COMPARISON BETWEEN SELECTION AND REML/BLUP INDICES FOR THE PREDICTION OF GENETIC GAINS IN MAIZE HALF-SIBLINGS PROGENIES

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RESUMO

The objective of this work was to compare three selection indexes and the REML/Blup method in the prediction of genetic gains and selection in 196 progenies of half-siblings of maize. The experiment was conducted in the second crop of 2020 in the experimental area of the Federal University of Goiás, Jataí (GO), in a 14 x 14 triple lattice design. The evaluated traits were male and female flowering (days), plant height (m), ear height (m), average number of ears, diameter and average ear length (cm), ear weight (kg.ha-1), grain yield (kg.ha-1) and inbreeding depression (kg. ha-1). Simultaneous selection for the characters was performed using the indexes: base (IB), classic (ISH) by Smith and Hazel and the sum of stations (IMM) by Mulamba & Mock. Weight 2 was established for grain yield, 1 for inbreeding depression and 0 for the other traits. The blups were estimated for grain yield. The selection intensity was 20%. ISH had a total GS (%) of grain yield and depression due to inbreeding of 13.99; 8.59 and -11.00, respectively. In other words, it selected families with high productivity, low depression due to inbreeding and high GS considering all the characters simultaneously. The total GS (%) of yield and depression due to inbreeding for IB was 17.76; 10.21 and -7.46, respectively. For IMM these values were 4.66; 9.63 and -17.79. Therefore, IB selected productive progenies, but that will be harmed by inbreeding depression; and IMM considers little the gain gained in all characteristics simultaneously. The REML/Blup method showed an average predicted gain of 650 kg.ha-1 (11.00%). The IB, ISH and IMM coincided with BLUPs of 0.7631, 0.5789 and 0.6315. Thus, the REML/Blup method showed greater predicted genetic gain, being more efficient when compared to the selection indexes.

PALAVRAS-CHAVE: Mixed models, Recurring selection, Simultaneous selection

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