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# **Importance of Desert Fodder Crops and Other Agricultural Crops Grown on the Basis of Innovative Agricultural Technologies in Preventing Pasture Degradation**

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**ABSTRACT:** Implementation of measures to prevent soil degradation of the mountain pastures of our country, cultural reproduction of pasture crops, use of other agricultural crops to improve the condition of pastures, establishment of special nurseries, cooperation with farmers on the development of new agrotechnologies suitable for the area, and possible use in this direction opinions and recommendations related to the field are briefly described.

**KEYWORDS:** Pasture, forage crops, dry crops, natural pasture crops, livestock, feed unit, izen, saxowul, cooperation, farmers, nursery, degradation, agricultural crops, sprinkler irrigation.

## **I. INTRODUCTION**

The Academy of Sciences of the Republic of Uzbekistan, founded in 2017 by the personal initiatives of our Honorable President Sh.M. Mirziyoyev, of the Navoi branch of the Academy of Sciences, is playing a very big role in solving the problems that have accumulated in the pastures and agriculture of the Kyzylkom desert. Dedicated to the 5th anniversary of the establishment of the Navoi Department, the exhibition of innovative developments of scientific research institutes of the Academy of Sciences and recognition by scientists, farm managers and heads of agricultural organizations at the International scientific and practical conference on the theme "Integration of science, education and production - the guarantee of progress and development" done.

## **II. SIGNIFICANCE OF THE SYSTEM**

Since 2019, the Navoi Department of the Academy of Sciences has been cooperating with the Nurota district "Umrbek" farm on the basis of a memorandum of cooperation between the two organizations on applying the results of science to production areas and testing new developments. This cooperation shows us how effective the result of a scientific approach to work is, and that what we do is becoming effective and interesting. Employees of the department create plantations of pavlovia trees in the dry lands of Nurota district, create special agrotechnology of drought-resistant grain, alfalfa and other agricultural crops, organize the seeding of desert-pasture nutritious plants, cover crops and feed various agricultural crops with a special leaf suspension, and The effect on the yield of pasture fodder crops was studied. The study methodology is explained in Section III, Section IV contains the experimental results of the study and Section V discusses the future study and conclusions. The study of methodology is explained in section III, section IV covers the experimental results of the study, and section V discusses the future study and conclusion.

**III. METHODOLOGY**

Scientists of the department cooperate with the farm in 4 directions and conduct research together:

1. To prevent pasture degradation, to organize pasture fodder crop seeding;

**Figure 1. Khorasan asparagus****Fig. 2. Jitniak-male herb**

2. Creation of special agrotechnology for grain, alfalfa and other agricultural crops resistant to drought;



3. To study the effects of shelling of agricultural crops and feeding with a special leaf suspension on the productivity of various agricultural crops and pasture fodder crops;



4. Creation of pavlovnia plantations by adapting new Eurotechnologies to our local conditions based on the memorandum of cooperation concluded with "PAULOWNIA BG" LLC in the Republic of Bulgaria; Before talking about the results of cooperation, it is necessary to give a brief information about pasture degradation:



The fact that 23,600.1 thousand hectares or 52.5 percent of the 44,896.9 thousand hectares of land in our republic are pastures and hayfields [1] shows how much work we need to do in pastures. In recent years, soil erosion and pasture degradation have been occurring as a result of overuse of pastures, non-compliance with scientific recommendations, and a number of other natural and anthropogenic effects, in addition to natural effects. Of the 23.6 million hectares of pastures, 16.4 million hectares have been degraded, and the fodder feed on about 9.0 million hectares of these pastures has drastically decreased. Everywhere, intensive use of mountain pastures in turn leads to vegetation degradation, which in turn leads to increased runoff and increased frequency of floods [2].

**Degraded grassland.****Pasture in normal condition**

Natural adverse conditions of pastures determine their melioration status. Water and wind erosion, soil drift, drift, snow drift, sand drift, soil salinization and swamping, flood flow, permanent livestock grazing, vegetation cover, inappropriate use of pastures have a great influence on the reclamation condition of pastures. These processes are caused by water, wind, soil poisoning and swamping, extremely dry year and other anthropogenic factors (changes caused by human activity). [3].

Currently, the main reason for soil erosion and degradation of pastures is the desertification of lands as a result of natural and climatic factors and human activities, the decrease in the productivity of pastures as a result of various effects, the deterioration of the quality of feed, the destruction of plant cover as a result of their continuous use, and the impoverishment of biological diversity. will come The results of the research show that today the number of species in the vegetation cover of pastures is sharply decreasing [4]. Prevention of soil erosion and degradation of pastures requires immediate elimination of negative situations in pastures, their rational use, preservation and enrichment of biological diversity, restoration of plant cover of pastures in crisis, phytomelioration measures.

