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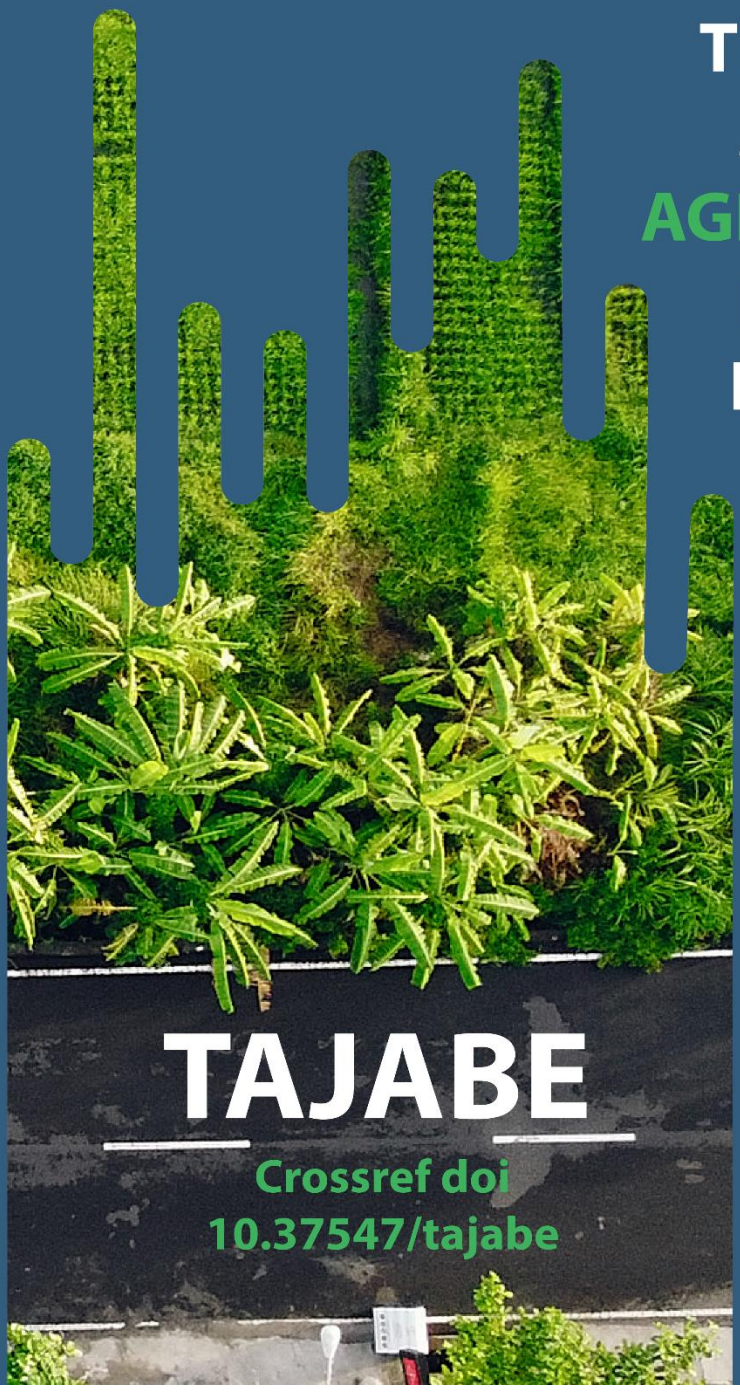

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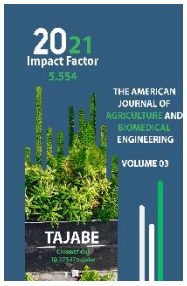

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Prevent Salinization And Increase The Fertility Of Irrigated Sandy And Loamy Soils

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ABSTRACT

This article describes the properties of irrigated sandy and loamy soils in the Bukhara oasis, to determine the evolutionary changes in the soil, and to reduce the impact of degradation processes occurring in these soils, the article also emphasizes the importance of research on maintaining, increasing and protecting soil fertility and efficient use of land.

KEYWORDS

Soil fertility, agroecosystem, erosion, biogeocenosis, anthropogenic landscape, degradation.

INTRODUCTION

Land is the treasure of the people, the basic means of agricultural production. Increasing soil fertility and production capacity largely depends on the complex aimed at improving it, respectful attitude, and economy.

Improving the productivity of agricultural crops is one of the most pressing issues in our country today. It is no secret that increasing crop yields is primarily achieved by increasing their productivity based on an in-depth study

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of soil properties and procedures. In most cases, the experience of agricultural production ignores the properties of soils, especially their mechanical composition, state of aggregation, density, crop yields are mainly due to the application of mineral and organic fertilizers, and does not pay attention to the problem of soil fertility.

THE MAIN FINDINGS AND RESULTS

Managing and increasing soil fertility is one of the most pressing issues. Because fertility not only satisfies the demand for nutrients by providing it with mineral or organic fertilizers or quality plowing, but also the formation of a number of processes, including nutrients in the soil, water, air, heat and light, which are cosmic factors, and the balance between them depends on the provision [1.4.] Different climatic conditions and many soil types are widespread in the territory of the Republic, which makes it more difficult to solve the above problems. In particular, sandy and loamy soils are currently being developed and used in agriculture. The profile of sandy desert soils in porous inlets with low melkosiomy has the following characteristics. At the top there is a layer of porous sand, 3-5 cm thick, which is not exposed to the roots of the plant, which is exposed to the wind. Below it, there is a thick gray-covered horizon with a slightly grayish, less pronounced layered-layered structure of various plants, including the roots of the iliac plant. The roots of the plant are covered with small, water-resistant particles, such as beads (corals). Below it is a dense horizon of dark color, which contains a large number of roots and nests of insects. The humus horizon and structure are much more pronounced in the sands enriched with dust caused by wind erosion. The V horizon is often brown or even reddish in color, and the cavities are unstable. Sometimes carbonate spots are found on this horizon. Such soils are usually covered with skeletal damage as sand is blown over sandy and gravelly soils. At the bottom of this horizon is a gray, and below it is a dense brown horizon. According to the structure of the profile, these soils resemble silty brown soils. This suggests that in areas with low wind erosion and dense substrates, over time, sandy desert soils turn into desert-like brown soils. Sandy soils are characterized by a large specific gravity and a small volume weight, a small moisture content, a maximum hygroscopicity, and a small coefficient of fading. The amount of water that plants can use in the sand reaches 14-15%. The water permeability of the sand is very high. The mineralogical composition of the sands shows that 50-70% of it is quartz. In addition to quartz, sand contains minerals that contain calcium, phosphorus, magnesium and other ash elements. The nutrients in these sands are converted into assimilated forms as a result of chemical and biological erosion. Humus is low in sandy desert soils. Occasionally humus of 0.2-0.5%, but humus penetrates to a greater depth of soil (30-35cm). These soils are also low in nitrogen (0.01-0.03%) and phosphorus (-0.03-0.05%). Total potassium is more (1.2-2%) mobile phosphorus is less (4-7mg / kg), sometimes 20-22 mg / kg. Table 1. Carbonates are also found in the sands. Carbonates are mostly in the upper layers of the soil (30-50) cm more. The mechanical composition of sandy desert soils is rich in fine sand (0.25-0.05mm) and coarse dust (0.05-0.01) fractions.

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Table 1

Amount of humus, nitrogen, phosphorus, and potassium in sandy desert soils.

Depth of soil sample cm.	Humus %	Nitrogen %	Phosphorus		Potassium		C-N
			General %	Active mg / kg	General %	Active mg / kg	
Sandy desert soil in proluvial rocks, protected land							
0-7	0,48	0,031	0,030	7,5	1,22	212,5	8,6
7-40	0,24	0,017	0,059	5,0	1,25	225,5	8,2
40-80	0,18	0,011	0,051	4,0	1,24	212,5	9,5
80-95	0,10	0,005	0,029	5,0	0,95	50,0	11,6
Sandy desert soil in Aeolian deposits							
0-20	0,37	0,013	0,055	2,8	1,87	163,0	13,7
20-40	0,37	0,013	0,069	1,8	1,87	163,0	13,7
40-80	0,20	0,007	0,077	2,1	2,01	1841,0	16,0
83-125	0,14	0,006	0,073	3,5	1,83	101,0	13,5
Sandy desert soil in proluvial rocks							
0-7	0,19	0,003	Not specified	4,46	1,70	30,6	-
7-21	0,50	0,06		21,73	1,78	-	-
30-40	0,42	0,045		-	-	151,5	-
50-90	0,40	0,042		8,70	-	147,3	-
110-140	0,23	0,035		1,20	-	-	-

The physical properties of these soils are characterized by high solid phase density (2.6-2.7 g / cm_3) and relatively low density.

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Table 2

Physical properties of sandy desert zones.

Name of soil and place	Depth	Density g / cm³	Solid phase density g / cm³	General hollow.%.
Sandy desert soil	0-7	1,44	2,64	46
	7-40	1,47	2,65	44
	40-80	1,45	2,68	46
	80-95	1,58	2,62	40
	95-145	1,59	2,62	39
	145-196	1,58	2,61	39

The density increases to 1.44-1.47 g / cm³ in the upper horizons and 1.58-1.59 g / cm³ in the lower layers. Accordingly, the total porosity will be in the range of 44-46%. Maximum hygroscopicity is low (0.68-0.75). Water permeability is very high, 180 mm in 10 hours.2 Table.

In order to assimilate sandy and loamy soils, it is calcified in order to enrich it with fine-grained soil. To do this, the sandy field is fed fine-grained soil effluents, a lot of turbid water. During calcification, turbid particles rise to the top layer of the soil and some of the colloidal particles penetrate into the sand. The experience of radical improvement of sandy soils abroad is noteworthy. For example: In Hungary, 3-4 layers of organic matter are added to the soil. The thickness of each layer is 1 cm, the 1st layer is laid at a depth of 45-65 cm, the 2nd and, if necessary, the 3rd layer is laid 15 cm higher than the previous one after 3 years. When this is done, the roots of the plants in this layer develop strongly and cling to each other. Crop rotation and application of organic fertilizers and the use of structural polymers are important in the development of sandy soils. In some sandy plots, plants such as sand ermon (shuvok), kumqiyok are planted; in which it is used as pasture. If these plants are sufficiently developed, valuable fodder will be prepared from them. In this case, it is necessary to follow a certain regime, the order of use of pastures. It is advisable to take measures against wind erosion in these areas. Alfalfa, oats, alfalfa, corn and other fodder, melons and tree crops were planted on the developed lands. [1,203.]

