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TEST RESULTS ON COMPETITIVE NURSERY OF LOCAL WHEAT LINES WITH HIGH BREADNESSAND PROTEIN CONTENT

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Abstract. The varieties and lines that have reached a constant state at the Research Institute of Cereals and Leguminous Crops have been tested in the 3-year competitive variety test nursery in the experimental hybrid lines AC-2012-D3, AC-2010-D23, AC-2014-D7, AC-2013-D30, AC-2010-D21, AC-2012-D41-8, the IDK indicator of the lines was 70-80%, it was determined that they belonged to the I-group, and the productivity of the studied lines was a positive indicator for 3 years AC-2010-D33, AC-2010-D45 , in lines AC-2010-D21, AC-2012-D31, AC-2012-D14, AC-2013-D30, AC-2013-D33 was 70.0 to 81.7 ts/ha. Most of the lines achieved higher yields than the model varieties.

Keywords. Variety, line, protein, gluten, sample, crossbreeding, selection, yield, hardiness, ear, ear, grain number, grain weight, grain volume weight, selection, hybrid, disease, line, model, generation, phenological observations, evaluation.

Introdaction. In recent years, a number of positive practical works have been carried out in our country in the selection of agricultural crops, in particular, in the creation of winter soft wheat varieties, which are included in the ranks of grain crops. It should also be noted that in recent years, not only in our country, but also in the whole world, the increase in air temperature, the continuation of the global warming process, and the occurrence of drought in our irrigated fields have caused a number of problems in grain production among agricultural crops.

In order to find a scientific solution to the above problems, to create new varieties in the selection of spiked grain crops, it is necessary to isolate the very early ripening and early medium ripening lines that are resistant to external environmental factors, heat, and diseases of the region, productive, with high grain quality, and to create new varieties of wheat based on them and introduce them into production. is relevant.

Decree No. 5853 of the President of the Republic of Uzbekistan "On approval of the strategy of the development of agriculture of the Republic of Uzbekistan for the period 2020-2030" states that "Ensuring the safety of food products and improving the consumption ration, the food security state, which provides for the cultivation of the required amount of food products development and implementation of the policy" are defined as the priority directions for the implementation of the Strategy. 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 [1].

P.P. Lukyanenko found out that 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 the best sign for selection of winter wheat according to the quantity and quality of the harvest, that the increase in the protein content of the grain and the improvement of the grain quality are carried out by means of hybridization and mutagenesis within the species [6].

G.V.Korenev, P. I. Podgornaya, S.N.Sherbak, based on their researches, make the following points: Showed 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 [5].

G.V.Udovenko stated that one of the main indicators of salt resistance of winter wheat varieties is coleoptile length, height, number of root nodes and weight of 1000 grains [11].

According to D.Kh. Simmendov, protein synthesis in endosperm begins 12 days after flowering, first vacuole cells are formed, then endosperm reticulum [10].

S.V.Biryukova and V.P.According to the Kamarovas, the presence of acorns helps the formation of grain in unfavorable conditions, but it is not considered as an indicator of productivity [3].

According to S.Gaibullaev, 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 period of sprouting and earing can be 180-200 days in the conditions of Uzbekistan [4].

According to Manoilenko, the structure of water in a living cell is constantly changing under the influence of metabolic reactions [8].

According to the data of many scientists, there is a positive correlative relationship between the weight of the head of kura and the yield (0.70-0.80). Therefore, in the selection, a lot of attention is paid to the weight of the head. 1000 grain weight, head weight and productivity are positively correlated with each other [12, 13].

In the field of agriculture, 37 lines and local varieties that have become constant in the selection processes of winter soft wheat in the researches to increase their genetic characteristics, potential productivity opportunities, from all the opportunities available in increasing the grain yield and grain quality, first of all, the characteristics of early ripening, 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 t/ha, in the AS-2010-D45 line 77.3 t/ha, AS-2010-D33 line achieved a high yield of 76.9 t/ha compared to standard varieties [14].

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 [9].

Ionova said that temperature and humidity are important in the formation of grain quality, and their influence is very important during the growth period and especially during the grain filling period. During this period, high air temperature and low humidity lead to the formation of high quality protein in soft wheat grains [7].

The fact that all varieties (100%) or most of the crops included in the state register were created in Uzbekistan is an example of achievements in the field of grain growing. But there are still many problems and work to be done [2].

