectives of the internal audit service with the characteristics and objectives of the financial and economic activities of the organization;
- formation of the structure of the internal audit service in accordance with the characteristics of budget organizations;

- creating conditions for the use of modern information and analytical technologies in the internal audit of budget organizations;
- development and formation of the necessary methodological framework for the organization of internal audit services in budget organizations;
- Improving the organizational aspects of engaging qualified specialists to the internal audit service in budget organizations;
- Development of criteria, indicators and methods for assessing the effectiveness of internal audit services in budget organizations.

The internal audit service carries out its activities on the basis of planning, which, as a rule, includes a calendar year. However, It is also possible to form long-term strategic plans lasting 3 to 5 years. The existence of an internal audit service plan is a prerequisite for the successful operation of the internal audit service. In a market economy, the plan can be changed during the period in which it is made and considered. It should be reviewed from time to time in accordance with changes in activities and the needs of higher education institutions.

The action plan of the internal audit service, in our opinion, should include the following components:

- a list of subordinate organizations, including scheduled inspections;
- advising and training the staff of the organization to ensure the quality and efficiency of public services for the implementation of targeted measures;
- time and procedure for preparation of reports and recommendations on the results of inspections;
- mechanism for coordination and approval of internal audit results;
- development and approval of regulatory documents, methods, guidelines, etc;
- work with normative and methodological documents on the implementation of public services and monitor changes in them;
- regular review of internal procedures in accordance with changes in normative and methodological documents and improvement of internal audit service;
- preparation of reports on the results of monitoring the effectiveness of the internal audit service and the development of recommendations for improving the internal audit system;
- ensuring continuous training of internal audit service staff.

The above list can be supplemented depending on the specifics of the financial and economic activities of the higher education institution and the tasks facing the internal audit service.

In general, it is expedient to study the theoretical and methodological aspects of the organization of the internal audit service in budget organizations.

In the course of our research, when analyzing a number of scientific publications and literature, we found that economists have different approaches to the concept of internal audit in budget organizations.

According to experts of the International Institute of Internal Auditors, "Internal audit is an independent and objective guarantee and advice aimed at improving the organization's performance." [10].

According to Article 270.1 of the Budget Code of the Russian Federation, **"Internal financial audit - the executive has the right to establish internal financial**

audit units that develop and monitor the preparation and execution of the budget, budget reporting and budget accounting, as well as compliance with internal standards and procedures for the preparation and organization of events." (2020) [1].

In our opinion, the internal audit of budgetary organizations is the observance of budgetary execution and discipline of budgetary organizations, the movement of budgetary and extra-budgetary funds, their intended use, budget accounting and reporting in accordance with the law, identification of errors and omissions that occurred before the preparation of financial statements of the financial and economic activities of the organization and the circulation of regulatory documents, Provides the Supervisory Board or the Board of Trustees with fast, accurate and reliable information and is an independent activity that oversees the activities of the executive body.

In Uzbekistan, there is a growing interest in the organization of the internal audit system in budget organizations, but there are a number of problems that hinder its development. The main challenge is the lack of a conceptual framework for internal control and internal audit, which is largely due to adaptation to foreign, especially European, practices.

Effective organization and management of the internal audit system in budget organizations allows to address issues in the field of various risk management. For research institutions, the formation of internal audit departments and their inclusion in the basic structure of the higher education institution is a novelty, it is necessary to form the basic principles of the internal audit system in higher education institutions in accordance with international standards.

Analysis and results. In order to apply international experience in Uzbekistan, it is necessary to give a special status to the internal audit system in budget organizations (in the form of departments or divisions), ie, for example, in higher education institutions, it is expedient to form the Supervisory Board of higher education institutions.

A supervisory board and a subordinate internal audit department have been established at Reyrson University in Canada. In general, in most foreign universities, the internal audit department or division operates separately and is effectively organized. In particular, each foreign higher education institution has developed and implemented its own separate Internal Audit Regulations or Instructions governing the activities of the internal audit department.

Conducting an internal audit at Reyrson University consists of the following steps:

1. Planning.

An internal audit plan and program for the internal audit process, deadlines and procedures shall be developed and approved by the Board. Identify the content of deficiencies and problems identified during the internal audit process. Internal Audit Service staff may require the submission of all documents that will help to formulate the procedures to be performed during the internal audit. Identify the content of deficiencies and problems identified during the internal audit.

2. Work schedule. The workflow involves analyzing the data collected during the planning phase.

Internal audits: obtain detailed information about an activity, system, or process; assess compliance with risk management policies and procedures; activity, monitoring operations related to the system or process; meeting with key personnel responsible or involved in management; study or approval of assets (inventory); analysis of financial and other operational data; review and identify gaps in internal management systems; provide conclusions on the adequacy, reliability and effectiveness of internal control; testing for compliance and topics; assessing compliance with management plans, etc.

3. Report. An internal audit report will be prepared, in which the results of the audit will be described in detail and appropriate recommendations will be made.

There are various steps in preparing an internal audit report: reporting on suggestions and recommendations. The draft report is given only to the heads of departments and is discussed only. A meeting will be held between the heads of departments and internal audit services to discuss the recommendations and start the process of assisting management in developing an action plan to implement the audit recommendations. Heads of each department respond formally in writing to internal audit recommendations. The final audit report is delivered to the heads of departments and copies are handed over to the president, vice-presidents, the director of finance and external auditors of the university. A high-level report is submitted to the Audit Commission on a three-year basis [15].

In a number of foreign universities, the internal audit system is recognized as a service of a separate department, included in the structural structure of the subject and developed procedures for the organization of the internal audit system.

The staff of the Department of Internal Audit of the University of Kansas, USA includes: Chief Internal Auditor, Executive Director of the Internal Audit Department, Internal Audit Manager, Senior Internal Auditor for Information Security (2 people), Assistant Internal Auditor for Administrative Affairs, Assistant Internal Auditor positions are defined [12]. The internal audit department of this university has a total of 7 employees.

An internal audit activity at Markett University in Wisconsin, USA, helps the organization achieve its goals through a systematic, disciplined approach to risk management, assessment of university management processes, and efficiency. In accordance with its mission, the Internal Audit Department provides management with information, assessments, recommendations on the activities under study, conducts inspections on the basis of the approved audit plan and performs the following tasks in accordance with its overall strategy: inspecting assets and taking appropriate measures to protect them; assess the adequacy of the internal control system; make recommendations for improving governance; assessment of university policies and procedures and business suitability; assess compliance of general performance with state and federal laws and contractual obligations; the results are in line with the goals of the university, operate in accordance with the curriculum and programs; check for reports of fraud, theft, error, and shortages.

Internal audit independence is necessary to increase the efficiency of the internal audit function. Internal Auditors In the performance of their duties, the Vice-Presidents and the General Adviser of the University shall submit an internal audit report on the internal audit function. The Head of the Internal Audit Department meets with the

University Council from time to time to provide audit plans and results, necessary information. The head of the Internal Audit Department has the right to apply directly to the President and the Council of the University in case of problems. " [14].

According to Articles 7.1 and 7.2 of the Charter of the University of Lancaster in the United Kingdom, "The University Supervisory Board appoints the Chief Internal Auditor and other internal auditors. Each such auditor shall be a member of the Council of Public Accountants established in the United Kingdom and recognized by the Secretary of State, but one or the other of the partners who is a member of the Supervisory Board of the university or a university employee may not be appointed as an internal auditor. The chief internal auditor or internal auditors report to the university's Supervisory Board at least once a year. " [13].

The Cornell University Audit Office serves as the university's internal audit. The audit office of the University is an independent and objective support and consulting activity aimed at enhancing and protecting the organizational significance of the risk-based and providing objective guarantees, recommendations and concepts, as well as improving the activities of the University. The University Audit Office assists the University in achieving its objectives and goals through a systematic and disciplined approach to the assessment and effectiveness of management, risk management and internal control processes. In accordance with Article 9 of the University Charter, the university auditor acts as the chief auditor and manages the audit office of the university. The responsibilities of the University Audit Office are determined and approved by the Audit, Risk and Conformity Committee within the scope of control and management functions of the Charter and the Board of Trustees [11].

Conclusions and recommendations. The objectives of the organization and improvement of the internal audit service in budget organizations of the Republic of Uzbekistan should be as follows:

1. The government has allowed budget organizations to be self-financing;
2. Emergence of the need to provide some sectors of the state with extra-budgetary funds;
3. Establish control over the receipt and expenditure of the state budget and extra-budgetary funds;
4. Creating the opportunity for constant and uninterrupted control over the financial and economic activities of budget organizations;
5. There is a need for budget organizations to thoroughly study their financial condition and use the available opportunities and manage cash flows;
6. The need to eliminate in advance the errors in the accounting and reporting of budget organizations;
7. Improving the necessary exchange of information between the management and executive bodies of budget organizations;
8. Full implementation of executive discipline in budget organizations;
9. In order to prevent various economic crimes in budget organizations, including overstatement, fraud, deficits, etc.

At present, the organization and complete reform of the internal audit system in budget organizations in Uzbekistan is still a major problem, in particular, it is worthwhile to list the following problems that arise in its formation:

1. Lack of conceptual basis for the organization of the internal audit system in budget organizations;
2. Lack of methodological support for internal audit services in budget organizations;
3. Incomplete definition of goals, tasks, rights, duties and responsibilities of employees of the internal audit service;
4. Lack of development of internal audit department and order of activity in budget organizations, model program and plan based on foreign experience;
5. Lack of special standards for the organization of internal audit services in budget organizations;
6. Lack of introduction of standard regulations, instructions and procedures for regulating the activities of the internal audit department in budget organizations;
7. Lack of development of standard forms of internal regulations of the internal audit service in budget organizations;
8. Lack of a special place for the internal audit department in the management structure of budget organizations;
9. Non-submission of quarterly reports of the internal audit department to the governing bodies of budget organizations
10. Lack of development of standard forms of internal audit department reports in budget organizations, etc.

The charters of most higher education institutions in Uzbekistan do not contain any provisions on internal audit, and in some higher education institutions, in particular, Tashkent State Agrarian University [16], Tashkent Financial Institute [17] and Tashkent Institute of Irrigation and Agricultural Mechanization Engineers [18] The relevant paragraph of the section "Management of higher education institutions" states that "within the powers of the institute, the rector appoints and dismisses the deputy chief accountant - auditor in consultation with the Ministry of Higher and Secondary Special Education of the Republic of Uzbekistan."

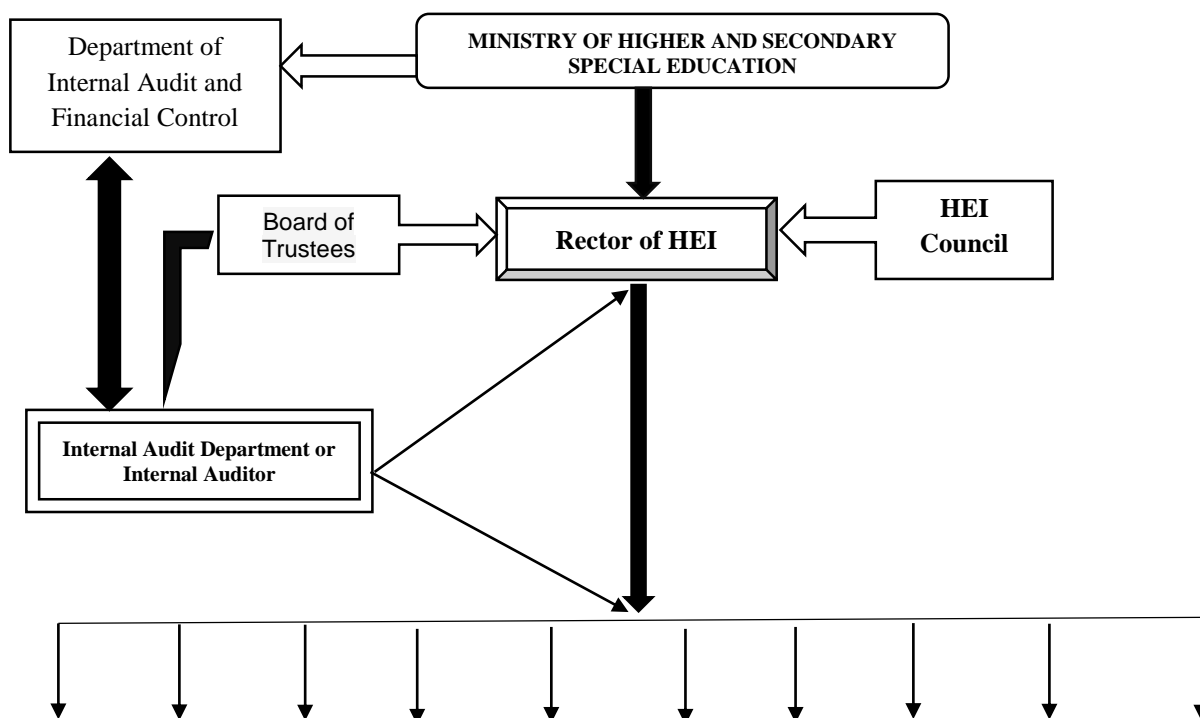
This situation is absolutely impossible, firstly, the fact that the internal auditor of the higher education institution is the deputy chief accountant is completely contrary to the international rules of the industry, secondly, the appointment and dismissal of the internal auditor of the higher education institution should not be delegated to the rector of the higher education institution, because the staff of the internal audit department of the higher education institution must establish internal audit control over the general and private activities of the head of the executive body - the Rector (the first financially responsible person), which is the executor. Only then will all activities of higher education institutions, violations of laws and regulations, such as internal violations, employee violations, be prevented, and budget execution and discipline should be carried out as required. Therefore, it is expedient to include a separate internal audit department in the Charter and structure of higher education institutions. Accordingly, in our opinion, the structure of higher education institutions should be as follows, this proposal is presented in Figure 1.

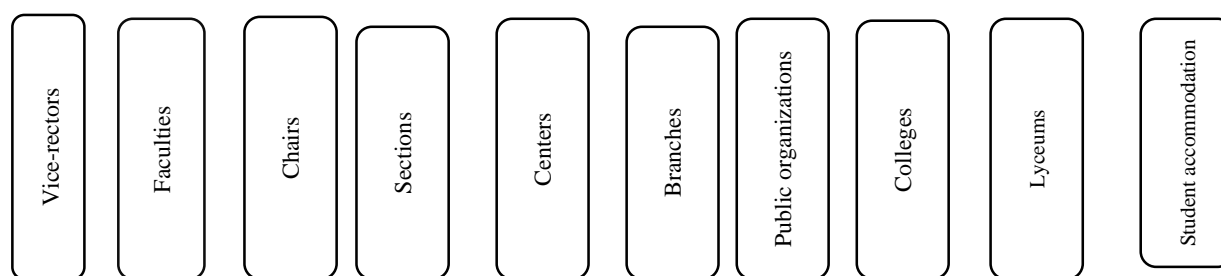
It is advisable to take into account the following when organizing the internal audit department on the proposed structural form:

1. The internal audit department or internal auditor is subordinate only to the Board of Trustees;

2. The annual program and plan of the internal audit department or internal auditor shall be approved only by the Board of Trustees;
3. The annual cost estimates of the internal audit department or internal auditor shall be approved only by the Board of Trustees;
4. The internal audit department or internal auditor is not accountable to the executive management of the higher education institution, but must submit a copy of the annual program and plan of internal audit and internal audit reports to the management of the higher education institution.
5. The inspections of the internal audit department should be conducted independently and the executive management of the higher education institution should ensure that there are no objections or obstacles to them;
6. Depending on the size of the higher education institution or the scope of financial and economic activities, the number of employees of the internal audit department and the number of staff should be determined by the Board of Trustees;
7. As higher education institutions are budgetary organizations, although the main party interested in the internal audit report is the Board of Trustees of the higher education institution, the internal audit report must be submitted to the Internal Audit and Financial Control Department of the Ministry of Higher and Secondary Special Education;
8. When appointing internal auditors by the Board of Trustees of a higher education institution, it is necessary to take into account the employee's knowledge of the broad outlook, compliance with the principles of the Code of Ethics, rights, duties, responsibilities and responsibilities of the internal auditor.

According to our analysis, in order to effectively organize the system of internal audit in budgetary organizations of Uzbekistan, it is necessary to develop and implement its legal regulations, therefore, in our opinion, the Regulation "On internal audit of budgetary organizations" In order to determine, we propose to pay attention to the following when developing the Statute or guidelines of the internal audit:





1- drawing. Standard structure of higher education institution

1. General rules of internal audit: the order of organization of the internal audit system in the higher education institution; internal audit department at the higher education institution; internal auditor of a higher education institution.
2. Principles of internal audit: independence; objectivity; accuracy; accuracy; efficiency; impartiality.
3. Ethics of internal audit: types of ethics; terms and requirements for internal auditors to comply with ethical rules.
4. Objectives, tasks and functions of the internal audit: the purpose of the internal audit; tasks of internal audit; functions of internal audit.
5. Rights, obligations and responsibilities of internal audit: rights of internal audit; internal audit obligations; internal audit responsibility.
6. Requirements for internal auditors;
7. Procedure for drawing up the internal audit program and plan: internal audit program and the order of its creation; internal audit planning;
8. Stages of internal audit: internal audit follow-up;
9. Procedures and procedures for conducting internal audit:
10. Evidence and facts of internal audit:
11. Procedure for preparation of the internal audit report: structure of the internal audit report; procedure for conducting internal audit.
12. Procedure for submission of internal audit report.

It should be noted that a number of countries of the Commonwealth of Independent States have regulations governing the field of internal audit. These are countries such as Azerbaijan, Kyrgyzstan and Tajikistan, which have developed a law on internal audit, and even the Republic of Tajikistan has implemented the Law on Internal Audit in Public Sector Organizations.

The subjects of this law are all business entities operating in the territory of the state established by the legislation of the Republic of Azerbaijan and subject to mandatory inspection, regardless of the form of ownership or legal form. Also, these rules can be applied voluntarily by business entities. In turn, the laws of the Kyrgyz Republic and Tajikistan on internal audit apply only to organizations financed from the state budget.

In accordance with the requirements of Articles 13-14 of the Law of the Republic of Tajikistan "On Internal Audit in the Public Sector", internal audit is organized by business entities in the interests of its owners and internal documents developed in

accordance with the laws of the Republic of Tajikistan regulated according to the list (2015) [5].

The internal audit legislation of Kyrgyzstan and Tajikistan stipulates that in terms of organizational subordination of internal audit, the structural subdivision of internal audit should be subordinated to the head of the organization. The legislation of the Republic of Azerbaijan stipulates that the internal audit service is subordinated to the relevant governing body of the business entity, which is the supreme governing body of the organization - the Board of Directors or the Supervisory Board. Thus, the unit carrying out activities in the field of internal audit is subordinated not to the executive management, but to the founders of the organization, which are relevant in terms of factors such as the independence and objectivity of auditors. These laws also set certain requirements in the field of information, internships for internal auditors.

Because these laws apply to different types of organizations, they differ depending on the annual reporting forms of the internal audit. Laws regulating internal audit in Kyrgyzstan and Tajikistan apply to the public sector, so internal audit departments report to the competent state body on the implementation of last year's internal audit plan. In accordance with the laws of the Republic of Azerbaijan, the internal audit service submits an annual report on the activities of the business entity to the relevant management body. It should be noted that in all three countries, internal auditors are required to report on the results of regular inspections to the management of the business entity or the relevant governing body. However, neither the private sector nor the public (budget) sector in Uzbekistan has developed or implemented a law or regulation governing the internal audit system. In order to solve the above problems, we recommend the following:

1. "Development of the Law of the Republic of Uzbekistan "On Internal Audit";
2. "According to the Resolution of the Cabinet of Ministers "On the organization of internal audit in budget organizations" and its annex, the development of the Regulation;
3. Development of a Model Regulation "On the regulation of the internal audit department in higher education institutions" at the Ministry of Higher and Secondary Special Education;
4. Development of a standard structural form of the department or department of internal audit and financial control within the ministries;
5. Development of the Regulation "On the procedure for certification of internal auditors of budget organizations" by the Ministry of Finance;
6. Amendments and additions to the Regulations on the Board of Trustees of budget organizations to establish the procedure for internal audit.

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UDC: 338.1

ISSUES OF INCREASING PRODUCTION EFFICIENCY IN AGRICULTURE

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Аннотация. Ушбу мақолада бугунги кунда қишлоқ хўжалигида махсулот ишлаб чиқариш самарадорлигини оширишнинг долзарб муаммолари ҳақида фикр ва мулоҳазалар юритилган. Қишлоқ хўжалигида махсулот ишлаб чиқариш самарадорлигига таъсир этувчи энг асосий омиллар танлаб олиниб, мазкур омилларнинг моҳияти ва амал қилишининг иқтисодий хусусиятлари таҳлил этилган. Тадқиқот жараёнида кўриб ўтилган омиллар асосида қишлоқ хўжалиги ишлаб чиқариш самарадорлигини ошириш йўллари ҳақида хулоса ва таклифлар ишлаб чиқилган.

Калит сўзлар. Ер унумдорлиги, самарадорлик, режалаштириш, бизнес режа, агротехнологик жараёнлар, иқтисодиётни юритиш, самарали бошқариш.

Аннотация. В статье рассматриваются актуальные проблемы повышения эффективности сельскохозяйственного производства. Выбраны основные факторы, влияющие на эффективность сельскохозяйственного производства, проанализирована сущность этих факторов и экономические характеристики их реализации. На основании рассмотренных в исследовании факторов были разработаны выводы и рекомендации по путям повышения эффективности сельскохозяйственного производства.

Ключевые слова. Плодородие почвы, эффективность, планирование, бизнес-план, агротехнологические процессы, экономика, эффективное управление

Abstract. In this article discussed the current problems of increasing the efficiency of agricultural production. The main factors influencing the efficiency of agricultural production were selected, the essence of these factors and the economic characteristics of their implementation were analyzed. Based on the factors considered in the research, conclusions and recommendations on ways to increase the efficiency of agricultural production were developed.

Key words. soil fertility, efficiency, planning, business plan, agro-technological processes, economics, effective management

Introduction. A main part of the agricultural products is growing by farm facilities, householders and peasants at present time. A president republic of

Uzbekistan mentioned in their appeal addressed to Parliament of the country on 24 January 2020 the next situation: an alone way of ensuring a stability on the consumption market of food products - increasing of the growing vegetables, melon products and creating supply chain between field and market [1]. Coming of the above mentioned statement, it is planning to increase a volume of GDP from 58.3 till 150 bln USA dollar that is 2.5 times and per capita income from 1532.5 till 4000 USA dollar or 2.6 times. This may play a very significant role for improving people well-being in the future.

A main aim of the reforms conducting in agriculture is providing production efficiency in agriculture plants. This task is directly linked with improving production earth resource. This is due to the fact that in agriculture, the seeds of various plants are planted in the ground, the product is grown and a variety of food and non-food products are produced from it. Increasing the efficiency of agricultural production is important, firstly, to improve the supply of food to the population, and secondly, to provide the industry with raw materials.

Literature review. The study of economic efficiency in agriculture and its scientific study are important in the development of the industry. In the process of studying the economic efficiency of agriculture, it is necessary to differentiate between the concepts of "effect", "efficiency" and "economic efficiency". In economics, the concepts of "efficiency" and "economic efficiency" can be defined by country, industry, enterprise, direction and individual product. The concept of economic efficiency has a broader meaning than the concept of efficiency. Economic efficiency is the cost of activities carried out during a year (a certain period) compared to the amount of net profit received as a result. Then the higher the amount of net profit received in return for expenses, the higher the level of economic efficiency, and vice versa. Productivity is expressing in the results obtained from carried out of certain activity, work and product"[2]. Based on the above considerations substantiating efficiency and economic effectiveness, it would be appropriate to draw the following conclusions about these concepts. The ratio of the result obtained due to the improvement and rational use of production resources in agriculture to the amount of live and packaged labor expended for these purposes represents the economic efficiency of production. The production of material goods is a vital necessity in human society, and in the process, along with increasing the production of material goods, reducing the cost of living and packaged labor for the production of goods is a key factor in achieving economic efficiency. "Effectiveness" is an indicator of the effectiveness of any activity. The result of the effect is reflected in the efficiency. Efficiency is an indicator of how much is spent on the resources expended. The economic efficiency of production is determined by the ratio of efficiency to resources expended. In this sense, economic efficiency reflects how much efficiency is achieved for each soum spent. Various factors affect economic efficiency in agriculture. "In agriculture, crop rotation, selection, agro-technics, organic and mineral fertilizers, etc. It is not possible to achieve the intended result by using similar regulatory factors separately from each other. Only harmonizing them and in accordance with reasonable forgery effect [3]. Therefore, in the current market

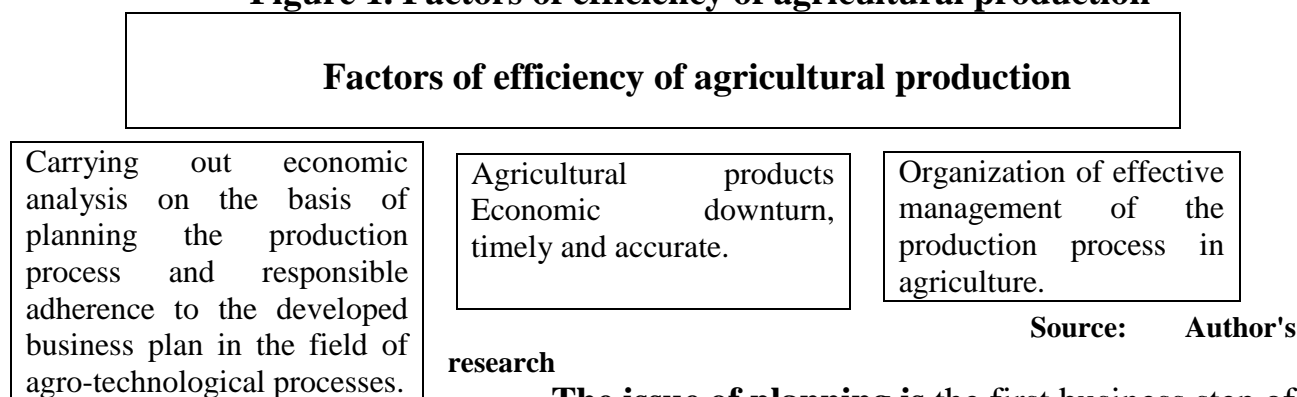
economy, it is expedient to systematize the factors influencing the economic efficiency of agriculture from a socio-scientific point of view.

Research methodology: in the implementation of this research, the methods of analysis of theoretical data related to the topic, monographic study of economic processes, comparison of the obtained results were widely used.

Analysis and results. Research in this sphere shows, that today we believe that the impact of the following factors on the efficiency of agricultural production is strong:

- Carrying out economic analysis of the production process on the basis of planning and responsible adherence to the developed business plan in agro-technological processes;
- Timely and accurate management of the economy of agricultural production;
- Organization of effective management of agricultural production.

Figure 1. Factors of efficiency of agricultural production



The issue of planning is the first business step of any producer, including an agricultural producer, in a market economy. It is known that the process of agricultural production involves a number of complex processes:

- Relationship of agricultural production processes with natural and climatic conditions;
- The effectiveness of these processes is directly related to soil fertility;
- Relationship of supplying of irrigated water and agriculture production.

When viewed from the perspective of agriculture, a production of production plan that the above-mentioned factors will need to take into account, but the production plan does not have the expected effect. Our research in this area shows that every producer of agricultural products should pay special attention to:

1. **Accurate information about the level of productivity of the land he owns** - what is the quality of agricultural land today? While this figure is taken into account with bonit scores up to 100 points, most landowners do not pay attention to this issue. In fact, the place in which we grow the seeds of the plant, fertilizer him several times and everything, drink several times a process that agro pm, the questions arising from the work carried out on the solution really depends on the fertility of the soil.

2. Selection of crop type and seeds based on natural-climatic conditions and soil fertility. The question of what type of crop and what kind of seeds to sow in agriculture is of course directly related to the factors cited.

3. It is necessary to plan the water consumption taking into account the water demand of the plant, which provides the expected yield. This is a matter of earth, which owns the water several times, depending on the availability can be engaging. In this case, of course, a thorough knowledge of the biology of the plant is good.

4. **The process of preparing and planting the seeds for planting** to be carried out in each of the planning process, and it costs as much as possible commensurate with the current ratings or in accordance with the specified purpose.

5. Costs are planned for each stage of agro-technological processes for the period from plant biology to the harvest. Agricultural products produced by following the above steps in the planning process come himself that formed the cost of production for the growing production scenario. The economic efficiency of agricultural production is directly related to the minimization of the difference between the estimated cost of production and the actual cost, formed on the basis of planning in the primary case. This issue requires the manufacturer to run the economy properly in the production process.

The economy is in the process of production of the product costs and income, which requires a balance between the jar and a side account, which does not follow the manufacturer he will face bankruptcy. In this regard, we believe that it would be effective for agricultural producers to monitor their economies on the basis of their business plans, based on a clear calculation of the state of expenditures at each stage of production technology. For example, according to the business plan, how much did we plan to spend on preparing the land for planting and sowing the seeds, and how much did we actually spend. Increase the cost of this case for agricultural trends in later stages of the responsibility molding, the economy will be the cost of production for the joy of gift. Issue today a nearly all agricultural products grown by item in that it is getting very difficult, because the current farm agro-transfer processes in a timely manner for the joy of the harvest from the business environment. For this reason, for most of our farmers, the economics of production is a simple situation that is calculated at the end of agro-technological processes. Responsibility of manager for the profit loss.

The most important factor in the effective implementation of both of the above factors in improving the efficiency of agricultural production is the organization of rational management of production processes in agriculture. The issues of timely and effective implementation of planned activities and the proper organization of the economy at each stage of the implementation of agro-technological processes are closely linked with the human factor and potential. The control process expresses the effect of the control system on the controlled system, and in the production process the manager is controlled by the human factor that carries out the production process of the product. Management of territories by administrative methods. These methods are methods of influencing employees and production teams in the process of aging, which involves the human factor, the coordination of their activities in achieving the goals set by the team. Management methods of teaching correct and timely and effective training is the leader in this field is a great achievement. In today's market economy, the following methods are used by managers to manage those who are managed:

- **Organizational and administrative management methods** at any other from the above commands, orders and instructions on the basis of their transmission by way of government. In this method, the independence of the leader is very low. Because, no matter how strong and effective the instructions from above, for the manager, the team seems to be effectively managed from the roof itself. The binding of this method of time management with its negative flow, at a cause of settling in this area, a draft of it has been proven in research.

- **Methods of economic management** in the management of the economy - manufacturing of this method is much more effective method for controlling the management considered a di. In this way, as a result of the productive work of the leader, employees are encouraged to be active, disciplined, responsible, moderate and satisfactory in the work process. This creates a sense of joy in their work for employees who achieve good results in the labor process, while in other employees it creates a sense of responsibility to equal progress. Ultimately, this method is the basis for the formation of positive opinions about the manager in employees. This method of management should use manager for the efficient but effective use, management, administrative expenses and responsibility every day.

- **Social and psychological** methods of management of market economy, each manager may apply is a complex of the required methods, by the leader of each employee under the social status of the formation of a healthy labor team examined the work carried out. This is a very complex process, and when a manager uses these methods, he or she will have a clear idea of the character, family situation, and capabilities of each employee. This plays an important role in creating conditions for team satisfaction in their profession and work.

Conclusions and suggestions. Improving the efficiency of agricultural production issues in academic study and came to the following comments and suggestions on the basis of the analysis:

1. We consider it expedient to conduct an economic analysis of agricultural production on the basis of perfect planning of the production process and responsible adherence to the developed business plan in agro-technological processes. This is because adhering to a business plan designed for the production process and reducing costs relative to the plan and increasing revenues is certainly a primary factor in economic efficiency.
2. We believe that the timely and accurate management of the economy of agricultural production is another key factor in ensuring efficiency in agriculture, because it will be difficult for a producer who cannot ensure the balance between costs and revenues to achieve efficiency.
3. Another factor of efficiency in agriculture is the organization of effective management of the production process. The issues of timely and effective implementation of planned activities and the proper organization of the economy at each stage of the implementation of agro-technological processes are closely linked with the human factor and potential. Therefore, we believe that the effective use of the most modern methods of management will give good results in increasing the efficiency of agricultural production.

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THE EFFECT OF DIFFERENT WATERING METHODES IN CULTIVATING OF POTATOES IN CONDITIONS OF ANDIJAN REGION.

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Аннотация. Ушбу мақолада картошка етиштиришдаги ялпи маҳсулот ишлаб чиқаришни кўпайтириш ва ҳосилдорликни оширишнинг асосий омилларидан бири янги замонавий уруғчилик тизими ҳамда суғориш режимини жорий этиш бўйича илмий изланишлар натижалари ёритилган.

