

## SELECTION OF HIGH GRAIN YIELD ELEMENTS OF WINTER BREAD WHEAT LINES FOR RAINFED AREAS

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**Abstract:** Testing of new lines that are heat, drought tolerant, productive and high grain quality suitable for dryland conditions is one of the important scientific tasks of today. During the study, new winter bread wheat lines were selected and involved in selection work.

**Keywords:** bread wheat, lines, yield, test weight, 1000 grain weight.

**Introduction.** The fact that in the first years of independence the land was owned to provide the population with grain and grain products, farms specialize in grain, the average yield of 60-70 quintals of grain per hectare of irrigated land is evidence of radical economic reforms in our country.

Our government has set an important task for agricultural workers and scientists to increase the gross harvest in exchange for increasing productivity. In recent years, due to the correct selection and cultivation of wheat varieties in accordance with the soil and climatic conditions of the regions, the introduction of an improved seed system, wheat and flour products in Uzbekistan are exported to a number of countries.

The use of all available opportunities in improving grain yield and grain quality in grain, first of all, high-yielding varieties, studying their biological properties, and proper treatment with them will ensure positive results. But any good variety will never lose its hereditary properties, potential yield potential, only if it is sown from high-quality seeds of high sowing quality and if all agronomic rules are properly followed in the process of seed multiplication, free from diseases and insects.

Therefore, the republic pays great attention to seed production and its quality indicators. In the current market economy, the development of optimal and efficient systems for growing superelite seeds of bread and hard winter wheat varieties recommended for sowing in irrigated lands of the Republic using existing methods of propagation of cereals, superelite seeds in international practice, selection of cereals and cereals. The regional seed system of imported and newly created winter wheat varieties has been established on a scientific basis on the basis of establishing an organic link between

Variety is one of the main factors in increasing crop yields in agricultural production. Planting new high-yielding varieties is an effective way to increase productivity.

At the current stage of agricultural development, great attention is paid to increasing crop yields, improving product quality, creating high-yielding varieties and hybrids that meet

the requirements of agriculture and their widespread introduction into production [8, 15, 24, 30, 33, 34].

The fact that all varieties (100%) or most of the many crops included in the state register were created in Uzbekistan is an example of success in the field of grain. But there are still many problems and work to be done in this regard [4, 18, 29, 31, 32, 35].

In order to stabilize the yield, it is necessary to have the maximum number of different varieties and specimens that differ from each other in drought tolerance, vegetation period and resistance to other stress conditions [2, 16, 22, 38, 39, 40].

Today, "variety" is one of the main factors in the intensification of agriculture. The increase in productivity is due to 50% due to fertilizers, 25% due to selection achievements and 20% due to improvements in agrotechnics, plant protection and tillage systems [1, 12, 27, 36, 37, 41, 42, 43].

In turn, high-yield selection leads to a decrease in resistance to adverse external factors i.e. abiotic and biotic influences, so a comprehensive approach to the creation of competitive varieties is required [3, 19, 23, 44, 45, 46].

One of the decisive factors in achieving an increase in productivity and resistance to adverse conditions in selection is the correct planning of the selection process, i.e. the choice of research direction and methods. This task can be performed only with a complete understanding of the exact state of productivity in the conditions of the area where the selection work is carried out [5, 11, 25, 47, 48, 49].

The productivity of wheat grain is studied in relation to the elements of yield. Several scientists have argued that the analysis of fertility elements allows breeders to take a conscious approach to the synthetic selection of varieties [7, 17, 28, 50, 51].

Selection is a final and relatively responsible component in obtaining valuable forms in the selection process. Therefore, it is especially important for the selection scientist to know the relationship between the characteristics of the selection work, as well as the characteristics of the plant. When sampling is carried out using correlation, it provides a basis for relatively efficient work [6, 13, 21, 52, 53].

Yield depends on the weight of 1000 grains ( $r = 0.65$ ), biomass in the sprouting phase ( $r = 0.64$ ), the second leaf surface ( $r = 0.50$ ), and the average amount of chlorophyll during the growing season ( $r = 0.70$ ) [10, 14, 26, 54].

The temperature of coagulation of the protein when the water is heated by crushing the leaves of wheat, the ability to retain water in critical periods, the composition of chlorophyll, the intensity of photosynthesis - all this determines the resistance of the variety to productivity.

