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Biometric and Technological Quality Indicators of Grain of Varieties and Lines in Competitive Plantation of Autumn Common Wheat

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In this article, the selected lines, which are resistant to diseases and external factors, and which have high yield and productivity indicators, were selected from the lines studied over the years in ecological variety testing.

Keywords: winter wheat, variety, grain nature, gluten, IDK, group, protein, transparency, percentage, gram, line.

1. Introduction

Global climate change remains one of the most important problems and threats to humanity. This creates significant economic costs. The adverse effects of climate change will vary from area to area. Agriculture remains one of the worst affected sectors. Significant changes are being experienced due to heat emission and temperature rise.

According to global estimates, 2°C global warming could reduce agricultural production by up to 25%, as in the most optimistic forecast. The results of studies conducted in many countries show that climate change can cause large losses in the agricultural sector.

In the Decree of the President of the Republic of Uzbekistan "On the approval of the strategy of the development of agriculture of the Republic of Uzbekistan for 2020-2030" No. 5853, it is stated that "to ensure the safety of food products and to improve the consumption ration, to develop a state policy of food security that provides for the cultivation of the required amount of food products" exit and implementation" are defined as the priority directions of the Strategy implementation. For this, first of all, it is necessary to select wheat varieties suitable for the climatic conditions of the region, with high grain quality, and to improve agrotechnologies of their cultivation (Mirziyoev Sh.M., 2019).

As the yield increases, the amount of gluten in the grain and the weight of 1000 grains decrease. In this article, the authors emphasized that early ripening is considered the best sign for selection in terms of the quantity and quality of winter wheat harvest , that the increase in the amount of protein in the grain and the improvement of the grain quality are carried out by means of hybridization and mutagenesis within the species (Lukyanenko P.P., 1993).

It has been shown that there is a positive relationship between productivity and growth period. According to them, the productivity of early-ripening forms is low, and the productivity of long-growing forms is high (Korenev G.V. et al., 1973).

One of the main indicators of salt tolerance of winter wheat varieties is coleoptile length, height, number of nodal roots and weight of 1000 grains (Udovenko G.V., 1974).

Protein synthesis in the endosperm begins 12 days after flowering, first the cells of the vacuole are formed, then the endosperm reticulum (Simmendov D.Kh., 1995).

The presence of acorns helps the formation of grains in unfavorable conditions, but is not considered an indicator of productivity (Biryukova S.V., Kamarova V.P., 1995).

The growth period of the wheat plant is one of the main biological characteristics. Depending on different natural climatic conditions, the spike period can vary by 7-9 days. The duration of the germination-heading period can be 180-200 days in the conditions of Uzbekistan (Gaybullaev S., 2014).

According to the data of many scientists, there is a positive correlative relationship between the weight of the ear and the yield (0.70-0.80). That's why a lot of attention is paid to the head weight in the selection. 1000 grain weight, head weight and productivity are positively correlated with each other (Saulescu N.N., G. Itti, M. Balott, M. Itti et al., 1996)

In the field of agriculture, 37 lines and local varieties that have reached a constant state in the selection processes of winter soft wheat in the researches to increase the grain yield and grain quality, first of all, by studying the characteristics of early ripening, their genetic characteristics, the growth and development The duration and productivity of the phases were studied in the control nursery, and according to the yield indicators, the sample Nadir, Uzbekistan-25 and Durdona varieties were 72.7-73.3-76.3 s/ha, in the AS-2010-D45 line 77.3 s/ha, AS In the 2010-D33 line, a high yield of 76.9 s/ha was achieved compared to the standard varieties (Siddikov R.I. et al., 2021).

As a result of the study of the wheat collection conducted by R. Siddikov and others, K-2629 (USA), K-36 (France), K-132 (Iran), K-2499, K-2530, K-2629 (USA), K-36 (France), K-2499, K-2530, K- 2535, K-2527 (Canada), K-2770 (Mexico) samples were found to be early. The correct placement of wheat varieties based on the soil-climatic conditions of each region is important. Wheat varieties grown in our republic are divided into three: early (Chillaki, Bobur, Andijan-4, Mars-1, Kuma, Starshina, Zamin-1, Intensivnaya), mid-early (Kroshka, Selyanka, Tanya, Moskvich, Krasnodarskaya 99, Vostorg, Andijan-2 , Hasildar, Durdona, Nota), late ripening varieties (Polovchanka, Pamyat, Andijon-1, Kupava, Nikoniya, Krupinka) are varieties (Siddikov R.I., 2005).

