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ARCHITECTURE. LANDSCAPE ARCHITECTURE.

Z.Kannazarova, L.Ryssalieva, S.Khamidov, K.Khamraev, G.Jaliliova, B.Najodov
Management practices for improving soil health in the Aral Sea Basin: a case study from Karakalpakstan.....5

ECONOMY. ECONOMIC SCIENCE. OTHER BRANCHES OF THE ECONOMY.

K.A.Chariev
Scientific and methodological bases of resource potential and its importance in the formation of organic agriculture in the conditions of a green economy.....9

U.Alimov, N.Omonov
Theory and strategy of the Bioeconomy: the case of Finland.....13

Kh.Khujamkulova, Z.Salomova, M.Uralova
Investments in agriculture and the efficiency of their usage.....16

M.Inoyatova
Development of organizational and economic land regulation mechanism relations in the arid zone.....19

M.Tosheva
Prospects for using the principles of "green economy" in agriculture.....23

Sh.Khamrayeva
Control innovative the development of the bioeconomic branches of the Republic of Uzbekistan.....30

K.Nosurullaev
Methodological basis of formation of agricultural insurance services in developing countries.....34

N. Abdurazakova
"Green economy" and its role in solving water and energy problems in Uzbekistan.....37

K.Shaakramov
On the issue of improving the processes of modernization the national economy.....40

E.Shodiyev, U.Matkarimov
Improving accounting of financial results in agricultural enterprises and financial analysis: evidence from Uzbekistan.....44

M.Kholikulov
The importance of investments and the organizational-economic basis of involvement in the field of fruit and vegetable sector.....47

A.Berdimurodov
The role and importance of digital technologies for innovative and sustainable development of the agricultural system of the Republic of Uzbekistan.....50

Z.S.Shokhojaeva, U.R.Sangirova
Improving the practice of subsidizing agricultural production.....53

I.Yunusov
Features and scientific-theoretical foundations of intensive development of the fish farming.....56

G. Shadmanova
Modern factors of modeling the development of production of farms and dehkan farms in Uzbekistan.....61

D.I.Mukumova,
The spatial gender equality and women's leadership in scientific activity in Uzbekistan.....63

ENVIRONMENTAL PROTECTION. WATER MANAGEMENT, HYDROLOGY.

M.Burkhonova, J.Narzullayev, B.Matyakubov
Comparison of furrow and sprinkler irrigation systems (in the example of carrot and cauliflower).....67

F.Bekchanov
Ensuring reliable operation of pump units.....71

E.Ozodov, N.Ozodova, D.Tadjiyev
Development of a multi-measuring system for control and prediction of process water resources on the arduino platform.....76

A.Djalilov, O.Nazarov
Implementation of intelligent control systems in water supply networks.....80

Kh.I.Muradov, A.U.Djalilov
Aquatic Elevation Tracking Mechanism.....84

Sh.Shoergashova, T.Liu, N.Ibrokhimova, B.Karimov
Land use impact on water quality of the zarafshan river basin.....88

HIGHER EDUCATION. PEDAGOGY.

S.Surmanov
A comparative analysis of reading skill development through graded readers.....92

O.Yoqubov
Implementing interactive learning methods requirements of time.....95

N.Yuldashova
English proficiency for advancing agricultural development.....98

M.Ziyadulloyeva
Enhancing agricultural development through teaching agricultural terms in English.....101

D.Madalieva
Study of the emergence of the concept of accounting in linguistic research.....104

POWER ENGINEERING, ELECTRICAL ENGINEERING, AUTOMATICS. COMPUTING TECHNOLOGY.