Currently, on the left bank of the Zarafshan River in the Malik Desert, Karshi Desert, Surkhandarya, Sherabad and other deserts, great work is being done in the field of development of irrigated agriculture of brown-bald and barren soils and sandy desert soils. Increasing the fertility of irrigated sandy and loamy soils depends on the efficient and stratified use of mineral fertilizers. In order to protect the fertility of irrigated soils and

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increase crop yields, we recommend the following measures:

1. In dry years, it is possible to carry out spring wet irrigation, periodic leveling, economical use of irrigation water.
2. In order to increase soil fertility, it is expedient to introduce crop rotation and establish reserve trees.
3. In order to increase the efficiency of fertilizers, composting of organic fertilizers with mineral fertilizers, feeding of agricultural crops, application of 25-30 tons of organic fertilizers per hectare are highly effective.
4. Periodic cleaning of collector drainage systems on farms increases their efficiency and prevents the rise of groundwater.

Accordingly, all lands, whether intended for agriculture or not, should be protected. Although there is a risk of salinization and salt accumulation on irrigated agricultural lands, agricultural lands continue to lose their productivity under the influence of harmful chemicals accumulated in the soil. Excessively saline soils always produce less than non-saline soils. Such lands require more labor and money from the state and land users. Therefore, the preservation and continuous increase of land fertility, its rational and efficient use should be considered as an integral part of state land policy, an important part of the country's economic development programs. Soils are divided into five groups according to the degree of salinity: 1) unsalted; 2) slightly saline; 3) moderately saline; 4) strongly saline; 5) divided into brine. When grouping soils according to the degree of salinity, attention is paid to the total amount of water-soluble salts and chlorine in them. With increasing salinity, soil quality deteriorates, fertility decreases, and reclamation measures become necessary. Before planting saline soils in agriculture, it is necessary to carry out the following reclamation measures on such soils: - Careful development of water use plans based on agronomic rules, transition to a new irrigation system, construction of hydraulic structures from irrigation stations, water conservation, pollution work such as not doing is one of the most important measures to prevent soil salinity; - it is possible to remove and improve the salinity of brines and saline soils of different levels by stopping the continuous rise of groundwater saline through the capillary pathways and removing harmful salts accumulated in the soil; - To improve the physical and chemical properties of soils, it is necessary to put gypsum on these soils. Its feature is that it displaces sodium and calcium in the absorbing complex of the soil, as well as improves the physical condition of the soil; - Measures such as fertilizing saline and alkaline soils, deep tillage, introduction of large-scale irrigation, digging ditches and reducing their level are the main measures to improve the physical and chemical properties of the soil, increase its productivity. If agro-ameliorative measures are applied in a timely and correct manner, it is possible to plant crops in these soils and obtain consistently high yields from them; Salinity will increase further if the norm of saline wash water is not taken into account in the salinity of the soil, the depth and salinity of groundwater. Proper crop rotation improves the reclamation of saline and swampy soils, increases soil fertility and increases productivity. The reclamation effect of crop rotation is that the soil becomes more fertile, organic and nutrients are increased, physical properties are improved, and moisture

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evaporates less. [1.354.] It is possible to solve the above-mentioned problems without rational use of land resources, without strengthening measures to protect the soil layer from various erosion and other negative impacts, and without taking ways to save agricultural lands. Improving soil fertility depends in many ways on a set of measures aimed at improving it, to treat it with care and economy. With this in mind, it is very important to consistently accelerate agricultural production, develop solutions to problems related to the rational use of land resources, increasing the productivity of each hectare of irrigated land, its economic efficiency.

CONCLUSION

In this regard, the maintenance of soil fertility, its annual increase is an important task of agricultural specialists. [2.204.] It is no coincidence that the state is currently investing heavily in improving the reclamation of agricultural lands, restoring soil fertility and building reclamation systems, measures to use them.

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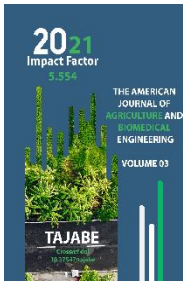

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Methods Of Application Of Glyphosate Herbicides To Control Weeds Around The Field

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ABSTRACT

The article presents the degree of effect of glyphosate on each type of weeds around the field, defining the amount of preparation according to the types of weeds and their developing conditions, using period and damage, and the ways of controlling are recommended.

KEYWORDS

Abiotic, weeds, plant, controlling, vegetable, herbicide, annual, perennial;

INTRODUCTION

It has been found that weeds spread to agricultural crops from areas where they grow more around the field. Therefore, it was found that it is expedient to eliminate weeds of these places in the first place, and it is confirmed that the use of herbicides to control weeds should be carried out more in these places. This is because, as mentioned above, the influence of the herbicide, which has the effect of glyphosate, is a chemical that has a strong toxic effect on all plant species. It is known that all types of plants are fully

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eliminated when it is used during the growing and developing period of the vegetation.

MAIN PART

Taking into account this, types of weeds, developing bioecology of weeds, which appeared around the fields of cotton and vegetable crops of the monitored regions, was taken into consideration. The results show that there can be seen annual and perennial types of weeds around the fields of cotton and vegetable crops of farms, especially, around the bourns and paths.

Around such fields, near the places where cultural crops are grown, there are places where weeds have been growing for many years, and there are found the main types of prostrate spurge, camel-thorn and quackgrass, from annual plants: some types of lambs-quarter, nettle, weed wheat and around the bourns nutsedge.

As a continuation of many years of scientific research (such experiments were conducted by A.Khojaniyazov (2016)), from annual weeds lambs-quarter in its beginning of the development, when the height of prostrate spurge and quackgrass was 20-30 cm, which are growing and developing in the fields of vegetable crops in this year, on the third day of April, which is considered to be a typical year for this year, the species of weeds in these places were identified, and Hurricane forte and Intoglifos were dissolved and applied to the field with the help of OBX-28 aggregation which was hanged to tractor.

For this purpose, the number, species, phases of weeds spread in the area of 1 thousand square meters were completely determined, and then treated with preparations with the help of special sprayers.

To determine the biological usefulness of, on the 10th day after spraying, special observations were made to take into account the cases of yellowing and complete destruction of weeds in the field, and these actions continued till 30 days after using herbicides.

The results of the experiments are given in the table, in this, in order to determine the biological usefulness of herbicides, fields, where the types and numbers of weeds are the same, were indicated and at the same time observation was carried out in the fields which was not chosen as controlling, and the number of weeds was counted. From perennial weeds bindweed, quackgrass, crabgrass, prostrate spurge, camel-thorn, from annual weeds nutsedge, lambs-quarter, weed wheat, nettle were identified and the degree of impact on each of them was calculated depending on their morphological changes.

As can be seen from the data in the table, the effect of the selected amount of herbicide on the weed species was 10 days after using, and the annual weeds stopped growing and began to turn completely yellow, and this means that annual weeds are not very resistant. This is due to the fact that these types of weeds stopped growing in the days after the application of the herbicide, and the youngest were completely killed in 15-20 days.

Eliminating weeds in this degree not only seen in annual weeds but also in perennial weeds, and on the 20th day after application of the preparation, some species, especially bindweed, completely turn yellow.

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Biological efficacy of using herbicides with glyphosate to weeds around the field Shymbay, 2020.

Preparations	Amount, l/ha	Weeds	Number before spraying, piece, 1 m²	Biological efficacy in days, %					
				10		20		30	
				C	H	C	H	C	H
Intoglifos	4,0	Annual	6,7	51,1	-	72,6	11,5	100	91,5
		Perennial	7,9	16,2	-	61,8	32,9	100	84,6
Intoglifos	5,0	Annual	6,8	61,4	-	78,9	31,3	100	92,0
		Perennial	5,4	22,1	-	69,6	37,6	100	94,9
Intoglifos	6,0	Annual	7,6	72,8	-	84,4	46,3	100	93,7
		Perennial	8,9	38,6	-	79,5	51,2	100	96,8
Hurricane forte	3,0	Annual	6,9	54,3	-	75,1	44,5	100	94,6
		Perennial	5,7	59,3	-	81,5	56,6	100	94,1
Hurricane forte	4,0	Annual	4,9	62,1	-	80,9	51,6	100	95,3
		Perennial	6,1	62,3	-	83,5	57,4	100	96,1
Hurricane forte	5,0	Annual	5,3	64,1	-	76,3	58,3	100	98,5
		Perennial	6,4	68,4	-	89,4	61,6	100	97,2
Control (not used)	-	Annual	6,8	-	-	-	-	-	-
		Perennial	11,3	-	-	-	-	-	-

Note: Y – weeds turn yellow:

D – weeds eliminated:

In the control, the weeds were eliminated by hand.

As can be seen from the data, in the fields where applied herbicides, the plants start to

turn yellow from the first days and stop growing, on the 10th day, herbicides influenced on 51.1-64.1% of the annual, 16.2-68.4% of the perennial weeds and turned yellow but not

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fully eliminated. The full elimination of weeds was observed on the 20th day after use. The maximum level of biological efficiency of the preparation is clearly seen on the 30th day after application, when 91.5-98.5% of annual weeds and 84.6-97.2% of perennial weeds are fully eliminated.

In these days, the physiological processes of weeds, which are not fully eliminated under the influence of preparations, are disrupted, not fully grown and undeveloped, which on the 40th days were fully eliminated, and it is assessed as all of the weeds were eliminated according to the resistance degree of weeds in the field.

Depending on the degree of comparing biological usefulness of herbicides, when the amount applied per hectare increases, the biological efficiency increases, and it can be seen from the obtained data that the activeness of the herbicide Hurricane forte is very high.

As can be seen from the results obtained, the higher the dose of the preparation, the higher the effectiveness of the preparation, and it can be seen that weeds were eliminated mainly on 20th day after using the preparation. It was observed that, as usual, the susceptibility of annual weeds nutsedge and weed wheat to the preparation was high, and the types of lambs-quarter that grew later were fully eliminated on the 10th day after application of the herbicide. The fact that the perennials have grown a little, it is resistant to herbicides, and by the 30th day it is clear that there is a full elimination, which means that the effect of the treatment is high.

