Corn Inbreds and Populations developed at

IOWA STATE UNIVERSITY

Committee for Agricultural Development (CAD)	Iowa State University Research Foundation, Inc. (ISURF)
103 Curtiss Hall	310 Lab of Mechanics
Iowa State University	Iowa State University
Ames, IA 50011-1050	Ames, IA 50011-2131
Phone: 515-291-0507	Phone: 515-294-9442
Fax: 515-294-6210	Fax: 515-294-0778
www.cad.iastate.edu	www.techtransfer.iastate.edu

Corn

Parent Seed

This section lists parent seed, genetic stocks, and breeding populations of maize which are available to seedsmen, plant breeders, and others.

The seed is offered by the Committee for Agricultural Development (the Iowa Foundation Seed Stocks Organization) often referred to by the letters CAD.

The purpose of CAD is to make available seed of new crop varieties beneficial to Iowa agriculture as they are developed and released by Iowa State University. The maintenance of pure seed of these varieties, as they are used by farmers, is a second function of CAD. Also, seed of genetic stocks and breeding populations is distributed as it becomes available from Iowa State University.

Shipping Instructions

When ordering seed, please give shipping instructions. If you are planning to call for the seed, please so indicate. If you are ordering field corn inbreds to be shipped, please add the designated amount for postage.

Export Orders

Any seed to be sent outside the US must meet the following conditions:

1) Intention to ship seed outside the US must be disclosed to ISURF and CAD.
2) A signed license agreement must be fully executed with ISURF.
3) A clearly legible import permit for the receiving country must be received by CAD. If the import permit is not in English, the direct English translation must be attached.
4) All costs must be paid in full prior to shipment. Those costs may include but are not limited to:
   a) Seed cost.
   b) Shipping and handling.
   c) Laboratory test charges to meet import requirements. (Cost varies by test.)
   d) Cost of seed used for tests. (Typically 400 k or more is needed for each test.)
   e) Phytosanitary certificate cost.

Due to the involved nature of readying seed for overseas shipment, additional time must be allowed when ordering.

EXPORT ORDERS WILL BE ACCEPTED ONLY WHEN FULL PAYMENT AND ALL CONDITIONS HAVE BEEN MET. Remittance should be made to the Committee for Agricultural Development and mailed to:

103 Curtiss Hall, Iowa State University, Ames IA 50011

Billing Information

For seed not paid for prior to or on the date of shipment or pickup from our warehouse:

ALL ACCOUNTS WILL BE DUE AND PAYABLE ON THE FIRST OF THE MONTH FOLLOWING THE MONTH OF THE DATE OF BILLING. AN INTEREST RATE OF 1.5% (EQUAL TO 18% ANNUALLY) OR $25.00 MINIMUM (WHICHEVER IS THE LARGER AMOUNT) WILL BE ADDED TO THE AMOUNT DUE ON THE FIRST DAY OF THE MONTH FOLLOWING THE DUE DATE.

Questions about seed availability?

Please contact Lynn Henn, CAD production manager, by phone (515-291-0507), fax (515-337-1032), or email (lhenn@iastate.edu).

Questions about licensing?

Please contact Julie JG Minot, Germplasm Licensing Associate, by phone (515-294-9442), fax (515-294-0778), or email (jjgus@iastate.edu).

Dent Corn Inbreds

The inbred lines of field corn listed below were produced in isolated fields. Although the fields were well isolated and carefully rogued, 100 percent freedom from contamination cannot be guaranteed. It will be necessary for the grower to do a limited amount of roguing and sorting. Seed of these inbred lines has not been treated with a fungicide.

LINES AVAILABLE

Hand pollinated breeder seed of the following inbreds is available postage paid.

B102	B103	B104	B105	B106	B107	B108
B109	B110	B111	B112	B113	B114	B115
B116	B117	B118	B119	B120	B121	B122
B123	B124	B125				

B102

B102 was developed from a cross of B85 and H99. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B103

B103 was derived from Pool 41, which was developed by CIMMYT. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B104

B104 was developed from a strain [BS13(S)C5] of Iowa Stiff stalk Synthetic. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B105

B105 was developed from a strain [BSSS(R)C9] of Iowa Stiff Stalk Synthetic after nine cycles of reciprocal half-sib recurrent selection. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B106

B106 was developed from BS26. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B107

B107 was developed from Pool 41, which is a genetically broad-based population developed for temperate areas of the world by the CIMMYT maize breeding program. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B108

