

State of the management mechanism of fruit and vegetable cluster in Uzbekistan

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Abstract. This article provides a comprehensive overview of scientific research and information concerning the development of fruit and vegetable clusters. It delves into the evolution of management structures within these clusters, considering their implications on the country's economic situation. The research also explores the overall development of the national economy and the efforts made to create a stable economic system. The cited scientific research works shed light on the dynamic growth and evolution of fruit and vegetable clusters, highlighting their importance in the economic landscape. These clusters play a crucial role in the production, processing, and distribution of fruits and vegetables, contributing significantly to the country's agricultural and economic sectors. Moreover, the article discusses how the establishment and proper management of these clusters can enhance economic growth, create job opportunities, and stimulate rural development. The research cited in the article underscores the significance of effective management structures in optimizing the performance of these clusters and maximizing their economic potential. Additionally, the article touches on the broader context of the country's economic situation and the efforts undertaken to create a stable and sustainable economic system. The development of fruit and vegetable clusters is viewed as an integral part of this economic strategy, as it fosters a diversified and robust agricultural sector, ultimately contributing to the country's overall economic stability and prosperity.

Keywords. Cluster, management, structure, system, method, digitization, network, development.

1 Introduction

As a result of the proper organization of the management method in clusters, its criteria and structure, the development of the field of storage of fruit and vegetable products, the construction of modern storage warehouses, the wide use of modern techniques and technologies in their equipment, the prevention of perishability of the grown products and the reduction of quality deterioration to farms and the service sector companies will be able to make a large amount of profit [1].

Today, farmers are forced to sell their crops in the field due to the use of various agrotechnologies in order to increase the amount of fruit and vegetable products grown in farms and peasant farms. First of all, the relatively low prices of products will lead to low incomes

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of farmers and peasants; secondly, fruits and vegetables are mainly calculated according to their size, not enough attention is paid to their quality indicators [2, 3].

The economic scientists of our country and foreign countries have been conducting scientific and research work in various directions on the problems of improving and developing the scientific and theoretical methodology of fruit and vegetable industry development, the mechanism of effective organization and management of fruit and vegetable clusters in the conditions of market economy. In particular, foreign scientists: ME Porter, JH Trienekens, RA Stanley, J. Mutura, N. Nyairo, M. Mwangi and S. Wambugu, M. Mehdi, B. Ahmad, A. Yaseen, A. Adeel, N. Sayyed [4-9] reflected in the concepts, theories and practical research of scientists on these issues.

E.B. Falkovich, D.A. Kotlyarov, T.V. Tsikhan, A.S. Khukhrin, O.A. Anichkina, G.B. Kleiner, R.M. Kachalov, V.V. Mitenev from scientists of the CIS countries [10-13], O.B. Kirik, N.N. Balashova S.A. Ernst, G.L. Azojev, V.N. Ivanov, V.V. Paltsev, Z.N. Burjalieva, Sh. Rakhimi, A.Yu. Sachkova, R.A. Karimov [14-19] and others conducted scientific research in the development and management of fruit and vegetable clusters.

Therefore, buyers who buy products try to deliver to consumers in a short period of time. For this, it is necessary to pay attention to the financial capabilities of fruit and vegetable clusters, social and political position, system participants, large and small volumes of production, regional conditions, the share of modern technologies in production, the role of the cluster in free market competition.

2 Materials and methods

Mathematical modeling, economic analysis, SWOT analysis, systematic and comparative analysis, integrated approach, questionnaire survey, systematic approach, comparison, classification methods were widely used in the research process.