M.Ismailov, O.Ismailov, X.Temirova
Processing of blood cell images hybrid methods of acute lymphoblastic diagnosis CNN features.....106

M.Ismailov, O.Ismailov, X.Temirova
Dental Radiography Analysis Using YOLOv8 Deep Learning Using Raspbbery pi Device.....110

F.Kucharov, M.Begmatov
Electromagnetic consumer sensor.....113

S.R. Umarov, T.M.Bayzakov, Sh.B. Yusupov, A. Abduraxmonov, I. Kholmirzaev, S.Qurbonazarov
In greenhouses vegetable crops of seedlings cultivation electrotechnology effectiveness of assessment (sweet pepper plant on the example).....115

FEATURES AND SCIENTIFIC-THEORETICAL FOUNDATIONS OF INTENSIVE DEVELOPMENT OF THE FISH FARMING

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Abstract

This article gives information about scientific-theoretical foundations of intensive development of the fish farming and economic incentives by the state for the food provision of fish farms. Moreover, proposals to improve the economic and organizational base for the development of intensive fish farming and mechanisms for its implementation were proposed. As well as, to create consulting centers separately for the regions was recommended in this paper.

Keywords: *intensive fish farming, closed water circulation systems, cages, economic and organizational support, natural and*

Introduction. In recent years, the country has carried out large-scale reforms in the production, sale and supply of fish and fish products to consumers. As a result of the development of science and technology, the methods and means of fish farming are also changing and improving. In particular, today, in practice, two methods of fish care are widely used, one of which is fish farming using natural reservoirs, and the other is fish farming by a manufacturer of products under technical conditions.

In the first method, the organizational and economic basis of fish farming is formed, a service system that is also based on many years of practical experience. However, aquaculture is a new area in the practice of intensive fish farming methods and technologies. In this regard, the reforms carried out by the state in recent years are also yielding positive results, and due to the created opportunities and advantages, fish farms are strengthening their material and technical base.

In particular, in order to support the fishing industry in the country, improve the efficiency of fishing, rational and efficient use of land and water resources in this area and the widespread introduction of intensive technologies there was adopted Presidential Resolution “On measures to support the fishing industry and improve its efficiency” [2]. In accordance with this Resolution No. PR-4816, in conditions of water shortage, fish farms receiving water from rivers and canals have the opportunity to gradually introduce new resource-saving technologies and the widespread use of secondary water sources in artificial reservoirs [19].

In general, the technology of intensive fish farming is understood as the technology of intensive fish farming in artificial reservoirs, small reservoirs, closed water circulation systems and cage farms.

Of these, the technology of intensive artificial reservoirs is the technology of artificial reservoirs with an area of no more than 2 hectares, with an average depth of at least 2 meters, 2-4 aerators and more than 8 tons of fish per hectare.

Intensive technology of small ponds is a technology of growing dense fish at least 10 kg (5 kg for carp) per 1 m^3 of water in the pool facilities.

In recent years, the technology of an intensive closed water circulation system has also been developed, which is a technology for purifying water in a reservoir (mechanical, biological, pumping and oxygen generator) and producing fish of at least 20 kg / m3.

In addition, another method of intensive fish farming is the technology of intensive fish farming in cage (cage) farms, which understands the technology of raising fish of at least 10 kg per 1 m3 of water [18].

Materials and Methods. Today, intensive and extensive methods of fishing development are developing in parallel. Intensive fishing provides opportunities for the reproduction of high-yielding fish species as modern and efficient means of production, technologies and basic means of production.

If we look at the state of aquaculture in our country, it is organized mainly like pond fishing. In particular, artificial ponds have appeared, and fish productivity in these ponds remains low. This is an average of 17 centners per hectare. For the development of the industry, it is necessary, first of all, to eliminate a number of factors hindering its development.

In particular, the lack of enterprises specializing in the cultivation of fish seeds (larvae, fry);

- lack of a highly profitable fishing enterprise that could be studied as a model due to the lack of qualified specialists;
- lameness in the formation of reproductive parental forms of fish;
- fish farming in most private mini-ponds is carried out mainly in an extensive way, i.e. through the formation and development of a natural food base, and so on.

It is known that in pond fishing, polyculture feeds mainly on carp, grass carp and silver carp. According to the technology of feeding fish, carps are mainly fed with compound feed. Due to the lack of high-quality compound feed and high prices, mass feeding of carp began to reduce economic profitability, and they were replaced by silver carp, which can only grow with natural feed.

