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AGROBIOLOGICAL BASIS OF INCREASING PRODUCTIVITY OF KASHKADARYA DESERT AND SEMI-DESERT PASTURES

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Annotation. *The article provides information on the productivity of desert and semi-desert pastures of Kashkadarya region and the sowing of seeds of desert forage species and varieties and their timing.*

Keywords: *desert, hill, pasture, yield, degradation, phytomelioration, variety, seed, forgetfulness, sowing dates.*

Introduction. Kashkadarya region is one of the largest regions of Uzbekistan with developed pasture livestock. (It should be noted that Uzbekistan is a country located in Central Asia). The total area of pastures in the region is about 1.5 million hectares. hectares and is ecologically composed of semi-desert (hills) and desert pastures. About half of them are desert pastures, and the other half are slopes pastures. Pastures are the main source of fodder for existing livestock and are used almost all year round. However, pasture yields are relatively low and fluctuate sharply in different years, inextricably linked to annual rainfall. In recent years, global climate change, frequent recurrence of drought years and pasture crises in large areas have led to a shortage of pasture fodder, with livestock being relocated to other remote pasture areas during drought years and incurring unreasonable costs. Especially in Mubarek and Nishan districts of the region, the shortage of pasture fodder has become one of the main factors hindering the sustainable development of the sector. The best way out of the difficult situation on pastures is to increase the productivity of pastures through phytomelioration. At present, Uzbekistan has developed a number of advanced technologies to increase the productivity of desert and semi-desert pastures, more than a dozen local varieties of promising high-yield phytomeliorants. The widespread introduction of these innovative developments into production is one of the urgent tasks of today.

The main of the research is to test the varieties of desert forage species in the pastures of Kashkadarya region, to select the most promising and to establish their primary seed areas.

Sources and methods of research. The source of research is the black haloxylon (Haloxylon aphyllum) "Nortuya", izen (Kochia prostrata) “Отавный”, teresken (Ceratoides eversmanniana) “Тўлқин”created by the Research Institute of Karakul and Desert Ecology Seeds of Jayhun, Salsola orientalis, Pervenets Karnaba, and Alabuta (Atriplex undulata) were served. The transect method was used to determine pasture productivity (Gaevskaya, 1971). Laboratory and field research used generally accepted methods in botany, seed production and seed production (Gritsenko, Kaloshina, 1976; Shamsutdinov, 1975; Rabbimov, Khamroeva, 2016). The methods of B.A. Dospekhov (1979) were used in biostatistical processing of the obtained data.

Analysis of the results of the study. In order to assess the current state of pastures in Kashkadarya region, the spring productivity of pastures in Nishan, Guzar and Kamashi districts of the region was studied. This is because ephemeral and ephemeroid species form the basis of pasture forage, and their maximum yield is observed in the third decade of April. As the current year was more favorable and rainy in terms of rainfall, there was a good opportunity for good growth of pasture plants. As a result, pasture yields were significantly higher than the previous year.

Table 1

Districts	Pasture type	Dry mass yield, ts	Number of plant species, pcs
Nishan	Ephemeral-ephemeroid	4,1	17
Guzar	Ephemeral-ephemeroid	2,5	15
Kamashi	Ephemeral-ephemeroid	8,8	26

The highest pasture yield was observed in Kamashi district, where barley grass yield was 8.8 quintals of dry mass per hectare.

Figure 1. Spring condition of pastures of Guzar district.

Figure 2. Spring condition of pastures of Kamashi district.

In Nishan district, the yield of pastures was 4.1 quintals, and in Guzar district - only 2.5 quintals of dry land. At the time of harvest, barley grass in the pastures of Guzar district was almost dry (Fig. 1), while in Kamashi district, on the contrary, the period of rapid growth and flowering of plants was observed (Fig. 2).

When studying the number of forage species in the pastures, it was found that in the pastures of Kamashi district this figure is 26 species, in Nishan district - 17 species, and in Guzar district - 15 species. In fact, more than 200 species of plants have been recorded in the hills and deserts (Mavlonov, 1973). From this, it can be concluded that the pastures of the region are in crisis at a strong level.

Table 2

Cultivation qualities of seeds of desert edible plant species and cultivars

Sort, quality	Clean,%	1000 mass of seeds, gr	Forgetfulness in the laboratory, %
black haloxylon -*Haloxylon aphyllum* “Нортуя”	46,0	4,5	63,0 ± 3,5
Izen-*Kochia prostrata* “Отавный”	35,0	2,1	87,2 ± 2,0
Teresken-*Ceratoides eversmanniana* “Тўлқин”	25,0	7,1	44,2 ± 1,1
chugon- *Halothamnus subaphyllus* “Жайхун”	30,0	7,0	54,3 ± 1,1
The tail -*Salsola orientalis* “Первенец Карнаба”	32,8	7,5	48,6 ± 2,3
olabuta- *Atriplex undulata* “Ягона”	35,0	3,2	12,6 ± 0,8

These cases indicate the need to phytomeliorate and increase the productivity of pastures in the region. At the same time, the selection of desert forage plant species and varieties that are well adapted to local conditions and the establishment of their breeding will be of great scientific and practical importance.