Калит сўзлар: суғориш режими, вегетация даври, суғориш техникаси, суғориш технологиялари, суғориш усуллари, суғоришнинг давомийлиги, суғориш меъёри, сув исрофи, сувдан фойдаланиш коэффициенти;

Аннотация. На этой статье освещены научные исследования современных факторов о системе семеноводства по выращиванию и умножению валового

продукта картофеля и повышения урожайности, также внедрения режима орошения.

Ключевые слова: режим орошения, вегетационный период, техника орошения, технологии орошения, способы орошения, продолжительность орошения, норма орошения, расход воды, коэффициент водопользования.

Annotation. This article focuses on results of scientific researches in increasing of gross product conversation in cultivating of potatoes and modern seed producing structure which is main source of productivity as well as the results of setting different regimes of watering.

Key words: watering regime, vegetation period, watering technique, watering technolouques, watering types, duration of watering, limit of watering, waste of water, coefficient of water usage

Intruduction. Today, the population of the world is close to be 8 billion people. Grows rate of population corresponds to mostly African and Asian continents. As these territories occupies the biggest part of land resources, the case impresses as if no trouble about population rate. However, it is known there are other vital factors except crop fields which is necessary for cultivating daily food products for humanity.

Potato is considered one of main daily feed ration and nowadays it stands in the fourth place in consuming in the most parts of the world.

According to the statistical information of “MrGoogly” worldwide gross production of potatoes made up 376 829 967 tons at the end of 2019. People’s Republic of China is the country where the biggest crop of potatoes is produced that is equal to 100 million tons in percents 26.6% indication. If, it is considered that potato growing fields are equal to 20-22 million hectors, the average productivity makes up 15-17 quintals. Here, we can see decrease in productivity of potatoes, because of low soil yield, lack of necessary skills of producers and viruses in total weight of potatoes seeds in China, India and other countries.

In the Republic of Uzbekistan potatoes were planted totally in 86443 hectors and gross crop is mentioned equal to 2911933 tons, yield equal to 33.7 t/ha that is informed by fao.org/faostat/ru.

Literature Review. Due to the plasticity (flexibility) of the potato crop, it is grown in different soil-climatic conditions and produces a rich and high-quality crop. In the growth and development of the potato plant goes through the phases of germination, combing, flowering, yellowing and ripening [3; 394-b., 77; 430-b., 21; 188-p.]. The most important is the second period, when 65-75% of the finished crop is formed. Therefore, during this period, all measures should be aimed at creating favorable conditions for plant growth and development, the formation of the end. Only then it is possible to harvest 2,5-3 tons per hectare. In the following periods, this figure decreased sharply, from 0,3 to 1,0 tons per hectare. T.E.Ostonaqulov [3; 394-b., 77; 430-b., 21; 188-p.], T.E.Ostonaqulov, A.X.Hamzaev [4; P.443] states that the potato is a relatively low-temperature plant. The budding and sprouting of the buds begins when the temperature is above 5-6°C. The temperature should not fall below 7°C in order for the sprouting and sprouting plants to take root quickly. Therefore, potato tubers are planted when a 10 cm layer of soil is heated to 7-8°C. When the temperature is 18-20°C, the plants sprout quickly.

N.N.Balashev [4; 86-95-p., 25; 3-192-p.], N.N.Balashev, G.O.Zeman [5; 408], the temperature should be 18-23°C for the potato plant to produce a well-flowering fruit. When the temperature exceeds this, flowering withers, and above 27°C it stops completely.

A.G.Lorx [6;113-p.], N.N.Balashev, G.O.Zeman [5;408-b.], B.A.Pisarev [7;232-b.,90;pp.3-8,95;19-p.], D.T.Abdukarimov [8;22-101-p.], I.V.Zuev [9; Pp.17-21], T.E.Ostonakulov et al. [10; 263-p.], T.E.Ostonaqulov, A.X.Hamzaev [3;443-p.], S.N.Karmanov [11; 88-244-p.], V.I.Zuev, O.Qodirhojaev, H.Ch.Bo'riev, B.B.Azimov [12;336-b.], R.A.Hakimov, A.M.Abbosov [13;26], etc., it is considered convenient for the soil temperature to be 18-20°C for the formation of potato end. N.N.Balashev, G.O.Zeman [5; 408-p.], T.E.Ostonaqulov, A.X.Hamzaev [78;P.Low (-1, 2°C) and high temperatures kill the tubers.

T.E.Ostonaqulov [14; 188-p.], T.E.Ostonaqulov, A.X.Hamzaev [3; 443-p.], D.T.Abdukarimov, T.E.Ostonakulov, B.B.Azimov, I.Ergashev, M.Ortiqov, G.Tugalov, A.Hamzaev [15; P. 23] experimental results show that the norm of sowing early potato varieties in the scheme 70x20-25 cm is 3 tons per hectare, when sowing seeds weighing 20-30 grams, the yield is 165.2 quintals, when sowing seeds weighing 30-50 grams 208.3 quintals, 206.1 quintals were harvested by planting 50-70 gram tubers. By increasing the sowing rate to 3.5 tons per hectare, 173.3 quintals per hectare were planted with small tubers of 20-30 grams, 224.4 quintals per hectare with medium tubers of 30-50 grams, and 219.5 quintals per hectare with large tubers of 50-70 grams. It was proved that the quality of the crop was significantly improved when planting seedlings weighing 30-80 grams, the yield increased by 3-4% and starch by 0.5-0.8%. BF Khlevnoy et al.

He noted that the best shape of the feeding area is a square whose configuration is the same as the distance between the rows and the tufts in the rows. A.Hamzaev, M.Ortiqov [16; P. 22], the width of the row spacing in field experiments: 70, 75 and 90 cm; The potatoes in the standard 70x20 cm, 75x25 and 90x20 cm Sante, Romano and Hamkor - studied by comparing 1150 varieties. According to the results of the experiment, planting between 75 and 90 cm widening the row spacing to 70 cm will allow the plants to germinate 2-3 days earlier, up to 3-5 days earlier with the onset of grazing and flowering phases.) were found to form plants. According to the results of the experiment, the yield of seed pods in the studied varieties increased by 3.5-6.2% when the width of the row spacing was increased from 70 cm to 90 cm, accounted for 55.7-63.0% of the total commodity yield and 15.1-21 per hectare. It has been proven to provide a yield of up to 5 tons of seed pods.

A.Hamzaev [16; 84], according to the results of experiments conducted in the conditions of old irrigated meadow gray soils, the method of sowing of different varieties of potatoes with seed tubers is 27x-31.5 tons per hectare in the studied varieties with a yield of 70x30 cm, the Dutch sowing method is 75x25. cm in the scheme 30.8 - 35.3, wide-row sowing method 90x20 cm scheme proved 32.7-37.2 tons or 4.5-6.5 tons more than the existing sowing method. Seed seedlings grown in a wide row 90x20 cm scheme increased the yield of commercial seedlings by 2.1-4.7% or 3.4-6.7 tons per hectare compared to other sowing methods. Experiments have shown that the weight of the finished product does not exceed 4.0-4.6% of the total yield.

Research Methodology. The experiment was carried out in the style of academician B.A. Dospekhov. The number of repetitions is 4 times.

Experiment system

№	Spring period		Summer period	
	The moisture capacity of soil, in % relatively to BFMC	Watering scheme	The moisture capacity of soil, in % relatively to BFMC	Watering scheme
1	Traditional watering 65-70-75 (control)	1-1-5	Traditional watering 65-70-75 (control)	1-1-5
2	Sprinkling 75-75-85 %	2-2-6	Sprinkling 75-75-85 %	2-3-7
3	Traditional watering 75-75-85 %	1-2-5	Traditional watering 75-75-85 %	2-2-6
4	Traditional watering 75-85-85 %	1-2-6	Traditional watering 75-85-85 %	2-2-7

All types of hydraulic reclamation measures are aimed at creating and managing the necessary water regime in the soil. By adjusting the water regime, it is possible to simultaneously achieve significant changes in the air, heat and nutrient regimes of the soil, as well as to accelerate the process of formation of fertile soil in the crop areas.

In the experiment, the mechanical composition of the soil, water-physical properties, agrochemical studies and phenol logical observations were carried out. Samples were taken from the excavated soil section in the experimental field to determine its mechanical composition and analyzed by pipette using hexometha phosphate (N.A.Kachinsky).

The composition of the micro aggregate is also determined in the same way (on the recommendation of Pavlov). The volume weight of the soil is determined in the method of cutting rings using steel cylinders with a height of 10 cm and a diameter of 7,15 cm. Before starting the experiment, the volume and specific gravity of the soil are determined by taking a sample from every 10 cm layer of soil to a depth of 100 cm at three or four points in the field with a general background. The total porosity of the soil is calculated from the data obtained in the process of determining the volume and specific gravity. The water permeability of the soil is determined as a general background at 3-4 points at the beginning of the application-water period, and at the end of the application-growth period according to the Ram (frame) method in all variants. The boundary field moisture capacity (BFMC) of the soil is determined in the field method (Rozov method) at two points in the field before starting the experiment. Moisture is determined using a neutron moisture meter (Tensiometer) every 4-10 turns in the 0-100 cm portion of the entire area.

Agrochemical research. The amount of humus, total nitrogen, phosphorus and potassium in the soil was determined as a general background on the basis of soil samples taken from each 0-10 cm layer at a depth of 0-100 cm at three points on the field diagonal. I.V.Tyurin was used to determine the amount of humus, Keldal was used to determine the total nitrogen weight, Lorants was used to determine the total phosphorus, and Maslova was used to determine the total potassium.

The amount of salts in the soil is determined from three points on the diagonal of the field at the beginning of the experiment, on the basis of samples taken in all variants at the end of the application-growth period. The amount of water supplied to options 1,3,4 in irrigated irrigation is determined using a 90° Thomson aqueduct. Irrigation was carried out using a sprinkler provided by Eurodrip.

Agro technical measures carried out in the experimental field. In our research in the conditions of grassland gray soils of Andijan region, the experimental field was attached to the tractor MTZ-82 on December 12, 2019 in NRU-0.5 fertilizer 75 kg of phosphorus (in pure form - 17.5 kg R₂O₅ superphosphate – 25% 80% of the annual norm and potassium 200 kg (60 kg K₂O potassium chloride in pure form-60% 100% of the annual norm) fertilizers were applied to the ground before plowing. On March 3, before planting potatoes on the basis of the experimental system was planted with nitrogen fertilizers in the amount of 35 kg (12.5 kg of pure ammonium nitrate 34%) and 25 kg of phosphorus (6.5 kg of R₂O₅ superphosphate-25% in pure form). The first water was given on April 1st. For biological control of potato pests on April 20 was treated with the drug Lamdos ARK.

In the irrigated (control) options, irrigation was given on April 1, 14, 18, 29, May 10, 16, 29, and the last watering was given on June 4. Irrigation was carried out 10 times from 01.04 to 03.06 according to the established irrigation regime.

Table-1

Agro-technical Measures

№	Completed agro-technical measures	Completion time
1	Fertilize before plowing	12.12.2019
2	Plowing the land	13.12.2019
3	Plowing	02.03.2020
4	Field installation of sprinkler irrigation system	28.03.2020
5	Planting potatoes	03.03.2020
6	Fertilize before planting	02.03.2020
7	Chemical processing (Lamdos, APK+0,5 l/ha)	20.04.2020
8	1 st water (traditional watering)	01.04.2020
9	2 nd water (traditional watering)	14.04.2020
10	3 rd water (traditional watering)	18.04.2020
11	4 th water (traditional watering)	29.04.2020
12	5 th water (traditional watering)	10.05.2020
13	Flowering phase (nitrogen)	16.05.2020
14	6 th water (traditional watering)	16.05.2020
14	7 th water (traditional watering)	29.05.2020
15	8 th water (traditional watering)	04.06.2020
16	Sprinkling from 10 times according to watering regime.	01.04-04.06.2020

Analysis And Results. Morphological characterization of experimental field soil. The soil of the experimental field consists of meadow-gray soil that has been pre-irrigated. To determine the typicality of the experimental field, we dug a soil pit (incision) at a depth of 1–165 cm from the beginning, middle and end of the field at 3 points to determine the morphological characteristics of the experimental field soils by genetic layers.

As a result of agro technical measures and irrigation in the experimental field, the volume weight of the soil increased in the control variant. Partially reduced by sprinkler irrigation.

To do this, soil samples were taken at the points marked in the field at a depth of 100 cm in each 10 cm layer of soil before planting, and at the end of the application period, the volume weight of the soil on the above layers was determined in all variants.

From the data obtained, it can be seen that at the beginning of the experimental field, the soil volume weight was 1.27 g/sm³ in the 0-30 cm driving layer, 1.29 g/sm³ in the 30-50 cm driving layer, and an average of 1 in the lower 50-100 cm layers 30 g/sm³. By the end of the growing season, the volume weight of the soil in the controlled irrigated variant is 1.31 g/sm³, in the 0-30 cm drive layer and 1.33 g/sm³ in the 30-50 cm driving layer, 1 in the bottom 50-100 cm layers, 34 g/sm³. In the variant with a rain-fed planting scheme (70x30 cm), the soil weight was 1.28 g/sm³ at 0-30 cm, 1.29 g/sm³ at 30-50 cm and 1.30 g/sm³ at 50-100 cm. In the variant with a sprinkler irrigation scheme (70x30 cm), the volume weight of the soil was 1.28 g/sm³ at 0-30 cm, 1.29 g/sm³ at 30-50 cm and 1.31 g/sm³ at 50-100 cm.

In the experiment, the method of sprinkler irrigation had a significant effect on the bulk density of the soil. By the end of the growing season, it was found that the volume weight of the soil increased by 0.07 g / cm³ relative to the volume weight of the soil at the beginning of the application period due to the increase in the number of seasonal irrigation norms in the lower 50-100 cm layers and the introduction of field mechanization. Due to the fact that this indicator reduces the seasonal irrigation norms in the rain-irrigated variant and enters the field mechanization only 2 times, the volume weight of the soil decreased by 0.04 g/sm³ compared to the control variant. Porosity of experimental field soil. Another important agrophysical property of soil is its porosity. When the porosity of the soil is high, air exchange improves, the passage of microbiological processes accelerates, thermal regimes change in a positive direction, resulting in certain conditions for soil fertility. The above patterns were also observed in the results obtained in our studies. The sum of the voids in the soil is called the porosity of the soil. In most soils the porosity is around 40 - 50%. Porosity is expressed as a percentage (%) and is defined by the following formula: R is the porosity of the soil, in percent; ρ - specific mass of soil; ρ_0 is the bulk density of the soil.

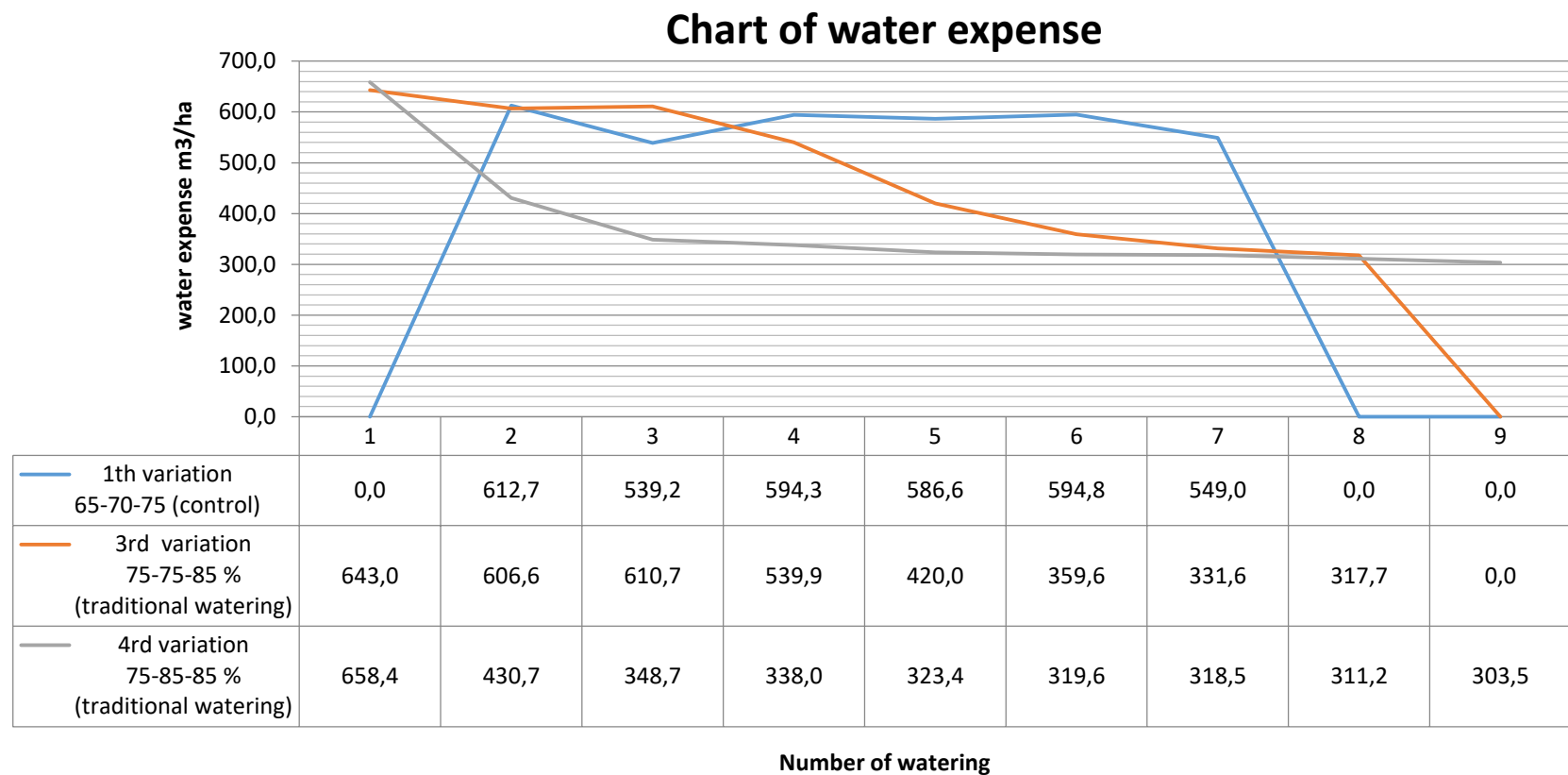
At the beginning of the experimental field, the soil porosity was 52.8% in the 0-30 cm driving layer, 52.5% in the 0-50 cm driving layer and an average of 51.8% in the lower 0-70 and 0-100 cm layers. formed. By the end of the growing season, the porosity of the soil in the controlled irrigated variant is 50.4% in the 0-30 cm topsoil and 50.2% in the 30-50 cm topsoil and 50.1% in the bottom 50-100 cm. did. In the variant with a sprinkled irrigation scheme (70x30 cm), the soil porosity was 53.0% at 0-30 cm, 52.8 % at 30-50 cm and 52.2% at 50-100 cm.

In our field experiments, the water permeability of the soil was determined at the beginning and end of the application period. At the beginning of the experimental field operation period, it was 927.9 m³ / ha for 6 hours. By the end of the application period, the average 781 m³ / ha of the irrigated control variant, the average water permeability of the soil for 6 hours in the variant with the irrigated planting scheme (70x30 cm), and 154 m³ / ha compared to the controlled variant. was high.Irrigation of potatoes in different irrigation regimes and the norm of seasonal watering. (In the spring) The sowing period of early potatoes grown in Andijan region was from 1 to 5 April, and the irrigation of varieties began in the first decade of April and ended in the first decade of June. In the control variant, the norm of seasonal irrigation was 3530.5 m³ / ha, in variant 2 (rain irrigation) it was 2240 m³ / ha, and in variants 3.4 it was 3829.3 and 3348.3 m³ / ha, respectively did.

Table-2

The amount of water absorbed into the soil in the potato field of different irrigation regimes.

№	Soil moisture before irrigation, in % of BFMC	Indicator	Watering									The norm of seasonal irrigation, m ³ / ha
			1	2	3	4	5	6	7	8	9	
1	Traditional watering 65-70-75 (control)	Watering date		7.04	15.04	23.04	01.05	15.05	25.05			
		The norm of irrigation, m ³ / ra	-	612,7	539,2	594,3	586,6	594,8	549,0	-	-	3530,5
2	Sprinkling 75-75-85 %	Watering date	From 1.04-10.06.2020 16 times 120-160 m ³									2240
3	Traditional watering 75-85-85 %	Watering date	1.04	7.04	15.04	23.04	30.04	8.05	16.05	25.05		
		The norm of irrigation, m ³ / ra	643,0	606,6	610,7	539,9	420,0	359,6	331,6	317,7	-	3829,3
4	Sprinkling 75-75-85 %	Watering date	1.04	7.04	15.04	23.04	30.04	6.05	14.05	20.05	28.05	
		The norm of irrigation, m ³ / ra	658,4	430,7	348,7	338,0	323,4	319,6	318,5	311,2	303,5	3348,3



Influence of irrigation regimes on the growth and development of new varieties of potatoes. Irrigation plays an important role in the growth, development and harvesting of potato varieties, but it should be noted that in irrigated agriculture, it is important to determine the optimal water and seasonal irrigation norms for pre-irrigation soil moisture. the nutrients pass into the plant only when dissolved in water, resulting in the ground for a high yield. A lot of scientific research has been done in this regard, which describes the demand for water of potatoes varieties. In these studies, the effect of irrigation regimes on the growth, development, harvest of potatoes varieties was identified.

On the first day of each month, phonological observations were performed to study the growth and development of potatoes. Phonological monitoring was performed on 50 plants in each variant.

The data show that the number of leaves increased by an average of 0.5 per 50 plants, the number of stalks by 0.8, the number of branches by 0.8 and the number of pods by 4.5-5 when irrigated with rain compared to the control option.

Influence of irrigation regimes on growth and development of potato. (Serhosil variety, of 2020)

Table-3

№	Soil moisture before irrigation, in % of BFMC	Watering scheme	Average fruit productivity of tubers			Productivity, <i>T/ha</i>
			The harvest of tubers of a plant, <i>g</i>	The number of tubers of a plant, <i>piece</i>	Average weght of tuber, <i>g</i>	
Grown in spring season						
1	65-70-75 %	0-1-5	418	6,2	67,4	23,7
2	70-75-85 %	1-2-5	560	6,3	88,9	35,5
3	75-75-85 %	2-2-6	442	6,3	70,2	31,2
4	75-85-85 %	1-2-6	430	6,3	68,2	28,3
EKIF _{0,5} =2,3 <i>T/га</i>						
Grown in summer season						
1	65-70-75 (назорат)	1-1-5	312	5,2	60,0	22,4
2	70-75-85 %	2-2-6	476	6,3	75,6	32,2
3	75-75-85 %	1-2-5	431	6,2	69,5	30,6
4	75-85-85 %	2-2-7	460	6,1	75,4	26,1
EKIF _{0,5} =2,6 <i>T/га</i>						

The results of scientific research showed that when potatoes are planted in spring, the soil moisture before irrigation is in the range of 65-70-75% relative to BFMC, when the irrigation scheme is 0-1-5, the yield per plant is 418.0 grams, the number of seedlings per plant is 6, 2 pieces, the average weight of the finished product was 67.4 grams, the total yield was 23.7 T / ha (in the control variant). Pre-irrigation soil moisture is in the

range of 75-75-85% relative to BFMC, when the irrigation scheme is 1-2-5, the yield per bush is 560.0 grams, the number of buds per bush is 6.3, the average weight of the bush is 88.9 grams. , the total yield was 35.5 T / ha. When potatoes were planted in the spring period, in the control variant, the pre-irrigation soil moisture was in the range of 65-70-75% relative to the BFMC, and the yield was 23.7 T / ha when the irrigation scheme was 0-1-5. This figure shows that the pre-irrigation soil moisture was in the range of 75–75–85% relative to the BFMC, with a yield of 35.5 T / ha when the irrigation scheme was 1-2–5, or 11.8 T / ha more than in the control option. When sowing in summer, the pre-irrigation soil moisture is in the range of 65-70-75% relative to BFMC, when the irrigation scheme is 1-1-5, the yield per bush is 312.0 grams, the number of buds per bush is 5.2, the average weight of the bush is 60, 0 grams, the total yield was 22.4 T / ha (in the control variant). Pre-irrigation soil moisture is in the range of 75-75-85% relative to BFMC, when the irrigation scheme is 2-2-6, the yield per plant is 476.0 grams, the number of seedlings per plant is 6.3, the average weight of the plant is 75.6 grams. , the total yield was 32.2 T / ha. When potatoes were planted in the summer, in the control variant, the soil moisture before irrigation was in the range of 65-70-75% relative to the BFMC, while the irrigation scheme was 1-1-5, the yield was 22.4 T / ha. This figure shows that the pre-irrigation soil moisture was in the range of 75–75–85% relative to BFMC, with a yield of 32.2 T / ha when the irrigation scheme was 2–2–6, or 9.8 T / ha more than in the control option. When the soil moisture before irrigation was irrigated in the 2-2-7 scheme in the range of 75-85-85% relative to the BFMC, the yield was 26.1 T / ha, or the yield did not increase compared to option 3. Hence, it was found that even with an overdose of BFMC and the number of irrigations, productivity would not increase.

Conclusion/Recommendations: In summary, when watering potatoes planted in the spring, keep the soil moisture before irrigation in the range of 70-75-85% relative to the BFMC, in the scheme 2-2-6, the yield is 35.5 T / ha when irrigated, and in the summer when the potatoes are grown. the organization of repeated irrigation, when irrigated in the scheme 2-2-6 during the growing season, keeping the soil moisture before irrigation in the range of 70-75-85% relative to BFMC provides a yield of more than 32.2 T/ha.

1) At the beginning of the experimental field application period, the volume weight of the soil was 1.27 g / cm³ in the 0-30 cm driving layer, 1.29 g / cm³ in the 30-50 cm sub-driving layer and an average of 1.30 g / cm³ in the 50-100 cm layer. By the end of the growing season, in the controlled irrigated variant, the volume weight of the soil is 1.31 g / cm³ in the 0-30 cm driving layer and 1.33 g / cm³ in the 30-50 cm driving layer, 1.34 g / cm³ in the 50-100 cm layer formed. In the irrigated variants, the volume weight of the soil was 0-30 cm 1.28 g / cm³, 30-50 cm 1.29 g / cm³ and 1.30 g / cm³ at 50-100 cm;

2) The method of sprinkler irrigation in the experimental field was significantly affected by the volume weight of the soil. Towards the end of the growing season, the control irrigated variant increased the number of seasonal irrigation norms in the 50-100 cm layer of soil volume and at the beginning of the application period increased by 0.07 g / cm³ relative to the volume weight of the soil. it was found that the volume weight of the soil decreased by 0.04g / cm³ compared to the control option due to the decrease in

the number of irrigations of irrigation norms and the introduction of field mechanization only 3 times;

3) At the beginning of the experimental field application period, the soil porosity was 52.8% in the 0-30 cm driving layer, 52.5% in the 0-50 cm driving layer, and an average of 51.8% in the lower 0-70 and 0-100 cm layers. By the end of the growing season, the porosity of the soil in the controlled irrigated variant was 50.4% in the 0-30 cm driving layer and 50.2% in the 30-50 cm driving layer and 50.1% in the bottom 50-100 cm layers. In the variant with a sprinkled irrigation scheme (70x20 cm), the soil porosity was 53.0% at 0-30 cm, 52.8% at 30-50 cm and 52.2% at 50-100 cm;

4) In the field, it was possible to improve the air and temperature rhythm of the soil so that no crust appeared between the buds;

5) Optimal conditions for the potato plant have been created, and the supply of the plant with moisture, nutrients, and other factors has been improved;

6) Nutrient solutions were delivered directly to the plants through a sprinkler system;

7) During the season, the irrigated control option was irrigated an average of 8 times and the seasonal irrigation rate was 3569 m³ / ha. When it was irrigated by sprinkling 10 times and the seasonal irrigation norm was 2240 m³/ha;

8) Yields of “Serhosil” potato variety in the 70x30 sowing system averaged 23,7 t / ha, while in the irrigated system 35.5 t / ha, the yield was 11.7 t / ha higher than in the control variant.

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UDC 635.62

CRITERIONS OF IMPROVING TECHNOLOGY OF GROWING OF THE PUMPKIN PLANTS

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Абстракт. Янги ташкил этилаётган фармацевтика корхоналари сонини тез ортиб бораётгани ва уларга хом-ашё зарурлиги, ҳукумат томонидан импорт ўрнини босувчи ишлаб чиқаришга кўпроқ эътибор берилаётгани янги яратилаётган доривор ўсимликларни етиштириш технологияларини амалда қўллаш масалаларини кенг қамровли тарзда ўрганишга оид таклифлар ишлаб чиқишни тақозо этмоқда.

Калит сўзлар: методология, дала тадқиқотлари, етиштириш технологияси, позитивизм назарияси, биосинтез методи.

Абстракт. Увеличение количество вновь создаваемых фармацевтических предприятий, необходимость обеспечения их сырьем, а также уделение большого внимания на развитие импорт замещающего производства со стороны правительство обуславливает изучение в широком смысле вопросов применение на практике технологий выращивания целебных трав и разработать заключения.

Ключевые слова: методология, полевые испытания, технология выращивания, теория позитивизма, метод биосинтез.

Abstract. Fast increasing the number of the newly established pharmaceutical plants and a necessity of local raw materials for them, paying much an attention by the government on developing import substitution production confirms of the necessity of learning problems of growing medicine plants technologies in versatile scope and work out new suggestions on how to use new technologies on practice in Uzbekistan.

Key words: methodology, field experiment, technology improving, positivism theory, biosintes period.

Introduction. An aim of the reforms carrying out in Uzbekistan at present time is enforcing the social-economic progress of the country and improving the well bring of the population. Fast increasing the number of the newly established pharmaceutical plants and a necessity of local raw materials for them, paying much an attention by the government on developing import substitution production confirms the necessity of learning problems technology improving in versatile scope and to work out new suggestions. In this sense developing technologies of curative plants growing for providing the pharmaceutical industry with local raw materials and its' further development has significant importance. Besides, large participation of the private sector companies in the pharmaceutical sector development is insisted to develop new technologies for them adapted to the local business conditions. So, current situation is conditions developing new technologies of medicinal plants, updating existing ones by conducting new studies.

An aim of the paper is study methodological questions of growing medicine plants technology and explaining new conclusions developed as results of field experiment. Coming of the aim of study the next tasks were defined for discussing:

- descrybing a technology of pumpkin growing and to comment an increase of productivity by means of using biostimulators;
- how to manage biosintes process in field experiments' of pumpkin and appropriate means of variables for achieving maximum productivity of pumpkin in the period of vegetation;

- how to intensificate biostimulators' affect on pumpkin growth.

Literature review. Accordance an opinion of L.Jiani, V.Ovchinsky and T.Zaichenko, productivity – is a quantity of raw material phytomass, and it shows a volume of yield per hectare or 1 square meter[8]. Productivity differs coming of the plants' type of practice and it will depend on many factors. Productivity calculates three variances:

- Based on the land use method;
- Based on the model and examples method;
- Based on the project covering method.

Jiani, Ovchinsky and Zaichenko attitude on technology productivity is very simple and don't take in mind an effect of biosintes processes and using organic fertilizers' and bio stimulators.

M.Baratova, N.Xidirova and SH.Qosimova underline that choosing the method will depend on the next causes [2]:

- Features of the plants and choosing its habitus;
- Part of the plant which selected for use as raw material.

However, G.Belodubrivskaya, K.Blinova and V.Vandishev suggested the next approach[11]: for herbaceous plants and trees with a small body part, it is preferable to use the crop area criterion used to determine yield, as the raw material is the fruit or body part left over from their above ground part. This method is one of the most accurate methods in science because it does not require additional calculations and does not complicate the data. However, if the raw material is used as raw material, such as the underground fruit or shrubs with a large body, the above method is inconvenient due to the large labor capacity, and the approach based on the choice of “model copy” is more convenient. For short-stemmed plants and shrubs, the “project-based cover” criterion should be used as the measurement criterion, as this method assumes that the plants cover the surface thickly and that the cover thickness directly affects the yield. Most surveys are conducted on farm fields located in a particular administrative area, and the surface area of that area has a definite dimension. If the amount of raw material grown is measured in large tons, then the crop is planted in large areas and inspections are carried out.

The approaches described above outline general directions for the study of technical efficiency in terms of quantitative analysis. However, to study the effectiveness of the technology of cultivation of medicinal plants, it is necessary to make additional methodological tools, ie the collection and grouping of data on the factors, the orderly and high-quality calculations. To do this, the use of the quality phenomenological observation method gives good results. We show this below based on the results of field experiments on pumpkin cultivation in 2017-2018.

