ISSN 2181-9408



Scientific and technical journal

Sustainable Agriculture

Nº1(21).2024





Chief Editor

Salohiddinov Abdulkhakim Vice-rector for international cooperation Professor at "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University, Doctor of technical sciences

Scientific Editor

Yunusov Iskandar

PhD, "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers"

National Research University

Editor

Hodjaev Saidakram

Associate professor at "Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University, Doctor of technical sciences

Candidate of technical sciences

EDITORIAL TEAM:

SH.Khamraev, PhD, minister, Ministry of the Water Resources of the Republic of Uzbekistan; H.Ishanov, PhD, chief specialist, Cabinet Ministers of the Republic of Uzbekistan; Dr.Prof.B.Mirzayev, Rector of "TIIAME" NRU; Dr.Prof.T.Sultanov, Vice-rector for research and innovations, "TIIAME" NRU; Dr.Prof.M.Khamidov, "TIIAME" NRU; Dr.Prof. A.Pulatov, PhD, associate professor, "TIIAME" NRU; B.Pulatov, PhD, "TIIAME" NRU; G.Bekmirzaev, PhD, "TIIAME" NRU; M.Amonov, PhD, associate professor, "TIIAME" NRU; Sh.Khasanov, PhD, associate professor, "TIIAME" NRU; M.Amonov, PhD, associate professor, "TIIAME" NRU; Sh.Khasanov, PhD, associate professor, "TIIAME" NRU; M.Tursunov, PhD, "TIIAME" NRU; B.Sultanov, PhD, "TIIAME" NRU; Dr.Prof.N.Khushmatov, Chief Scientific Secretary of the Agricultural and Food Supply Production Center; Sh.Murodov, PhD, "TIIAME" NRU; Dr.Prof. O.Tursunov, "TIIAME" NRU; M.Juliev, PhD, "TIIAME" NRU; Dr.Prof. A.Karimov, "TIIAME" NRU.

EDITORIAL COUNCIL:

Dr.Prof.N.Vatin, Peter the Great St. Petersburg Polytechnic University, (Russia); Dr.Prof.Y.Ivanov, Russian State Agrarian University - Moscow Timiryazev Agricultural Academy, executive director of Engineering and Land Reclamation named after A.N. Kostyakov, (Russia); Dr.Prof.D.Kozlov, Moscow State University of Civil Engineering - Head of the Department Hydraulics and Hydraulic Engineering Construction of the Institute of Hydraulic Engineering and Hydropower Engineering, (Russia); D.Ziganshina, PhD, Scientific Information Center of Interstate Commission for Water Coordination in Central Asia; **J.Lubos**, associate professor at "Department of Water Recourses and Environmental Engineering" of Slovak University of Agriculture in Nitra, (Slovak); **Acad.Dr.Prof.P.Kovalenko**, National Academy of Agricultural Sciences of Ukraine, Advisor to the Director of the Research Institute of Melioration and Water Resources, (Ukraine); Prof.N.Xanov, Head of the Department of Hydraulic Structures RSAU - MAA named after K.A.Timiryazev, (Russia); Krishna Chandra Prasad Sah, PhD, M.E., B.E. (Civil Engineering), M.A. (Sociology) Irrigation and Water Resources Specialist. Director: Chandra Engineering Consultants, Mills Area, (Janakpur, Nepal); Dr.Prof.A.Ainabekov, Department Mechanics and mechanical engineering, South Kazakhstan State University named after M.Auezov, (Kazakhstan); Acad.Dr.Prof.T.Espolov, National academy of sciences of Kazakhstan, Vice-President of NAS RK, (Kazakhstan); I.Abdullaev, PhD, the Regional Environmental Center for Central Asia, Executive Director; Sh.Rakhmatullaev, PhD, Water Management Specialist at World Bank Group; A.Hamidov, PhD, Leibniz Centre for Agricultural Landscape Research|ZALF, (Germany); A.Hamidov, PhD, Leibniz Centre for Agricultural Landscape Research|ZALF, (Germany). A.Gafurov, PhD, Research scientist at the department of hydrology, GFZ Potsdam (Germany). Dr, Prof. Martin Petrick, Justus-Liebig-Universität Gießen JLU Institute of Agricultural Policy and Market Research; Eldiiar Duulatov, PhD, Research Fellow, Institute of Geology, National Academy of Sciences, Kyrgyzstan; Gisela Domej, University of Milan-Bikokka Professor of Earth and Environmental Sciences, Italy; Moldamuratov Jangazy Nurjanovich, PhD, Taraz Regional University named after M.Kh. Dulati, Head of the Department of "Materials Production and Construction", Associate Professor, Kazakhstan; Muminov Abulkosim Omankulovich, Candidate of Geographical Sciences, Senior Lecturer, Department of Meteorology and Climatology, Faculty of Physics, National University of Tajikistan. Tajikistan; Mirzoxonova Sitora Oltiboevna, Candidate of Technical Sciences, Senior Lecturer, Department of Meteorology and Climatology, Faculty of Physics. National University of Tajikistan. Tajikistan; Ismail Mondial, Professor of Foreign Doctoral Faculty, University of Calcutta, India; Isanova Gulnura Tolegenovna, PhD, Associate Professor of Soil Ecology, Research Institute of Soil Science and Agrochemistry named after UUUspanov, Leading Researcher, Kazakhstan; Komissarov Mixail, PhD, Ufa Institute of Biology, Senior Research Fellow, Soil Science Laboratory, Russia; Ayad M. Fadxil Al-Quraishi, PhD, Tishk International University, Faculty of Engineering, Professor of Civil Engineering, Iraq; Undrakh-Od Baatar, Head of the Central Asian Soil Science Society, Professor, Mongolia; N.Djanibekov, Dr, External Environment for Agriculture and Policy Analysis (Agricultural Policy), Leibniz Institute of Agricultural Development in Transition Economies (IAMO) Theodor-Lieser-Str. 2 06120 Halle (Saale) Germany; A.Karimov, Dr, Head of the ICBA Regional representative office for Central Asia and South Caucasus.;

Designer: Dilmurod Akbarov.

Note: Only the authors of the article are responsible for the content and materials of the article. The editorial board does not respond to the content of the article!

Founder: Tashkent Institute of Irrigation and Agricultural Mechanization Engineers

Our address: 39, Kari-Niyaziy str., Tashkent 100000 Uzbekistan , www.sa.tiiame.uz

The journal "Sustainable Agriculture" is registered in the Press Agency of Uzbekistan on the 12th of February in 2018 (license № 0957).

In 2019, the journal is included in the list of recommended scientific publications by the Higher Attestation Commission of the Republic of Uzbekistan.

2

ARCHITECTURE. LANDSCAPE ARCHITECTURE

A.Jumanov, I.Norqobilov Monitoring the dynamics of changes in land and forest cover using remote sensing and GIS in mountainous and mountainous areas of Kashkadarya region
ECONOMY. ECONOMIC SCIENCE. OTHER BRANCHES OF THE ECONOMY.
S. Umarov, F. Kadirkhodjaeva Importance and benefits of using wastewater in irrigation farming9
<i>F.Ahrorov</i> Revitalizing agriculture through organic practices: a comprehensive analysis of the Samarkand region's transition and consumer demand dynamics12
<i>Sh.Murodov</i> Innovation as the main factor in the development of agriculture in the region 17
U.Alimov Ways to improve the forms of economic management: the network of policing21
<i>B.Nosirov</i> The quality of livestock products is a key development factor of sphere24
Sh.Murodov, A.Mamasodikov Theoretical foundations for the development of the agricultural products market inUzbekistan
B.Raxmonova Results of reforms in the field of walnut in Uzbekistan
<i>U.Sangirova, Z.Pardayeva</i> Foreign experience in flax production and its importance in the national economy36
Sh.Murodov, G.Arifjanova Assessment of use and development of the region's tourism capacity40
O.Sattorov Current trends in the development of farms in intensive horticulture
Sh.Murodov, Sh.Muhammadjonov Institutional concepts and theoretical-methodological basis of agricultural cooperation related with transactional costs in agriculture
D.Islamova, S.Abdusalomov The role of potato in agriculture and food production and ways of its development52
<i>I.Yunusov</i> Foreign experience in developing the infrastructure of the fishing industry
O.Shermatov Issues of improving the organizational and economic mechanism in fruits and vegetables production
<i>M.Qobulova</i> Organizational and economic principles and evaluation methods of improving personnel competence in the development of agroclusters in Uzbekistan63
Z.Shodmonov The importance of implementation of Islamic finance products to commercial banks66
S.R. Umarov, N.J. Mamanazarova, Kh.N Mirjamilova Efficiency of modern technologies in increasing yield and improving soil fertility69