At the same time, the main part of the fish that are fed during intensive fishing is silver carp and partially grass carp and carp. Intensive fish farming technology maximizes benefits at the lowest cost.

However, there is another side to the question: to what extent does the quality of the farmed fish correspond to the market demand? That is, silver carp meat, which makes up the bulk of farmed fish, lags far behind carp in quality, which, of course, leads to a lower market price for this fish.

But, nevertheless, fishermen see the future of this style as promising. Since, as mentioned above, the high cost or lack of compound feed creates the need for intensive development of fishing, which allows efficient use of feed.

If we pay attention to the components of the natural food base of fish, as well as to the scientific and material basis of their development, then in any body of water there will be a certain number of natural species of plants and animals. In particular, fish ponds contain a certain amount of phytoplankton, zooplankton, macrophytes and benthic organisms. These living organisms, present in water bodies, constitute the natural food base of fish. This natural nutrient base in ponds cannot produce enough to feed the compressed fish.

Therefore, fishermen are developing a number of measures to develop the natural nutritional base of ponds. In particular, the ponds are covered with various organic and mineral fertilizers. Organic fertilizers are mainly manure, compost, poultry manure, which contain nitrogen, phosphorus, potassium, calcium and others. Mineral fertilizers include potassium, nitrogen, phosphorus, calcium and other types of fertilizers and lime. These fertilizers serve as food for algae, bacteria and invertebrates. These organisms, in turn, become a direct or indirect food source for fish.

Today, special attention is paid to the creation of new artificial reservoirs for intensive fish farming, the allocation of additional land, soft loans to meet the needs of the fish industry in mineral fertilizers and high-protein pelleted feed. But along with quantitative indicators, the problem of improving quality indicators is urgent.

The purpose of the development of intensive fish farming in our country is to obtain the maximum productivity per unit of water at the lowest cost.

Intensive fish farming is characterized by the improvement of biotechnology, the use of artificial means, feeding the fish with pellets, controlling the water, increasing productivity, caring for fish of different breeds and ages, and the comprehensive mechanization of the fish farming process. As a result of intensification of production, labor productivity will increase, and all types of resources will be used more efficiently.

Intensification of fish farming will require additional costs per unit of water body, but they will be effective only if the growth in the added value of additional production exceeds the growth rate of additional costs.

Intensification of fish farming is considered cost-effective, and depending on the direction of scientific and technological development, the following types of intensification are distinguished:

- intensification of labor costs in intensive fish farming - this will increase labor productivity by reducing the number of people employed in fish farming;

- saving money with intensive fish farming - this means less resources in the size and cost of fixed assets in the farm;

- cost savings in intensive fish farming - saving resources such as raw materials, fuel, electricity, at the expense of one unit of growing fish.

The only way to significantly increase the volume of fish farming in the country based on intensive technologies is to develop new high-performance biotechnologies based on the principles of integrated water use and expand the list of intensively farmed fish. By increasing the productivity of cages to 40 kg / m3, we have the opportunity to increase production by 50%, and through the development of intensive fish farming in closed basins, to produce 2-3 times more than at present.

The issue of choosing new objects for intensive fish farming remains relevant. Two factors are very important: the ratio of fish species to salinity and water temperature. Currently, only freshwater fish species are suitable for Uzbekistan, and in the future it is necessary to use salt water. The water in the foothills and mountainous regions of Uzbekistan is cold, and the temperature does not exceed 18 degrees throughout the year, therefore, it is necessary to develop fish farming in cold water in these zones. And fish species can be raised in warm water on the plains [8].

On the other hand, intensive indoor fish farming makes it possible to care for the two aforementioned fish species through the ability to control the water temperature, which also reflects the superiority of intensive technologies. Therefore, in recent years, special attention has been paid to the development of intensive fish farming. In particular, in the Fergana region, a project has been implemented on intensive fish farming in indoor pools, which today has shown its economic efficiency in practice.