RESEARCH SYSTEM AND METHODOLOGY.

Placement of research experiments, phenological observations, evaluation and analysis in field and laboratory conditions B.A.Dospekhov (1985) and the State Variety Testing Commission of Agricultural Crops (1985, 1989), the Russian Institute of Plant Science (1991), methodological manuals were used.

The thickness of the seedling in the experimental cuttings was determined diagonally from three places with a length of 6 rows in the distance between the outer row and the outer row on both sides. Counting was done in early spring and before mowing when the grass was fully germinated. From the place where the mark was placed, the plants were plucked by hand and biometrically analyzed according to the structure of the crop. During the analysis, total and productive stem, plant height, spike length, number of spikes in a spike, number of grains in a spike, weight of one spike, weight of 1000 grains, nature and technological and physiological parameters were determined in the physiology laboratory. Mathematical analysis of experimental results Dospekhov B.A. (1985) were analyzed according to the method developed.

Experimental results. The tenological quality indicators of the grain of the lines that reached the constant state studied in the experiment were observed as follows when analyzed in laboratory conditions (Table 1).

The following analysis results were obtained when the amount of protein, which determines the main grain technological and bakery quality indicators of varieties and lines, was studied. The amount of protein in the grain of the Andoza Chillaki variety was 14.0%, and 13.9% in the Sharof-100 variety. In the studied lines, it was observed from 12.5% to 14.5%. AS-2010-D33 line 14.2%, AS-2012-D14 line 14.1%, AC-2010-D23 line 14.1%, AC-2014-D7 line 14.2% in

relation to sample varieties, and AS-2013-D30 line 14.3%, AC-2010-D21 line 14.2%, AC-2012-D28 line 14.5%, AC-2012-D41-8 line 14.1% , the AC-2013-D23 line was 14.0%, a higher rate than the model varieties was observed. In other hybrid lines studied in the experiment, the protein content indicator was observed in the analysis results from 12.5 to 14.0 percent.

When the amount of gluten, which determines the technological and bakery quality indicators of the main grain, was studied, the highest amount of gluten in the lines was observed in the line AS-2012-D31, 29.9%, and the lowest amount was observed in the line AS-2014-D39, 24.9%. The highest result in sample varieties was 29.2% of gluten in Chillaki variety and 28.7% in Sharof-100 variety.

Based on the goal of the project, high results were achieved in the selected lines if the amount of gluten in the grain was compared to the model varieties.

The highest indicator of grain quality of the varieties and lines studied in the experiment was 810.5 g/l in the line AS-2012-D28, and correspondingly positive results were obtained in AS-2010-D33, AS-2013-D33, AS-2010-D30. , AS-2010-D45, was found to be higher than 800 g/l. In model varieties, this indicator was 815.0 g/l in Chillaki variety and 787.3 g/l in Sharof-100 variety.

Table 1

Grain technological quality indicators of varieties and lines in competitive variety testing. (year 2023)

№	Varieties and samples	Protein content , %	Gluten content, %	Grain nature, gr.l	Transparency %	IDK, unity	Group
1	Chillaki St	14,0	29,2	815,0	60,2	75	I
2	Sharof-100St	13,9	28,7	787,3	58,9	75	I
3	AC-2010-D33	14,2	29,5	810,0	65,2	84	II
4	AC-2012-D14	14,1	29,2	756,3	59,7	85	II
5	AC-2014-D15	12,7	25,5	725,7	48,5	105	III
6	AC-2012-D3	14,0	29,3	780,3	67,3	75	I
7	AC-2013-D33	13,7	27,7	800,7	63,7	80	II
8	AC-2014-D3	13,5	28,1	767,7	63,5	95	II
9	AC-2010-D23	14,1	28,7	753,5	66,3	76	I
10	AC-2014-D7	14,2	28,6	743,5	67,1	75	I
11	AC-2013-D30	14,3	29,5	790,3	62,3	75	I
12	AC-2010-D30	13,9	29,2	800,5	63,0	95	II
13	AC-2010-D21	14,2	29,7	790,7	60,8	75	I
14	AC-2010-D45	13,9	28,7	805,3	57,5	95	II
15	AC-2014-D39	13,2	24,9	720,9	53,9	105	III
16	AC-2012-D28	14,5	29,3	810,5	63,7	95	II
17	AC-2012-D41-8	14,1	29,1	785,3	67,2	70	I
18	AC-2012-D31	14,0	29,9	783,7	71,3	90	II
19	AC-2013-D9	12,5	25,1	711,2	49,2	105	III