B108 was developed from Pool 41, which is a genetically broad-based population developed for temperate areas of the world by the CIMMYT maize breeding program. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B109

B109 is a recovered B73 that has exhibited improved combining ability in crosses, has similar grain moisture at harvest, and similar root and stalk strength as B73. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B110

B110 was derived by single-seed descent from BS13(S)C5, a strain of BSS that has undergone 12 cycles of recurrent selection for primarily grain yield. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B111

B111 was derived by single-seed descent from BSSS(R)C9, a strain of BSSS, that had undergone nine cycles of reciprocal half-sib recurrent selection with BSCB1(R). License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B112

B112 was derived from BSCB1(R)C11, a strain of BSCB1 that had undergone 11 cycles of reciprocal half-sib recurrent selection with BSSS(R). License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B113

B113 was derived from BS11(FR)9, a strain of BS11 that had undergone nine cycles of reciprocal full-sib recurrent selection with BS10. B113 is a vigorous line with excellent plant health with leaves that have an upright-leaf orientation with light green color. It seems to have above average tolerance to first- and second-generation European corn borer, gray leaf spot, and northern corn leaf blight. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B114

B114 was derived from the same program from which B103, B107, and B108 were developed. B114 seems to contribute to fast dry-down in crosses. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B115

B115 was developed from BS11, a source that is different from most U.S. Corn Belt germplasm. It exhibits excellent plant health, indicating a good tolerance to most fungal leaf diseases and European corn borer. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B116

B116 was developed from the cross of B97 and B99, both lines that have been released from the Iowa State University corn breeding program License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B117

B117 was developed by pedigree selection from an F2 population from the cross of B97 × B99. After testing in testcross and single-cross trials, B117 exhibited good combining ability and consistent high performance. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B118

B118 was developed by pedigree selection from an F2 population from the cross of B97 × B99. After testing in testcross and single-cross trials, License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B119

B119 was developed by pedigree selection from BS13(S)C7, which is a strain of Iowa Stiff Stalk Synthetic that has been under recurrent selection since 1939. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B120

B120 was developed by pedigree selection from BSCB1, an elite synthetic variety that has been under selection since 1949. B120 is included in the non-BSSS heterotic group and has potential use as a male pollinator or source of germplasm in pedigree selection programs. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B121

B121 was developed by pedigree selection from BS13(S)C6, which has been under continuous selection since 1939. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B122

B122 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99. B122 has performed well on commercial tester inbreds from the stiff stalk heterotic pattern. License agreements with ISURF are required for this variety prior to purchase. Royalties are $3.00 per MVK planted.

B123

B123 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B124

B124 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

B125

B125 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99. B125 has had outstanding resistance to root and stalk lodging and excellent dry down at harvest. When crossed with SGI890, B125 ranked 3RD overall in the test for yield and was in the bottom ⅓ driest for grain moisture. License agreements with ISURF are required for this variety prior to purchase. Royalties for commercial purposes are $3.00 per MVK planted.

Dent Corn Breeding Populations For Use As Genetic Stocks by Corn Breeders

The following synthetic stocks are available at $80 for 500 kernels, postage paid. A brief description of each follows. License agreements with ISURF are required for these varieties prior to purchase.

BS11(5-S1)C5

BS11(5-S1)C5 was developed by five cycles of S_1 recurrent selection. The general procedure was to self approximately 50 S_0 plants in the winter nursery. Twenty-five random S_1 ears with adequate seed set were retained for inclusion in the yield trials. Remnant S_1 seed of the five selected lines was intermated in the winter nursery using the bulk-entry method. The resulting Syn-1 population was random mated, by chain sibbing 300 to 400 plants, to form the Syn-2 population. The Syn-2 population was used to initiate the next cycle of selection. Two years were needed to complete one cycle of selection. This procedure was repeated until the BS11(5-S1)C5 Syn-2 population was formed. Progress from selection has been evaluated through Cycle 4. The BS11(5-S1)C4 population is significantly lower yielding than BS11C0, probably because of inbreeding depression due to small effective population size.

BS11(10-S1)C5

BS11(10-S1)C5 was developed by five cycles of S_1 recurrent selection by using a procedure similar to that used to develop BS11(5-S1)C5. 50 lines were evaluated from each cycle and the best 10 selected lines were intermated to form the next cycle population. The BS11(10-S1)C4 population has been significantly improved, in comparison with BS11C0, for all agronomic traits. The important improvements were increased grain yield, lower grain moisture at harvest, increased resistance to stalk lodging, and earlier silk emergence.