According to actions, the results proved that the effect of the two types of herbicides on the perennials of weeds is also high. This is due to the fact that the most common pests in fields are bindweed and quackgrass, prostrate spurge, which stop growing and developing under the influence of herbicides, and on the 10th day after application of the herbicide, the growth of the plant is stopped, and the on the 20th day some were fully eliminated and this shows that herbicides influence actively on these types. From this, bindweed according to the developing condition,s is susceptible to the effect of herbicides when it is very young.

However, the fact that the annual weeds growing in the fields exceed 30 cm in height, lasts their elimination later, in this year appearance of perennial weeds requires research on studying roots of plants in the field after application of the preparation.

Therefore, due to the fact that this year's research did not provide full clarity on the issue, the need to continue the experimental work was left as an actual theme in the coming years.

CONCLUSION

Thus, in order to determine the degree of influence of the herbicide to each type of weed, it is required to determine the amount of the preparation for each type of plant according to the conditions of development, the time of application of the herbicide, it became clear that clarifications were required to be identified by means of observations. Therefore, the use of glyphosate herbicides to control perennial and annual weeds around the fields of agricultural crops, in order to eliminate them, in the second decade of April, when the average air temperature exceeded 15-17 ° C, it is required to treat in the phase not exceeding 20-30 cm in height of quackgrass, bindweed, crabgrass, prostrate spurge, camel-thorn, nutsedge lambs-quarter, weed wheat, nettle. For this purpose it is necessary to use the maximum amount of herbicides, conditionally

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mixed with water and carried out with the help of OBX aggregations, ensuring that the solution is completely in contact with the plant body. In order to prevent the regrowth of plants in the days after the application of the herbicide, the irrigation should be stopped, and on the 30th day after the application of the herbicide, in order to ensure soil moisture, the irrigation should be started.

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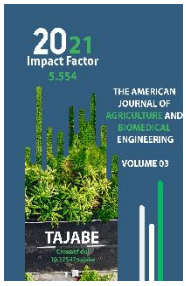

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The Possibility Of Increasing The Natural Resistance Of The Body Of The Karakulian Lambs By Biophysical Methods

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ABSTRACT

This article provides information on the effect of the immune status of sheep on the humoral and cellular defence systems of sheep raised in extreme conditions, irradiated with low-intensity laser light before arrival. According to the data obtained, it was found that the effect of laser light on a mother-sheep affects its activity on the cellular protective components of the lambs' body.

KEYWORDS

Environmental factors, extreme conditions, immune status, Karakul breed, laser radiation, meat, biophysics, natural durability, past intensive, pasture, T- and V-lymphocytes.

INTRODUCTION

The main goal of livestock farms is to increase the viability of small ruminants grazed in environmentally unfavourable conditions, increase the quantity and improve the quality of meat products and provide the market with ecologically clean products. It is known that on average 50/50% of ewes and males are obtained from ewes bred in mountain and foothill pastures. However, in recent years, due to the abandonment of breeding, the number of male lambs that can be slaughtered to obtain skins, especially karakul skins, has decreased, while the number of lambs that cannot be sold even when slaughtered has increased. The need to leave such lambs for breeding and get a quality meat product of

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sufficient weight from them at 12-15 months of age remains one of the current priorities.

Therefore, in addition to caring for healthy, high-viability individuals, lambs left for rearing remain a pressing challenge to increase their productivity and obtain an environmentally friendly, high-quality product [9,4].

In such cases, serious attention is paid to the study of the effects of various biophysical factors that ensure the recovery of functional reserves of important adaptive systems of the organism. One of the promising methods to increase the productivity of animals, increase the natural resistance of the organism, can be considered the method of low-intensity infrared laser radiation [10]. One of the new directions of research in pastoral animal husbandry, ie karakul breeding, is the development of new work on improving the digestive processes of young lambs on the basis of biophysical methods in karakul breeding, increasing the natural resilience of the organism to increase productivity. This direction can be applied in the technological processes of animal feeding and care.

The fact that research in this area has not been conducted in the context of Uzbekistan and its prospects and opportunities has highlighted the urgency of our work. The natural resilience of the animal organism is usually understood as the ability of the organism to withstand the adverse effects of the external environment [7]. Because living organisms are an open system, they are constantly exchanging matter and energy with the environment around them. However, despite the high level of the natural resilience of animals and the need for in-depth study, the characteristics of the manifestations of reactions in the ontogenesis of karakul sheep to the effects of their biophysical methods, providing the body's natural protective functions, have not been studied in Uzbekistan.

MATERIALS AND METHODS

To study the above problems, 108 3.5-year-old ewes were selected before the fertilization season to conduct scientific and production experiments on the farm to study the immunological properties of naturally inseminated karakul lambs of the farm "Gulamdon ona chorvalari" Samarkand region, Koshrabot district.

And they were inseminated with karakul rams.

Table 1. The laser treatment of lambs in the formed groups is shown in the table below.

Indicators	**Groups**		
	The laser light was not affected	**exposed to laser light 2 times the activity of the curved gland**	
	Control (1)	**Experience (2)**	**Experience (3)**
Affected area	Not affected	**curved gland located area**	
Time of exposure, minutes	**-**	**1,5 min**	
Number of effects shown	**-**	**2 times**	
Age of animals, day	**-**	**15-20**	

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In the second half of the gestation period, the ewes were divided into two groups, control (55 heads) and experimental (53 heads). The control group sheep were not irradiated with low-intensity laser light, while the experimental group sheep were irradiated with low-intensity laser light in the second half of the gestation between the last lumbar spine and the dorsum. During the lambing period, 3 groups of male lambs born in the control and experimental groups were formed; while the control group, which was not exposed to the laser beam, formed control and 1 experimental group from lambs obtained from mother sheep, the experimental group formed 3 experimental groups from mother sheep [1, 2, 3, 6]. Experiments in healthy lambs began after the lambs selected for the experiments were examined and diagnosed with the participation of veterinarians.

RESULTS AND DISCUSSION

Given that the morphological composition of the blood, as well as the endurance of the organism, is one of the most important factors in the vital activity of the organism, we studied the indicators characterizing the protective capabilities of the organism of young karakul lambs in experiments [7, 8]. Evaluation of the protective capabilities of the experimental animals was carried out by taking into account the activity of cellular factors (T- and, V-lymphocytes), such as humoral (bacterial and lysozyme activity of serum BABS; LABS) of the immune system [1, 8]. The data obtained are presented in Table 2.

Table 2. Age-related changes in immune reactivity of experimental lambs,%

Indicators	Age of lambs, month	Гуруҳлар		
		Control (1)	Experience (2)	Experience (3)
BABS	New born	31,50±0,7	31,78±1,1	31,33±1,8
	1 month old	34,28±1,0	38,17±1,3*	41,13±1,6**
	2 months old	42,42±1,1	47,41±1,3*	50,08±2,1**
	4 months	40,91±2,3	45,47±1,5	49,28±2,5*
LABS	New born	25,08±1,8	27,18±1,1	27,09±0,9
	1 month old	30,21±0,8	32,64±1,5	34,06±1,9*
	2 months old	35,06±0,9	39,53±1,6**	40,12±1,2**
	4 months	29,72±2,9	36,64±0,42*	38,34±1,6*
T- lymphocytes	New born	22,4±0,5	23,1±1,0	23,0±1,3
	1 month old	24,4±0,7	26,0±0,9	26,8±0,6*
	2 months old	27,6±0,8	27,6±0,8*	29,2±0,9*
	4 months	26,2±0,6	30,2±0,6*	31,2±0,7**
B- lymphocytes	New born	17,4±1,1	17,6±0,7	19,2±0,6
	1 month old	19,6±1,0	21,2±1,0	22,8±0,9*
	2 months old	22,8±0,6	24,6±0,5*	26,8±0,8*
	4 months	23,8±1,0	25,9±0,8	28,0±0,9*

Note: *-P<0,05; **-P<0,001

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Data on the immunobiological properties of the organism of lambs of experimental groups are given in the table above. According to the data obtained, the lowest rate of humoral immunity corresponded to the initial period of the postnatal period: in experimental newly born lambs, the indicators of bactericidal and lysozyme activity of serum ranged from 31.50 ± 0.7 and 25.08 ± 1.8%. There was an increase in the blood-protective capabilities (BABS and LABS) of two-month-old lambs, with experimental group lambs increasing by 1.5% and 1.4% in serum and control group lambs by 1.2-1.3%, respectively. Despite the generality of age-related changes in natural endurance indicators, it should be noted that the lambs of the experimental group were distinguished by the fact that these indicators had a high concentration in the serum. During the observations, BABS and LABS rates were higher in the experimental group of lambs: 29.3% and 13.5% at one month of age, 17.5% and 14.8% at two months of age, 17.5% and 29% at four months of age, 3% higher than their peers in the control group (R≤0.05; R≤0.001).

To confirm the established pattern, we considered it necessary to study the age-related changes in the concentration of T- and B-lymphocytes that form the cellular types of the immune response, and observations were continued until separation from the mother. No significant differences in the concentration of T-lymphocytes in the peripheral blood of lambs were observed in the first months of life according to the studied character. However, a 10.4% predominance was found in the lambs of the experimental group on the level of B-lymphocytes, which play an important role in the provision of humoral immunity. By the fourth month, an increase in the concentration of T- and V-lymphocytes in the blood of experimental group animals was observed compared to control group lambs.

In our opinion, this may be the effect of laser radiation on their body. At this time, it was found that the level of T- and V-lymphocytes in the peripheral blood of experimental animals was 11.3–17.0% higher than that of control group lambs (R≤0.001). We believe that the immunocompetent cells of the lamb's understudy not only have ontogenetic properties but in our view depend to some extent on the influence of biophysical factors. With the above-mentioned regularity, the rate of increase of T- and V-cells in the peripheral blood of the lambs of the experimental group was determined.

Several characteristics specific to all studied animals were identified, such as increased growth and development of lambs, increased activity of BABS, LABS, and the low manifestation of natural resistance of the organism in the first months.

Also, the predominance of the protective capacity of the lambs of the experimental group on the level of humoral, cellular factors of natural protection was determined.