Clusters established in the field of fruit and vegetables are a structure based on horizontal and vertical cooperation of legally independent enterprises and organizations. This structure includes producers of agricultural products, enterprises that store and process cultivated crops, suppliers of seeds and chemical protection agents and fertilizers to agriculture, manufacturers, suppliers, technology creators and suppliers of machines and mechanisms used in these fields, various infrastructure departments, financial organizations, research institutions, etc. will exist. Clusters in the agrarian sector can be large in terms of size and can be organized at the district or regional level according to the territory they occupy. The mechanism for organizing clusters in the fruit and vegetable sector should be as follows. (Figure 1)

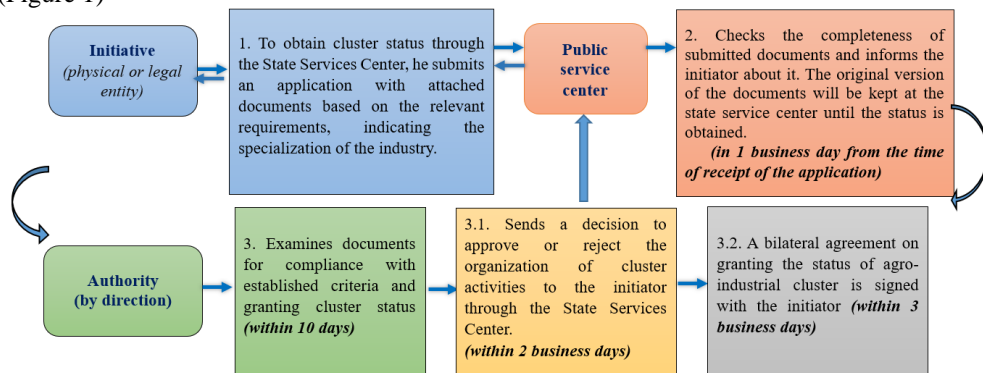


Figure 1. Mechanism of organization of fruit and vegetable clusters.

The mechanism of organization of fruit and vegetable clusters, special attention should be paid to the main criteria in the organization of clusters (Figure 2). By this means, taking into account all aspects of the organized fruit and vegetable cluster, it is possible to perform the most important tasks and to determine the causes of the problems.



Figure 2. Main criteria for the establishment of fruit and vegetable clusters.

Fruit and vegetable clusters will work towards a common goal, and the main goal will be to achieve the efficiency of the sector and increase the export potential. However, the entities in the existing structure must have their own purpose. An important task in the organization of clusters is to effectively connect the goal of each subject with the overall goal of the cluster. Otherwise, each organization strives to realize its own goal, and because the common goal of the cluster is not realized, inefficient activities are carried out.

At the same time, it will not be possible to find some types of fruit and vegetable products in certain periods, and as a result of the increase in demand, the level of shortage will occur. It is observed that the import of chemical preparations from abroad and the preservation of seeds necessary for the cultivation of fruit and vegetable products from various diseases and the export of fruits and vegetables lead to a sharp decrease. From this point of view, there is a need to modernize the organizational structure of fruit and vegetable clusters, to maintain and process fruit and vegetable products, to achieve their constant availability throughout the year and to increase the volume of export.

Today, the establishment of an effective management system in agriculture, along with the development of clusters, completely eliminates the existing shortcomings in the field. Currently, cluster cultivation of fruits and vegetables is showing its positive results.

Significant work has been done on introducing resource-saving techniques and technologies into agricultural production, bringing industry to rural areas and creating new jobs, producing finished products with high added value, and developing infrastructure.

At the same time, effective mechanisms have not been created to coordinate the activities of fruit and vegetable clusters, eliminate systemic problems arising in their activities, and protect their interests in state management bodies.

To further increase the efficiency of the activity of fruit and vegetable clusters and further improve the management mechanism, to increase the processing capacity of fruit and vegetable products, to widely introduce scientifically based methods and intensive technologies to this process, as well as to eliminate the problems arising in the activity of fruit and vegetable clusters in a timely manner, indicates that a number of reforms should be implemented in order to establish a system of protection of their interests in the administrative bodies of state power.

3 Results and discussion

In our research work, we have developed scientifically based proposals on the organization of the "Uzbekistan Fruit and Vegetable Clusters" association of organizers of fruit and vegetable clusters and its organizational management structure (Figure 3).

