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Agrotechnical Measures of Cultivation of Atriplex Canescens and Atriplex Undulata Plants in a Temple Climate

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Abstract: The results of agrotechnical measures of growing Atriplex canescens and Atriplex undulata in Karnabchol climatic conditions: optimal depth of seeding, rate of seeding and viability dynamics of lawns are presented.

Key words: soil, plowing, harrowing, tillage, viability dynamics, tillage, planting rate.

Due to the fact that the soil of cauliflower consists of light-colored gray soils, when choosing an area for the cultivation of oleanders, pasture plots with a crisis of plant cover and a decrease in the number of nutritious plants are selected. Land with a slope of up to 20% can also be used when choosing a site. In such cases, taking into account the relief features of the area, in order to prevent wind and water erosion, plowing should be carried out in the direction transverse to the hill. When preparing the soil for planting in the fields, turning the sod in the spring season and plowing with a plow to a depth of 25-30 cm gives good results. After plowing, the ground is treated with a trowel or harrow, and the soil surface is leveled. We recommend plowing with a 4-body trailer or "Altai" tractors with suspension plows. Plows should have predpluzhniks to break the turf layer. In the current technology of planting desert forage plants, plowing (22-25 cm deep) and troweling are the main agrotechnical measures of soil cultivation. To date, in order to reduce the costs of these activities, the idea of minimal tillage before planting is being promoted and research work is being carried out to create such tillage mechanisms. Any effective technology should ensure the desired number of plant stems, maximum viability and normal development of vegetable lawns. Therefore, the options of tillage + harrowing, harrowing + harrowing and harrowing + harrowing were studied before planting. Experiments were carried out in the Karnab experimental field, repeated 3 times, on 25 m2 plots, and indicators of viability, height growth and development of plant lawns were studied. The seeds were sown by hand-scattering at specified sowing rates and pressed with a trowel. When the surface layer of the soil is softened by plowing, the water, physical, and aeration properties of the soil improve dramatically, creating conditions for the rapid development of the root system of young lawns. This, in turn, has a positive effect on their growth, development and viability, and ultimately allows them to accumulate high phytomass, and the creation of relatively favorable conditions for their growth and development during the virginal period of plants allows their rapid development and high yield. Therefore, plowing and fertilizing the land before planting seeds is considered the most effective agrotechnical measure in the care of oleander species in Karnabchol conditions.

Optimum depth of planting seeds. It is important to determine the optimal depth of planting seeds in the soil when developing agrotechnical measures. In field conditions, oleander seeds were planted at different depths (0, 1, 2, 3, 4 cm) and their germination was studied. In the experiments, 100 seeds of each variant were planted in quadruplicate. The results of the experiments showed that the seeds of oleanders have the ability to germinate even from 0 cm to 4 cm depth. However, the highest fertility was observed in the variant with seeds buried to a depth of 2 cm, which was 24% in 2012, 26.3% in 2013, and 13.2% in 2014 (Table 1). Fertility in 2014 is lower than in previous years due to the dry arrival of February and March. As can be seen from the data in the table, it is possible to achieve a much higher fertility (11.5-15.7%) even when burying the seeds to a depth of 1 cm. Therefore, we can determine the optimal depth of burying oleander seeds in the soil as 1-2 cm.

Table 1 Blue mass yield of Atriplex undulata depending on seed planting depth. (Karnab field of experience, 2014-2016), in the first (2014) year of his life

Plant depth, cm	The form of blue mass					
	30 m2, kg				M±m	ts / to
	I	II	III	IV		
0	1,2	1,3	1,4	1,1	1,25 ± 0,09	4,16
1	1,6	1,5	1,8	1,9	1,78 ± 0,11	6,70
2	2,4	1,9	2,6	2,1	2,25 ± 0,16	7,50
3	1,9	1,5	1,7	1,2	1,58 ± 0,15	5,27
4	1,7	1,5	1,2	1,1	1,40 ± 0,14	4,6

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t =16,8> $t_{0,05}$ (2,37) > $t_{0,01}$ (3,50)						
In the second (2015) of his life						
0	4,2	3,9	4,8	2,6	3,6 ± 0,5	12,0
1	5,6	4,9	5,8	3,9	5,0 ± 0,4	16,6
2	6,4	6,8	5,9	6,9	6,5 ± 0,2	21,6
3	5,6	5,9	4,2	3,8	4,9 ± 0,4	16,3
4	4,1	2,6	3,1	2,4	3,0 ± 0,4	10,0
t =17,8 > $t_{0,05}$ (2,37) > $t_{0,01}$ (3,50)						
In the third (2016) of his life						
0	5,0	7,9	6,3	6,5	5,2 ± 0,9	17,3
1	5,9	6,2	8,6	7,0	5,2 ± 1,13	17,3
2	7,6	9,0	10,6	8,2	6,6 ± 1,5	22,0
3	6,5	7,1	8,3	5,2	6,8 ± 0,6	22,6
4	4,1	4,8	3,2	4,3	4,1 ± 0,3	12,6
t =2,52> $t_{00,5}$ (2,37) > $t_{0,01}$ (3,50)						

Studies have shown that the depth of planting also affects the yield of blue mass of plants (Table 2). In the first year of plant life, the highest yield (7.5 t/ha) was observed in the option of sowing seeds at a depth of 2 cm. The yield was 4.1-4.6 ts/ha in the options without burying the seeds and buried to a depth of 4 cm. In the second and third years of the plants' life, the highest productivity was recorded in the options where the seeds were planted at a depth of 1-2 cm.