Scientists of the Research Institute of Institute of grain and leguminous crops are conducting extensive research on the development of grain and leguminous crops, as well as the

development of shade, the selection of fodder and oilseeds, as well as non-traditional crops, seeding, agrotechnologies of cultivation in accordance with climatic conditions.

In recent years, due to the changing global weather and climate in the world, the creation and cultivation of high-quality varieties of grains, legumes, oilseeds and food crops that ripen before the onset of heat, resistant to diseases, salinity, drought, heat and lodging, and high grain quality development also requires proper organization of the primary seed production system.

The experiments were conducted in the experimental field of the "Central" experimental site of the Scientific Research Institute of grain and leguminous crops during 2022-2023.

2. Materials and styles:

Grassland soils of the "Central" experimental field of the Research Institute of grain and leguminous crops, varieties and samples of the world gene pool of winter soft wheat belonging to different ecological-geographical groups, as well as promising winter soft wheat varieties recommended for planting in the republic, hybrid population lines are used. Mathematical analysis of experimental results Dospekhov B.A. (1985) was analyzed according to the method developed by [4].

Biometric indicators of the lines, which are one of the signs of biological economy in the creation, selection and evaluation of the local variety from the selected introduction lines in the competitive variety test, were observed as follows (Table-1). .

3. Research results:

When studying the plant height of the varieties and lines in the competitive variety test, the model Chillaki variety in the nursery was 70.6 cm, and in the varieties and lines studied in the variety test, it was 104.0 cm in the KN-3044 line, 103.0 cm in the AS-2012-D-3 line, and KN-5130 line. 100.3, AS-2014-D33, KN-446 line 97.6 cm, AS-2012-D44 lines 97.0 cm, KN-3898 line 91.3 cm, Nadir variety 93.0 cm, Elanchik variety 92, 0 cm, KN-5428 line was 90.3 cm (Table 3.5.3).

When the spike length was studied, the average length was 8.1 cm in the model cultivar Chillaki. In the ecological variety test, the spike length in the selected lines was 11.3 cm in the KN-3898 line, 11.2 cm in the Elanchik line, 10.2 cm in the KN-3884 line, AS-2012-D-44, AS-2012-D-3, AS- 10.6 cm in the 2014-D33 lines, 10.5 cm in the Nadir variety, 9.6 cm in the KN-3256, KN-446 lines, and 9.5 cm in the KN-5126 lines. organized.

The number of spikes in one ear is 16.6 pieces in the model variety Chillaki, 2 2.6 pieces in the KN-3898 line in the hybrid lines studied in the variety test, Elanchik variety and AS-2012-D44, AS-2012-D3 lines 21.0 cm, Rare , KN-5428, KN-3044, AS-2015-S210 line was 20.0 units, Vanya variety and KN-3256, KN-5126, KN-3884 line was 19.6 units.

The number of grains per spike is 43.3 in the model Chillaki variety, 48.0 in the KN-3898 line, 44.0 in the KN-5428 line, 42.0 in the Elanchik variety, 41.0 in the KN-3884 line, and 41.0 in the AS-2015-S210 line. 41.2 pieces, Nadir variety, KN-3256, KN-5126, AS-2012-D12, AS-

2012-D44, AS-2012-D3, AS-2014-D33 lines made 40.6 pieces.

Grain weight in one ear is 2.2-1.7 g in sample varieties, selected varieties and lines, sample Chillaki variety in variety test 2.1 g, KN-3898 line studied in variety test 2.2 g, Elanchik variety, KN-5428, AS-2015-S210, AS-2014 -D33 line 2.0 g, Nadir variety and KN-5126 line 1.9 g, AS-2012-D44, AS-2012-D3 line 1.8 g. organized.

The weight of one thousand grains in variety test is 43.0 g in Chillaki variety, 44.0 g in Elanchik variety in studied varieties and lines, 43.5 g in Nadir variety, 43.3 g in AS-2014-D33 line, 43.0 g in AS-2015-S210 line, Ahmad variety and KN - 42 g in lines 3884, KN-5126, 41.9 g in lines KN-446, KN-3044, AS-2012-D44, Vanya, Flesh, Shkola varieties and KN-3898, KN-5428, KN-3256, AS-2012- It was 40-40.9 g in D12 lines.

The following results were obtained when the grain technological quality indicators of the varieties and hybrid lines studied for the experiment were analyzed in laboratory conditions (Table-2).

