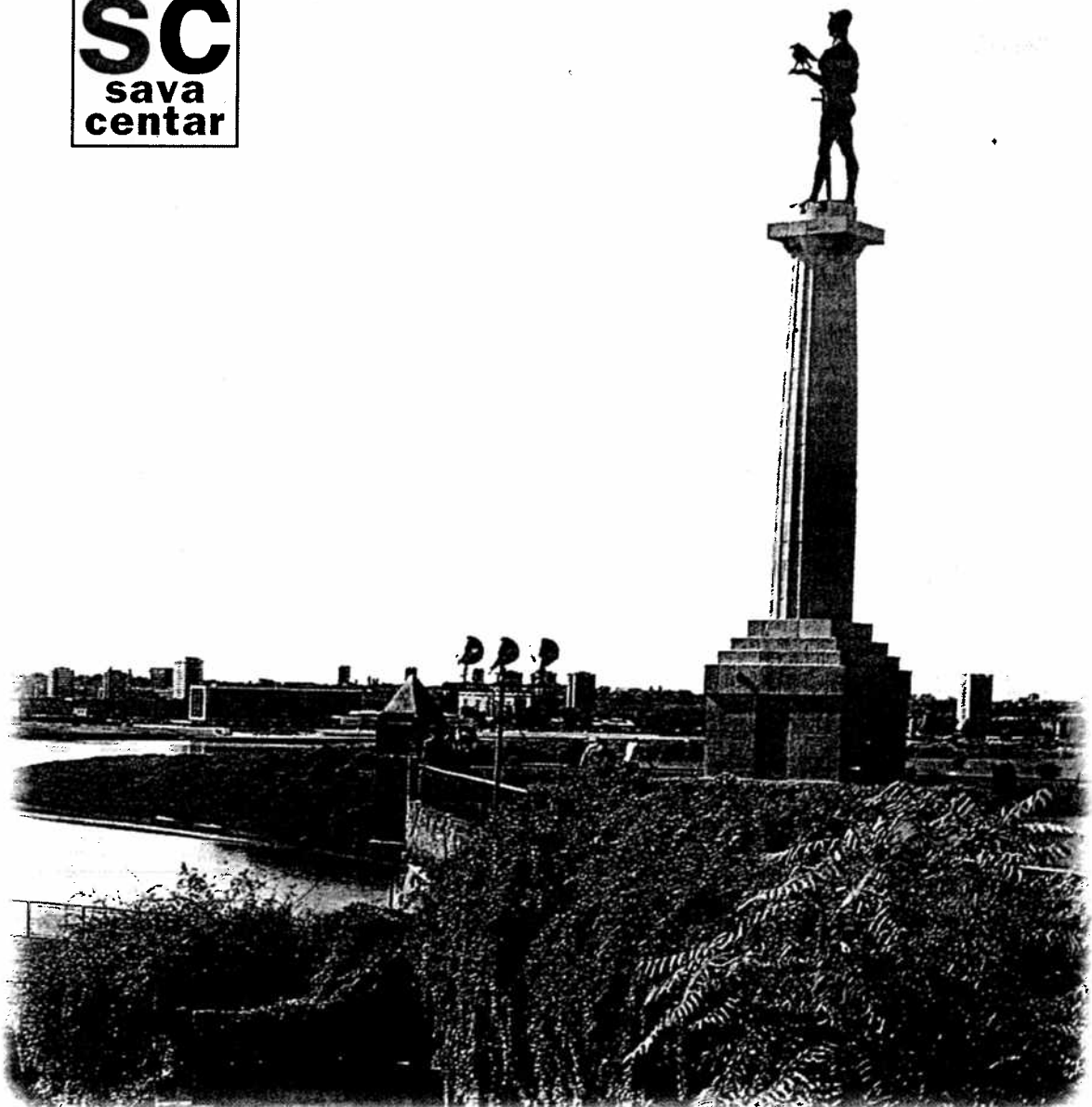


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## **COMBINING ABILITY OF B73 WITH 5 GENERATIONS OF SELECTION FOR STEM THICKNESS IN THE LANCASTER VARIETY OF MAIZE**

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By intercrossing 5% of the plants with the widest diameter in the first elongated internode of the stalk, out of 1500 plants, five generations of selection were obtained in the Lancaster variety. These five generations plus the original Lancaster variety ( $G_0$  to  $G_5$ ), were crossed with the B73 inbred line. The six hybrid populations were tested in a three-location one-year random block (six blocks) design for forage yield and also for ripe ear production. All the materials were harvested at the same date for each location; both for forage and later for ripe ear yield, as maturity ranges were similar. The ANOVA of all traits were significant ( $P < 0.005$ ) excepting moisture content in the ear for ripe ear production. The traits: diameter of the stalk, ear height and total height, number of internodes, stover moisture content and stover yield increased gradually as the number of generations of selection increased. For the ear yield trait (both for forage and for ripe ear production), the first generation of selection ( $G_1$ ) was significantly higher ( $P < 0.05$ ) than  $G_0$ , but from that generation ( $G_1$ ) on, no significant improvement was detected for this trait. These results were wholly in agreement with those from the same six Lancaster populations studied "per se" considering the same traits and using the same experimental design. Nevertheless, in the present study, the differences among generations of selection were smaller in all the traits because of the common parent B73 inbred line involved in all the hybrid populations.