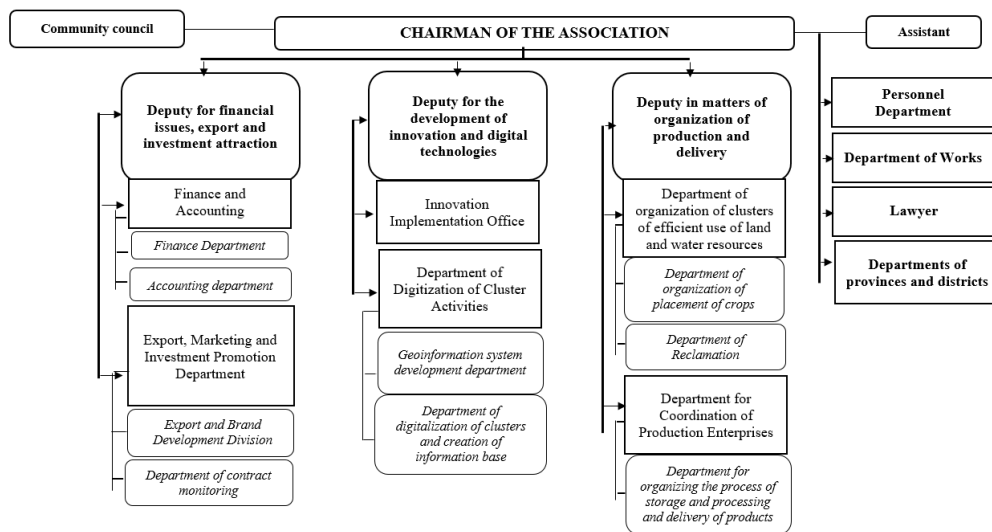


Figure 3. Management structure of the association "Fruit and vegetable clusters of Uzbekistan".

Proposed *"fruit and vegetable clusters of Uzbekistan"* The main purpose of the organization of the association: elimination and management of systemic problems in the field, development of proposals for the active introduction of marketing innovations, as well as effective functioning of fruit and vegetable clusters, achieving high final results, setting specific tasks and constant regulation of their scattered activities, Harmonization of interests of cluster participants, creation of financial opportunities for clusters connected to the system, and implementation of economic relations between the cluster and the state on the basis of modern mechanisms are considered.

It is planned to control and create conditions for the main product-producing clusters, as well as to rapidly develop the industry and unify it in one system.

The following were defined as the main tasks and activities of the Association:

- coordinating the activities of fruit and vegetable clusters and the implementation of projects by them, protecting their rights and interests, organizing effective cooperation with state bodies and organizations and economic associations;
- support the placement of fruit and vegetable clusters based on the prospects of further development of the potential of the regions, raw material base, existing infrastructure, labor resources and market conditions;
- introducing advanced agrotechnologies and resource-saving techniques and technologies into the process of growing fruit and vegetable products, as well as creating a transparent mechanism for regulating relations between fruit and vegetable clusters and farms;
- production and export of ready-made products with high added value, expansion of activities of fruit and vegetable clusters, and implementation of comprehensive measures for wide implementation of digital technologies in these processes;
- to develop proposals for the application of unified benefits and preferences for the development of fruit and vegetable clusters and the development of agrotourism as an additional sector;
- organization of marketing research in the domestic and foreign markets, participation in the development and implementation of medium and long-term programs of network development, as well as wide introduction of market mechanisms to the network;
- modernizing fruit and vegetable production, technical re-equipment, helping fruit and vegetable clusters to attract investments, including foreign direct investment, in introducing high-performance innovative technologies;
- identifying and eliminating systemic problems that hinder the rapid development and stable operation of fruit and vegetable production, as well as preparing proposals for further improvement of legislation related to the sector.

It would be desirable to unite the union and fruit and vegetable clusters in one area, study their main problems, and eliminate them.

At the same time, the state of cluster management principles, the causes of the main problems in management, and the ways to eliminate them require a separate study. Today, when studying the management structure and management methods of fruit and vegetable clusters, the absence of a clear structure in the clusters, the presence of a number of shortcomings in the application of management methods, shows that special attention should be paid to the management system of the sector. As a result of the introduction of the management structure of the association and vegetable clusters, the mechanism of development of the sector will have a collective character.