BS11(S1)C5

BS11(S1)C5 was developed by five cycles of S_1 recurrent selection by using a procedure similar to that used in BS11(5-S1)C5. The major difference was that 100 progenies were evaluated and the best 20 selected lines were intermated to form the next cycle population. The BS11(S1)C5 population is agronomically one of the best populations of the group. Grain yield of BS11(S1)C5 is similar to BS11(10-S1)C4 and is slightly wetter at harvest, but has significantly greater resistance to root and stalk lodging, lower plant and ear heights, and has earlier silk emergence.

BS11(30-S1)C5

BS11(30-S1)C5 was developed by five cycles S_1 recurrent selection using a procedure similar to that used for BS11(5-S1)C5. 150 progenies were evaluated and the best 30 selected lines were intermated to form the next cycle population. The BS11(30-S1)C4 population is similar to BS11(10-S1)C4 for grain yield and other agronomic traits, except that it has slightly earlier silk emergence. **Also available – BS11(20-S1)C5.**

BS11(S2)C5

BS11(S2)C5 was developed by five cycles of S_2 recurrent selection. The general procedure was to self 200 to 300 S_0 plants in the winter nursery. The following summer the S_1 lines were grown ear-to-row in the breeding nursery. All rows were inoculated at the 8- to 10-leaf stage with European corn borer larvae [Ostrinia nubilais (Hübner)] and rated prior to anthesis for resistance to whorl-leaf feeding. Generally, 30 to 50 percent of the lines were discarded prior to anthesis on the basis of resistance to whorl-leaf feeding and other agronomic traits such as plant and ear height, disease resistance, etc. Three to five plants were self-pollinated in the remaining lines. At harvest, seed from an ear of a single plant was kept for inclusion in yield trials. Criteria for choosing among pollinated plants within a row included seed set, ear rots, and lodging. Remnant S_2 seed of the 20 selected lines was intermated using the bulk-entry method. The resulting Syn-1 population was random mated, by chain sibbing 300 to 400 plants, to form the Syn-2 population. The next cycle of selection was initiated by using the Syn-2 population. Three years were needed to complete one cycle of selection. This procedure was repeated until the BS11(S2)C5 Syn-2 population was formed. The BS11(S2)C4 population is the highest yielding population of the group.

BS11(MER)C5

BS11(MER)C5 was developed by five cycles of modified ear-to-row selection. The procedure was similar to the one suggested by Compton and Comstock in that there was selection on both the male and female gametes and two years were needed to complete one cycle of selection. Progenies were developed for the first cycle of selection by harvesting ears from a population allowed to open-pollinate in isolation. One-hundred ears were harvested and planted in yield trials the following year. The 20 selected lines were intermated by planting remnant half-sib seed ear-to-row in isolation as females and planting a bulk of the 20 selected lines as the male. Five ears, selected on the basis of grain yield and other agronomic traits, were harvested from each of the 20 female rows. The one hundred ears were planted in yield trials the following year as the evaluation phase of the next cycle of selection. The Syn-1 population was formed by harvesting an equal number of ears (10 to 15) from each female and bulking equal quantities of seed from each ear. The resulting Syn-1 population was random mated, by chain sibbing 300 to 400 plants, to form the Syn-2 population.

BS11(HI)C5

BS11(HI)C5 was developed by five cycles of half-sib selection using the inbred tester B79. The general procedure was to self 200 to 300 S_0 plants in the winter nursery. The resulting S_1 lines were planted ear-to-row in the summer breeding nursery. The lines were inoculated with European corn borer larvae and evaluated for resistance to whorl-leaf feeding prior to anthesis. Approximately 30 to 50 percent of the lines were discarded prior to anthesis. Two plants in the remaining lines were selfed and crossed to four plants of B79. At harvest, only one selfed ear and the corresponding testcross seed was kept for evaluation. Remnant S_1 seed of the 20 selected lines was intermated using the bulk-entry method. The resulting Syn-1 population was random mated, by chain sibbing 300 to 400 plants, to form the Syn-2 population. The next cycle of selection was initiated by using the Syn-2 population. Three years were needed to complete one cycle of selection. This procedure was repeated until the BS11(HI)C5 Syn-2 population was formed. Grain yield of BS11(HI)C4 was not significantly different from BS11C0, improvements were made for other agronomic traits.

