

Heterothic Effect of Some Quantitative Traits in F1 Diallel Hybrids of Various Tobacco Types

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Abstract : The mode of inheritance and heterotic effect were studied in ten F1 crosses obtained by one-way diallel crossing between five parental genotypes: MV-1, P 76/86, Adiyaman, Basma-Djebel, and P 66 9 7. The following quantitative traits were studied: the number of leaves per stalk, length of leaves from the middle belt of the stalk, and yield of green leaf mass per stalk and per hectare. The trial was set up in the experimental field of Scientific Tobacco Institute - Prilep, using a randomized block design with four replications in the period 2018-2019. Traditional cultural practices were applied during the growing season of tobacco in the field. The aim of this work was to study the mode of inheritance of the quantitative traits, to detect heterosis in the F1 generation, and to assess its economic viability. Analysis of variance determined statistically significant differences in traits between parents and their hybrids in the two-year investigation. The most common way of trait inheritance is partial-dominant, then intermediate. The negative heterotic effect on the number of leaves per stalk has P 76/86 x P 66 9 7. The hybrids MV-1 x Adiyaman, P 76/86 x Basma-Djebel, P 76/86 x P 66 9 7, and Basma-Djebel x P 66 9 7 have a positive heterotic effect on the length of the leaves. Oriental hybrids, where one of the parents is variety P 66 9 7, have positive heterosis in the yield of green leaf mass per stalk. The investigation provides very useful guidance for future successive selection activities.

Keywords : dominance, heterosis, inheritance, tobacco.

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