One of the main and most important stages of planning, which is considered one of the important functions in the management of fruit and vegetable clusters, is the selection of the objectives of the clusters. It is important to note that clusters have a wide range of purposes in multi-link systems.

the fruit and vegetable cluster is defined in its task. The task describes the situation of the cluster in detail and defines ways to achieve goals and strategies at each organizational stage.

Therefore, the task of the fruit and vegetable cluster should be expressed as follows:

- in terms of main services and products, markets and technologies;
- from the ratio of the external environment, which determines the working principles of the entities in the structure of clusters, to the enterprises in the structure ;
- the culture of organizations in clusters , their internal activities.

Clusters are structured according to their goals. It is impossible to create a structure that is the same for everyone. Each cluster constructs a structure based on its capacity, and each department and structural units in the structure contribute to the realization of the cluster's goal. At the same time, new structural units can be established that can contribute to the

purpose of the clusters in cases where it is necessary to ensure the effective functioning of the clusters (Figure 4).

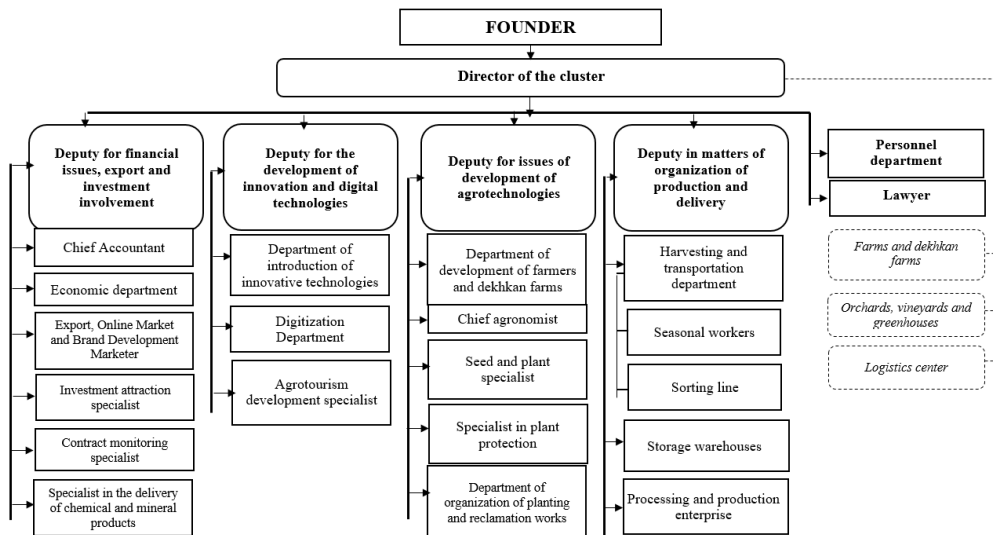


Figure 4. Proposed governance structure of fruit and vegetable cluster.

Conditions are created for elimination of clusters independently or in cooperation with the association, taking into account all the factors affecting it. When improving the management mechanism of fruit and vegetable clusters, it is necessary to pay special attention to the organizational and economic mechanism of clusters. Therefore, it is desirable to develop organizational and economic mechanisms of clusters in the following directions:

- ✓ identify all influencing factors and determine their scope;
- ✓ planning the activities of clusters for the current and long term, establishing the most proportionate proportions and relationships between all participants. To achieve their full economic and legal independence;
- ✓ to establish the correct mutual calculations between units and organizations that are part of the cluster. In this case, not to allow their rights to be violated, but rather to take measures to protect and support them;
- ✓ establishing mutually efficient distribution relationships to ensure the development of clusters in the fruit and vegetable sector. taking into account only the cluster development prospects when distributing the received funds. At the same time, taking into account the interests of economic entities within the cluster;
- ✓ proper establishment of contractual relations between entities in the fruit and vegetable cluster. Taking into account the contribution and level of development of each party.

