

2019 ISURF Corn Catalog



CAD & ISURF

Organizations Dedicated to the Distribution of Iowa State University (ISU) Developed Corn Germplasm

The Iowa State University Research Foundation, Inc. (ISURF) and the Committee for Agricultural Development (CAD) are service organizations that are committed to promoting ISU-developed corn germplasm and other technologies for the benefit of the public by facilitating their release and distribution. CAD produces and distributes Foundation Seed of the germplasm to growers that have secured license agreements with ISURF.

ISURF

1805 Collaboration Place
Suite 2100
Ames IA 50010
Tel. (515) 724-4470
www.techtransfer.iastate.edu

CAD

103 Curtiss Hall, 513 Farm House Lane
Iowa State University
Ames, IA 50011-1054
Tel. (515) 291-0507
www.cad.iastate.edu

Foundation Seeds Available for Purchase:

If you have questions regarding the availability of seeds from CAD, or any seed-related questions, please contact the Production Manager, Kevin Scholbrock at germplasm@iastate.edu or 515-291-0507. As of June 1st, 2018 the following corn germplasm is available for licensing by ISURF (see this Catalog for details):



Non GMO Dent inbred lines of field corn for purchase as foundation seed. Also available are **Dent corn breeding populations** for use as genetic stock by corn breeders.



Biotechnology: B104 inbred line for DNA transformation and breeding.



Non-GMO popcorn inbred lines and populations.



Double haploids (DH): ISURF has DH inducer lines available for licensing. For details please click here [\(ISURF #04065\)](#) for lines adapted to local growing conditions and here [\(ISURF #04099\)](#) for specialty lines that can overcome dent sterility for use in popcorn and organic breeding programs.

Licensing agreements with ISURF

Please contact Dr. Dianah R. Ngonyama, if you would like to license corn seeds available through the Committee for Agricultural Development. Dianah can be reached at germplasm@iastate.edu or 515-294-9442

Corn Germplasm

Parent Seed

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

Shipping Instructions

When ordering seed, please give shipping instructions. If you are ordering field corn inbred lines to be shipped, please add the designated amount for postage.

Export Orders

Any seed to be sent outside the U.S. must meet the following conditions:

- 1) A signed license agreement must be fully executed with ISURF.
- 2) The intention to ship seed outside the US must be disclosed to ISURF and CAD.
- 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 demanding nature of preparing seeds for overseas shipment, please take into account that this process may take longer than expected.

EXPORT ORDERS WILL BE ACCEPTED ONLY WHEN FULL PAYMENT AND ALL CONDITIONS HAVE BEEN MET.

Remittance should be made and mailed to:

Committee for Agricultural Development
Attn: Kevin Scholbrock
103 Curtiss Hall
Iowa State University
Ames IA 50011
USA

Questions about seed availability?

Please contact Kevin Scholbrock, CAD Production Manager by phone (515-291-0507), fax (515-337-1032), or email (germplasm@iastate.edu).

Questions about licensing?

Please contact Dr. Dianah R. Ngonyama by phone (515-294-9442), fax (515-294-0778), or email (germplasm@iastate.edu).

1. 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 inbred lines is available at a royalty rate of \$3.00 per MVK planted for commercial purposes (License agreements with ISURF are required prior to purchase):

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.

B103

B103 was derived from Pool 41, which was developed by CIMMYT.

B104

B104 is a popular DNA transformation line developed from a strain [BS13(S)C5] of Iowa Stiff stalk Synthetic. License agreements with ISURF are required for DNA transformation or breeding. The royalty rate given above (i.e. \$3.00 per MVK planted) applies only for non-DNA transformed B104 line when used for commercial purpose only. When B104 is purchased for biotech – DNA transformation purpose, a different licensing agreement and fee charges would apply.

B105

B105 was developed from a strain [BSSS(R)C9] of Iowa Stiff Stalk Synthetic after nine cycles of reciprocal half-sib recurrent selection.

B106

B106 was developed from BS26.

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.

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.

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.

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.

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).

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).

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.

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.

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.

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.

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.

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.

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.

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.

B121

B121 was developed by pedigree selection from BS13(S)C6, which has been under continuous selection since 1939.

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.

B123

B123 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99.

B124

B124 was derived from a narrow base synthetic (BSKRL2) composed of the five inbreds B90, B91, B95, B97, and B99.

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.