The farm has taken advantage of tax incentives for setting up a fish farm using intensive technologies. The closed circulation system used 16,000 cubic meters of water. It is important to note that the water can be re-discharged into the water source by purifying it in a closed system. In this case, the water consumption is 3%.

According to the Resolution of the President of the Republic of Uzbekistan dated April 6, 2018 No. PR-3657 "On additional measures for the accelerated development of the fishing industry", the widespread introduction of innovative and modern intensive technologies, including cage, closed water circulation systems is very important. Particular attention was paid to increasing the volume of catches due to fish farming and increasing the productivity of artificial reservoirs, improving the work on the cultivation and breeding of valuable species of fish and fry within the framework of public-private partnerships [1].

The issue of using intensive technologies in fish farming has risen to the level of public policy. In particular, as noted in the government videoconference on November 14, 2019: “There are many problems in the development of highly productive areas of animal husbandry in the short term, in particular, poultry farming, fish farming, rabbit farming”. In particular, today only 460 hectares (1%) out of 38,000 hectares of artificial reservoirs create an intensive form of fish farming. The main reason for this is that the cost of intensively farmed fish is 2 times more expensive than traditional farmed fish. Therefore, entrepreneurs are comfortable with the simple method. However, if fish farming in this way does not exceed 2-3 tons per hectare, you can get up to 100 tons of fish in intensive fish farming [17]. Another effective method of intensive fish farming is the cage method, which is also very promising in our country.

Intensive fish farming in cages has advantages over traditional fish farming in ponds. One of them should be placed directly in water bodies and occupy only a part of them. This allows the use of water resources not only for fish farming, but also for other industries. Another advantage is that, as in water bodies, the use of significant land areas in agricultural use is not required.

Unlike traditional fish farming, cage culture does not require forced water exchange or energy consumption to pump water. Cages are always passive, that is, they do not require special labor from a person. The exchange of water inside the cage is created by the movement of the fish and occurs due to the movement of waves. Therefore, the cages have a constant renewal of water and its quality complies with the standards of fish farming. The same

physicochemical regime is created in reservoirs with good water permeability of cages. This allows an increase in the number of fish species compared to water bodies. More carp and African catfish can be grown this way.

The cages installed in lakes and reservoirs make it possible to use the natural forage resources of lakes and reservoirs. That is, an increased concentration of zooplankton, phytoplankton, benthos, and wild fish is observed around the cages, which can enter the cages using a jet of water with mixed feed and fecal residues washed through nylon holes.

One of the social benefits of cages is the ability to place them in and around settlements. This will open access to the farm, labor resources, the use of ready-made communications (power lines, water supply, gas pipelines, transport, food, etc.).

The cages use plastic nets with cells from 8x8 cm to 20x20 cm, each side of which is 5 meters. The depth of the mesh is 8 meters. As the fish grows, they are transferred from one mesh to another. Marketable fish in cages is raised for 5-7 months. During this period, the fish grows from 250 g to 1.5 kg. The water temperature should not exceed 20 degrees, and the oxygen content in the water should not be less than 7 mg / l. It is advisable to discard 100-250 eggs per m3. On average, 10-15 kg of commercial fish are caught from 1 m3 of the basin. The average profit of 1 kg fish is 10 thousand soums.

Discussion and suggestions. The main expected economic results of intensive fish culture in cages are:

• does not require placement on large areas of water bodies or lakes;

• As in traditional fishing, it is not necessary to equip large reservoirs, occupy agricultural land;

• The physical and chemical regimes in the cage are the same as in water bodies, which allows reproduction of valuable fish species, including salmon and sturgeon, in comparison with water bodies.

• It is possible to place the cage near to ready-made communication stations, which reduces the cost of production (power lines, water supply, gas pipelines, transport, etc.).

Expected ecological results of intensive fish culture in cages:

• cage fish farming is aimed at preserving the environment;

• does not harm the water body or natural landscape;

• a zone with a high concentration of zooplankton, phytoplankton, benthos, wild fish has been created around the cage.

