



## WINTER BREAD WHEAT SELECTION IN THE SOUTHERN REGIONS OF THE REPUBLIC OF UZBEKISTAN

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### Abstract

As part of research on the selection of varieties and lines of winter bread wheat suitable for climatic changes, yielding and with high grain quality, 35 varieties and lines were planted in the control nursery in 3 rows, the crop area was 10 m<sup>2</sup>, and test work was carried out. Field experiments were conducted at the experimental site of the Qamashi branch of the Southern Agricultural Scientific Research Institute. According to the results of the research, the lines with high productivity and grain quality were selected and recommended for selection work.

**Key words:** bread wheat, variety, line, rainfed area, grain quality.

Using all the available opportunities to increase grain yield and grain quality in grain farming, first of all, using high-yielding varieties, studying their biological properties and dealing with them correctly will ensure positive results. But any good variety will never lose its genetic characteristics and potential productivity if it is grown from high-yielding seeds of high planting quality, and if all agrotechnical rules are followed during seed propagation, free from diseases and insects.

One of the decisive factors in breeding productivity and resistance to adverse conditions is the correct planning of the breeding process, that is, the selection of the research direction and methods. This task can be performed only if you have a complete understanding of the exact state of fertility in the area where selection work is being carried out [1, 6, 8].

In the development of wheat varieties, it is important to choose the right starting sources and the right selection of high-yielding genotypes and parental forms for crossbreeding. This means that it is one of the important tasks for breeding



scientists to select, create and introduce varieties suitable for each region [2, 5, 7].

Wheat productivity depends on the structure of the plant, metabolism and substances in the grain. Every physiological phenomenon can be modified by genotype and environment, and there is an inextricable relationship between genotype and environment [3, 4, 9, 10].

The variability and heritability of quantitative traits are not uniformly covered in the literature. A characteristic feature of this is that it depends on the external environment, which creates a great difficulty in selection. The most important thing in selection is the genetic potential of a specific genotype or homo- and heterozygous productivity and other indicators. It depends on two factors, selection of the best genotypes from hybrid mixtures in hybridization [14, 16, 20, 12, 15].

Currently, the creation of early varieties of wheat is one of the main tasks of breeding. Because the shorter the period or growth period from the time the plant germinates from the seed to the full ripening of the crop, the better the quality and quantity of the harvest. Cultivation of early varieties in irrigated land farming conditions ensures two to three harvests in a year [11, 13, 18, 17, 19].

In the study area, as part of the research on the selection of varieties and lines of winter bread wheat suitable for climatic changes, yielding and with high grain quality, 35 varieties and lines were placed in the control nursery in 3 rows, the crop area was 10 m<sup>2</sup>, and test work was carried out. Field experiments were conducted at the experimental site of the Qamashi branch of the Southern Agricultural Scientific Research Institute.

1 local check variety and 34 new lines were selected for the experiment. As a check variety, Gallakor variety, which was newly introduced in the dry areas of our republic and is being spread over a large area, was taken. The lines selected for the research are selection samples brought from local and foreign scientific centers with high disease and pest resistance, productivity and grain quality indicators in local conditions.

The Alpha lattice design of the international GenStat-13 program was used to develop the scheme of random placement of genotypes in the experiment.

Planting of the field experiment was carried out on November 22 with the help of special selection seeder "Gamma".

Yield indicators and grain quality indicators of varieties and lines of winter bread wheat under dryland conditions were also evaluated.



In the conducted experiment, it was found that the productivity of varieties and lines was 1.83 - 5.80 ts/ha. The productivity of the model Gallakor variety was 3.63 t/ha, and it was found that there are 12 lines with higher productivity than the model variety. Grain yield in the KR19-26 FAWWON-SA-36 line is 5.8 t/ha, in the KR19-26 FAWWON-SA-25 line 5.5 t/ha, in the KR18-BW-Sel F5-P-68 line 5.4 t/ha ha, KR19-BWF6-IR-245 line was found to be 5.3 ts/ha, KR19-BWF6-IR-191 line was 5.3 ts/ha.

In the control nursery, it was found that the weight index of 1000 grains of varieties and lines was 26.3 - 38.9 g.

