Backcross assisted by microsatellite markers in common bean

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ABSTRACT. The objectives of the present study were to monitor the effect of backcrossing through microsatellite markers and to compare different marker assisted selection strategies. Four populations were developed using donor parents resistant to the bean golden mosaic virus and, for all crosses, only individuals resistant to the bean golden mosaic virus were backcrossed. For crosses ARC100-4 x DOR303 and ARC100-4 x PHAS8328, assisted selection was carried out in the F_2 and F_2BC_1 generations, while in the remaining crosses selection was performed only in the F_2BC_1 generation. For the microsatellite analysis, in each generation, 20 markers were genotyped. The molecular data were analyzed using the NTSys program and the proportion of the recurrent genome introgressed was estimated, based on genotypical configuration of the segregant populations compared to the recurrent parents. The results indicate a higher efficiency in recovering the genotype of the elite genitor through the strategy of backcross assisted selection in the successive generations, and demonstrate a practical and useful application of molecular marker

technology associated with bean breeding, to reduce the number of backcrosses and the time to recover the genome of the recurrent genitors.

Key words: Assisted backcross; Molecular markers; Genetic breeding; *Phaseolus vulgaris*