Research methodology. The main place in conducting field researches regarding the growth of curative plant technologies is using quantitative observing methods. Researchers base on the philosophical theory “positivism” for conducting quantitative observing of field experiments. The accordance with positivism theory, the concrete positive skill will be based on any natural phenomenon and its' features and relations.

Received information will be commented as basic principles of reason and results. And, obtained skills are considering as ones received due to observes.

To check the results of research it is necessary to develop a few hypothesizes in quantitative observations. The researcher is form database for conducting quantitative observations, and then studies inter-linkages between independent and dependent variables. Besides, the researcher finds by checking what inter-linkages among variables have more significant importance. After checking the one confirms or declines this interlink age.

However, fast scientific and technological progress and increasing factors that affect climate changes show the necessity of using a method of “conducting qualitative phenomenological observations” in the scientific researches devoted to the growing curative plant technologies. In this approach exist no hypothesis which was defined in advance. The researcher is forming an idea that may appear in the process of observing as a postulate. A postulate is the shape of the research problem. It is suggesting that there are direct interlink ages among variables studying in the research. These linkages are considering factors affecting technology success. Based on these opinions all factors which affect’ technology development locate in observe in the next an order: an ambience of new technologies in agriculture, developing a paradigm, analytical approach, approach of objects selection, systematical approach, comparative analysis approach. Below we will explain why should pay attention to qualitative phenomenological observations.

It is accepted to consider that first of all it is a necessary attention to the resource store. To do it, calculating a volume of the harvest per one square meter or plant growing area and yield productivity. When calculating an area of harvest, its place is likened to any geometry figure. (four square, three square or rhomb), and then calculating its covering surface. Sometimes, if the growing plant is vegetating not uniformly on the field at first calculates total field size and an area which is covered by the growing plant. The next stage is defining harvest volume. A science is differing in terms of “harvest store” and “harvest density”. But, many scientists who study curative plant technologies just consider them as synonyms.

Field experiment technology and results. Brief description of the applied technologies in the experiment. The sowing process of pumpkin seeds had carried out by hand, which is on the chart $(330 \times 70) \times 100 : 2$. Pumpkin seeds were sown in the Spring season that is in April month of the year. In each hectare were allocated 6600 pumpkin seedlings. A time of growth of the pumpkin sort Spanish-73 lasts 105-110 days from the first day of growing up until the first harvest. But, Palov Kadu-268 sort of pumpkin’s time of growth consisted of 100-105 days from the first day of growing up until the first harvest. 5-6 kg seeds were used per each hectare of field and a depth of sowing of seeds was 5-6sm.

Pumpkin seedlings on the experimental field were watered 6-7 times till the last days of growing. Before sowing seeds of pumpkin experimental field soil were processed with ammonia with a proportion of 300 kg/he and potassium mineral fertilize 100 kg/he. During the period of vegetation, plants were fed up with a proportion of 300 kg/he with

saltpeter ammonia. Against of an insect, Aphid had been used a preparation “Mospilan” in the proportion 300 gr/he with 300-liter water after mixed up 2 times. Against Necroz and Xlores diseases Entolikur fungicide in proportion 0,5 l/ga 1 time and Ridomil Gold fungicide in proportion 2,5 kg/he after mixing up with 300-liter water was poured. After biological ripe, pumpkins’ fruits were harvested and seeds separated from fruits by hand. Separated seeds were drily outed after washing and humidity level had been brought by 10%.

Results of the research. Preparing seeds to sow and growing them. Before sowing, seeds were observed and defective ones had been separated by hand and planned to use 5 kg/he seed. Pumpkin’s sort Spanish-73 and Palov Kadu-268 were processed with bio stimulators of Verva, Uchqun, Super Uchqun, and Gossiprin and then sewn directly into the earth. The sowing process was organized in this way: one day before sowing seeds had put into Verva, Uchqun, Super Uchqun, and Gossiprin bio stimulators tincture in the proportion 200 ml/kg for infusion and then drying. Because Uchqun and Superuchqun bio stimulators have a liquid shape, Gossiprin one is powdery and Verva resinous, first of all, they were weighted, then prepared tincture[1].

As soon as seeds had grown out from earth they were processed within pitchblende fodder prepared using 2-liter plant oil, 2 kg Clorophos chemical preparation, and 40 kg oilcake per hectare against such insects as rootworm, short wire maggot, and calf head, etc. By using this method it was possible to save all seedlings:

- 1.For the 0,5 ga field spent 2,5 kg seed of pumpkin sort of Spanish-73.
- 2.For the 0,5 ga field spent 2,5 kg seed of pumpkin sort Palov Kadu 268.
- 3.For ensuring seeds growing up on time and smooth a soil humidity had been kept on the level 85-90%.
- 4.Using pitchblende fodder for saving seedlings from harmful insects gave positive results.

A field of increasing pumpkins’ seeds. Seeds of the pumpkin were sown on the experimental fields on 10th April of the 2018 year after processing with bio stimulators. The accordance with seed-growing methods, an isolated zone had been created in the size of 1000 meters around the experimental field. All agro technic tasks were carried out strictly of claims of the method of seed-growing[4].

Results of the phenomenological observation of the experiment. A time of growing out of seeds: seeds processed with bio stimulators were sown on 10th April of 2019 by field design and satisfactorily watered. On the day of sowing a grade of air was observed +20 +22 °C and soil grade by +18 +20 °C. As a result, seeds grow out in the next time to vary.

Table-1

Andijan scientific experimental station field

Sort name	Years	Time of sowing	1-v	2-v	3-v	4-v	5-v
Spanish-73	2018	20.04	29.04	28.04	26.04	25.04	27.04
Spanish-73	2019	10.04	16.04	16.04	15.04	14.04	16.04

As it seeing above illustrated variables of the table, day of grows out to have some differences among variances on the Andijan scientific experimental station field. In the first variance, the difference consists of 6 days, in the second variance 6 days, in the third variance 5 days, in the fourth variance 4 days, and in the fifth variance 6 days. But, in the 2018 year in 1 variance 8.8 days, in 2 variances 8 days, in 3 variances 6.2 days, in 4 variances 5.2 days, and in 5 variances 7.4 days.

Table-2

Andijan branch of TSAU field

Sort name	Years	Time sow	1-v	2-v	3-v	4-v	5-v
Spanish-73	2018	20.04	29.04	28.04	26.04	25.04	27.04
Spanish-73	2019	10.04	16.04	16.04	15.04	14.04	16.04

As seen in the table above, grow-out of seed on the field of Andijan branch of TSAU in the 2019 year in all variances had some differences: 1 day in 1 variance, 2 days in 2 variances, 5 days in 3 variances, 4 days in 4 variances, and 6 days in 5 variances. But, in the 2018 year these variances had next differences: 1 variance 8.8 days, 2 variances 8 days, 3 variance 6.2 days, 4 variance 5.2 days, and in 5 variances 7.4 days.

Table-3

“Naynavo oqshomi” farm filed

Sort name	Years	Time of sow	1-v	2-v	3-v	4-v	5-v
Palov Kadu- 268	2018	20.04	29.04	28.04	26.04	25.04	29.04
Palov Kadu -268	2019	10.04	17.04	16.04	16.04	15.04	16.04

Grow-out of seed on the field of “Naynavo oqshomi” farm filed in the 2019 year in all variances had some differences: 7 days in 1 variance, 6 days in 2 variances, 6 days in 3 variances, 5 day in 4 variances, and 6 days in 5 variances. But, in the 2018 year, these variances had the next differences: in 1-variance 9 days, in 2-variance 8 days, in 3 variances 6.4 days, in 4 variances 5.2 days, and in 5 variances 7.8 days.

Thus, during the 2018 and 2019 years was observed that in the 3 and 4 variances seed grow-out time was shortest than in other variances. A seed grows out in the shortest time to have the next positive sides: firstly - a time of plant growing shortening (fruit got ripe quickly), secondly – a level of decay and getting harmful from ground thrust decreased comparing with control variance in the spring season of the year.

Conclusions. So, coming of the above described results of field experiment we may conclude that,

- a technology of using biostimulators for intensifying growth of pumpkin plant may be useful if a time of sown is appropriate that is April month;
- on the day of sowing a grade of air better to observe +20 +22 °C and soil grade by +18 +20 °C;
- before sowing pumpkin seeds should be processed with biostimulators during 3 days;

- pumpkin seedlings on the experimental field necessary watering 6-7 times till the last days of growing;
- experimental field soil should be processed with ammonia with a proportion of 300 kg/he and potassium mineral fertilizer 100 kg/he;
- for sowing of pumpkin seeds preferable using of chart 330x70)x100;
- better to allocate 6600 pumpkin seedlings in each hectare and a depth of sowing of seeds 5-6cm;
- during the period of vegetation, plants should be fed up with a proportion of 300 kg/he with saltpeter ammonia;
- against of an insect, Aphid use a preparation "Mospilan" in the proportion 300 gr/he with 300-liter water after mixed up 2 times;
- against Necroz and Xlores diseases use Entolitur fungicide in proportion 0,5 l/ga 1 time and Ridomil Gold fungicide in proportion 2,5 kg/he after mixing up with 300-liter water;
- processing seedlings within pitchblende fodder prepared by using 2-liter plant oil, 2 kg Chlorophos chemical preparation, and 40 kg oilcake per hectare against such insects as rootworm, short wire maggot, and calf head allows to save all seedlings;
- the accordance with seed-growing methods, an isolated zone have to create in the size of 1000 meters around the experimental field.

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UDK 621.3.082.5-531

**DESIGN OF LOW-PRESSURE MICROHYDROELECTRIC
POWER PLANTS WITH A REACTIVE HYDRO TURBINE AND TEST
RESULTS**

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Аннотация: Ушбу мақола паст босимли сув манбаларида автоном ишлайдиган реактив гидротурбинали микрогидроэлектростанциясини янги конструкциясини ишлаб чиқишга бағишланган. Реактив гидротурбинани лойиҳалаш ва назарий ҳисоблашларнинг натижалари, шунингдек, гидротурбинанинг самарадорлигини соплонинг сув чиқиш радиусига боғлиқлиги графиги келтирилган. Реактив гидротурбинали микрогидроэлектр-останциянинг тажриба намунасини синовдан ўтказиш натижалари таҳлили баён этилган.

Калит сўзлар: реактив гидротурбина, микрогидроэлектростанция, сопл, ишчи ғилдирак.

Аннотация. Статья посвящена разработке новой конструкции автономной реактивной гидротурбинной микрогидроэлектростанции на водных источниках низкого давления. Представлены результаты конструктивного и теоретического расчетов реактивной турбины, а также график зависимости КПД гидротурбины от радиуса выхода воды из сопла. Описан анализ результатов испытаний опытного образца реактивной гидротурбинной микрогидроэлектростанции.

Ключевые слова: реактивная гидротурбина, микрогидроэлектростанция, сопл, рабочие колесо.

Abstract . The article is devoted to the development of a new design of an autonomous reactive hydro-turbine micro-hydroelectric power station on low-pressure water sources. The results of constructive and theoretical calculations of a jet turbine, as well as a graph of the dependence of the efficiency of a hydraulic turbine on the radius of water exit from the nozzle are presented. An analysis of the test results of a prototype of a reactive hydro-turbine micro-hydroelectric power plant is described.

Key words: jet hydro turbine, micro hydroelectric power plant, nozzle, impeller.

Introduction. As in the whole world, in our Republic, the increase in the population and the organization of new production enterprises lead to an increase in the demand for electric energy. In order to meet the needs of industry and the population, special attention is paid to research and development of reliable, safe and environmentally friendly technologies. In this situation, to use the hydroelectric potential of rivers, rivers, and channels in the irrigation systems of the Republic, it is necessary to improve micro-hydroelectric power plants operating in low-pressure water flows or create new generations of them with optimal design and technological solutions.

The solution to these problems, in particular, the development of a new design of a microhydroelectric power station (micro-hydroelectric power station) with a jet turbine capable of operating highly efficiently in low-pressure water streams, analytical modeling of the relationship between its structural dimensions and energy parameters, adaptation of the dimensions of structural parts and their operating modes taking into account water consumption, are considered one of the important tasks of today.

Literature review. The existing designs of a jet turbine (radial-axial, propeller (Pr), rotary vane (PL), two-stage) are characterized by the fact that they work effectively at heads of more than 4 m [1-3].

An analysis of the sources shows that propeller turbines have a significant drawback, which is that with a change in load their efficiency changes sharply, and a zone of high efficiency values is observed only in a narrow range of power variation. This disadvantage significantly reduces the efficiency of propeller turbines when used in systems with energy deficit [4].

At low heads, the efficiency of these turbines decreases sharply, which gives an unsatisfactory result in a low-pressure watercourse.

In the work performed, the main part of micro-hydroelectric power plants operating in low-pressure water flows - hydraulic turbines, consists of parts with a bucket, propeller, blade impeller, and improvement in them is aimed at changing the angle of impact of water on the blades, changing the curvature of the blade surface and determining optimal values of their sizes. [4-12]

As follows from the analysis of literature data and information resources of the Internet, the problem of creating new hydraulic turbines that provide electrical energy with good efficiency in low-pressure water flows has not been solved.

Research methods. At the suggestion of the authors of this work, the solution to this goal is achieved by the fact that in a reactive low-pressure hydraulic turbine containing an impeller with channels for water outflow and a stator with reflectors in order to increase efficiency by improving reactive recoil and simplifying the design, the impeller is made in the form of a cylinder, blades and channels with an outlet nozzle for water outflow, located on the same horizontal plane of the bottom of the working cylinder.

The channels for the outflow of water are concave cone-shaped pipes in cross-section, located perpendicular to the inner radius of the impeller, having an outlet nozzle, which allows perpendicularly directing the water flow out of the nozzle to the tangent plane drawn to the center point of the arc of the concave and vertically mounted circular-cylindrical reflector [13].

The proposed reactive hydraulic turbine is illustrated by figures, where in Fig. 1 shows a horizontal section along A-A of a hydraulic turbine impeller; on the Outlet tubular channels of the reactive hydroturbine 4 are located perpendicular to the radius of the cylinder - the impeller and the flow of water in it has a direction in the opposite direction of rotation of the wheel.

To improve the outflow of water from the impeller through channels 4, radial blades 11 are installed on the bottom of the cylinder, rigidly connected to the shaft 2 through disk 3. The channel for the outflow of water is a rectangular shaped pipe 4 in cross section and the tip of the pipe is made in the form of a concave nozzle 5

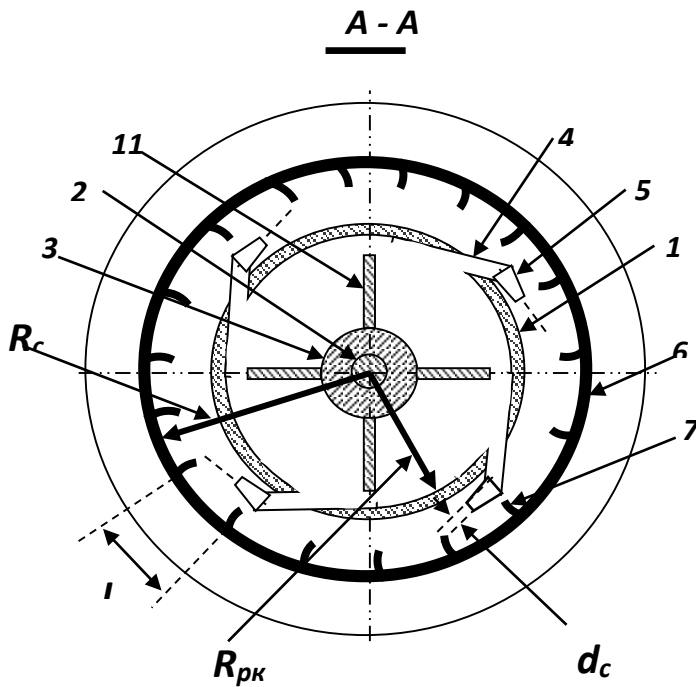


Figure: 1. Horizontal section along A-A of the impeller of a hydraulic turbine

directing the output stream perpendicular to the plane of the reflectors 7.

The number of pipes with the impeller nozzle can be 4 or more (Fig. 2). The stator 6 with internal reflectors 7 is installed on the base 9 expanding as far away from it as possible in the form of a truncated cone along the vertical section, which contributes to the rapid flow of falling water after hitting the reflectors 7 of the stator 6.

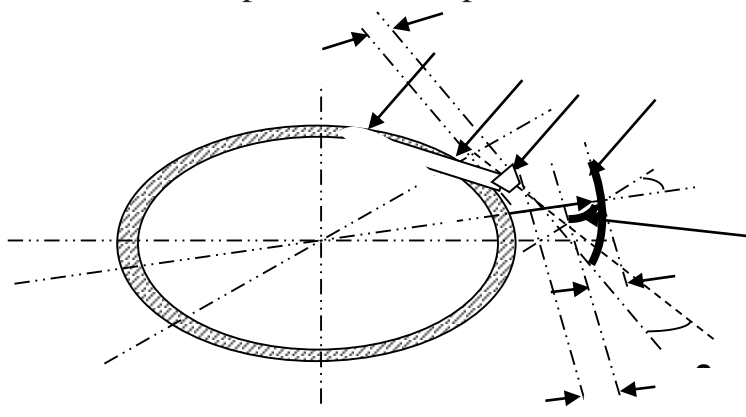
The condition of minimum hydraulic resistance is provided.

In fig. 2 shows a diagram of the mutual arrangement of the outlet channel 4, nozzle 5 and reflectors 7. From the geometric arrangement it follows that the values of the impeller radius R_{pk} , the stator radius R_{st} , the radial height of the nozzle h_{sp} , the radial height of the reflector h_{from} and the radial distance between the points

farthest from the impeller center the spot and the point of the reflector closest to the center b are interconnected by the equation:

$$R_{cm} - R_{pk} = h_{cn} + h_{om} + b \quad (1)$$

To achieve the maximum torque of the reactive force, it is necessary to choose the optimal relationship between the values of the radial height of the reflector h from the radial width of the rectangular nozzle d_c , the step circular distance between adjacent stator reflectors l and the angle between the tangent drawn to the circle of the impeller at the center point of the nozzle and the direction of the flow out of the nozzle β ... At a distance b equal to $0.7 d_c$, the maximum velocity of the outgoing flow from the nozzle is maintained, i.e. the expression takes place:



$$b = 0,7 d_c \quad (2)$$

Under the condition $b > 0.7 d_c$, the water flow rate begins to decrease due to scattering and, therefore, the reactive force decreases; under the condition $b < 0.7 d_c$, hydraulic resistance appears due to the narrow space between the nozzles and reflectors, which also leads to a loss of reactive recoil of the water flow.

To achieve the maximum reactive return of the water flow, it is also necessary to choose the height of the reflector and the distance along the outer perimeter between adjacent stator reflectors l , the values of which also depend on the size (diameter) of the nozzle and are determined by the expressions:

$$h_{om} = 2 d_c \cos \beta \quad (3)$$

$$l = 2d_c \quad (4)$$

For the perpendicular impact of the water flow coming out of the nozzle against the reflectors, it is necessary to choose the value of the angle between the tangent circumference of the impeller and the direction of the flow β leaving the nozzle within $(20 \div 30)^\circ$. Such values of the angle β are determined on the basis of calculating the maximum return of the reactive force and an experiment carried out using an experimental model of a hydraulic turbine.

The flow of water inside the cylinder, moving from the center along the radius of the impeller, acts by active forces on the inner blades and, with further movement, is reflected from the inner wall of the nozzle and is directed to the outlet, giving off a reactive force (Fig. 1).

Analysis and results. To determine the energy and geometrical parameters of the proposed design, it is necessary to analyze the dynamics of the flow in the runner. The solution of the Bernoulli equation, together with the continuity equations, relative to the watercourse velocity and using the general theorem on the change in the angular momentum of the rotational motion for the rotational moment, the reaction force and the impeller speed, the following relationships were obtained between the parameters of the hydraulic turbine [14]:

$$M_z = -N\rho\pi R_c^3 \vartheta_c (\vartheta_c - \omega_z R_c) = -N\rho\pi R_c^3 \vartheta_c^2 (1 - \cos \beta). \quad (5)$$

Figure: 2. Scheme of mutual geometric arrangement of parts: outlet pipe, nozzle and reflectors.

$$\omega_z = \frac{\vartheta_c^2 (R_c^2 - r_c^2)}{R_z^2 R_c \vartheta_3 + R_c^3 \vartheta_c}. \quad (6)$$

The moment of inertia about the axis of rotation of the impeller consists of the algebraic sum of the intrinsic moment of inertia of the metal body and the moment of inertia of water inside the working cylinder.

Table 1 shows the results of theoretical calculations for the considered design of a reactive micro hydroelectric power station.

Table 1.

Dependence of the energy parameters of a reactive micro hydroelectric power station.

H (m)	N	R_c (m)	V_c (m/c)	Q (l/c)	P (Bm)	КПД (%)	M (H^*M)
2	12	0,032	5,116691	197,4241	2584,333	66,71899	637,5475
3	12	0,032	6,411163	247,3704	5083,833	69,83182	1309,735
4	12	0,032	7,485017	288,8043	8090,201	71,38823	2102,995
5	12	0,032	8,423061	324,9981	11528,98	72,32208	2991,556
6	12	0,032	9,266631	357,5466	15351,34	72,94465	3959,706
7	12	0,032	10,03957	387,3699	19522,07	73,38934	4996,723
8	12	0,032	10,75711	415,0557	24014,17	73,72286	6094,751
9	12	0,032	11,42969	441,0069	28806,1	73,98226	7247,757
10	12	0,032	12,06484	465,5136	33880,16	74,18978	8450,941

Analyzing the results of Table 1, it can be seen that in a constant outlet radius and the number of the impeller nozzle with an increase in the water pressure after 5 m, a slow increase is observed

Fig. 3. Dependence of the efficiency of the hydraulic turbine on the outlet radius of the nozzle.

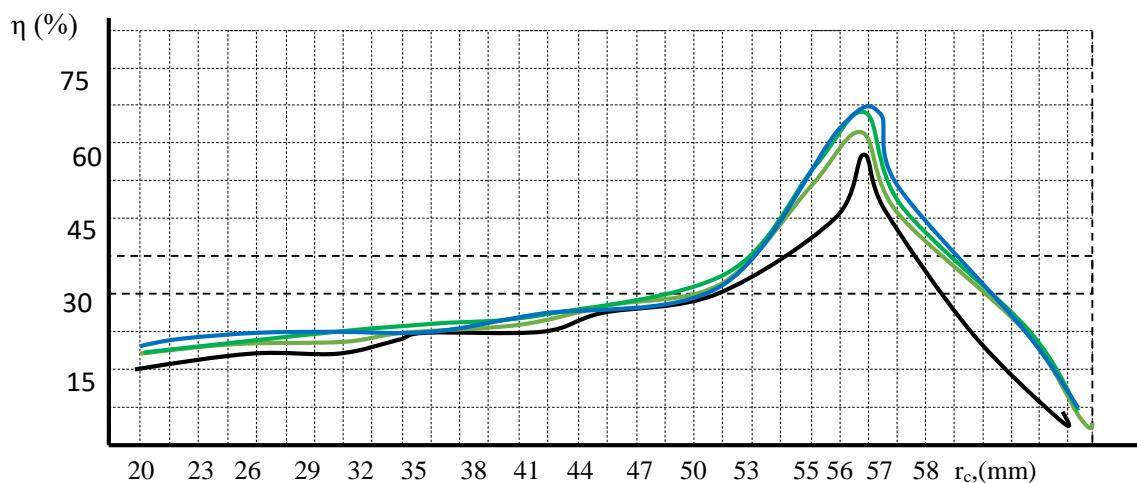


Figure 3 shows the dependence of the efficiency of the hydraulic turbine on the outlet radius of the nozzle. It is known that if, while the dimensions of the turbine remain unchanged, an increase in the head will lead to an increase in the amount of water flow due to an increase in the rate of water exit. The graph shows that the high efficiency of the turbine is observed only at a critical value of the radius of the nozzle outlet. It is advisable to use this type of hydraulic turbine in places where it is possible to increase the water flow rate.

A specific example of a jet hydraulic turbine design has the following dimensions:
 - impeller diameter 600 mm, - the height of the impeller 100 mm – number of drainage

channels 12 pieces, the outer diameter of the stator 700 mm, the number of reflectors on the inner wall of the stator 36 pieces the diameter of a vertically installed shaft 40 mm, shaft height 1300 mm. The water flow through pipes with a diameter of 274 mm is fed to the hydraulic turbine, the shaft of which is equipped with a pulley. The rotation of the shaft at a speed of 180÷200 turnover/minutes is transmitted through the pulley and the connecting belt with an acceleration coefficient of ≈ 5.2 to the shaft of the electric generator. The created "micro-HPP" with a jet hydraulic turbine has the following technical characteristics: - water pressure ≈ 230 mm, - power 4 kW, voltage 220÷230 V, current frequency 50 Hz, dimensions 700×700×1300 mm, - weight ≈ 120 kg (Fig.4). The micro-hydro power plant was tested in a natural environment with a technical capacity of 3924 W, the water pressure of 2 m, and a water flow rate of 200 l/s.

The test results are shown in Table 3. As can be seen from Table 3, the average efficiency of the micro-HPP installation was 57%. If the efficiency of the generator $\eta_g=0.95$, the efficiency of additional installations $\eta_d=0.95$, then calculate the efficiency of the hydro turbine:

$$H_{MHPP} = \eta_g \cdot \eta_t \cdot \eta_d \quad (7)$$

Table 3.

Obtained energy parameters from the micro-HPP test

experiment №	Water consumption (л/с)	Voltage (В)	amperage (А)	Power (кВт)	Efficiency η (%)	Turbine speed n , об/мин
1	195-200	215	10,37	2,23	57	144
2	195-200	210	10	2,10	54	141
3	195-200	225	10,31	2,32	59	145
4	195-200	218	9,85	2,15	54,5	144
5	195-200	220	9,54	2,10	54	145
6	195-200	216	10,18	2,20	56	143
7	195-200	222	9,81	2,18	55,6	146
8	195-200	218	10,6	2,33	59,5	144
9	195-200	224	10,7	2,4	61,2	146
10	195-200	216	10,2	2,2	56	142
	Q_{ср} =200	218,4	10,16	Р_{сред} =2,28	56,2	Н_{сред}=144±1,2

$$\eta_T = \frac{\eta_{МГЭС}}{\eta_{Г} \cdot \eta_{К}} = \frac{0.56}{0.95 \cdot 0.95} 100\% = 62,05\%. \quad (8)$$

The efficiency of the hydro turbine was 62.05%. The difference between the speed of rotation of a hydro turbine and theoretical calculations:

$$\Delta n_s = n_{SH} - n_s = 155,8 - 144 = 11,8 \text{ rpm} \quad (9)$$

The difference in the frequency of the hydro turbine was 11.8 rpm less than the theoretical calculations. The result of the experiment differs from the indicator of theoretical calculations by 7.57 %. The results of the micro-HPP experiment with reactive hydroturbine are shown in Table 3.

In contrast to the analog [13,14], when implementing these features, the proposed design of a reactive hydraulic turbine has the following advantages (Fig.5):

- the impeller is a cylinder and allowed to RUB against the body only on one upper circle, on the lower side of the impeller in the form of a cylinder is mounted on a support, therefore reducing the loss of energy to mechanical friction;
- channel to drain the water from the cylinder of the impeller is rectangular in cross-section shaped tube with the tip of a nozzle, and provided mutual perpendicularity of the radius of curvature of the impeller and a channel to drain the water, as well as mutual perpendicular directions emerging from the nozzle the water flow and the tangential plane passing the center point of an arc mounted vertically concave and circular-cylindrical reflector for maximum efficiency torque reaction force;
- contains an effective shape base that allows vertical drop and rapid runoff of the maximum kinetic and potential energy of water; - high speed of water flow in the discharge channels, while the speed of rotation of the wheel is equal to the speed of water flow in the channel, which means that the maximum reactive return is achieved; - improving the energy and economic performance of the hydro turbine by simplifying the design and reducing material consumption.

Conclusion and Recommendations.

1) The conditions of maximum values of internal active forces by ensuring the impact of water flow on the surface of the nozzle vanes at an angle of 250-300 with non-participating in the rotation of the impeller jet turbine guide blades efficiency of using the torque of the reaction force.



2) It was found that by effective use of centrifugal forces and Coriolis forces in the impeller of a reactive hydro turbine, as well as by reducing internal friction and local resistance by using internal guide blades, it is possible to reduce energy losses in the hydro turbine by 20-40%.

3) It was found that the use of low-frequency asynchronous generators in micro-hydroelectric power plants with a capacity of up to 50 kW excludes the use of additional elements in the form of power loss reducers and multistage pulleys. - developed a new design of micro-hydro, working on reactive principle and defines the relationship of technical and economic parameters of its component parts, jet turbine, and electric generator.

Figure 5. Prototype of a reactive micro-hydroelectric power station <http://khorezmscience.uz>

4) It was found that changing the size of the hydraulic turbine impeller based on the water pressure leads to an increase in efficiency, the efficiency, in this case, varies within 59% -75%; for non-variable turbine sizes, in the critical radius of the water outlet nozzle, the efficiency of the hydraulic turbine changes accordingly to the water pressure within 56% -67%

5) Thus, the proposed design of a reactive hydraulic turbine is operable, easy to implement, and can be used as the basis for creating new high-efficiency vertical hydro turbines for micro and mini hydroelectric power plants, as well as for upgrading existing ones.

The electricity produced in the proposed installation can be actively used far from the electrical networks, in remote villages that have a low-pressure hydro potential.

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UDC 621.311

MICRO HYDROPOWER PLANTS WITH ASYNCHRONOUS GENERATORS ARE AN ECONOMICAL SOURCE OF ELECTRICITY FOR AGRICULTURE

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Аннотация. В данной статье дано информацию которое, мы провели несколько сравнительные расчёты эффективности использования мини и микро ГЭС. В нем рассказано, как увеличить эффективность микро ГЭС используя нетрадиционный метод с асинхронным генератором. А также, как микро ГЭС могут быть полезны к потребителям которые живут далеко от электросети.

Ключевые слова: Микрогидроэлектростанции (ГЭС), эффективность, асинхронный генератор, энергия, дизельные электростанции(ДЭС).

Annotatsiya. Ushbu maqolada biz mikro gidroelektr stantsiyalaridan foydalanish samaradorligi bo'yicha bir necha qiyosiy hisob-kitoblar amalga oshirilgan. Bunda asinxron generator orqali noan'anaviy usuldan foydalangan holda mikro gidroelektr stantsiyalarining samaradorligini qanday oshirishligi keltirilgan. Va shuningdek, mikro gidroelektr stantsiyalari elektr tarmog'idan uzoqda yashaydigan iste'molchilar uchun qanday foydali bo'lishi mumkinliga haqida ma'lumot berilgan.

Kalit so'zlar: Mikro gidroelektr stantsiyalari (GES), samaradorlik, asinxron generator, energiya, dizel elektr stantsiyalari (DES).

Abstract. This article provides information that we have carried out several comparative calculations of the efficiency of using mini and micro hydroelectric power plants. It describes how to increase the efficiency of a micro hydroelectric power station using an unconventional method with an asynchronous generator. And also, how micro hydroelectric power plants can be useful to consumers who live far from the grid.

Key words: Micro-hydroelectric power plants (HPP), efficiency, asynchronous generator, energy, diesel power plants (DPP).

Introduction. Uzbekistan is a country with great opportunities for the use of small and micro hydropower plants (HPP). In this regard, for societies (especially agricultural) located in mountainous and foothill areas, the use and justification of such renewable energy sources is especially relevant[1]. The ecological situation, the continuous growth of geographically separated and remote from the electrical networks of agricultural facilities of small capacity, located near water streams with heads from 1 to 6 m and a capacity of 1 to 100 kW, pose the problem of creating inexpensive and efficient autonomous automated micro hydroelectric power plants in order to satisfaction of household and industrial needs for electrical energy. In this regard, the Resolution of the President of the Republic of Uzbekistan dated July 10, 2020 PQ-4779 "On additional measures to increase the energy efficiency of the economy and reduce dependence on fuel and energy products by attracting available resources" puts emphasis on paying broad attention to this development.

