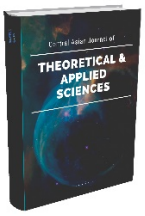

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Creation of Quick-Ripening Varieties Based on Comparative Analysis of different Irrigation Systems in Saline and Non-Saline Soil Climatic Conditions

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Abstract: *In the article, "Germination and 50% flowering" characteristics of high-generation hybrids and families created on the basis of backcross hybridization were studied under optimal and water deficit conditions. Also, the stabilization and formation of the main valuable agricultural traits in high-generation hybrids and families were comparatively analyzed.*

Keywords: *selection, genetics, starting material, hybridization, rapid ripening, salinity, backcross.*

INTRODUCTION

Today, in the world, the creation of agricultural crops resistant to biotic and abiotic factors, especially cotton varieties, is one of the main directions of plant genetics and selection. In the selection of agricultural crops, the creation of cotton varieties that are resistant to soil salinity, drought, have valuable economic characteristics, high technological quality indicators of fiber, productive and fast-ripening varieties depends to a large extent on the selected breeding methods and the genotype of the starting materials.

There is an increasing demand for the creation of varieties with stable genetic characteristics and quality indicators that meet production requirements using hybridization methods of selection in the cotton selection.

Due to the fact that our country is located in the northern region among the cotton-growing countries, it is necessary to carry out a number of researches in terms of speed. B. P. Straumal, one of the scientists who conducted research in this regard, notes that when two varieties that are close to each other in terms of early maturity are crossed, a phenomenon of heterosis occurs in the first generation according to the sign

of early maturity. If the parent varieties are significantly different from each other for this character, then this character is inherited intermittently in the F1 generation [4; p. 214].

S.M. Mirakhrakhmedov [3; 54-90-p.] revealed a negative connection between early ripening and water resistance. To create rapid ripening varieties, it is stated that G. *ssp. Mexicanum* crossbreed with S-4727 variety, its F3 generation should be re-crossed (backcrossed) with S-4727 variety.

According to the experiments of B. Togaev and B. Khalmanov, in the drought conditions of the year, the seeds partially germinated in the mother plant, and in water stress conditions, their germination increased by 11% compared to the seeds of the optimal year, and in the year with a very high water deficit, the germination of the seeds of such varieties was more than 24%. [1; p. 7].

Rapid ripening is considered to be one of the main complex polygenic traits, and continuous research should be conducted in this regard.

According to A.I.Seidmusaev, A.I.Tishin, the heredity coefficient for precocity decreases with the age of hybrids. According to them, precociousness with yield is a complex genetic trait, which mainly depends on weather, soil climatic conditions, and they emphasize that precociousness is more beneficial in selection than productivity. Accordingly, research has paid special attention to this sign.

In our research, the character index of "Germination and 50% flowering" of high-generation hybrids and families created on the basis of backcross hybridization were studied under optimal (1-2-1) and water deficit (0-1-0 scheme) conditions. Also, the stabilization and formation of the main valuable agricultural traits in high-generation hybrids and families was comparatively analyzed. The main attention was paid to the phenological uniformity of the ridges, which is important for practical usage, and their analysis.

According to the results of the study, when high-generation double and complex backcross combinations according to the indicator of "Germination and 50% flowering" were studied comparatively under optimal (1-2-1) and water deficit (0-1-0) conditions, the O-95-96 combination based on simple backcross hybridization was 61.0 days in both irrigation systems, respectively, in the families separated by this indicator, 60.0-62 days in the optimal irrigation system, 61.0 days in the T-14-16/14 ridge, 63.0, 61.1 days in the model S-6524 and An-Boyovut-2 varieties, respectively, some differences were observed between the indicators in conditions of optimal irrigation (1-2-1) and water deficit (0-1-0) in saline soil conditions (Fig. 1 and see Appendix 00).

