REGISTRATION OF PARENTAL LINES

Registration of N801w, a Parental Line of Maize

Inbred N801w (Reg. no. PL-180, PI 592741) is a white endosperm inbred line of maize (Zea mays L.) developed by the Agricultural Research Division, Institute of Agriculture and Natural Resources, University of Nebraska, and formally released by the same on 4 Mar. 1996. N801w has potential use as a parental line in hybrid seed production, or as a germplasm source in pedigree breeding programs where genetic diversity of white endosperm maize is a breeding objective. Because of its hard endosperm, N801w may be particularly useful in development of maize hybrids suitable for the dry milling industry.

N801w originated from a population that was synthesized using progeny resulting from crosses between eight tropical populations and BS13 and then visually selected for adaptation over six generations at Lincoln, NE (1). In 1989, selfing was initiated within a full-sib family selected from the population on basis of high grain yield. Generations S₀ to S₅ were advanced ear-to-row. Since the S₅ generation, N801w has been maintained by self pollinating a minimum of fifteen plants per generation and bulking seed from resulting ears. The S₁ and S₂ progenitors of N801w were selected on the basis of agronomic performance of testcross progeny, using the yellow inbred testers FR36 and FR1075. The S₃ through S₅ generations were evaluated using additional public and proprietary yellow inbreds as testers, with primary selection criteria being grain yield and general agronomic adaptation of hybrid progeny to south-central and southeastern Nebraska. At the S₅ generation, the selected line was given the experimental designation 93Nex307, and testing began using the white inbred testers FR819 and FR822.

Although the pedigree of N801w contains 50% exotic germplasm, the line per se is well adapted to the west-central and southwestern regions of the Corn Belt. N801w is a prolific pollen shedder; at Lincoln, NE, it requires approximately one additional day to begin pollen shed compared with B73. Silk emergence begins about 2 d after initiation of pollen shed. N801w produces relatively short plants with sturdy stalks. Plant height and ear height of N801w averages 83 and 76% of the respective heights of B73. Ears of the line per se are slightly tapered, and contain 12 rows of hard vitreous kernels that show no dent.

Hybrid progeny of N801w have good agronomic performance. When crossed to yellow inbreds evaluated in 11 year–location combinations, N801w has equaled average grain yield of hybrids of similar maturity, while plant height and lodging of N801w hybrid progeny have averaged 96% and 77%, respectively, of the average of the commercial checks. With white inbreds as testers, N801w produces hybrids with small white caps above the harder endosperm that predominates the kernel. N801w are expected to be best adapted to eastern Nebraska, and east into the central and southern portions of the Corn Belt.

Seed of N801w will be maintained by the Maize Breeding Project, Department of Agronomy, University of Nebraska, Lincoln, NE 68583-0915, and distributed upon written request. Recipients of seed are asked to make appropriate recognition of the original seed source of the inbred if used to develop a new population, parental line, or hybrid.

References and Notes


2. B.E. Johnson and D. Hall, Dep. of Agronomy, University of Nebraska, Lincoln, NE 68583-0915; R.E. Preciado-Ortiz, Km. 65, Carr. Celaya–San Miguel, Apdo. Postal 487, Guanajuato, Mexico. Published as Paper no. 30 June 1996. *Corresponding author (agro)