Selection of the Initial Material for the Breeding of Winter Wheat for the Conditions of Uzbekistan on the Basis of the Study of Economically Valuable Characteristics

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Abstract: *Inhybridization to create the varieties with high yield it is expediently if donor varieties will be involved with the complex characteristics which belong to different ecological and geographical areas. To select the donor varieties for the evaluation and hybridization on the valuable economic characteristics of varieties and samples which were created in foreign and local conditions and involvement these donor varieties for the breeding is provided to get the hybrid materials for the purpose.*
For the creation varieties of wheat with high yield, the best indicators of grain quality, high resistance to abiotic factors of external environment, diseases, pestsfirst of all a selection of donor varieties and primary material for the breeding and crossing process with their participation plays the important role for the irrigated fields of the Republic of Uzbekistan. For this, more important to study and select the resistance to the abiotic and biotic of varieties and samples which are available nowadays. The research of a productivity, the indicators of grain quality and morphological-biological features of varieties and lines is more important for the selection donor varieties for crossing.

INTRODUCTION

There are important rules for selecting donor varieties. In the practice of synthetic breeding, paired pairs are first selected by hybridization to create breeding material. The success of hybridization depends on how well the parent pairs are chosen.

In the process of creating new high-yielding varieties, crossover is carried out to take into account the characteristics of plant productivity. For example, for wheat, this is the number of productive plants, grain size, weight of 1000 grains, yield, etc.

The length of the vegetation stages is used to select pairs and early maturing cultivars. Moreover, for this, in the process of crossing, the vegetation stage of a pair must be shorter, and the second pair is not exactly this growing season, but the other must be short. Only then could it be focused.

Materials and research methods. In children's selection of the primary source and donors, 100 varieties and samples were selected and studied for breeding, which belong to different ecological and geographical regions. Varieties and samples were placed on 5 m2 with 3 repetitions. In the study, the layout of the field experiment was based on the "Alpha Lattice Design" of the Genestat 3 program. The layout of the experiment and during the study, phenological observation, calculation and analysis were based on the method of the Union Plant Breeding Institute (UIP, 1984) and the biometric analysis was based on methods of the Commission for State Variety Testing of Agricultural Crops (1985, 1989). The mathematical and statistical analysis of the experiment was carried out in accordance with the guidelines developed by B.A. Armor (Method of field experience, 1985).

Research results. The study is growing stages of varieties and accessions, and donors have been selected to create new varieties with early, high yields and disease resistance in wheat.

In the context of global climate change, the yield of varieties and samples is especially important, especially in the southern regions of our republic. The grain filling stage of early varieties usually starts early, and this gives enough time for the grains to be completely filled before the upcoming drought, heat and dry wind in the last months of the spring season. As for this early stage of grain filling with valuable farm characteristics, the yield and weight of 1000 grains is higher.

Table 1. Classification of varieties and samples according to their valuable characteristics (Karshi, 2012)

Valuable Features	Criteria for Evaluation	Number of varieties and accessions	в %

Germination stage	165-169 days	14	14,0
	170-174 days	42	42,0
	175-179 days	40	40,0
	180-184 days	4	4,0
plant height	Dwarf (50-75 sm)	2	2,0
	Short (76-90 sm)	28	28,0
	Average (91-110 sm)	70	70,0
Weight 1000 grains	Large (> 40,0 gr)	59	59,0
	Average (35,1-40,0 gr)	34	34,0
	Little (30,1-35,0 gr)	7	7,0
Yield, c/ha	60.1-80.0 q/ha	35	35,0
	40,1-60,0 q/ha	60	60,0
	< 40,0 q/ha	5	5,0
The amount of protein,%	12,1-13,0 %	9	9,0
	13,1-13,9 %	28	28,0
	< 14 %	63	63,0
The amount of gluten,%	< 22 %	1	1,0
	22,1-26,0 %	18	18,0
	26,1-28,0 %	34	34,0
	> 28 %	47	47,0

As the results of the study showed, on November 1-4, the stage of germination of varieties and samples was observed. And the processing was December 11-16, the pipe stage was March 8-15. The stage of varieties and samples was observed, and it lasted from April 17 to May 04. The number of early varieties was 14, the duration of germination was 161-163 days. Other cultivars and specimens have been created both in the middle and late periods.

According to the experience, the "germination" stage was 165-184 days. Chillaki, H.Beshir, Jeyhun, Starshina, Rhapsody, Zvezda, Dragona, Navruz, Alex, Bologna, Bunyodkor were founded as varieties that had the earliest ear and short "germination" stage. These varieties were recommended as donors for hybridization purposes to create early varieties.

The transitional period to maturity of varieties and accessions was between 30 May and 10 June. There were 10 varieties that went to stage between May 30th and June 01st. According to the duration of growth periods, varieties and accessions were selected as donors, which went to the maturity stage for a short time, and they were recommended for hybridization.

