REGISTRATION OF PARENTAL LINES

REGISTRATION OF ND262, ND263, AND ND264 PARENTAL LINES OF MAIZE

ND262, ND263, AND ND264 (Reg. no. PL-116, PL-117, and PL-118) (PI 522250, PI 522251, and PI 522252) are yellow dent maize (Zea mays L.) inbred lines developed at the Agricultural Experiment Station, North Dakota State University, Fargo. ND262, ND263, and ND264 (tested as ND84-4, ND84-9, and ND84-11, respectively) were selected from NDSF(FS)C1, an improved version of NDSF. NDSF was developed by intercrossing approximately 65 inbreds, which had been selected for early maturity and prolificacy, and intermating for two generations (1). NDSF(FS)C1 was developed by one cycle of reciprocal full-sib selection with NDSB (2) as the reciprocal tester population. The S1 parents of these inbreds were selected on the basis of their full-sib family performance. ND262 and ND264 are sister lines derived from the same S3 plant, but ND262 was derived from a different S1 plant from that used to derive ND262 and ND264. All three inbreds were self-pollinated for eight generations with selection for desired plant and ear traits. These lines were evaluated for yield and agronomic performance as lines per se and in hybrid combinations. These inbreds were released in March 1988 because of their demonstrated potential to produce early hybrids with yields comparable to the best commercial check hybrids, low grain moisture at harvest, and high levels of lodging resistance. These inbreds are capable of producing hybrids adapted to short-season areas such as central and eastern North Dakota.

ND262 typically produces short plants with ears below the midpoint of the stalk. Plants have medium long, moderately wide leaves and medium sized tassels. Ears with 14 to 16 rows of medium weight kernels are borne on short shanks. ND262 has had above average grain yields in inbred evaluations, and near average ear moisture at harvest in limited testing. ND262 silks about 3 d earlier than CM105 at Fargo and is AES200 maturity in terms of the North Central Corn Breeding Research Committee (NCR-2) classification system.

ND263 produces medium height plants with ears below the midpoint of the stalk. Plants have medium long, narrow leaves and small tassels. Short slender ears with 12 to 14 rows of small, shallow kernels are borne on medium length shanks. In an inbred test ND263 had low grain yields, high ear moisture at harvest, and tended to tiller indicating that it might not make a suitable female parent for single cross hybrids. ND263 typically silks 1 d later than CM105, and also is AES200 maturity.

ND264 usually produces medium height plants with ears well below the midpoint of the stalk. Plants have medium long, wide leaves and large tassels. Ears with 14 to 18 rows of rows of medium weight kernels are borne on short shanks. ND264 had above average grain yields in inbred evaluations, and near average ear moisture at harvest, and high levels of lodging resistance. These inbreds are capable of producing hybrids adapted to short-season areas such as central and eastern North Dakota.

Estimates of general combining ability (GCA) over environments in 1987 indicated that ND262, ND263, and ND264 each had significantly better GCA effects for grain yield than ND240, ND246, ND257, and ND259. These inbreds had better than average GCA effects for stalk lodging resistance. ND263 had significantly better GCA effects for low grain moisture at harvest than all inbreds except ND257, while only CM105 had better GCA effects for root lodging resistance.

Breeder seedstocks are maintained by the North Dakota Agricultural Experiment Station and can be supplied in germplasm quantities (50 kernels) from H. Z. Cross* (3).

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References and Notes


REGISTRATION OF SD44 PARENTAL LINE OF MAIZE

SD44 Reg. no. PL-119 (PI 524969) is a yellow dent maize (Zea mays L.) parental line developed at the Agricultural Experiment Station, South Dakota State University. This line was evaluated for agronomic performance in hybrid combinations for yield and grain moisture. SD44 was released in March 1987 because of its potential to produce competitive hybrids for central and southern South Dakota.

SD44 was derived by selfing an individual plant from a cross of the inbred lines SDp309 and CM46. Selfing was practiced for 10 generations with selection for plant, ear, and root traits. SD44 was evaluated in 1985-86 at Brookings and would be considered intermediate in maturity; flowering 2, 4, 4, and 9 d after A632, A619, A654, and ND84-11, respectively. Maturity classification of SD44 is AES200. SD44 had better than average GCA effects for stalk and root lodging resistance, husk looseness, and stays green. It has good vigor, ear fill, and is AES200 maturity in terms of the North Central Corn Breeding Research Committee (NCR-2) classification system.

Moisture content of the seed generally has been about 19% at harvest, and high levels of lodging resistance. These inbreds were released in March 1987 because of their demonstrated potential to produce early hybrids with yields comparable to the best commercial check hybrids, low grain moisture at harvest than all inbreds except ND246 and Pioneer brand hybrid 3901 and 8.1 Mg ha"1 compared to 8.8 and 9.2 Mg ha"1 for Pioneer brand hybrid 3901. SD44 Reg. no. PL-119 (PI 524969) is a yellow dent maize (Zea mays L.) parental line developed at the Agricultural Experiment Station, South Dakota State University. This line was evaluated for agronomic performance in hybrid combinations for yield and grain moisture. SD44 was released in March 1987 because of its potential to produce competitive hybrids for central and southern South Dakota.

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