The average grain size is 800 gr/l in the model cultivar Chillaki, 830 gr/l in the KN-5428 line, 820 gr/l in the AS-2012-D44 line, 815 gr/l in the AS-2012-D12 line, KN -446, KN-3044 and AS-2015-S210 line 810 g/l, KN-5126 line 808 g/l, Nodir, Shkola, KN-3256 line 805 g/l, KN-5130 line 804 g/l, Ahmad , Flesh, Ultra, AS-2014-D33 lines was 800 g/l. In the results of the analysis, it was found that the grain quality of other studied varieties and hybrid lines is lower than 795-715 gr/l.

Table-1 Biometric indicators of varieties and lines in a competitive nursery (2022y)

No	The name of the variety and lines	Plant height, (cm)	Spike length, (cm)	The number of spikes in one spike, (pieces)	Number of grains in one ear, (grains)	Grain weight in one ear, (g)	Weight of 1000 grains, (g)
1	Chillaki ct	70.6	8.1	16.6	43.3	2.1	43.0
2	Nodir	93.0	10.5	20.3	40.3	1.9	43.5
3	Ahmad	87.3	8.6	18.3	37.3	1.7	42.0
4	Vanya	85.3	9.3	19.6	38.0	1.7	40.2
5	Flash	85.3	8.6	18.0	34.0	1.5	40.8
6	Shcola	86.3	8.5	18.3	37.0	1.4	40.1
7	Ultra	80.6	7.6	15.6	35.3	1.3	39.0
8	Elanchik	92.0	11.2	21.0	42.0	2.0	44.0
9	KN-5130	100.3	9.6	19.3	37.3	1.7	41.0
10	KN-3898	91.3	11.3	22.6	48.0	2.2	40.6
11	KN-5428	90.3	9.5	20.0	44.0	2.0	40.8
12	KN-3256	80.3	9.6	19.6	40.0	1.5	40.1
13	KN-446	97.6	9.6	19.2	38.5	1.7	41.3
14	KN-3884	82.0	10.2	19.5	41.0	1.7	42.0
15	KN-3044	104.0	9.6	20.0	35.6	1.7	41.5
16	KN-5126	87.6	9.5	19.6	40.6	1.9	42.3
17	AS-2015-S210	100.3	9.3	20.0	41.2	2.0	43.0
18	AS-2012-D12	102.0	8.8	17.0	40.3	1.5	40.1
19	AS-2012-D44	97.0	10.6	21.0	40.6	1.8	41.9

20	AS-2012-D3	103.0	10.6	21.0	40.6	1.8	41.9
21	AS-2014-D33	100.2	10.5	19.0	40.3	2.0	43.3

The transparency of the pattern was 63.0% in the Chillaki variety, 71% in the nursery-selected varieties and lines, that is, in the AS-2012-D12 line, 68.1% in the Shkola variety and the KN-3256 line, Ultra variety and KN-5428, KN-446, KN Transparency is 65.2-65.5% in the -3044 lines, 64.0% in the AS-2015-S210 line, 63.9-63.5% in the Ahmad, KN-5130, AS-2012-D44 lines and lines. 62.5% of the experimental variety Elanchik and the line KN-3884 were observed. In the hybrid lines in the nursery, the lowest indicator of transparency was observed in lines AS-2012-D3, AS-2014-D33, 48.7-50.2%.

The results of the analysis in laboratory conditions were as follows, when the main indicator of breadmaking characteristics of varieties and lines was studied, the amount of gluten. The pattern in the ecological variety test was observed in the Chillaki variety 29.8%, in the experimental line KN-5130 32.0%, in the KN-3898 line 31.8%, in the KN-3884 line 30.8%, in the Ultra variety 30.6%, AS-2012-D12 hybrid line 30.2%, Flesh, Elanchik variety 30%, AS-2015-S210 line 29.2%, Nadir variety 29%, AS-2014-D33 line 28.7%, Ahmad variety 28.3% . Other hybrid lines studied were found to have less than 28 percent gluten content as a result of laboratory analysis.