Expected technical results of intensive fish farming in cages:

• there is no need to consume the water pump and the electricity to provide forced water exchange.

Expected social results of intensive fish culture in cages:

• additional jobs will be created for the local population;

• provide the population with local valuable fish species.

It is advisable to develop an organizational and economic basis for the development of intensive fish farming in the future and implement the following ways to improve it. Including:

Today, lending and financing, insurance, training and professional development, the system for the development of breeding and genetic fund are one of the important factors in providing the industry with feed (Figure 1).

This is, firstly, partial and full coverage by the interest rate of bank loans and secondly, the increase in the level of water salinity as a result of the rise in the surface of groundwater is not included in the current procedure, it is necessary to enter these indicators as insurance and set the maximum amount of insurance money in the amount of 30 percent and an insurance premium of 5 percent and thirdly, providing the industry with qualified specialists armed with modern knowledge will serve as the basis for further strengthening the food base.

Conclusion. We think that at the regional level the real support of the fish farms can be ensured by the formation of a system of basic laws and regulations, the identification of priority areas and, on their basis, investments in the development of the fishing industry, conducting the continuous monitoring of financial investments, implementation of measures to create different conditions for the formation and use of financial resources, implementation of the strategy for the development of fish farming.

Thus, the fish farming has great economic importance in the present conditions and can bring an even greater economic effect in the long term, with the introduction of new innovative technologies for processing of products.

Organizational and economic stimulation of strengthening the fodder base in the fish farms themselves and supplying them with fodder from external sources, as well as in order to improve the food supply of farms, the allocation of land area based on the area of the reservoir, fish productivity per 1 m3 of the reservoir and the level of groundwater will give good results.

Therefore, it is advisable to carry out economic stimulation of food supply for fish farms by the state through guaranteeing partial coverage of bank loans and covering their full interest rates, apply insurance at a 30 percent rate for damage caused as a result of water mineralization and establish a 5 percent level of insurance premium, issuance of customs and tax benefits for feed-processing and pellet-producing enterprises, fish farms and organizations.

Stimu-lus	Name of Measures	Sources of Financing	Responsible Executors	Expected Results
Through lending and financing	- to guarantee partial or full repayment of the interest rate on loans for feeding fish farms; - to develop a feeding system for fish farms, encourage investors to participate; - to carry out research and innovation projects to improve the food supply of fisheries and improve the organizational and economic foundations of fisheries.	Funds of commercial banks and profit of fish farms, means of international grants, grant funds of state scientific and technical programs	State Committee for the Development of Veterinary and Livestock of the Republic of Uzbekistan, Scientific and production Center for Agriculture and Food, Ministry of Innovative Development, Commercial Banks, Scientific-Research Institute of Fish Farming	The feed provision system for the fish farms will be improved, the type and quantity of quality feed will increase
Through insurance	- insurance of losses associated with the supply of feed to fish farms and cases of non-fulfillment of the contract clauses; - insure an increase in the level of water mineralization and set the maximum amount of insurance money at 30 percent and insurance premiums at 5 percent.	Funds of insurance companies	State Committee for the Development of Veterinary and Livestock of the Republic of Uzbekistan, Scientific and Production Center for Agriculture and Food Supply, "Ozbekbaliksanoat" Association, insurance company, relevant departments and organizations	Efficient business environ-ment will be created by eliminating possible risks
Through training, professional development and training of personnel	- advanced training of fish industry specialists once every three years; - organization of short-term training seminars with the involvement of specialists and scientists working in this field at least twice a year; - organization of internships for fish industry specialists at universities and research centers of advanced foreign countries with intensive fish farming; - training of personnel in the field of master degree in cooperation with developed countries of fish farming, training of highly qualified scientific personnel.	Own funds of performers, means of the Fish Farming Development Fund, means of international grants, grant funds of state scientific and technical programs	State Committee for the Development of Veterinary and Livestock of the Republic of Uzbekistan, Scientific and Production Center for Agriculture and Food Supply, Ministry of Innovative Development, Association "Uzbekbaliksanoat", Scientific-Research Institute of Fish Farming, relevant higher educational institutions	Specialists armed with modern technolo-gies and knowledge will be formed in the industry
Through selection and development of the genetic fund	- stimulating the import of breeding materials (fish fry, genetic devices, etc.) from countries where the fishing industry is developed (Russia, Hungary, Vietnam, China, Turkey); - stimulating the development of a genetic fund aimed at the development of science in the field of fisheries.	Means of international grants, grant funds of state scientific and technical programs, means of the Fish Farming Development Fund	State Committee for the Development of Veterinary and Livestock of the Republic of Uzbekistan, Scientific and Production Center for Agriculture and Food Supply, Ministry of Innovative Development, Scientific Research Institute of Fish Farming	As a result of the import of fish breeding materials, the genetic fund will be developed