It should be noted that the amplitude of the detected changes did not exceed the physiological norm.

CONCLUSION

Summarizing the results of our studies, we can conclude that the influence of biophysical factors on the body of lambs in the first months of ontogeny activates the mechanisms of natural resistance, which in turn ensures rapid growth and development of lambs.

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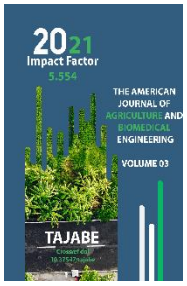

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The Effect Of The Trichoderma Fungus On The Fertility Of Plants

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ABSTRACT

Trichoderma, a soil fungus, is widespread in nature and is noted as a microbiological object that is easily separated, has a very rapid biomass formation and has a high level of biological activity against phytopathogenic fungi without harming the plant. Therefore, it is recommended to widely use the results of modern studies of metabolites of the producer Trichoderma Pers.: Fr, which exhibits several fungicidal actions, especially in the process of hyperparasitism in agriculture.

KEYWORDS

Trichoderma, microbiological diseases, environmental degradation, pests, fungi, biologically active substances.

INTRODUCTION

It is known that the Republic of Uzbekistan is a country specializing in the agricultural sector, with favourable climatic conditions suitable for high yields of almost all types of crops. In the absence of large losses in the process of cultivation and storage of agricultural products, this amount of land would be enough to provide the population of the Republic with food and technical raw materials and to export some of the products. During the cultivation of agricultural products in our country, as a result of various pests and microbiological diseases, 20-30% of crops are lost. Practical experience shows that the yield

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of crops is lost from 10% to 50% as a result of the development of some highly harmful microorganisms [1,2]. Such large losses in agriculture are also caused by pests and diseases that occur in crops.

The fact that more than 220 species of pests have been reported to be infested by insects and diseases in the growth and development of cotton also indicates the urgency of combating these pests. Such highly harmful organisms can be infested by pests such as locusts, tapeworms, spiders. Scientific sources state that more than 150 pests damage organisms during the cultivation of cereals.
In particular, many studies have shown that the yield of a single grain is lost from 5% to 50% under the influence of pests during storage. In the territory of the Republic of Uzbekistan, harmful weeds are growing and causing significant damage to grain crops, especially wheat in the Fergana Valley, Tashkent, Samarkand, Jizzakh, Syrdarya, Bukhara, Navoi and Surkhandarya regions. It is known that the germination of seed grain obtained from areas affected by weeds is reduced by up to 50 per cent. Also, the quality of flour made from damaged grain is causing huge problems in the food industry.

The deterioration of the ecological situation, soil microflora, its physicochemical composition, pollution of water bodies, which in recent years has become one of the most pressing problems, resulting in severe adverse effects on humans and warm-blooded animals, limits the use of chemicals. Such problems pose challenges to scientists, such as the development and practical application of alternative methods of pest and disease control. One of the 6 alternative methods is pest and disease control based on microbiological drugs. This method has several advantages over the chemical method, including environmental friendliness, non-accumulation in the soil, ease of preparation, storage, transportation and application, economic efficiency, and relative safety, especially in warm-blooded animals.

MATERIALS AND METHODS

Trichoderma, a soil fungus, is widespread as a microbiological object that is easy to separate cleanly produces biomass very quickly, has a high biological activity against phytopathogenic fungi without harming plants, and can synthesize biologically active substances that control plant growth. is recorded. Therefore, it is advisable to use the results of modern research on metabolites of Trichoderma Pers.: Fr, which exhibits a range of fungicidal action, especially the process of hyperparasitism in agriculture and the possibility of synthesizing plant growth control agents.

Therefore, in our subsequent research, we tried to study the phytohormone synthesis property of the Trichoderma fungus. We believe that this will allow us to create a new generation of bio preparation in the future. Because the hyperparasitic property of the Trichoderma fungus has been widely used by scientists until now, data on their metabolites that control plant growth are rare in scientific sources. The main goal of these studies was to study the factor that accelerates the growth of the amaranth plant of the fungus Trichoderma. We, therefore, aimed to analyse the composition of the metabolic substances produced by the Trichoderma fungus to control plant growth. In scientific sources, data have emerged that the dry biomass of the plant *Vaccinium corymbosum L.* inoculated with the strain of *Trichoderma harsianum Rifai* increased by 2–3-fold [3].

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Complex effects are required to stimulate plant growth and development, including auxins produced by fungi that also have a significant effect on plants [4,5,6]. Auxin - indolyl-3-acetic acid (IAA) - is also very important in this, participating directly in the symbiosis of plants and bees with several enzymes and secondary metabolites that it produces [7, 8]. It should be noted that the ability to synthesize IAA varies from tens of times to hundreds of times in different fungi, even strains [9]. Also, fungi synthesize IAA using tryptophan as a derivative [4].

Therefore, their formation of auxins has a significant effect on the amount of release of this amino acid in the plant host. Therefore, in our studies, we aimed to study the amount of IAA produced by the Trichoderma fungus to control plant growth and the effect of the amino acid L-tryptophan on its formation. The research work was carried out in the following order, photocalometric screening was performed to study the indole-3-acetic acid synthesis properties of the strains. Strains were transplanted into Chapek nutrient media with L-tryptophan and grown at 7 °C for 7 days. The cultured cultures were filtered, 2 ml of supernatant was obtained, mixed with 8 ml of Salkovsky reagent (50 ml, 35% $HClO_4$; 1 ml of 0.5 M $FeCl_3$) and left for 20-30 minutes. Samples with IAA produce a reddish-pink colour. Then, the optical density was checked using a green light filter at a wavelength of 530 nm FEK - KFK-2 (Russia) [10]. The amount of IAA in the samples was calculated based on a standard curve.

Trichoderma, a soil fungus, is widespread as a microbiological object that is easy to separate cleanly produces biomass very quickly, has a high biological activity against phytopathogenic fungi without harming plants, and has the ability to synthesize biologically active substances that control plant growth. is recorded. Therefore, it is advisable to use the results of modern research on metabolites of Trichoderma Pers.: Fr, which exhibits a range of fungicidal action, especially the process of hyper parasitism in agriculture and the possibility of synthesizing plant growth control agents. Therefore, in our subsequent research, we tried to study the phytohormone synthesis property of the Trichoderma fungus. We believe that this will allow us to create a new generation of bio preparation in the future. Because the hyperparasitic property of the Trichoderma fungus has been widely used by scientists until now, data on their metabolites that control plant growth are rare in scientific sources. The main goal of these studies was to study the factor that accelerates the growth of the amaranth plant of the fungus Trichoderma. We, therefore, aimed to analyse the composition of the metabolic substances produced by the Trichoderma fungus to control plant growth.

In scientific sources, data have emerged that the dry biomass of the plant Vaccinium corymbosum L. inoculated with the strain of Trichoderma harsianum Rifai increased by 2–3-fold [3]. Complex effects are required to stimulate plant growth and development, including auxins produced by fungi that also have a significant effect on plants [11-14]. Auxin - indolyl-3-acetic acid (IAA) - is also very important in this, participating directly in the symbiosis of plants and bees with several enzymes and secondary metabolites that it produces [15-17]. It should be noted that the ability to synthesize IAA varies from tens of times to hundreds of times in different fungi, even strains [18-19]. In addition, fungi synthesize IAA using tryptophan as a derivative [4].

Therefore, their formation of auxins has a significant effect on the amount of release of this amino acid in the plant host. Therefore, in our studies, we aimed to study the amount of IAA produced by the Trichoderma fungus to control plant growth and the effect of the amino acid L-tryptophan on its formation.

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For the identification of IAA, studies were performed using the method of thin-layer chromatography (TLC). To do this, the ethyl acetate fraction was instilled into silica gel plates (Silica gel G *f* 254, thickness 0.25 mm). It was then treated with ethyl acetate: chloroform: formic acid (55:35:10) or benzene: butanol: acetic acid (70: 25: 5) [18-24]. It is known that a homogeneous Rf value with a standard IAA indicates that an IAA is present in the supernatant. Table 1 shows that the amount of tryptophan has a significant effect on the synthesis of indole-3-acetic acid (IAA) when Trichoderma fungi are grown in a liquid medium in different ways.

Table 1. The effect of tryptophan on the synthesis of indole-3-acetic acid (IAA) when growing the fungus Trichoderma in a liquid nutrient medium by various methods

The amount of tryptophan in the feed, mM	The amount of IAA in the culture fluid when shaken, mkM	The amount of IAA in the culture fluid at stationary cultivation, mkM
0	18.2	15.2
0.5	18.4	24.2
1.0	22.6	22.4
1.5	28.6	26.6
2.0	30.2	26.8
2.5	32.2	41.2
3.0	32.6	46.4
3.5	33.4	54.2
4.0	34.2	58.3
4.5	34.4	58.6
5.0	34.4	60.2

In this case, the method of cultivation was carried out under two different conditions: in the usual way the culture medium was shaken, and the liquid medium was carried out in a stationary state. The results showed that when the amount of tryptophan was 2.5 mM, 32.2 µM IAA was produced in the liquid culture medium, while in the same amount of tryptophan, 41.2 µM IAA was produced in the culture fluid when grown in stationary conditions. Interestingly, when tryptophan levels were determined from 4.0 mM to 5.0 mM, it was noted that IAA formation did not change after 34.2–34.4 µM under conditions in which the liquid nutrient medium was cultured. The opposite was observed in the second growing condition. In particular, when tryptophan was added to the culture medium in the amount of 4.0-5.0 mM,

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the formation of IAA by the method of stationary cultivation increased from 58.3 µM to 60.2 µM.

Therefore, it is advisable to pay attention to the growing conditions and the amount of tryptophan in the preparation of a bio preparation that controls the growth of plants from the fungus Trichoderma in the form of culture fluid. In our subsequent studies, the possibilities of IAA formation of fungal biomass in a nutrient medium were considered (Table 2).