Table-2 Grain technological quality indicators of selected varieties and lines in the competitive variety test (2022y)

No	The name of the variety and lines	Grain type, (gr)	Transparency (%)	Gluten (%)	Protein content (%)	IDK (%)	Group
1	Chillaki St	800	63.0	29.8	14.9	70	I
2	Nodir	806	60.3	29.0	14.2	85	II
3	Ahmad	800	63.9	28.3	14.1	80	II
4	Vanya	780	60.5	27.5	14.2	85	II
5	Flash	800	61.3	30.0	15.0	75	I
6	Shkola	805	68.1	28.5	14.1	85	II
7	Ultra	800	65.2	30.6	15.0	70	I
8	Elanchik	795	62.5	30.0	14.5	75	I
9	KN-5130	804	63.9	32.0	14.8	75	I
10	KN-3898	789	62.5	31.8	14.5	75	I
11	KN-5428	830	65.3	28.0	13.7	85	II
12	KN-3256	805	68.1	28.3	13.4	85	II
13	KN-446	810	65.2	28.4	13.6	90	II
14	KN-3884	789	62.5	30.8	14.5	75	I
15	KN-3044	810	65.5	27.5	13.0	95	II
16	KN-5126	808	60.4	28.2	13.0	80	II
17	AS-2015-S210	810	64.0	29.2	14.3	95	II
18	AS-2012-D12	815	71.0	30.2	14.5	80	II
19	AS-2012-D44	820	63.5	27.8	13.5	80	II
20	AS-2012-D3	715	48.7	25.5	13.2	115	III
21	AS-2014-D33	800	50.2	28.7	13.2	90	II

IDK indicator results were observed in the studied varieties and hybrid lines as follows. 70 units in experimental model Chillaki variety, 70-75 units in ecological variety tested Flesh, Ultra, Elanchik varieties and KN-5130, KN-3898, KN-3884 lines, Nadir, Ahmad, Vanya, Shkola, KN-5428, KN-3256, KN-446, KN-3044, KN-5126, AS-2015-S210, AS-2012-D12, AS-2012-D44, AS-2014-D33 made 80-95 units. The lowest indicator variety in the trial AS-2012-D3 line was 115 units.

The results of the analysis of the protein content in laboratory conditions are 14.9% in the model Chillaki variety, 15% in Flesh, Ultra varieties, 14.8% in the KN-5130 line, 14.5% in the Elanchik variety, KN-3898, KN-3884, AS-2012-D12 line, Nodir, Vanya, AS-2015-S210 line was 14.2-14.3%. The results of the analysis revealed that the amount of protein in other hybrid lines studied was less than 14 percent.

From the selected lines, the lines that are resistant to diseases and external factors, productive and productive in all respects were selected from the lines that have been studied for years in ecological variety testing. The selected introductory KN-3898 (Black River), named the line, was submitted to the State Variety Testing Commission.

Biometric indicators of the lines, which are one of the signs of biological management in the creation, selection and evaluation of the local variety from the introduction lines selected in the competitive variety test, were observed as follows (Table-3).

When studying the plant height of varieties and lines in the ecological variety test, the model Chillaki variety in the nursery was 70.6 cm, and in the varieties and lines studied in the variety test, AS-2016-D5, AS-2016-D46 lines were 100.1 cm, KN-5130 line was 99.7 cm, KN -446 line 98.6 cm, KN-3044 line 97.7 cm, Bumba variety 97 cm, AS-2016-D27 line, Stil-18 variety 96 cm, AS-2016-D18 line 95.7 cm, KN-5428 line was 91.3 cm, KN-3898 line was 90.5 cm, AS-2016-D34 line was 90.2 cm (Table 3.5.3).

When the spike length was studied, the average length was 8.3 cm in the model cultivar Chillaki. In the ecological variety test, the spike length of the selected lines was 10.5 cm in AS-2016-D46 line, AS-2016-D5, AS-2016-D25 line 10.2 cm, KN-3898 line, 10.1 cm in Bumba variety, AS-2016 -D18, KN-3044 line 9.7 cm, Steel-18 grade, AS-2016-D34 line 9.5 cm, KN-3256 line 9.3 cm, AS-2016-D27 line 9.2 cm, KN- 5428 line was 9.1 cm, KN-446, AS-2016-D42 line was 9.0 cm.

The number of spikes in one spike is 16.6 in the model variety Chillaki, and in the hybrid lines studied in the variety test, it is 22.6 in the KN-3898 line, 21.5 in the AS-2016-D46 line, AS-2016-D18, AS-2016-D25 line 20.3 units, KN-5428 line 20.0 units, AS-2016-D34 line 19.7 units, KN-3256 line 19.6 units, AS-2016-D42, KN-3044 line 19.5 units, AS-2016-D12, KN-5130 line and Bumba variety amounted to 19.3 pieces.