2. 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(S1)C5	BS11(5-S1)C5	BS11(10-S1)C5	BS11(30-S1)C5	BS11(S2)C5	BS11(MER)C5
BS11(HI)C5	BS11(FS)C5	BS9(CB)C5	BS10(FR)C10	BS12(HI)C8	BS13(S)C7
BS16(CB)C4	BS17(CB)C4	BS18	BS19	BS20	BS21
BS22	BS23	BS26	BS27	BS28	BS29
BS30	BS35	BS36	BS37	BS38	BSAA(SCR)C4
BSBB(SCR)C4	BSCB1(R)C12	BSL(S)C7	BSSS(R)C12	BSTL(S)C5	

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 inter-mated 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 inter-mated 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 inter-mated 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 inter-mated 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 inter-mated 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 intra-population 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 inter-mated 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 inter-mated to form the CI population. The C2 to C10 populations were developed by inter-mating 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 \times 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 \times BL349) \times (BL345 \times 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 inter-mating 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 inter-mating 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 S₁ lines from "Lancaster Composite", followed by 3 generations of random mating. Lancaster Composite was developed by inter-mating 15 inbred lines that included C103 germplasm with 5 populations that included Lancaster Sure Crop germplasm. After 5 generations of inter-mating, S₁ lines were developed and evaluated for pest resistance, maturity, and agronomic traits. Based on S₁ performance, 400 were advanced to S₂ generation and evaluated per se and in testcrosses with B73 × B84. Index selection was used to determine the 50 S₁ lines inter-mated to form BS26. This improved population includes germplasm that should be useful in applied breeding programs.

BS27

BS27 is an adapted population of Antigua 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 inter-mated 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 inter-mating 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 inter-mating 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 inter-mating 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 inter-mating 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, Oh5IA, P8, and R4. Screening among and within S₁ 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 S₁ 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 $\frac{3}{4}$ was derived from the U.S. variety, Lancaster Surecrop. The population is an improved version of (Tuxpeno × Lancaster²) Synthetic. Five cycles of S₂ 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.

3. Popcorn Inbred Lines and Populations

These Popcorn inbred lines were developed at Iowa State University and are currently available on a limited basis at \$50 for 100 Kernels, postage paid.

BP1	BP2	BP3	BP5	BP6
BP8	BP9	BPM1	BPM2	BPM3
BPM4	BPM5	BPM6	BPM7	BPM8
BPM9	BPM10			

BP1

BP1 is a yellow-kerneled popcorn inbred line with a kernel count per 10 grams of 101. It has green silk with red anthers. Under Ames, Iowa growing conditions in 1991 at approximately 25,000 plants per acre it averaged a plant height of 70 inches and an ear height of 25 inches with almost no tillers and one node with brace root development. It had an average of 1.5 ears per plant. Mid-pollen shed occurred 66 days after a May 11 planting date and mid-silk occurred 3 days later. It flowered near the same time as IDS53 and slightly before HP68-07. Ear length and width averaged 13.2 cm and 2.9 cm, respectively. Ears had 14 kernel rows. BP1 is dent sterile. Its plant type is somewhat unique and once seen is easily recognized. It has narrow, somewhat rolled, upright leaves. BP1 is available as a royalty free general public release.

BP2

The following descriptions are based on data collected in 1991. BP2 is a yellow-kerneled popcorn inbred line with a kernel count per 10 grams of 70. It has red silk with orange anthers. Under Ames, Iowa growing conditions in 1991 at approximately 25,000 plants per acre it averaged a plant height of 80 inches and an ear height of 42 inches with no tillers and one node with brace root development. It had an average of two ears per plant. It is prolific and under optimum growing conditions can sometimes develop a third ear. Mid-pollen shed occurred 71 days after a May 11 planting date and mid-silk occurred 1 day later. BP2 flowered just after HP301 and IDS69 but before IDS28. Ear length and width averaged 13.4 cm and 3.0 cm, respectively. Ears had a kernel row number of 12. BP2 is dent sterile. Under Iowa growing conditions it has a vigorous plant type. If there is a weak part in the plant type of the inbred it is the roots. Under some growing conditions BP2 does not appear to have strong enough roots to support the vigorous plant growth.

BP3

BP3 is a yellow kernel popcorn inbred line. In 2002 it had a kernels per 10 gram count (k/10g) of 73 while HP72-11 had a k/10g of 94. BP3 plants have purple anthers and green silks. Its maturity is about four to five days earlier than HP72-11. It is dent sterile and presumed to carry Ga1.