BS11(FS)C5

BS11(FS)C5 was developed by five cycles of intrapopulation full-sib selection. For the first cycle of selection, full-sib families were developed in the winter nursery. The following summer, 100 full-sib families were evaluated and the best 20 families were selected. Remnant seed of the 20 selected full-sib families was self-pollinated in the winter nursery to produce S_1's of the full-sib families. The following summer, the S_1 full-sib families were intermated using the bulk-entry method. Simultaneously, full-sib families were developed for evaluation for the next cycle of selection by making up five sets of reciprocal full-sibs per pair in the bulk-entry intermating. Thus, one cycle of selection was completed in two years. BS11(FS)C5 was not significantly higher yielding than BS11C0. BS11(FS)C5, however, was significantly lower than BS11C0 for grain moisture at harvest, had increased resistance to root and stalk lodging, had lower plant and ear heights, and was earlier to silk.

The following synthetic stocks are available at $50 for 500 k, postage paid. A brief description of each follows:

BS9(CB)C5

This synthetic was developed by recombining the following 10 inbred lines: B49, B50, B52, B54, B55, B57, B68, C.I.31A, Mo17, and SD10. Only one of these lines, B68, has any relationship to inbred lines derived from Iowa Stiff Stalk Synthetic. Recurrent selection, based upon S_1 line evaluation was used for 5 cycles to improve this synthetic for resistance to both the first and second generations of the European corn borer. In all cycles, evaluations of the S_1 lines were made in separate experiments by using artificial infestations of the first- and second-generations of the corn borer. The improved synthetic, BS9(CB)C5, is highly resistant to first-generation corn borer and resistant to second-generation corn borer

BS10(FR)C13

A synthetic that was developed by 13 cycles of reciprocal full-sib selection for yield from BSTE (Iowa 2-ear Synthetic #1) with PHPRC, also a 2-ear synthetic, as the tester. Eighteen S_5 lines of the superior yielding $S_4 \times S_4$ hybrids and 6 additional lines that had good stalk quality and resistance to leaf feeding by the European corn borer, Ostrinia nubilalis (Hubner), were intermated to form the Cl population. The C2 to C10 populations were developed by intermating 20 S_1 lines, which were the parents of the 20 superior yielding full-sib progenies originating from the previously selected populations. BS10(FR)C13 is superior to BSTE in yield, prolificacy, and stalk quality.

BS12(HI)C8

An improved population of an open-pollinated variety known as Alph. Alph is an extremely variable, long-eared variety from southern Iowa, and does not resemble any of the open-pollinated varieties in our collection. Recurrent selection for specific combining ability with inbred B14 as the tester has been used for 8 cycles to improve Alph. The hybrid yield performance of BS12(HI)C8 × B14 is comparable to commercial single-crosses. Also, BS12(HI)C8 adds valuable genetic diversity to the maize germplasm pool of the North Central Corn Belt.

BS13(S)C7

This improved breeding population was developed from Iowa Stiff Stalk Synthetic (BSSS) by 14 cycles of recurrent selection for increased yield. Seven cycles of recurrent selection for general combining ability for yield with Ia13 double cross [(L317 × BL349) × (BL345 × MC401)] as a tester in BSSS(HT) were followed by a cycle of full-sib selection for corn borer resistance, cold tolerance and prolificacy. This improved breeding population was redesignated BS13(S) and 4 cycles of S_2 selection and 2 cycles of S_1 selection have been completed. BS13(S)C5 combines well with BS12(HI)C8, BS18, BSCBI(R)C12, and BSSS(R)C12.

BS16(CB)C4

Four cycles of recurrent selection based on evaluations of S_1 lines in replicated experiments were used to improve BS16(S2)C2 for resistance to first- and second-generations of the European corn borer. BS16 was developed by 6 cycles of mass selection for adaptiveness in 'Eto Composite', and BS16(S2)C2 was obtained by 2 cycles of recurrent selection for yield, based on S_2 line evaluations in replicated experiments. In successive cycles of recurrent selection for resistance to corn borer, 226, 225, 295, and 200 S_1 lines were evaluated and recombined 22, 22, 30, and 30 lines to give the successive improved populations. In the final cycle of selection, the average rating of all S_1 lines for first-generation larval feeding was 2.8 (1.0 = highly resistant, 9.0 = highly susceptible) and the range was 2.0 to 8.1. The resistant and susceptible checks rated 2.0 and 7.3, respectively. For larval feeding by the second-generation, the average rating for all lines was 2.9, and the range was 2.0 to 7.3. The resistant check rated 2.0, and the susceptible check rated 9.0. The 30 S_1 lines selected for recombination rated 2.0 for first-generation and 2.4 for second-generation. Consequently, BS16(CB)C4 is expected to have a high level of resistance to the European corn borer for the whole life of the plant. This population is not expected to be a good source for new commercial inbred lines because, with self-pollination, the inbred progenies show too much inbreeding depression and susceptibility to root lodging. However, because the original source, ETO Composite, has a Latin American origin, it is expected that resistance to European corn borer will be conditioned by some different genes than those that condition the resistance in BS17(CB)C4. Therefore, it can be used to obtain lines that have different resistance genes than are present in U.S. Corn Belt germplasm.

