REGISTRATION OF CROP GERMPLASMS

REGISTRATION OF MAIZE GERMPLASMS
FS8A(S), FS8A(T), FS8B(S), and FS8B(T)

Four maize (Zea mays L.) germplasms (Reg. no. GP-214 to GP-217; PI 536619 to PI 536622) were developed in a breeding project conducted by the Florida Agricultural Experiment Stations and released in 1988. The first phase of this project consisted of four cycles of full-sib selection, among a wide range of accessions, for resistance to southern corn leaf blight (SCLB) [caused by Race O of Bipolaris maydis (Nisikado) Shoem.]. The resulting population, highly resistant to SCLB, was named FSHmR and released in 1975. It was then divided into two subpopulations, FS8A and FS8B, on the basis of pedigree records, so that relationship between the two was minimized. It was not possible to avoid some duplication of ancestry, because the pedigrees after four cycles of full-sib selection were complex. The inbred line C103A, for example, accounts for about 8 and 2% of the germplasm in FS8A and FS8B, respectively. All of the other accessions were populations that have not been widely used in U.S. breeding programs. Germplasms from southeastern U.S., Corn Belt, and Tropical sources, respectively, account for approximately 35, 23, and 42% of FS8A(S); 30, 22, and 48% of FS8A(T); 19, 21, and 60% of FS8B(S); and 24, 22, and 54% of FS8B(T).

The two populations were subjected to four cycles of grain yield improvement by two methods: S2 progeny per se selection (S method), and testcross progeny selection in which an inbred line from FS8B was used to test lines from FS8A and vice versa (T method). The two populations produced by the latter method, FS8A(T)C4 and FS8B(T)C4, have better combining ability with unrelated testers than those from the S2 method (1). The population crosses FS8A(T)C4 × FS8B(T)C4 and FS8A(S)C4 × FS8B(S)C4 produced 7.54 and 6.74 Mg ha\(^{-1}\), respectively, in a test with commercial hybrids at three locations in Florida in 1987. The mean for 62 commercial hybrids in this test was 7.40 Mg ha\(^{-1}\). In these same tests, the two population crosses reached the flowering stage (50% silk) about 3 d later and had 10 to 15 cm higher ear placement than Pioneer brand 3165. They are in the AES1200 maturity class.

Seed of these populations in 500-kernel lots are available on request from Dr. E.S. Horner, Agronomy Department, 304 Newell Hall, University of Florida, Gainesville, FL 32611. The Plant Introduction Station at Ames, IA, also can supply seed in limited amounts.

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References and Notes


2. Seed of LAO-423-001 is stored at the Plant Introduction Station, USDA, Fort Collins, CO 80523, and the Agriculture Canada Research Station, Ottawa, ON K1A 0C6, and at the USDA National Seed Storage Laboratory, Fort Collins, CO 80523.