4

M.Kholikulov Enhancing agricultural output in Uzbekistan: a study on fruit and vegetable production dynamics	
Sh.Sherkabilov Assessment of the role of potatoes in ensuring food security and the impact of seed potato imports on sector development	
<i>M.Inoyatova</i> Economic mechanisms of land use in agriculture79	
HIGHER EDUCATION. PEDAGOGY.	
F.B. Kilicheva	

Development of critical thinking in the process of teaching russian to students of technical universities	
students of technical universities	Development of critical thinking in the process of teaching russian to
	students of technical universities

CURRENT TRENDS IN THE DEVELOPMENT OF FARMS IN INTENSIVE HORTICULTURE

O.Sattorov, PhD, Associate Professor, TIIAME NRU

Abstract

In this article trends and changes of development of a savdovodstvo and intensive gardening in the region and in the country in general are considered. Are submitted the analysis of the current state of the areas of gardening and their change. The recommendations of an irpedlozheniye about improvement of gardening in the Kashkadarya region and the republic are given. Keywords: Gross revenue, intensive, farm, construction, productivity.

Introduction. In our country in the conditions of liberalization of economy large-scale reforms in the field of intensive gardening and wine growing are undertaken.

The first group is various products of intensive gardening which are directly connected with intensive gardening; appearance of products, difference in the nature of goods; process of intensive gardens and laborconsuming harvesting; differences in maturing of fruits; All types of fruit can be stored and be processed.

The second group - the specific features connected with activity of intensive gardening farms. That is agricultural grounds and small amount of production; Production of fruit demands from the farmer of sufficient knowledge, experience and skills; far away from the market; The Possibility of cultivation of fruit in water, magnificent, mountain and foothill areas; Fertility on the basis of various agrotechnical actions; access to the field; experiments generally from generation to generation; the beginning of investments into the industry in 5-6 years; Very intensive influence of climatic conditions should be considered at intensive gardening [1].

Organizational aspects of activity of intensive gardening economy can be divided into two groups. Establishing intensive gardening business - land lease, a solution of the problem of possession and use of gardens; Infrastructure, use of objects; Possession of fixed assets; management of a farm; production creation; processing of the earth; care of a garden; protection against insects and diseases; harvesting and marketing.

Materials and methods. In particular, taking into account a situation in the Kashkadarya region a share of gardens in the region in 2019-2020. Makes 17238.0 hectares from 20755.6 to 20%. The area of younger gardens increased from 122,140 to 15,156.0 points and increased by 24%, and the share of intensive gardens increased from 1945.3 to 1954.5, or for 0.4%. The low share of intensive gardens in the region aggravates need of intensive gardening for the region now. However lack of necessary conditions for creation of intensive gardening in the region, lack of adequate knowledge and skills in the cost of new technologies for development of intensive gardening. **Table 1.**

Information on the existing gardens in the Kashkadarya region

Available gardens, hectare	Areas of gardens, hectare	Areas of younger gardens, hectare	Intensive gardens, hectare
2019 year	17238	12214	1945.3
2020 year	20755.6	15156.0	1954.5