BS17(CB)C4

Four cycles of recurrent selection based on evaluations of S_1 lines in replicated experiments were used to improve the original BS17 for resistance to the first- and second-generations of European corn borer. BS17 is an Iowa Stiff Stalk Synthetic population (BSSS) that was developed by composite crossing of 6 versions of BSSS, each of which has been improved for one or more agronomic traits (yield, resistance to first-generation corn borer, resistance to stalk rots, and tolerance to corn rootworms). Artificial infestations by first- and second-generation corn borer in separate experiments were used to evaluate the S_1 lines for resistance to feeding by the corn borer larvae. Numbers of lines evaluated in the successive cycles were 500, 300, 300, and 280. 30 selected lines were recombined in each cycle to give the improved populations. A selection index comprised of resistance to each generation and days to anthesis was used to select the lines; grain yield of the S_1 lines was an added trait to the selection index in the fourth cycle. In the final cycle of selection, the average rating of all S_1 lines for first-generation feeding was 2.0 (1.0 = highly resistant, 9.0 = highly susceptible), whereas a susceptible check rated 6.2. Also, the same S_1 lines had an average rating of 3.3 (range 2.0 to 6.1) for second-generation feeding. The resistant check, inbred B52, rated 2.0. The average second-generation rating for 30 selected lines was 2.3; consequently, BS17(CB)C4 is expected to have a high level of resistance to the European corn borer for the whole life of the plant and should be an excellent breeding population. The selected S_1 lines in the successive cycles have been continued in the inbred line development program and several have shown good hybrid performance.

BS18

This population was developed by intermating BSK(S)C7 and BSK(HI)C7, which are two subpopulations of BSK. BSK is a strain of the open-pollinated variety “Krug Yellow Dent” that was developed at the Nebraska Agriculture Experiment Station. S_1 and half-sib recurrent selection were initiated in BSK in 1953. After 7 cycles of S_1 [BSK(S)C7] and half-sib [BSK(HI)C7] recurrent selection, BS18 was developed by intermating 375 plants of BSK(S)C7 and BSK(HI)C7. After the initial crosses, random matings were made by use of controlled hand pollinations in 500 to 1,000 plants for 3 generations. BS18 has good performance as a variety and good combining ability with improved strains of Iowa Stiff Stalk Synthetic. BS18 should be a useful source for the development of new lines in applied breeding programs.

BS19(S)C2

The corn breeding population BS19(S)C2 was developed from a synthetic that has been designated as Iowa Early Rootworm Synthetic in experimental studies. The original synthetic was developed by combining the following 12 inbred lines: W153R, A239, A251, A265, A297, A417, A556, A632, Ms197, Oh43, R168, and SDIO. A large number of inbred lines were evaluated for corn rootworm tolerance and root traits. These 12 inbreds were selected as parent lines for an early Iowa Synthetic to be used for further studies in resistance or tolerance to corn rootworms. Recurrent selection based on the evaluation of S_1 lines in replicated experiments was used for 2 cycles, resulting in the C2 population. Traits evaluated were root damage from larval feeding, root lodging, root size, and secondary root development. This C2 population should be an excellent source from which breeders can extract early inbred lines that have good tolerance to corn rootworms. The maturity classification is approximately AES500.

BS20(S)C2

Population BS20(S)C2 was developed from a maize synthetic that has been designated as Iowa Late Rootworm Synthetic in experimental studies. The following 12 inbred lines were combined to develop this synthetic: B14A, B53, B59, B64, B67, B69, B73, N6, N28, R101, HD2286 (BSSS sel.), and 38-11. Following an evaluation of a large number of inbred lines for corn rootworm tolerance and root traits, these 12 inbreds were selected as parent lines for a late Iowa synthetic to be used in further studies in resistance or tolerance to corn rootworms. Recurrent selection based on the evaluation of S_1 lines in replicated experiments was used for 2 cycles, resulting in the C2 population. This synthetic has above-average general combining ability for yield and excellent resistance to root and stalk lodging. The maturity classification is approximately AES800.