Table 2. Effect of tryptophan content on IAA synthesis of Trichoderma fungal biomass in a nutrient medium

The amount of tryptophan in the feed, mM	The auxin-forming activity of mycelial mass, mkg IAA/g biomass
0	189.6
0.5	225.2
1.0	268.4
1.5	275.8
2.0	300.6
2.5	336.2
3.0	362.4
3.5	392.6
4.0	466.4
4.5	520.4
5.0	525.2

The results show that in this case, too, the amount of tryptophan in the nutrient medium was noted as a major factor. During the study, it was observed that the amount of tryptophan in the nutrient medium remained quantitatively unchanged in the range of 4.5-5.0 mM, the formation of IAA (520.4-525.2 mcg IAA/g biomasses). Therefore, during the preparation of a bio preparation in the liquid state based on the fungus Trichoderma, it is necessary to use stationary growing conditions and to achieve the content of L-tryptophan amino acid in the amount of 4.5-5.0 mM in the liquid nutrient medium. Then it will be possible to prepare the desired amount of IAA-containing bio preparation.

CONCLUSION

Trichoderma, a soil fungus, is widespread and is noted as a microbiological object that is easy to separate cleanly, has a very fast biomass formation, and has a high level of biological activity against phytopathogenic fungi without harming the plant. Therefore, it is advisable to make extensive use of the results of modern research on metabolites of the producer Trichoderma Pers.:Fr, which exhibits a range of fungicidal action, especially the process of hyperparasitism in agriculture. In the preparation of a bio preparation to control the growth of plants in the liquid state based on the fungus Trichoderma should use the conditions of the stationary culture of the culture and achieve the presence of L-tryptophan amino acid in the liquid medium in the amount of 4.5-5.0 mM. Then it will be

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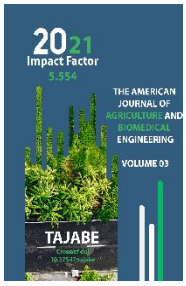

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Intensification Of The Drying Process With Vibration Method

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ABSTRACT

This article describes the use of intensive technologies in the drying of fruits in the project, including the use of vibration boiling to reduce the duration of the drying process and save raw material consumption for 1 ton of dried products by 0.5-2%. Also shows the organoleptic properties of dried plums in vibrating dryers proved to be superior to products obtained from tape-type dryers.

KEYWORDS

Production technology, basic raw materials, pricing, vibrating, plum.

INTRODUCTION

Current President of Uzbekistan has identified a "Strategy of Action" on five important priorities for the development of the Republic of Uzbekistan for 2017-2021 to overcome the negative effects of the global economic crisis in our country. Uzbekistan has very good conditions for processing fruits, vegetables and agricultural products.

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During the period of independence, the canning industry of the Republic of Uzbekistan has been reshaping on a private basis. Establishment of new enterprises during the transition to a market economy, expansion of the range of canned goods, filling the domestic market with canned goods, export to the world market, production of high quality canned goods. In order to prevent wasting materials It is advisable to build canneries directly on the farm. The main task of the agricultural processing industry at the present stage is to build modern processing plants and factories where raw materials are grown, increase the range and quantity of canned goods on the world market and create additional jobs. In the context of the global financial and economic crisis, modernization, technical renewal and diversification of production, the widespread introduction of innovative technologies are a reliable way for Uzbekistan to overcome the crisis and reach new heights in the world market.

MATERIAL AND METHODS

In this regard, the goal of our research is to use these methods in the factory:

1) Convective (the product is washed with heated air).
2) Contact (heat is transferred to the product through the heated surface).
3) Sublimation (using vacuum).
4) Fluidization, in the boiling layer (product particles are lifted and washed with hot air).
5) Increase the concentration and nutritional value of the radiation infrared light zone.

At the beginning of the drying cycle, the drying rate is very high because the moisture in the product is reduced from the substances between the surface of the product and the large cell. Then the drying rate decreases, but remains constant.

With the correct organization of the drying mode, the external and internal diffusion is almost the same and the product is dried evenly. Drying temperature leads to overheating and excessive drying. In addition, the quality of the product changes, the food and the smell disappear.

Many vitamins lose their potency. The main thing is to keep it at a constant temperature during the drying period. An increase in temperature leads to deformation of the product, which slows down the cooking process. The high quality of dried fruits and vegetables is based on air temperature and construction speed. Drying mode depends on the morphological and dimensional properties of the product, the degree of grinding, the method of pre-treatment. Mainly apples, pears, apricots, plums, grapes, potatoes, cabbage, carrots, beets, onions are dried, but other products can also be dried. Raw materials must meet the given standards and be of high quality. Preparation of raw materials consists mainly of sorting, selection by size, washing. The peel and inedible layer of many vegetables and fruits will be removed.

Mechanical cleaning of potatoes and berries is operated by machines and the rest of the process is done manually. At the base of fruits and vegetables are treated with hot water. Washing process of the soft skin is done by machines.

According to P.A. Rebinder, the form of bonding of moisture in the material is physico-mechanical, physicochemical and chemical. Usually during the drying process, physico-mechanical, physico-chemically bound water evaporates. In the drying of finely dispersed

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materials, first of all, physically and mechanically bound water, ie capillary moisture in micropores, moisture at the joints or moisture of application are released.

Osmotic (physico-mechanical) moisture is located in macropores and is released along with capillary moisture. Polymolecular and monomolecular adsorbed moisture is released after physically and mechanically bound moisture.

The drying process is divided into three stages.

The first stage is a short heating of the material, in which its humidity changes very little. In the second stage - a constant rate of short-term drying of the material, the surface temperature of the material remains unchanged, and the moisture content of the material evaporates as hygroscopic moisture, ie moisture on the surface of the material evaporates from the surface of free water. The third stage is a decrease in the rate of drying, in which the moisture content of the material falls to equilibrium.

The drying process requires a lot of energy. Intensifying this, the invention of low-energy devices remains a real problem. In recent years, the method of vibrating layer in the drying process is gaining popularity. The intensity of drying in this method differs from other methods by the width of the contact surface of the phases and the good mixing of the material, and allows the use of high-temperature drying apparatus.

The conclusion from the above is that in the vibrating layer does not form a vapor barrier layer, which pushes the mass layer of the product from the heater. The thinning formed in the vibrating layer ensures that the steam escapes to the surface layers. The intensity of the vibration effect, ie its frequency, amplitude and oscillations, increases. Increasing the amplitude of the vibrations improves the mixing, resulting in an overall drying rate.

The size of the heat exchange surface of the devices heated from the bottom of the conjunctival heat exchanger is not very high. Therefore, their production efficiency is much lower than convective heat transfer, which performs the function of the heat exchange surface of the entire surface. It is advisable to use the method of conductive heat transfer vibration boiling to dry finely dispersed materials. Due to the heat exchange between the surface of the horizontal vibrating layer and the layer of dispersion material, the heat transfer coefficient is higher than that of a normal vibrating layer.

Raising the vibration parameter to a certain value increases the heat transfer coefficient. In this case, the heating surface forms a gaseous cushion between the dispersed material, which acts as a thermal resistor and adversely affects heat exchange, the optimal heat transfer coefficient in accelerated vibration is radically different from the heat exchange in vertical vibrating layers.

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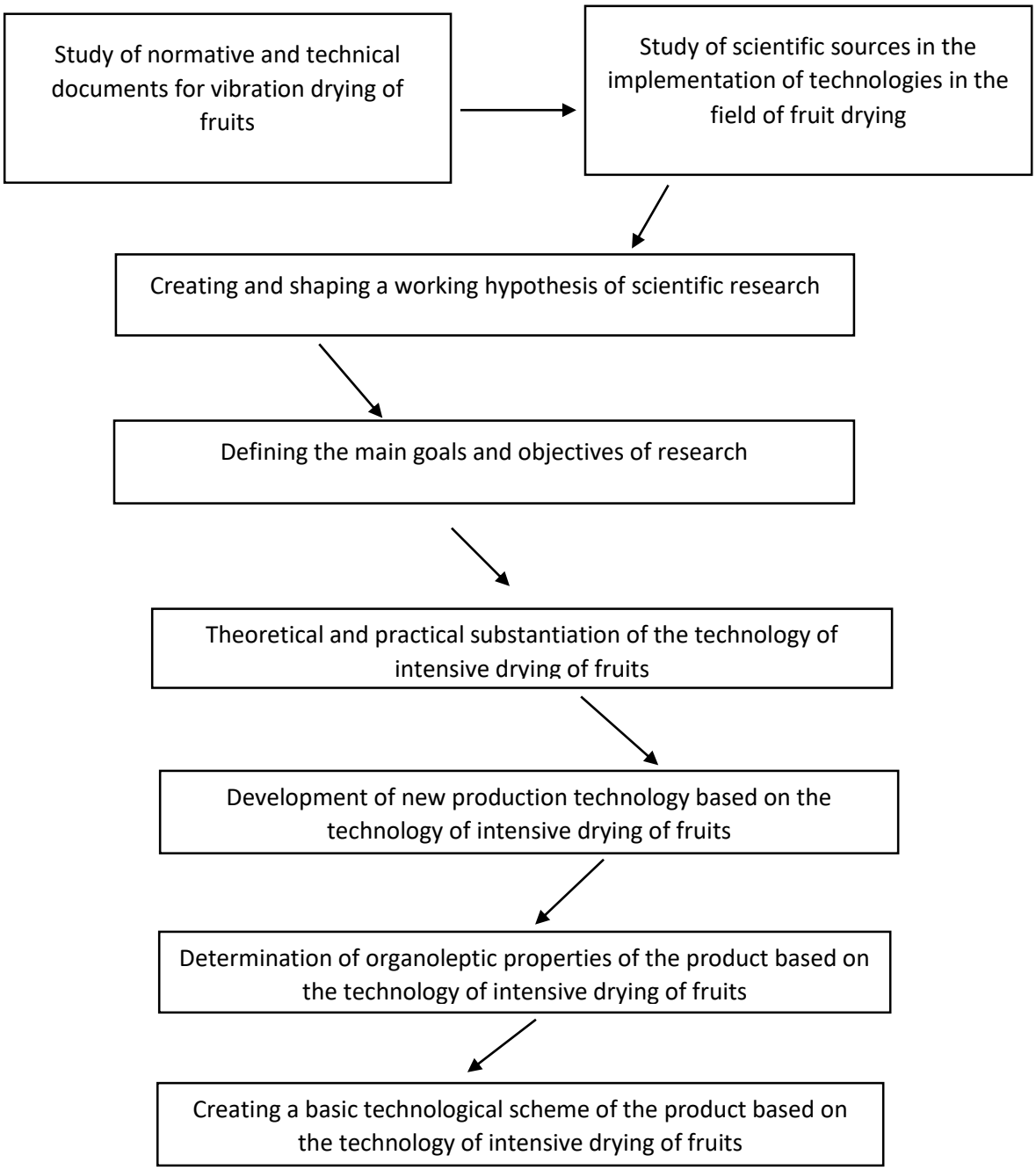

Figure 1. Analysis of the problems of intensification of the drying process of fruits and vegetables

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Schematic diagram of vibratory drying technology of plums

Bringing

Reception

Storage

Washing

Cleaning

Crushing

Sulfidation

Blanching

Drying

Adjust the humidity

Packaging

Storage

Analysis of technological processes of drying plums by vibratory boiling

The vibration method is one of the most promising areas of application in the pharmaceutical, food and chemical industries. One of the most important processes in this is drying. Heat and mass transfer processes are increasing due to the constant improvement and non-renewal of drying equipment. The most efficient of these devices are dryers, which produce fake boiling and fake liquid layers. The heat treatment of such dryers is as follows: the raw material in the scattering state is located in the type of rapid distribution, and under the influence of heated air, the scattering state becomes liquid. In this case, the layer is constantly softened, mixes well, as a result of which the particles of the dried product are evenly surrounded by hot air.

