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CLASSIFICATION OF ALFALFA VARIETIES AND SAMPLES SELECTED IN MODERATELY SALINE SOIL-CLIMATE CONDITIONS OF SYRDARYA REGION

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Abstract: In the course of research based on the analysis of the main economically valuable characteristics of foreign and local varieties of alfalfa, the following varieties were identified: K-6100, K-6194, K-6656, K-6171, K-6650, K-6649, K-6200, K-6640 and K-6105, as well as the Emiliana variety, which surpassed the Tashkent-1 variety in some respects, and these varieties are recommended for use as source materials in alfalfa breeding.
Keywords: alfalfa, flowering period, hybrid, line, variety, selection, seed production, variety, green mass, sample, productivity.

Introduction. Syrdarya region is located in the central part of our republic and has favorable soil and climatic conditions for agriculture, but also has varying degrees of salinity. Forage crops such as alfalfa and corn are grown as fodder for livestock. Soil fertility, irrigation system, climatic conditions, modern agrotechnologies, as well as taking into account environmental factors in the placement of agricultural crops, and adapting crop types and varieties to the degree of salinity are of great importance.

The salt tolerance of the alfalfa crop is the ability of the alfalfa plant to grow and develop in conditions with high salt content in the soil (saline). Alfalfa is a relatively salt-tolerant plant and can grow and produce even in saline soils. The strong and deep root system of alfalfa allows it to obtain water and nutrients from the deep layers of the soil. Due to the deep root system, it is able to move away from the saline upper layer and feed from the lower layers. Alfalfa root nodules bacteria (Rhizobium) absorb nitrogen from the atmosphere, becoming a source of nitrogen for the plant. This process can continue even in saline conditions, but excessive salinity can reduce the activity of the bacteria. One of the urgent tasks is the creation and adaptation of special salt-tolerant alfalfa varieties for growing in saline soils.

Alfalfa varieties and ecotypes were sampled from geographically remote areas with arid conditions. Varieties and samples that were tolerant to salinity, sharp changes in daily and seasonal temperatures were selected for the study. Cultivated and variable (M. sativa, M. varia), wild alfalfa M. falcata populations from the northern and southern regions were present among the selected samples. The growth of the endemic perennial alfalfa species M. trautvetteri, obtained from the same regions, was also observed in the studies. Alfalfa varieties with salt tolerance, Agnia, were also observed. Salt stress-tolerant hybrids, obtained on the basis of the local Khiva variety, were also isolated by crossbreeding. Later, it was found that the plants of salt-tolerant specimens (So) with contrasting phenotypes (Co-max and Co-min) selected from the complex hybrid population P211 (Pastizhnaya 88 ½, Northern hybrid 69 ½ Rhizoma) had blue-colored flower corollas. Hybrids from deep lilac to blue, characteristic of alfalfa (M. sativa L.), were obtained, and at the same time, it was found that the color of flowers was different in Agnia

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(Ag) plants with different phenotypes (Ag-max and Ar-min). As a result of the studies, it was found that it is possible to distinguish lines in high-yielding forms of alfalfa that show the dominance of their genes and show their productivity during planting. It was shown that the offspring obtained from yellow-colored alfalfa varieties have forms similar to the lineage of one of the parents [1; pp. 43-48].

Due to the high water requirements of alfalfa, most producers in the main growing regions use irrigation, which means that increased soil salinity can be particularly problematic for this crop. Although alfalfa is generally moderately tolerant to salinity [2; pp. 137-150], its biomass production can still be seriously affected by this type of stress and is one of the main environmental problems limiting production. This, together with the forecast that ruminant production will need to be increased by 88% by 2050, indicates the need to develop new varieties with improved salinity tolerance in the future [3; pp. 105-109].

It is known that the hybrid obtained as a result of crossing any type of crop is complexIt has been emphasized that genetic phenomena are difficult to quantify because they are difficult to characterize. In most studies, the characteristics of the hybrid G1 generation are examined and high-quality parental combinations are selected. However, the use of this method to select high-quality hybrid combinations requires extensive field experiments. The development and technology of molecular markers have been of great importance in achieving these results in a short time [4; pp. 527-540].

Research method. The parameters of the experiments were calculated using the method of scientists A.M. Konstantinov and others from the All-Union Research Institute of Forage Crops named after V.R. Williams, and mathematical statistical analyses were performed using the method of B.A. Dospekhov and the MS Excel program.
Results and discussion. In the studies, foreign and local varieties and samples selected in moderately saline soil-climatic conditions were compared with the standard Tashkent-1 variety and analyzed for the main valuable economic characteristics. In this case, the Tashkent-1 variety, which was taken as a standard, had an average flowering period of 29.8 days, a stem height of 74.6 cm, a green mass yield of 656.9 grams, a hay share of 36.0%, and a foliage index of 44.0%.