That is, in the optimal irrigation system (1-2-1), the flowering period of 50% of the pods in the families selected as a result of the research is 60.2-63.0 days on average, and 62.6 days in the T-14-16/14 ridge, in S-6524 and An-Boyovut-2 varieties, which were used as model varieties, this indicator was 65.2 and 62.1 days. Although almost no differences were observed in non-saline soil conditions of families, ridges and model varieties in terms of these characteristics, some differences in characteristics were observed between saline soil climatic conditions, optimal (1-2-1) and water deficit (0-1-0) conditions. That is, among the families, the flowering of 50% of the pods was 109-113 days under optimal conditions, and 109-115.1 days under water shortage conditions.

Figure 1. Indicators of 50% of families by the period of flowering of pods in salinity and non-saline soil conditions

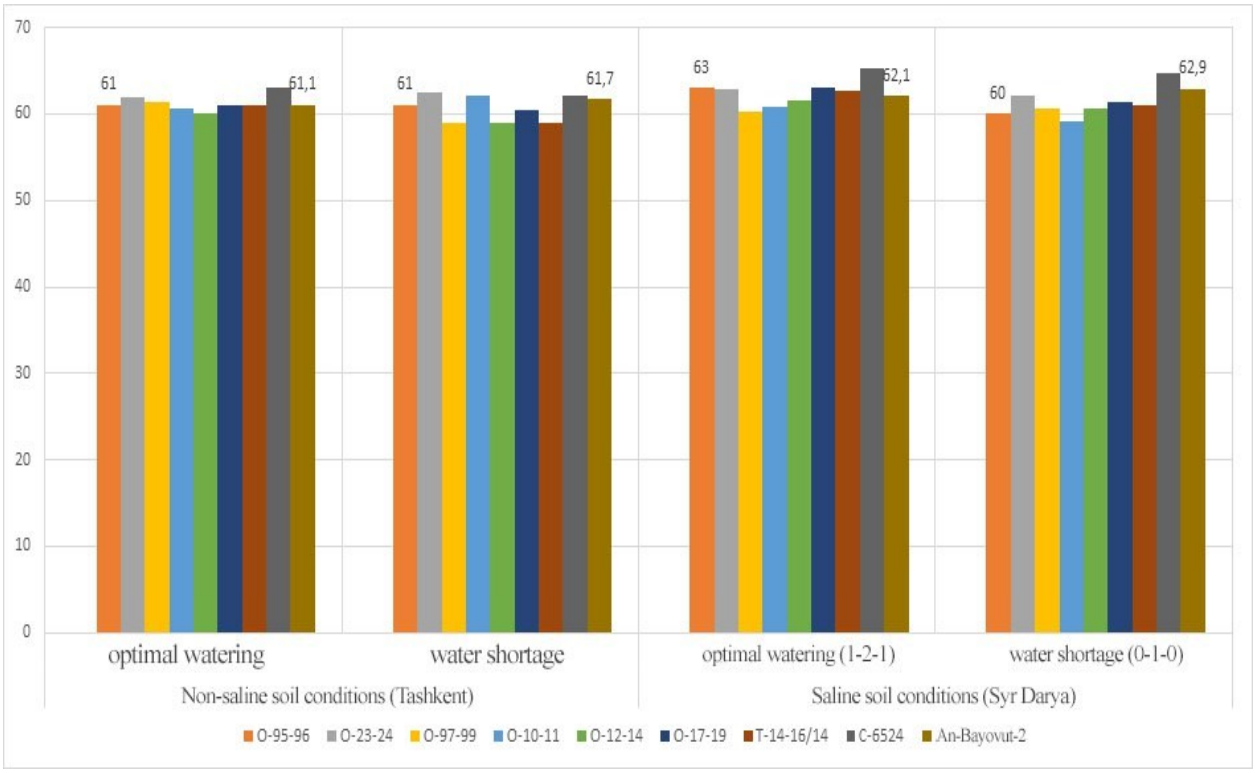
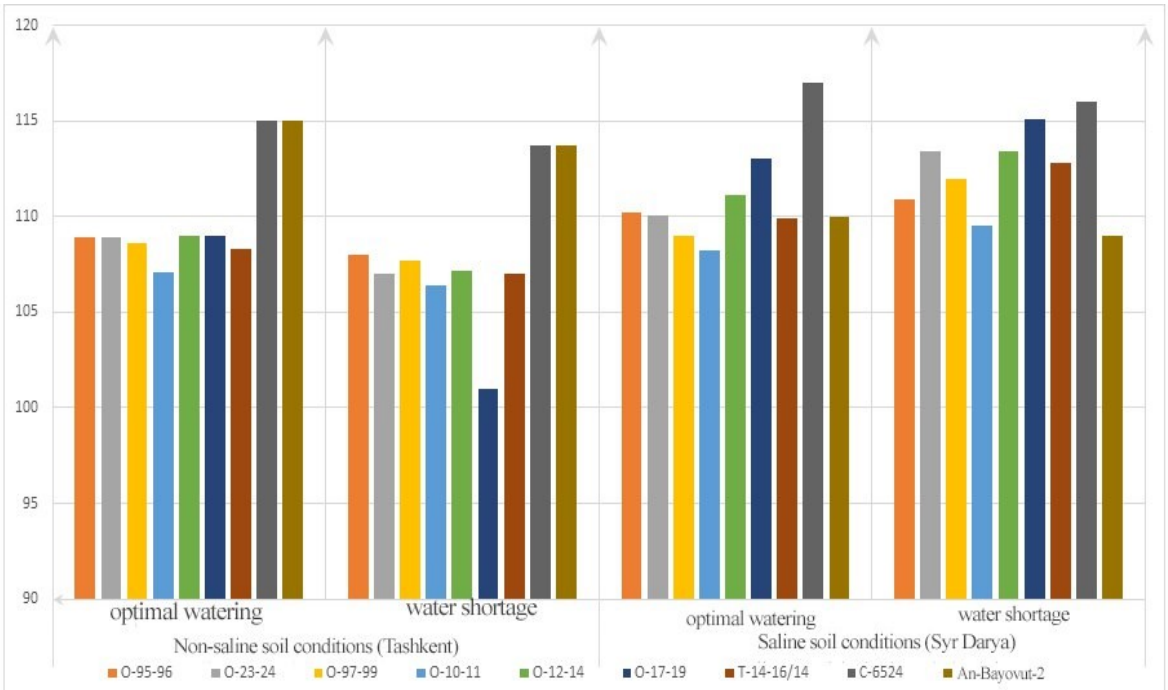


