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Results obtained from alfalfa crop experiments in rainfed areas

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Abstract: In the article, evaluation and selection of samples of alfalfa crop in rainfed lands, selection experimental areas according to economic valuable signs and characteristics are highlighted. The results of the research on the newly selected initial resources, which have high foliage and all other parameters compared to the model variety, are resistant to early blight, disease, and drought, are presented.

Keywords: Crop, alfalfa, foliage, variety, sample, range, selection, pattern, disease, drought, creation, green mass, dry mass, hay, productivity, reproduction, seed production, quality.

Introduction: Nowadays, due to the global climate change in the world, a sudden increase in air temperature during the most responsible stages of growth and development of agricultural crops, including fodder crops, and frequent occurrence of air and soil droughts in dry areas prevent the production of stable high and quality crops from these crops. Therefore, creation of new varieties of fodder crops resistant to adverse environmental conditions (high temperature, drought), diseases and pests for dry areas is one of the most urgent issues facing breeding scientists today.

In achieving this goal, the role of alfalfa forage crops in pastures and irrigated areas is incomparable.

By creating new high-yielding varieties of alfalfa with higher nutritional value, protein (protein) content, leafiness and seed yield, together with the increase of the nutritional value obtained from the existing areas, the needs for feed in animal husbandry will be met. By organizing the primary seeding of the new varieties created, they are supplied to farms and clusters specialized in livestock breeding. This leads to the expansion of high-yielding alfalfa areas, as a result of which high-quality feed is provided to livestock.

In all rainfed regions, planting alfalfa allows more nitrogen nitrate to accumulate in the soil than planting wheat. Alfalfa enriches the soil with humus from the third year in the plain-hilly regions, which are semi-provided with natural moisture [3,4].

The amount of protein in alfalfa stems is 17.8% in dry land and 17.7% in irrigated land. Fiber content is 26.6% in dry land and 24.9% in irrigated land. Alfalfa doubles the fertility of the land after itself [2,].

It is believed that there is almost no difference in protein and fiber content of alfalfa hay obtained in the first harvest of dryland and irrigated fields [1].

It should be noted that 100 kg of alfalfa hay contains 48.8 nutrients, 100 kg of barley straw contains 35.8 nutrients, and alfalfa crops can be harvested for 7-8 years in a row in dryland farming, and 1-2 hay crops are provided every year [6].

Quick adaptation to environmental factors in different natural climate-soil conditions is important in genetic preparation of the variety [3].

METHOD

At the Rainfed Agricultural Scientific Research Institute, new varieties and varieties of alfalfa selected together with local varieties were studied. All agrotechnical activities are based on the recommendations and methods developed by the Gallaaral Scientific Experimental Station in 1994, phenological observations, evaluations of various indicators in field and laboratory conditions State Commission for Testing Agricultural Crops (1985, 1989) and the former All-Union Plant Science Institute (VIR, 1985) was carried out on the basis of methodological manuals developed in.

RESULTS

At the Rainfed Agricultural Research Institute, research and evaluation of alfalfa crops at the selection stages, selection of new lines with 10% higher hay and seed yields, 3-5% higher foliage and 1-2% higher protein content than the standard was carried out.

As a result of scientific research, new lines with a higher level of foliage than standard varieties, high yield of hay and seeds were isolated.

135 varieties of alfalfa samples were studied in Lalmikor lands this year. Growth, height, branching, foliage, green stem, hay and seed yield of alfalfa in dry areas are important.

20 samples with high plant height were selected from the planted sample area. These samples differed by 4-5 cm in height compared to other samples: k-6219 (Mestny, Poland), k-6520 (Charta, FRG), k-6638 (Washoe SSHA), k-6643 (Mestnaya, Tripoli), k -6652 (BZ-422 Yugoslavia), k-7072 (USA, Caliverde, 35380) k-7064 (Mongolia, 34705), the number of seedlings per 1 m2 and plant height of these samples were also higher than other samples (Table 1).

According to the results of the experiment, these selected samples were protected (isolation) from other samples and their seeds were taken separately.

Table 1

Samples of alfalfa varieties in the area of samples valuable economic indicators (Gallaaral 2024)

№	Catalog №	Origin	Row number	Development, day	The number of seedlings per 1 m^2, pcs	Plant height, cm
St	Aridnaya st	Gallaaral	1	15.02	13	90,1
1	k-6643	Mestnaya, Tripoli	2	13.02	17	95,2
2	k-6647	Egipet	2	12.02	13	96,3
3	k-6651	P.58/327, Yujnaya Afika	2	12.02	14	95,2
4	k-6652	BZ-422 Yugoslaviya	2	13.02	12	93,1
5	k-6721	Kokshe, Kazakstan	2	12.02	12	95,3
6	k-6734	Mestnaya, Kitay	2	13.02	11	92,2
7	k-7051	Местная Афганистан	2	12.02	15	92,4
8	к-7053	Аргентина	2	12.02	14	94,1
9	к-7064	Mongoli, 34705	2	13.02	12	91,4
10	к-7072	Caliverde, USA. 35380	2	12.02	12	92,2
11	k-6219	Mestny, ,Polsha	4	12.02	14	91,2
12	k-6222	Povlovskaya 7, Voronej	4	13.02	12	96,3
13	k-6335	Mestnaya, Siraya	4	14.02	12	95,2
14	k-6349	Mestnaya, Armeniya,	4	12.02	11	94,1
15	k-6520	Charta, FRG	4	13.02	15	93,3
16	k-6521	Pleven-1 Bolgariya	4	12.04	12	92,2
17	к-6523	Mestnaya, Marokko	4	12.04	18	92,4
18	k-6638	Washoe USA	2	13.04	12	94,1
19	k-1168	Provense English Grown Lucerne	4	12.02	16	95.0