In addition, it is necessary to pay special attention to the organizational, economic and social aspects of the management of fruit and vegetable clusters (Table 1). In order to do this, it is necessary to create a single digitized platform for clusters, through which to analyze the activities of clusters, to introduce the sale and purchase of products, delivery service, and to ensure that cooperation relations are integrated into one system.

Table 1. Peculiar aspects of the organizational and economic basis of fruit and vegetable cluster management.

ORGANIZATIONAL	ECONOMIC	SOCIAL
<ul style="list-style-type: none"> - to fully satisfy the population's demand for quality fruit and vegetable products; - production of various products as a result of fruit and vegetable processing and increasing the volume of export in addition to domestic consumption; - creation of new jobs by establishing industrial enterprises in rural areas and providing employment to the unemployed population; - complete regulation of economic and social relations between entities operating in the fruit and vegetable sector; - creation of a value chain in the cultivation of fruit and vegetable products and extensive use of modern management methods; 	<ul style="list-style-type: none"> - creating an opportunity to increase economic efficiency indicators of enterprises operating in the fruit and vegetable sector; - to establish a wide use of resource-saving technologies in the production of products; - by organizing the processing of fruit and vegetable products, to achieve a profit of more than 15 times compared to wet sales; - the possibility of correct organization of monetary policy with banks and other financial organizations and timely repayment of creditor debts; -in order to increase the income of the population and establish a financial incentive mechanism; -increasing foreign exchange earnings as a result of exporting processed products, etc. 	<ul style="list-style-type: none"> - production of products that fully meet the sanitary requirements of the population; - organization of agrotourism zones in rural areas and radical change of living standards of the population; - financial stimulation of the vulnerable strata of the population through social support, etc.

Therefore, it is ensured that each cluster's goal setting serves to complement the overall goal. If we analyze the production, storage, processing and economic indicators of fruit and vegetable clusters and farms, we pay special attention to the high share of clusters, as well as the provision of a continuous work process (Table 2).

Table 2. Analysis of economic indicators of fruit and vegetable cluster and farms operating in Bukhara region, Uzbekistan.

#	Indicators	Unit of measure	Product cultivation		Difference (-/+)
			Fruit and vegetable cluster of "Emir Fruit Industry" LLC	"Kelajak Zamini" farm	
1	Total harvested land area	(ha)	70	13	57
2	Fruit growing	(ha/t)	15.5	12.3	3.2
3	Growing vegetables	(1/ha ton)	17.6	14.7	2.9
4	Product storage capacity	(tons)	600	0	600
5	Product processing capacity	(tons)	1000	0	1000
6	Product sold wet (average selling price per kg (fruits 10,000) (vegetables 3,000) 13,000 soums.)	'000 UZS	445000	112500	332500
7	As a result of processing	'000 UZS	1356000	0	1356000

	and selling (<i>1/kg selling price on average 30,000</i>)				
8	Jobs created	(<i>number</i>)	43	8	35
9	The number of techniques	(<i>piece</i>)	45	2	43
10	Electricity consumption	'000 UZS	36000	600	35400
11	Mineral fertilizer purchase costs	'000 UZS	77000	8000	69000
12	Costs of purchase of chemicals	'000 UZS	68000	4500	63500
13	Costs of fuel lubricants	'000 UZS	80000	4500	75500
14	Labor costs	'000 UZS	1032000	76000	956000
15	Depreciation	'000 UZS	4700	300	4400
16	Transportation costs	'000 UZS	30000	100	29900
17	Other expenses	'000 UZS	45000	1.000	44000
18	Marketing and modernization	'000 UZS	17000	550	16450
19	Total cost	'000 UZS	1299.0	95550	1203450
20	Income	'000 UZS	1801000	112500	1688500
21	Net profit	'000 UZS	502.000	16.95	485050
22	Profitability	(%)	38.6	17.7	20.9

It is known that production in farms has a clearly expressed seasonal character, in which the work period does not correspond to the production period due to the uneven use of labor resources throughout the year, sometimes there is a shortage of labor, and at other times there is a surplus. In particular, fruit growing and viticulture, which require less labor during the growing season and lack it during the harvest season, suffer more. A similar situation is observed in vegetable growing, where the need for labor force and changes in its use are relatively small due to the use of methods of planting crops in one row and alternating planting, and the use of technologies for growing vegetables under film.

