randomly self-pollinated plants increased from 53.3 g plant\(^{-1}\) for \(C_0\) to 74.1 g plant\(^{-1}\) in \(W_3L\) COMP-\(HS\) \(C_4\). Possible estimates of broad-sense heritabilities based on historical data from four cycles of selection provided estimates of 0.34 and 0.76 for \(HS\) and \(S_r\) families, respectively, for grain yield, and corresponding estimates of 0.68 and 0.88 for grain moisture, suggesting that adequate genetic variation exists for further selection. Populations \(W_3L\) COMP-\(HS\) \(C_4\) and \(W_3L\) COMP-S1 \(C_4\) are AES400 maturity, were reduced from 31% in \(C_0\) to 19% in \(C_3\) for the population cross RBS10 X RSSSC. Grain moisture at harvest increased from 188 to 203 g kg\(^{-1}\) in RBS10 per se from \(C_0\) to \(C_3\), respectively, and from 192 in \(C_0\) to 203 g kg\(^{-1}\) in \(C_3\) of the population cross RBS10 X RSSSC. The maturity classification of RBS10(C3) synthetic would be a late AES800 maturity group.

Breeder seed in 500-kernel lots are available from the Department of Agronomy, 1102 South Goodwin Ave., Urbana, IL 61801.

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References and Notes


REGISTRATION OF RBS10 (\(S_r + HS\)) C3 CORN GERMPLASM

The yellow dent corn (Zea mays L.) synthetic RBS10 (\(S_r + HS\)) (C3) (Reg. no. GP-200; PI 531512), developed by the Illinois Agriculture Experiment Station, Urbana, IL 61801, was released in March 1988 for possible use by corn breeders. The RBS10 C3 synthetic was developed from BS10FS(C4) (1) obtained from Dr. A.R. Hallauer, Dep. of Agronomy and USDA, Iowa State University, Ames, IA in 1976. The BS10C0 synthetic (2) was developed by combining 10 maize lines that were two eared, and BS10(C4) synthetic has been selected for grain yield by using full-sib reciprocal recurrent selection with BS11.

In 1978, a modified reciprocal recurrent selection program, using the corn synthetics BS10(C4) and RSSSC(C0) in a high-yield environment, was started by using both \(S_r\) and half-sib families (\(S_r \times\) inbred tester B37) and testing both for yield and standability (3). In addition, mass selection for resistance to multiple leaf diseases and stalk rots was used to select plants that produced the \(S_r\) families. Plants were artificially inoculated with ground leaf material from plants infected with northern corn leaf blight, caused by Exserohilum turcicum (Pass.) Leonard and Suggs., southern corn leaf blight, caused by Bipolaris maydis (Nisikado and Miyake), and anthracnose leaf blight, caused by Colletotrichum graminicola (Ces.) Wilson. Stalks were inoculated 10 to 20 d after pollination with a mixture containing spores of Diplodia maydis (Berk.) Sacc., Gibberella zeae (schw.) Petch., Fusarium moniliforme Sheld., and Colletotrichum graminicola (Ces.) Wils.

Evaluation of three cycles of selection progress (4) by using the populations per se and population crosses for 2 yr(1985–86) and four environments each year showed that RBS10(C0) yielded 7.1 and RBS10(C3) 9.4 t ha\(^{-1}\). For the population cross RBS10 X RSSSC, yields of \(C_0\) and \(C_3\) were 8.5 and 9.9 t ha\(^{-1}\), respectively, and lodging was reduced from 42% in \(C_0\) to 22% in \(C_3\) for the RBS10 population and from 31% in \(C_0\) to 19% in \(C_3\) for the population cross RBS10 X RSSSC. Plants of the populations artificially inoculated with multiple stalk rots showed a rating of the populations per se of 8.1 for \(C_0\) and 4.7 for \(C_3\) (1 = resistant, 10 = susceptible); for the population cross RBS10 X RSSSC, the ratings were 8.4 for \(C_0\) and 4.7 for \(C_3\). Ratings for leaf area infected with multiple leaf diseases showed \(C_0\) had 56% (average of 3 dates) leaf area infected, C3 44% for the RBS10 population and 35% for \(C_0\) and 41% for \(C_3\) of the population cross RBS10 X RSSSC. Grain moisture at harvest increased from 188 to 203 g kg\(^{-1}\) in RBS10 per se from \(C_0\) to \(C_3\), respectively, and from 192 in \(C_0\) to 203 g kg\(^{-1}\) in \(C_3\) of the population cross RBS10 X RSSSC. The maturity classification of RBS10(C3) synthetic would be a late AES800 maturity group.

Breeder seed in 500-kernel lots are available from the Department of Agronomy, 1102 South Goodwin Ave., Urbana, IL 61801.

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References and Notes
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REGISTRATION OF KYWS1, KYWS2, KYWS3, KYWS4, KYWS5, AND KYWS6 MAIZE GERMPLASMS

Six white-endosperm maize (Zea mays L.) breeding populations were released by the Kentucky Agricultural Experiment Station in 1986. Each germplasm is the third generation synthetic of BC1S4 and BC2S3 lines derived from a single elite yellow-endosperm inbred and KY201, a white-endosperm inbred. The germplasms are segregating for pure-white/off-white endosperm color and various agronomic traits, but should provide appropriate white-endosperm kernel types with good combining abilities. The germplasms and their respective yellow-endosperm inbred recurrent parents (RP) are: KYWS1 (Reg. no. GP-201, PI 531513), RP = A632; KYWS2 (Reg. no. GP-202, PI 531514), RP = B73; KYWS3 (Reg. no. GP-203, PI 531515), RP = Mo17; KYWS4 (Reg. no. GP-204, PI 531516), RP = N28; KYWS5 (Reg. no. GP-205, PI 531517), RP = H84; KYWS6 (Reg. no. GP-206, PI 531518), RP = Oh545.

The yellow-endosperm inbred recurrent parents were chosen because of their proven usefulness in corn hybrids. The white-endosperm inbred KY201 was chosen for its good general combining ability and early maturity compared to other commonly used white-endosperm inbreds. The generalized pedigrees (1) and AES maturity ratings of the recurrent and nonrecurrent parents are: A632, (Mo42 X B14)B14, AES 69; KY201, Iowa Stiff Stalk Synthetic recurrent selection population C5, AES 800; Mo17, 187–2 X C103, AES 800; H84, (B37 X GE440)H, AES 700; N28, Stiff Stalk Synthetic, AES