Literature review. Autonomous small hydropower plants use hydropower resources of small watercourses and are built to supply electricity to consumers remote from the power system. For such hydroelectric power plants, their relatively low cost, high reliability and low operating costs are decisive[1]. Small hydropower can be classified as one of the "cleanest" types of electricity production. Such hydroelectric power plants do not pollute atmosphere with harmful emissions, as a rule, they do not create large reservoirs that flood vast areas, most often not the migration routes of spawning commercial fish are blocked[2]. For their erection requires smaller volumes of building materials, not needed expensive lifting equipment. In conditions when natural sources of energy - oil, coal, gas - are depleted, constantly becoming more expensive, the use of cheap, affordable, renewable energy of rivers, especially small ones, allows you to generate cheap electricity. In addition, the construction of small hydropower facilities is characterized by low cost and quickly pays for itself, there are no problems typical for large hydropower (construction of complex and expensive hydraulic structures, flooding, etc.) [3]. One of the ways to increase the efficiency of mini-hydroelectric power plants is the use of asynchronous generators in their composition, which have a number of advantages over synchronous ones. These advantages include low cost, simplicity of design and operation in normal modes, resistance to external accidents, and a significant resource. But asynchronous generators also have a number of disadvantages, in particular the impossibility of voltage regulation and reactive power consumption during start-up of the unit, the negative effect of which on the distribution electric networks significantly increases with an increase in the unit power of the unit [4,7]. In the 90s of the last century, sufficiently reliable and powerful technical means appeared, which made it possible to stabilize the amplitude and frequency of an electric generator set using an asynchronous generator with a short-circuited rotor winding [5]. When using an asynchronous generator at power plants, two modes of their operation are possible: a parallel operation mode, when the asynchronous generator supplies power to the central power system, and an autonomous mode, when the generator operates directly on the load[6]. Due to the research works of Dobrokhoto V.I., Shpilrain E.E. it says that, when operating in parallel

with a centralized power grid, the electric generator set must have means of maintaining the quality of the speed control of the asynchronous generator and must not adversely affect the frequency control process in the power system.

In the researches carried out for mini and micro hydropower plants with asynchronous generators, A.I. Ismailov mainly paid attention to the type of autonomous small and micro HPP, O.E. Konovalova, E.A. Ivanova focused on problems, difficulties and ways of their solution of small hydro, Ponomarenko A.S. evaluated classification and prospects of mini HPP, also Bezrukix P.P. assessed the concept of development and use of the possibilities of small and non-traditional energy in the energy balance of Russia. Strebkov D.S. evaluated problems of the development of renewable energy and Dobrokhoto V.I., Shpilrain E.E. paid attention to unconventional renewable energy sources respectively.

Research methodology. In this article, we explore the efficiency of the construction of small hydroelectric power plants, this is determined by comparing the costs of their creation with the costs of alternative power supply options via long power lines or using diesel power plants[1]. To analyze micro HPP is efficient, we compare two types micro HPP with asynchronous generators and one type of diesel power plant.

In this method, we calculate the service life and the daily production and multiplication of them give the amount of energy for the entire period. After that, the division of the cost of micro HPP and the amount of energy for the entire period give the cost of 1 kWh of generated electricity in it. The assessment of Diesel PP equal to the division of the price of diesel fuel and the use of diesel fuel[8].

Analysis and results.

Option 1. Use of micro HPP-10 The service life of micro HPP-10 with asynchronous generator, subject to operating rules, is not less than 10 years,
 $T = 365 \times 10 = 3650$ days;

The generated power $N = 10$ kW; The daily electricity production of OS when using electricity for 16 hours a day ($f = 16$ hours) and power N is equal to:

$$QC = N \times t = 10 \text{ kW} \times 16 \text{ h} = 160 \text{ kWh.}$$

For the entire period G , the amount of energy Q will be generated.

$$Q = Qc \times T = 160 \text{ kWh} \times 3650 = 584,000 \text{ kWh.}$$

The cost of micro hydroelectric power station - 10 7000 dollars USA, including the price of micro hydropower plants (\$ 6,000) and the cost of materials and work related to the installation of a micro hydroelectric power station (\$ 1000), the cost of 1 kWh of generated electricity C_g will be equal to:

$$C_g = 7000 : 584,000 = 0.012 \text{ dollars / kWh (1.2 cents per 1 kWh).}$$

OPTION 2. Use of micro HPP-50, the service life of micro HPP-50 with asynchronous generator, subject to operating rules, is not less than 10 years,

$$T = 365 \times 10 = 3650 \text{ days;}$$

The generated power $N = 50$ kW; The daily electricity production of OS when using electricity for 16 hours per day ($t = 16$ hours) and power N is equal to:

$$QC = N \times t = 50 \text{ kW} \times 16 \text{ h} = 800 \text{ kWh.}$$

For the entire period G , the amount of energy Q will be generated.

$$Q = Q_c \times T = 800 \text{ kWh} \times 3650 = 2,920,000 \text{ kWh}.$$

The cost of micro HPP-50 35,000 dollars USA, including the price of a micro hydroelectric power station (33,000 dollars) and the cost of materials and work associated with the installation of a micro hydroelectric power station (2000 dollars), the cost of 1 kWh of generated electricity C_g will be:

$$C_g = 35,000 : 2,920,000 = 0.012 \text{ dollars / kWh (1.2 cents per 1 kWh)}.$$

OPTION 3. Use of diesel fuel to generate 1 kWh of electricity, the diesel fuel uses 300 g of diesel fuel (0.0003 t / kWh). With the price of diesel fuel 220 USD per ton the price of this amount of fuel C is equal to:

$$C = 220 \text{ USD per / } 0.0003 \text{ t / kWh} = 0.066 \text{ USD / kWh (6.6 cents per 1 kWh)}$$

The calculation shows only direct fuel costs when using DPP for the generation of 1 kWh of electricity. The cost of the DPP and the work of the service personnel are not included.

Conclusion. We can make the following conclusions out of a drawing compiled on the basis of these calculations and reviews:

The cost of electricity when using micro-hydroelectric power plants is 5.5 times lower than when using diesel fuel ($0.066 : 0.012 = 5.5$).

If we add the cost of the DPP and the work of the service personnel, the cost of electricity will be much higher and it proves economical side of micro HPP.

Despite some disadvantages, micro HPP with asynchronous generators are advantageous in terms of low cost, simplicity of design and operation in normal modes, resistance to external accidents, and a significant resource.

Due to the global problem of climate change, micro HPP is beneficial for environment because it regards as a one of the “cleanest” types of plants.

Based on these facts, in the near future, it is clear that the share of hydropower in electricity generation will increase, increasing the importance of Micro HPPs.

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UDK 621.075.8

ANALYSIS RESURSES OF HYDRO ENERGETICS

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Аннотация. Ушбу ишда узоклашган хуудларни электроэнергия таъминлашда микро- ва минигидроэлектростанциялар имконияти ва ишлаш жараени кўриб чиқилган. Мана муаммони хал этиш чун фойдали бўлган гидроқурилмалар тўғрисида маълумот берилади. Гидрогенераторлар ишлашига таъсир этувчи омиллар ўрганилган.

Калит сўзлар: қайта тикланувчи энергия манбалари, гирляндасимон тури, кичик босимли оқимли, сув сатҳининг фарқи.

Аннотация. Данная работа посвящена использованию и анализу возможностей микро- и минигидроэлектростанций при обеспечении электроэнергией удаленных территорий. Приводится информация о типах гидросооружений такого уровня мощности и их параметры работы. Анализируются факторы, влияющие на работу гидрогенераторов. .

Ключевые слова: возобновляемые источники энергии, гирляндный тип, низко напорный, перепад высот водной поверхности.

Abstract. ABSTRACT. This work is devoted to the use and analysis of the capabilities of micro and mini hydroelectric power plants when providing electricity to remote areas. Provides information on the types of hydraulic structures of this power level and their operating parameters. The factors influencing the operation of hydrogenerators are analyzed.

Key words: renewable energy sources, garland type, low pressure, water surface elevation difference

Introduction. Economic development and the state of society depend on various interrelated factors. The first factor is training and increasing the level of personnel, as well as their constant increase. The second factor is the targeted selection of gifted young people and work to attract highly qualified specialists to work with them. The third factor is the exchange of students and teaching staff between educational institutions. The fourth factor is the study and monitoring of the experience of leading educational institutions in training specialists, as well as the use of the created technological base to enhance the level of training. The fifth factor is the creation of communication networks (computer, wire, information) to provide information and the operation of the monitoring system for the assimilation of educational material.

Analysis of the literature. The territory of Uzbekistan, in terms of the provision of electricity resources, have certain differences. For example, the Tashkent, Navoi and Kashkarya regions have an excess of electricity production over its demand, and the regions within the Eastern energy hub (Andijan, Namangan and Fergana regions), the Samarkand-Bukhara energy hub (Bakhar, Samarkand, Surkhandarya regions) and the north-western energy hub (Khorezm region) have a deficit of 26%, so only 14% is produced on the territory of these regions at a consumption of 40% with a predicted tendency to increase the demand for electricity [8]. It is caused by the development of the industrial sector and a sharp increase in energy consumption by the population.

The attraction of energy reserves of water resources today surpasses all the most intensively used natural sources of energy in terms of scale and growth rates.

Large rivers of Central Asia belong to international watercourses and have, on the one hand, a similar character, and, on the other hand, there are different climatic, economic, economic and political conditions. The first moment makes it possible to develop unified approaches. The second point means that the above differences lead to restraint of external investment in the regions for the development of the hydropower sector.

Analysis of interstate treaties on the use of transboundary water resources shows that out of 145 treaties and agreements, 37% relate to the use of water, 39% are directed to the development of hydropower, 9% - control over the effects of floods, 6% - industrial use of water, 4% - the study of the development of shipping, 4% - the state of pollution, 1% - the intensification of fish farming [1].

Structural changes have taken place in the global energy sector due to the use of renewable energy sources. This state of the level of intensification of the growth rates of energy growth is associated not only with general trends in the development of the electric

power industry, but also with an increase in the level of provision of consumers remote from the centralized energy system [2]. You can see new work on the study of the state and involvement of energy resources obtained from the use of small water sources to provide remote areas with the involvement of small and mini hydroelectric power plants [4].

The use in decentralized power supply systems based on micro hydroelectric power plants requires an increase in efficiency, since most of these power plants operate in conditions of low and shallow water low-pressure water flows. Their advantages include the following sides:

- generation of the required amount of electricity comes from renewable sources, more stable in comparison with solar and wind energy;
- energy losses for transportation are minimal or completely absent;
- the received electricity has a low cost;
- the impact on the state of the atmosphere and the water basin is minimal;
- less time is spent to reach the design capacity compared to generators running on liquid or gas fuel.

Along with them, there are also disadvantages:

- seasonal dependence on the state of the water flow, so in summer the channels of small water sources dry up, and freeze in winter;
- the performance of a micro hydroelectric power station is related to the pressure and flow rate of the water flow.

As a solution to these problems when using micro HPPs, one can consider garland, sleeve, gravitational (water-gate) mini- and micro HPPs [2].

In the case of daisy-chained mini-hydroelectric power plants, at a flow rate of 2.5 m/s, each hydroelectric unit can produce an average of 1.5-2 kW. This type can be used as a basis for generating electricity when providing remote areas. In addition, they can be cascaded.

Hose micro HPPs generate electricity at a flow of at least 50 l/s and at a height difference of more than 5 m, and the water intake is created using a tapered pipeline. The wide top is fed to the fastest part of the flow, and a hydro turbine is attached to the bottom.

Analysis and results. The whirlpool micro-hydroelectric power station generates electricity with a capacity of 9.5 kW with a height difference of the water flow level equal to 1.3 m and a water flow rate of 0.9 m³ / s. The total electricity generation during the year is about 35 MWh. Its disadvantages include the high cost of construction work (creating a concrete tray and others) and limited power (it does not exceed 150kW).

The paper [4,6] analyzes the possibilities of using micro and mini hydroelectric power plants to provide electricity to remote areas with a guaranteed level of water sources.

The accounting of transboundary water flows and, on their basis, the production of electricity using mini- and micro-hydro power plants, as well as the analysis of regulatory documents for the implementation of such joint projects can be seen in [1,2,8,10].

In [10], it is shown that the level of electricity generated using renewable sources tends to grow sharply in 2030–2050. A sharp jump in the received volume of electricity is expected by about 8 times, ie. the total capacity can be expected to increase from 100 MW to 800 MW.

The generated electricity with the help of renewable energy sources can be directed towards reducing the level of compensation for compensatory volumes of electricity received from the central energy system.

Conclusions.

Based on the above, we can draw the following conclusions:

- it is necessary to increase the capacity of mini-micro hydroelectric power plants using the cascade type;
- taking into account the factors influencing the operation of this kind of hydroelectric power plants;
- creating the necessary conditions for training young personnel and increasing their level of professionalism;
- improvement of cooperation in the joint use of transboundary water flows to provide remote areas with electricity.

In conclusion, it can be noted that the massive involvement of the power of mini- and micro-hydroelectric power plants will make it possible to obtain cheap electricity with minimal impact on the state of the atmosphere and water basin. At the same time, lighten the load on the energy system and increase the level of irrigation of crops, as well as reduce dependence on external water supply.

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UDC 631.22.16.

MATHEMATICAL SUBSTANTIATION OF OPTIMAL PARAMETERS OF PRIMARY PROCESSING OF CATTLE MANURE

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Аннотация: В данной статье дано информацию которое, мы провели несколько математических анализов при первоначальной обработке органических отходов, загружаемых в энергетическое устройство биогаза. В нем рассказано о процессе первичной обработки, о благоприятном влиянии биотехнических конструкций на эффективность работы. Также мы видим некоторую ценную информацию, взятую на основе результатов инженерных изысканий для устройства первичной обработки органических отходов.

Ключевые слова: органические отходы, биомасса, шнек, нож, нормы загрузки, теплообмен, качество смешивания, метанобактерии, биогаз, биотехнология.

Аннотация: Мазкур мақолада биогаз энергетик қурилмаларига юкланаётган органик чиқиндиларга дастлабки ишлов бериш жараёнини математик

таҳлилларини ўтказиш орқали олинган маълумотлар келтирилган. Мақолада биогаз энергетик қурилмаларидан эффектив фойдаланиш ва унинг оптимал параметрларини ўз аро боғлиқликлари акс этирилган. Шунингдек, инженерлик тадқиқотлари асосида органик чиқиндиларга дастлабки ишлов бериш қурилмаларини танлашга оид бир қатор қимматли маълумотлар берилган.

Калит сўзлар: органик чиқиндилар, биомасса, шнек, пичоқ, юклаш меъёри, иссиқлик алмашинуви, аралаштириш сифати, метан бактерия, биогаз, биотехнология.

Annotation: We have given several mathematic analysis in initial working out of the waste organic materials that are loaded into energy construction in this article. We have spoken about the process of initial working out, the favorable influence of bio technologic constructions on the effectiveness of the work. Also, we can see some valuable information taken on the basis of the engineering research results for the construction of initial working out.

Key words: organic waste materials, biomass, screw, knife, norms of loading, heat exchange, mixing quality, methane bacteria, biogas, biotechnology.

Introduction. The problems associated with climate change in recent times are subject to the preservation of nature as much as possible. Organic waste, which is excluded from processing into nature, is one of the main causes of the negative changes taking place in Ecology. With the popularity of biological gas extraction devices for the processing of Bunda waste, the demand for them is increasing. Along with this, the development of types of biological gas extraction devices that have improved and further reduce the environmental risk of waste products is taking up to date [1, 2]. In this regard, the Resolution of the President of the Republic of Uzbekistan dated July 10, 2020 PQ-4779 "On additional measures to increase the energy efficiency of the economy and reduce dependence on fuel and energy products by attracting available resources." emphasizes the need to pay broad attention to development.

Literature review. For the last period, the appearance of the new generation of the constructions that work out organic waste materials gave an opportunity to work out the organic waste materials extremely [1]. But the content and shape of biomass that is loaded to them has not been fully studied yet. In the result, one should spend too much energy on anaerobic process in bioreactor and the necessity of research hastening is required [2, 3]. Also, in order to perfect the process of discharge of biogas that has energetic value, the content and features of biomass that is loaded to bio reactors depend on the primary work out in many ways [3]. Due to the research works of V.Dubroskiy it says that, in working out the biomass with anaerobe depends on its deterioration, the speed of mixing loading, humidity and daily loading. And their change influences on the development of methane bacteria badly. In working out the energy constructions that are reclaimed in anaerobic process, we can achieve good qualitative degree of energy and biologic fertilizers taken from them by creating necessary conditions for methane bacteria. And this is included in the work accomplished in the primary process.

In the researches carried out for anaerobe reclamation in energy constructions that reclaim organic wastes, Sh.J.Imomov paid attention to biomass car boat; E.D.Eshonkulov paid attention to evaluating the biomass depth by layering; and M.T.Halilov to pulsing mixture and its speed. But in Hoshimoto's researches on rendering the wastes from pig farms, V.S.Dubrovski emphasized the constructions that get ecologic gas for fermentation of organic wastes to methane. Also, G.I.Gridnev, A.A.Kovolev gave their ideas and suggestions on reclamations before loading the biomass to bioreactors [5]. E.Shodiyev who is carrying out his investigations, says that one can achieve optimal readings when the amount of constructions loading is increased up to 6 times a day [6, 9].

Research methodology. In most of the modern constructions that get biologic gas, the primary grinding is not accomplished wholly and does not take into consideration the speed in the process of primary reclamation. All these prohibit the qualitative accomplishment of the biomass loaded to bioreactors. That is why, the suggested and specially constructed mathematic model must take into consideration the grinding of changing biomass that is loaded to primary reclaiming construction and the speed of biomass in the process of humidity and grinding. In the given mathematic model, the size, the humidity of the wastes and the speed of the mass of organic waste in the process of primary reclamation of the regenerated energy construction and the amount of a daily loading of grinding construction are depicted.

In natural conditions, taking into consideration that the number of loadings in primary reclamation construction of biomass that is between 65-99 % moist of the manure of cattle shed is from 1 to 5 times as the size of manure is from 0.8 cm² up to 2 cm², we consider to carry out 8 experiments so that to decrease mistakes yusing the method of "Method of carrying experiments" by B.Dospexov [7].

Analysis and results. When compiling a mathematic model, the parameters of primary working out process in the construction of reclamation of the following organic waste data are based on the following, x – amount of moist [%], y – speed of liquid mass [m/sec], z – number of daily loading of the construction [day/times], U – grinding [cm³] and a_0 – carried experiments. We have given the following regression equation on carrying out multi parameters experiments:

$$U = a_0 + ax + by + cz \quad (1)$$

In determination of the coefficient of unknowns in the above given equation, we use the method of "the least squares" [5]:

$$\varphi(a_0, a, b, c) = \sum_{k=1}^n (U_k - (a_0 + ax_k + by_k + cz_k))^2 \quad (2)$$

Due to the method of "the least squares", we get private total numbers by a_0, a, b, c parameters in the second equation.

$$\begin{aligned}
 \frac{\partial u}{\partial a_0} &= 2 \sum_{k=1}^n (u_k - (a_0 + ax_k + by_k + cz_k)) \cdot (-1) \\
 \frac{\partial u}{\partial a} &= 2 \sum_{k=1}^n (u_k - (a_0 + ax_k + by_k + cz_k)) \cdot (-x_k) \\
 \frac{\partial u}{\partial b} &= 2 \sum_{k=1}^n (u_k - (a_0 + ax_k + by_k + cz_k)) \cdot (-y_k) \\
 \frac{\partial u}{\partial c} &= 2 \sum_{k=1}^n (u_k - (a_0 + ax_k + by_k + cz_k)) \cdot (-z_k)
 \end{aligned} \tag{3}$$

Due to sum of finding the extrimum of multi changing functions, equations in the 3rd equation of equalizing the taken sum to zero will be the following:

$$\begin{cases}
 \frac{\partial \varphi}{\partial a_0} = 0 \\
 \frac{\partial \varphi}{\partial a} = 0 \\
 \frac{\partial \varphi}{\partial b} = 0 \\
 \frac{\partial \varphi}{\partial c} = 0
 \end{cases} \tag{4}$$

We can compile the following system of equations from the above mentioned 4th equation:

$$\begin{cases}
 na_0 + a \sum_{k=1}^n x_k + b \sum_{k=1}^n y_k + c \sum_{k=1}^n z_k = \sum_{k=1}^n U_k \\
 a_0 \sum_{k=1}^n x_k + a \sum_{k=1}^n x_k^2 + b \sum_{k=1}^n x_k y_k + c \sum_{k=1}^n z_k x_k = \sum_{k=1}^n U_k x_k \\
 a_0 \sum_{k=1}^n y_k + a \sum_{k=1}^n x_k y_k + b \sum_{k=1}^n y_k^2 + c \sum_{k=1}^n z_k y_k = \sum_{k=1}^n U_k y_k \\
 a_0 \sum_{k=1}^n z_k + a \sum_{k=1}^n x_k z_k + b \sum_{k=1}^n y_k z_k + c \sum_{k=1}^n z_k^2 = \sum_{k=1}^n U_k z_k
 \end{cases} \tag{5}$$

Here:

- n – the number of experiments [times];
- x – amount of moist [%];
- y – speed of liquid mass [m/sec];
- z – the number of daily loadings [day/times];
- U –grinding [cm³].

Relatively to the number of carried experiments, correlation connection due to the parameter changes are calculated due to the following Table 1 and here integrity is taken as 1 in a million of cases in order to increase the degree of definiteness:

1 –if we put the data given in the table(5) in to the function given in the equation, it will be as the following:

$$\begin{cases} 8a_0 + 6,76a + 40b + 24c = 11,2 \\ 6,76a_0 + 5,743143a + 34,777143b + 20,931429c = 9,659429 \\ 40a_0 + 34,777143a + 230,857143b + 140,571429c = 62,171429 \\ 24a_0 + 20,931429a + 140,571429b + 85,714386c = 37,714286 \end{cases} \quad (6)$$

So, (6) we can see from the system of equations that we can get normal equation systems with 4 unknowns from it. When doing the system of these equations, we use the method of “Jordan-Gouse” [8]. The result is equal to the numbers that are : **coefficients** are higher than 0 and lower than 1.

We can see from the solution of the equations the following: $a_0=0.320554$, $a=0.247105$, $b=0.011710$, $c=0.270697$ we put them in the system of equations (6) and check the results.

$$\begin{cases} 8.000000 \cdot 0.320554 + 6,760000 \cdot 0.247105 + 40.000000 \cdot 0.011710 + 24.000000 \cdot 0.270697 = 11,199990 \\ 6,760000 \cdot 0.320554 + 5,743143 \cdot 0.247105 + 34,777143 \cdot 0.011710 + 20,931429 \cdot 0.270697 = 9,659420 \\ 40.000000 \cdot 0.320554 + 34,777143 \cdot 0.247105 + 230,857143 \cdot 0.011710 + 140,571429 \cdot 0.270697 = 62,171367 \\ 24.000000 \cdot 0.320554 + 20,931429 \cdot 0.247105 + 140,571429 \cdot 0.011710 + 85,714386 \cdot 0.270697 = 37,714248 \end{cases}$$

So, the difference between them shows the mistake in doing the system of equations:

$$\begin{cases} 11,200000 - 11,199990 = 0,000010 \\ 9,659429 - 9,659420 = 0,000009 \\ 62,171429 - 62,171367 = 0,000062 \\ 37,714286 - 37,714248 = 0,000038 \end{cases}$$

We make a mathematic model of the primary working process of the energy construction of reclamation of organic waste by putting the results into the 1st equation.

$$U = 0,320554 + 0,247105 \cdot 6,76 + 0,011710 \cdot 40 + 0,270697 \cdot 24 = 8,956112$$

Table of correlation connection between the parameters of primary working out process of the organic waste in the energy construction of reclamation of organic waste

Table 1

U	x	Y	Z	x ²	y ²
0,8000	0,7500	2,0000	1,0000	0,5625	4,0000
0,9714	0,7771	2,8571	1,5714	0,6039	8,1632
1,1428	0,8043	3,7142	2,1429	0,6469	13,7959
1,3143	0,8314	4,5714	2,7143	0,6912	20,8979

1,4857	0,8585	5,4286	3,2857	0,7371	29,4694
1,6571	0,8857	6,2857	3,8571	0,7844	39,5102
1,8285	0,9129	7,1429	4,4285	0,8333	51,0204
2,0000	0,9400	8,0000	5,0000	0,8836	64,0000
11,2000	6,7600	40,0000	24,0000	5,7431	230,8571

z^2	xy	xz	yz	xU	yU	zU
1,0000	1,5000	0,7500	2,0000	0,6000	1,6000	0,8000
2,4693	2,2204	1,2212	4,4897	0,7549	2,7755	1,5265
4,5918	2,9873	1,7234	7,9591	0,9191	4,2449	2,4489
7,3673	3,8008	2,2567	12,4081	1,0927	6,0081	3,5673
10,7959	4,6608	2,8210	17,8367	1,2755	8,0653	4,8816
14,8775	5,5673	3,4163	24,2448	1,4677	10,4163	6,3918
19,6122	6,5204	4,0426	31,6326	1,6692	13,0612	8,0979
25,0000	7,5200	4,7000	40,0000	1,8800	16,0000	10,0000
85,7143	34,7771	20,9314	140,5714	9,6594	62,1714	37,7142

In checking the essence of a mathematic model, we use Fisher's statistics due to the parameters of primary working out process in the energy construction of reclamation of organic waste [8]. For that, we put the identified coefficients into the 1st equation(7) and make a equation. For each of the carried experiments we calculate U_t and the resulted are inserted in Table 2.

$$U_t = 0.320554 + 0.247105x + 0.011710y + 0.270697z \quad (7)$$

Table of correlation connection for checking the essence of a mathematic model

Table 2

№	U	x	y	Z	U_t	$U-U_t$	$(U-U_t)^2$	$(U-\bar{U})^2$
1	0,8000	0,7500	2,0000	1,0000	0,8000	0,0000	0,0000	0,3600
2	0,9714	0,7771	2,8571	1,5714	0,9714	0,0001	0,0000	0,1836
3	1,1428	0,8042	3,7142	2,1428	1,1428	0,0001	0,0000	0,0661
4	1,3142	0,8314	4,5714	2,7142	1,3142	0,0001	0,0000	0,0073
5	1,4857	0,8585	5,4285	3,2857	1,4857	0,0001	0,0000	0,0073
6	1,6571	0,8857	6,2857	3,8571	1,6571	0,0002	0,0000	0,0661
7	1,8285	0,9128	7,1428	4,4285	1,8285	0,0002	0,0000	0,1836
8	2,0000	0,9400	8,0000	5,0000	1,9999	0,0002	0,0000	0,3599
	11,2000	6,7600	40,000	24,0000	11,1999	0,0010	10^{-12}	1,2342

Comment: \bar{U} – average value of the degree of grinding.

The average value of total growing dynamics of 8 experiments is equal to, 1.4 mm^3 .

$$\bar{U} = \frac{U}{n} = \frac{11.2}{8} = 1.4 \text{ mm}^3$$

We calculate it by putting the necessary data in Table 2 into Fisher's equation (8):

$$F = \frac{(U_t - \bar{U})^2}{(U - U_t)^2} \cdot \frac{k_2}{k_1} \quad (8)$$

Here:

U – Degree of grinding [mm^3]

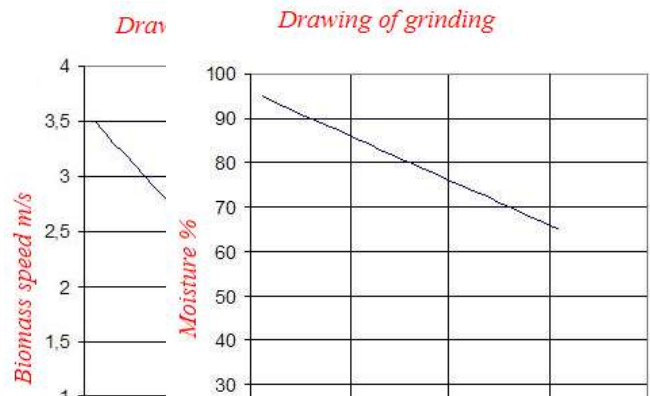
\bar{U} – Average value of the degree of grinding $11.2/8=1.4$ [mm^3]

U_t – Generalization of the results of all experiments [mm^3]

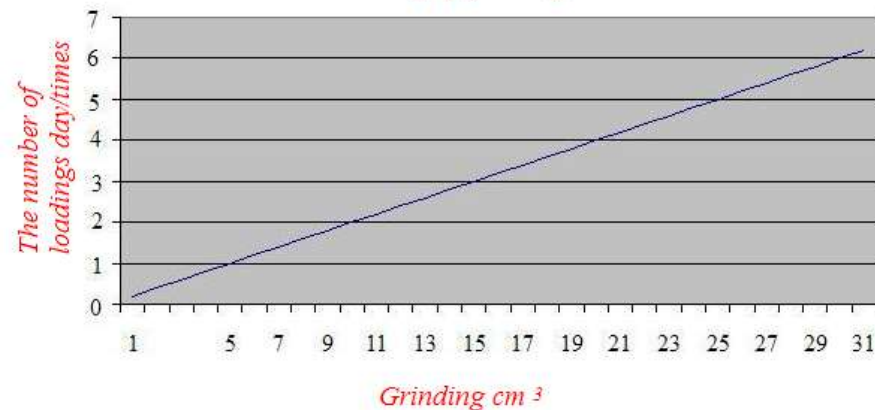
k_1 – The number of parameters that influence on the process [3]

k_2 – Value of average results of experiments $k_2=n-k_1-1=8-3-1=4$

$$F = \frac{1.234281}{10^{-12}} \cdot \frac{4}{3} \geq 3$$



Drawing of grinding



Conclusion. We can make the following conclusions out of a drawing compiled on the basis of a mathematic model:

1. If biomass moist raises to 1 % , the degree of grinding increases to 0.247105 cm^3 .
2. If the speed of biomass rises to 1 meters/ second, the degree of grinding also increases up to 0.011710 cm^3 .
3. If the number of daily loadings is decreased to 1, the degree of grinding rises to 0.270697 cm^3 .
4. The number of daily loadings influences relatively 9% more on the moist of biomass.
5. So, the number of daily loadings due to the biomass speed influences on the degree of grinding 23 to times.

6. Also, the raise of the amount of biomass moist (relatively to biomass speed) influences on the degree of grinding to 21 times.

7. Due to checking the essence of a mathematic model by Fisher's statistics, its value is $F > 3$ i.e. here we make a rather big value than the number of parameters. It reflexes the processes in a mathematic model correctly.

By creating necessary conditions for metan bacteria in working out of the energy construction of the reclamation of organic waste, i.e. the shape, content and feature changes of biomass loaded into bioreactor by primary working out of biomass economizes the energy and time spent for bioreactor process perceptibly. It also decreases the number of unsuccessful working process of bioreactors and gives an opportunity to control the biomass content.

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UDC : 39(575.12)**REFLECTIONS ON THE STUDY OF THE HISTORY OF ANCIENT FERGANA**

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Аннотация. Ушбу мақолада, Фарғона водийси ҳудудида мавжуд бўлган Қадимги Фарғона давлати, унинг номланиши муаммоси ва давлатдаги ижтимоий сиёсий жараёнлар хусусида фикр юртилган. Мазкур масалани ўрганишда хитой ва араб манбааларининг аҳамиятига, шунингдек, Қадимги Фарғона давлатчилиги тадқиқига доир қимматли маълумотлар ва муҳим муаммолар кўрсатиб ўтилган.

Аннотация. В статье рассматривается древнее государство Фергана в Ферганской долине, проблема ее наименования и социально-политические процессы в стране. Изучение этого вопроса дает ценную информацию и важные вопросы о важности китайских и арабских источников, а также из древней Ферганской государственности.

Abstract. Annotation. This article discusses the ancient state of Fergana in the Fergana Valley, the problem of its naming and socio-political processes in the country. The study of this issue provides valuable information and important issues on the importance of Chinese and Arab sources, as well as the study of ancient Fergana statehood.

Калит сўзлар. Даван, водий, давлат, ёзма манба, хитой, солнома, элчи, туркий халқ, император.

Ключевые слова. Ключевые слова. Давань, долина, государство, письменный источник, китайский, летопись, посол, турецкий народ, император.

Key words. Keywords. Davan, valley, state, written source, Chinese, chronicle, ambassador, Turkish people, emperor.

Introduction. We are proud of the fact that our country has achieved great successes and achievements over the years of independent development, and our country has taken a worthy place in the world community.

Indeed, Uzbekistan differs from other countries in the region with its rich history, national values and traditions, as well as its multi-ethnic people. And our history is, of course, connected with the basis of statehood. The political, socio-economic and cultural processes that took place in the countries that existed on this land in ancient times testify

to the fact that our ancestors, in the course of socio-historical development, created their own state structures and improved their methods of governance.

The state known as ancient Fergana or Davan is one of the oldest states in the territory of our Motherland. First of all, it is necessary to assess the geographical location of Davan, which is called by different names in the history series. The region, which attracts the attention of many with its natural geographical location, favorable nature, natural resources, is originally a pearl of Central Asia. As the most ancient cultural center, it is located here in BC. Agriculture developed as early as the second millennium. There is information that our ancestors lived in this historical and ethnographic region since the Stone Age.

