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PHENOLOGICAL OBSERVATIONS OF BARLEY VARIETIES

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Abstract:

In this article, the influence and dependence of external environmental factors on the germination, tillering, tuber, earing and ripening phases of the first and second tyle families of barley varieties are presented.

Keywords: barley, germination, tillering, tuber, spike, heat, drought

When increasing the productivity of agricultural crops, attention is paid first to the quality of the seeds sown. It is known from the achievements of science and the experiences of advanced production that modern, properly organized seed production increases crop yield by 25-30 percent. At the same time, the productivity of crops depends on the level of technology used, as well as on the correct selection of varieties. The additional yield produced by planting quality seeds is obtained at no cost and provides great economic benefits. Due to long-term use in production, the yield index of varieties decreases. Therefore, under the leadership of breeders in scientific institutions, seeds are updated, multiplied and replaced with the best seeds.

According to most scientists, in order to carry out seed breeding work correctly, it is necessary to pay attention to the biological and variability characteristics of the cultivated varieties, as well as some factors that affect their variability during their use in production [1].

According to the results of the conducted phenological observations, the beginning of the earing phase was observed in Chimkurgan and Qamashi varieties of barley on March 19-21, and the transition to the full earing phase was recorded on March 23-25. In the Asian variety of barley, the beginning of the earing phase was recorded on March 25 and the full earing phase was recorded on March 29.

Table 1

Results of phenological observation of plants of barley cultivars planted in the first-year family trial nursery.

№	New name	The number of planted families	Coming out	Tuplas	Naichalash	Branching out
1	Oasis	500	04.окт	08.дек	19-22.фев	24-27.март
2	Sultan	500	04.окт	08.дек	18-22.фев	22-25.март
3	Kamashi	500	04.окт	08.дек	19-22.фев	21-25.март
4	Chimkurgan	500	04.окт	08.дек	17-21.фев	19-23.март
5	Asia	500	04.окт	08.дек	18-21.фев	25-29.март

As a result of the planting of the seeds of the varieties, as the year goes by, the seeds of other varieties are mechanically mixed with the seeds of other crops that are difficult to separate. Biological mixing occurs as a result of the variety itself changing some signs and characteristics under the influence of the external environment. It is achieved by planting selected high-quality seeds of the same variety in order to prevent the quality of the seeds from decreasing. This process is called seed replacement (sortobnovlenie) [2].

According to the results of the phenological observations of the families of varieties planted in the second year family trial nursery, it was noted that the Chimkurgan and Qamashi varieties of barley entered the earing phase on March 14-16 and the Asian variety on March 15-19.

Table 2

Results of phenological observation of plants of barley cultivars planted in the family trial nursery in the second year.

№	New name	The number of planted families	Coming out	Tuplas	Naichalash	Branching out

1	Oasis	500	04.окт	08.дек	19-22.фев	6-9.апр
2	Sultan	500	04.окт	08.дек	18-22.фев	5-8. апр
3	Kamashi	500	04.окт	08.дек	19-22.фев	24-27.март
4	Chimkurgan	500	04.окт	08.дек	17-21.фев	20-23.март
5	Asia	500	04.окт	08.дек	18-21.фев	25-28.март

Phenological observations were made on each variety in the trial nursery of the first-year families planted in the Guzor experimental plot of the institute for barley varieties in May at the National Genebank of Plants, Laboratory of Seed Production and Seed Science.

