



# Proposal of a super trait for the optimum selection of popcorn progenies based on path analysis

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**ABSTRACT.** A challenge faced by popcorn breeding programs is the existence of a negative correlation between the two main traits, popping expansion and yield, which hinders simultaneous gains. The objective of this study was to investigate the use of a new variable or super trait, which favors the reliable selection of superior progenies. The super trait ‘expanded popcorn volume per hectare’ was introduced in the evaluation of 200 full-sib families of the eighth recurrent intrapopulation selection cycle, which were arranged in randomized blocks with three replicates in two environments. Although the inability

to obtain simultaneous gains through selection via popping expansion or yield was confirmed, the super trait was positively associated with both yield and popping expansion, allowing simultaneous gains via indirect selection using 'expanded popcorn volume per hectare' as the main trait. This approach is recommended because this super trait can be used in breeding programs to optimize selective gains for the crop.

**Key words:** Popping expansion; Grain yield; Selection index; *Zea mays*