It was determined that the weight of 1000 grains was 33.2 g in the model Gallakor variety. It was found that there are 12 lines with a weight of 1000 grains higher than the sample Gallakor variety. 38.9 g on the KR19-26 FAWWON-SA-36 line, 38.6 g on the KR19-BWF6-IR-144 line, and 38.4 g on the KR19-BWF6-IR-245 line with a high weight of 1000 grains were selected.

When determining the grain nature index of varieties and lines, it was 705.1 - 785.2 g/l. The sample was 766.9 g/l in G'allakor variety. It was found that there are 14 lines with a grain size higher than 750 g/l, and 20 lines in the range of 700-750 g/l. Lines with a higher weight of 1000 grains were selected.

The amount of protein in grains of varieties and lines was evaluated in the laboratory of evaluation of grain quality indicators and made 11.8 - 15.9 percent. It was observed that 15.9 percent protein content was found in Andoza Ghallakor variety.

Table 1

**Yield and grain quality indicators of winter bread wheat varieties and lines, Qamashi, 2021.**

No	Varieties and lines	Grain yield, c/ha	1000 kernel weight, g	Test weight, g/l	Protein content, %	Gluten content, %
1	Gallakor (check)	3.63	33.2	766.9	15.9	28.3
2	KR19-BWF6-IR-22	2.30	28.4	721.9	13.7	22.5
3	KR19-BWF6-IR-59	4.27	35.4	777.5	14.4	28.4
4	KR19-BWF6-IR-61	2.53	30.4	743.0	13.4	24.1
5	KR19-BWF6-IR-89	2.13	26.6	759.2	12.8	23.0
6	KR19-BWF6-IR-120	4.60	35.9	764.3	14.6	28.7
7	KR19-BWF6-IR-128	2.70	29.2	724.3	13.6	26.7
8	KR19-BWF6-IR-144	4.50	38.6	760.8	15.6	29.0
9	KR19-BWF6-IR-175	4.83	37.1	759.5	14.2	28.3
10	KR19-BWF6-IR-190	3.17	30.7	732.9	13.4	24.4



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11	KR19-BWF6-IR-191	5.30	36.2	766.8	14.4	29.4
12	KR19-BWF6-IR-221	2.80	32.2	733.9	12.3	27.5
13	KR19-BWF6-IR-227	2.37	29.5	723.5	12.8	25.7
14	KR19-BWF6-IR-245	5.30	38.4	773.7	15.5	29.2
15	KR18-BW-Sel F5-P-23	2.80	31.5	739.9	13.7	26.7
16	KR18-BW-Sel F5-P-26	2.20	33.5	712.0	13.2	24.1
17	KR18-BW-Sel F5-P-30	3.23	27.8	731.5	12.5	27.3
18	KR18-BW-Sel F5-P-68	5.40	36.8	776.1	14.6	28.5
19	KR18-BW-Sel F5-P-960	2.47	31.8	744.6	13.6	25.9
20	KR18-BW-Sel F5-P-965	2.10	28.4	735.2	13.1	24.1
21	KR18-BW-Sel F5-P-1589	1.83	26.8	710.9	12.8	23.3
22	KR18-BW-Sel F5-P-2878	2.80	26.3	755.4	12.3	27.8
23	KR18-BW-Sel F5-P-902	4.80	35.0	785.2	14.2	28.5
24	KR18-BW-Sel F5-P-1203	2.77	30.5	712.9	13.6	24.5
25	KR18-BW-Sel F5-P-1391	2.30	32.8	706.2	12.5	23.0
26	KR18-BW-Sel F5-P-2828	3.20	29.0	732.0	11.8	26.3
27	KR19-26 FAWWON-SA-10	2.80	32.2	726.6	13.7	23.6
28	KR19-26 FAWWON-SA-16	2.37	30.1	734.1	12.4	21.4
29	KR19-26 FAWWON-SA-18	4.60	37.9	764.0	14.3	29.4
30	KR19-26 FAWWON-SA-21	5.30	35.9	781.2	14.8	28.4
31	KR19-26 FAWWON-SA-23	3.17	29.0	743.2	13.2	23.6
32	KR19-26 FAWWON-SA-25	5.50	36.9	774.3	15.2	28.6
33	KR19-26 FAWWON-SA-36	5.80	38.9	764.7	14.2	28.3
34	KR19-26 FAWWON-SA-57	2.57	30.4	705.1	12.7	24.5
35	KR19-26 FAWWON-SA-66	2.27	31.5	724.5	13.7	23.3
	Minimum	1.83	26.3	705.1	11.8	21.4
	Mean	3.45	32.4	744.8	13.7	26.2
	Maximum	5.80	38.9	785.2	15.9	29.4
	LSD 0,05	0.13	0.78	6.25	0.31	0.52
	LSD 0,05 %	3.74	2.39	0.84	2.28	1.97
	CV %	2.3	1.5	0.5	1.4	1.2