As an inbred line, in 2002 under microwave popping conditions, it popped 1580 ml/30g while HP72-11 popped 1220 ml/30g. BP3 is one of the highest expansion public popcorn inbred lines released to date. This suggests that BP3 can provide a source for improved popping expansions in crosses.

BP5

BP5 broadens the genetic base of publicly released popcorn butterfly inbred lines.

BP6

BP6 broadens the genetic base of publicly released popcorn butterfly inbred lines.

BP8

BP8 broadens the genetic base of publicly released popcorn butterfly inbred lines.

BP9

BP9 broadens the genetic base of publicly released popcorn butterfly inbred lines.

BPM1

BPM1 is a mushrooming (round ball flake type) popcorn inbred line. It was selfed out of developmental material that eventually was released as BSP5C0. The yellow-kernel popcorn inbred line has red silk and yellow anthers. Under 1999 growing conditions near Ames, IA, it grew to a height of 60 inches with an ear height of 40 inches. It appears to be a few days earlier than HP72-11. BPM1 is dent sterile. Due to limited seed availability, orders will be limited to one 50 kernel packet per company.

BPM2

BPM2 is a yellow kernel popcorn inbred line. In 2002 it had a kernels per 10 gram count (k/10g) of 65 while HP72-11 had a k/10g of 94 and BPM1 had 59 k/10g. BPM2 plants have yellow anthers and red silks. The plants have a tendency to tiller. Its maturity is similar to BPM1, being just a few days earlier than HP72-11. It is dent sterile and presumed to carry Ga1. In 2002 on a line per se basis, it rated 90% mushroom flakes while BPM1 rated only 75% mush. It appears that BPM2 can be a source for increasing the percentage of mushroom flakes in inbred crosses made to generate hybrids with a high percentage of mushroom flakes.

BPM3

BPM3 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM4

BPM4 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM5

BPM5 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM6

BPM6 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM7

BPM7 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM8

BPM8 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM9

BPM9 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

BPM10

BPM10 is an inbred line which tends to produce a high percentage of mushroom flakes when popped.

4. Popcorn Populations

These Popcorn populations were developed at Iowa State University and are currently available on a limited basis at \$50 for 500 Kernels, postage paid. Signed research and development agreements are required.

BSP9SGC0	BSP7SAC0	BSP4APC0	BSP5C0
BSP1C1	BSP1C4	BSP2C1	BSP3C1
BSPWIC1	BSPM1C1	BSPM2C1	BHPXD-1C2
BSP2C4	BSP6CBC0	BSP8SGC0	BSPM3C0

BSP9SGC0

BSP9SGC0 is a yellow-kernel popcorn breeding synthetic developed to be a source of popcorn inbred lines with high-popping expansion and good agronomic traits. It was developed by inter-mating twenty-five experimental popcorn inbred lines. Four of these lines were derived from HPSGDS-2, a dent-sterile Supergold popcorn population released by Purdue University, and the remaining twenty-one lines were derived from recurrent selection cycles 1 to 3 in BSP2C1 released in 1988 and then again in 1999 as BSP2C4. At each generation in the development of the lines and then in the development of BSP9SGC0, selections were made for increased popping expansion on a single ear basis.

BSP9SGC0 is a relatively narrow genetic based yellow-kernel popcorn breeding synthetic related to the Supergold popcorn heterotic group. It has a relatively small range in maturity in that all pollinations made for seed increase in 2003 were made on the same day, 5 days before HP72-11 was at mid silk. In 2002, 215 ears were selected to intermate and then increase in 2003 for a 2004 release. The 215 ears had an average popping expansion of 1544 ml/30g with a range of 1167 ml/30g to 1720 ml/30g. Popcorn check hybrids Iopop12 averaged 1278 ml/30g and Rob97487 averaged 1660 ml/30g. Kernel size averaged 58 k/10g with a range of 46 to 75 k/10g with popcorn check hybrids Iopop12 at 73k/10g and Rob97487 at 63 k 10g. Expansions per kernel averaged 8.0 ml/k with a range of 7 ml/k to 11 ml/k with the check hybrids Iopop 12 averaging 5.3 ml/k and Rob 97487 averaging 8.7 ml/k.

Although BSP9SGC0 was not rigorously screened, it should be nearly 100% dent sterile and carries good agronomic traits. It should be an excellent source for high expansion Supergold dent sterile inbred lines.

BSP7SAC0

BSP7SAC0 is more closely related to South American types than to Supergold or Amber Pearl types and represents the ISU popcorn breeding program's improved South American population.

