REGISTRATION OF PA778 AND PA860 PARENTAL LINES OF MAIZE

PA 778 (Reg. no. PL-162, PI 560081) and PA860 (Reg. no. PL-163, PI 560082) are yellow dent maize (Zea mays L.) inbreds developed at the Pennsylvania State University Agricultural Experiment Station. They were released in November 1991.

PA778 is an AES700 maturity line that was developed by crossing C103 to a source of the Ht_2 gene. This F_1 was then crossed to a C103 outcross that had good resistance to northern leaf blight (NLB) caused by Exserohilum turcicum (Pass.) K.J. Leonard & E.G. Suggs and excellent stalk strength. The combination was then backcrossed to a C103 derivative with the Ht_1 gene. After selfing and selection in an ear-to-row manner for five generations, the line was evaluated first in a topcross test and then in several single cross combinations for grain yield, grain moisture, stalk strength, and disease reaction.

PA778 is shorter than C103, attaining a height of about 130 to 140 cm, with ear placement at 65 to 70 cm. The plant produces a medium-green, spreading leaf and a medium-sized, spreading tassel. It is similar to C103 in grain yield and kernel type. The ears have about 14 rows of medium-yellow dent kernels. The line silks 3 to 6 d earlier than C103 or Mo17. It has demonstrated good stalk strength as an inbred per se and in various crosses. In our tests, it has shown good resistance to northern leaf spot (NLS) caused by Bipolaris zeicola (G.L. Stout) Shoemaker (syn. Helminthosporium carbonum Ullstrup) race 3 and NLB.

PA778 combines well with Iowa stiff stalk derivatives, especially B14 and B37 derivatives, as well as with OH43 related lines, such as VA26 and PA762. Test performance results indicate that the line would perform best in hybrid combinations developed for the AES600 to AES800 maturity range.

PA860 is an AES800 maturity line that was developed by selfing and selection from the third cycle of backcross selection in a synthetic population made up of genotypes with 50% WF9 lineage. The line was evaluated first in a topcross test as an S_1, then in several three-way and single cross combinations for yield, grain moisture, stalk strength, and disease reaction.

PA860 is similar in maturity to B73. Under normal growing conditions, it attains a plant height of about 80 cm. The plants have a semisemispreading, branched tassel, and medium size with a spreading type pattern. The medium-size ear tends to be small, semiround with little or no denting, produced on a small ear (15 to 20 cm) of red to purple cob.

PA860 has been evaluated extensively across environments of various growing season areas (AES700 to AES900 maturity) since 1982. It combines well with Iowa stiff stalk derivatives, especially B14 and B37 derivatives, as well as with OH43 related lines, such as VA26 and PA762. Test performance results indicate that the line would perform best in hybrid combinations developed for the AES600 to AES800 maturity range.

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References and Notes


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