**Materials and methods.** The study was conducted in the experimental field of the Southern Agricultural Research Institute, located in the Kamashi district of Kashkadarya region. The crop area of each line was 5 m<sup>2</sup>.

Experiments in the laboratory were performed in the laboratory "Determination of technological quality indicators and physiology of grain" of the branch. Experimental placement and experimentation were carried out according to the method of phenological observation, calculation and analysis (All-Union Institute of Botany VIR, 1984) and biometric analysis according to the method of the State Variety Testing Commission of Agricultural Crops (1985, 1989). Technological quality indicators of winter wheat grain grown in the experimental field "Methodical recommendations for the evaluation of the quality of grain", "Methods of biochemical research of plants", gluten content GOST 13586-1-68, grain vitreous GOST 10987-76 93, grain nature was compared according to GOST 3040-55, weight of 1000 grains according to GOST 10842-89. Statistical analyzes were performed based on the method of B.A. Dospekhov (1985).

The field experimental scheme in the study was based on the Complete block design and Alpha lattice design of the Genestat 3 program.

**Results and Discussion.** Bread wheat lines, which are being studied in the 2019-2020 selection nursery, were sown on 22 November. It was noted that the germination period of the lines took place on December 19-20. The period from sowing to germination was 27-28 days.

When analyzing the yield indicators of the studied varieties and samples, it was found that the yield ranged from 11.1 c/ha to 36.3 c/ha. Yield in standard varieties was 15-31.3 c/ha. High yields (17.4-36.9 c/ha) compared to standard varieties were observed in 8 samples.

In the experiment, the smallest significant differences between the returns were 3.73% and the coefficient of variation was 1.9%.

According to the results of statistical mathematical analysis, taking into account the errors made in the experiment, high, equal and low performance lines were distinguished relative to the standard variety.

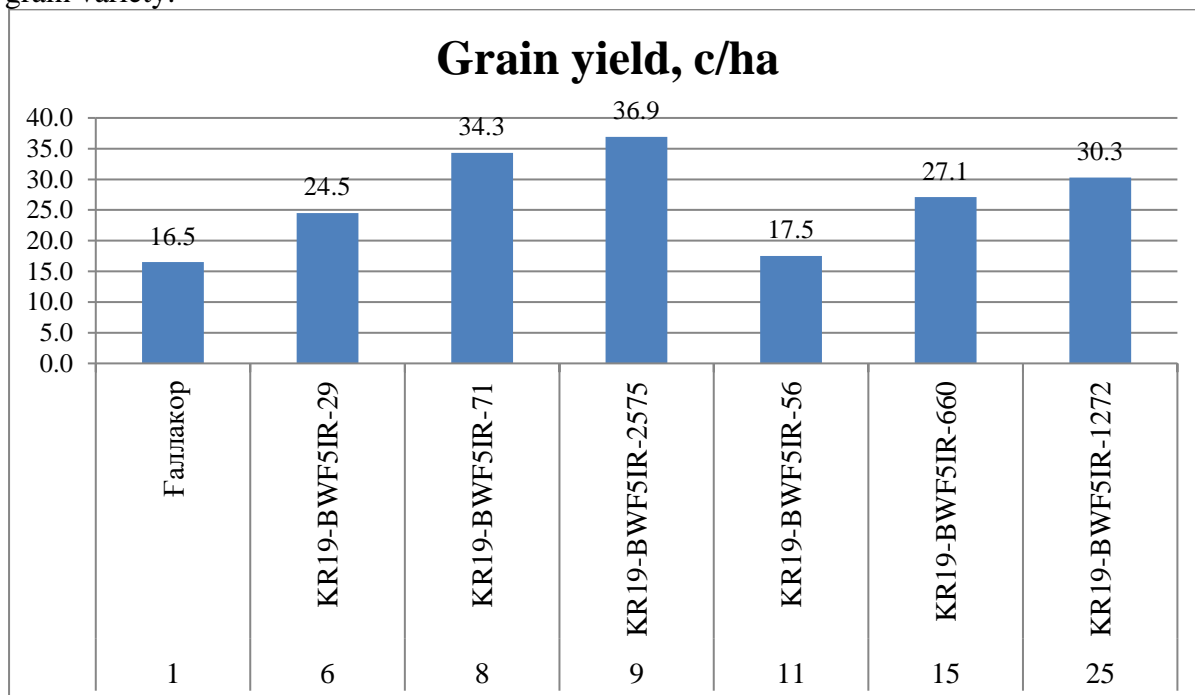
In order to analyze the productivity indicators, a selection process was carried out comparing the Gallakor local check, which is grown on a large area under local conditions, as a standard variety.