20	k-6185	Deteniskaya, Chexoslovakiya	4	12.02	17	96.2

The parameters of the selected samples: height up to 90.1-96.3 cm, branching of the plant up to 5.6-7.1, foliage 53.1-64.7% and blue stem yield up to 111.4-148.5 centners per hectare, dry hay yield was 34.0-44.2 centners per hectare. In the model "Aridnaya" variety, the height of the plant was 90.1 cm, the branching of the plant was 5.6, the foliage was 53.1%, and the yield of blue stems was 112.8 centners per hectare, and the yield of dry hay was 34.0 centners per hectare. A full description of these indicators is presented in Table 2.

Compared to the model variety, the variety samples with higher all indicators in the sample nursery are №5141, №3087, №6621, №35023, №7271, №3128, №3099, №3007, №8882, №35540. These separated samples will be sent to the next stage of the selection process in the coming years. is learned in experiments.

Table 2

Valuable economic indicators of alfalfa variety samples in the field of samples (Gallaorol 2024)

№	Samples name	Plant height, cm	Branching, piece	Endurance, %	Blue stem, ts/ha	Hay, ts/ha
1	**Aridnaya**	90,1	5,6	53,1	112,8	34,0
2	№ 3087	94,8	6,1	63,2	121,8	37,6
3	№ 3128	95,1	6,6	64,1	122,2	37,7
4	№ 1134	92,1	6,2	64,7	111,4	34,6
5	№ 8882	90,5	6,5	64,6	128,5	40,2
6	№2003/1	92,5	6,0	59,7	127,0	36,8
7	№ 2003/5	91,5	6,9	63,9	148,5	44,2
8	№ 2003/9	90,5	6,6	64,7	131,0	37,7
9	№ 2003/8	91,5	6,9	63,6	133,5	39,1
10	№ 2003/4	90,5	7,0	55,4	127,5	37,8
11	№ 2003/6	90,5	7,1	56,7	121,0	38,2
12	№ 5141	91,7	6,5	57,1	122,0	35,9
13	№ 6621	93,0	6,8	64,1	123,5	35,5
14	№ 7299	94,0	6,6	64,6	125,5	36,5
15	№ 3007	91,5	6,6	63,7	124,0	37,7
16	№ 35540	91,8	6,9	58,9	126,5	39,1

As a result of long-term selection, 60 varieties and lines of alfalfa were studied in the 2nd year breeding nursery for biological characteristics and valuable economic traits. As a result of the experiments, the height of the samples is in the range of 89.4-94.5 cm, the branching of the plant is up to 6.1-7.3, the foliage is in the range of 45.6-57.7%, and the yield of blue stem per hectare is 98-154.5 t/ha, dry hay productivity per hectare is 30.2-53.3 tons/ha, seed productivity It was 0.6-2.2 ts/up. According to the two-year results, the height of the model "Aridnaya" variety was 89.4 cm, the branching of the plant was 6.1, and the yield of green stems was 118.5 centners per hectare, the yield of dry hay was 36.2 centners per hectare, and the seed yield was 1.2 centners.

It can be seen from the data obtained from the experimental sites No. 2006/1, No. 2007/5, No. 2007/9, No. 2007/8, No. 2007/4, No. 2007/6, No. 2007/15, No. 2007/22, No. 2007/ 29 lines were found to be superior in terms of all signs and characteristics compared to the "Aridnaya" variety. The description of the lines that are superior to the model variety in terms of valuable economic characters and characteristics is presented in Table 3.

Table 3

Valuable signs and characteristics of alfalfa varieties studied in the field of selection (Gallaaral 2024).

№	Varieties and lines	Plant height, cm	Foliage rate, %	Branches, piece	Blue stem ts/ha	Hay, ts/ha
1	Aridnaya	89,4	45,6	6,1	118,5	36,2
2	2006/1	92,5	54,7	6,2	136,5	43,9
3	2007/5	91,5	48,6	6,8	154,5	51,3
4	2007/9	93,5	55,4	6,5	133,5	44,7
5	2007/8	94,5	57,7	7,2	140,5	44,3
6	2007/4	93,0	47,1	6,7	135,5	45,2
7	2007/6	92,5	46,1	7,3	137,5	45,9
8	2007/15	93,5	49,6	6,5	143,5	47,7
9	2007/22	90,5	48,7	6,6	138,5	46,1
10	2007/29	93,0	45,9	6,8	141,5	47,1

CONCLUSION

Plant height, plant branching, leafiness, yield of blue stems of varieties No. 5141, No. 3087, No. 6621, No. 35023, No. 7271, No. 3128, No. 3099, No. 3007, No. 8882, No. 35540 in the nursery of samples compared to the model variety. and dry hay yield was the highest. These separated samples will be studied in experiments for the next stage of the selection process in the coming years.

No. 2006/1, No. 2007/5, No. 2007/9, No. 2007/8, No. 2007/4, No. 2007/6, No. 2007/15, No. 2007/22, No. 2007/29 studied from the 2nd year selection sites It was found that the ridge pattern is superior in terms of all signs and characteristics compared to the "Aridnaya" variety.

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