If we look at the comparative analysis between the cluster and farms, it can be seen that the net profit of the cluster is 40 times more than the net profit of the farm and the profitability index is 20.9% higher. In addition, the creation of more than 100 jobs on the basis of clusters is of particular importance.

When organizing mutual relations in fruit and vegetable clusters, it is necessary to take into account the situation and development of each participant. To achieve this state, the following directions should be implemented:

- assessment of the state of development of the regional fruit and vegetable network and organization taking into account the tradition of achieving prospective results.
- clearly defining the purpose of the cluster organization and aligning the goals of all participants to this main goal.
- developing a development model of each participant and the complex as a whole and setting criteria in it.
- taking into account the impact of clusters in the fruit and vegetable network on the environment and ecology. Establishing measures to increase the impact on the improvement of the environment, if necessary.

4 Conclusions

Taking into account the positive impact of clusters in the fruit and vegetable sector in the future development of the country's economy and their role in providing employment to the

population and increasing the country's export potential, the state should exert its influence on the development of this sector and support it in necessary cases. It is expedient for the state to bear part of the main expenses for the establishment of fruit and vegetable clusters. the analysis of the activities of developed countries in this field shows that they are receiving a lot of attention from the state.

Therefore, in the formation of the management structure of these fruit and vegetable clusters, it allows to cover the activities of farms, farmers and LLCs in cooperation and to eliminate the existing problems with them in the field. This, in turn, is explained by the increase in the production indicators of fruit and vegetable clusters and the achievement of high economic efficiency.

of the above-mentioned fruit and vegetable cluster has been determined that the development of the fruit and vegetable sector will serve to increase varieties suitable for climatic conditions and fully satisfy the population's need for quality, cheap fruit and vegetable products.

Regarding the activity of fruit and vegetable clusters in the Bukhara region, which is being studied as the object of our research, the following conclusions were reached:

- increase the level of productivity of products grown in fruit and vegetable clusters;
- increasing the volume of fruit and vegetable production and focusing on standardization and certification processes in accordance with quality requirements;
- wide establishment of logistics transport system to deliver products grown in fruit and vegetable clusters to world markets and consumers;
- implementing the use of modern management methods and innovations in the management of fruit and vegetable clusters;
- in order to improve the development and efficiency of fruit and vegetable clusters, first of all, it is necessary to carry out a SWOT analysis of the farm.

Factors in fruit and vegetable clusters were studied, divided into internal and external factors according to the level of influence, as well as positive and negative factors according to the obtained result.

References

1. Soliev A., Kodirov Kh. Economic clustering is a factor of strategic planning. *Economy: analyzes and forecasts*. Tashkent-2019., #1. 104-108 p.
2. Tsikhan, T. V. Cluster theory economic development // *Teoriya i praktika upravleniya*. - 2003. - No. 5. - S. 40. Khukhrin A.S. The concept of agricultural development in the Russian Federation. *Economics, labor, upravlenie v selskom hozyaystve*. 2011. - No. 1(6). - p. 15-20
3. Rozikov J.M. Development of fruit and vegetable clusters and ways to adapt the management mechanism to market principles. *Tashkent State University of Economics // Proceedings of the International Scientific and Practical Conference on "Actual tasks of the effective use of modern marketing concepts in the development of the national economy"* - T., 2022 - pages 30-36.
4. Anichkina, O. A. Principle formirovania clusterov malogo i srednego biznesa v APK /O. A. Anichkina // *Materialy mejdunarodnoy nauchnoy conference "Problemy sovremennoy ekonomiki"*. - Chelyabinsk, 2012. - 39 p.
5. Rozikov JM Prospects for the development of fruit and vegetable clusters. // electronic scientific and practical periodical publication "Economics and society" №11(102) 2022 pp. 1-13.
6. Rozikov JM Scientific basis for further improvement of fruit and vegetable cluster management mechanisms in Uzbekistan. // ISSN: *Galaxy international interdisciplinary research journal (giirj) issn (E): 2347-6915* Vol. 10, Issue 4, April. (2022) pp. 526-532.