Today intensive gardening is based on the market principles and is not a method of administrative management for development of the industry, and it is rather an inadequacy of deliveries of high levels of mineral fertilizers, gardens and insecticides and also intensive methods of gardening. Quantity of the got profit low. In recent years increase in profit is observed. In particular, the analysis of intensive gardening in the Kashkadarya region in 2012 allowed to receive a harvest of 1025 000 sum from hectare of crops, 1957 000 sum in 2015, 3251200 sum in 2019 and profitability of 5895600 sum in 2016, 75.6 percent. In view of the fact that the average gross area of an average farm in the region in 2020 is 10.8 hectares the annual net profit of a farm is 33694.0 thousand Sumov. Of course, taking into account the level of this income, and good results are achieved. In particular, on an intensive garden farm Orifzhon who grows on the area of 3.5 hectares in Yakkabagsky district in 2017 the net profit of one hectare of gardens was 1055 000 sum.

Apparently above, development of intensive gardening in our country differs from traditional gardening, with its high productivity for the short period of time, with its high efficiency, resistance to storage and transportation of the grown-up fruit. Thus, for development of intensive gardening in our country it is expedient to realize the following tasks:[2]

- increase in quantity of the farms specializing in intensive gardening;

- interest rates reduction on soft loans and extension of tax benefits for effective development of intensive gardening;

- allocation of the grain and cotton fields free from intensive gardening, not for objects of housing construction, and for intensive gardening;

- Creating favorable conditions for import of the leading foreign technologies (drop irrigation) for development of intensive gardening and increase in efficiency.

Development of intensive gardening and achievement of high efficiency will allow to ensure in the future food security in our country, to fill the national markets with fruit and vegetables, to satisfy demand of the population for fruit and also will contribute to the further development of the export potential of our country and increase in the standard of living.

At the same time the most modern products are based on a private property and can be used for free agrarian economy, but also provide extensive information for those who want to get economic support from the industry. The garden network is not an exception. Now in gardening network there is a set of problems, revealing ways of their overcoming, minimizing shortcomings and applying new effective methods of gardening.[3]

For example, by 2016 the population of our country which is engaged in fruit and berries had only 39.3 kg

of real consumption (only fresh, raw) within one year, and this figure will make 65.31 kg according to medical standards. Because fruit and berries are generally grown up in Dehkan farms, consumption of fresh fruit is 40% less than medical norms that, in turn, creates the need for additional fruit and berries of the population of the country. The deficiency of fruit in the national markets is compensated by import fruit from our country, and their share makes 35-40% now. The product range of import fruit from abroad consists mainly of our fruit, but our fruit differ in the taste, ecological purity and the maintenance not of GMB. However this problem can be solved by further development of intensive gardening in our country, strengthenings of material and technical resources of the farmers and Dehkan farms specializing intensive gardening, implementation of new in technologies and further state support. In our country there are a lot of affairs, but with intensive gardens still there is a problem.

Discussion and results. Therefore, in our opinion, importance and importance of organizational and economic development of intensive gardening differ. The purpose of this article is the analysis of a number of methodical and practical recommendations about the organizational and economic principles of intensive development of gardening, to organizational and economic mechanisms of development of intensive gardening.

The following difficult tasks are necessary for achievement of our purposes:

- theoretical studying of the current state of intensive gardening;

- assessment of the current state of fruit growing and intensive gardening;

- to define the factors influencing development of intensive gardening;

- to define ways of increase in efficiency of cultivation of fruit and berries;

- development of methodical recommendations about optimization of high-quality gardens;

- development of mechanisms of the state support of intensive development of gardening;

- justification of organizational forms of agroindustrial integration by production of fruit and vegetables, etc.

It is necessary to analyse carefully set of the economic relations developing in development of intensive gardening. Besides, close cooperation with research institutes, the centers and farmer councils in intensive gardening, carrying out theoretical and methodological researches, wide use of domestic and foreign experience, revision of the existing standard and legal documents, development of intensive gardening is planned. and production of high-quality fruit and berries.