We also can ask questions about constructs like getting to know and coaching. Recollect once more some conventional definitions. A seek in current dictionaries exhibits that getting to know is "acquiring or getting of understanding of a subject or a skill via look at, experience, or instruction." learning, and coaching of mastering, may be described as "showing or helping a person to learn how to do something, giving instructions, guiding inside the observe of something, supplying with information, causing to recognize or apprehend." isn't it curious that professional lexicographers seem to have such issue in devising a definition of something as prevalent as coaching? Extra than perhaps anything else, such definitions reflect the issue of defining complicated



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Table 2

**Correlative relationship between valuable features of varieties and lines, Qamashi, 2021.**

<b>Correlative relationship</b>	Days to heading date	Vegetation period, days	Grain yield, c/ha	Gluten content, %	Number of spikelets	Plant height, cm	Peduncle length, cm	Protein content, %	Spike length, cm	1000 kernel weight, g
Vegetation period, days	0.64									
Grain yield, c/ha	-0.20	-0.53								
Gluten content, %	-0.14	-0.39	0.82							
Number of spikelets	-0.27	-0.55	0.80	0.73						
Plant height, cm	-0.21	-0.51	0.83	0.78	0.77					
Peduncle length, cm	-0.22	-0.58	0.85	0.76	0.76	0.82				
Protein content, %	-0.27	-0.48	0.71	0.60	0.71	0.65	0.79			
Spike length, cm	-0.14	-0.47	0.89	0.73	0.80	0.81	0.84	0.79		
1000 kernel weight, g	-0.31	-0.62	0.84	0.69	0.81	0.77	0.80	0.75	0.82	
Test weight, g/l	-0.09	-0.41	0.81	0.74	0.78	0.76	0.80	0.67	0.75	0.63

It was found that there are 12 lines where the protein content of the grain is higher than 14 percent. Protein content is 15.6 percent in KR19-BWF6-IR-144 line, 15.5 percent in KR19-BWF6-IR-245 line, 15.2 percent in KR19-26 FAWWON-SA-25 line, KR19-26 FAWWON-SA-21 it was found that it was up to 14.8 percent in the line.

When determining the amount of gluten in the grain, it was observed that it was in the range of 21.4 - 29.4 percent. It was found that 28.3 percent of gluten is present in Andoza G'allakor variety. It was found that there were 12 lines with a gluten content above 28 percent. Gluten content 29.4% in KR19-26 FAWWON-SA-18 line, 29.4% in KR19-BWF6-IR-191 line, 29.2% in KR19-BWF6-IR-245 line, KR19-BWF6-IR-144 line It was found to be as high as 29.0 percent. Lines with high gluten content in grain were recommended for use in selection work.

When determining the correlation between varieties and lines, there is a strong positive correlation between grain type  $r=81$ , weight of 1000 grains  $r=84$ , spike length  $r=89$ , protein content  $r=85$ , plant height  $r=83$ , number of spikes  $r=80$  with yield index. it was found that there is a connection.

In conclusion, it is worth noting that the yield of winter bread wheat in the control nursery in the dry area is 4.27-5.80 t/ha, protein content is 14.2-15.6%, gluten content is 28.3-29.4 12 rows with percent were selected and transferred to the competitive cultivar trial nursery.

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