Literature review. The ancient and early medieval history of the Fergana Valley can be found in most written sources, more specifically in Chinese sources, is in the history of the dynasties that ruled China and in the works written by palace historians. There is little information about the history of Fergana in Arabic and Persian sources. Fergana, which was excluded from the Achaemenid and Greek invasions in the VI-IV centuries BC and was not part of the Seleucid state, was a very prosperous and peaceful state. Local sources are also important in studying the ethnic composition of the population of the Fergana Valley and the location of different ethnic groups. In particular, Mirza Alim Mushrif's "Ansab as-salotin and tawarikh al-havaqin" [1, Isakhan Ibrat's "History of Fergana" [2], Mulla Olim Makhzum Haji's "History of Turkestan" [3] are of great importance in studying this issue. Considering that they are Chinese sources that provide valuable information about the ancient state of Fergana, historians and researchers use this term. and these resources can be divided into several groups:

- Sources reflecting the history of the five great dynasties of China;
- Historical works of VII - XII centuries;
- These are the travelogues of Chinese tourists in Fergana.

A number of sources describing the history of Chinese dynasties have been studied and translated into Turkish, French, English and Russian. However, these translations partially study the history of the Fergana Valley. Chapter 123 of the 130-chapter book by Shi historian Sima Qian (Historical Memoirs) provides preliminary information about Fergana, its ancient people, and their way of life.

If this belongs to the category of information provided by historians, then more information about the state of Fergana will be collected by ambassadors. According to the ambassadors, the name Davan was often used.

Chinese ambassador Zhang Qian (Chyan) in written sources called the state in the Fergana Valley Davan (Day-yuan). Thus, in the III-I BC and the beginning of the AD era, there was the first state in the Fergana Valley, called "Davan", mentioned in Chinese sources [5]. However, in 436 of the 5th century, ambassadors sent by the Chinese emperor Wei Dun Wang referred to the valley as "Polona" (Lona). In Chinese sources of the 6th-7th centuries, Fergana is referred to as "Bokhan", and in the 7th-8th centuries as "Ninyuan". A well-founded opinion in this regard led to the conclusion that the French scientist M. Degin proved that "Davan" is connected with the Fergana state.

According to the orientalist A. Khodjaev, the phrase Davan is formed from a combination of two hieroglyphs, ie "da" ("day", "dat") and "yuan" ("wool", "yuy"). In this case, the hieroglyph "da" in Chinese - great, large, and "yuan" - corresponds to the meaning of the surrounding valley. Based on this, we can equate it with the toponym Fergana [6].

Research methodology. The article uses important research methods of historical science, in particular, comparative analysis of Chinese and Arabic sources, historical retrospective method, chronological analysis methods.

Analysis and Results. However, it should be noted that the ancient and modern Chinese sources do not mention the name of the Fergana Valley, mainly the name "Davan". Why is the name of a large country changed in Chinese sources?

In our opinion, the first reason is that China considered itself great and tried to name in Chinese the countries that have close and generally established diplomatic relations in the image of this greatness. In short, the Chinese rulers put themselves above other heads of state. Indeed, China and its rulers may have thus compelled China to recognize itself as powerful;

the second reason may have come from the name of the ambassador sent by the Chinese ruler to Fergana;

the third reason is that the ambassador of the Chinese ambassador, Zhang Qian (in Russian, Jyang Qian), who had been sent to the state of the Ruzies (Da-Yuechji "Great Ruzie"), fled to the state of Fergana (from the invading Huns on the way). It is possible that he praised the ruler of Fergana and began to call the state "Great Fergana", "Great Fergana" [7] (Day-Yuan in Chinese / Davan in transcription).

From the beginning of the 2nd century BC, the emperors of the Han dynasty of China were interested in neighboring countries and the peoples living there and sent ambassadors. The ambassadors tried to gather more information about the information that was important to China, namely its location, military capabilities, economy, conflicts, and the lives of its people. This movement was especially intensified during the reign of the first khan emperor U-di (Vu-di), who lived in 141-87 BC. Initially, it occupied the lands on the western sides of the empire. Then the attention to the news about the Fergana state increases.

Valuable information for the emperor was brought to the palace in late 128th century BC by Zhang Chiang. The Chinese emperor is based on the philosophy that he is the son of God, the representative of God on earth, and that the rulers of all the countries under heaven are the rulers in his obedience. And, of course, court historians and ambassadors did not deviate from this rule. According to legend, the greatest dream of the emperor, who considered himself the ruler of Heaven, was to ascend to heaven in the heavenly vultures. He heard from his ambassadors that large, thoroughbred, racehorses were plentiful in the Fergana region. This dream led the Chinese emperor to get closer to the Fergana state.

It is known that Chinese written sources give several different names of Ancient Fergana in different periods, such as Dayuan, Dayuan, Davan, Polona (Lona), Boxhan,

Ninyuan. In particular, Zhang Chian writes about the Fergana Valley, ie Davan: "Davans live a sedentary life, are engaged in agriculture, grow rice and wheat. They have grape juice ... Rich people. They store up to 10,000 wines. There are 70 large and small cities in Davan ... The population is several hundred thousand "[8].

Sources from these dynasties state that the Davans kept "celestial vultures" and kept them in the city of Ershi, and that the Davans did not want to hide such horses and give them to the Chinese ambassador. This is evidenced, of course, by the memoirs written by the Chinese ambassador to the country, Zhang Chiang. It was also noted that 300,000 people lived in Fergana during this period. It has more than 70 cities and towns, where trade and handicrafts are highly developed. There is no doubt that the Fergana Valley, as an independent region with a cultural, sedentary life of our ancestors, with its own statehood, can be compared with such ancient states as Greco-Bactria and Ganga. Chinese sources report that in the 7th century there were "6 large and about 100 cities" in the valley.

The Arab historian Ibn Hawqal's book, Kitab surat al-arz (The Picture of the Earth), based on travel materials collected from traders and Hurdadbeh's works, provides invaluable information about the cities and people of Movarounnahr. In particular, about the state of Fergana, "it starts in the eastern part of the region before you turn left. According to him, Fergana is the eastern gate of Turkestan.

It (Fergana) was very prosperous, there were 40 mosques. Its capital is Akhsikat, among its cities Miyonrudiyya (Miyon Rudon), Nasrabad, Manora, Ranjad, Shikit, Zarokon, Khairalam, Bishabishon, Uzkand are of great importance. Among the cities of the Naso region were Osh, Qubo, Birink, Marginon, Rishtan, Vonkat, Kand, Uval, Dakarkard, Navqad, Muskan, Biykon, Ishtijon, Jidgil and Shovadon. In the works of the Arab geographers Istakhri and Muqaddas, it is recognized that there are a total of 40 mosques in the Fergana Valley.

Archaeologist B. According to Matboboev's archeological materials, "an average of more than 3,000 people lived in 22 cities. The Fergana state has managed to maintain its relative independence for some time in the process of socio-political changes in Central Asia. The ruler relied on the Council of Elders, its advice and guidance, in resolving any internal and external issues concerning the life of the country. The Supreme Council of Elders had special powers, especially in matters of war and peace, embassy relations. The ruler was compelled to admit it. Another important aspect of socio-political life is the status of women in society. According to Chinese sources, the majority of the population of the Fergana Valley is Turkic-speaking.

They also contain valuable information about the lifestyle, customs, ethnic history, ethnography, anthropological structure, language, religion, basic occupations and other activities of the Turkic population of the Fergana Valley. The language and dialect were half Torah, half Turkish, half local. In this country, men shave their beards and women grow their hair. Such anthropological data also prove that the population of Fergana in the early Middle Ages was Turkic.

As much as the Davan state is controversial in its name, controversy continues over its major cities, especially its capital. Historians, Chinese scholars, orientalist have different opinions and views. Many researchers consider the capital of the country Ershi (now located in the Marhamat district of Andijan region) as one of the most prosperous, beautiful and densely populated cities of its time. A. Khodjaev, a Chinese scholar, expressed the opposite opinion, saying that the view that the city of Ershi is the capital of Ancient Fergana (Davan) is completely unfounded. However, Ancient Uzgen, Kasan, Kuva, Kokand are also among the most popular cities of Ancient Fergana (Davan).

There are more than a dozen large agricultural settlements in the Davan area, where the local peasant population is engaged in the cultivation of rice, wheat and other crops. According to archeological data, silkworm breeding has been established in Davan since ancient times, and bode (cotton) has also been grown. For example, historical chronicles state that the Davan rulers sent the body to the Chinese emperor Shi-Liu. Among the centers of economic activity and agricultural development are the settlements close to water. Ethnographers say that such agricultural areas as Aravonsay, Akbora, Sultanabad, Kurgantepa, Andijansay, Moylisay, Ulugnor, Yilginsay, Shahrikhonsay can be included in this list [11]. It should be noted that the localization of Davan cities is one of the most problematic aspects of this issue.

Conclusion and Recommendations. In short, during the years of independence, an attempt has been made to study the history of the homeland, including the history of statehood, objectively and controversially on the basis of various sources.

First, the role and importance of migration processes in the formation of the population of the Fergana Valley, the specificity of its ethnic composition. The Great Silk Road, which began its work in the III-II millennia BC, played an important role in the life of the peoples of the East and the West, and the branches of this trade route laid an important foundation for interethnic relations.

Secondly, the fact that most of the sources are cited in Chinese written sources and that we have translated them into originals and adopted them for scientific use is due to the name of the Great Fergana.

Third, it would be expedient to periodically study the localization of its major cities, the capital.

Fourth, the study of political relations of the state, trade and economic, free monetary relations, ethnic composition of the population, ethnocultural processes, economic culture of the population, fortifications on the four sides of the ancient Fergana state, their architecture are also hot topics.

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UDC 29

THE SOVIET GOVERNMENT'S ATTITUDE TO MUSLIM RELIGION AND RELIGIOUS PEOPLE IN 1940-1980

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Аннотация. Ушбу мақолада совет ҳокимиятининг ислом дини ва диндорларига, диний маросимлар ҳамда урф-одатларга, Ўрта Осиё ва Қозоғистон мусулмонлари диний бошқармасининг Шарқ мамлакатлари мусулмонлари билан бўлган алоқлари Ўзбекистон Республикаси Марказий Давлат архиви маълумотлари ва бирламчи манбалар асосида ёритилган.

Калит сўзлар. Ислom дини, диндор, ҳаж, масжид, ибодат, имом, ҳатиб, рамазон ва қурбон ҳайити, қадамжo.**Аннотация.** В статье описываются отношения советской власти к исламу и его последователям, религиозные обряды и традиции, Духовное управление мусульман Средней Азии и Казахстана с мусульманами Востока на основе данных Центрального государственного архива Республики Узбекистан и первоисточников.

Ключевые слова. Ислам, верующий, паломничество, мечеть, молитва, имам, проповедник, Рамадан и Ид аль-Адха, Кадамджo.

Annotation. This article describes the relations of the Soviet government with Muslims and religious people, religious ceremonies and traditions, the Spiritual

Administration of Muslims of Central Asia and Kazakhstan with Muslims of the East, based on data from the Central State Archive of the Republic of Uzbekistan and primary sources.

Key words. Islam, believer, pilgrimage, mosque, worship, imam, preacher, Ramadan and Eid al-Adha, qadamjo.

Introduction. In the current situation, the data of the Central State Archive of the Republic of Uzbekistan play an important role in the study of history falsified by the policies of the former Soviet government and the communist ideology, the restoration of historical truth.

Understanding the essence of this policy, the analysis of its consequences, how it was treated in the years of Soviet rule, especially in the 1940s and 1980s, is one of the current issues.

In 1943, the Soviet government granted a certain degree of freedom to religion, including the Islamic religion, with the aim of facilitating, albeit partially, the overcoming of the material and spiritual difficulties in the life of the peoples of the Second World War, the mobilization of Islamic religious organizations, scribes for the faster narrowing of fascism.

This topic is covered to a certain extent in the works of various authors on the basis of the following archival documents and scientific analysis. They are N. Ashirov's book, *Evolution of Islam in the USSR*, traces the history of Muslim religious organizations in Central Asia and Kazakhstan, the Soviet government's attitude toward them, the establishment of a religious administration in the country, and the limited permission of the Soviet government to open mosques. In E Sharipov's and E. Bozorov's book *The Truth About Sacred Places*, the country's holy places and shrines were given to Muslim religious organizations, such as mosques, with the permission of the Soviet government. , returned the tombs of religious figures, including Hazrati Bahovuddin, Shahizinda, Hakim Termizi, Sultanbobo, Shohimordon, Kaffol Shoshi, Polvon ota and others. It provides information that Muslim visits to tombs have brought significant benefits to religious organizations. The authors U. Ahmadjanov and N. Yuldashev's book "Worship of saints and their graves in Islam" provides valuable information about the representatives of the Muslim Religious Board of Central Asia and Kazakhstan in 1987.

Literature review. This topic is covered to a certain extent in the works of various authors on the basis of the following archival documents and scientific analysis. They are N. Ashirov's book, *Evolution of Islam in the USSR*, traces the history of Muslim religious organizations in Central Asia and Kazakhstan, the Soviet government's attitude toward them, the establishment of a religious administration in the country, and the limited permission of the Soviet government to open mosques. In E Sharipov's and E. Bozorov's book *The Truth About Sacred Places*, the country's holy places and shrines were given to Muslim religious organizations, such as mosques, with the permission of the Soviet government. , returned the tombs of religious figures, including Hazrati Bahovuddin, Shahizinda, Hakim Termizi, Sultanbobo, Shohimordon, Kaffol Shoshi, Polvon ota and others. It provides information that Muslim visits to tombs have brought significant

benefits to religious organizations. The authors U. Ahmadjanov and N. Yuldashev's book "Worship of saints and their graves in Islam" provides valuable information about the representatives of the Muslim Religious Board of Central Asia and Kazakhstan in 1987.

Research methodology. Based on the analysis of historical works, archival documents, press materials, published documents and collections of materials, the article "Issues of the Soviet government's attitude to the Muslim religion and believers in 1940-1980" is mainly covered using primary sources.

Analysis and Results. This article is of scientific importance in the teaching and application of the Islamic Academy and the Islamic Magadi, as well as students of the Faculty of History of the existing pedagogical universities in the Republic, as well as the social sciences and humanities. With the permission of the Soviet government, the Central Asian and Kazakh Muslim Religious Board was established in Tashkent in 1943, with Eshan Babakhan ibn Abdulmajidhon as its chairman and mufti. [1.58] Archival documents show that the opening of mosques was also limited to the permission of the Soviet government.

The first mosques in Uzbekistan were opened in 1944 with the permission of the USSR government. The following facts prove that the opening of mosques is limited. In the fourth quarter of 1944 and the first quarter of 1945, the representative of the Council for Religious Affairs in Uzbekistan received applications from Muslims in Central Asia and Kazakhstan to open 214 mosques. Of these, 15 applications were answered positively, the rest were rejected. The rights of open mosques were also severely restricted. The instructions of the Council for Religious Affairs under the USSR government on the opening of mosques set out the tasks of the republican organizations in this area. An analysis of the guidelines shows that the requirements for opening a mosque are deliberately complicated and aimed at preventing the opening as much as possible.

From 1943 to 1958, when mosques were allowed to be opened, 78 mosques were opened in the republic. As was the case, the party and Soviet authorities began a fierce struggle against Islam, including mosques, from the 1960 onwards. According to a 1962 spokesman for religious affairs, more than a dozen mosques previously opened with the permission of the Soviet government were closed, according to archival documents, on the grounds that they violated Soviet laws on religious ceremonies, expanded and renovated prayer rooms, and overcrowded mosques.

In 1960-1961, half of the staff of the republic's mosques was reduced. The Soviet government imposed large income taxes on mosque staff and clerics of religious organizations. The purpose was to dismiss them, to force them to resign. Archival documents state that the Soviet authorities, in particular, fought hard against unofficial mosques and took measures to close them.

Religious ceremonies and rituals were restricted by the Soviet government, and artificial barriers were placed on the ceremonies.

Under pressure from the Soviet authorities, the Religious Board instructed mosque leaders to explain to worshipers not to make sacrifices and not to organize Eid prayers outside mosques.

Soviet and party authorities took arrangements to reduce the number of religious organizations attending Eid prayers in the republic's mosques and the amount of money collected during Ramadan and Eid al-Adha. The aim was to weaken the material base of religious organizations, reduce the prestige of Islam and its influence on the people.

Shrines and place of pilgrimage were given to Muslim religious organizations, such as mosques, with the permission of the Soviet government. In 1945, at the request of the Muslim Religious Board of Central Asia and Kazakhstan and the Muslim clergy, the Soviet government returned the tombs of religious figures, including Hazrati Bahovuddin, Shahizinda, Hakim Termizi, Sultanbobo, Shohimardon, Kaffol Shoshi, Polvon ota and others. As a result of Muslims visiting these tombs, religious organizations received a large amount of income. In addition to these famous place of pilgrimage, in May 1960 there were about 300 small shrines.

In order to deprive religious organizations of the income from visiting the holy places, the monuments were abolished in 1958 by the decision of the Central Committee of the Communist Party "On arrangements to end the pilgrimage to the holy places" [2.62]. The Soviet government reassigned these monuments to the state, taking into account the fact that these monuments brought great benefits to religious organizations and raised their prestige among the people. Informal shrines were not allowed by the authorities, but some unofficial shrines were secretly visited by residents.

By a special decree of the Council of People's Commissars of the USSR in 1945, Mir-Arab and Barakkhan madrassahs were opened in the Republic of Uzbekistan [3,3]. These madrassas were renovated by the religious administration. They were selected as leaders, teachers, and students. Students from Central Asia and Kazakhstan studied at these madrassahs. Graduates of madrassahs served in a religious supervision system. Some of them were sent to study at foreign Muslim religious universities.

The Baroque Madrasah was abolished in 1961, when the activities of the religious administration and its organizations, including madrassahs, began to be severely restricted by the party and Soviet authorities from 1960 [4.56]. At the same time, the number of students in the madrassa and the religious subjects taught have been sharply reduced. These facts indicate that the Soviet government was opposed to the strengthening and expansion of mosques.

The Soviet government was interested in expanding the ties of the Muslim Religious Board of Central Asia and Kazakhstan with the Muslims of the East. Because religious ties served to strengthen interstate ties. To this end, the Soviet government allowed religious control in 1971 to open a higher religious school in Tashkent to train clergy with higher education [6.18]. The main purpose of this school was to train religious personnel who were fluent in Arabic and English, had a deep understanding of theology, and were able to interact with foreign representatives in order to expand ties with Muslims

in Arab countries. The establishment of the Higher Religious School served to expand and strengthen the ties of religious control with foreign countries.

The international relations of the Muslim Religious Board of Central Asia and Kazakhstan with the countries of the East were in two stages. The first phase covers the years 1943-1960. During this period, relations with foreign countries were mainly as a result of pilgrimages, as a result of which a delegation of the clergy visited Saudi Arabia via Iraq, Lebanon, Egypt, and communicated with the Muslims of these countries [7.18].

The second phase of international links of religious control covers the period from 1960 to independence. During this period, the Department of International Relations was established under the Religious Board, many delegations headed by the Religious Department were organized abroad, and delegations of Muslim countries from Eastern Muslim countries to the USSR, including Central Asia, arrived. At the suggestion of religious control, 5-10 delegations of foreign Muslims, Islamic religious figures came to Central Asia, including Uzbekistan, to visit historical Islamic monuments, shrines and get acquainted with the life of Soviet Muslims [8.170-171].

Visits of Muslim delegations of religious links abroad have intensified since 1961. [9.43-44]. In 1987, representatives of the Muslim Religious Board of Central Asia and Kazakhstan visited 14 countries. [10.87-88] This is evidenced by the expansion of the religious administration's relations with foreign Muslims. The main reason for this was the strengthening of interstate relations of the Soviet government with the Arab countries and therefore the support of religious control over the Muslims of the eastern countries.

Conclusion and Recommendations. In general, the Soviet government pursued a policy against religious organizations and clerics in the 1940s and 1980s. Mosques are restricted, and visits to places of pilgrimage are prohibited. Government opposed the holding of Ramadan and Eid al-Adha, and tried to increase the income of Muslim religious organizations and weaken the influence of Islam among the people. This policy has negatively affected the morale of the Uzbek people. During mosques and Eid prayers, the imam and the Khatib of the mosque tell the audience more about universal, national values, honesty, purity, not betraying anyone, respecting parents, elders, doing good to others, helping the poor, orphans, kindness and preaching about being merciful. The Soviet ideology restricted the religion of Islam, limited the activities of the scholars in cultivating the spirituality of the people, and in educating the youth in morality.

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UDC-327.11

SECURITY AS A GUARANTEE OF SUSTAINABLE DEVELOPMENT

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Аннотация. Мазкур мақолада барқарор тараққиёт гарови бўлган тинчлик, осудалик, умумий қилиб айтганда хавфсизлик тушунчаси, унинг турлари, шакллари, хавфсизликнинг объектлари, хавфсизликнинг мамлакат ривожига учун аҳамияти, Ўзбекистон Республикасининг миллий хавфсизлик концепцияси, Ўзбекистоннинг хавфсизлигига таҳдидлар илмий асосланган ҳолда тарихий далиллар билан келтирилган.

Калит сўзлар. Хавфсизлик, ҳаётини манфаатлар, барқарорлик, тараққиёт, миллий хавфсизлик, минтақавий хавфсизлик, сиёсий хавфсизлик, ҳарбий-мудофаа хавфсизлиги, ғоявий, мафкуравий хавфсизлик, экологик хавфсизлик, иқтисодий хавфсизлик, информацион хавфсизлик.

Аннотация. В данной статье представлены концепции мира, спокойствия, безопасности в целом, ее виды, формы, объекты безопасности, значение безопасности для развития страны, концепция национальной безопасности Республики Узбекистан, угрозы безопасности Узбекистана с историческими свидетельствами.

Ключевые слова. Безопасность, жизненные интересы, стабильность, развитие, национальная безопасность, региональная безопасность, политическая безопасность, военно-безопасность, идеологическая безопасность, идеологическая безопасность, экологическая безопасность, экономическая безопасность, информационная безопасность.

Abstract. This article presents the concept of peace, tranquility, security in general, its types, forms, objects of security, the importance of security for the development of the country, the concept of national security of the Republic of Uzbekistan, threats to the security of Uzbekistan with historical evidence.

Keywords. Security, vital interests, stability, development, national security, regional security, political security, military-security security, ideological, ideological security, environmental security, economic security, information security.

Introduction. Since the creation of the world, sustainable development and progress can only take place in a peaceful, serene and at peace territory. The main factor that ensures the sustainable development of man and society is security. Safety means the absence of danger, the absence of danger. [1]

Security is a broad concept that requires a multi-level perspective. At the primary level, any biological object strives to maintain and protect life at a sufficiently high level of the nervous system. Subsequent levels of security seek to improve the living conditions of the individual, to protect himself and society as a whole.

Research Methodology. The scientific article used methods of analysis and synthesis, systematic approach, philosophical-logical thinking, philosophical analysis, grouping, expert evaluation and comparison.

Analysis and Results. The basis of the new stage of development of the Republic of Uzbekistan is the Decree No. PF 4947 “On the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021”, established on the initiative of President Sh.M.Mirziyoyev. In particular, the Action Strategy "Priorities in the field of well-thought-out, mutually beneficial and practical foreign policy" 5.2. The issue of creating an environment of security, stability and good neighborliness around Uzbekistan is emphasized. [2]

Security is a state of protection of vital interests of an individual, society and the state from internal and external threats.

Vital interests are a set of needs, the satisfaction of which reliably ensures the existence and opportunities for the sustainable development of the individual, society and the state.

The main objects of security are the individual (his rights and freedoms), society (material and spiritual values) and the state (constitutional order, sovereignty and territorial integrity).

So, security is understood in the broadest sense as the absence of danger, peace and the absence of any danger from the environment. The problem of security is a process that arises not only from one person, one society and one state, but also from the whole region as a whole. The First President of the Republic of Uzbekistan Islam Karimov said, “... these simple words: security, stability and non-deviation from the chosen path have a deep meaning. We need to know and understand this. How can you be safe? Where to look for strength for development? These are strategic issues, and any independent state, first of all, has paid attention to these issues and will continue to pay attention to them” [2] he said.

Indeed, the concept of “security” emerged in 1190, according to Robert’s reference. It expresses the calm state of the human psyche, which considers itself protected from any danger. [3]

In this sense, the term was used in the lexicon of the peoples of Western Europe until the seventeenth century. In later periods of history, in connection with the formation of state structures, the concept of “security” meant the state of peace in the material, political and economic spheres, which arises as a result of the absence of real threats (physical and spiritual) corresponding to the trends of state building. [4]

An analysis of some of the views and opinions on the concept of “security” leads to the following conclusions:

1. Security is a social reality that is objectively close to the nature-human-social system, which has a clear historical character, the logical essence of which is reflected in the dialogue within specific objects or human activities.

2. There is no single definition of security today. The explanations given in the literature are based on the analysis of specific features based on the period and situation.

3. The category of national security has a special place in the security system. Because the national security category is interrelated with the other security categories.

4. “National security” is a social reality, a set of circumstances reinforced by legal norms to identify and prevent external and internal factors that threaten the vital interests of the individual, society and the state. [5]

In our country, the term “security” as “national security” is reflected in the concept of national security of the Republic of Uzbekistan. This concept, adopted in August 1997, defines the officially adopted system of views on the national values, interests and goals of our people, the principles, means and forms of their protection from threats. The Concept also reflects new approaches to dealing with external and internal threats aimed at destabilizing the situation in the country. [6]

National security in our country is closely linked with the ideology of national independence. Because “... the ideology of national independence, in its essence, serves the socio-political development of Uzbekistan, represents the following common interests of all political parties, groups and strata - all our people:

- independence of the country, territorial integrity, inviolability of borders;
- peace of the country, protection of the state from military, economic, ideological, environmental, information threats;
- Ensuring an environment of civil and interethnic harmony and social stability in the country;
- the welfare of every family and the whole nation;
- the priority of justice in society, the principles of democracy and self-government.”

[7]

These interests constitute the interests of the national state. The national security of a country is aimed at protecting its national interests from various political, military, economic, environmental, ideological, informational and other factors and threats. Therefore, the structure of national security has a complex structure and includes political, military-defense, ideological, ideological, economic, environmental, information security.

Political security is aimed at protecting the nation-state structure of the country, the constitutional order.

Military security is aimed at ensuring the country's independence, territorial integrity and inviolability of borders.

Ideological security is especially important today. Ideas and ideologies play an important role in the life of any society. Without ideas, there can be stagnation, without ideology, society can lose the path it has chosen. Where there is an ideological gap, there is an alien ideology. In the so-called 21st century, the struggle for the human heart and mind is intensifying. Addiction to thought, slavery of thought, is more terrible than any economic and political dependence. Therefore, as noted by the First President of Uzbekistan I.A. Karimov, ideological landfills are stronger than nuclear landfills. If there is a military, economic, political threat, danger, pressure, it can be felt, seen, prevented. But it is extremely difficult to quickly grasp the ideological, ideological danger, the pressure. It is difficult for a person to withstand the pressure of various harmful ideas and ideologies if he does not have his own independent thought, steadfast beliefs, vital national values, strong will, and a national idea and ideology that unites people in a common goal.

For several years after the independence of Uzbekistan, "... the ideological threats to the life of our society were as follows:

- Aspirations to restore the Islamic caliphate and unite the Muslim peoples under its banner into a new empire;
- The idea of uniting the young independent states into the former union;
- Attempts to falsify our history, national values and the essence of religion;
- Attempts to spread immoral ideas and morally corrupt the people;
- Actions aimed at inciting regional and interstate conflicts through various ideological means." [8]

Today, most of the above threats are no longer a threat to the development and progress of our country. For example, the religious scholars of our country have explained to the population that there is no possibility to restore the Islamic caliphate. Not only Uzbekistan, but all Central Asian countries have realized that the idea of uniting young countries in the former Soviet Union is a dream come true. As a result of the privileges granted by our government in order not to falsify our history and values, many of our scientists are writing scientific works, art, journalistic works, articles with solid evidence. A number of attempts to destabilize the region (the color revolutions in Kyrgyzstan, the Kyrgyz-Uzbek wars in Kyrgyzstan in 2010, the subversive activities of the "Akromians" in Andijan in 2005) have failed to justify this.

Environmental security is aimed at preventing environmental disasters that occur as a result of violations of certain laws in the relationship between nature and man. These dangers and catastrophes arise as a result of economic activity based on the savage, extensive use of natural and mineral resources, without taking into account the capabilities of man and the laws of its development, at great cost and waste. Speaking about the importance of ensuring environmental security, the First President of Uzbekistan Islam Karimov said: "At the current stage of development, the solution of a number of problems related to the interaction of man and nature can not be limited to one country. They need to be addressed on a global scale. It is obvious that many problems related to the protection

of the natural environment from the harmful effects of human activities are widespread. Therefore, they should be resolved only on the basis of international cooperation.” [9]

Economic security is aimed at ensuring that the country is capable of economically independent, sustainable development.

Information security is of particular importance as an important tool of all forms of national security described above.

It should be noted that the concept of “national security” is multifaceted and manifests itself in many forms. In general, attention should be paid to the following features.

First, national security has a clear historical meaning, that is, it requires an in-depth analysis of specific situations in which areas of public life are threatened.

Second, national security is characterized by conflicting dimensions, threats to public life, and socio-economic parameters and indicators that characterize their elimination.

Third, the importance and severity of the national security problem is growing at a turning point in the development of the world community and individual countries and regions.

Fourth, national security principles and parameters, indicators will vary and will be specific to different countries. But the national security of each country is linked to the general trends of social and economic development of mankind.

Fifth, national security is also seriously affected by state interests, national ideas and national ideology.

Sixth, the role of economic security in ensuring national security is invaluable. Because national security, including the preservation of the country's political, constitutional order, state independence and sovereignty, military power, mitigation and solution of environmental problems, depends primarily on the economic potential and strength of the country, the degree of its economic security. [10] The simple fact that a number of measures have been developed at the initiative of the President of Uzbekistan Sh.M.Mirziyoev in order to develop the economy, to make the state strong, is an example of the simple fact that if the people are rich, the state will be rich and powerful.

Conclusion and Recommendations. There is a fact today that does not require proof. Even so, security cannot be imagined on a national scale or in isolation. As a result of joint efforts, it is possible to ensure the security of both our country and the region as a result of combating threats and challenges such as radicalization, extremism, terrorism, which are common to the region. To do this, the following proposals are put forward:

- Preservation of the identity of the countries of the region in the context of globalization;
- Further development of joint efforts of Central Asian states against international terrorism, religious extremism, drug trafficking and other evils;
- Central Asia has a place, position and prestige in the international arena;
- It is necessary to work together in the international arena to ensure regional security.



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UDC 371

CULTURE OF RELATIONSHIP IN THE UZBEK FAMILY: CUSTOMS AND NEW TRADITIONS

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Аннотация. Мақолада ўзбек оиласининг ўзига хос анъанавий маданий қадриятлари, ёш оилаларда янгича урф-одатларга айланиб улгунган маданий муҳит, тарбия, гендер тенглик масаласи, оиладаги маънавий иқлим хусусиятилари этнологик жиҳатдан қиёсланган ҳамда таҳлил этилган.

Калит сўзлар: Оила, ёш оила, оила маданияти, оиладаги низолар, гендер тенглик, ахлокий қадрият, оиладаги маънавий иқлим.

Аннотация. В статье этнологические сравниваются и анализируются уникальные традиционные культурные ценности узбекской семьи, культурная среда, ставшая новой традицией в молодых семьях, воспитание, гендерное равенство, духовный климат в семье.

Ключевые слова. Семья, молодая семья, семейная культура, семейные конфликты, гендерное равенство, моральные ценности, духовный климат в семье.

Abstract. The article compares and analyzes ethnologically the traditional cultural values of the Uzbek family, the cultural environment in young families, the issue of upbringing, gender equality, spiritual climate characteristics in the family.

Key words: Family, young family, family culture, family conflicts, gender equality, moral values, spiritual climate in the family.

Introduction. The family is considered one of the sources of social stability in society, the formation of a person, his place in life, his respect for the country, the healthy environment in the adult family plays a decisive role in this. Because the family is such a place, in which a person is formed that ensures the continuity of life, national culture, traditions, moral values are preserved and developed. Each people has its own traditions, customs, traditions, and culture. These cadres are formed in the family and are perfected in society. The primary function of the family in the development of society is spiritual integrity. Without spirituality, neither material prosperity nor progress can be achieved. Today, problems related to the stability and well-being of the Uzbek family remain relevant, especially in young families, social and cultural knowledge, inadequate skills, or a light attitude to life can be met with a large number of cases and the formation of a spiritual climate in this family.