#### **IV. EXPERIMENTAL RESULTS**

The above-mentioned extremely difficult problem, i.e., the task of restoring the state of pastures, can be achieved only by conducting research with farmers in the pastures themselves, on the spot, improving the economic condition of farmers, and most importantly, convincing farmers of the effectiveness of our work. According to the results of the research, the following can be reported:



**In the 1st direction,** researches were started this year on the cultivation of desert-pasture fodder crops and dry crops on the fields of the farm "Umrbek" of Nurota district, without soaking, but only by feeding them with bentonite clay suspension and biostimulants:

**The effect of using bentonite clay on fertility in the cultivation of wheat and desert-pasture nutritious plants in the dry lands of the Nurota district "Umrbek" farm (as of 01.04.2022)**

№	Plant names	Planted area (ha)	Planting rate (kg/ha)	Sleeplessness					
				Control, planted in a simple way			Planted in a shell with bentonite clay		
				Planting	Germination	Number of plants per 1 m <sup>2</sup>	Planting	Germination	Number of plants per 1 m <sup>2</sup>
Desert-pasture nutritious plants									
4.	Izen	0,1	3,0	18.02.22	01.04.22	Not fully germinated	18.02.22	31.03.22	Not fully germinated, 70 percent germinated.
5.	Esparset	0,1	10,0	18.02.22	31.03.22	Not fully germinated	18.02.22	30.03.22	Not fully germinated
6.	Jitniak (Male herb)	0,1	3,0	18.02.22	30.03.22	Not fully germinated	18.02.22	29.03.22	Not fully germinated, 70 percent germinated.
7.	Chongon	0,1	10,0	18.02.22	30.03.22	Not fully germinated	18.02.22	18.02.22	Not fully germinated, 70 percent germinated.
8.	Teresken	0.1	9,0	18.02.22	30.03.22	Not fully germinated	18.02.22	18.02.22	Not fully germinated, 70 percent germinated.

**According to the 2nd direction,** a number of works were carried out on the creation of special agrotechnology of agricultural crops in water-scarce regions. Bentonite clays and biostimulants were used in this process.

**The effect of using bentonite clay on fertility in the cultivation of wheat and desert-pasture nutritious plants in the dry lands of the Nurota district "Umrbek" farm (as of 01.04.2022)**

№	Plant names	Planted area (ha)	Planting rate (kg/ha)	Sleeplessness					
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				Planting	Germination	Number of plants per 1 m <sup>2</sup>	Planting	Germination	Number of plants per 1 m <sup>2</sup>
Wheat varieties									
1.	Surhak-5688	11	110	11.02.22	04.03.22	208	11.02.22	03.03.2022	230
2.	The jewel of the south	1,2	110	15.02.22	09.03.22	198	15.02.22	30kg/t 08.03.22	221

								40kg/ t	07.03.22	228
								50kg/ t	08.03.22	224
<b>3.</b>	Wrestler	1,0	110	15.02.22	09.03.22	186	-			

**In the 3rd direction**, scientists of the Navoi Department of the Academy of Sciences are also conducting a number of effective works on the effect of the use of bentonite clay from the leaves of plants and various biostimulants in the form of suspensions on the productivity of obtaining a high yield from agricultural crops and organizing the seeding of desert fodder crops. The research done is being recognized by the industry staff. For example, in 2021, in cooperation with the Russian enterprise "Sila kremniya Agro tex", pilot tests were conducted on the use of nanosilicon fertilizer produced by this enterprise.

For several years, the scientists of the department have conducted experimental tests on the use of bentonite clay suspension in foliar feeding of agricultural crops, and a number of positive results have been achieved in this direction. A research plan for conducting research on the application of the above two directions together has been developed. These works were carried out as follows: simultaneous and separate feeding experiments with biostimulants and bentonite clay from the leaves of agricultural crops. When similar experiments were carried out in the carrot field of the farm "Umrbek", according to the results of the experiment, an additional yield of 1.5, 2.5 and 0.9 t/ha, i.e. 4.87, 8.11 and 2.92 percent, was achieved compared to the control. Based on the above scientific experiments, experiments are being carried out on the basis of a research plan to organize a series of tests of biostimulators with bentonite clay on dry grain fields.

**According to direction 4**, in 2022, on the basis of the partnership established with "PAULOWNIA BG" LLC in the Republic of Bulgaria, scientists of the Navoi Department of the Academy of Sciences of Nurota will plant 1,000 "Shangtong" seedlings of pavlovnia and 0.4 hectares on the basis of Eurotechnology in the field of "Umrbek" of Nurota district. 2000 pavlovian plants of this type were planted in specially prepared fields. Planted seedlings were covered with colored films imported from Turkey, on one side of which a colored reflective paint was sprayed. It is planned that these treated seedlings and cuttings will serve as the basis for the creation of a pavlovnia plantation on an area of 50 hectares next year.







The pavlovian seedlings planted in April have fully matured, and due to the care based on a completely specially developed agrotechnology, the condition of the seedlings is very good, and the two-month growth has reached one meter. 70% of the planted cuttings have germinated and the process of germination continues. 50-60 kg of saltpeter per hectare once every week Irrigation is organized through the drip irrigation system in a special container with a volume of 15 m<sup>3</sup>. Cultivation between seedlings, weeding is increased depending on the condition of the plants.



## V. CONCLUSION AND FUTURE WORK

To sum up, our research in the above-mentioned 4 directions is giving preliminary results. Currently, other farmers and agricultural organizations are increasingly interested in our work and are making proposals to work together. In short, the scientists of the Navoi department, through their efforts, aroused interest in science among farmers, the results of research show how important the integration of science and production is. As a result of the above 4-directional works, a thorough ground was created for the expansion of the scope of research and cooperation.

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