According to us, the seasonality of operation of these products and use of human resources, operation duration, fast losses, harvesting, transportation and packing, nonstandard grades of fruit and berries are the reasons of slow growth of intensive gardening.

It should be noted that in the region there are favorable conditions for mountainous and foothill areas and districts, with the aim of developing, developing and improving the efficiency of intensive gardening. Favorable climatic conditions, abundant rainfall, high land productivity and weak winds are most suitable for the future development of intensive orchards. In these regions, about 65% of intensive orchards will be used to increase production, increase the amount of fresh fruit and processed foods. to meet growing needs.

We are concerned that the lack of financial resources and the purchase of related equipment are a problem for many horticultural farms in the region. Therefore, in our opinion, it is desirable to introduce a system of specific measures for long-term leasing or concessional lending for farms engaged in intensive or intensive gardening in all regions of the country. To effectively implement these measures, government agencies, officials, or private entrepreneurs should rent companies and rent leasing operations.

In order to develop and increase the efficiency of intensive gardening in the region, it is extremely important to create stores, small and medium-sized enterprises, goods, trading and warehouse structures specializing in fruit processing, modern packaging and fruit cultivation, which correspond to the domestic and foreign markets of the country. Development and implementation of new investment projects to attract foreign and local investors. ahamiyatag view.

The aim of these projects is the development and implementation of comprehensive measures aimed at improving the productivity of intensive gardens through the optimal placement of highly productive seedlings. In addition, the correct placement of saplings in dekhkan and private farms and an increase in the area of highly productive competitive varieties. To achieve effective solutions to this problem is possible through the introduction of highly efficient and innovative technologies that are promising areas in intensive gardening.

The main disadvantage of previously unsupported layouts is that other types of agricultural production are present in the gardens at the same time and, in turn, little attention is paid to the composition of the coriander gardens. As a result of such allocation schemes, the volume of fruit crops grown in the region, as well as mountainous and mountainous. In the regions, there is a decrease in the efficiency of gardening.[4]

Based on the above, we propose to improve the efficiency of intensive gardening in the region as a prospective plan: Economically:

- The increase in sales markets nigilnogo (bakery) products;

- stabilization of legislation and tax policy;

- reducing the share of imports in the domestic market;

- regulate the prices of products grown in gardening;

- increasing the level of material and technical base of the industry;

- Optimization of the wage system in horticulture;

- improving the quality of products grown for the purpose of increasing the demand for products in the domestic markets.

Agro-ecologically:

- Efficient layout schemes in gardening;

- an increase in acreage for the creation of intensive gardens;

- effective implementation of spring frost-resistant and high-yielding varieties;

- Increased use of cost-effective irrigation systems and harmless fertilizers;

- the transition from extensive low-income gardening to new, modern intensive gardening;

- Reducing the level of stress and instability in natural and climatic conditions due to environmental protection and so on.

From the point of view of science:

- increasing knowledge and experience in improving the skills of horticultural specialists, improving the quality and average yield of garden products;

- strengthening the exchange of experience and knowledge between manufacturers and industry experts;

- providing education to qualified agricultural producers, etc.

The above reasons determine the development of intensive gardening in the region. Thus, the main task of developing intensive gardening in the region is to rationally and fully utilize the potential available in this region, to develop and implement investment projects.

Currently, 71.3% of horticultural farms are concentrated in dekhkan and farms in the region, their processing amounts to 74.4%.

As a prospect for the development of gardening in the region, it is rapidly moving towards intensive gardening. To achieve this goal, it is important to ensure the success of scientific and technological progress and plant new varieties, introduce varieties that can withstand frost, are resistant to various diseases and provide an average annual crop of high quality fruits.

The main potential aspects of intensive gardening in the region are:

- convenience of natural, climatic and hereditary phenomena;

- the existing socio-economic potential necessary for the development of healthy gardening;

- Experience in agro-economic knowledge and crop production for the development of intensive gardening in the region;

- the hard work of the inhabitants of the region, their experience in agriculture, knowledge and intensity;

- Potential of product manufacturers in the territory and local markets.