BS21(R)C7

BS21(R)C7 is a genetically broad-based synthetic cultivar developed after six cycles of reciprocal recurrent selection primarily for improved grain yield and root and stalk strength. It is an improved source of corn germplasm for use in areas of higher latitudes or in areas desiring earlier maturity.

BS22(R)C7

BS22(R)C7 is a genetically broad-based synthetic cultivar developed after six cycles of reciprocal recurrent selection primarily for improved grain yield and root and stalk strength. It is an improved source of corn germplasm for use in areas of higher latitudes or in areas desiring earlier maturity.

BS23

A composite of annual teosinte and corn germplasm was used as a source of 2-eared inbred lines. The proportion of teosinte germplasm and the maize stocks are not known. Eight inbred lines with good agronomic performance in hybrid combinations were selected and recombined to give a synthetic designated as “Teozea.” Teozea was further sib-mated with selection for 2-eared plants for 2 generations. An additional generation of random mating with no selection was used to obtain the seed supply for distribution as BS23. Evaluations have shown that this synthetic silks 3 to 4 days earlier than Iowa Stiff Stalk Synthetic (BSSSCO), has a high frequency of second ears when the plant density is 16,000 plants/acre or less, has a strong “stay-green” characteristic in Iowa, and yields well in crosses with BSSSCO.

BS26

BS26 was developed by intermating 50 selected S_1 lines from “Lancaster Composite”, followed by 3 generations of random mating. Lancaster Composite was developed by intermating 15 inbred lines that included C103 germplasm with 5 populations that included Lancaster Sure Crop germplasm. After 5 generations of intermating, S_1 lines were developed and evaluated for pest resistance, maturity, and agronomic traits. Based on S_1 performance, 400 were advanced to S_2 generation and evaluated per se and in testcrosses with B73 × B84. Index selection was used to determine the 50 S_1 lines intermated to form BS26. This improved population includes germplasm that should be useful in applied breeding programs.

BS27

BS27 is an adapted population of Anitgua Composite obtained originally from the International Maize and Wheat Improvement Center(CIMMYT) located near Mexico City. Antigua is a tropical variety that was adapted to temperate conditions by mass selection for earlier flowering. Mass selection was initiated in 1977 and after 6 cycles of selection Antigua Composite was considered to have maturity appropriate for U.S. Corn Belt environments. BS27 has a vigorous plant type, intermediate height, and ears with flinty kernels that are light yellow to light orange. BS27 has good combining ability with Corn Belt dent cultivars. BS27 includes germplasm that exhibits good pest resistance in tropical areas and includes germplasm that is different from that currently included in U.S. Corn Belt breeding programs. Maturity classification is AES800.

BS28

BS28 is an adapted population of Tuxpeno germplasm. Samples of five strains of Tuxpeno were obtained from CIMMYT, five samples were bulked, planted in isolation, and allowed to intermate to form Tuxpeno Composite. Mass selection was initiated in Tuxpeno Composite for earlier flowering in 1987. After six cycles of selection, the selected strain of Tuxpeno Composite was designated as BS28. BS28 includes germplasm that is considered one of the more important tropical races because of its good combining ability. BS28 could be used in breeding programs that want to include elite tropical germplasm adapted to temperate environments. Maturity classification is AES700-800. **Also available - BS28(R)C5.**

BS29

BS29 is an adapted strain of Suwan-1, which was developed by Kasetsart University at Farm Suwan near Bangkok, Thailand. A sample of Suwan-1 [PI 439741-Suwan #1(S)C6] was obtained in 1986. Mass selection for earlier flowering was initiated in 1987. After six cycles of mass selection for adaptation, the population was designated as BS29. BS29 sheds pollen 9 days later than B73 × Mo17 and has 5.2% greater grain moisture at harvest. BS29 has excellent general combining ability with other adapted tropical varieties (BS16, BS27, and BS28). BS29 has good specific combining ability with BS10 and BSSS. BS29 has excellent grain quality; ears have flinty dark yellow kernels. BS29 is a strain of Suwan-1 adapted to temperate environments that should have potential in temperate breeding programs. Maturity classification is late AES800. **Also available - BS29(R)C5.**

BS30

BS30 is a source of Iodent germplasm. Nineteen inbred lines that originated from the initial sampling of Iodent by M. T. Jenkins in 1922 were intermated to produce BS30. BS30 has a yellow, dent kernels on large girthed ears. Plant phenotypes are typically robust with large tassels, but plants generally have poor root and stalk strength. Maturity classification of BS30 is AES800.