BSP8SGC0 is more closely related to Supergold types than South American or Amber Pearl types and represents the ISU popcorn breeding program's improved Supergold population. Both yellow-kernel popcorn populations are variable for all traits and have improved popping expansions. Though not rigorously tested, the populations should be dent sterile. During development of these populations, selection was also made for tolerance to European corn borers.

BSP4APC0

Identification: BSP4APC0, a random mating yellow-kernel popcorn synthetic

Description (Taxonomic): *Zea mays L.* Yellow-Kernel popcorn population variable for all traits with a strong tendency to tiller.

Performance Summary: The 154 open pollinated ears selected from 534 harvested ears to generate this released population had single-ear popping expansions that averaged 50.6 cc/g and ranged from 62.0 cc/g to 38.7 cc/g. Popcorn popping check hybrids Iopop12 and Rob20-70 averaged 42.6 cc/g and 57.3 cc/g, respectively.

BSP5C0

Identification: BSP5C0, a random mating yellow-kernel popcorn population

Description (Taxonomic): *Zea Mays L.* Yellow-kernel popcorn population variable for most traits. Most of the plants tend to be tiller free. At a very low frequency, some kernels will mutate to soft endosperm.

Performance Summary: The 151 open-pollinated ears selected from 859 harvested ears had single ear popping expansions that averaged 54.2 cc/g and ranged from 64 cc/g to 35 cc/g. Popcorn popping hybrid checks Iopop12 and Rob20-70 averaged 42.8 cc/g and 56.9 cc/g, respectively.

BSP1C1

This is a genetically diverse, yellow-kernel population of adapted popcorn germplasm. It was developed by allowing many of the most popular and newest popcorn hybrids, both yellow and white, to random-mate via open pollination. During these two inter-mating generations--open pollination in isolation--mass selection was practiced for standability. After this, a recurrent selection program using S1 lines for evaluation was initiated to improve the population. This released population is cycle 1 of that recurrent selection program.

In 1985, an evaluation of the population per se at two locations, one near Ames, Iowa, and one near Lafayette, Indiana, indicated respective stalk breakage percentages of 4 and 5. This population was included in 2 popcorn hybrid yield tests where the respective overall stalk breakage percentage averages for the hybrids were 6.3 and 9.3. Thus, this population can serve as a source of inbred lines with improved standability. Popping expansion for the population was 41.0 at both locations with the averages of the hybrids in the two experiments at 41.7 and 41.3, respectively. Also, an evaluation of the population per se in 1985 (2 reps) gave an average rating of 3.5 and 4.0 for first and second generation European corn borer resistance, respectively, on a scale of 1 to 9 with 1 being resistant and 9 being susceptible. Evidently, this population can serve as a source of some resistance to both generations of the European corn borer.

Initial checks indicate that, although the population is mostly dent sterile, it is not 100 percent dent sterile.

BSP1C4

BSP1C4 is an improved recurrent selection cycle 4 version of BSP1C1. BSP1C1 was released in 1986 and described in Crop Science, 1987, 27: 1318-1319. Through the additional three cycles of S1 recurrent selection, BSP1C4 has undergone selection for improved popping expansion, improved stalk quality, and increased tolerance to second generation of the European corn borer (ECB). It is a yellow-kernel popcorn population variable for plant height, kernel size and shape, flake type, and maturity. The 100 plants selected to generate the population had no broken stalks and 1994 single-ear popping expansion averaged 56 cc/g and ranged from 61 cc/g to 37 cc/g while the standard large popping check hybrid, Rob20-70, averaged 54 cc/g. BSP1C4 should be nearly 100% dent sterile. It seems to be most closely related to South American Types. BSP1C4 is available royalty free for public release.

BSP2C1

This is a somewhat narrow, genetically-based yellow population of adapted popcorn germplasm. It was developed to provide a source of large expansion inbred lines to cross to inbred lines coming out of dent corn x popcorn germplasm. Inbreds derived from dent x popcorn germplasm generally have improved stalk quality but poorer popping expansion.

Four popcorn hybrids, A3004, 33122, P203, and 62180 were intermated in a diallel fashion. A3004 is a private hybrid from Ames Seed Farms, P203 is a released hybrid from Purdue, and 33122 and 62180 are non-released Purdue experimentals. A3004 and 33122 were chosen for their large popping expansion, 62180 for its excellent stalk strength, and P203 because its pedigree includes inbred lines found in the other hybrids.

