Registration of Parental Lines

REGISTRATION OF FIVE MAIZE PARENTAL LINES
(Reg. No. PL 43 to 47)

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FIVE yellow dent maize (Zea mays L.) inbred lines, developed in a research program conducted by the Minnesota Agric. Exp. Stn., were evaluated extensively and were released in 1975 because of their potential value in hybrid seed corn breeding programs.

A661 (Reg. No. PL 43) was developed from AS-A, a population derived from 13 Corn Belt lines, by self-pollination and selection at plant densities of approximately 35,000 plants/ha. A661 reaches 50% silk emergence 10 days earlier, is 9 cm shorter in plant height, and is equal to A632 in ear height when grown near St. Paul. A661 has intermediate leaf-feeding (“first-brood”) resistance to European corn borer [Ostrinia nubilalis (Hübner)]. A661 had high general combining ability (GCA) for grain yield and satisfactory GCA for stalk strength in single- and three-way-cross hybrid performance tests conducted in central and northern Minnesota for 3 years. Maturity classification is early AES900.

A662 (Reg. No. PL 44) was also developed from AS-A in a manner similar to that described for A661. A662 reaches 50% silk emergence 13 days earlier, is 36 cm shorter in plant height, and is 28 cm shorter in ear height than A632 when grown near St. Paul. A662 has intermediate leaf-feeding resistance to European corn borer. In single and three-way-cross hybrids tested in central and northern Minnesota over 3 years, A662 demonstrated high GCA for grain yield and satisfactory GCA for stalk strength. Maturity classification is AES200.

A663 (Reg. No. PL 45) was developed from (A427 × 'Cuzco Blanco') A427 by self-pollination and selection at moderate plant densities. Cuzco Blanco is a Peruvian variety. When grown near St. Paul, A663 reaches 50% silk emergence 6 days later than A632 and is similar to A632 in plant and ear height. A663 has intermediate leaf-feeding resistance to European corn borer. It had very high GCA for stalk strength and high GCA for grain yield in single- and three-way-cross hybrid performance tests conducted in southern Minnesota and northern Iowa. Maturity classification is AES600.

A664 (Reg. No. PL 46) was developed from (A636×A636) A636, by selection of early-flowering F2 plants grown at plant densities of approximately 35,000 plants/ha near St. Paul. A664 reaches 50% silk emergence 6 days earlier and its plants are 9 cm shorter with ears 7 cm higher than those of A632. A664 is moderately susceptible to European corn borer. Three years of single and three-way-cross hybrid performance tests in central Minnesota have shown that A664 contributes high grain yield and satisfactory stalk strength to its hybrids. Maturity classification is AES200.

A665 (Reg. No. PL 47) was developed from (A635×A635) A635. Selection procedures and plant densities used during the backcrossing and self-pollination stages were similar to those used in developing A664. When grown near St. Paul, A665 reaches 50% silk emergence 6 days earlier than A632. Ear heights of A665 are 35 and 20 cm shorter, respectively, than those of A632. A665 has intermediate leaf-feeding resistance to European corn borer, and contributed high grain yield and satisfactory stalk strength to its hybrids in 3 years of single- and three-way-cross hybrid performance tests conducted in central Minnesota. Maturity classification is AES200.

A661, A662, A663, A664, and A665 were designated as A68-2, A68-5, A70-12, A71-32, and A71-35, respectively. Breeder seed is maintained by the Minnesota Agric. Exp. Stn. Seed of the five inbreds is available from Foundation Seedstocks, Minnesota Crop Improvement Association, Univ. of Minnesota, St. Paul, MN 55108.

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