7. Rozikov J.M. Urgency of organization of fruit and vegetable clusters. // "Agro ilm" agrarian economic, scientific and practical magazine. - T., 2020, No. 3. – pages 96-98. (08.00.15)
8. Mitenev V.V. i Kirik O.B. Klaster kak factor razvitiya ekonomiki/ / (Electronic new resource): [http // journal.vscs.ac.ru / php / joi /36/ apt 36 03. php](http://journal.vscs.ac.ru/php/joi/36/apt3603.php) ,
9. Balashova N. Formirovanie clustera po proizvodstvu i pererabotke nuta//APK: ekonomika i upravlenie. - M., 2004. - P.38-41.
10. Mutura, J., Nyairo, N., Mwangi, M., and Wambugu, S., 2016. Analysis of Determinants of Vertical and Horizontal Integration among Smallholder Dairy Farmers in Lower Central Kenya. *International Journal of Agricultural and Food Research*. Vol. 5 No. 1, pp. 1-13 ,
11. Mehdi, M., Ahmad, B., Yaseen, A., Adeel, A., Sayyed, N., 2016. A comparative study of traditional versus best practices mango value chain. *Journal Agricultural Science*. Vol.53 (3) Stanley, RA (2016). Creating new, high value innovative products from vegetables, root and tuber crops. *Acta*
12. Falkovich E.B., Kotlyar D.A. Agrarianyy cluster kak innovatsionnoe napravlenie integratsii v APK stran tamojennogo soyuza i edinogo ekonomicheskogo prostranstva. *Vestnik Belgorodskogo University Cooperation, Economics and Law*,
13. Altukhov I. A , D evyatkina L. N. , Stanovlenie fermerstva v r ossii // A grarnya nauka . – Moscow, 2000. - #8. - S.2-3 ;
14. Burjalieva Z.N. Organizational-economic fundamentals of innovative development of sadovodstva: na primere Respubliki Dagestan .// autoref. Makhachkala.: 2017. 20 pages;
15. Rahimi Sh. Klastery kak factor povysheniya konkurentosposobnosti regiona: na primere Sogdiyskoy oblasti Respubliki Tadjikistan .// autoref. Khujand.: 2013. 23 pages;
16. Sachkova A. Yu. Organizational and economic mechanism razvitiya ovoshchevodcheskix teplichnyx organization and usloviyakh chlenstva rossii v vto (na primere Saratovskoy oblasti) .// autoref. Saratov.: 2013. 24 str.;
17. Karimov R.A. Osobennosti formirovaniya konkurentnyx atnosheniy v usloviyax perekhoda k ustoychivomu razvitiyu selskogo hozyaystva: na materialax Republic of Tajikistan .// autoref. Khujand.: 2012. 23 str
18. Jumaev, R., Gazibekov, A., Sulaymonov, O., & Sobirov, B. (2021). Representatives of Lepidoptera groups occurred in forestry and agricultural crops and their effective entomophage types. In *E3S Web of Conferences* (Vol. 244, p. 02020). EDP Sciences. DOI:10.1051/e3sconf/202124402020
19. Kimsanboev, K., Rustamov, A., Jumaev, R., & Usmonov, M. (2021). Euzophera Punicaella Mooze (Lepidoptera) bioecology and development of host entomophagic equilibrium in biocenosis. In *E3S Web of Conferences* (Vol. 244, p. 01003). EDP Sciences. DOI:10.1051/e3sconf/202124401003