In 1987, self-pollinated ears from the population were evaluated for popping expansion. These 285 ears averaged 1,254 ml/30g with a range of 600-1,580. Popping expansions for the hybrid checks were: Iopop 12 = 1,212, A3004 = 1,345, M140 = 1,394, and Rob 30-71 = 1,440. Of the 285 ears, 23 had popping expansions above 1,440. Also in 1987, European corn borer (ECB) data were collected on the performance of the population per se. The population per se averaged a rating of 2 for first-generation European corn borer resistance and a 4 for second-generation resistance on a scale of 1 to 9 where 1 is resistant and 9 is susceptible. It appears that along with large popping expansion, the population also carries fair resistance to both generations of the European corn borer.

Inbred lines developed from this population should be dent sterile.

BSP3C1

BSP3C1 is a yellow-kerneled popcorn synthetic that has dent corn germplasm in its background. The dent corn lines used were B86, B87, B68, and B84. The popcorn lines used were IDS69, IDS91, and KP47R, giving it a South American popcorn background. BSP3C1 is mid-season maturity under Ames, Iowa, growing conditions. It has excellent agronomic traits. Dry microwave popped 30-gram expansions for the 250 ears bulked to form the synthetic ranged from 30 cc/g to 58 cc/g with an average of 49 cc/g. Hybrid checks A3004 and Rob20-70 averaged 47 cc/g and 50 cc/g, respectively. The population per se averaged a visual rating of 6, and 6 for resistance to first- and second-generation of the European corn borer (ECB), respectively, where a rating of 1 is resistant and 9 is susceptible. It is dent sterile (Gals-Gals) and has a kernel per 10 gram count of 62.

BSPWIC1

This is a genetically diverse, white-kernel population of adapted popcorn germplasm. It was developed by allowing many of the most popular and newest popcorn hybrids, both yellow and white, to random-mate via open pollination. During these two inter-mating generations--open pollination in isolation--mass selection was practiced for standability. Then, white kernels were separated from yellow, and an S1 recurrent selection program was initiated within the white material to improve the population. This released population is cycle 1 of that recurrent selection program.

A 1985 evaluation of the population per se at 2 locations, one near Ames, Iowa, and one near Lafayette, Indiana, for standability gave a mean of 7.5 percent for stalk lodging. This population was included in a 6-entry white hybrid yield test where the mean stalk lodging was 16.6 percent. Thus, this population could prove to be a source of improved standability for white popcorn. In the same test, this population had an average popping expansion of 39.9 with the overall mean of the test at 39.0, so it appears this population has an acceptable level of expansion.

An evaluation of the population per se in 1985 (2 reps) gave an average rating of 4 and 4 for first- and second-generation European corn borer (ECB), respectively, on a scale of 1 to 9 with 1 being resistant and 9 being susceptible. Evidently, this population can serve as a source of some resistance to both first- and second-generation European corn borer for white popcorn.

Initial checks indicate that, although the population carries the gene for dent sterility, it is not 100 percent dent sterile.

BSPM1C1

BSPM1C1 is a fairly broad, genetic-based population of adapted yellow-kernel popcorn germplasm. It was developed to provide a source of popcorn germplasm that carries the tendency to pop a high percentage of "mushroom" or "ball" type flakes. The population has been through one cycle of S1 recurrent selection for the ability to pop large mushroom flakes. During its development, it was crossed to dent sterile material such that the population should be cross sterile (Gal-S Gal-S).

In 1989, sib-pollinations were made in the population to increase seed for release. On a rating scale of 1 to 3 where 1 is a high percentage of mushroom flakes and 3 is 100 percent butterfly flakes, 143 of 221 ears rated a 1. Of these 221 ears, only 7 produced 100 percent butterfly flakes. The 100 ears selected to generate the released population all rated a 1 with a popping expansion equal to or greater than our mushroom check hybrid A5011.

The population per se under Ames, Iowa, growing conditions appears to be mid-season maturity with good agronomic traits and large kernel size. It popped 37.5 cc/g while our A5011 hybrid check popped 37.0 cc/g.

