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EVALUATION AND SELECTION OF F_3-F_4 TOMATO HYBRIDS COMPARISON WITH THE PARENTAL FORMS, FOR THE PURPOSE OF HIGHLIGHTING GENETIC VARIABILITY

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The genetic variability of quantitative characters that manifests itself through morphological uniformity makes it possible to use them widely in genetic research, as well as in breeding programs to obtain new tomato varieties and hybrids with a higher level of manifestation of characters useful for the breeding process with productivity, quality and resistance to climate factors. Hybrid offspring possess a potential for variability of traits capable of proportionally expanding the determined genetic pool of quantitative and qualitative characters.

Research goal: Integration of tomato genotypes based on a complex of valuable useful characters: productivity, precocity, fruit quality, resistance to extreme climate factors, identification and selection of the best forms with valuable biological and agronomic characteristics.

The scientific research was carried out in the laboratory "Genetics of Plant Resistance" and on the experimental lot of IGFPP. As the initial biological plant material in the study, the forms P_1, P_2, 10 hybrid combinations F_3 and 15 hybrid combinations F_4, obtained on the basis of inter-hybridization and *in vitro* culture, were used. For comparative research, 21 parental forms and standard varieties were cultivated

Complex evaluation of hybrid combinations of variability and heredity based on valuable characters to be researched in determining general combinative capacity and special combinative capacity, the correlation between productivity, fruit quality and plant resistance to extreme climate factors. It is clear that the creation of such a gene pool is closely related to research in quantitative genetics, the study of variability, heredity and genetic determinism of economically valuable characters for the breeding process. The results of the investigations showed a positive correlation r=0.73 between the periods of seedling emergence-flowering and flowering-ripening.

This allows us to predict the duration of the flowering-ripening interphase and the beginning of mass ripening of early precocious genotypes. The interphase periods also correlate positively with the duration of the fruiting period r=0.69 - 0.72. In general, the duration of the growing season of each genotype largely depends on the duration of each phenological phase or the parameters of the interphase periods.

Practically at the flowering - fruiting - ripening interphases, all F_3 and F_4 hybrid combinations emerged earlier compared to some paternal and maternal parental forms. Of particular importance in the process of improving tomato plants is the study of the inheritance of quantitative characters, because such measurable characters largely determine the elements of precocity, productivity and quality of plants. As a result of research investigated in field conditions 8, F_3 and F_4 hybrid combinations were selected from 25 hybrid combinations.

The degree of fruit setting on the first three inflorescences showed maximum values only in two hybrid combinations $F_3$164 and $F_3$390. The other combinations were at the same level or lower than the parental forms. The fruit yield in the hybrid combinations ranged from 51-57t/ha, in the parental forms 41-54t/ha. The quality of the fruits was much lower than in previous years.

Keywords: Hybrid combinations, variability, parental forms, resistance to climate conditions.

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