20	AC-2013-D23	14,2	29,2	717,8	63,7	91	II
21	AC-2013-D14	13,5	25,5	710,7	59,7	100	II

When the transparency of the grain was studied in experimental varieties and lines, it was 60.2 in Chillaki variety and 58.9 in Sharof-100 variety in standard varieties. In the lines, it was determined from 48.5 to 71.3%. The highest score was 71.3 in line AC-2012-D31, the lowest score was 48.5 in line AC-2014-D15, and 49.2 in line AC-2013-D9. Also, the following results were observed in the hybrid lines when the IDK indicator of the experimental varieties and lines were analyzed in laboratory conditions and which group they belong to. Model varieties Chillaki and Sharof-100 have IDK index of 75 units and belong to I-group.

In the experimental hybrid lines AC-2012-D3, AC-2010-D23, AC-2014-D7, AC-2013-D30, AC-2010-D21, AC-2012-D41-8, the IDK index of the lines is 70-80 units. , belonging to the I-group was observed. According to the results of the laboratory analysis, the other hybrid lines studied in the experiment belong to the II-group with the IDK index of 85-100 units and the III-group with 105-120 units.

Table 2

A competitive variety trial of soft winter wheat varieties in the nursery Productivity indicators. (2023)

№	Varieties and samples	Average				Average yield
		I	II	III	IV	
1	Chillaki St	60,1	59,2	60,9	59,7	60,0
2	Sharof-100St	49,7	50,1	49,3	49	49,5
3	AC-2010-D33	71,7	72,2	72,5	71,7	72,0
4	AC-2012-D14	69,7	68,7	69,5	68,3	69,1
5	AC-2014-D15	38,7	40,1	38,2	39,5	39,1
6	AC-2012-D3	65,2	63,7	64,1	64	64,3
7	AC-2013-D33	80,2	81,3	80,7	81,5	80,9
8	AC-2014-D3	67,8	68,1	68,7	67,9	68,1
9	AC-2010-D23	67,9	68,3	67,5	68,1	68,0
10	AC-2014-D7	53,7	54,5	54,9	55,3	54,6
11	AC-2013-D30	80,2	79,5	80,7	78,3	79,7
12	AC-2010-D30	65,3	66,2	64,9	66,1	65,6
13	AC-2010-D21	80,3	81,5	80,9	79,9	80,7
14	AC-2010-D45	71,5	72,1	72,9	71,5	72,0
15	AC-2014-D39	41	39,5	39,8	40,1	40,1
16	AC-2012-D28	71,3	72,1	71,5	71,4	71,6
17	AC-2012-D41-8	70,2	69,3	70,2	69,7	69,9
18	AC-2012-D31	76,1	75,5	75,8	76,3	75,9
19	AC-2013-D9	40,9	37,5	39,2	37,5	38,8
20	AC-2013-D23	52,1	53,7	54,5	54,9	53,8
21	AC-2013-D14	41	40,7	41,2	39,7	40,7

Cx= 1,63 CD= 0,87

HCP (05) = 1,72 %, HCP(0.5)= 2,14 ts/ha

When the yield indicators of constant constant lines in the competitive variety test of selection were analyzed by comparison with standard varieties, the yield was found to be high in most lines (Table 2).

The productivity of varieties and lines studied in a constant condition in a competitive variety test nursery was analyzed in terms of returns per hectare. The highest yield was observed in the AC-2013-D33 line, which was 80.9 t/ha. Andoza had an average yield of 60.0 t/ha in the Chillaki variety and 49.5 t/ha in the Sharof-100 variety, which was lower than most of the tested lines. Compared to model varieties, the low productivity of lines AC-2013-D14 line is 39.1 t/ha, AC-2014-D39 line is 40.1 t/ha, AC-2013-D9 line is 38.8 t/ha, no sharp difference was observed in the returns of these lines.

In the studied lines, AC-2010-D33 line with a positive index was 72.0 t/ha, AC-2013-D30 line 79.7 t/ha, AC-2010-D21 line 80.7 t/ha, AC-2010-D45 72.0 ts/ha in the line, 71.6 ts/ha in the AC-2012-D28 line, 75.9 ts/ha in the AC-2012-D31 line was determined.