BS35

BS35 is a synthetic cultivar of corn developed by intermating 19 selections that included 75% temperate and 25% sub-tropical germplasm. Selections were based on evaluations of 390 backcrosses per se and testcrosses of 80 selected backcrosses; LH185 was the tester. BS35 would be included in the Iowa Stiff Stalk Synthetic heterotic group.

BS36

BS36 is a synthetic cultivar of corn developed by intermating 13 selections that included 75% temperate and 25% sub-tropical germplasm. Selections were based on evaluations of 294 backcrosses per se and testcrosses of 62 selected backcrosses tested at five Iowa locations; LH198 was the tester. BS36 would be included in the non-Iowa Stiff Stalk Synthetic heterotic group.

BS37

BS37 is a synthetic cultivar of corn developed by intermating 20 selections that included 75% temperate and 25% sub-tropical germplasm. Selections were based on evaluations of 486 backcrosses per se and testcrosses of 100 selected backcrosses tested at seven Iowa locations; LH185 was the tester. BS37 would be included in the Iowa Stiff Stalk Synthetic heterotic group.

BS38

BS38 is a synthetic cultivar of corn developed by intermating 16 selections that included 75% temperate and 25% sub-tropical germplasm. Selections were based on evaluations of 405 backcrosses per se and testcrosses of 81 selected backcrosses tested at seven Iowa locations; BS38 would be included in the non-Iowa Stiff Stalk Synthetic heterotic group.

BS39

BS39 is a strain of tropical germplasm adapted to temperate environments developed from a composite of five accessions of Tuscon, originally introduced from Cuba**.**

BSAA(SRCB)C4

Iowa Synthetic AA, designated BSAA, was developed by recombining 58 North Central Corn Belt lines. Recurrent selection based upon S_1 line evaluation was used for 4 cycles to improve this synthetic for resistance to first-generation European corn borer and resistance to stalk rot. In all cycles, evaluations of S_1 lines were made in separate experiments under artificial infestations of the corn borer and artificial inoculations of Diplodia stalk rot. Whereas, the original BSAA was intermediate in resistance to both corn borer and stalk rot, BSAA(SRCB)C4 is resistant to both. Also, BSAA(SRCB)C4 is slightly earlier than BSAA for anthesis.

BSBB(SRCB)C4

Iowa Synthetic BB, designated BSBB, was developed by recombining 44 North Central Corn Belt inbred lines. At least 12 of these lines have germplasm from Iowa Stiff Stalk Synthetic. Recurrent selection based on S_1-line evaluation was used for 4 cycles to improve this synthetic for resistance to first-generation European corn borer and resistance to stalk rot. In all cycles, evaluations of S_1 lines were made in separate experiments by using artificial infestations of the corn borer and artificial inoculations of Diplodia stalk rot. It is slightly later than BSBB for anthesis.

BSCB1(R)C12

This improved breeding population was developed from 9 cycles of half-sib reciprocal recurrent selection, followed by 3 cycles of full-sib reciprocal recurrent selection. The tester population was BSSS(R)C11. BSCB1 was synthesized from 12 inbred lines: A340, CC5, Hy, I205, K230, L317, OhO7, Oh33, Oh4OB, Oh5lA, P8, and R4. Screening among and within S_1 lines for first-generation European corn borer, Ostrinia nubilalis (Hubner), resistance and stalk-rot resistance was done in selecting elite material for the testcross trials.

BSL(S)C7

This synthetic was developed from BSL(S)C4 with additional improvement for stalk quality. BSL(S)C4 was developed from the open-pollinated variety, Lancaster Surecrop, after 4 cycles of recurrent selection for stalk rot resistance. Three additional cycles of recurrent selection for resistance to mechanical breakage were used to obtain further improvement for stalk quality. BSL(S)C7 has better stalk-rot resistance than does BSL(S)C4, and it is much better than BSL(S)C4 for resistance to field stalk lodging.

BSSS(R)C12

This improved breeding population was developed from 9 cycles of half-sib reciprocal recurrent selection followed by 3 cycles of full-sib reciprocal recurrent selection with BSSS(R)C11 as tester. The tester population was BSCB1(R)C11. Screening among and within S_1 lines for European corn borer, Ostrinia nubilalis (Hubner), resistance and stalk-rot resistance was done in selecting elite material for the testcross yield trials.

