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Results of the Evaluation of Samples of the World Collection for Creation of New Varieties of Barley in Irrigated Lands.

[1]Tuygunov Rasul Bolibekovich, postgraduate student (PhD)
[2]G`aybullayev G`ulom Saydalimovich, Doctor of (DSc) Agricultural Sciences.
[1]Usarov Zoxid Igamovich, Doctor of Philosophy (PhD) Agricultural Sciences.
[1]Scientific reserch institute of rainfed Agriculture
[2]Samarkand branch of Tashkent State Agrarian University

Abstract. 200 samples of barley varieties were studied in the irrigated lands of the Samarkand region, and they were complexly evaluated. From them, productive, productive, resistant to lodging, resistant to unfavorable environmental factors, early ripening varieties with high productivity, resistant to diseases were selected.

Key words. Barley, variety, collection, hybrid, disease, line, standard, resistance, generation, selection, selection, productivity, crossing.

Introduction. One of the main problems of today is to create barley varieties suitable for soil and climate conditions, resistant to diseases, lodging, stable grain yield in the irrigated lands of our republic.

Cereal production is the main branch of agriculture, which provides food for the population, feed for livestock, and raw materials for industry. Therefore, increasing grain production in the Republic of Uzbekistan is one of the most important problems of agriculture.

Also, based on the Decision of the President of the Republic of Uzbekistan "On Measures to Widely Introduce Market Principles to Grain Cultivation, Purchase and Sale" and the Decision of the Cabinet of Ministers of the Republic of Uzbekistan "On Measures for the Cultivation of Spiked Grains in 2021" placement taking into account the climatic conditions, planting and maintenance in optimal terms, timely and complete supply of the material and technical resources necessary for this, it is aimed to increase the yield of spiked grain and the interest of farms and grain clusters.

In this, it was decided to end the state intervention in the cultivation, purchase and sale of cereal crops and thus transition to the principle of the free market. This also creates great opportunities in the cultivation of grain.

Despite the fact that the varieties of barley grown in irrigated lands are adapted to the local soil and climate conditions, they are not sufficiently resistant to winter, various diseases and lodging.

In irrigated lands, it is observed that the height of the barley plant falls due to its height.

To ensure high productivity, selection and creation of barley varieties resistant to lodging is one of the urgent tasks of today.

One of the actual problems of barley breeding in irrigated lands is the creation early ripening, disease resistant varieties of barley into production.

Varieties of barley grown in the irrigated fields of our republic mainly belong to the group of mid-ripening and late-ripening varieties imported from Europe. The main tasks of our scientific research are to study early varieties and involve them in crossbreeding, as well as to create early, lodging resistant and productive varieties by hybridizing the genetic characteristics of several parental forms.

Among the properties of barley, important signs in the direction of selection are resistance to lodging, plasticity, that is, the ability to produce stable crops in different weather years in different regions, resistance to highly harmful diseases, black mold, powdery mildew, helminthosporiosis, root rot, and small rust diseases (Abdukarimov D., 2007).

Materials and methods. The research was conducted in 2013-2022 in the experimental field of the scientific seed farm "Farboma select" located in the territory of Zarafshon MMTP, Jomboy district, Samarkand region.

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For the purpose of the research, 200 barley collection variety samples brought from the Gallaorol scientific-experimental station, International Centers for barley selection ICARDA and CIMMYT and the Research institute of Plant Industrys were studied. The area of the collection nursery is 1 m2 for each sample, 300 seeds per 1 m2 were planted in 2 replicates in October. After every 10 samples, the Ikhtiyor variety was planted as a standard variety.

Observations, calculations and analyzes in research work were determined according to the "Methods of conducting field experiments" (UzPITI, 2007), phenological observations and biometric analyzes according to the method of the State Commission for testing varieties of agricultural crops (1989). Mathematical analysis was done according to the method developed by B.A. Dospekhov (1985), disease resistance was evaluated according to the scale (%) developed by the International Center for Agricultural Research in Dry Areas (1996).

Results and their analysis. Creation of early and fruitful varieties of barley is one of the important tasks facing the breeders. The duration of the plant growth period is determined by the natural variability of the variety and also depends on the growing conditions.

In order to create early, productive and resistant varieties of barley, it is of particular importance to comprehensively study the World collection, analysis of newly brought collection samples from the centers of origin of barley.

Using breeding methods, it is necessary to correctly select the initial sources to create early, productive, resistant to lodging and disease varieties of barley.

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Results and discussions.

Creation of early and fruitful varieties of barley is one of the important tasks facing the breeders. The duration of the plant growth period is determined by the variability of the variety and also depends on the growing conditions.

In order to create varieties of early, productive and resistant barley, it is important to study the World collection, to analyze the samples of the collection newly brought from the centers of origin of barley.

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Picture. Barley nursery on the experimental field.

Using breeding methods, it is necessary to correctly select the initial sources to create early, productive, resistant to lodging and disease varieties of barley.

As a result of research:

- the gradation of early ripening of barley variety samples was as follows: germination-heading was determined as very early 157-160 days, early 161-164, mid-early 165-168 days, mid-late 169-172 days, late 173-177 days.

Samples with early indications: INBYT-HI-13, 15, 35, 491stGSBSN-7, 10, 11, 12; IBON-HI-1, 6, 23, 24; IBON-W-11, 15, 21; 3rdGSBYT-4, 6

- varieties of Kondrat, Temur, Mirzachol, Bolgali, Khanaqokh, Ikhtiyor, NM-55, NM-79 with first-degree brown spotting (helmintosporiosis), rhynchosporiosis, powdery mildew, striped spotting, and net spotting disease of barley 10 -50% morbidity was noted.

- was evaluated with average (51-70%), very high (over 90%) indicators of winter resistance. Kondrat, Novosadsky 520, Kyzilkurgan, Mezon, Mirzachol, Ikhtiyor, NM-53, NM-93, Mavlono varieties (71-90%) (±10%) had a high level of winter hardiness.

-classification of samples according to plant height as below average (71-80 cm), medium height (81-95 cm), above average (96-110 cm), tall (111-125 cm) and very tall (126-140 cm) according to, it was rated with high (7 points) and very high (9 points) endurance with the characteristic of resistance to lying down. Resistant to lying down 1stGSBSN-17, 20, 28, 36, 44; IBON-W-11, 15, 21; IBON-HI-1, 6, 23, 24, 25; INBYT-HI-13, 15, 35, 49; 3rdGSBYT-2, 4, 6, 27, 32,127 samples were identified.

The number of grains in the ear is important in selection for productivity and is the main factor for obtaining a high yield.

K-561063, Mirzachol, K-22845, Temur, K-92320 variety samples according to the number of grains in the ear, grain weight in the ear K-561063, Mirzachol, K-22845, K-92320 variety samples, K-22845, Ikhtiyor according to the weight of 1000 grains , samples with a high index such as K-19985 are considered valuable starting material.

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In the studied samples, the mass of grain obtained from 1m2 area was from 478 to 633 grams. High grain mass was observed in samples of varieties Mirzachol (610 g), K-22845 (618 g), K-19985 (625 g), Temur (614 g), K-566244 (633 g). received.

Conclusion. As a result of the research, during the study of the collection variety samples with a higher index compared to the standard Ikhtiyor variety were selected as a initial source for selection in the creation of productive barley varieties and recommended to be used as a initial materials for use in barley selection.

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