The number of grains in one ear is 43.3 in the model Chillaki variety, 48 in the KN-3898 line, 44.7 in the AS-2016-D46 line, 44.0 in the KN-5428 line, 42.7 in the AS-2016-D18 line in the selected varieties and lines. units, AS-2016-D25 line 42.3 units, KN-3044 line 41 units, AS-2016-D42 line 40.2 units, AS-2016-D12 line 40.1 units, KN-3256, 40.0 units did

Grain weight in one spike Model Chillaki variety 2.1 g, spike weight of varieties and lines studied in the variety test KN-3898 line 2.2 g, AS-2016-D46 line 2.1 g, KN-5428 line 2.0 g, AS-2016-D18, AS -2016-D12 line 1.9 g, Bumba variety, AS-2016-D42, AS-2016-D34 line

1.8 g. organized.

The weight of one thousand grains in variety test is 43.0 g in Chillaki variety, 43.0 g in studied varieties and lines, Bumba variety, AS-2016-D6 line 42.2 g, AS-2016-D46, AS-2014-D30 line 42.1 g, Stil-18 variety 42.0 g, AS-2016-D13 line 41.7 g, AS-2016-D34, AS-2016-D12 line 41.5 g, KN-446 line 41.3 g, KN-5428 line 40.8 g, KN- 3898 line was 40.6 g, AS-2016-D22 line was 40.5 g, AS-2016-D27, AS-20216-D18 line was 40.3 g.

Table – 3 Biometric indicators of varieties and hybrid lines in a competitive nursery (2023y)

No	The name of the variety and lines	Plant height, (cm)	Spike length, (cm)	The number of spikes in one spike, (pieces)	Number of grains in one ear, (grains)	Grain weight in one ear, (g)	Weight of 1000 grains, (g)
1	AS-2016-D5	100.1	10.2	18.9	37.5	1.7	40.1
2	AS-2016-D18	95.7	9.7	20.3	42.7	1.9	40.3
3	AS-2016-D34	90.2	9.5	19.7	39.5	1.8	41.5
4	AS-2016-D46	100.1	10.5	21.5	44.7	2.1	42.1
5	AS-2016-D24	93.7	8.7	18.3	38.2	1.2	39.7
6	AS-2016-D42	87.5	9.0	19.5	40.2	1.8	39.5
7	AS-2016-D25	85.2	10.2	20.3	42.3	1.9	40.2
8	AS-2016-D27	96.2	9.2	18.7	38.7	1.7	40.3
9	AS-2016-D13	91.7	8.7	17.3	38.2	1.7	41.7
10	AS-2016-D6	89.5	8.9	18.5	37.5	1.6	42.2
11	AS-2016-D22	87.2	7.7	17.0	36.7	1.5	40.5
12	AS-2016-D12	86.7	8.8	19.3	40.1	1.9	41.5
13	AS-2014-D30	90.1	8.3	17.2	36.3	1.5	42.1
14	KN-5130	99.7	9.5	19.3	37.3	1.7	41.0
15	KN-3898	90.5	10.1	22.6	48.0	2.2	40.6
16	KN-5428	91.3	9.1	20.0	44.0	2.0	40.8
17	KN-3256	82.5	9.3	19.6	40.0	1.5	40.1
18	KN-446	98.6	9.0	19.2	38.5	1.7	41.3
19	KN-3044	83.0	9.7	19.5	41.0	1.7	42.0
20	Ultra	80.6	7.6	15.6	35.3	1.3	39.0
21	Shkolal	86.3	8.5	18.3	37.0	1.4	40.1
22	Flash	85.3	8.6	18.0	34.0	1.5	40.8
23	Style-18	96	9.5	19.0	34.7	1.7	42.0
24	Bumba	97	10.1	19.3	35.1	1.8	43.0
25	Chillaki St	70.6	8.3	16.6	43.3	2.1	43.0

The following results were obtained when the grain technological quality indicators of the varieties and hybrid lines studied for the experiment were analyzed in laboratory conditions (Table-4).

Grain nature model variety Chillaki variety on average 790 gr/l, in the cultivated variety and hybrid lines KN-5428 line 825 gr/l, KN-3256 line 815 gr/l, AS-2016-D13 line 811 gr/l, KN-3044 line 810 gr/l, AS-2016-D12 line 809 gr/l, AS-2016-D42 line 807 gr/l, KN-3898 line and Ultra grade 805 gr/l, AS-2016-D27 line and Flesh grade 803 gr/l, AS-2016-D34 line and Bumba variety was 802 gr/l, KN-5130 line was 800 gr/l. The results of the analysis revealed that the grain quality of other studied varieties and hybrid lines was lower than 795-785 gr/l. (Table 3.5.4).