The above process increases the drying efficiency. In addition, the quality of products dried under the influence of fake boiling layers differs sharply from the usual natural drum dryers and auger and tunnel or belt dryers. Vibrating dryers are structurally simple; the appearance of the material that is being dried is 5-6 times less than the conventional method. Because of the low resistance of the layer, the speed of the heating agent is also low and its contact with the product to be dried is long. Heat consumption in vibrating dryers is 3500-4500 kcal / kg.

RESULTS

To determine the advantages of the vibrating method of boiling, we conducted experiments on a belt dryer at the plant "Shirinlik" AJ and vibrator dryers and plum dryers installed in this factory. Both experiments were carried out according to the instructions of equipment manufacturers. The results are presented in Table 2.

According to this table, the drying of plums in conventional tape dryers takes 4-5 times longer than in the device of vibratory boiling. 80 kg of plums of the same weight were dried in 16.5 hours to a moisture content of 24%. Plums of the same weight lasted for 2 hours in the vibrating machine and the moisture content of the product was 24.1% (Table 3). Experiments show that if 4.0 tons of steam are consumed per hour, the SPG-90 dryer consumes 64 tons of steam in 16 hours, and the vibrating dryer consumes only 4.2 tons of water per hour.

Also, the electrical power of these two devices is different. The organoleptic characteristics of dried plums in both devices are given below (Table 1). According to the data, the

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organoleptic characteristics of the product dried by vibration boiling are much better than the tape method.

At the same time, the drying time is reduced by 4 times, and it turned out that the product has a high commodity value. Humidity is 24%. Consumption of raw materials for 1 ton of finished product will be reduced by 18 kg, for the finished product will be 1.9% more than the amount of sugar in the raw material. This is due to the fact that it is possible to reduce the moisture content of the product to 1%.

It was found that the appearance, color, taste and smell of dried fruits are much better than the products obtained from the tape dryer.

Table 1

Organoleptic characteristics of dried plum

Indicators	Tape drier SPT-90	Vibrated boiling
Appearance	The fruits are whole, irregularly shaped or twisted	The fruits are whole, in the correct form, or light twisted
Smell and taste	Natural, distinctive light sulfur dioxide taste	Natural
Color	Same, distinctive light black to dark brown matte	The same dark, shiny
Humidity %	25,1	24,1
Amount of raw material for per tonn	3,7	3,52
Humidity in fruit	72,1%	74%

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Table 3

Technology of drying plums on a tape and vibrating device

Process parameters	Large fruits	Small fruits	Vibrating driers
Specific gravity kg / m2	14	20	60-80 m/k
Temperature on tape First Second	80 78-80	100 95	Step 1 85-900C Step 2-750C
Third Fourth	64-70 65	90 65	Step 3-650C
The temperature velocity 1 2 3 4	0,07 0,05 0,03 0,03	0.09 0,06 0,04 0,03	----
Duration of drying	16,5	6.5	2.1
Product output, %	24	25	27,1

CONCLUSION

1. The use of intensive technologies for drying fruits, including the use of vibration boiling, allows to reduce the duration of the drying process by 4 times.
2. It allows to save 0.5-2% of raw material consumption for 1 ton of dried product.
3. Plum products dried in vibrating dryers have been shown to have 1.5-2 times better organoleptic properties than products obtained from tape dryers.
4. Due to the complete elimination of sulfur compounds in plum products obtained in the vibrator, its ecological purity is ensured.
5. It was found that the sugar content of dried plums in vibrating dryers is 1.9% higher than in the tape dryers. This is due to the fact that the optimal moisture content of the fruit is reduced to 1.0 compared to the product in the tape dryer.

1) 6.The moisture in the dried fruit in the vibrator is increased by 3-4 times during the forging process so that the hardening does

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not form a hard layer on the surface layer of the fruit.

6. Drying of fruits in vibrating dryers is economically feasible and the efficiency of this technology is 16%, with a payback period of 1.92 years.

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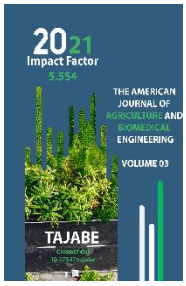

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Studying The Classification And Quality Of Food

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ABSTRACT

This article examines the analysis of the quality of food products in the world markets. The negative impact of low-quality goods on the health of the population and the economy of the country is substantiated, as well as issues of studying modern methods for determining the composition of low-quality goods.

KEYWORDS

Foodstuffs, low-quality foodstuffs, chemical composition, the nomenclature of commodity groups, customs expertise.

INTRODUCTION

Today in the Republic of Uzbekistan more than 51% of the population lives in rural areas. However, the share of agricultural products in the country's GDP does not exceed 17%, while

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the volume of processing of agricultural products is less than 10%. However, in developed countries, this figure exceeds 50 per cent. As you know, in the Strategy of Action for the Development of the Republic of Uzbekistan for 2017-2021, tasks are outlined for the effective use of local raw materials and the introduction of advanced intensive methods, innovative ideas and technologies in production. This work is devoted to the solution and implementation of these tasks in practice.

Since food is one of the basic human needs, therefore, all countries produce, import or export these products. All goods related to food products are usually divided into corresponding positions of commodity groups. For example, heading of heading 04 includes dairy products, bird eggs, natural honey and other unspecified or unregistered pet foods. Germany is the world's largest importer of this group of goods. Of the total volume of world imports of group 04 goods, Germany accounted for 10.4% of the turnover in 2017, which amounted to 9.3 billion US dollars, and in 2018 reached 10.5%, which corresponded to 9.5 billion US dollars. ... Germany imports from Holland milk, cheese, natural honey and butter. The largest exporter of group 04 goods is China, i.e. such food products as milk, butter, natural honey and bird eggs in more than 80 countries. The main consumers are New Zealand, Australia, the USA, France and Germany. Also, the largest exporters of group 04 goods are the USA, France, the Netherlands, Belgium and New Zealand,

According to experts in the field of production and consumption of food, about 567 billion eggs are consumed worldwide every year. These food products, i.e. eggs are fried, boiled, made cocktails and even drunk. The quality issues of these products are considered the main criterion.

Group 02 goods, i.e. meat and meat products are also some of the most consumed foods in the world. In 2017-2018, China was the largest importer of this group of goods. In 2017, China imported 8.03% of product group 02, i.e. meat and meat products, and in 2018 8.8% of all imported goods in the world. The Chinese state mainly imports products of position 0202 (frozen black beef). The world's leading exporters of meat and meat products are the USA, Brazil, the Netherlands and Germany. The USA mainly exports to Japan, Canada, China, Mexico goods of groups 0203 (fresh, frozen, chilled pork), 0201 (fresh, chilled black beef), 0207 (fresh, chilled, frozen poultry meat and intestines specified in position 0105), 0202 (frozen black beef), 0206 (fresh, frozen, chilled black beef, pork, sheep, goat, horse meat, donkey and mule intestines).

The composition of food products belonging to commodity group 21 includes a wide range of consumer products. These foods are considered essential for the daily needs of people. The export of this group of goods in the world in 2017 amounted to $ 69.4 billion, and in 2018 - $ 77.5 billion. The largest exporters of these products are the USA, Germany, the Netherlands, Singapore and China. The group of 21 items exported from these countries accounted for 35% of all world exports in 2017 and 38% in 2018. The USA, Great Britain, France, China, Germany and Canada are the leaders in the import of this group of goods.

I would like to note that the export of goods from the Republic of Uzbekistan is growing from year to year. In recent years, several positive steps have been taken in our country to grow vegetables and fruits. As a result of

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this work, the volume of exports of goods of group 07 (vegetables and root crops) increased. In 2017-2018, Uzbekistan rose to 7th place in the world in terms of the volume of exports of this group of goods. Exports from Uzbekistan of group 07 goods in 2017 reached $ 3.4 billion, and in 2018 - $ 3.2 billion. Uzbekistan exports these types of products to countries such as China, Afghanistan, Russia and Kazakhstan.

In recent years, comprehensive reforms have been carried out in our country, including a radical improvement of the customs service of the Republic of Uzbekistan. In addition, the volume of exports and imports from our country is growing from year to year. According to the official website of the World Trade Organization www.trademap.org. noted that in 2018 the import of goods amounted to 12.03 billion US dollars, and in 2018 it reached 17.3 billion US dollars. As you can see from these figures, the volume of imports in 2018 increased by 43% compared to 2017. Of these, the largest number is occupied by goods of 84 groups, i.e. household appliances goods. Imports of these goods in 2017 amounted to USD 2.7 billion, and in 2018 reached USD 4.5 billion. Among food products (in the 10th place) are goods of the 17th group, i.e. sugar and confectionery in 2017 amounted to USD 0.33 billion, and in 2018 it amounted to USD 0.35 billion. Of these, heading 1701 (sugar) accounted for USD 0.33 billion in 2017, and USD 0.34 billion in 2018. In 2017-2018, the share of food products amounted to about 9-12% of all imported goods. Exports of goods from the Republic of Uzbekistan in 2017 amounted to USD 10.07 billion, and in 2018 reached USD 10.91 billion. The most exported commodity group 07 - agricultural products in 2017 amounted to USD 3.5 billion, and in 2018 it amounted to USD 3.2 billion. These data indicate that the main share of exports and imports from the Republic of Uzbekistan is food.

