REGISTRATION OF PARENTAL LINES

REGISTRATION OF ND259 AND ND260 PARENTAL LINES OF MAIZE

ND259 and ND260 (Reg. no. PL-77 and PL-78) are yellow dent maize (Zea mays L.) inbred lines developed at the Agricultural Experiment Station, North Dakota State Univ., Fargo. These lines were evaluated for yield and agronomic performance as lines per se and in hybrid combinations. Both inbreds were released in 1986 because of their apparent potential as parents to produce early hybrids with high yields, low grain moisture at harvest, and good resistance to lodging. These inbreds are adapted to short-season areas such as central and eastern North Dakota. Breeder seedstocks are maintained by the North Dakota Agric. Exp. Stn. and can be obtained in germplasm quantities (50 kernels) from H.Z. Cross, Agronomy Dep., North Dakota State Univ., Fargo, ND 58105.

ND259 was selected from AS-D (1). The line was developed by self-pollination for eight generations with selection for desirable plant and ear traits. This inbred silks 3 days earlier than CM105 and 2 days later than ND246 at Fargo. ND259 typically produces medium tall plants with ears borne at midpoint of the stalk. Plants have long, moderately wide leaves, and medium large tassels. Long, wide ears, which are borne on medium long shanks, have 14 to 18 rows of medium deep kernels. ND259 was rated intermediate for resistance to common rust (caused by Puccinia sorghi Schu.) in North Dakota. In two independent diallel tests at several locations in eastern and central North Dakota, ND259 has demonstrated good general combining ability (GCA) for high yield, and low stalk lodging percentage. At six locations in 1985, ND259, as one parent of a 10 parent diallel, had significantly higher GCA effects for grain yield than CM105, ND246, A554, ND247, and ND256. No inbred tested had significantly better GCA effects for low stalk breakage or root lodging percentages. ND259's GCA effects for grain moisture at harvest were significantly lower than GCA effects for CM105. Maturity classification of ND259 is late AES200.

ND260 was selected from NDSB, which has been previously described (2), with eight generations of self-pollination. Its plants are of medium height with ears below the midpoint of the stalk. Plants have long and long, narrow leaves. Ears with 10 to 14 rows of medium deep kernels are borne on medium length shanks. ND260 was rated resistant to common rust in North Central Corn Breeding Research Committee (2) tests in 1985, ND260 was rated intermediate to first generation European corn borer (Ostrinia hubner), and susceptible to second generation European corn borer. Hybrids produced from ND260 were evaluated in independent diallel tests at several locations in eastern and central North Dakota. As one parent of a seven parent diallel grown at six locations in 1985, ND260 had significantly higher GCA effects for grain yield than any of the other parental lines (CM105, ND247, ND246, ND256, ND474). Its GCA effects for grain moisture at harvest were lower than GCA effects for CM105 but higher than GCA effects for ND246. ND260 had higher GCA effects for stalk lodging percentage than ND247, ND246, and CM105 but lower than GCA effects for ND256. ND260 had lower GCA effects for root lodging percentage than ND247, ND246, and CM105 but higher than GCA effects for ND256. Maturity classification of ND260 is late AES200.

References and Notes

3. Professor of agronomy, North Dakota State Univ., Fargo. Published with the approval of the director of the North Dakota Agric. Exp. Stn. as Journal Article no. 1511. Registration by the Club was accepted 30 Sept. 1986.

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