Today, in scientific research aimed at increasing the yield and quality of wheat in the world, the creation of new high-yielding and ecologically flexible varieties, having complex valuable economic signs and characteristics (high yield and high grain quality, resistance to diseases and dormancy), which can fully manifest productivity , creation of breeding material and lines with new genotype is one of the urgent tasks. The main task of soft wheat selection is to create varieties with genetic high yield potential and grain quality for each conditions. It is important to study the level of heredity of valuable economic traits that are organically connected to the successful performance of these tasks (the duration of the germination-heading period, the level of productive growth, plant height, weight of 1000 grains, length of the ear, number of spikes in the ear, weight of grain in the ear, etc.) is enough.

In S. Rajaram's studies, it was noted that there is a positive correlative relationship between productive population and productivity. In the conditions of the Krasnodar Territory, for growing a high yield of winter wheat, the number of plants per 1 m 2 is 500-550, and the coefficient of productive population is 2-3.

D.M. Based on his many years of research, Marchenko comes to the following conclusion: there is a negative correlation between winter wheat yield and plant height (r=-0.54), and a positive correlation between the number of grains in the ear and the weight of the grain in it (r=0.38 and r=0.89). is available. In the creation of high-yielding wheat varieties, it is necessary to pay attention to the size of the ear when choosing variety samples. The height of the plant should be around 75-105 cm. In the conditions of weak and moderately saline grassland soils, spike length has a positive correlation between the number of spikes in the spike and the number of grains (r=0.65±0.2), and a negative correlation between the weight of 1000 grains (r=-0.45±0.1) connection exists.

It is known that in order to study the correlation of the economic characteristics of winter wheat in irrigated land, they were divided into two groups, i.e., the first group was spike length, the number of spikes in the spike, the number of grains in the spike, the weight of grain in the spike, spike density and yield indicators, and the second group was plant height, 1000 includes grain weight symbols.

When analyzing the correlation indicators between characters in lines in a competitive nursery, it was found that there is a positive weak correlation between the number of spikes in one spike and the weight of 1000 grains. there is a positive medium correlation between the weight, there is a positive weak correlation between the spike length and the number of grains in 1 spike, there is a positive medium correlation between the type of grain and the weight of 1000

grains, and there is a positive medium correlation between the amount of gluten and the IDK index. was found to exist.

As a result of the analysis, the relationship between spike length and grain weight in 1 spike, between grain type and 1000 grain weight, between gluten content and IDK index was observed.

Based on the results obtained from the studies, the correlations between the three characters were studied (Table 3).

Table 3

Рақобатли кўчатзордаги линияларда белгилар ўртасидаги корреляцион кўрсаткичлари.

1 та бошоқдаги бошоқчалар сони	r = 0,11	1000 дона дон вазни
1 та бошоқдаги бошоқчалар сони	r = 0,24	1 та бошоқдаги дон сони
Бошоқ узунлиги	r = 0,35	1 та бошоқдаги дон вазни
Бошоқ узунлиги	r = 0,22	1 та бошоқдаги дон сони
Дон натураси	r = 0,51	1000 дона дон вазни
Клейковина миқдори	r = 0,35	ИДК кўрсаткичи

competitive variety test nursery of varieties and lines that have reached a constant state at the Research Institute of Cereals and Legumes.

1. Model relative to varieties AS-2010-D33, AS-2012-D14, AC-2010-D23, AC-2014-D7, AS-2013-D30, AC-2010-D21, AC-2012-D28, AC-2012 -D41-8, AC-2013-D23 lines showed higher protein content.

2. Model relative to varieties AS-2010-D33, AS-2012-D14, AS-2013-D30, AC-2010-D21, AC-2012-D28, AC-2012-D41-8, AC-2012-D31, AC -2013-D23 lines were found to have higher gluten content.

3. The highest indicator of grain quality was 810.5 g/l in AS-2012-D28 line.

4. In the experimental hybrid lines AC-2012-D3, AC-2010-D23, AC-2014-D7, AC-2013-D30, AC-2010-D21, AC-2012-D41-8, the IDK indicator of the lines is 70-80% and it was determined that it belongs to the I-group.

5. Productivity in studied lines positive indicator for 3 years AC-2010-D33, AC-2010-D45, AC-2010-D21, AC-2012-D31, AC-2012-D14, AC-2013-D30, AC-2013- It was 70.0 to 81.7 ts/ha in D33 lines. Most of the lines achieved higher yields than the model varieties.

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