It should be noted that the development of international economic relations contributes to the sustainable growth of exports, which in turn creates the basis for achieving certain results. In particular, in 2019, the number of enterprises engaged in the export of goods and services increased by 1,172 compared to the same period of the previous year, and their total number was 5,438. (Source: Information from the State Statistics Committee of the Republic of Uzbekistan - https://stat.uz/uz/). Figure 1 provides information on goods and services carried out in the Republic of Uzbekistan in 2019 (in%).

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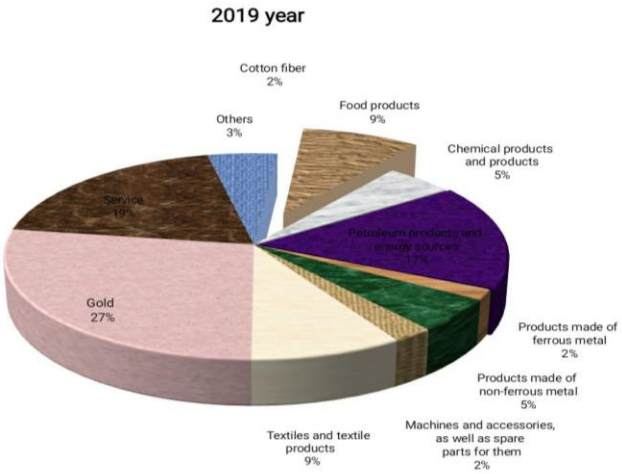

Fig.1. Diagram for the distribution of goods and services in the Republic of Uzbekistan for 2019 (in%).

The introduction of a risk management system in the customs authorities led to the simplification of the principles of customs procedures. This, in turn, helps to save time, creating certain conveniences for participants in foreign economic activity. Not all participants in external economic activity benefit from the created opportunities. There are a number of violations of customs rules on the incorrect determination of the code of goods for the customs nomenclature of foreign economic activity. In recent years, several problems have arisen with the classification of food products according to the customs nomenclature of foreign economic activity. For example, several years ago, dairy products and milk powder were classified according to the customs nomenclature of foreign economic activity code 0402101100 and submitted to the customs authorities as a cargo declaration. The amount of starch in milk powder classified in position 0402 on the customs nomenclature of foreign economic activity must be less than 5%. Otherwise, if the amount of starch in milk powder is 5% or more, such a dairy product should have been assigned to item 2106. As a result of a customs inspection carried out in a customs laboratory, it was found that the starch content of this product did not contain more than five%. Thus, on the basis of the analyzes carried out in line with the customs nomenclature of foreign economic activity, it was concluded that these goods should be classified in the position according to the customs nomenclature of foreign economic activities with the following code 2106909200.

Rice was classified under code 1006101000 according to the customs nomenclature of foreign economic activity and was registered in the customs import in the form of a cargo declaration. Samples were transferred to the customs authorities instead of rice, brown rice, which differed from the samples intended for customs authorities, that is, not related to imported goods. Samples of ready-to-eat rice products were presented to the certification bodies. When inspecting 840 tons of imported products, the customs laboratory staff found out that the samples taken for examination did not correspond to the certificates. As a result,

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it was concluded that the product is a ready-to-eat rice product and its correct code for the customs nomenclature of foreign economic activity must correspond to code 1006102700.
As another example, SMAK Potato Chips, classified according to the customs nomenclature of foreign economic activity code 200520200 and submitted to the customs authority with a customs cargo declaration for import, are considered. Sliced potato products classified in heading 2005 are in the form of rectangular plates, made from potato flour and contain a small amount of salt and sodium glutamate. These potatoes should be fried a few seconds before eating. As a result of the customs examination carried out in the customs laboratory, it was established that potato chips "Potato chips SMAK" and other types of flour-starch mixture, before being served ready-made, are subjected to cutting in the form of thin rectangles on special equipment, then cut into thin layers, followed by a sprinkle of salt, aromatic spices and fried. In accordance with the text of heading 1905 and the basic rules of interpretation for the customs nomenclature of foreign economic activity, a corresponding conclusion was prepared for the product "Potato chips SMAK", which is classified by code 190590550 in the line of the customs nomenclature of foreign economic activity.

RESULTS OF STUDIES

As shown by the analysis of the research carried out on the customs nomenclature of foreign economic activity, it was revealed that the departments of territorial customs laboratories do not have instruments for determining the chemical composition and quality of exported and implanted goods. All this, in turn, creates a number of problems for the laboratory staff.

As far as we know, according to Article 217 of the Customs Code, an examination can be carried out either by one (customs examination commission) or by several experts of different specialities (complex customs examination). However, the uneven distribution of specialists across regions can create certain problems for conducting a comprehensive examination.

I would like to note that high rates of customs duties have been established for a number of food products, and some goods are exempted from customs duties. For example, in accordance with the Decree of the President of the Republic of Uzbekistan No. PF-5978 dated April 3, 2020, a list of goods exempted from customs duties and excise taxes was provided until December 31, 2020. The list also included goods in positions 0402, but not goods in positions 2106. According to the decree of the President of the Republic of Uzbekistan PQ-3818 dated June 29, 2018, the import customs duty for goods in position 2106 was set at 30%. Above, we examined the problems arising in the classification of certain food products in accordance with the requirements of the customs nomenclature for foreign economic activity. It should be noted that milk substitutes and dry milk products classified under code 2106 909200 should be classified under code 0402 101100. Taking into account the above, it can be argued that at this stage of our time the main factor is the health of the population, based on this, all work should be carried out in the direction of production and quality control of food.

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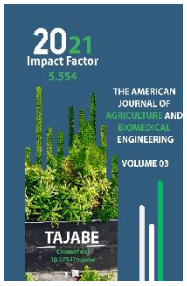

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The Current State Of The Use Of Lalmi Crop Land And The Main Directions Of Their Improvement

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ABSTRACT

The article analyzes the current state of lalmi crop lands using the methods of variability, mathematical programming and scientific observation, evaluates and develops the ratio of land and crop species to their location, natural-geographic, socio-economic and environmental conditions of these regions.

KEYWORDS

Lalmi lands, underground, natural moisture, Mountain Ash, barley, sunflower, spices, autumn, farming, water erosion, "other lands".

INTRODUCTION

It is also important to develop the country's economy in accordance with the current conditions, rational organization of the use of lalmi crop areas, along with irrigated land, ensuring the stability of the system of food production, ensuring the efficiency of the available resources in this region. Therefore, the development and implementation of a

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special system of measures aimed at the rational organization of the use of such crop lands in the Kashkadarya region, where the vast majority of the lalmi crop areas are located, will yield great results in the near future. Bunda depending on the region in which these lalmi crop lands are located, it is better to determine the optimal composition and area of the land and crop species that will be placed in them, based on all aspects.

The land of the crop is located in different regions according to their natural-climatic and economic characteristics. In this regard, it is desirable for each region to determine the specific proportions and areas of the land and crop variety in different variants, as well as to choose the most optimal option, comparing them to each other, placing them on the basis of the optimal solution proposed in this option. Therefore, in this research carried out, the methods of variability, mathematical programming, optimization and scientific observation were used.

MATERIALS AND METHODS

Kashkadarya region is one of the main regions of the Republic and its region is distinguished from many other regions with its diversity in terms of its natural and geographical structure. In the territory of the region, along with high mountains, it also consists of wide Adriatic, steppes and deserts. In particular, the mountains fall to the West and south-west, and the book-Shahrisabz goes to the wreck, and then to the Adriatic and plains adjoins. The surface of the flat part of the territory is not the same, in different parts of it, Mountains and plateaus are encountered. In the western part of the territory of the region is the Karshi steppe and Oasis. In general, there are several deserts in the territory of the region-this is the Karshi steppe, in the North and North-West is the Karnov, Jom steppes, and in the South-East is the sighting steppes[1]. The land areas of the region are formed in such a complex natural-geographical conditions and are successfully used in various sectors of the economy today. In particular, in the steppes and oases, as well as in a part of the lands to which they are located, irrigated lands based on artificial irrigation, and in the steppes, Mountain-foothills and mountain-tops, non-irrigated(lalmi) lands based on natural moistening are formed, and today they constitute the basis of regional agriculture. As can be seen from the official data obtained, 6,10-8,0 percent of the agricultural products grown in vilocht come from the dam to the lands of the lalmi crop[1]. So, it seems that it is also important to organize rational and effective use of lalmi (non-irrigated) lands in the agricultural sector of the region.

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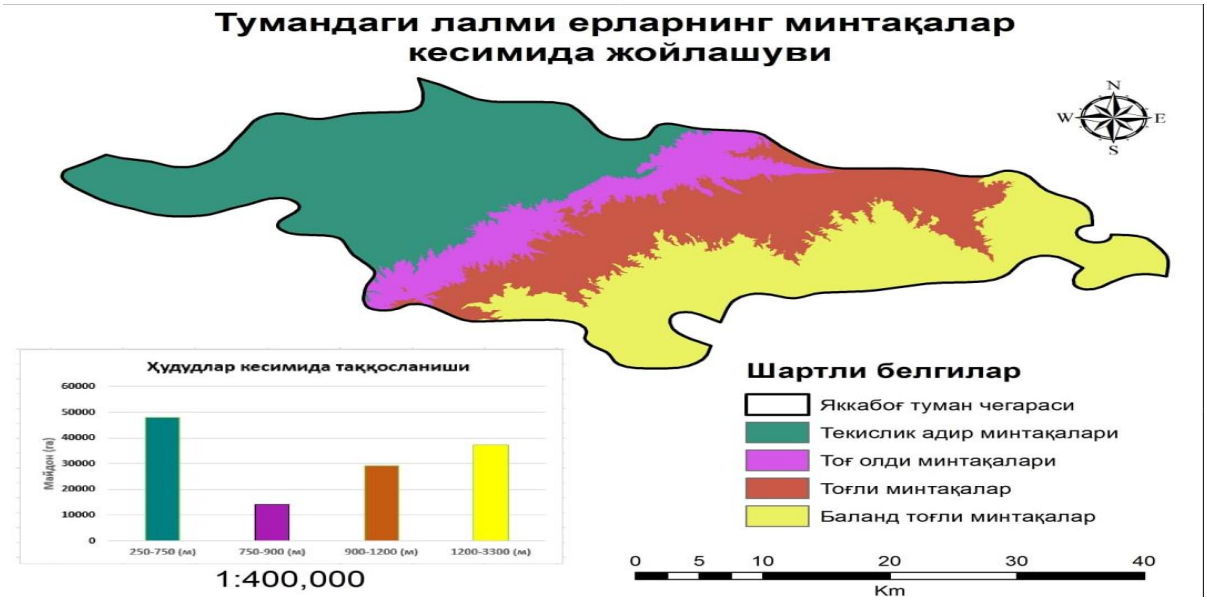

According to the state committee" Davergeodezkadastr", the total land of Kashkadarya region is 2856,8 thousand hectares in the background, according to the state of 01yanvar in 2020. The main part of these areas is the land intended for agricultural purposes.