Table 1. Selected varieties and accessions according to valuable and farm characteristics (Karshi, 2012)

№	Name of variety	Yield, c/ha	Weight 1000 grains	The amount of protein,%	The amount of gluten,%	plant height	The number of grains on the ear, pcs.
1	Bobur	65,8	39,7	14,6	28,9	95,3	66
2	Omad	61,8	38,8	14,5	28,3	85,0	46
3	Rhapsody	64,6	41,3	14,4	28,4	80,7	57
4	Jayhun	70,6	44,0	16,4	28,5	98,3	66
5	Turkiston	74,0	42,1	16,1	31,2	102,3	56
6	October -70	63,7	42,7	14,6	28,8	89,7	47
7	Navuz	66,4	43,1	15,6	31,4	97,0	64
8	KP11-100-42	61,5	42,4	15,7	28,2	100,0	51
9	KP11-100-57	62,2	41,1	14,6	28,3	95,7	49
10	KP11-100-58	76,6	42,1	15,3	29,9	80,0	62
11	Copernico	65,4	41,5	14,6	28,2	86,7	65
12	Nudela	62,2	41,2	15,0	28,4	83,0	58
13	Antonovka	67,5	38,6	14,3	29,4	81,3	61

14	Miranda	66,0	39,0	14,0	28,3	99,3	64
15	H.Bashir	73,6	42,8	14,3	28,8	103,7	63
16	Elomon	71,9	41,6	14,1	28,3	101,7	63
17	KP11-100-85	61,3	34,9	16,4	30,2	71,7	62
18	KP11-100-87	62,6	46,1	14,3	29,9	103,0	55
19	Kyria	62,8	40,9	14,4	28,1	91,3	54
20	Bologna	66,8	42,7	15,4	29,0	90,3	58
21	Krasnodar-99 (st)	55,4	40,9	14,0	28,3	95,7	54
	HCP_{05}	1,73	1,06	0,37	0,73	2,99	1,98
	Cv %	1,9	1,6	1,6	1,7	2,0	2,2

When analyzing the yield of varieties and samples, the standard Krasnodar-99 was registered with a yield of 55.4 centners / ha. After it was found that there are 47 varieties and samples that have a higher yield than the standard.

Measurements were made on biometric data such as plant height, last node stable length, ear length and number of ears of the species and specimens that were examined in the experimental features. It is important that these dates are higher so that the varieties can have a high yield.

When the plant height of the studied varieties is high, it affects the production of high yields. In drought weather conditions, dwarf varieties have low yield and grain quality. In this case, in irrigated areas, the choice of varieties with high vegetation is more important.

According to the study dates, the plant height of the cultivars was recorded as 71.7 and 106.7 cm. Two varieties were founded as dwarf and their plant height was below 75 cm. 28 cultivars with plant heights between 76 and 90 cm were recorded. Plant height 70 varieties and samples was average, which was in the range of 91 and 106.7 cm. The standard variety Krasnodar-99 had a plant weight of 95.7 cm.

When the relationship between plant height and yield was investigated, r = 0.06, respectively with 1000 grain weight r = 0.29, with ear weight r = 0.30, and after it was found that there was a positive correlation between plant height and all of them. As can be seen from the above, plant height had an impact on high yield elements.

As has been confirmed by many scientists, the longest of the last stable nodes is one of the parameters that can resist drought. According to the results of the study, the length of the last knot

of resistant varieties was observed and ranged from 25.1 to 46.6 cm. 35 cm; 32 varieties and specimens were between 35-40 cm; 7 varieties and samples had 40 cm or more.

The weight of 1000 grains was examined and the result was 40.9 g of the standard variety Krasnodar-99, and when this figure was observed on 50 varieties and samples, it showed that they had a higher weight of 1000 grains than the standard. It was found that there were 7 varieties and samples that had a weight of 1000 grains between 30.1-35.0 g, respectively, 34 varieties and samples had from 35.1 to 40.0 g; 59 varieties and samples had 40.0 g or more. Varieties and accessions with a higher weight of 1000 grains were recommended for use in hybridization as donors.

In the study of the protein content in the grain, 12.0-16.4% was found. If the protein content in the grain exceeds 14%, it is included in class I, respectively, when it is 11-13.9% of class II; less than 10.9% to III or IV classes. It was investigated that there are 63 varieties whose protein content exceeds 14% and is included in class I.

The characteristics of a wheat flour bakery usually stand out with the quantity and quality of gluten. When we talk about the quantity and quality of gluten, this means that the hydrated gel-like rubber paste consists of a particularly water-insoluble protein, which, after the wheat dough is washed in water.

Depending on the amount of gluten, wheat grain is divided into the following classes:
I class - the mass of gluten is 28%, and not lower, the quality of grain gluten is not lower than II group;
II class - the amount of gluten is not lower than 25%;
Class II - the amount of gluten is not lower than 22%.

If the amount of gluten is below 22%, and the quality of gluten is lower than that of group II, then the wheat grain in this case is called "no class".

As the results of our study showed, the amount of gluten in grains of 48 varieties was above 28%.

FINDINGS

When the valuable characteristics of the farm of varieties and samples were investigated, they were founded and selected as donors by earlyness 10, with an average plant height of 70, the yield of 47 varieties was higher than that of the standard ones, 59 varieties had a weight of 1000 grains, 59 varieties were above 40 g, protein in 63 varieties was above 14%, the amount of gluten in 48 varieties was above 28%, and all of them were recommended for use in targeted hybridization.

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