Table 2 Fertilization of Atriplex canescens and Atriplex undulata seeds in field conditions depending on planting depth, % (2012-2014)

Plant depth, cm	The culprit of seeds,%		
	2012 year	2013 year	2014 year
Atriplex undulata			
0	11,2 ± 1,8	10,6 ± 2,1	5,5 ± 0,5
1	15,7 ± 0,6	13,3 ± 0,8	11,2 ± 0,9
2	24,0 ± 2,0	26,3 ± 1,2	13,2 ± 0,9
3	9,2 ± 2,1	11,0 ± 2,5	5,7 ± 0,9
4	2,2 ± 0,4	2,0 ± 0,5	3,2 ± 0,9
Atriplex canescens			
0	10,2 ± 1,3	11,6 ± 2,4	6,2 ± 1,5
1	16,8 ± 0,5	14,3 ± 0,9	12,3 ± 0,7
2	26,4 ± 2,2	27,4 ± 1,6	14,3 ± 0,8
3	10,1 ± 1,7	10,0 ± 3,5	6,8 ± 1,5
4	3,2 ± 0,6	2,5 ± 0,6	4,2 ± 0,8

Therefore, the optimal planting depth is an important agro technical measure, which directly affects not only high fertility and viability, but ultimately productivity. When the seeds are placed in the surface layer of the soil, it has a negative effect on achieving high fertility as a result of sudden changes in moisture in this layer in desert conditions. In relatively deeper layers, the preservation of soil moisture for longer periods provides a favorable opportunity for seed germination.

The mass of 1000 seeds of Atriplex undulata plant is -4.8 grams. So, 1 kg of its 100% farmable seeds will consist of 179,856 seeds. If we consider the average fertility of seeds in field conditions to be 15%, 26,978 plants can be grown when 1 kg of seeds are used per 1 ha of land. This is 3.8 times more than the norm. Taking into account that the purity of seeds usually does not exceed 30-40 percent, it is enough to spend 1.0 kg of seeds per hectare from hand-picked seeds. Such a rate of seed consumption corresponds to the conditions of carrying out a specific agrotechnical measure, such as burying the seeds by hand and in a square nest to a depth of 1-2.0 cm. In production conditions, sowing of 10-12 kg of seeds per hectare on plowed and fertilized land allows to obtain the expected results (the number of plants per hectare is 10-12 thousand plants). After sowing the seeds, it is necessary to ensure that they are buried to the required depth by pressing with a trowel.

Figure 3 Diameter of a three-year-old Atriplex undulata plant

Conclusions:

- The seeds of Atriplex canescens and Atriplex undulata plants do not lose their viability for many years, and this biological property of them, unlike local phytomeliorants, allows to preserve seed stocks. Fertilization of Atriplex canescens seeds stored for five years was 63.2%, and that of Atriplex undulata plant seeds was 50.8%.
- When planting Atriplex canescens and Atriplex undulata plants, 22–25 cm of tillage before planting in the soil. the option of deep plowing and crushing is desirable, and such processing allows for high viability of lawns and rapid development in the first year, obtaining a high phytomass yield.
- December is the most favorable period for planting Atriplex canescens and Atriplex undulata plants, when the seeds are naturally stratified, high fertility (22.0–30.6%) and viability (61.8–75.7%) are achieved.
- The optimal depth of planting the seeds of Atriplex canescens and Atriplex undulata in the soil is 2.0 cm, in which high seed fertility (13.2–27.4%) is achieved.
- 10-12 kg of seeds per hectare are used for the establishment of seed plots of these plant species. The seeds are sown by hand on plowed and harrowed land and buried to a depth of 1–2 cm using a light trowel.

List of used literature

1. Litvinov L.S. O pochvennoy zasuhe i ustoichivosti k ney rasteni. - Lviv: Izd-vo Lvovsk. Gos. University. 1951.-139 p.
2. Lobova V.V. Pochvy pustynnoy zony SSSR –M: Izd-vo AN SSSR. 1960.-364 p.
3. Mavlyanov S. M. Ekologo-phytosenologicheskaya charakteristicsika ephemeroidnogo-polynnika Karnabchulya v svyazi s proizvodstvennostyu pastbishch. Autoref. diss. sugar b. science Samarkand, 1973. -27 p.
4. Makhmudov M.M. Basic biological-ecological introduction to the culture of keureuka (Salsola rigida Pall) and its conditions in southern Kyzylkuma. Abstract not soisk. three. Step. sugar biol. science Dushanbe, 1968. -20 p.
5. Makhmudov M.M. Keyreuk is a valuable fodder plant in the desert zone of Uzbekistan. Samarkand, 1991.65 p.
6. Makhmudov M.M., Mukimov T.K. Advances in forage cultivation in the steppe. Agriculture of Uzbekistan. 2000, No. 4 p. 47-49.
7. Makhmudov M.M., Bekchanov B. Agrobiological basis of cultivation of halophytes in Kyzylkum conditions. //Scientific bases of production of piracy products. Samarkand, 2001. p. 176-186.
8. Makhmudov M.M., Khalilov H., Bobokulov N.A. Prospective phytomeliorants for Nurota hills and their seed preparation dates. Agricultural magazine of Uzbekistan. 2002 No. 4, p. 55-57.
9. Makhmudov M.M. The current state of cattle breeding pastures and the main criteria for the selection of promising phytomeliorants. Problems of the development of desert pasture animal husbandry (proceedings of the international scientific and practical conference). Samarkand, 2005, pp. 187-189.
10. Makhmudov M.M., Rabbimov A., Bekchanov B., Ortikova L. Opyt vvedeniya v kulturu kormovyx galofitov v solonchakovoy pustyne Uzbekistana.// Ecologically based technologies of desert-pasture cattle breeding. Proceedings of the republic scientific-practical conference. Samarkand. 2009, pp. 183-192.