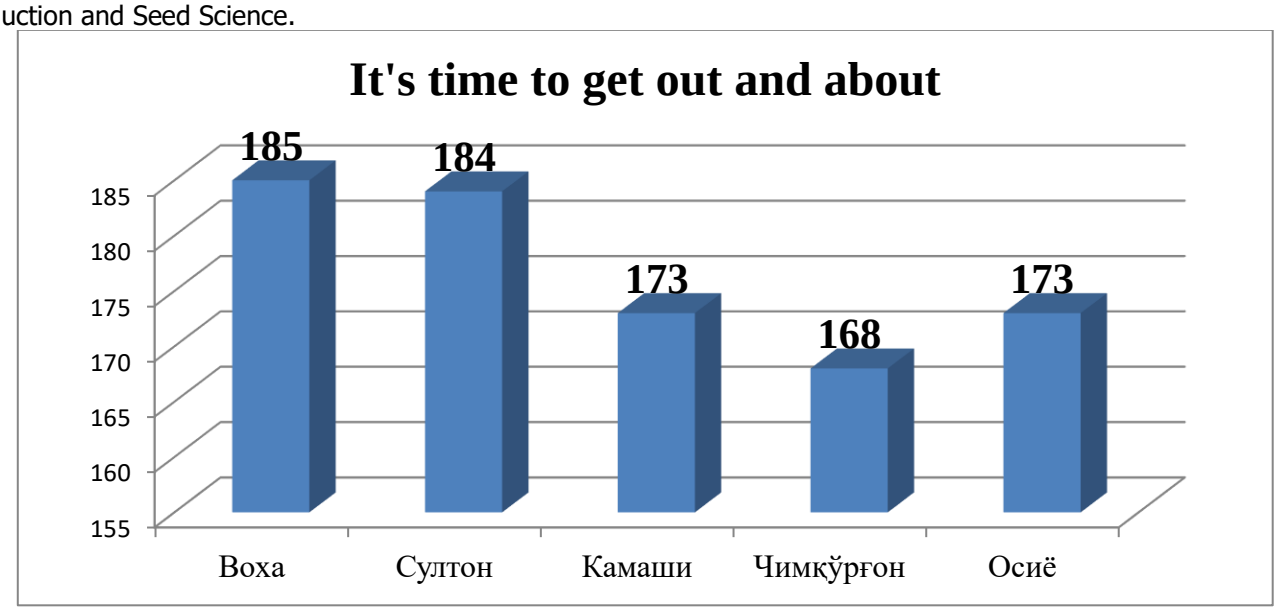

Figure 1: Germination-heading period of barley varieties, day (vs. 2022-2023).

The effect of environmental factors on the transition of plant phenophases is immeasurable. Sufficient or above-average moisture during the budding phase of germination, and low temperatures will prolong this phase. If the air temperature is low, the spike phase in plants is delayed, on the contrary, if the air temperature is high, it accelerates. Prolongation of the budding phase in plants is a positive situation, in which the budding coefficient is high, side branches increase. Especially in the process of flowering and grain formation in plants, air temperature and humidity are very sensitive. High precipitation and low temperature lead to prolongation of the flowering phase and, as a result, the pollination of spikes is not complete, the number of grains or productivity decreases [3].

According to the results of the conducted phenological observations, the ripening phase of the varieties planted in the family trial nursery of the first year was recorded on May 18 in the Chimkurgon variety, May 21 in the Qamashi variety, May 23 in the Asian variety, and May 25 in the Sultan variety. According to the results of the observations on the families planted in the trial nursery of the second year, it was noted that the full ripening of the barley varieties ripened two days earlier, in accordance with the above.

Table 3

The results of phenological observation of plants of barley cultivars planted in the family trial nursery in the first year.

№	New name	The number of planted families	Sut write	Bake the wax	Fully cooked	Number of families found invalid
1	Oasis	500	24. apr	11. May	24. May	4
2	Sultan	500	24. apr	09. May	18. May	3
3	Kamashi	500	20. apr	07. May	21. May	6
4	Chimkurgan	500	16. apr	05 May	25. May	6
5	Asia	500	22 apr	09. May	23. May	5

The southern regions of our republic have a moderate climate for growing early and mid-early wheat varieties. In the climatic conditions of this region, early and mid-ripening varieties have normal grain formation, while in late-ripening varieties, due to the high temperature during grain formation, the grains are destroyed, as a result, the yield is reduced [4].

According to the results of the assessment carried out in the phases of earing and wax ripening of plants, 4 families of barley from the Voxa variety, 3 from the Sultan variety, 6 from the Qamashi variety, 6 from the Chimkurgon variety, and 5 from the Asian variety were found to be unsuitable and were harvested in the field.

For the harvest of 2023, 500-1000 spikes were selected by individual selection to form the primary seed system of fall soft wheat varieties, spring soft wheat and durum wheat, and barley varieties that were created in the institute and included in the state register and were considered promising and prepared for evaluation in laboratory conditions. .

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