averaged less grain yield than the checks, while Group 4 averaged more.

Compared with the hybrid B73 x Mol7 and seven commercial hybrid checks, hybrid progeny shed pollen approximately the same number of days from planting as the average of the hybrid checks, and had similar proportions of lodging. Hybrid progeny of Groups 1 and 2 averaged taller plants and had higher ear placement than the average of the hybrid checks, while there was no difference between the average plant height of either Group 3 or 4 and the average of the hybrid checks. Groups 1 and 4 were later than the average of the checks, as indicated by moisture of grain at harvest, and only Group 2 produced significantly less grain than the average of all checks. Seedling and agronomic data on individual lines and hybrid progeny performance are given by Posch (3).

Seed of each inbred in generations subsequent to termination of ear-to-row selfing has been maintained by selfing a minimum of 15 individual plants and bulking seed. Breeder quantities of seed will be distributed upon written request to the Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583-0915. Recipients should make appropriate recognition of the source of the germplasm for any inbred which contributes to development of a new germplasm, parental line, or hybrid.

B. E. JOHNSON, J. S. POSCH, C. O. GARDNER, AND T. C. HOEGEMEYER

References and Notes


4. B. E. Johnson and C. O. Gardner (retired), Dep. of Agronomy, Univ. of Nebraska, Lincoln, NE 68583; J. S. Posch, Agrow Seed Co., Rt. 2, Box 105, Gibbon, NE 68940, and T. C. Hoegemeyer, Hoegemeyer Hybrid, Rt. 2, Box 126, Hooper, NE 68031. Published as Paper no. 11478, Journal Series, Nebraska Agric. Res. Div. Registration by CSSA. Accepted 31 Oct. 1996. *Corresponding author (agr154@unlvm.unl.edu).


Registration of Five Inbred Lines of Maize:

B102, B103, B104, B105, and B106

Inbreds B102 (Reg. no. PL-281, PI 594045), B103 (Reg. no. PL-282, PI 594046), B104 (Reg. no. PL-283, PI 594047), B105 (Reg. no. PL-284, PI 594048), and B106 (Reg. no. PL-285, PI 594049) are yellow dent maize (Zea mays L.) lines developed cooperatively by the Iowa Agriculture and Home Economics Experiment Station and USDA-ARS. The lines were released on 8 Apr. 1996 because of their potential value as sources of germplasm in pedigreeselection breeding programs.

B102 was developed from the cross of B85 and H99 (1). The cross was backcrossed to H99, and pedigree selection within the backcross generation was used to develop B102 [B85 x H99]1999-336. Selections were evaluated in testcrosses with A632 as tester at the S1 generation (F = 0.875). On the basis of testcross performance, the line was advanced ear-to-row by five generations of self-pollination in a breeding nursery and included in a crossing nursery to produce single-cross seed with A632, A681, and SD46. Single-cross trials were conducted in 1992 (four locations), 1993 (five locations), and 1994 (10 locations). Yield of the single crosses that included B102 as one parent significantly (P < 0.05) exceeded the experiment mean, was similar to the mean of the commercial checks, and was 11.6% greater than A619 x A632. Grain moisture of single crosses with B102 as one parent was similar to that of A619 x A632 and A681 x B100, but percentages of root and stalk lodging and dropped ears were, respectively, 2.8, 2.4, and 0.4% for A632 x B102 vs. 12.4, 3.7, and 0.4% for A619 x A632.

Inbred B102 is resistant to first-generation European corn borer (Ostrinia nubilalis (Hübner)) and early infection by gray leaf spot (caused by Cercospora zeae-maydis Tehon & E.Y. Daniels). Flowering dates and plant and ear heights of B102 are similar to those of A632 and B100. Pollen production is good, and silk emergence coincides with pollen shed. B102 has ears with 12 to 14 rows of yellow dent kernels on white cobs, and grain yield of B102 itself is similar to B100. B102 has good plant health and above-average root and stalk strength and performs better in crosses with lines having Iowa Stiff Stalk Synthetic (BSSS) germplasm than those lines which lack BSSS germplasm. Maturity classification is AES600.

B103 was derived from Pool 41 (Gene Pool for the Northern Temperate Region) developed by the International Maize and Wheat Improvement Center (CIMMYT) (2,3). B103 (CIMMYT POOL 41-015-9-1) was identified in a cooperative trial with CIMMYT conducted at Ames, IA, in 1986. Entries that had above-average root and stalk strength and first-generation European corn borer resistance were advanced ear-to-row in the breeding nursery by self-pollination and included in a A632 topcross nursery. On basis of testcross performance, the line was included in the crossing nursery to produce single-cross seed with A632, A681, B100, and SD46. B103 had consistent performance in single crosses included in trials conducted in 1992 (3 locations), 1993 (3 locations), and 1994 (10 locations). Grain yield of testcross progeny was significantly greater than experiment mean and equal to mean of commercial checks included in the trials. B103 expresses greater rate of grain moisture loss after physiological maturity; single crosses that included B103 as one parent had 20 to 50 g kg⁻¹ less grain moisture than checks at harvest. B103 has average root and stalk strength in hybrids relative to means of the trials.

B103 flowers 4 to 7 d earlier than A632, B100, and B102. Pollen production is good, and silk emergence coincides with pollen shed. Plant and ear height are similar to those of A632. Ears have 14 to 16 rows of yellow flinty kernels on red cobs. Grain yield of B103 is similar to A632 and B100. B103 has average root and stalk strength and above-average resistance to first-generation European corn borer. B103 is susceptible to gray leaf spot. It is not clear to which heterotic group B103 should be included, because B103 has exhibited similar performance in crosses with lines that include either BSSS or non-BSSS germplasm. Maturity classification is AES600-600.

B104 was developed from BS13(SC5), a strain of BSSS that has undergone 12 cycles of recurrent selection primarily for grain yield (4). S2 seed [BS13(SC5-13)] was included in breeding and Mo17 topcross nurseries to advance to S1 generation and to evaluate for hybrid performance with Mo17. On the basis of testcross performance, the line was advanced ear-to-row by five generations of self-pollination in breeding nurseries and included in crossing nurseries to produce single-cross seed. B104 has had consistently high yield performance in crosses with Mo17 and B97, exceeding experiment and check means. Root row stalk strength of B104 crosses are similar to those of check hybrids, but B104 crosses have 10 to 20 g kg⁻¹ more grain moisture than check hybrids.

B104 flowers 2 to 4 d later than B73 and Mo17, but plant and ear heights are shorter than B73 and Mo17. Pollen production is good, and silk emergence coincides with pollen shed. B104 produces short, girthy ears having 12 to 14 rows of yellow dent kernels on pink cobs with grain yield similar to that of B97. B104 has excellent root and stalk strength, above-average resistance to...