Among the samples selected in the studies in moderately saline soil-climatic conditions, the K-6719 sample was superior to the Tashkent-1 variety in terms of these characteristics, with a hay share of 48% and a foliage index of 55.0%. It was noted that the flowering period of the plants, the height of the main stem and the productivity of the green mass were lower than the standard. The K-6200 sample, which is ecologically and geographically distant, was superior to the Tashkent-1 variety in terms of these characteristics, with a green mass productivity of 882.7 grams, a hay share of 51%, and a foliage index of 48.0%. It was noted that the flowering period and the height of the main stem were lower than the standard.

Among the foreign samples, the k-6640 sample was higher than the model variety with a stem height of 76.7 cm, hay percentage of 52.0%, and foliage index of 54.0%. From the selected samples, it was found that the k-6735 sample was higher than the model variety with a blue mass productivity of 1016.5 grams and a leafiness index of 50.0 percent. K-6650 has an average

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flowering period of 28.3 days, stem height is 87.5 cm, hay content is 39%, foliage index is 51%. the fertility rate was found to be 60 percent, which is above the standard (see table).

table

Classification of selected varieties and samples in medium salinity soil-climate conditions of Syrdarya region

T/p	Type, name of specimens	Flowering period	Main stem height	Blue mass productivity	Hay share	Leafy
1	k-6719	29.8±1.1	71.8±1.7	599.5±4.2	48	55
2	k-6200	36.2±1.3	56.8±1.6	882.7±6.5	51	48
3	k-6640	33.1±1.2	76.7±1.8	626.1±5.4	52	54
4	k-6171	28.5±1.1	87.3±1.8	918.1±6.5	29	48
5	k-6735	34.5±1.2	73.6±1.7	1016.5±6.6	22	50
6	k-6650	28.3±1.0	87.5±1.9	568.21±6.2	39	51
7	k-6100	26.8±1.0	79.5±1.8	816.72±6.2	33	60
8	k-6105	27.5±1.1	76.7±1.8	547.2±5.4	39	52
9	k-6194	26.7±0.9	69.3±1.7	468.8±5.1	32	50
10	k-6771	33.1±1.2	38.3±1.3	382.5±3.3	48	52
11	k-6804	30.4±1.1	73.4±1.8	417.7±4.4	37	53
12	k-6656	27.6±1.0	81.4±1.8	886.5±6.4	39	53
13	k-6649	29.9±1.1	70.2±1.7	1130.9±6.8	39	46
14	Local -1	31.5±1.1	67.5±1.7	798.0±6.0	34	41
15	Emiliana	27.9±1.0	87.2±1.9	660.9±5.6	31	50
	Tashkent-1(St)	29.8±1.1	74.6±1.7	656.9±5.6	36	44

In our experiments, sample k-6105 from foreign samples has an average flowering period of 27.5 days, the height of the main stem is 76.7 cm, the percentage of hay is 39.0%, and the foliage index is 52.0%. the indicator of 50.0 percent was in a negative state compared to the sample variety according to other studied signs. The studied sample k-6771 showed 48.0% hay content, 52.0% leafiness, k-6804 sample k-6804 had 37.0% hay content, 52.0% leafiness and was higher than the model variety in terms of these characteristics, but lower than the model in other analyzed.

In the eco-geographically distant sample K-6656, it was found that the sample K-6649 was higher than the standard Tashkent-1 variety with a green mass yield of 1130.9 grams, a hay share of 39%, and a foliage index of 46 percent, and had the characteristics of flowering and plant height. In the local variety K-1, the green mass yield was higher than the standard variety with a green mass yield of 798.0 grams, and the foreign Emiliana variety was higher than the standard variety with an average flowering period of 27.9 days, a stem height of 87.2 cm, and a foliage index of 50 percent, and was higher than the standard variety with these characteristics. However, the green mass yield and foliage indices were lower than the standard.

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In the researches, the foreign and local varieties were selected based on several years of selection in medium salinity soil climatic conditions, in comparison with the model variety, the flowering periods of k-6100, k-6105, k-6194, k-6656 samples from 2.5 days to 3.1 days, k-6771, k-6650, k-6656 samples and Emiliana variety 6.8 cm. to 12.9 cm., it was found that the proportion of blue mass was high in samples k-6771, k-6735, k-6649 in the range of 261-474 grams. The share of hay in plants k-6719, k-6200, k-6640, k-6771 samples was 12-16% higher than the model variety, and in terms of foliage, k-6719, k-6640, k-6100 samples were superior to the model variety by 16%.

Based on several years of experience, the main valuable economic characteristics of foreign and local varieties and samples in the alfalfa collection were selected based on the analysis of the soil and climatic conditions of the Syrdarya region: K-6100, K-6194, K-6656 samples for flowering time, K-6171 and K-6650 samples for stem height, K-6171 and K-6649 samples for green mass productivity, K-6200, K-6771, K-6640 samples for hay productivity, and K-6640, K-6100, K-6719 samples for foliage, which were higher than the Tashkent-1 variety, were selected.

Conclusion. In our research, foreign and local varieties of clover, based on the analysis of the main valuable economic characteristics of the samplesк-6100, к-6194, к-6656, к-6171, к-6650, к-6649, к-6200, к-6640 and к-6105 and samples and the Emiliana variety are recommended for use as starting materials in alfalfa selection for several characters.

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