The transparency of the pattern is 65.0% in the Chillaki variety, 68.1% in the varieties and lines selected in the nursery, namely the Shkola variety and the KN-3256 line, the Ultra variety and the KN-5428, KN-446, KN-3044, AS-2016-D24 lines. transparency 65.2-65.5%, AS-2016-D25, KN-5130 line and 63.5% in Bumba variety, was observed. Among the hybrid lines in the nursery, the lowest rate of transparency was observed in line AS-2014-D30, 50.2%.

Table – 4 Grain technological quality indicators of selected varieties and lines in the competitive variety test (2023y)

No	The name of the variety and lines	Grain type, (gr)	Transparency (%)	Gluten (%)	Protein content (%)	IDK (%)	Group
1	AS-2016-D5	785	62.3	28.7	14.3	90	II
2	AS-2016-D18	798	57.8	27.5	13.4	100	III
3	AS-2016-D34	802	60.3	28.7	14.2	85	II
4	AS-2016-D46	790	58.5	27.3	13.2	95	III
5	AS-2016-D24	789	65.2	29.7	14.1	80	II
6	AS-2016-D42	807	62.7	28.5	13.7	85	II
7	AS-2016-D25	798	63.1	29.1	13.7	90	II
8	AS-2016-D27	803	66.7	30.1	13.5	85	II
9	AS-2016-D13	811	61.5	29.7	13.7	75	I
10	AS-2016-D6	765	60.2	26.7	13.1	105	III
11	AS-2016-D22	786	62.3	29.1	13.5	90	II
12	AS-2016-D12	809	63.5	30.7	14.1	70	I
13	AS-2014-D30	773	50.2	26.3	13.3	105	III
14	KN-5130	800	63.9	30.0	14.8	95	II
15	KN-3898	805	62.5	31.8	14.5	75	I
16	KN-5428	825	65.3	28.0	13.7	85	II
17	KN-3256	815	68.1	28.3	13.4	85	II
18	KN-446	807	65.2	28.4	13.6	90	II
19	KN-3044	810	65.5	27.5	13.0	95	II
20	Ultra	805	65.2	30.6	15.0	70	I
21	Shkola	793	68.1	28.5	14.1	85	II
22	Flash	803	61.3	30.0	15.0	75	I
23	Style-18	798	58.7	29.2	14.3	85	II
24	Bumba	802	63.5	30.1	14.7	75	I
25	Chillaki ct	790	65.0	30.8	14.9	70	I

The results of the analysis in laboratory conditions were as follows, when the main indicator of breadmaking characteristics of varieties and lines was studied, the amount of gluten. The pattern in the ecological variety test was observed in the Chillaki variety 30.8%, in the experimental line KN-3898 31.8%, KN-5130, AS-2016-D12, AS-2016-D27 lines and Ultra, Flash varieties 30-30.7%, organized. In the studied lines AS-2016-D24, AS-2016-D25, AS-2016-D13, AS-2016-D22 and Stil-18 variety in the nursery, the gluten content was 29-29.7%, and in other hybrid lines, the gluten content was less than 28%. determined as a result of analysis.

IDK indicator results were observed in the studied varieties and hybrid lines as follows. It was found that the model Chillaki variety in the experiment had 70 units, and the ecological variety in the test AS-2016-D13, AS-2016-D12, KN-3898 lines Ultra, Flesh and Bumba varieties had

70-75 70-75 units and belonged to the I-group. AS-2016-D5, AS-2016-D34, AS-2016-D24, AS-2016- D 42, AS-2016-D25, AS-2016-D27, AS-2016-D22, KN-5130, KN-5428 , KN-3256, KN-446, KN-3044 lines and Stil-18 variety were found to belong to group II in 80-90 units. Other varieties and lines studied in the variety test made up 115 units of the 3rd group.

The results of protein content analysis in laboratory conditions are 14.9% in sample Chillaki, Flesh, Ultra varieties 15%, KN-5130 line 14.8%, Bumba variety 14.7%, Stil-18 variety and AS-20216-D5 line 14.3%, KN -3898, KN-3884, 14.5% in AS-2012-D12 line, 14.2% in AS-2016-D34 line. The results of the analysis revealed that the amount of protein in other hybrid lines studied was less than 14 percent.

From the selected lines, the lines that are resistant to diseases and external factors, productive and productive in all respects were selected from the lines that have been studied for years in ecological variety testing. The selected introduction KN-3044 (Sohibkor), AS-2016-D27 (Billur) line was submitted to the state variety testing commission.

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