Table 1  
**The difference between the yield of the cultivar and the lines compared to the standard cultivar**

Entry №	Name	Grain yield, c/ha			Difference of local chek variety, +,-	
		Rep 1	Rep 2	Mean	ц/га	%
1	Gallakor (check)	16,6	16,4	16,5	0,0	0,0
2	Ravon (check)	15,2	14,8	15,0	-1,5	-9,1
3	Oksaroy (check)	31,2	31,4	31,3	14,8	89,7
4	Kukbulok (check)	16,4	16,2	16,3	-0,2	-1,2
5	KR19-BWF5IR-743	13,6	13,2	13,4	-3,1	-18,8
6	KR19-BWF5IR-29	24,4	24,6	24,5	8,0	48,5
7	KR19-BWF5IR-1241	15,6	15,2	15,4	-1,1	-6,7
8	KR19-BWF5IR-71	34,2	34,4	34,3	17,8	107,9
9	KR19-BWF5IR-2575	36,8	37,0	36,9	20,4	123,6
10	KR19-BWF5IR-1738	11,2	11,0	11,1	-5,4	-32,7
11	KR19-BWF5IR-56	17,6	17,4	17,5	1,0	6,1
12	KR19-BWF5IR-651	14,2	14,6	14,4	-2,1	-12,7
13	KR19-BWF5IR-1280	16,2	15,8	16,0	-0,5	-3,0
14	KR19-BWF5IR-252	13,8	14,4	14,1	-2,4	-14,5
15	KR19-BWF5IR-660	27,4	26,8	27,1	10,6	64,2
16	KR19-BWF5IR-652	13,6	13,8	13,7	-2,8	-17,0
17	KR19-BWF5IR-1614	12,2	12,8	12,5	-4,0	-24,2
18	KR19-BWF5IR-656	12,8	14,2	13,5	-3,0	-18,2
19	KR19-BWF5IR-740	15,2	15,2	15,2	-1,3	-7,9
20	KR19-BWF5IR-551	14,8	14,4	14,6	-1,9	-11,5
21	KR19-BWF5IR-1282	15,2	15,0	15,1	-1,4	-8,5
22	KR19-BWF5IR-561	13,4	13,2	13,3	-3,2	-19,4
23	KR19-BWF5IR-105	12,4	12,2	12,3	-4,2	-25,5
24	KR19-BWF5IR-550	12,6	12,2	12,4	-4,1	-24,8
25	KR19-BWF5IR-1272	30,2	30,4	30,3	13,8	83,6

26	KR19-BWF5IR-1748	13,0	13,4	13,2	-3,3	-20,0
27	KR19-BWF5IR-736	13,6	13,0	13,3	-3,2	-19,4
28	KR19-BWF5IR-729	14,0	13,8	13,9	-2,6	-15,8
29	KR19-BWF5IR-1519	11,8	11,4	11,6	-4,9	-29,7
30	KR19-BWF5IR-654	12,6	11,8	12,2	-4,3	-26,1

The average yield of cultivars and lines was 11.1–36.9 c/ha, according to the average results of 2 returns. The yield of the standard Gallakor variety was 16.5 c/ha, the yield of the Ravon variety was 15 c/ha, the yield of the Oqsaroy variety was 31.3 c/ha and the yield of the Kokbulak variety was 16.3 c/ha. It was found that there are 8 high-yielding lines from the grain variety.



**Figure 1. Productivity indicators of selected varieties and lines.**

According to the results, the highest yield was found to be 36.9 ts / ha in the KR19-BWF5IR-2575 line, 34.3 ts / ha in the KR19-BWF5IR-7 line, and 30.3 ts / ha in the KR19-BWF5IR-1272 line.

**Conclusion.** Selection of high-yielding, high-quality samples of bread wheat in dryland conditions the yield and productivity characteristics of 30 varieties and lines studied in the nursery were analyzed, and 6 samples were tested in the control nursery.

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