BSTL(S)C5

Developed to provide a population containing some exotic germplasm. One-fourth of the germplasm of this synthetic was derived from the Mexican race, Tuxpeno; and the other ¾ was derived from the U.S. variety, Lancaster Surecrop. The population is an improved version of (Tuxpeno × Lancaster^2) Synthetic. Five cycles of S_2 recurrent selection for agronomic traits and yield have been completed; the population has improved grain yield and root and stalk quality relative to the original population.

Order Forms

ORDER BLANK FOR DENT CORN INBREDS

To: Committee for Agricultural Development
103 Curtiss Hall
Iowa State University
Ames, IA 50011

The following dent corn lines are available at the listed prices for 100 k packets used for research and testing purposes. Larger quantities may be available of variety B102 thru B125 at a cost of $6.00 per MVK if you have executed a new commercialization or breeding agreement. Please call Julie Minot at 515-294-9442 if you need clarification on inbred seed costs.

DENT CORN INBRED LINE	UNIT COST (100k)	TOTAL
B102	$ 80.00	
B105	$ 80.00	
B108	$ 80.00	
B111	$ 80.00	
B114	$ 80.00	
B117	$ 80.00	
B120	$ 80.00	
B123	$ 80.00	

DENT CORN INBRED LINE	UNIT COST (100k)	TOTAL
B103	$ 80.00	
B106	$ 80.00	
B109	$ 80.00	
B112	$ 80.00	
B115	$ 80.00	
B118	$ 80.00	
B121	$ 80.00	
B124	$ 80.00	

DENT CORN INBRED LINE	UNIT COST (100k)	TOTAL
B104	$ 80.00	
B107	$ 80.00	
B110	$ 80.00	
B113	$ 80.00	
B116	$ 80.00	
B119	$ 80.00	
B122	$ 80.00	
B125	$ 80.00	

Please find attached my check for $_____ payable to the COMMITTEE FOR AGRICULTURAL DEVELOPMENT.

Name_____

Address_____

City_____State_____Zip_____

Shipping Address if different from above.

_____

_____

_____

SYNTHETIC SEED STOCKS

SYNTHETIC SEED STOCKS	QUANTITY (500 k Packets)	UNIT COST	TOTAL
1. BS11(5-S1)C5		$80.00	
2. BS11(10-S1)C5		$80.00	
3. BS11(S1)C5		$80.00	
4. BS11(30-S1)C5		$80.00	
5. BS11(S2)C5		$80.00	
6. BS11(MER)C5		$80.00	
7. BS11(HI)C5		$80.00	
8. BS11(FS)C5		$80.00	
9. BS11(20-S1)C5		$80.00	

Please find attached my check for $_____ payable to the COMMITTEE FOR AGRICULTURAL DEVELOPMENT.

Name_____

Address_____

City_____State_____Zip_____

Shipping Address if different from above.

_____

_____

_____

ORDER BLANK FOR DENT CORN GENETIC STOCKS AND SYNTHETIC SEED STOCKS – CONTINUED

The following lines are available at $50 per 500-kernel unit. Please indicate how many 500-kernel units are needed:

LINE	**QUANTITY** (500 k Packets)	**UNIT COST**	**TOTAL**	**LINE**	**QUANTITY** (500 k Packets)	**UNIT COST**	**TOTAL**
BS9(CB)C5		$50.00		BS28(R)C5		$50.00	
BS10(FR)C13		$50.00		BS29		$50.00	
BS12(HI)C8		$50.00		BS29(R)C5		$50.00	
BS13(S)C7		$50.00		BS30		$50.00	
BS16(CB)C4		$50.00		BS35		$50.00	
BS17(CB)C4		$50.00		BS36		$50.00	
BS18		$50.00		BS37		$50.00	
BS19(S)C2		$50.00		BS38		$50.00	
BS20(S)C2		$50.00		BS39		$50.00	
BS21(R)C7		$50.00		BSAA(SRCB)C4		$50.00	
BS22(R)C7		$50.00		BSBB(SRCB)C4		$50.00	
BS23		$50.00		BSCB1(R)C12		$50.00	
BS26		$50.00		BSL(S)C7		$50.00	
BS27		$50.00		BSSS(R)C12		$50.00	
BS28		$50.00		BSTL(S)C5		$50.00	

Please find attached my check for $_____ payable to the COMMITTEE FOR AGRICULTURAL DEVELOPMENT.

Name_____

Address_____

City_____State_____Zip_____

Shipping Address if different from above.

_____

_____

_____

Image courtesy of Stoonn/ FreeDigitalPhotos.net