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PRODUCTIVITY INDICATORS OF DURUM WHEAT VARIETY SAMPLE.

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Annotation. Today, 70 percent of the world's protein needs come from wheat, legumes and other crops, and the rest from soybeans and poultry products. Selection of samples based on morphological, biological and economic characteristics and characteristics from among varietal samples of world collections; to identify a positive correlation between protein content and gluten content in wheat grain.

Keywords. Initial material, selection, shear-wheel wheat, winter wheat, early ripeness, creating varieties, seeding rate, agricultural technology, fertilizers.

Introduction.

According to the International Food and Agriculture Organization, wheat production is of great importance in ensuring the national security of any country. Two-thirds of the world's food supply is made up of wheat (Triticum), rice (Oryza sativa) and corn (Zea mays). Of these, 35% is wheat.

Wheat is grown in about 130 countries around the world. The main wheat-growing countries in Europe are: Russia, Ukraine, France, Italy, Spain, Poland. The following Asian countries are also growing wheat: China, India, Pakistan, Turkey, Iran, Syria, Iraq, Kazakhstan, Uzbekistan.

In Uzbekistan, the initial materials with valuable traits and characteristics necessary for the selection process, wheat collection samples, have been created at the Uzbekistan Plant Research Institute, CIMMYT and ICARDA International Research Institute, and gene banks of all cultivated plants have been established, and their samples are being stored, studied and propagated.

The purpose of the research is to select primary sources of durum wheat that are resistant to drought and heat, early ripening, and have high grain quality indicators in the conditions of the Southern regions.

The objectives of the research are:

to study the duration of the growing season of durum wheat variety samples and select early ripening variety samples;

to assess the heat and drought resistance of durum wheat variety samples brought from local and international centers;

to select high-yielding and pasta-like samples based on the study of biometric, productivity and technological grain quality indicators of variety samples;

Selection of primary sources of wheat with high economic characteristics and recommendations for the creation of new varieties;

The object of the study is the use of variety samples from the International Center for Agricultural Research in the Dry Areas (ICARDA), International Maize and Wheat Improvement Center (CIMMYT, Mexico).

The subject of the study is the resistance of wheat varieties and samples from different regions of origin to adverse environmental factors, yield and technological quality characteristics of grain.

Research methods. Evaluation of wheat variety samples carried out in the studies by morphological and biometric indicators «международний классичикатор sev roda triticum l.» The classification is carried out according to the method developed by the International Classification of Grains (L., 1984) for the Triticum genus of wheat and the Peterson and Manners scale developed by the International Scientific Center ICARDA (1996). In the course of

research, the following calculations, observations and analyses are carried out in experimental plots:

• Seed germination in field and laboratory conditions (1978);

• Phenological observations according to the method of the Variety Testing Commission (1974);

• Biometric measurements (plant height, number of productive bushes, spike length, number of grains in 1 spike, weight of 1000 grains, yield from 1 m2); According to the method of the State Variety Testing Commission of Agricultural Crops (1986);

• Plant disease resistance in % (Geshele, 1978);

• Gluten in the grain;

• Productivity indicators were statistically processed using the analysis of variance method (Dospekhov, 1985).[2]

Durum wheat (Triticum durum Desf.) is one of the most important cereal grains, cultivated on more than 17 million hectares worldwide, with a global production of 38.1 million tons in 2019. The world's leading producers of durum wheat are Canada (5.2 million tons), Italy (4.3 million tons), Turkey (3.7 million tons), the United States (2.3 million tons), Kazakhstan (2.2 million tons), Syria (2.2 million tons), Algeria (2.2 million tons), France (1.9 million tons), Morocco (1.8 million tons), Greece (1.1 million tons), Spain (1.0 million tons), and Tunisia (1.0 million tons).

Durum wheat (Triticum Durum) is mainly grown for human consumption. It is consumed in the form of pasta products, such as spaghetti, macaroni, groats, etc.

Nowadays, durum wheat grain has a number of technological properties, which make it an unrivaled raw material for the production of high-quality cereals, pasta and confectionery.

Studies have shown that durum wheat, even with a lower yield than soft wheat, provides 1.5 times more economic benefits.

The consequences of climate change and the growing demand for food require more effective breeding programs. Identification of genetic resources and the study of genetic variability provide additional information about the resistance of durum wheat to abiotic and biotic factors. This will lead to an increase in productivity and sustainability of production in future adverse climatic conditions.

The problem of drought is acute in developing countries of the world, with about 37 percent of wheat-growing areas in semi-arid regions, which is a major obstacle to wheat cultivation.

The average yield from one plant is called the productivity of the crop (variety), the yield from the area of land is called its yield. Productivity is calculated in grams or kilograms, and productivity is calculated in centners or tons per hectare.

The productivity of a crop is expressed in its productivity and seedling density. Therefore, productivity is one of the two main indicators that determine the productivity of a variety. The offspring of elite plants selected during the selection process are evaluated only by productivity, since they are planted in small areas.