The purity of seed samples of desert forage plant species and varieties is relatively low in all species and varieties, which can be explained by the extreme unfavorable conditions of seed production and the specific biological characteristics of desert forage plant species. For example, it has been found that only 25% of flower buds formed in the izen plant produce normal seeds (Раббимов, 2014).

Therefore, it was found that the weight of normally developed seeds in seed masses ranged from 25% to 46% in different varieties. This figure also depends on the climatic characteristics of the year, indicating that the relatively dry 2021 also had a negative impact on seed quality performance. The absolute mass of 1000 seeds is one of the important quality indicators. The larger the seeds, the higher their germination and the stronger the sprouted grass.

Among the tested varieties, teresken, pigeon and tailed varieties predominated in terms of seed size, the mass of 1000 seeds was 7.0-7.5 g, the smallest seeds were observed in izen variety, and the absolute mass of seeds was found to be 2.1 g (2 -table). The mass of 1000 pieces of olabuta and black saxaul seeds was 3.2 and 4.5 g.

The germination of seeds of the tested species and varieties in the laboratory also varied, and it was found that the seeds of the Otavnyy variety of izen have the highest fertility - 87.2%. The lowest forgetfulness (12.6%) was observed in the “Single” variety of olabuta (Table 2). There are specific agro-technical measures for the creation of high-yield pastures by planting desert forage crops, and the regional approach to these agro-technical measures, ie the specific soil and climatic characteristics of each region, ensures the effectiveness of phytomeliorative measures. Adherence to the optimal timing of sowing is very important in the implementation of phytomeliorative measures. There are different opinions in the

scientific literature on the optimal timing of sowing the seeds of desert forage plants. For example, L.S. Gaevskaya points out that the best time to sow seeds in Karnabchol is from mid-December to mid-February (Гаевская, 1971). З.Ш. Шамсутдинов, Р.М. Чалбаш (1969), Л.П. Синьковский (1961), З.Ш.

According to Shamsutdinov (1975), the optimal time for sowing the seeds of desert forage is autumn-winter. In the conditions of Nishan district, when sowing seeds at different times and determining their fertility, it was observed that the fertility of seeds in the field varies depending on the type of plant and navigation (Table 3).

Table 3

Fertility of seeds sown at different times in field conditions, % (Target experimental field, 2021-2022).

The plant type, quality	Seed sowing dates, months	Fertility of seeds in field conditions, %
black haloxylon's *Haloxylon aphyllum* The quality of "Нортуя"	December January February	3,0 ± 0,6 10,0 ± 2,6 25,3 ± 1,6
Izen's *Kochia prostrata* The quality of "Отавный"	December January February	3,0 ± 0,6 3,0 ± 0,4 2,0 ± 0,5
Teresken's *Ceratoides eversmanniana* The quality of "Тўлқин"	December January February	11,3 ± 1,4 6,6 ± 1,7 3,6 ± 1,8
Chugan's *Halothamnus subaphyllus* The quality of "Жайхун"	December January February	18,6 ± 2,6 18,3 ± 2,5 18,6 ± 1,4
The tail's *Salsola orientalis* The quality of"Первенец Карнаба"	December January February	3,0 ± 0,6 14,0 ± 3,6 27,6 ± 1,4
Olabuta ,*Atriplex undulata* The quality of "Ягона"	December January February	4,0 ± 0,8 5,3 ± 3,0 11,0 ± 1,1

Figure 3. Planting of black haloxylon, izen, teresken, chogan, tailed, olabuta plants for counting in December, January, February (Target experimental field, 10.02.2022).

The highest yields were observed in the February variant (25-27 and 11%, respectively) in the varieties of black saxophone "Nortuya", tail "Pervenets Karnaba" and olabuta "Single". In Izen and Teresken varieties, high yield was observed in the December-January variants, while in the Jayhun variety, the yield was almost the same in all variants. Z.Sh. According to Shamsutdinov (1975), the germination of seeds of desert forage plants in the field varies from 0.5% to 25%, depending on the climatic characteristics of different years. The data obtained from our experiments indicate that the above author's opinions are based.

Conclusions: Based on the results of the study of productivity and vegetation of pastures in Kashkadarya region, it can be said that biodiversity is significantly reduced due to the degradation of pastures, pasture yields are much lower than their potential;

Improving the productivity of regional pastures through phytomelioration is one of the urgent tasks today, in which the selection of nutritious plant species and varieties well adapted to local conditions, the development of regional agro-technical measures for their cultivation plays an important scientific and practical role;

Based on the results of the research, it can be said that the existing desert forage plant varieties have satisfactory germination characteristics in the desert and semi-desert regions of Kashkadarya region.

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