Seed coat color varies from light buff to brick red (dark-brown red) and is proposed to be under the control of three factors, L, R, and I (Baltensperger, 1996) (Table 1). N-Si-4 and N-Si-5 develop light-buff seeds, N-Si-1 and N-Si-3 have cinnamon-buff seed coat, and N-Si-2 produces brick-red seeds, much darker than those of Red Siberian. N-Si-4 and N-Si-5 (LLrrii) mated with N-Si-1 and N-Si-3 produce light-buff F_1 seed and 1 cinnamon buff to 3 light-buff ratio in the F_2 generation. N-Si-1 and N-Si-3, N-Si-4, and N-Si-5 crossed to N-Si-2, Red Siberian, or Golden German produce golden-buff seeds, similar to those of Golden German. In the F_2 generation, the segregation of these crosses is quite complex (Siles, 1997).

Bristle development can be classified into long, medium, and short types and is controlled by a single factor (L) with additive effects (Baltensperger, 1996) (Table 1). N-Si-1 and N-Si-4 develop short bristles (<2.5 mm in length) and N-Si-2, N-Si-3, and N-Si-5 develop long bristles (≥5 mm) similar to those of Red Siberian and Golden German. N-Si-1 and N-Si-4 (L_2L_2) mated to N-Si-2, N-Si-3, N-Si-5, Red Siberian, or Golden German (L_1L_1) produce F_1 progeny with medium bristles and F_2 progenies segregating in a 1 long to 2 medium to 1 short ratio.

Earhead type (dense and lax) is proposed to be conditioned by two factors (A and B) with duplicate effects (Table 1). The presence of at least one dominant allele of either gene is essential for the expression of dense earhead type. N-Si-1, N-Si-2, N-Si-3, and N-Si-5, develop dense earheads similar to Red Siberian and Golden German; however, the spikes of N-Si-1 and N-Si-2 are relatively more compact than those of N-Si-3 and N-Si-5. The spike of N-Si-4 is lax. When N-Si-4 is crossed to N-Si-1 or N-Si-5 and Golden German, F_1 progeny have dense head type, and the F_2 progenies segregate in a 3 dense to 1 lax ratio. N-Si-2, N-Si-3, and Red Siberian mated to N-Si-4 produce dense F_1 progenies and segregate in a 15 dense to 1 lax ratio in the F_2 generation.

Seed shape can be explained on the basis of two factors (A and B) with additive effects (Baltensperger, 1996) (Table 1). N-Si-1 and N-Si-4 produce round seeds, while N-Si-2, N-Si-3, and N-Si-5 develop elliptical seeds, similar to Red Siberian. N-Si-1 and N-Si-4 crossed to N-Si-2, N-Si-3, and N-Si-5 or Red Siberian produce F_1 progenies with medium seed shape, similar to Golden German. The segregation patterns in the F_2 generation of these crosses fit of 5 elliptical to 6 medium to 5 round ratio. N-Si-1 and N-Si-4 in crosses with Golden German produce round F_1 seeds, resembling the parental round seeds. In the F_2 generation, these crosses segregate in a 1 medium to 3 round ratio. In crosses between Golden German and N-Si-2, N-Si-3, N-Si-5, or Red Siberian, the F_1 progenies develop elliptical seeds and the F_2 progenies segregate in a 3 elliptical to 1 medium ratio (Siles, 1997).

Requests for seed should be made to the Panhandle Research and Extension Center, 4502 Ave. I, Scottsbluff, NE 69361. Seed of each line will be made available in 100 seed packets.

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REGISTRATIONS OF PARENTAL LINES

Registration of B115 Inbred Line of Maize

Inbred B115 (Reg. no. PL-304, PI 615190) is a yellow dent maize (*Zea mays* L.) line developed cooperatively by the Iowa Agriculture and Home Economics Experiment Station and USDA-ARS. The line was released in April 2000 because of its potential value as a source of germplasm in pedigree-selection breeding programs.

B115 was derived from BS11(FR)C9, a strain of BS11 that had undergone nine cycles of reciprocal full-sib selection with BS10 the tester for BS11 (Eyherabide and Hallauer, 1991). BS11 is a selected strain of Pioneer Two-ear Composite (Hallauer, 1967). B115 was developed from one of the lines [BS11(FR)C9-3227-9] that was included in the intermatings that formed BS11(FR)C10. The line was evaluated in testcross with B73 at the S_2 generation. On the basis of testcross performance, the line was advanced ear-to-row by seven generations of self-pollination in a breeding nursery and included in a crossing nursery to produce single-cross seed with B73, B104, B105, B109, and H123. Single crosses that included B115 as one parent were evaluated in two-replication trials in 1996 (3 locations), 1997 (4 locations), 1998 (9 locations), and 1999 (12 locations) with commercial check hybrids (2 to 4) included in each trial. Average data across years and locations showed that single crosses that included B115 (89.1 q ha^{-1}) had yields similar to the check hybrids (87.4 q ha^{-1}), similar root (8.1 vs. 5.3%) and stalk (8.2 vs. 5.1%) lodging, and similar ear droppage (0.0 vs. 0.3%), but B115 single crosses had significantly greater grain moisture (24.2 vs. 19.8%) at harvest.

B115 is a vigorous line that has above average resistance to first- and second-generation European corn borer (*Ostrinia nubilalis* Hübner) and early infection by common corn rust (caused by *Puccinia sorghi* Schw.), gray leaf spot (caused by *Cercospora Zeae-maydis* Tehon and Daniels), and northern corn leaf blight (caused by *Exserohilum turcicum* Pass.). B115 has a light, green plant color and tends to produce more than one ear per plant. Plant and ear heights of B115 are similar to B73 and Mo17, but hybrids with B115 have greater grain moisture at harvest; i.e., a slower rate of grain drying. B115 has light, yellow, semi-dent kernels. Seed yield of B115 is similar to Mo17, but seed size is similar to B73. Ears of B115 have 16 kernel rows, have ear lengths intermediate to B73 and Mo17, and have ear diameters similar to Mo17. B115 performs better in crosses with lines derived from Iowa Stiff Stalk Synthetic. Maturity classification is AES 700-800.

Seed of B115 is maintained by the Iowa Agriculture and

Home Economics Experiment Station and is distributed upon request (100 seeds per request) by the Committee for Agriculture Development, 133 Curtiss Hall, Iowa State University, Ames, IA 50011-1050.

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