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DONORS OF FAVOURABLE ALLELES FOR THE IMPROVEMENT OF THE EAR LENGTH IN MAIZE HYBRIDS

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Inbred lines derived through different cycles of recurrent selection of the synthetic populations BSSS and BSCB₁ were studied. The aim of the study was to evaluate which of observed inbreds had the highest relative values of favourable alleles for the improvement of the elite hybrid. The maximum μG^* allele values were detected in the inbreds B97(C₉) and B99(C₁₀) originating from the populations BSCB₁ and B14(C₀) and B37(C₀) originating from the population BSSS. The observed inbreds derived from the synthetic BSCB₁ were more related to the parental inbred ZPL1, while those originated from BSSS were more related to the parental inbred ZPL2. The significant differences between μG^* and μD^* were not established in the inbred lines B97(C₉) and B99(C₁₀), hence the initial population for selection was derived by direct self-pollination of F₁ generation developed from the crosses of B99 × ZPL1 and B97 × ZPL1. The inbred B37(C₀) was more related to the parental inbred ZPL₂ and in that case direct self-pollination could be performed from the cross B37 × ZPL₂. Not only the μG^* values were high in inbred lines B14(C₀), B37(C₅), B84(C₇) and B91(C₈), but also differences between numbers of favourable dominant and unfavourable recessive alleles were significant. In this case, in order to develop the initial population, backcross of the F₁ generation (ZPL1 × Donor) × ZPL1 is recommended for inbreds B84(C₇) and B91(C₈), while backcross (ZPL2 × Donor) × ZPL2 is recommended for inbreds B14(C₀) and B73(C₅).

Keywords: *inbred lines, recurrent selection, Zea mays L.*