REGISTRATION OF B85 AND B86 GERMPLASM LINES OF MAIZE
(Reg. Nos. GP 76 and GP 77)

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B85 and B86 are yellow dent (Zea mays L.) inbred lines developed by the research program conducted cooperatively by the Iowa Agriculture and Home Economics Experiment Station and AR-SEA-USDA. The lines were evaluated extensively and were released because of their potential value in breeding programs of the hybrid seed industry. Breeder seed of the lines, produced by self-pollination, is maintained by the Iowa Agriculture and Home Economics Experiment Station and distributed in germplasm quantities by the Committee for Agricultural Development, Department of Agronomy, Iowa State University.

Inbred B85 was developed from the synthetic, BSCB6. [BSCB6 was first designated Iowa Corn Borer Synthetic No. 6, which was developed from Pennsylvania Early Synthetic by three cycles of recurrent selection based on S1 line resistance to leaf feeding by the European corn borer (Ostrinia nubilalis Hübner) (resistance to first brood of the European corn borer).] The plant has an erect-leaf orientation and is single-eared. Pollen production is adequate and silks emerge 3 to 4 days after the first shedding of pollen. The date for silk emergence is 2 days earlier than A682. The ear is relatively small, with 12 to 14 kernel rows, and the seed is intermediate in size with a shallow dent. Inbred B85 is highly resistant to leaf feeding by first brood of the European corn borer; consequently, it is a good source of resistance in an early maturity breeding program. Evaluations in northern Iowa for 4 years have shown that the line contributes good yield and stalk strength to hybrids but that it contributes poor root strength. Maturity classification is AE5800.

Inbred B86 was developed from the single cross, B52 × Oh43. Inbred Oh43 contributed leaf-feeding resistance to the European corn borer and B52 contributed high resistance to sheath and collar feeding by the European corn borer after silm emergence (resistance to second brood of the European corn borer). B52 has also intermediate resistance to the first brood. Inbred B86 was developed by selection and self-pollination in the ear-to-row system for the F1 to F2 generations. Artificial infestation of the corn borer was used in each generation, with separate nurseries for the first and second broods. Subsequent evaluations of B86 in two seasons with high level artificial infestations of the insect have shown that it is highly resistant to the first brood and nearly as resistant as B52 to the second brood. It is the first inbred stock of U.S. Corn Belt origin known to combine into one genotype good resistance to the insect for the life of the plant. Silk emergence is 1 to 2 days earlier than B52 or 5 to 6 days later than Oh43. Pollen production is satisfactory, and seed yield is good on an intermediate-sized ear. Limited evaluations in single crosses have shown that B86 contributes only average yield and root strength and that the stalks may be brittle. Maturity classification is late AE5800.

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6 Barber) and for root strength.

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BS17 (Reg. No. GP79) is an Iowa Stiff Stalk Synthetic population developed by recombining six versions of recurrent selection programs. These included BS13(S1)C2; BSSS(R)C7; BSSS2(S2)C3; and BSSS2(S2)C5 selected for stalk rot and first brood European corn borer resistance. BSSS2(S2)C3 selected for tolerance to larval feeding. Corn rootworm (Diabrotica virgifera Le Conte), northern corn rootworm (D. longicornis Say), and southern corn rootworm (D. undecimpunctata howardi Barber) and for resistance to first brood European corn borer. BS13(S1)C2 was developed from BSSS by recurrent selection for stalk rot and first brood European corn borer resistance to stalk rot and first brood European corn borer resistance. BS13(S1)C2 was developed from BSSS by recurrent selection for stalk rot and first brood European corn borer resistance to stalk rot and first brood European corn borer resistance.

BS17 was developed from BS13(S1)C1 and BSSS(R)C7 that were released earlier. BS17 was developed from BS13(S1)C1 and BSSS(R)C7 that were released earlier.