By the spiritual climate in the family we mean the environment that plays a special role in the proper formation of the human psyche, the soul. The spiritual climate of the family is built on mutual respect, morality, human relations. The health, pedigree, worldview of the future parents, the mutual compatibility of moral concepts between parents and children, their comprehensive readiness to marry are of particular importance in the upbringing of the child, the stability of the family, a peaceful and prosperous life. The healthiness and resilience of the spiritual climate of the family testifies to a high family culture [1.6].

Literature review. In the study of the family and forms of family culture, we make a comparative analysis of the views of several Uzbek and Russian scholars. One of them is the Russian scientist Yu. I. Semenov. His book, The Origin of Marriage and the Family, states that “in the historical stage of family formation, productive activity required not only a certain system of production relations, i.e., private property relations, distribution, but also sexual relations between members of a production association. showing the effect of [2]. According to M.Kholmatova, an Uzbek scholar, an important aspect of self-determination is marriage. The involvement of young people in

communication groups is of great importance, as these groups form the personal environment of a person's life. Personal environment is the home environment that is the basis of an individual's life activities. The spatial and property features of the home become the material basis of the next personal life, the attraction and upbringing of future generations. This aspect of a person's self-determination allows him to determine the purposeful rules of life [3,170-184]. According to another Russian scholar N.Vasileva, the main exemplary form of family upbringing is mutual respect, kindness and sweetness of the couple, mutual help and harmony. It is also important in the upbringing of children. Because a child may forget the advice given, but he will never forget what he saw. It is necessary to pay attention to this aspect of upbringing. According to these scholars, family relationships can be strengthened only if the purpose of marriage is to raise children, to justify the couple's personal development, and to provide for the needs of the family, the comfort and cleanliness of the home. [4]

Research methodology. Analysis of the literature and field information methods available in this scientific article have been used. Analysis of sociological survey results reviewed. If these analytical opinions are applied in the practice, they will be effective and the disclosure will be communicated and promoted.

Analysis and Results. The family is the basis of society, there will always be a natural need for it. In this sense, the interests of society and the state will unite as a result of the discussed subject.

It is emphasized in the holy hadith that the main task of parents is to raise a healthy child to the world, which is the most important issue in the culture of the family. The theology in Islam emphasizes the criteria of humanism and justice, the divinity of marriage, the inevitability of the family, the feelings of Duty, purity, chastity, mutual respect between husband and wife are glorified. We see in the hadiths, which are rich in wisdom, spiritual wealth, which is measured by universal criteria, which do not recognize the borders of the nation, Elat, language, country, they have been considered the main "textbook" of the so-called Family Educational Institution for centuries and continue this task [5].

It is emphasized in the holy hadith that the main task of parents is to raise a healthy child to the world, which is the most important issue in the culture of the family. The theology in Islam emphasizes the criteria of humanism and justice, the divinity of marriage, the inevitability of the family, the feelings of Duty, purity, chastity, mutual respect between husband and wife are glorified. We see in the hadiths, which are rich in wisdom, spiritual wealth, which is measured by universal criteria, which do not recognize the borders of the nation, Elat, language, country, they have been considered the main "textbook" of the so-called Family Educational Institution for centuries and continue this task [6].

We all know that our state strives to further develop and improve the institution of the family while supporting it and creating opportunities for them. In this regard, a number of facilities created for young families testify to the attention and respect for young people

who are the future of our country. In particular, the general public may be interested in a natural question about who is a young family.

This question was clarified in the Decree of the President of the Republic of Uzbekistan Sh.M.Mirziyoev dated February 17, 2017 "On amendments to the Decree of the President of the Republic of Uzbekistan dated May 18, 2007 No PF-3878" On additional measures for material and moral support of young families " [3]. Also, Article 3 of the Law of the Republic of Uzbekistan "On State Youth Policy" stipulates that both spouses are a family under the age of thirty or a family consisting of a single father or a single mother under the age of thirty raising a child (child), including divorce. widow (widow) - defined as a young family [7]. In Uzbekistan, the age of marriage is defined by law, and according to the Family Code, the age of marriage is 18 for men and women.

It is known that the young family category offers some opportunities, including benefits in income tax, loans, housing rentals and many other relationships. At the same time, the young family takes an active part in bringing a healthy and harmonious generation to society, creating the foundation of our future.

A young family is one that has distinct social characteristics and differs from the "big family" in its various factual features. In determining the identity of a young family, its formation, intensive development, the process of instability, relationships between its members, their development, social roles, as well as the means of socialization of the family, education system, health and family values culture, responsible parents, protected childhood, the culture of family relationships plays a special role in the development of society. Not only does it reflect the complex complex of relationships between spouses and family members, but the family performs different functions at different stages of its development, so its value-normative structure also changes from year to year.

Family relationships are complex and diverse, in which the participation of each member of the family plays a special role. In the family, mainly because of spiritual kinship, a circle of important social subjects is formed who make their "special" contributions, building these relationships, which means that the level of spiritual and daily life depends on them within the family.

In the traditional Uzbek family structure, the male head of the family usually plays the role of "family income earner". Along with the existing patriarchal families in the indigenous peoples, society is also strengthening the status of an equal family. In the modern Uzbek family, the share of young families who want family members to have equal rights and responsibilities and join such new views is growing. At the same time, housework remains a traditional family obligation for a woman in the family.

Public opinion polls show that gender roles in the Uzbek family do not always lead to the same treatment of women in the family. Social roles in the family may be distributed differently depending on family tradition and may be perceived as normal or natural. Today, a woman is valued not only as a married woman with children, but also as a personnel who actively pursues her career and can benefit society. No matter what sector of the state or society, women can be found to be actively working. However, this

condition does not always have a positive effect on family relationships and is often assessed as a cause of family disagreements [8].

The adaptation of women in the family to active working conditions as a small social system of society depends on the spiritual well-being of the family, its reproductive attitude. Developing and maintaining a culture of marriage and family relationships can play a practical role in resolving emerging family conflicts. The most common causes of family conflicts are personal relationships between couples.

There are a number of causes and factors that cause conflict in the modern Uzbek family, which can be grouped as follows:

1. Family quarrels or conflicts arise for the purpose of division of responsibilities in the home. Although this problem is not a modern phenomenon, the younger generation in the family will pass on their daily social experience, the experience of parents, to their descendants in the future. The problem of growing conceitedness in the family leads to increased conflict in young families and determines the level of culture of possible family relationships;

2. The next position on the causes of the conflict can be explained by the fact that there are problems with the upbringing of children and problems with the distribution of the family budget;

3. The next factor that causes family conflicts are economic factors. The described unfavorable material conditions in the family are related to the impact on the educational process of children, which is very important in modern conditions, reducing the role of the older generation in the formation of the child's personality and strengthening the role of the father.

Expansion of the family requires a number of inconvenient situations, in which the number of children is not increased or artificially limited due to more material costs, limited professional activities, difficulties in additional costs.

4. Another cause of family conflicts is family conflicts. Their presence not only has a negative impact on the family, but also shows the aggression accumulated in adults to children, and this is reflected in the manifestation of acts of violence in the family. Against the background of constant and even low family culture, perhaps this is already a manifestation of violence in the form of psychological pressure.

Such facts not only worry family members, but also encourage society and the state to think and find solutions. The reason is that the current problem of our time is to participate in the solution of domestic violence, to transfer it to government agencies and structures dealing with family and child problems.

Analyzing the culture of marriage and family relationships, it should be noted that culture is manifested in the interaction of its members in the family and develops directly depending on the level of morality brought up[9].

Some values are manifestations of a common culture that, in one way or another, represent the social norms of the family. The most important moral value, which reflects the most important moral values formed in the family, and the most important in the family is the care for one's loved ones.

As long as there is a traditional cultural environment in the family, it means that the value of “respect for adults” of kinship, mutual assistance, care, family solidarity increases. The highest spiritual and moral values based on the unity of human beings are realized mainly through such values as mutual kindness, diligence, compassion. This is necessary because collective relationships are a sign of harmony between generations.

Conclusion and Recommendations. In conclusion, it should be noted that attention to the existence of family culture is the basis for the existence of relationships in it, and creates the basis for family stability, sustainable development.

The following analytical comments can be made on the topic under study:

Modern young families are a family with equal rights, which shows an increase in the distribution of responsibilities in the family, the desire to strengthen gender equality;

Structures of mutual reconciliation between generations will be strong, which will allow the structures in the young family to maintain continuity and reduce family conflicts;

Culture in the family is an issue that deserves special attention, in which the relationship between parents and children is formed, and the lack of development of socio-cultural mechanisms, as well as the parenting style from an early age, affect the child's personality;

Forms lifelong relationships and high moral values and a culture of premarital behavior among young people by enhancing family culture;

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UDC 29

SYNCRETIZATION OF NATIONAL AND RELIGIOUS VIEWS IN A PRACTICE CEREMONY

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Аннотация. Мазкур илмий мақолада XX аср давомида мотам маросимларидаги миллий ва диний анъаналарнинг ўрни ҳамда ундаги анъанавийлик ҳамда модернизацион жараёнлар, Фарғона водийси маҳаллий халқларининг турмуш тарзидаги мотам маросимларида исломгача бўлган қадимий диний эътиқодлар замонавий жараёнлар таъсирида ўзаро синкретлашиб, урф-одат маросимлар асрлар мобайнида такомиллашиб, турли мафкуралар тазийқига қарамай ўзининг асл мазмун моҳиятини сақлаб келаётганлиги ёритиб берилган.

Калит сўзлар. ислом, майит, мотам, жаноза, исломий анъана, маросим, исломгача бўлган диний эътиқодлар.

Аннотация. В данной научной статье обсуждается роль национальных и религиозных традиций в траурных церемониях в XX веке, а также традиционные и современные процессы в нем, доисламские религиозные верования в траурных церемониях местных жителей Ферганской долины. несмотря на то, что он сохраняет суть своего первоначального содержания.

Ключевые слова. Ислам, трупы, траур, похороны, исламские традиции, церемонии, доисламские религиозные верования.

Annotation. This scientific article discusses the role of national and religious traditions in mourning ceremonies during the twentieth century and the traditional and modern processes in it, the pre-Islamic religious beliefs in the mourning ceremonies of the Fergana Valley local peoples, despite the fact that it retains the essence of its original content.

Key words. Islam, corpse, mourning, funeral, Islamic tradition, ritual, pre-Islamic religious beliefs.

Introduction. One of the religious ceremonies is the mourning ceremonies, and from ancient times mourning ceremonies have come down to us in various forms, reflecting the past and worldview of the people. It can also be observed that mourning ceremonies have changed since the dawn of humanity depending on the geographical environment, social life and people's capabilities, natural-scientific imaginations and worldviews.

Literature review. In Islam, there are instructions that remembering death causes a person to abstain from sins and do good deeds. Every Muslim has 5 rights in a second

Muslim, one of which is to attend the funeral if he dies. On the basis of ethnographic materials, we have tried to shed light on the changes that have taken place under the influence of modern processes on the basis of analytical data on the traditions and ceremonies associated with mourning in the Fergana Valley.

In the coverage of this article, ethnologist A.A. Through Ashirov's book, *Ancient Beliefs and Rituals of the Uzbek People*, the Uzbek people played an important role in identifying the genesis of ancient religious beliefs, such as totemism, shamanism, and Zoroastrianism, based on the materials of the Fergana Valley.

At the same time, Kambar Nasriddinov's book *"Uzbek funerals and condolences"* provides information about the death and burial ceremonies among the population of Kashkadarya region, the role of rural communities in the conduct of mourning ceremonies. is important in that it provides valuable information as comparative information.

Methodology. In this paper, the method of comparative analysis was used in ethnological and anthropological research, along with the methods of ethnographic observation, individual interview methods, as well as the study of different historical periods.

Analysis and Results. In the system of religious views of the Uzbek people, mourning ceremonies have a special character and significance. As in all historical and ethnographic regions of Uzbekistan, faster burial in the Fergana Valley [1; 338-364.] And the custom of not burying after sunset has been preserved. This case was investigated by ethnologist G.P. Snesev connects with the ancient Zoroastrian tradition [16; 128-129]. Also, not burying after sunset, in our opinion, is directly related to Zoroastrianism and the early Islamic period.

The ceremonial attire associated with mourning ceremonies is unique. The shroud is a cloth wrapped around the body of the deceased before burial, usually made of white or brown cloth, gray, gauze or surp [11; 113]. Shrouded in the Fergana Valley as shroud, taipin, the scholar B.Kh. Karmysheva writes that the Uzbeks of the valley used mainly white cotton cloth or white gray to shroud the deceased. The data on [12; 144] are noteworthy. Nowadays, white surp for shrouds and gray gloves for washing are used more. These cases are, of course, directly related to the transformational processes that have been taking place since the early twentieth century.

Sixteen to twenty meters of surp were used for the male corpse, and twenty to twenty-four meters for the female corpse.

In the villages of Buvayda district of the Fergana valley, women of all ages, regardless of age, were shrouded in trousers made of red floral fabric [7; 2008]. In this order, the shrouding researcher V.N. Basilov in Izbaskan district of Andijan, research scientist S. It is noted that Gubaeva met near Fergana and in the village of Shurtepa (Uzbeks) near the Boz district of Andijan [12; 145-148].

During field research, the practice of shrouding women in red, floral pants is common in the villages of Shirmonbulak and Pakhtaabad in the Bulakbashi district of Andijan Province and in the village of Borbalik in Fergana Province. observed [8; 2009]. There is

no specific instruction in the religious literature about the color of the shroud, and the fact that the shroud is made of white fabric is indicated as a “mustahab” practice [17; 10].

Shrouding is obligatory, that is, it is obligatory for Muslims to do, and if some Muslims do it, the rest will be relieved. If no one does, all will be sinners [4; 34]. Shrouding is obligatory, that is, it is obligatory for Muslims to do, and if some Muslims do it, the rest will be relieved. If no one does, all will be sinners [4; 34].

After the corpse was shrouded in the Uzbeks of the Fergana Valley, it was wrapped in a new blanket [3; 276], in the Kyrgyz and Kazakhs [20; 94], as well as in the semi-nomadic face, aroy, forty abi Uzbek seeds felt or palos [10; 2009]. In the Fergana Valley, a pillow is placed upside down under the corpse's head, placed in a coffin, and removed from the sleeping house.

In the village of Ariqboyi in the Chust district of the valley, it was customary to remove the deceased from a single house through a specially opened hole or window, rather than through a door, in order to prevent re-death in the event of a chronic burial [3; 279]. This custom was done so that when Azrael returned, he would not find the door, follow the corpse out, or take another soul out of the house [21; 118].

Funeral is one of the mourning ceremonies, which in Arabic means "burial" and is a Muslim prayer for the dead. Funeral prayer is a congregation of the deceased in the school of Imam A'zam and a prayer for forgiveness. It is stated in the hadiths that the takbeer should be said four times during the funeral prayer [1; 364]. According to Islam, there is a notion that the deceased can be buried only after the funeral, otherwise he will join the ranks of non-religions.

Every Muslim has 5 rights in a second Muslim, one of which is to attend the funeral if he dies. [23] It has been emphasized by our senior informants that the more Muslim people attend the funeral, the greater the reward for the deceased [9; 2019]. Whoever performs the funeral prayer and returns before the corpse is buried, he will receive one qiraat (a measure of reward as great as Mount Uhut), and if he returns after the burial, he will return with two qiraats.

The religious literature also discusses the importance of funeral prayers and states that there are separate prayers for men, women, and infants who have died because of the benefit of the deceased [14; 241].

Suicide and non-religious funerals are not performed, and it is stated in the religious literature that a funeral should be performed for a baby at least once if he cries out loud. In the Fergana Valley, as in other parts of the country, women are not allowed to attend funerals. This is also mentioned in the hadiths of Imam Bukhari [21; 346].

It was also recommended during the former Soviet era that the funeral be performed at home rather than in a mosque [22; 53]. As a result of atheistic policies in the 1980s, a number of prohibitions on funeral rites also emerged. These include allowing the deceased to be taken to the mosque for funerals only on Fridays, to be read at home on other days, to write a check for the funeral [22; 146], to erect memorial-marble plaques on graves, to enlarge pictures and hang them in rooms. to celebrate the days of the dead with family members, grandchildren, close friends, to go to the cemetery and lay flowers

at their graves, to bury celebrities with music, to bring the body to the workplace, to lay wreaths around the deceased to the sound of mourning songs, funeral arrangements [2; 573] can be included.

During the investigation, it was reported by informants that he was buried in the village of Naiman in the 1980s after installing microphones in the cemetery and being commented on by acquaintances [9; 2009]. The forced inclusion of such new customs in funerals, or the burial of the deceased in this way, is a modernization process that has occurred as a result of the suppression of sharia burial arrangements under the influence of atheistic policies.

According to Islamic teachings, if one sees that a funeral is coming, if one cannot go with the funeral (to a mosque or a graveyard), one should get up and wait until he misses it or the corpse is placed on the ground [23]. This situation was observed in all regions of the valley.

Mourning ceremonies are one of the most common Uzbek rituals, which are "pleading" and "comforting." During field research, informants reported that those who expressed condolences in the Fergana Valley used words of condolence such as "God bless you," "May you be patient," and "May your place be in heaven" [9; 2019]. It is also mentioned in Islamic law as a etiquette of condolences to the bereaved family, "accepting the judgment of Allah, advising them to persevere in the calamity, and praying for mercy and forgiveness for the deceased."

In various parts of the country, the custom of mourning on the day of burial with ayyuhannos to convey the condolences of close relatives of the deceased is still preserved. A similar situation can be observed in the Fergana Valley, where relatives of the deceased, especially women, cry loudly on the day of burial [7; 2008]. It is stated in some hadiths that crying out loud is against the rules of Islam and has been a tradition since ancient times [1; 350].

The women's cry in the valley differed from the men's in its peculiarities. The women formed a circle and cried aloud to the man who had died. If the corpse is unmarried, the chimpanzee is turned upside down in the house where he is lying, spreading his dowry, and the women effectively express their mournful mourning. The genesis of the Uzbek custom of weeping loudly on the day of a funeral dates back to ancient times. According to Abu Rayhan Beruni, the customs of Khorezm and Sogdia were very close to each other, and at the funeral the relatives of the deceased "put Ayyuhannos and cut his face" [13; 417]. In this regard, Imam al-Shafi'i said: Also, in the religious literature, weeping is praising the corpse with tears, and mourning is weeping with longing for the corpse, of which mourning is justified [1; 347-351].

However, this practice is still practiced in rural areas of the Fergana Valley. In the course of the analysis of the collected materials, it was observed that the lifestyle of some rural women in the valley, especially in the villages of Buvayda district, as well as in Kokand and Andijan and other cities of the valley, is disappearing. In our view, this indicates the emergence of genuine Islamic knowledge and attitudes among women regarding funerals.

There were special "mercenaries" at the ancient funerals in the Fergana Valley, and later, with the advent of Islam, this task was taken over by the dervishes in our country. In conversations with elderly informants, it was noted that until the middle of the twentieth century, women in the Fergana Valley were led by horses, and now they are called only by the will of elderly mothers [5; 237-240; 7; 2008]. Until the 1980s, Sadr women formed a circle, a semicircle, recited sad vases, chanted "hu-hu" and played games not only in the Fergana Valley, but also in other regions of the country, in particular. It is also noted in the scientific literature that it exists in Kashkadarya, Syrdarya, Jizzakh and other regions [18; 40-51]. The study found that mourning ceremonies were described as "circling" and "sadr" as unconstitutional and unfounded. One of such superstitions is the Davra, which in the eyes of some people is considered to be a shari'ah and is supposed to be a ransom. In fact, this practice is against Islamic law and is unfounded. [6]

The task of burying the dead is entrusted to his children and relatives. According to Islam, only those who are considered mahrams (brothers, sisters, uncles) have the right to bury the deceased women [8; 2008]. Indeed, this idea is also mentioned in the hadiths of the famous hadith scholar Imam Bukhari [1; 351].

Until the 1950s, handkerchiefs, towels, and sticks were distributed to those who came to the cemetery in the Fergana Valley to bury the deceased [8; 2008]. Now this habit is still going on. This suggests that fetishism is a surviving example of a mixture of religious beliefs with Islam.

Conclusion and Recommendations. In short, we see that the shrouding and funeral rites of the deceased in mourning ceremonies are carried out in accordance with Islamic rules, but in some of them pre-Islamic religious beliefs are combined in an Islamic way and live as a tradition. The atheistic policies pursued by the former Soviet government were attempts to forcibly introduce nominal innovations. However, the traditions and ceremonies of the Uzbek people have improved over the centuries, and despite the syncretization of pre-Islamic religious beliefs and the oppression of various ideologies, they retain their original content.

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UDC: 10+001.83+008

THE ROLE OF THE SYSTEM OF CONTINUING EDUCATION IN THE DEVELOPMENT OF SOCIETY AND THE TRAINING OF COMPETITIVE PERSONNEL

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Annotation: The essence and content of continuous education, its organizational forms and principles, as well as the role and importance of continuous education in preparation of competitive personnel in development of formation of intellectual and professional development of person in the context of globalization are considered in this article. There analyzed trends and recommendations on reforming the continuous education of the republic.



Keywords: education, continuing education, the concept of “continuing education”, continuing education system, forms of education, lifelong learning, innovative society.

Introduction

One of the broadest areas of human activity in today's modern society is education. In recent years, the social role of education has increased, and attitudes towards all types of education have changed in most countries of the world. Education is seen as a key, leading factor in social and economic development. The reason for such attention is that the most important value and basic capital of modern society is a person who is able to seek, acquire new knowledge and make non-standard decisions. Therefore, education plays a crucial role in the development of the individual and society in the modern era.

In the context of increasing globalization and fierce competition in the world economy, it is necessary for a person to receive lifelong learning rather than lifelong learning in the previous period.

Analysis of the relevant literature.

According to some sources, the first ideas about the continuity of education can be found in the religious-philosophical and scientific works of some Western scholars, such as Socrates, Plato, Aristotle and Seneca, on the constant spiritual perfection of man, and similar ideas in our holy religion. The emergence of the idea of continuing education, in turn, emerged as a pedagogical concept on the one hand, and as a result of practice, on the other. In general, the development of adult education in today's understanding is associated with the consequences of changes in science, technology, socio-economic relations as a result of the industrial revolution of the XIX century.

The concept of "lifelong learning" was first introduced at the UNESCO Forum in 1965 by the well-known theorist P. Proposed by Langrand, it caused a significant theoretical and practical resonance, and as a result, by the end of the 1960s, the phrase became a special subject of scientific analysis. Priorities for the study of continuing education at the international level include continuing vocational education, further education, adult education, education of the vulnerable, and economic models that ensure the continuity of the education system [11].

In the modern scientific literature, one can find several differing views on continuing education. The most common of them are: "Continuing education - lifelong learning", "Continuing education - adult education", "Continuing education - continuing professional education", while in world pedagogy, continuing education is defined in several terms, including "The terms" continuing education", "lifelong learning", and "continuous reading" are widely used.

Research methodology

In the training of competitive personnel, the role and importance of the system of continuing education in scientific observation, methods based on the principles of abstract-logical, comparative and systematic analysis, systematic approach, analysis and synthesis, historicity were used.

Analysis and results

According to the analysis, continuing education is a leading area of social policy for the state to ensure optimal conditions for professional and general development of each individual, while for society, continuing education is an important condition for the development of social production, accelerating the country's socio-economic development. is a mechanism that enhances professional and cultural potential. For the world community, lifelong learning is a way to preserve, develop and mutually enrich national cultures and universal values on the basis of international cooperation.

This requires, first and foremost, the acquisition and study of knowledge. The report of the UNESCO International Commission on Education for the 21st Century, entitled "Learning: The Treasure Within", emphasizes that scientific progress and new forms of economic and social activity require lifelong learning.

Continuing education creates the necessary conditions to advance in the training of creative, socially active, creative, spiritually rich personality and highly qualified competitive personnel. Types of education can include pre-school, general secondary, secondary special, vocational, higher, postgraduate education, retraining and advanced training, and extracurricular education.

After gaining independence, Uzbekistan, as an equal subject and an integral part of the world community, is building a strong democratic state governed by the rule of law and an open civil society that ensures respect for human rights and freedoms, spiritual renewal, strategic development and integration into the world community.

The new Law on Education [1] and the National Program for Personnel Training [2] adopted in 1997 created a legal basis for adapting the country's education and training system to the ongoing processes of building a democratic state based on the rule of law.

The state policy in the field of training envisages the formation of a comprehensively developed individual citizen through a system of continuous education, which is inextricably linked with the intellectual and spiritual-moral upbringing of a person. In this way, one of the most basic constitutional rights of the citizen is the right to education, creative ability, intellectual development, the right to work in the profession.

In recent years, in the process of reforming the education system, a solid legal, organizational, material and technical base has been created in the country, which has helped to update the content of teaching and educating a young generation with high intellectual potential and harmonious development. During the years of independence, the education system and upbringing of a harmoniously developed generation in our country have risen to the level of the main priorities of state policy. However, the analysis shows that the effectiveness and efficiency of the work carried out in the field of preschool education is insufficient [7]. However, the results of the analysis of the development of general secondary and secondary special, vocational education showed that the system does not meet today's requirements and needs radical reform [8].

According to the results of the study of the situation in the higher education system by the Working Group established by the Decree of the President of the Republic of Uzbekistan No. F-4724 dated October 8, 2016, a number of higher education institutions

still have low scientific and pedagogical potential. non-compliance with modern requirements, the need for systematic updating of their material and technical base.

Insufficient work is being done in the higher education system to establish close cooperation with the world's leading scientific and educational institutions in their areas, to introduce advanced foreign experience in the educational process, in particular, internships and advanced training of promising teachers and researchers in leading foreign educational institutions[5].

Insufficient development of the system of vocational training of different categories of the population on the principle of "lifelong learning" leads to the fact that the majority of the adult population, as well as unemployed youth and people with disabilities are unnecessary in the labor market [8].

However, in the years of reforms, the development of general secondary, as well as secondary special, vocational education, a comprehensive analysis of the results of the transition to 12 years of compulsory education to ensure that the current system of secondary special, vocational education does not meet today's requirements showed that it was needed [9].

In general, the prestige of vocational education and the social status of teachers, educators and coaches, scientific and pedagogical staff is declining. Highly qualified personnel are not used effectively. The system of control and evaluation of the quality of personnel knowledge and training is not up to date.

Also, the current system of higher education in the country does not meet the requirements of democratic changes and market reforms, insufficient material and technical and information base of the educational process, lack of highly qualified scientific and pedagogical staff, lack of quality teaching materials and didactic materials. , the lack of effective interaction and mutually beneficial integration between the education system, science and industry are among the serious shortcomings of the existing system of training. Taking into account the existing problems in the practice of the education system of the Republic and on the basis of the experience of advanced foreign countries, radically improve the system of general secondary, secondary special, vocational education, create conditions for training qualified personnel, employment of graduates of professional colleges. In order to implement the strategy of action on the five priority areas of development of the Republic of Uzbekistan in 2021, the President of the Republic of Uzbekistan issued a decree PF-5313 dated January 25, 2018 "On measures to radically improve the system of general secondary, secondary special, vocational education".

A distinctive feature of the innovative society is the continuous education, which consists of a lifelong and step-by-step process that provides continuous systematic replenishment and expansion of knowledge of people of different age categories [12, 14]. The goal of continuing education is manifested as strengthening the ability of man to adapt to change and modernization of the economy, professional life, culture, society, etc. as an integral part of the innovative development of the knowledge economy [15, 17].

In order to radically reconsider the content of training in accordance with the priorities of socio-economic development of the country, to create the necessary conditions for the training of higher education at the level of international standards, the President of the Republic of Uzbekistan Resolution No.2909 was adopted.

With this decision the program of complex development of the higher education system for 2017-2021 to improve and radically improve the level of higher education, strengthen and modernize the material and technical base of higher education institutions, equip them with modern teaching and research laboratories, information and communication technologies [6] confirmed.

At the same time, the pace of socio-economic development of the country requires a re-understanding of the essence of the experience gained in the context of a one-stage system of postgraduate education, taking into account the best practices of a number of foreign countries. In the current situation, the issues of rapid development and improvement of the quality of training of scientific personnel, wide involvement of talented youth in science, strengthening the scientific potential of higher education and scientific institutions and its effective use in the innovative development of the republic are of particular importance [4].

Conclusions and recommendations.

Based on the above, we conclude that the competitiveness of any country today depends primarily on its level of education and science. The current state of economic and social development places more demands than ever on the level of quality of professional and vocational training of human activities. The requirements for assessing the level of suitability of a modern employee for a particular job activity are constantly changing and increasing. In this case, not only professional knowledge, skills and abilities, but also logical thinking, initiative, resourcefulness, ability to work and cooperate in a team, knowledge and other qualities are important as "professional competence". In general, the system of continuing education is manifested not only as a mechanism of "lifelong learning", but also as a key factor in increasing the flexibility and mobilization of human resources of enterprises and institutions to the changes in the economy, continuous personal and professional development.

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UDC: 301: 004: 008.171(575,1)

VALUE SYSTEM AND PHILOSOPHICAL AND PEDAGOGICAL THEORIES OF FORMATION OF AXIOLOGICAL MENTALITY IN STUDENTS.

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Annotation: This article researches the values system, the socio-philosophical significance of values, the philosophical and pedagogical necessity of developing the positive attitude of the young to national and universal values, the formation of axiological mentality in the young in the process of developing civil society.

Key words: value, axiological, values system, education, the young, spiritual development, axiological attitude, axiological mentality.

Introduction: The science of values goes back to the question of “What is value” was set by Socrates in ancient periods. Value is a human’s attitude to things and events. Any value, both material and spiritual, is the result of the activities of people, groups, societies. Hence any value is created as a social value. Anything, action, purpose even activity can become the object of evaluation. The activity of purposing among values include fully the significance of human’s existence in the world. Universal values have a history just like science. While universality represents important values for all people and nations, nationality is nothing more than human’s birth, existence and way of life. There is no huge difference between universal and national values like the Great Wall of China.

President of the Republic of Uzbekistan SH.Mirziyoyev emphasizes the role of scholars in the process of large-scale reforms, renewal and changes in the country. Of course, we always acknowledge with gratitude the role of cultural scholars in the spiritual development of our people. We know and appreciate that is a noble deed of the scholars to live selflessly in the way of lofty ideas, to understand ourselves, to protect our national values. It is no coincidence that from time immemorial, people have valued scientists with respect and confidence as the owner of community mentality [1].

In the regard, the education of our great scholar Alisher Navoi are of positive significance. In the Middle Ages, he cared about educating young people, as well as humanity and its character, its future. He influenced the development of like-minded people and encouraged the study of scientific knowledge. His ideas on knowledge, profession, science, justice, protection of the environment encourage people to conflict against injustice, to teach humanity and morality, interethnic peace.

Literature Review: It said that to concept of value first appeared in Kant’s works in encyclopedic literature, when the scholar contrasted the field of spirituality with the field of nature. Values do not exist, they only matter: they are requirements to the will, to

the purpose set before them.[2].The concept of value was introduced by F. Lotse. He believed that value exists only in significance for subject.

Philosophical and sociological bases of development of axiological mentality in students were researched by V. Kanke[3], J.Kim[4], M.Qaxxarova[5], Q.Nazarov[6], N.Rozov[7], I.Surina[8], J.Tulenov[9].

Psychologists such as L.Kuns[10], N.Safayev[11], A.Seriy[12], A.Sharov[13], B.Vilson[14] researched the entopsychological aspects of the concept of value.

Pedagogical scientists SH.Mardonov[15], U.Mahkamov[16], O.Musulmonova[17], V.Slastenin[18], D.Ro'ziyeva[19], B.Xodjayev[20], N.Egamberdiyev[21] and others focused on the study of the importance of national, universal, moral, aesthetic, educational values and the development of axiological mentality in students.

Although much has been learned about values and forms of value, the practical and technological aspects of axiological mentality that need to be developed in students in democratic society based on civil society in a modern market economy have not been researched separately.

Research Methodology: In the course of the research were used scientifically-philosophical principles and methods such as systematics, theoretical-deductive conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis.

Analysis and Results: Reforms in our country on the formation of a system of training based on the rich scientific heritage of the people and universal values, the development of spiritual and moral qualities of students have increased the opportunities for future teachers to form an axiological attitude. There is a need to improve the technology of developing axiological mentality in students under the national philosophy. The Action Strategy for the further Development of the Republic of Uzbekistan sets tasks such as further improvement of the system of continuing education, improving the quality and efficiency of high education institutions, educating independent-minded, patriotic youth. It is important to define axiological criteria and indicators for the development of professional competence in students on the basis of axiological mentality and motives of activity, improve the organizational structure and mechanism for the development of axiological mentality of students, develop creative educational technologies.

