

**INHERITANCE OF QUALITATIVE INDICATORS OF GRAIN IN HYBRIDS OF
CONVENTIONAL WHEAT**

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Summary: *This article examines the qualitative diversity of spring soft wheat hybrids, ancient landraces. According to the results of the study, in hybrid ridges of local varieties of spring soft wheat such as Kayraktash, Ok marvarid, Kayraktash and Khupar, protein in the grain, the amount of gluten in it, the quality and inherited types of gluten, and indicators of sedimentation were identified. Looking at this, when the signs change from F1 to F2, heterosis decreases, and the degree of depression increases.*

Key words: *wheat, variety, genetic analysis, grain quality indicators, generation, heredity, dominance, depression.*

Wheat is the most important food crop in the world grain economy. By their nature, grain and its products form the basis of the life of the world's population. It is important to use old soft wheat varieties and succeed in breeding from them to create adaptive, productive and quality wheat varieties. When analyzing breeding achievements, the quality indicators of grain in the 20th century, the moment of the rediscovery of Mendelian laws, hybridization became one of the first signs to be studied. Studies conducted on this subject, including Demonstrated the genetic control of the physical properties of Worzella gluten. The author noted that this trait is controlled by several genes [4].

Studies by Berkutova and co-authors on the quality of wheat grain show that wheat varieties of Ancient Greece and Rome can be used as a starting material to improve the quality of soft wheat grain [1].

E.V. Morozova with co-authors presented the results of the analysis of collection samples of common wheat. According to the authors, it was noted that the indicators of gluten, dough tension and elongation of ancient wheat varieties grown in the first half of the 20th century showed the highest level during the 20th century compared to modern varieties [3].

According to the results of studies conducted by E.D. Kazakov et al. in terms of the amount of gluten, its amount in grain depends on growing conditions by 70%, and its quality by 70% depends on the genetic characteristics of the variety and 30% depends on environmental and other factors [2]. Similarly, in other studies, the indicator "value of deviation" is important in assessing the quality of wheat grain. This feature reflects the activity of α -amylase in the grain (in it) and is considered the international standard for grain quality [1].



Results of the study: Based on the climatic conditions during the study, it is possible to fully and reliably study and evaluate the genetic material, which allows you to achieve your goal. As can be seen from the data in the table, there was a high heterosis in terms of the amount of protein in the grain of the F1 generation and the amount of gluten in the flour. As a result of the research, it was found that speed heterosis in various hybrids is observed as a result of crossing varieties of the same ecotype [5].

For example, the effect of heterosis was found in the hybrid combinations Khupar x Kayroktash, Kayroktash x Vatan, whose parental specimens belong to the mountain ecotype. Such heritability was observed in the content of protein and gluten in F1 hybrids obtained by crossing varieties belonging to the highland and steppe ecotypes, examples of which are the hybrid combinations of Hupar x Kayroktash, Hupar x Ok Marvarid. According to the data presented, it can be assumed that when F2 hybrids were isolated, the number of combinations with intermediate heredity increased sharply both in terms of the amount of protein in the grain and gluten in the flour. Studies in F2 combinations found that the frequency of weak dominance and depression is more important in terms of protein content in grains and gluten content in flour. Weak and oppressed inheritance of these traits in the studied hybrid combinations is of no practical importance in wheat breeding.

Based on the study of the type of inheritance of grain quality in hybrid combinations of spring wheat, it was noted that the manifestation of heterosis in gluten quality is very rare. In our studies, heterosis by this indicator was manifested only in 5.8% of the studied F1 hybrids, while the frequency of its manifestation in F2 hybrids was low - 5.4%. At the same time, it was found that the frequency of manifestation of a weak dominant and depressive state is more important in terms of the characteristics of the protein content in grain and flour gluten in various hybrid combinations. Undoubtedly, hybrid combinations with weak and depressive types of inheritance of grain quality have no practical value in the cultivation of wheat. The results of the research showed that the number of hybrids with heterosis according to the sedimentation index in the studied material is small. At the same time, the manifestation of the effect of heterosis in F1 hybrids was noted only in 10.9% of the studied combinations, while in F2 hybrids this indicator was observed in 9.1% of hybrid combinations. In the totality of the studied hybrid combinations in terms of gluten quality and the sedimentation index of spring soft wheat, combinations with intermediate inheritance of these traits occupied the main place.

In the course of genetic studies, we found that negative dominance and depression manifest themselves with a high frequency in the set of studied hybrids (F1–F2) of spring soft wheat. At the same time, it should be noted that depressive hybrid populations have no other prospects for use in practical breeding, although among hybrid combinations with a weak dominant type there are genotypes with significantly higher values of gluten quality and sedimentation, which can be used as starting material for selection breeding.



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