Figure 1. Economic incentives by the state for the food provision of fish farms.

Short-term experience in the field of fish farming shows that the development of closed fish farming, increasing its productivity and resource efficiency remain among the urgent tasks, and the solution to this problem is the organizational and economic support by the state.

Therefore, in the course of the study, proposals were developed to improve the economic and organizational base for the development of intensive fish farming and mechanisms for its implementation were proposed.

We can also suggest the following recommendations in the development of fishery of our country based on the foreign experinces:

1. It is absolutely vital to realize scientific-innovative projects for the development of fisheries. Implementation of scientific projects and research which are aimed at solving the problems of the sector's development (cage fishing, intensive technologies, acclimatization of new species, modernization of necessary fishing equipment).

2. Increasing the volume of production of fish products in Uzbekistan:

- Expansion of produced fish assortments through acclimatization of new fish species;
- Export of produced and processed new fish species and realization of their sales in foreign markets;
- Introduction of advanced technologies for the processing, packaging and storage of fish products in the regions;
- Improvement of food supply in the production process of fish products, establishment of feed and fertilizer production in the local conditions;
- Strengthening the role of logistics and consulting services in the supply chain;
- Creating an analytical online platform that might be observed the price changes of fish products and enabled new information about latest technologies and equipment for fisheries;
- Further strengthening the system of personnel training on fisheries in higher education institutions, organization of seminar-trainings and internships for specialists in the foreign countries.

In general, we can conclude that by analyzing the experience of countries with advanced fisheries, such as Vietnam, Turkey, Russia, China, Japan, Germany, Croatia, it is advisable to implement important areas for the development of fisheries in our country. Without intensive technologies and methods, it is impossible to increase the volume of fish production, therefore, the current directions of foreign experience and increasing the efficiency of their implementation are today one of the most important issues in this area.

References:

1. Resolution of the President of the Republic of Uzbekistan dated April 6, 2018 No. PR-3657 "On additional measures for the accelerated development of the fishing industry". National Database of Legislation, April 7, 2018, No. 07/18/3657/1027.
2. Resolution of the President of the Republic of Uzbekistan dated August 29, 2020 No. PR-4816 "On measures to support the fishing industry and improve its efficiency". National database of Legislation, 29.08.2020, No. 20.07 / 4816/1239, 03.12.2020, No. 20.06.6121 / 1590.
3. Resolution of the President of the Republic of Uzbekistan dated November 6, 2018 No. PR-4005 "On additional measures for the further development of the fishing industry". National Database of Legislation, November 7, 2018, No. 07/18/4005/2165.
4. Resolution of the President of the Republic of Uzbekistan dated February 3, 2018 No. PR-3505 "On additional measures to increase fish production in 2018". National Database of Legislation, 06.02.2018, No. 07/18/3505/0656, 01.08.2018, No. 06/18/5497/1604.
5. Resolution of the President of the Republic of Uzbekistan dated May 1, 2017 "On measures to improve the management system of the fishing industry". No. PR-2939, "Xalkh sozi" newspaper, 2017, 87 (6781).
6. M. Yuldashov. Biological bases for increasing fish productivity in various types of water bodies in Uzbekistan. Dissertation Abstract of DSc in Biological Sciences. www.ziyonet.uz/uz.
7. Yunusov I.O. The main aspects of improving the production efficiency of fish products. "Economics and innovation technologies" journal. № 1, 2017. - P 1-6.
8. Ponomareva O.N. Ways to increase the economic efficiency of reproduction of fish stocks / / Bulletin of the State Agrarian University of Krasnoyarsk. 2006.- P.35-37.
9. S.Umarov Investment and Innovative Development Ways of Water Resources. American Journal of Business, Economics and Management. 2016; 4(6): - P. 170-174.
10. Yunusov I.O. Features of the development of the fishing industry and aquaculture. // Journal "Agroiqtisodiyot" - 2018, №3 (6). - P.57-60.
11. Yunusov I.O. Essence and Indicators, characterizing the economic efficiency of Reproduction of Fish reserves. // Scientific Journal: Economics and Finance. Issue1. Ukraine – 2019, (ISSN 2311-3413, (12) Index Copernicus, (18) Ulrich's Periodicals Directory). – P.11-17.
12. Yunusov I.O. Determining the interdependence of factors, affecting the development of fish farming. // International Journal of Research Culture Society. Monthly Peer-Refereed, Indexed Journal. Volume-3, Issue-8, Aug – 2019. (ISSN: 2456-6683, (23) Scientific Journal Impact Factor, id=19648, (14) Research Bib, (1) Web of Science (Web of knowledge), Impact Factor: 4,526 http://ijrcs.org). – P.42-47.
13. Yunusov I.O. Foreign experiences on the development of fish-farming: in case of Croatia. // Scientific and Technical Journal of "Sustainable Agriculture" – 2020, №1(5).2020. – P.12-15. ISSN 2181-9408.
14. Yunusov I.O., Sadullaev U.N. The main factors affecting the efficiency of fish production. // Scientific and Technical Journal of "Sustainable Agriculture" – 2020, №1(5).2020. – P.16-19. ISSN 2181-9408
15. Yunusov I.O. Government support mechanisms for improving the efficiency of fish farming in Uzbekistan. // Scientific and Technical Journal of "Sustainable Agriculture" – 2020, №2(6).2020. –P.12-15. ISSN 2181-9408.
16. Umurzakov U.P., Yunusov I.O. Ways to develop and improve the efficiency of the fishing industry. / Monograph. - Tashkent: "Tafakkur tomchilari". – 2020. – 208 p.
17. G.Dusmuratov, I.Yunusov "Opportunities for public-private partnerships in the field of aquaculture". // Scientific and Technical Journal of "Sustainable Agriculture" – 2020, №3(7).2020. –P.21-25. ISSN 2181-9408.
18. U.Sangirova, I.Yunusov "Organizational and economic incentives for aquaculture development in ensuring the sustainability of the domestic market". // Scientific and Technical Journal of "Sustainable Agriculture" – 2020, №4(8).2020. –P.15-18. ISSN 2181-9408.
19. U.Umurzakov, I.Yunusov "Organizational and economic foundations for the development of fish farming based on intensive technologies". // Scientific and Technical Journal of "Sustainable Agriculture" – 2021, №1(9).2021. –P.13-18. ISSN 2181-9408.
20. U.Sangirova, Z.Khafizova, I.Yunusov, B.Rakhmankulova, U.Kholiyorov "The benefits of development cage fish farming". E3S Web of Conferences 217, 09006 (2020) https://doi.org/10.1051/e3sconf/202021709006 ERSME-2020. P.1-7. (Scopus).
21. G. Dustmurodov, I. Yunusov, U. Ahmedov, Sh. Murodov, S. Iskandarov "The mechanism for the development of public-private partnerships in agriculture (on the example of the Republic of Uzbekistan)". E3S Web of Conferences 224, 04042 TPACEE-2020. https://doi.org/10.1051/e3sconf/202022404042. - P.1-8. (Scopus).