Figure 2. 50% boll opening performance of cotton families under saline and non-saline soil conditions



It was revealed that the rapidness was displayed at the data received on "Germination and 50% flowering" of especially these families and ridges (Figure 1), under non-saline soil conditions, in the optimal irrigation (1-2-1) system, the opening of 50% of the pods in families takes an average of 107-109 days, and in the conditions of water shortage (0-1-0), the pods are opened in an average of 101-108 days, saline soil climatic conditions, in the optimal irrigation (1-2-1) system, the opening of pods was 108-113 days on average in families, and in the conditions of water shortage (0-1-0) it was 109-115. According to the indicator of this sign, it was recorded that in the model S-6524 and An-Boyovut-2 varieties, the non-saline soil climate conditions, it took 113-115 days in the optimal irrigation system, and 109-117 days in the saline soil climate conditions, it opened 3-5 days later compared to the studied families, 2-6 days later compared to non-saline and saline soil climatic conditions. If under non-saline soil climatic conditions, the O-10-11 family and the T-14-16/14 ridge in 7 days in the optimal irrigation system, in saline soil conditions, in the optimal irrigation system, this family has 108 days and in the ridge 109 days, and in the varieties that participated as a model variety, these indicators were 115, 113, 117 and 116 days, respectively, and it was observed that the opening of the pods was 6-9 days later than the ridge. According to the results of the research, it was observed that all the families separated by this character were at or above the model variety level. It was recorded that the T-14-16/14 ridge was formed in relation to the genotype, and it bloomed 2 days earlier than the model S-6524 and An-Boyovut-2 varieties in terms of the period from germination to 50% flowering and from germination to 50% ripening, and ripened 6, 9 days earlier.

Conclusion*: It is desirable to use the O-17-19 family and the T-14-16/14 range isolated from complex hybrids in the process of practical selection to improve the character in conditions of optimal irrigation system and water shortage (0-1-0) from among the families isolated as a result of studies on rapid ripening.*

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