The study of the current state of agricultural land use shows that 258,7 thousand hectares of the agricultural land used in the region is the land of the lalmi crop (2-table).

1-table

Distribution of total lands of kashkadarya region by main land types. (2020y 01.01)

T.p	Асосий ер турлари	Умуми ер майдони, минг га	Шундан	
			Суғориладигани	Суғорилмайдигани
1	Экин ерлари	676,1	417,4	258,7
2	Кўп йиллик дарахтзорлар	39,1	36,9	2,2
3	Бўз ерлар	21,9	4,6	17,3
4	Яйлов ва пичанзорлар	1407,1	0,1	1407,0
5	Жами қишлоқ хўжалик ерлари	2144,2	459,0	1595,2
6	Томорқа ерлари ва боғдорчилик-сабзавотчилик уюшмалари ерлари	80,4	49,4	31,0

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7	Мелиоратив қурилиш ҳолатидаги ерлар	18,8	18,8	-
8	Ўрмонлар	764,3	6,2	158,1
9	Бошқа ерлар	449,2	449,2	-
	Жами ерлар	2896,8	514,7	2342,1

The data from Table 1 show that in the lalmi region of the region, in addition to arable land, there are perennial plantations (2,2 thousand ha) such as hornbeam lands (17,3 thousand ha) and agricultural land types as yaylov and hayzars (1407,0 thousand ha). Here it is necessary to note that Sagittarius and hay have a separate mode of use, so that there is no mention of them. Other agricultural land types, including lalmi arable land (258,7 thousand ha), lalmi perennial darktzors (2,2 thousand ha) and lalmi Boz lands (17,3 thousand ha) together (278,2 thousand ha) constitute the lands of the lalmikor agricultural region of the region.

The peculiarities of the climate of the Lalmi region are that precipitation in the region is mainly in the form of strong rains, which tightly clamps the soil and becomes a major obstacle to the growth of crops on Earth[2].

Precipitation occurs mainly in the autumn-winter and early spring periods, and the possibility of weaning a number of crops at a very low vegetation temperature, lalmikor manifests itself in the main feature of farming. M.V. Chetirkin notes that not every non-irrigated peasant will also become a lalmi peasant. Lalmi farming is such a non-irrigated farming, in which a person is a farmer who is able to tolerate large humidification and low vegetation temperatures, which are mainly cultivated in autumn and early spring, and which are subject to vegetation in winter and spring, closer to or in autumn than biological cultivation[2].

It is known that the distribution of precipitation by Regions is associated with the relief of the place itself, that is, the higher the area above sea level, the more abundant the precipitation there is. Alternatively, the degree of supply of precipitation or natural moisture determines the effectiveness of the use of lalmi soils. From this point of view, the territory of lalmi farming is divided into the following regions: plain, plain-adirlik, Foothill and high mountain[2]. Such regions differ from each other not only by the sum of annual precipitation, but also by the amount of humus in the soils distributed in these regions, that is, the production capacity of soils. In Particular, N.V.According to Karpov, the volume of humus in the soils in the plain regions is 1.12%, in the plain-Adirs 1.66%, in the foothills-2.53%, and in the foothills-4.1% [4].

According to the results of the above-mentioned regionalization, it is possible to see that the lalmi lands of Kashkadarya region are spread in the following regions;

-Mountaineering, spread at an altitude of 1200-2000 meters above sea level. This zone is provided with natural humidity (annual

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precipitation is 450 mm and more). In the high mountain range of this region, most of the brown soils are distributed. It is able to give a much better yield than the lalmi lands spread in the region. The main drawback of the territory is the small contours, the use of agricultural machinery is Simply Complicated. The region is located 5foiz of the land of lalmi crop, that is, 12,98 thousand hectares to this region. There are also perennial plantations that do not irrigate 0,19 thousand hectares in this region.
-the foothill region, located at an altitude of 750-900 meters above sea level ,with a moisture content (annual precipitation amount 350-450 mm), in this zone mainly spreads in the earthy soils of the hornbeam. This region is considered to be the most favorable region where agricultural crops and perennial plantations have been established. According to official data, 32,9 percent or 85,37 thousand hectares of the region's lalmi crop land were distributed in the region. There are also perennial plantations that do not water 1,01 thousand hectares in this area.

The main disadvantage of the land in the region is that it is prone to water erosion in the region, as well as its use of agricultural techniques with high yields in 25-30 percent is difficult.

- The QIR-adir region, located at an altitude of 450-750 meters above sea level, is semi-supplied with natural moisture (annual precipitation 280-350mm), most of which are spread in typical burlap soils, partially prone to poor washing, and this region is the main region of cultivation of lalmi peasant crops. According to the data obtained, 50 percent of the total lalmi crop land in the region or 129,35 thousand hectares are located in this region. In addition, it will be possible to use agricultural machinery at a high level in all parts of this territory.

- Flatland region, located at an altitude of 230-450 meters above sea level, is not provided with natural humidity (annual precipitation is an average of 250-280 mm per year), mainly because of the wide distribution of hungry grassy soils. The fertility of these soils is not so high, the amount of humus is on average 0,8-1,2 foizni. Because of the lack of moisture, agricultural crops are also sown. According to official data obtained, 11,9 percent of the area's lalmi arable land, that is 31,0 thousand hectares, is located on this plain. Based on the above data, we summarize the data on the distribution of the total land of the province of lalmi by regions in the following form. (3-table).

2-table

Қашқадарё вилояти лалми ерларини минтақалар бўйича тақсиланиши (2020 йил 01.01 га)

Т.р	Минтақалар	Жами майдони, минг га	Шундан		
			Лалми экин ерлари	Лалми кўп йиллик дарахтзорлар, минг га	Бошқа ерлар, минг га
1	Тоғли	1053,77	12,98	0,19	1040,6
2	Тоғолди	564,98	85,37	1,01	478,6

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3	Қир-адир	483,74	129,35	0,59	353,8
4	Текислик	239,62	31,0	0,42	208,2
Вилоят бўйича жами		2342,1	258,7	2,2	2081,2

From Table 2 it can be seen that a large part of the irrigated land area of the region falls on the region of Qir-adir. Accordingly, the land of the lalmi crop also forms larger areas in this region than others. To the noted "other lands" included yaylov and pichanzors, lalmi Boz lands, forests and others.

Information on the distribution of non-irrigated land, that is, lalmi land by the main land types, depending on the main location regions, can be seen more clearly in the example of the province's Yakkabog' district. (Table 4)

3-table

Distribution of lalmi lands on Yakkabog' district of kashkadarya region to main land types (2020 y. 01.01)

Т.р	Минтақалар	Умумий майдони	Шундан, га				
			Лалми экин ерлари	Кўп йиллик дарахтзорлар	Бўз ерлар	Яйлов ва пичанзорлар	Бошқа ерлар
1	Тоғли	19105,3	717	27,7	39,6	13302	5019
2	Тоғолди	28326,7	5013	62,4	371,28	18718	4162
3	Қир-адир	17431,9	7448	9,8	822,12	7071	2081
4	Текислик	4727,1	1145	4,1	93,0	2505	980
	Туман бўйича жами	69591	14323	104	1326	41596	12242

As can be seen from the data from Table 3, the lalmi land in Yakkaboghtuman, which was subjected to research, is also distributed in the above four regions, the majority of the cultivated land is in the region of Qir-adir (52%), the main part of perennial plantations is in the foothills (60%) region, the vast majority of land is in the region of Qir-adir (62%).

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It is known that lalmi farming is developed to some extent in the province, its main administrative districts. In particular, in addition to the irrigated farming of Yakkabog'tumani, which is subject to the study, there is also lalmi farming, in which the data on the distribution of land under the jurisdiction of the district agricultural enterprises by the main types of land are clearly revealed.

As can be seen from the information in Table 3, 67,3 percent of the total land in the use of the district's agricultural enterprises is the land of lalmi. Bunda, 40,8 per cent of the total arable land of the district, 1.2 per cent of perennial plantations, 100.0 per cent of Boz lands and yaylov and pichanzors, 70,1 per cent of forests, as well as 14.1 per cent of farmland lands constitute lalmi lands. These data also show that the district has a certain share of the land of lalmi in agriculture. At the same time, it should be noted that on the border of the district, the total area of lalmi crop land and burrow land, perennial plantations, most of the yaylov and hay fields are attached to agricultural enterprises, that is, to farmer farms.

Using the above information as well as the characteristics of each region, the results of the studies show that the composition of land and crop species in the existing 14323,0 hectare lalmi crop region on the border of one Yakkabog'tumani is 2: 1: 1 (50%-pistachios and tonsils, 25%-grain crops and 25% -oil crops) in the foothill Region. 2:2:1:1 (34%- pistachio and tonsils, 34,0%- grain crops, 16%-oil crops and 16%-lalmi melons) in the ratio to be able to achieve high yields.

CONCLUSION

Based on the above research, it is possible to draw a brief conclusion that the organization of the use of such areas on the basis of the placement of land and crop species in the recommended proportions to the existing lalmi lands in terms of their location allows in the near future to increase their efficiency, create additional 82 new jobs.

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