The productivity of cereal crops is determined by such indicators as the number of productive stems, the number of grains per ear, and the weight of 1000 grains. [4]

Since the number of grains per ear and the increase in the weight of 1000 grains are the main characteristics in determining productivity, both of them must be developed to their maximum. During the breeding process, the most favorable ratio between them is found, which allows for the production of high-yielding ears. Environmental factors, growing conditions, temperature, water deficit, relative humidity of the air and drought have a negative effect on ear length and the number of ears per ear.[3]

The following varieties Omrab, 1388.Turkey, 571848 Mexico, K-081482 Bulgaria, K-50431 Bulgaria, K-290490 Mexico, Icamor TA 0462, Marvarid,

GL-21 HTDWYT-10, K- 56905, 78.76/Condor, CWI-33789, Uz-40666, Lagor

Candocross H25 was found to be superior to the standard Leukurum-31 variety in terms of ear length.

The 1000-grain weight is an indicator of the size and fullness of the grain. It is a sign of variety and, therefore, strongly depends on the climatic conditions during the filling period. It has been scientifically established that the size of the wheat grain depends on the duration of the growing season, in particular, on the length of the earing and ripening period.[5]

In terms of 1000 grain weight, it was found that Omrab, 1391. Turkey, 571850. Mexico, K-081482 Bulgaria, K-290490 Mexico, Istiqbolli, Krupinka, GL-21 HTDWYT-04, GL-21 HTDWYT-09, GL-21 HTDWYT-12, 78.76/Condor, SWM-16234, Feng you, Uz-40666, Lagor, Tdicoccum 1, Candocross H25 were superior to the standard Leukurum-31 variety.

Durum wheat varieties and samples 1000-grain weight and grain yield (2024-2025)

	Samples of varieties					
		Spike length	Number of spikelets per spike	Number of grains per spike	1000 grains weight	Productivity, s/ha
1	Control.Leukurum-3	8,5±0,7	13,6	43,6	42,2	9,5
2	Omrab	8,7±0,9	14,0	42,6	43,6	9,2
3	1383.Turkey	8,1±0,6	13,0	45,6	42,9	9,5
4	1388. Turkey	10,5±0,8	13,8	46,8	40,5	9,3
5	1391. Turkey	6,9±0,4	14,5	45,6	43,9	9,4
6	1429. Turkey	8,3±0,4	14,0	46,8	39,1	9,1
7	571811 Mexico	8,1±0,6	14,8	45,5	40,0	9,9
8	571848 Mexico	9,0±0,8	14,6	38,2	42,5	9,6
9	571850. Mexico	7,9±0,4	14,3	46,4	45,5	9,8
10	K-081482 Bulgaria	8,7±0,5	14,2	48,0	43,3	9,3
11	K-50431 Bulgaria	8,6±0,4	14,6	49,8	41,2	9,2
12	K-290490 Mexico	8,8±0,4	13,6	44,8	44,0	9,3
13	Promising,	8,5±0,5	13,9	46,2	43,2	9,3
14	Mingchinar	7,4±0,3	13,9	36,4	42,5	9,5
15	Groat	7,7±0,5	15,0	34,4	43,3	9,6
16	Cristella	8,5±0,7	14,1	45,6	39,7	9,7
17	Icamor TA 0462	8,7±0,9	15,0	44,6	42,5	9,5
18	K-383589 India	8,1±0,6	15,2	42,6	42,1	9,4
19	Pearl	10,5±0,8	14,0	46,8	38,1	9,3
20	GL-21 HTDWYT-04	6,9±0,4	17,8	37,8	43,2	9,3
21	GL-21 HTDWYT-08	8,3±0,4	13,6	43,6	42,5	9,5
22	GL-21 HTDWYT-09	8,1±0,6	14,0	42,6	43,3	9,6
23	GL-21 HTDWYT-10	9,0±0,8	13,0	45,6	39,7	9,7
24	GL-21 HTDWYT-12	7,9±0,4	13,8	46,8	43,2	9,3
25	K- 56905	8,7±0,5	14,5	45,6	42,5	9,5
26	78.76/Condor	8,6±0,4	14,0	46,8	43,3	9,6
27	CWI-33789	8,8±0,4	14,8	45,5	39,7	9,7
28	SWM-16234	8,5±0,5	14,6	38,2	43,2	9,3

29	K-61188	7,4±0,3	14,3	46,4	42,5	9,5
30	Feng you	7,7±0,5	14,2	48,0	43,3	9,6
31	K-54215	8,5±0,7	14,6	49,8	39,7	9,7
32	Uz-40666	8,7±0,9	13,6	44,8	43,2	9,3
33	K-48347	8,1±0,6	13,9	46,2	42,5	9,5
34	Lagor	10,5±0,8	13,9	36,4	43,3	9,6
35	Sebatel 2	6,9±0,4	15,0	34,4	39,7	9,7
36	Tdicoccum 1	8,3±0,4	14,1	45,6	43,2	9,3
37	Maamouri 3	8,1±0,6	15,0	44,6	42,5	9,5
38	Candocross H25	9,0±0,8	15,2	42,6	43,3	9,6

CONCLUSIONS

This article highlights the relevance of durum wheat, its global cultivation, and the importance of breeding processes. In the context of climate change and increasing demand for food, the creation and improvement of durum wheat varieties is of great importance. By studying the productivity of variety samples, spike length, and 1000-grain weight, it is possible to rationally use genetic resources and create drought-resistant, high-yielding, and high-quality grain varieties. In the future, research in this area will continue, creating new varieties and introducing them into practice, which will contribute to ensuring the food security of Uzbekistan. The results of the study can serve as a valuable source of information for breeders, agronomists, and agricultural specialists.

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