BSPM2C1

BSPM2C1, a yellow-kerneled popcorn synthetic that has dent corn germplasm in its background, is a mushrooming sub-population of BSP3C1. BSPM2C1 was developed to provide a heterotic partner population to BSPM1C1 for producing inbred lines that combine to produce mushroom hybrids. This synthetic is mid- to full-season maturity under Ames, Iowa, growing conditions. It has excellent agronomic traits. Oil popped 30-gram popping expansions for the 250 ears bulked to form the synthetic ranged from 17 cc/g to 39 cc/g with an average of 29 cc/g while mushrooming checks A5011 and BSPM1C1 averaged 25 cc/g and 27 cc/g, respectively. It is dent-sterile (Gals-Gals) with relatively large kernel size (kernels/10 gram = 53). Because it still carries some dent kernel characteristics, lines from this population should be used as males when crossed to lines from BSPM1C1 to develop mushroom hybrids. The population per se, evaluated in 1991, rated a 5 and 7 for resistance to the first- and second-generation European corn borer (ECB), respectively, where 1 is resistant and 9 is susceptible. The population cross, BSPM1C1 x BSPM2C1, rated a 5 and 6, respectively.

BHPXD-1C2

This population is Iowa State's version of Purdue University's HPXD-1 population after 2 cycles of recurrent selection for popping expansion. The original HPXD-1 has excellent stalk quality traits but only average popping expansion. In order to improve the expansion of this population, intense selection pressure for high expansion was applied throughout the 2 cycles of recurrent selection.

The decision to release this cycle of HPXD-1 was based on 2 factors. The first is that expansion improvements were made with no loss in standability. The second is the expansion data on individual ears from this population. In 1989, sib-pollinations were made in the population to increase seed. These individual sib-mated ears were popped and 18 out of 240 had expansions comparable to Rob30-71, our high expansion hybrid check. Also, to start the next cycle of recurrent selection, self-pollinations were made and 9 of these 226 ears had expansions comparable to Rob30-71. It appears that, even though the average expansion of cycle 2 was only 4 percent greater than the expansion of cycle 0, some relatively high expansion lines can be selected from cycle 2.

Except for a slight loss in yield, there appears to be only minor changes in agronomic traits between cycle 0 and cycle 2.

BSP2C4

BSP2C4 is cycle 4 of an S1 recurrent selection program using the previously released population BSP2C1, Crop Science. 1990. 30:238-239, as the base population. BSP2C4 is more closely related to Supergold types than either South American or Amber Pearl types. This yellow-kernel population also has improved stalk quality traits and popping expansion.

BSP6CBC0

BSP6CBC0 is the result of inter-mating 10 selected lines from cycles 1, 2, and 3 of BSP1C1 and 10 selected lines from an experimental synthetic released in 1996 as BSP5C0. This Population is more closely related to South American types than either Supergold or Amber Pearl types and most plants have high ear placement. BSP6CBC0 also carries a higher level of natural tolerance to the second generation of ECB than probably any other adapted popcorn breeding synthetic.

BSP8SGC0

BSP8SGC0 is more closely related to Supergold types than South American or Amber Pearl types and represents the ISU popcorn breeding program's improved Supergold population. Both yellow-kernel popcorn populations are variable for all traits and have improved popping expansions. Though not rigorously tested, the populations should be dent sterile. During development of these populations, selection was also made for tolerance to European corn borers. License agreements with ISURF are required for this variety prior to purchase.

BSPM3C0

BSPM3C0 is a population cross between BSPM2C1 and a sub-population in the breeding program that showed a strong tendency to pop mushroom flakes. The cross was made to broaden the genetic base of BSPM2C1 for the mushrooming trait.

00000000000000000000000000000000

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 Dr. Dianah R. Ngonyama at 515-294-9442 if you need clarification on inbred seed costs.

DENT CORN INBRE D LINE	UNIT COST (100k)	TOTAL	DENT CORN INBRE D LINE	UNIT COST (100k)	TOTAL	DENT CORN INBRED LINE	UNIT COST (100k)	TOTAL
B102	\$ 80.00		B103	\$ 80.00		B104	\$ 80.00	
B105	\$ 80.00		B106	\$ 80.00		B107	\$ 80.00	
B108	\$ 80.00		B109	\$ 80.00		B110	\$ 80.00	
B111	\$ 80.00		B112	\$ 80.00		B113	\$ 80.00	
B114	\$ 80.00		B115	\$ 80.00		B116	\$ 80.00	
B117	\$ 80.00		B118	\$ 80.00		B119	\$ 80.00	
B120	\$ 80.00		B121	\$ 80.00		B122	\$ 80.00	
B123	\$ 80.00		B124	\$ 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

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.



Iowa State University does not discriminate on the basis of race, color, age, religion, national origin, sexual orientation, gender identity, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Director of Equal Opportunity and Diversity, 3610 Beardshear Hall, (515) 294-7612.