Value orientation encompasses human's life experiences and aspirations. Therefore, value orientation has a specific psychological character and reflects all the components of the personality structure and the whole system. The system of values forms the basis of national and universal culture and reflects the management of the spiritual and social needs, interests, social movements and behavior of members of society. B.Bitinas va I.P.Podlasiyalar have distinguished three basic systems of values: Transcendental (has independence in terms of religious nature), social orientation – sociocentric (group, universal, professional, national and so on.) and anthropocentric(individual)[22].

M.M.Makarev divided the value system into the following groups: defining the meaning of life (goodness, evil, fortune, prosperity), universal (vital, democratic, social authority personal development, interpersonal relationships), unofficial (traditional,

religious and related to urbanization) and collective (mutual support and solidarity). Vital values are the basic and simple needs aimed at protecting and prolonging human life. The values that determine the meaning of life have a complex structure and express the richness of the whole human life in complexities and wonders [23].

P.A.Sorokin distinguished three types of value systems: system of ideological values. The values and ideas of this system are unchanging and constant, absolute and overcoming the difficulties that arise in the process of understanding them is an emotional process. The system of emotional values. The values inherent in this system are not absolute, they are related to the situation in which the individual participates. Ideal value system. It is based on the generalization of ideological and emotional values [24].

Taking into account the systemic, subjective and activity oriented approaches and the specificity of value oriented activities, the concept of value is characterized by students' full understanding of the social significance of the profession, the subjective attitude to future socio-spiritual activities and leads to the conclusion that the expression of the price. Based on this information, a set of components formed in the process of vocational preparing on the basis of value oriented activities with a stable, constant and dynamic-functional relationship to the concept of value system.

The study requires special attention to the issue of professional values as an important component of the structure of axiological mentality in students. Axiological mentality serves to determine the subject's understanding of the personal and social significance of the field of activity, which plays an important role in the system of social components, the determination of positive-emotional attitudes and the inner orientation of the person.

Based on the results of the analysis, the emotional component that determines the professional value-oriented acquisition of scientific knowledge of social activity and the development of axiological mentality in students through cognitive, personal approach to pedagogical activity and the behavioral component that allows to determine the axiological attitude to pedagogical activity.

The results of the preliminary analysis of the problem of developing a system of personal, subjective values in the system of axiological mentality of students allow us to emphasize that the transformation of these values is associated with reforms in society. The basis of such reforms is the changes taking place in the cultural, ideological, political and economic spheres. Updates in these areas, in turn, are leading to drastic changes in the social mentality, the education system, and family life, which is the main link in society. First of all, there are dramatic changes in the personal value system of young people.

The development of axiological mentality in students was conditionally carried out in three stages: on motivational value; on meaningful process; on reflexive research. Integrity and interconnectedness of their implementation in practice, but the component of preparation for the activity should play a leading role.

Reflexive technology of axiological mentality development in students

Stages	1st degree	2nd degree	3rd degree	4th degree
1	2	3	4	5
Knowledge	Assimilates knowledge of value, learns and remembers them.	Understands the essence of events in relation to value and describes their specific characteristics	Explains the laws of manifestation of values in people's lives in relation to what they reflect.	Perceives value as a norm of life. Focus on value in its activities.
Methods and techniques	Reproductive figurative conversation, methodology of incomplete sentences, etc	Oral and written questions related to the level of knowledge, methods of conditional-graphic demonstration work.	Problematic situational conversation, opinions, self-assessment.	Project activity is the manifestation of a personal attitude in the activity.
Value	Demonstrate a level of interest in value..	Accepting the essence of values as socially significant.	Analyze personal attitudes to values, determine the direction of personal life.	The principle of life: I try to relate to that value.
Methods and techniques	Ways to create morally depressing situations.	Analysis of life situation experiences.	Pleasure situation, modeling, learning project, social project, observation, self-assessment.	
Activity experience	Observational experience	First experience	Adaptation experience.	A habit of behavior that is realistic in life.
Methods and techniques	Working with books, empirical conversation.	Role situation, method of rating each other.	Working with problematic documents.	Social project, organization of the lesson process.

The technology consists of four parts: : theoretical and methodological (purposes, principles of developing the value system in students); purposeful (Trinity– “knowledge –value the content of humanity in “action”); procedural (system of activity of the teacher and the student on the basis of reflexive methods and techniques).

Conclusion: Summarizing the scientific analysis, theoretical and methodological recommendations, developments, and assessing their effectiveness, the following conclusions were reached:

1. The concept of axiological mentality, taking into account the specifics of the value-oriented activities, subjective-activities, subjective attitude to future activities in the description of the student' full understanding of the social significance of their profession and future activities and a reflection of the value; It is concluded that the concept of value system is a set of components formed in the process of vocational education on the basis of value-oriented activities with a stable, constant, dynamic-functional relationship.

2. It is an objective process aimed at creating qualitative changes in the axiological components of the development of axiological mentality in students, reflecting

environment and self-relation, and the interaction of external and internal influences, requires consideration of relevance .

3. Based on the results of the analysis, professional orientation forms a cognitive, emotional component, which allows to acquire scientific knowledge of social activity and the formation of axiological attitudes and behavioral skills that allow to implement axiological attitudes in pedagogical activity.

4. The stage of development of axiological mentality in students is the stage of mastering professional values in the formation of an axiological attitude to the profession, the development of the student's personality on the basis of professional values and self-orientation in pedagogical activity. On the basis of these stages, as a professional ideal, the image of "I" is formed, which means the content of the direction of the field of professional activity on the basis of understanding and evaluation of their role in future activities.

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UDC: 201: 104: 208.121(873,6)

NEED FOR IDEOLOGICAL UNIFICATION OF PEOPLE IN THE IMPLEMENTATION OF NATIONAL DEVELOPMENT IDEA

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Annotation: This article explores the creative essence and integrative function of the national idea, and the socio-spiritual, political and historical foundations of the implementation of the national development idea on the basis of ensuring the ideological unification of the people at a new stage of development of Uzbekistan.

Key words: globalization, idea, national idea, creativity, integration, ideological unification, progress, national development.

Introduction: Geopolitical shifts, intensification of globalization processes and the rapid development of modern information technologies have made a sharp turn in the history of countries. Humanity has to live in a completely different condition with new requirements and increased risks and threats that have not been observed before.

As noted in the Decree of the President of the Republic of Uzbekistan Shavkat Mirziyoyev dated February 7, 2017 "On the strategy of actions on further development of the Republic of Uzbekistan for 2017-2021": "... Deep analysis of the development path passed by our country, a sharp change in the global market situation, increased competition in the context of globalization dictate the need to develop and implement fundamentally new approaches and principles for further sustainable and dynamic development of our state"[1].

Such processes, which are rapidly proceeding throughout the world, have a serious impact on all spheres of social life, including spiritual and educational. Furthermore, the analysis of tragic events occurred in different regions and countries of the world in recent years indicates that in most cases mass media such as, modern information technologies including the Internet, social networks and electronic publications becoming an easy and fast tool for destructive powers to spread various false, harmful ideas and ideologies all over the world. In such a challenging situation, preservation of national and universal values, strengthening of independence, ensuring socio-economic stability remains one of the priorities of each country.

Literature Review: Currently, in the study of social mentality, the socio-cultural context justifying the formation of national development and ideological unification in concrete historical conditions is considered as an abstract phenomena in works related to the "standard concept of society". In particular, national development and ideological unification is interpreted as the activity of a separate subject, free from any individual

characteristics. American scientist R.G.Sterenbergh focused on the degrees, tips of ideological unification and its relations with psychological and scientific actions[2]. And this is fully reflected in the methods of development of the current period. A number of scientists of the CIS countries such as, V.S.Alekseev[3], I.V.Apostolova[4], A.K.Bakhtiyarov[5], E.A.Volkova [6], T.M.Gurevich[7], A.M.Jalalov[8], S.I.Samigin, and L.D.Stolyarenko[9] wrote works devoted to the same topic.

In some philosophical and methodological research, it is argued that one of the most important elements of the foundations of national development and ideological unification is globalization. It is a separate theoretical form of systematization and synthesis of specific scientific and philosophical worldview knowledge. This approach was analyzed in the work of S.Otamurodov "Globalization and nation", "Globalization: problems of understanding national identity"[10], in the monograph of A.N.Chumakov "Globalization" [11].

The issues of mentality was investigated in lots of current philosophical scientific literature of Uzbekistan, for instance in the works of M.N.Abdullaeva, M.Bekmurodov, A.Begmatov, A.M.Jalolov, Sh.O.Madaeva, F.Atamurodova, G.Kh.Rasuleva, E.Kh.Rasulev, J.T.Tulenov, A.F.Fayzullaev, N.A.Shermuhamedova and others.

In J.T.Tulenov's work called "Independence and national revival" peculiarities of national development and ideological unification were explained by the attachment of social mentalism to the growth of national consciousness. In the work Tulenov said: "The Uzbek people showed themselves in the struggle for the language. The most important thing is the awakening of the nation"[12], which reveals an important aspect of social mentality related to language.

Э.Х.Расулев ва К.Ж.Туленова миллий юксалиш ва ғоявий бирлашув муаммосини ўрганишга жамиятнинг иқтисодий ҳаёти нуқтаи назаридан ёндашади. О.Ф.Файзуллаев миллий юксалиш ва ғоявий бирлашув дунёқарашни танлашдан бошланади, деб ҳисоблайди. Унинг фикрича миллий юксалиш ва ғоявий бирлашув моддий ёки маънавий бойишнинг, яхшилиқ ёки ёмонликнинг устун қўйилишида намоён бўлади. Unlike J.T.Tulenov, G.Kh.Rasuleva suggests a reductionist national development and ideological unification. In her opinion, social relations in society follow only those criteria that are determined by living conditions. And reductionism is a method of studying complex objects by linking them to simple parts of the system using "exact science" methods. From this point of view, it is directly related to the technocratic national development and ideological unification. E.Kh.Rasulev and K.J.Tulenova approached the study of the problems of national development and ideological unification from the point of view of the economic life of society. O.F.Fayzullayev believes that the national development and ideological unification begins with the choice of worldview. In his opinion, national development and ideological unity are manifested in the predominance of material or spiritual wealth, good or evil.

Research Methodology: In the course of the research were used scientifically-philosophical principles and methods such as systematics, theoretical-deductive

conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis.

Analysis and Results: National idea, spiritual support of people, played a main role as a mobilizing force of society. As the President of Uzbekistan Shavkat Mirziyoyev rightly noted in his Address to the Oliy Majlis in December 22, 2017: “The formation of a state program for innovative renewal, training of a new generation of personnel, a new class of investors who effectively use innovation and investment is of paramount importance. This requires a strong national idea, a national program for the technological development of Uzbekistan and the modernization of the domestic market. This program should contribute to the early withdrawal of Uzbekistan into the number of developed countries of the world” [13].

Today, the main features, goals and objectives characteristic of the new stage of national development of our people and our Motherland are consistently developed and implemented under the leadership of the President of the Republic of Uzbekistan Shavkat Mirziyoyev and are clearly defined in other important socio-economic and political documents. They analyze in detail the situation in the world, in the Central Asian region, development trends, and ways of further development.

In the process of large-scale reforms and updates being implemented at the new stage of Uzbekistan's development, the development of the national idea is becoming one of the urgent tasks on the agenda. The negative consequences of the ongoing processes of globalization in the world and the expansion of new ideological dangers and threats further increase the importance of this issue. The national idea expresses the main goal of society as an effective factor that penetrates deeply into the life of a person, people and society. From this point of view, at the present stage of development of Uzbekistan, the main idea is the great goal – the path from national revival to national development. The main goal of the idea of national development is to ensure that Uzbekistan is among the 50 developed democratic States of the world by 2030; to achieve a radical improvement in the standard of living of people by introducing economic mechanisms that can ensure a high level of quality of life[14]. In world history development of nations began with their spiritual, ideological unification. They overcame successfully any challenges with the help of the national idea. The national idea motivated them to achieve great goals, increasing their devotion to the Motherland, spirituality and culture.

In developed democratic countries, the national idea as a driving force for progress is firmly rooted in the long-standing national values and characteristics of peoples. His powerful ideological influence united the country's population towards common goals. Therefore, at the present stage of development of Uzbekistan, the unified national idea of a multinational people embodies not only the spiritual, educational, and moral aspects of the world's positive experience, but also important achievements in the socio-political and economic spheres, including those related to increasing the intellectual potential of the individual and the development of human capital. According to the lessons of history, there are turning points in the history of every society when it becomes vital to determine the priority principles and urgent tasks that are inherent in a certain stage of development

and determine the fate of peoples on the path of progress. The current period is the same period when national statehood is being restored. Moreover, it is following the path of independent development, priority areas and urgent tasks for the current stage of development of Uzbekistan are determined - from national revival to national rise, tasks are outlined for further deepening democratic reforms and the development of civil society, inclusion of the country among the 50 most advanced states in the world for the period up to 2030 [15].

President of the Republic of Uzbekistan Shavkat Mirziyoyev in his Address to the Oliy Majlis dated December 28, 2018 noted "" In implementing the ambitious tasks set for us, we need to develop a national idea that will become a source of strength for us. In particular, we must be aware of our national identity, study the ancient and rich history of our homeland, strengthen research work in this direction, and support the activities of scientists in the humanitarian sphere in every possible way. The assessment of the past, of course, must be impartial and, most importantly, free from various ideological views"[16].

The national idea is the most important system of concepts and principles that becomes relevant at all times, embodies the noble aspirations and fundamental interests of members of society, regardless of nationality, language and religion, and on this path unites, mobilizes, and steadily develops.

The national idea is fed by the historical, cultural, scientific and philosophical sources of Uzbekistan and today it is growing and improving in accordance with the dynamically developing world. The views, rich spiritual and educational heritage of great thinkers and scientists, state and public figures, outstanding creators and intellectuals of the people form the basis of the national idea. The national idea, in turn, as a spiritual source of worldview, historical self-awareness and national education of the people, instills in the consciousness of the younger generation national and universal values.

There are still a number of systemic problems that hinder the effectiveness of the national idea in the processes of comprehensive reforms carried out at the present stage of development of Uzbekistan, updating the socio-political, socio-economic, spiritual and educational spheres.

Important in this regard was the decree of the President of the Republic of Uzbekistan dated April 8, 2019 No. F-5465 "Measures to develop the concept of development of the national idea at a new stage of development of Uzbekistan" [17].

In accordance with the decree, in order to further increase the efficiency of national ideas and the ideological and educational work, which is one of the most important factors in ensuring the effectiveness of the ongoing reforms in the country's development in all areas, the renewal of society and the full realization of human interests, developed a draft "Concept of development of the national idea in the new stage of development of Uzbekistan" [18].

The presidential decree of February 14, 2017 established organizational measures for the implementation of the action strategy. On the basis of this decree, the development Strategy Center was created in order to combine efforts to effectively organize expert and public discussion of the activities provided for in the action Strategy, their impeccable

implementation, and active involvement of civil society institutions, experts and scientists in the processes of democratization and modernization of our country "[19]. Furthermore, as part of the initiative of the President of the Republic of Uzbekistan in 2018, in order to support the reforms, the international non-governmental non-profit organization "Buyuk kelajak" (International non-governmental non-profit organization) was created and the project "Uzbekistan 2035" was launched [20].

The main analytical body of an international non-governmental organization is the expert Council, which brings together more than 240 skillful compatriots experienced in more than 30 countries. The purpose of the organization is to promote ongoing reforms in the economic and social spheres, increase the effectiveness of reforms, and promote expert advice on the path of accelerated development of the state and society.

On June 28-29, 2018, International forum "Development strategy of the Republic of Uzbekistan until 2035" was organized by international non-governmental non-profit organization "Buyuk kelajak" and the center of "Development strategy", during which the issue of creating the concept of a long-term development Strategy of the country was discussed.

According to these goals and objectives, on the basis of Presidential decree No. PP-3160 of July 28, 2017, the Republican center for spirituality and education was reorganized by combining the center for the promotion of spirituality and the scientific and practical center for national ideas and ideology [21].

In order to increase the effectiveness of spiritual and educational work, effectively struggle internal and external threats and risks in the field of spirituality, strengthen ideological immunity in society, and closely promote the activities of state and public organizations in this direction, Decree of the President of the Republic of Uzbekistan No. PP-4307 "Additional measures to improve the effectiveness of spiritual and educational work" was adopted on May 3, 2019.

As part of the implementation of the relevant orders and resolutions of the head of our state, a number of works are being carried out to conduct scientific research on the development of the national idea and further improve the quality of propaganda work in this area. In particular, the main directions of activity of the Republican Council for spirituality and education are defined. A Program of measures was approved to increase the effectiveness of spiritual and educational work, rise the intellectual potential and worldview of the population, and strengthen ideological immunity. As part of the program, "Festival of Spirituality" and "The most active promoter of spirituality of the year" was held throughout the country. A list of "100 books must be read this year" has been compiled. The breast medal for "Spiritual self-sacrifice" was established. The concept of continuous spiritual education and methods for determining the state of the socio-spiritual environment in society and targeted health improvement are being enhanced.

The implementation of such programs as "Obod kishlok", "Obod makhalla", "youth are our future", "five positive initiatives" based on the priority idea "from National

Revival to national elevation”, outlined in the action strategy, plays an important role in mobilizing population for new thinking and work [22].

Conclusion/Recommendations: Summing up, we can say that at the present stage of development of Uzbekistan, the legal interests of citizens are at the center of all the reforms carried out on the way to the great goal “From national revival to national development”. In this sense, the concept of development of the national idea lays down the basic principles necessary to improve the quality of life of the people, strictly follow the idea of “the state bodies should serve the people, not people to state bodies”, increase the role and authority of women in society, protect motherhood and childhood, family, women's rights and interests, increase their activity in the life of the state and society, establish regular contacts with compatriots living, studying and working abroad, create an opportunity for people to contribute in national development, and increase the authority of Uzbekistan in the world community, which not only ensured the viability of the concept, but also clearly indicated that real goals are set, all opportunities for a happy and prosperous life of the country's population are created[23].

At the present new stage of development of Uzbekistan, the unique national idea of a multi-ethnic people embodies not only the spiritual, educational and moral aspects of positive world experience, but also significant achievements in the socio-political and economic spheres, including the development of individual potential and the development of human capital.

The adopted concepts and documents reflect the most important tasks implemented in the country on the basis of the idea of national development. The idea of national uplift combines such principles as strengthening peace, civil and interethnic harmony and tolerance in Uzbekistan, full consolidation of democratic principles, equal development of human rights and freedoms, the rule of law and justice, material and spiritual life. The goals and objectives set out in these documents reflect all the aspirations and aspirations of the people. Specifically, special importance is attached to further strengthening the “sense of one homeland” between different peoples and peoples living in Uzbekistan, ensuring justice and the rule of law in all spheres of society, achieving the consent of the people, enlightened response to ignorance, paying great attention to science, education and upbringing, and the widespread introduction of innovative approaches to the economy, based on the requirements of modern times. To improve the efficiency of work in this direction, it is necessary to conduct an in-depth study of the state of teaching social and humanitarian disciplines by students of higher educational institutions. This is when every graduate of a higher educational institution becomes a promoter of the national idea[24].

Innovative development of the economy and the entire country plays an important role on the way from national revival to national development. Today, it is impossible to imagine the development of any industry in the world without an innovative idea and scientific achievements. The greatest wealth of Uzbekistan is the huge intellectual and spiritual potential of the people.

The priority task is to create a model of national development inherent in Uzbekistan by ensuring a kind of harmony of innovative development and the traditional national way of life of our people. The idea of national uplift, realizing the huge intellectual and spiritual potential of our people, will serve as the beginning of the third Renaissance in the new history of Uzbekistan[25]. Political consciousness plays an important role in promoting the idea of national recovery, which is crucial for the development of Uzbekistan on the path to independence.

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UDC: 410: 114: 428.161(315,1)

SYSTEM OF HUMAN NEEDS AND ITS SOCIAL-PHILOSOPHICAL ANALYSIS

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Аннотация: Мазкур мақолада жамият тараққиёти билан инсон манфаатлари ўртасидаги боғлиқлар, шахс ва жамият муносабатларида горизантал ва вертикал алоқаларнинг ўрни, инсон манфаатларининг ўзига хос хусусиятлари очиқ берилди.

Калит сўзлар: инсон, манфаат, жамият, тараққиёт, ижтимоий, иқтисодий, қизиқиш, эҳтиёж, истак, фойда, даромад, ҳуқуқ.

Аннотация: В данной статье освещены своеобразные особенности интересов человека, место горизонтальных и вертикальных связей в отношении общества и личности, взаимосвязь интересов человека и развития общества.

Ключевые слова: человек, интерес, общество, развитие, социальный, экономический, заинтересовать, потребность, выгода, прибыль, доход, право.

Annotation: This article discusses the role of horizontal and vertical relationships in the interpersonal and social interrelationship between human interests and social development and discloses the features of personal interests.

Key worlds: human, interest, society, development, social and economic interests, need, profit, income, law.

Introduction.

In all periods of the human period, labor has been the real force that changes the nature and life of society, the main conditions for the formation and progressive development of man, the center of his life, and the most important basis for organizing social relations. As the President of the Republic of Uzbekistan Sh. Mirziyoyev noted: "In order to ensure the interests of man, first of all, it is necessary to communicate with people, folk, to know their concerns, dreams, problems and needs" [1]. In carrying out these tasks, special attention should be paid to the satisfaction of human interests and needs. It is known that need is an objective necessity (need) of the subject` (person, organization, social group, community) feels the necessity for something to support its vital activities. Necessities are the source of its social activism. The need can be distinguished as the needs for self-activation (realization of one's own potential), the need for others and self-esteem (to be important and worthy), the need for love and belonging (unification and acceptance), the need for security (longevity and stability), physiological needs. However, "higher" needs are no less important than the "simplest" needs, the person first meets the

need for survival and security, and then - the need for respect and belonging. Later, in adulthood, man In order to maximize his candidacy, he must develop the need to develop his personal potential. [2] Human interests are formed over the years and are reflected in the interests of society, the people.

Literature review.

Human needs are being studied in economics, philosophy, sociology, psychology and other sciences with their extremely diverse manifestations. Therefore, in the socio-philosophical, economic, psychological, sociological literature there are different views on the very colorful descriptions and definitions of the concept of need and the mechanisms of its implementation.

According to the dictionary definition, the need is first and foremost a “demand for something in daily life; need, necessity, need”[3]. According to AG Zdravomislov, who has done a research in the area: "Need, in the broadest sense, is an important component of any subject in the system of relations, the subject's need for any set of external conditions, its main features and dependence on external natural conditions" [4]. According to the philosopher O. Abilov, the most important factor in the formation of the need is the products of labor [5]. Economists A.Olmasov and A.Vahobov write: "Socio-economic needs are a variety of people, that is, a set of all products and services necessary for life and development to have a certain position in society" [6]. Researchers Z.Sarikov, M.Mamatov in the classification of needs are based on the above concepts, which equate their needs with the means of their satisfaction, so, first, material needs are "food, clothing, housing, etc."; secondly, they describe the spiritual needs that arise as a result of the development of society as “education, training, recreation, treatment and other services”, and thirdly, as “social needs mainly express the purposeful activities of people” [7]. Economists Sh. Shodmonov and U. Gafurov write: "The need for human life and development, the means of life necessary for the development of mankind in general, is called the need in the theory of economics" [8]. It should be noted that the authors' descriptions of the need are radically different from others and are in line with the views put forward in the scientific literature.

In scientific research, the nature of satisfaction is mentioned as an important indicator of need. T.Mahmudov, Ya.Olimov put forward the important idea that "Needs determine the main direction of human activity, to meet them all the physical and spiritual strength of the person is mobilized" [9], and Ibrahim Karimov believes that "meeting the needs of the individual" is the most important sign[10]. A. Begmatov explains this idea in essence as follows: "need is a relation to things-phenomena in existence arising from the state of an organism or system" [11]. The views of the author of the dissertation on the needs of the person Z.Asrarova are similar with the abovementioned. In her view, “Need is a necessity that must be fulfilled in accordance with its purpose. The need is related to human activity, arises in the process of his activity, is satisfied, and at the same time the next need, therefore, becomes the cause of activity ”[12].

Unfortunately, some literature does not pay enough attention to this feature of need. For example, in the encyclopedic dictionary "Philosophy" we read: "need is a natural feature

that arises on the basis of human requirements; it is a state of being in which the existence of a living being depends on certain conditions, on which it depends”[13]. In our view, the above-mentioned aspect of satisfaction of need is not sufficiently disclosed here. While acknowledging that need is a natural feature, a condition, we would also like to say that any condition can be part of the concept of need in terms of its focus on satisfaction.

When it comes to needs, different sources use the same definition over and over again. This situation is described by A. Mukhtorov, F. Temirov, S. Nazarov and others. In particular, F. Temirov, S. Nazarov argue that "need is a person's biological, psychological, social, economic, political, legal and spiritual demand" [14]. A. Mukhtorov shares this idea and writes: "need is a set of natural, physical, mental, material-economic, legal-ideological and spiritual requirements of a person" [15]. If attention is paid, the content of these two definitions does not differ much from each other.

Research Methodology: In the course of the research scientifically-philosophical principles and methods such as systematics, theoretical-deductive conclusions, analysis and synthesis, history and logic, hermeneutic analysis, inheritance, universalism and nationality, comparative analysis have been used.

Results and analyses: It should be noted that there are very different natural-scientific and philosophical approaches in the literature to determine the nature of the need. Proponents of the natural-scientific approach in this field explain the source of needs by linking the specifics that occur in the process of metabolism of the subject with the environment. The essence of your need is determined by the components that embody the content of this process. Accordingly, the concrete-scientific approach interprets needs as a requirement for the external and internal conditions of system operation, as well as a relationship that regulates the interaction between its individual elements. In this sense, the needs apply not only to biological and social, but also to systems such as technical, ecological. Human needs are mainly divided into natural and social types that express biological and social life.

The authors refer to the need for various services as social (social) needs. In their view, the economy serves to satisfy both of them. The authors emphasize that people differ from each other according to age, gender, nationality, religion, level of education, occupation, marital status, living environment. In this regard, depending on who needs the needs, they are divided into individual (individual), group (corporate), regional, community (nationwide) needs [16].

The general analysis of human needs is based on dichotomous constraints, regardless of their natural and social manifestations, as well as their further division into natural-social types. In such an analysis, different material and spiritual needs can be seen as social needs, which can include economic, moral, intellectual, aesthetic, political and other needs. However, when social needs are considered at the level of special sociological theory, it is self-evident that they are also described as “special social” needs that differ from their economic, moral, and aesthetic forms.

In philosophical research, the division of social needs into a separate group requires not only terminological uncertainties, but also the identification of their main features. However, these two issues have not been fully resolved in the literature.

Socio-economic needs have a special place among all vital needs (economic, social, cultural, spiritual, political needs). These needs include the provision of material goods and services necessary for people to live and work. In this sense, socio-economic needs include both material and spiritual needs. Material needs are, first and foremost, the desires and demands of people to have material goods that are useful to them and to use them to continue their lives. These include many vital items (food, clothing, shelter) and jewelry (jewelry, perfume, cars, etc.) that are necessary for consumption. The material needs of a society include the need to own material resources that serve to ensure its existence and development. Spiritual needs consist of many needs of people, such as non-material knowledge and leisure, raising their cultural level, acquiring skills, and enjoying various services. Needs can be met individually and collectively. This largely depends on the nature of the need and the nature of the objects that satisfy it. There are items and services that can only be shared. These include, for example, educational facilities, hospitals, leisure facilities, sports games and entertainment.

Socio-economic needs, including material needs, cannot be fully met. Many unmet needs in society exist in every period. Over time, as new needs emerge, as well as the impact of advocacy, advertising, and sales, the structure of needs will change and its manifestations may increase. Therefore, it is natural that the needs of society, that is, the individuals who make it up, social institutions and enterprises, are constantly renewed and growing. This is reflected in the application of more economic laws.

Philosophically, the inner cause that motivates the subject to vital activity on the basis of the need to satisfy a need is the primary form in which all living things actively select and react to important external conditions. As a representative of needs, its subject can be any biological creature, human individual, historical associations of people (family, tribe, nation), social units (class, nation, people), social system and institutions (education system, state and organizations).

The problem of classifying needs is a logical continuation of the problem of describing their nature and content. The complexity and difficulties associated with the systematization, isolation and scientific classification of human needs are due not only to the lack of an exact definition of "need", but also to insufficient substantiation of general and methodological bases for the classification of socio-spiritual phenomena.

As mentioned on the above pages, the principle of dividing events into two parts, dichotomously, is the most common phenomenon in the history of science. At different times, this tradition has been varied in its teachings on needs by various authors. In this regard, colorful evidence can be found in ancient and medieval Eastern, Central Asian, ancient and medieval European philosophy [17]. For example, the ancient Greek philosopher Epicurus wrote, "One of desires is natural and necessary, the other is natural but unnecessary, and the third may be unnatural and unnecessary based on in vain discussions. But man must first satisfy natural and necessary needs" [18].

Abu Nasr al-Farabi states that the natural factors of social unity of people are that they need a lot in their life and development, and that the need for coexistence has arisen as a result of its limited opportunities: “Everyone is structured by nature so it needs things, it cannot achieve such things alone, it needs a community of people to have them ... Therefore, only through the union of many people who need to live, who deliver and help each other, the man can reach the maturity he aspires to by his nature. The activities of the members of such a community as a whole provide each of them with what they need to live and mature. Therefore, human beings are reproduced and settled in the inhabited part of the earth, thus, the human community comes to existence”[19].

Beruni writes in *Mineralogy*, “Needs are diverse and innumerable. Only a few people can meet them together. To do this, people need to build cities [20]. Beruni expresses the idea that the abundance of needs that need to be met in a person, the need to protect each other from danger, the responsibility to do something necessary for the life of himself and others have led to the unification of society. According to Professor M.N. Boltaev, Ibn Sina glorified the role of labor in satisfying needs, considered it a necessary condition for physical fitness, an important way in the emergence of human ability, talent, the elimination of indigence, the guarantee of happiness [21].

Thus, the needs in the existing literature are material and spiritual, physical and mental, primary and secondary, absolute and relative, higher and primary, natural and artificial, real and artificial, general and private, physiological and intimate, biological and social.

It should be noted that needs are classified mainly into two-layer-dichotomies. In fact, the two-tiered classification of human needs, both biological and social, as well as any event, stems from the fact that certain backgrounds are initially placed opposite each other. Since the classification of human needs on the basis of biological and social groups is not very general and scientifically justified in a certain sense, it is necessary to define a different approach to it. The classification of human needs should be based on a philosophical methodology that studies the general needs that are equally important, necessary, and incompatible with one another, for the normal functioning of life as an essential being. Such a methodology helps to determine, first of all, the minimum number of really necessary and most important needs for a person, as well as their criteria.

The views of the Polish scientist K. Obukhovsky on the most important and widespread basic types of needs in the process of adaptation to life were widespread at the time: these were, firstly, the need for self-preservation, and secondly, the need to reproduce in order to protect their species. Based on the method of maintaining inner balance, K. Obukhovsky divides needs into physiological and referral types, emphasizing that the needs to be directed consist of three types (cognition, emotional connection, meaning of life). Ethical needs are not singled out here in the classification of human needs. Yet, in essence, it can be assumed that the meaning of life is embedded in the content of the needs of the narrator. According to the author, the meaning of life describes the higher, more mature forms of behavior [22].

Russian scientist P.V. Simonov approaches to the basis of their origin and main sources in the description of needs, in this sense, firstly, vital (biological), secondly, social, thirdly, considers the ideal needs [23]. The classification carried out by N.N. Mikhailov is based on material, spiritual and labor needs [24], L.Ya. Baranova on the basis of material, social and intellectual needs [25].

Conclusion. The speculations above show that the classification of needs is based on its methodological principles and criteria. The basic principles of determining the object, the subject, the criteria of rationality, the basic needs, etc., the division of needs into types and forms in connection with the activity serve as such a criterion and basis.

Thus, very diverse views can be found in the literature on the composition and classification of needs. They can be further analyzed. However, it should be noted that all of them are limited to the interpretation of this or that complex aspect of needs. Nevertheless, there are ideas in the literature that can be applied positively that this is primarily due to the fact that needs are recognized by many as being of three types, material, spiritual, and social. In our opinion, it is expedient to act from this point of view in the study of the system of personal needs, so that such an approach fully embodies their integral connection with the essence of social life.