Taking into account the above factors, prognostic indicators have been developed for the development of intensive intensive gardening in the Kashkadarya region. (Table 2).

> Expansion of gardens in Kashkadarya region Forecast for the period until 2025

Indicators	2020		2025		Total	
	All gardens	stone gardens	All gardens	stone gardens	All gardens	stone gardens
Creating new gardens	2118	832	2653	1165	4771	1997
Creating intensive gardens (hectare)	121	65	213	107	334	172
Restoration of old gardens	747	483	1096	794	1843	1277
Planting area (hectare)	80	21	93	37	173	58
Growing seedlings (thousand pcs.)	2341,6	706,7	3751,8	1074,2	6093,4	1780,9

Thus, according to the forecast of the intensification of the growth of gardening in the region, 4,771 new ones will be created by 2025, of which 1997 will be the construction of gardens.

Currently, the region allocates land for the cultivation and development of intensive gardening in areas of cotton and wheat. For the effective and timely creation of large gardens with great attention is needed new sowing seedlings in the region. According to him, today in Kashkadarya region will need 6093.4 thousand seedlings. To solve this problem, it is important to increase the number of seedlings growing in the region.[5]

These seedlings are the basis for creating intensive

orchards in the region and updating existing seedlings with higher yields and higher quality. Also in 1843 it is necessary to reconstruct the gardens and restore many gardens. These reconstructed and restored gardens are also of great importance for increasing the production of garden products in the region. The key and key factors for the development of intensive gardening are the provision of energy efficient and basic production facilities, as well as the creation of highly productive gardens.

According to the results of the forecast, it can be concluded that the rational formation of intensive gardening and the production of coniferous fruits in most cases determine the economic efficiency of the industry.

In addition, the increase in yields and the growth of gardening in the region due to an increase in the melting of the forecast indicators in the table will ultimately improve the overall horticulture system. The development of the horticultural sector is an incentive to increase the export potential of the region and the country.

Conclusion. In our opinion, adverse changes in the agrarian sphere for these years led to the following negative trends:

- reduction or neglect national fruit trees, especially in the agricultural sector;

- cultivation of forages and berries generally in Dehkan farms;

- low productivity of the grown-up products;

- sluggishness in creation of new gardens and outdated long-term gardens;

- Reduction of the state support of gardening;

- Wear and wear of material and technical resources of storage and processing in fruit and berry farms.

Only from 1995 for 2008 the area of gardens was reduced on 58,000 hectares or for 54.2% up to 27.2 thousand. Or 58.5% of all types of farms. By 2006 farms of shirkat were the main producers of fruit and berries, and their share exceeded 55%. Nevertheless, elimination of shirkat and transformation of farms, agricultural firms and other agricultural enterprises led to neglect, anormaly and reduction of many gardens.

Table 2.

References:

1. [FAO] Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, World Food Programme, The State of Food Insecurity in the World 2015, 2015, Meeting the 2015 international hunger targets: Taking Stock of Uneven Progress, FAO.

2. Tilman D, Blazer C, Hill J, Befort BL, 2011, Global food demand and the sustainable intensification of agriculture, Proceedings of the National Academy of Sciences, 108.

3. Rockström Jetal, 2017, Sustainable intensification of agriculture for human prosperity and global sustainability, 46-47.

4. G. Martynenko, Intensive horticulture in Uzbekistan, condition and development prospects, Tashkent.

5. Decree of the President of the Republic of Uzbekistan of 29.03.2018 "On Additional Measures for Accelerated Development of Horticulture in the Republic of Uzbekistan".

6. Mirziyoev Sh.M. A comprehensive analysis of the results of socio-economic development of the country in 2016 and a statement by the Cabinet of Ministers of the Republic of Uzbekistan on January 14, 2017, at the session of the Cabinet of Ministers of the Republic of Uzbekistan dedicated to identifying the key priorities and priorities of the economic and social program for the year 2017//, January 16, 2017.