In short, the general need, as well as the system of personal needs, is a key factor in the development of society and man, a powerful spiritual force that motivates living and creative activity. As the civilization progresses, needs will increase and new problems will arise. Satisfied needs seem to be the property of the past at a glance, while the needs of the past that provide development can also serve to the future. For example, national spiritual heritage, national values, material and cultural riches are becoming a powerful source of strengthening our independence today. At a new stage of development, it is a natural process for each individual to uphold his or her own moral dignity, honor, and respect, while protecting his or her material and spiritual needs and protecting the public interest.

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UDC 552:12

NEW IMIDAZOLE DERIVATE BASED CORROSION INHIBITOR FOR N80 STEEL IN THE 0.5 M H₂SO₄: ELECTROCHEMICAL ANALYSES

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Abstract. The corrosion of N80 steel is important task in the chemical industry. The corrosion inhibitor was effectively way to protect the metal material from the corrosion attacks. In the present work, the new imidazole derivate was introduced for mild steel. The 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione was selected as a potential corrosion inhibitor for N80 steel in the 0.5 M H₂SO₄. The inhibition properties of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione was investigated by the electrochemical method. The obtained results confirmed that the inhibition effectiveness for this inhibitor was 97,98 % at 200 mg/L.

Keywords: Corrosion inhibitor; mild steel; imidazole; electrochemistry.

1. Introduction

At the modern time the metallic material constitutes have the biggest role as a great part of construction material elements in the chemical industries oil and gas factories. In industries metal materials corrosion causes their environmental losses and contamination of environment [1-4].

The steel metal materials are commonly used in Uzbekistan's industries, as a result, it is mainly part of construction materials industries. Hydrochloric acid solutions are used in industrial processes during pickling and cleaning salts films of metals; that causes significant metal loss. The inhibitors are added to the acid solution to minimize acid attack on metal [5-8]. The corrosion inhibitors are the chemical compounds which at addition in corrosion system at a small concentrations adsorbed on the metal surface, connects with metal ions and decreases the corrosion rate. Inhibitors can react with a metallic surface or the environment, forming protection films which are metallic oxide, anodic film, thin film, chemical complex with metal ions, supramolecular substance or absorbs ion film on the metal surface [9-12].

2. Materials and methods

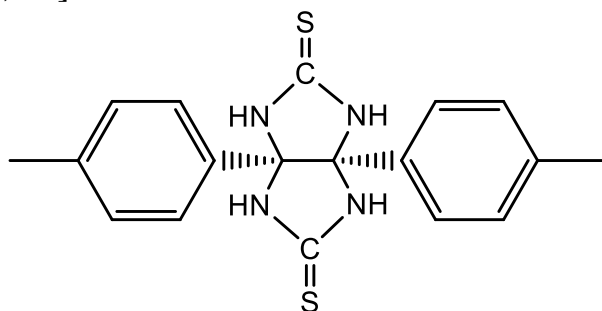
2.1. Mil steel samples

Electrochemical experiments were carried on N80 steel sample which contain, % (mas.): Fe – 97.402 ; C – 0,397; Mn – 1,59; Si – 0,162; P – 0,013; S – 0,005; Cr – 0,12; Ni – 0,087; Cu – 0,203, Al - 0,021.

N80 steel sample used in the gravimetric experiments were mechanically cut into $2.5 \text{ cm} \times 2.5 \text{ cm} \times 0.1 \text{ cm}$ dimensions, abraded with SiC abrasive papers of grade 300, 450 and 550 respectively. For the electrochemical studies on, N80 steel samples having dimension $1.0 \text{ cm} \times 1.0 \text{ cm} \times 0.1 \text{ cm}$ were mechanically cut and abraded similarly to a previous procedure, with an exposed area of 1 cm^2 (the rest covered with araldite resin) with 3 cm long stem. Before starting the experiment, N80 steel samples were washed with distilled water and next with alcohol, degreased in acetone, dried and stored in vacuum desiccator [13].

2.2. Corrosion inhibitor

In this research work, the 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione was selected for the corrosion experiment. This is due to this inhibitor has several hetero atoms included sulfur and nitrogen, which make this inhibitor to be more effective [14, 15].



(3ar,6ar)-3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione

2.3. Electrochemical investigation

We used the Gamry Potentiostat/Galvanostat (Model G-300) containing EIS software Gamry Instruments Inc., the USA containing Echem Analyst 6.22 software package in order to calculate electrochemical parameters. The instrument consists of a three-electrode glass assembly, in which pure platinum foil acts as the counter electrode, the saturated calomel acts as the reference electrode and rectangular steel specimen of the working electrode. The working electrode's immersed time is 30 min because during this time the state potential reached no changeable position before performing the electrochemical experiments.

The polarization resistance measurements were performed with following resistance parameters: resistance -0.02 to 0.02 mV, scan rate (mV/s) is 0.125, sample area is 1 cm^2 , density g/cm^3 is 7.87, equiv. Wt. is 27.92 and 0.12 (V/Dec).

3. Results and discussion

Inhibitor of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione's polarization parameters resistance parameters illustrated in Table 1. Mild steel's corrosion became very strongly in at 313 K in 0.5 M H_2SO_4 solution, because polarization studies show that mild steel's corrosion current reached 15,954 at 313 K, this trend decreased dramatically when inhibitor added to this medium. Very low corrosion

current reached at 200 ppm inhibitor concentration, by 0,322 so there is no corrosion processes.

Next noticeable pattern from Table 1 is that N80 steel have -316.5 corrosion potential in without inhibitor medium, when 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione inhibitor added in this medium N80 steel sample's potentials decreased slowly by depending inhibitor concentration, 100 mg/l on -278.4, 150 mg/l on -252.4, 200 mg/l on 228.4.

Table 1. Polarization resistance parameters of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione's inhibitor in 0.5 M H₂SO₄ medium.

Concentration. mg/l	E _{corr} , mV	R _p , kohms	CR, mm ⁻¹	η, %
Blank	-316,5	1,120	17,541	-
100	-278,4	11,40	1,722	90,18
150	-252,4	20,89	0,940	94,64
200	-228,4	55,44	0,354	97,98

On the other hand, N80 steel corrosion resistance is very low, 1,120 because there are strong corrosion, not resistance. When the inhibitor of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione's added resistance was rose the reasons inhibitor molecules blocked cathodic and anodic corrosion rate. At 200 mg/l concentration the polarization resistance reached 55.44.

Corrosion rate depends on inhibitor's concentration; high concentration is low corrosion rate. Inhibitor's protection degree of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione is nearly up 90%, however for 200 mg/l on 97,98% at 313 K in 0.5 M H₂SO₄ solution.

The general polarization resistance of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione determined by using electrochemical measurements. Typical polarization resistance curves represented on Fig. 1. It is seen that polarization resistance slopes depend on inhibitors' concentration. When it increased, polarization curves increased. N80 steel sample reported high polarization resistance in 0.5 M H₂SO₄ solution at 323 K without inhibitor. When an inhibitor added the polarization slopes increase, this action depends on inhibitor concentration amount for example polarization slope's amount increase during concentration rise, 200 mg/l concentration is very high slope on Fig. 1.

Inhibitor's polarization resistance depends on molecular number. Many inhibitor molecules reduced polarization reaction on cathodic and anodic reactions on metal surface in 0.5 M H₂SO₄ solution at 323 K. The 3a,6a-di-p-tolyltetrahydroimidazo[4,5-

d]imidazole-2,5(1H,3H)-dithione is mixed type of inhibitor due to it depleted both cathodic and anodic processes.

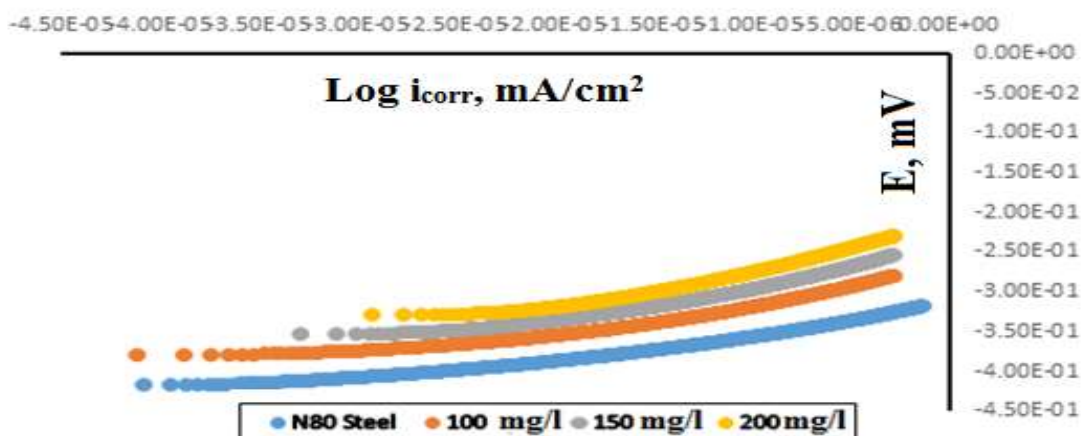
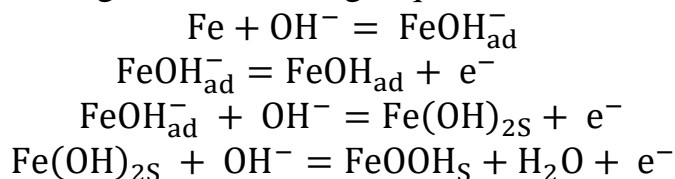
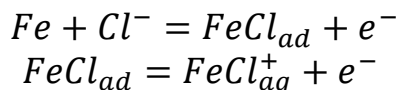


Fig. 1. The polarization resistance curves of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione in 0.5 M H₂SO₄ medium.

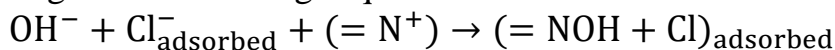
The influence of ions on the passivity breakdown of N80 steel can be interpreted as a balance between two processes competing on the metal surface: stabilization of the passive film by adsorption and disruption of the film by ions adsorption. When the activity of chlorides overcomes that of hydroxyls, corrosion occurs. During corrosion, the reversible formation of Fe(OH)_{ad} adsorbed on the bare metal is the first stage of the re-passivation process followed by the oxidation of this layer to produce a thicker oxide film (passivating film) according to the following sequence:



In the presence of chloride ions, the Fe(OH)_{ad} coverage decreases resulting in an increasing of the anodic dissolution of the metal when the following reactions occur



The Fig. 2 indicates that this electrostatic interaction processes as a known physical sorption increase re-passivation process and occur thicker film (passivity film) of inhibitors, according to the following sequence:



Secondly, there is next anodic anticorrosion sequence by electrodonor oxygen groups (=S) share its free electrons into iron's free d-orbitals thus electrodonor complex of inhibitor with irons adsorbed on metal surface. The Fig. 2 shows the delocalization electrons of aromatic cycles of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione can increase up this chemical donation processes vie these delocalization free electron pairs are absorbed on iron free d-orbitals, according to the following sequence:

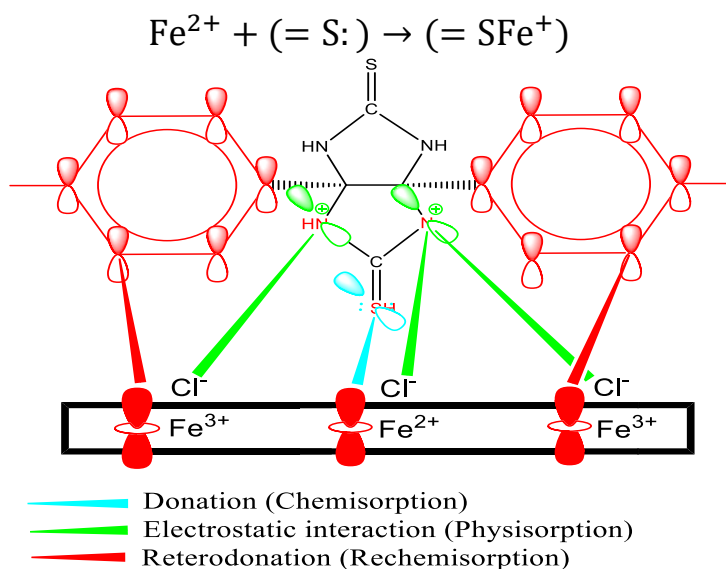


Fig. 2. Mechanism of electrochemical adsorption of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione inhibitor at N80 steel surface in 0.5 M H₂SO₄ solution.

4. Conclusion

In the present work, the inhibition properties of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione for N80 steel in the 0.5 M H₂SO₄ solution was full investigated by the modern electrochemical analyses. consequently, the following results are drawn:

1. The maximal inhibition efficiency of 3a,6a-di-p-tolyltetrahydroimidazo[4,5-d]imidazole-2,5(1H,3H)-dithione for N80 steel was over 97 % in the 0.5 M H₂SO₄ at 200 mg/L.
2. The presence of inhibitor increased the corrosion resistance to 55,44 kohms.
3. The protection efficiency of selected inhibitor depends on the rise in the concentration.

Acknowledgements

The author want to acknowledge Ministry of higher and secondary specialized education of the Republic of Uzbekistan, Tashkent, Uzbekistan, Tianjin University, School of Chemical Engineering and Technology, Tianjin, P.R. China, Karshi State University, Karshi, Uzbekistan.

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UDK: 538.91

SIMULATION STUDY OF SHORT CHANNEL EFFECTS IN JUNCTIONLESS SOI MOSFETS

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Annotasiya. Korilayotgan ishda planar va otishsiz vertical uch zatvorli metal-oksid-yarimotkazgich tranzistorlarda kiska kanalli effect - DIBL effect va transistor otish xarakteristikasi bosagadan past soxadagi kiyaligi SS ga zatvorning yon tomonga kengayishi, kanal kalinligi va legirlanish darajasining ta'sirlari takkoslangan. Natijalar shuni korsatadiki korilgan legirlanish darajasida va kanal kalinligida otishsiz tranzistorda DIBL effect nisbatan kichik kimatlarga ega.

Kalit so'zlar: O'tishsiz MOY transistor, qisqa kanal effektlari, stok tomonidan potensial to'siqni kamayishi (DIBL)

Аннотация. В рассматриваемой работе сравниваются короткоканальный эффект- DIBL эффект и наклон переходной подпороговой вольтамперной характеристики планарного и вертикального трехзатворного безпереходного транзистора металл-оксид-полупроводник при различном боковом расширении затвора, уровне легирования и толщине канала. Показано, что в рассмотренном диапазоне уровней легирования и толщинах канала DIBL эффект сравнительно ниже для безпереходного транзистора.

Ключевые слова: Без перехода МОПТ, короткоканальные эффекты, оксидно-Слив-индуцированного барьера снижение (DIBL)

Abstract. In this work influence of gate extension, channel doping level and channel thickness to short channel effects- DIBL effect and subthreshold swing, SS for the planar and vertical junctionless field effect transistors is compared. It is shown in considered range of doping level and channel thickness the DIBL effect is less for junctionless vertical field effect transistor.

Key words: Junctionless MOSFET, short-channel effects, Drain-induced barrier lowering (DIBL), SS

Introduction: In very short-channel MOSFET devices ($L=10$ nm or less) the formation of ultrasharp source and drain junctions imposes orders of magnitude of variation in doping concentration over a distance of a few nanometers. Such concentration gradients impose drastic conditions on doping techniques and thermal budget. To avoid this conditions, at last few years it was proposed junctionless MOSFETs [1,2]. The proposed

devices are fabricated without the need for forming junctions. Since the channel doping concentration and type are the same as in the source and drain extensions, there is no doping concentration gradient and therefore no impurity diffusion during thermal processing steps. This relaxes the thermal budget by a great deal.

The electrical characteristics of JLMOSFETs are identical to those of normal MOSFETs, but the physics is quite different [3-7]. The heavily doped junctionless transistor is fully depleted below threshold. As gate voltage is increased, the electron concentration n in the channel increases, and threshold is reached when the peak electron concentration in the channel reaches the doping concentration N_d . Further increasing the gate voltage increases the “diameter” of the region where $n = N_d$, until the entire cross section of the device becomes neutral (i.e. no longer depleted, even partially), at which point flat band is reached.

The primary concern for MOSFET scaling has been the control and suppression of short channel effects (SCEs), such as drain induced barrier lowering (DIBL), degradation of subthreshold slope (SS), that tend to degrade device performance. The use of multiple-gate topologies significantly enhances the electrostatic integrity of the device and provides increased immunity from SCEs [4-9]. To compare the performance of planar and multiple-gate JLMOSFET, in this work DIBL effect and subthreshold slope for planar (in 2D simulation) and trigate (in 3D simulation) SOI Junctionless MOSFET with gate length of 10 nm have been investigated.

In many practical cases for Integrated Circuits (MOSFET memory, CMOS based logic gates) the arranged line of MOSFETs (Fig 2) is used. In this cases all MOSFETs in line can be covered by common gate. This leads to the extended gate of MOSFETs in the line compared to gate contact of the single MOSFET (Fig 3, a). Extended gate results in changing of parasitic capacitances and as a consequence to change short channel effects in nanometer

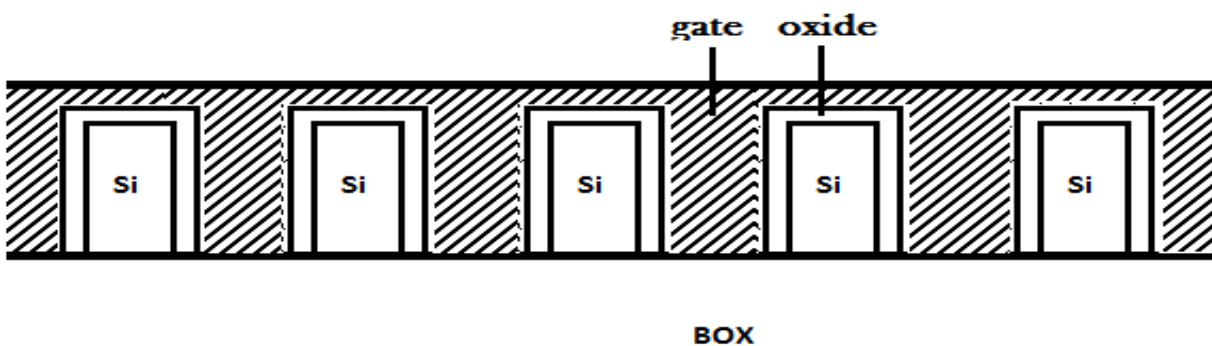


Fig 2. SOI JLMOSFETs in the line

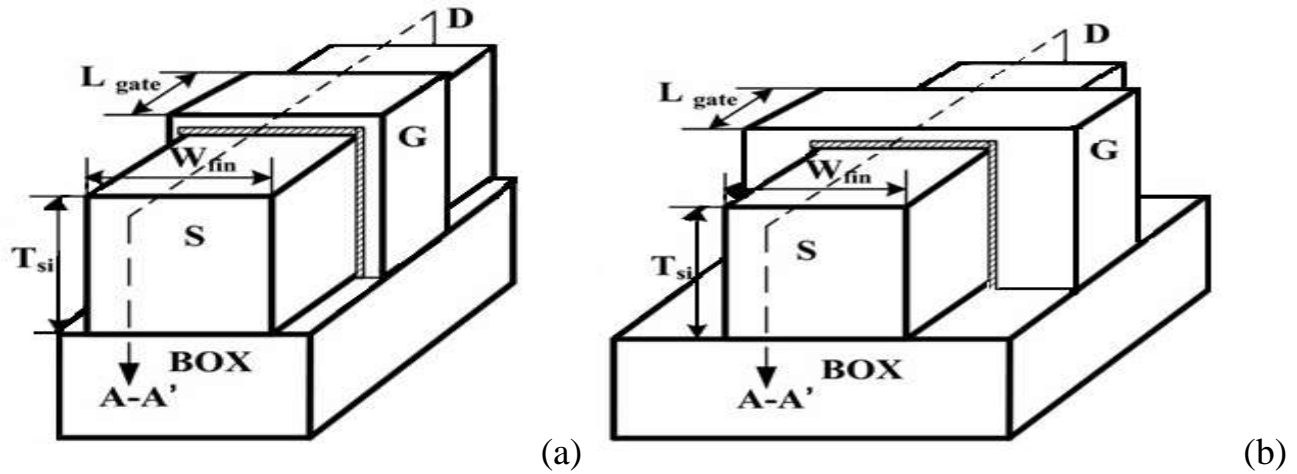


Fig 3. Trigate SOI JLMOSFET with not extended (a) and extended (b) gate.

MOSFETs. For estimation of the influences of the extension of the gate lateral part to short channel effects DIBL effect and subthreshold slope (SS) in trigate SOI JLMOSFET with extended and not extended gates have been compared. For simulations Advanced TCAD Sentaurus device simulator has been used [5-16].

Results of simulation and discussion.

We simulated planar SOI JLMOSFET with gate length of 10 nm in 2D (Fig.4) and trigate SOI JLMOSFET with gate length and width of 10nm in 3D (Fig.3 a,b). In the case of trigate JLMOSFET we considered transistors with not extended (Fig 3,a) and extended (Fig 3,b) gates. The thicknesses of the HfO_2 gate insulator used in simulation was 0.55 nm.

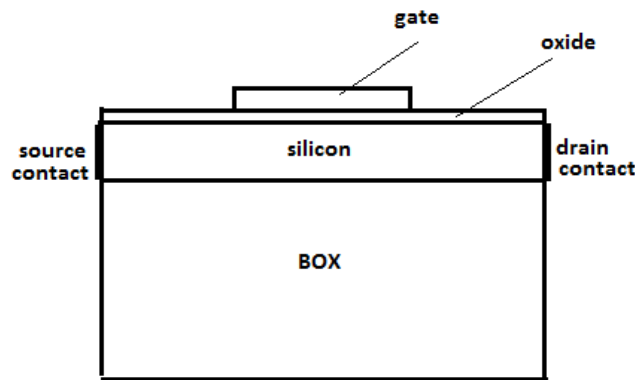


Fig. 4. Planar SOI JLMOSFET

For calculation of DIBL and subthreshold slope we simulated transfer characteristics of JLMOSFETs with donor concentration in silicon layer $5 \cdot 10^{18} \text{ cm}^{-3}$, $1 \cdot 10^{19} \text{ cm}^{-3}$, $5 \cdot 10^{19} \text{ cm}^{-3}$ and thicknesses of the active layers T_{si} in range 4-10 nm, width of silicon is 10 nm. DIBL is calculated as change of threshold voltage per 1 V changing of drain voltage. The transfer characteristics were simulated for $V_{\text{ds}} = 0.05 \text{ V}$ and 0.75 V . In Fig.5 the transfer characteristics for planar 2D and trigate 3D JLMOSFETs with extended and not extended

lateral part of gate in case of donor concentrations $5 \cdot 10^{18} \text{ cm}^{-3}$ and $5 \cdot 10^{19} \text{ cm}^{-3}$ with silicon thickness 4 nm can be seen.

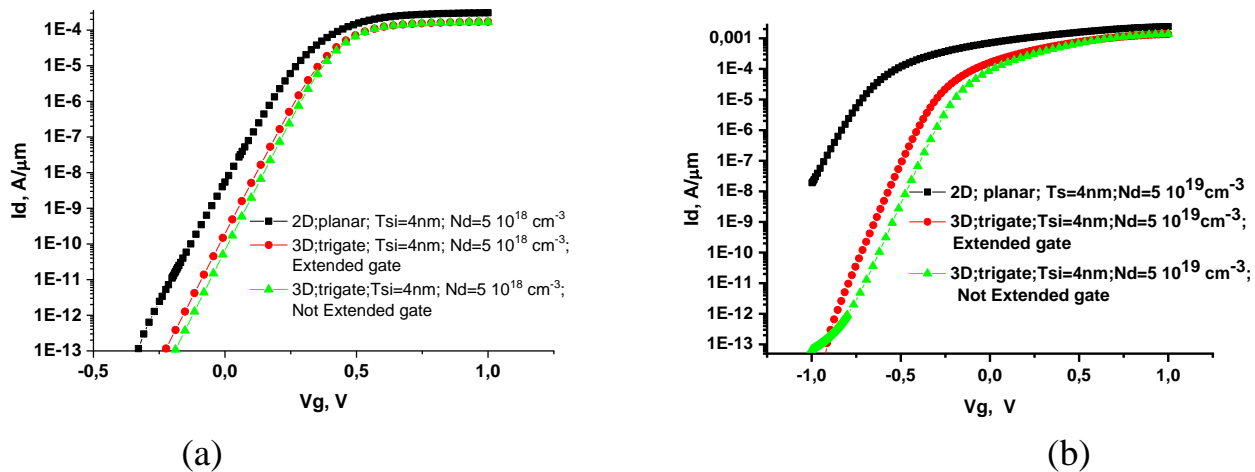


Fig.5. Transfer characteristics for planar 2D and trigate 3D JLMOSFETs with extended and not extended lateral part of gate in case of donor concentrations $N_d = 5 \cdot 10^{18} \text{ cm}^{-3}$ (a) and $N_d = 5 \cdot 10^{19} \text{ cm}^{-3}$ (b) with silicon thickness $T_{si} = 4 \text{ nm}$. $V_{ds} = 0.75 \text{ V}$

In comparing of Fig 5 (a) and Fig 5 (b) we can see that for devices with extended and not extended gate the threshold voltage difference is increased with increasing of doping concentration. Lateral extending of gate also leads to more changing of threshold voltage for transistors with more thickness (Fig 6).

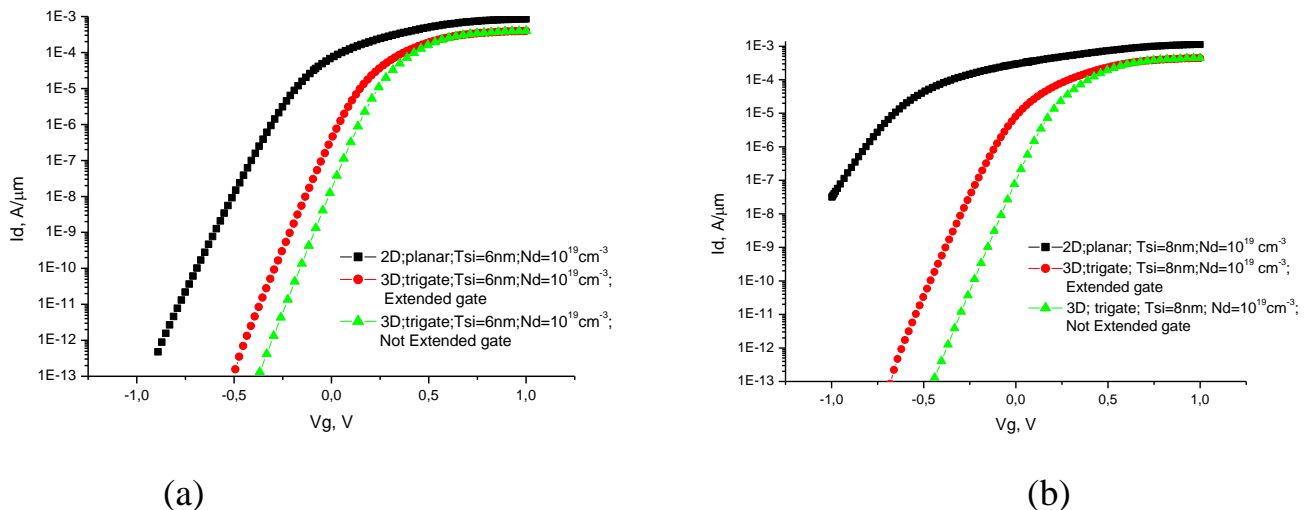


Fig.6. Transfer characteristics for planar 2D and trigate 3D JLMOSFETs with extended and not extended lateral part of gate in case of donor concentrations $N_d = 5 \cdot 10^{19} \text{ cm}^{-3}$ with silicon thickness $T_{si} = 6 \text{ nm}$ (a) and $T_{si} = 8 \text{ nm}$ (b). $V_{ds} = 0.75 \text{ V}$

Simulation results show, that short channel effects such as DIBL effect are different for planar and trigate SOI JLMOSFET. DIBL effect is higher for planar than trigate devices in all considered range of silicon thickness (Fig 7) and doping concentrations (Fig 8), and it is monotonously increased with increasing of thickness and doping

concentration for planar as well as for trigate JLMOSFET. At high silicon thickness DIBL is saturated for trigate transistor with extended gate, and at $T_{si}=10\text{nm}$ it is lower than for device with not extended gate (Fig 7). Difference between DIBL for planar and trigate devices is increased with increasing of silicon doping concentration (Fig 8).

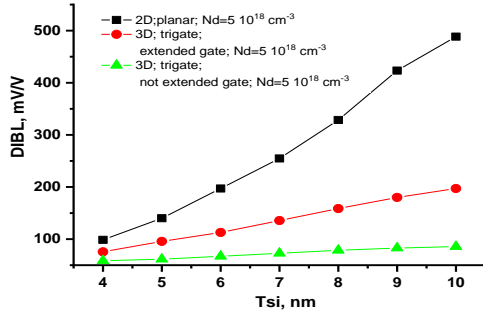


Fig.7 DIBL dependence on silicon thickness for planar (2D) and trigate (3D) devices with silicon doping concentration $N_d=5 \cdot 10^{18} \text{ cm}^{-3}$

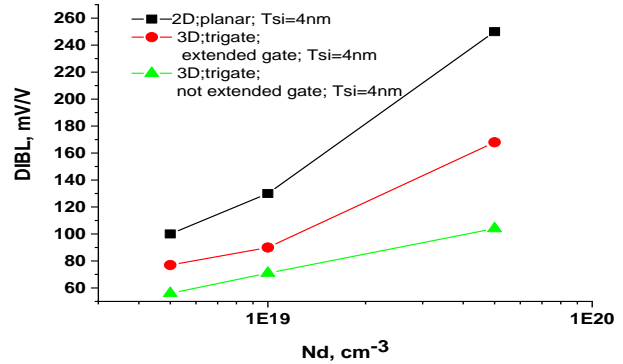


Fig.8. DIBL dependence on silicon doping concentration for planar (2D) and trigate (3D) devices with silicon thickness $T_{si}=4\text{nm}$.

Average subthreshold slope (SS) as well as DIBL at silicon thickness $T_{si}=4\text{nm}$ have not big differences for planar and trigate transistors (Fig 7, Fig 9) while with increasing of silicon thickness and doping concentrations it is increased (Fig 9, Fig 10). Average SS is saturated with increasing of silicon thickness for trigate transistors, while for planar device it growth monotonously (Fig 9). For trigate JLMOSFET with extended gate average SS approximately is same, that of planar device at lower silicon thicknesses up to $T_{si}=6 \text{ nm}$.

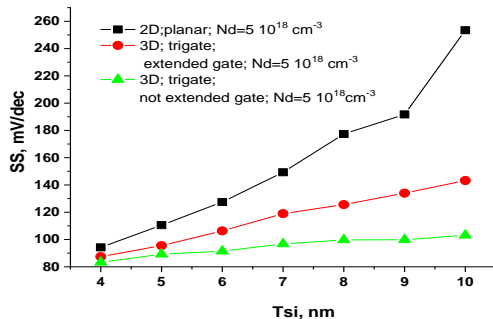
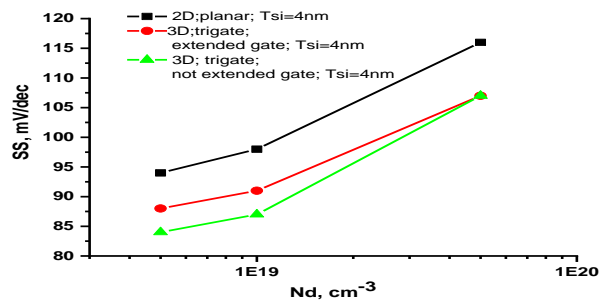


Fig 9. Average subthreshold slope dependence on silicon thickness for planar (2D) and trigate (3D) transistors with doping concentration $N_d= 5 \cdot 10^{18} \text{ cm}^{-3}$.



planar (2D) and trigate (3D) transistors with silicon thickness $T_{si}=4\text{nm}$.

Fig 10. Average subthreshold slope dependence on doping concentration for

Conclusion

Simulation results of SOI JLMOSFET with gate length of 10 nm show that:

1. In all ranges of considered silicon thicknesses and doping concentrations DIBL for trigate devices is lower than for planar devices
2. The average SS for planar and trigate devices with gate length of 10 nm, width of 10nm, silicon thickness of 4 nm and silicon doping concentration of $5 \cdot 10^{18} \text{ cm}^{-3}$ is in range between 80-100 mV/dec.
3. DIBL for trigate devices with extended gate is saturated with increasing of silicon thickness and it is higher than for devices with not extended gate up to silicon thickness 8nm.

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