Registration of Pearl Millet Parental Lines
Tift 99D₂A₁/B₁

The USDA-ARS and the University of Georgia Coastal Plain Experiment Station at Tifton, GA, cooperatively developed and released in December 2003 a pair of A₁ (cytoplasmic-nuclear male sterile; cms) and B₁ (maintainer) lines of Tift 99D₂ (Reg. no. PL-45 and PL-44, PI 638787 and PI 638786) pearl millet [Pennisetum glaucum (L.) R. Br.]. Tift 99D₂A₁ is used as the female parent to produce TifGrain 102, a grain hybrid. Grain yields for TifGrain 102 ranged from 4000 to 6000 kg ha⁻¹ in Georgia.

Tift 99D₂B₁, male fertile maintainer line for Tift 99D₂A₁, was derived from a dwarf rust (caused by Puccinia substriata Ellis & Barth. var. indica Ramachar & Cummins) resistant plant, registered as Tift 89D₂ (Hanna and Wells, 1993), selected in 1993 from a rust resistant bulk seed population derived from rust resistance research conducted from 1978 to 1984 at Tifton, GA. The rust resistant selection was crossed in 1996 to 1164B, a dwarf inbred obtained from Bill Stegmeir at Kansas State University in 1995. Four backcrosses were made to 1164B with selection for rust resistance in the field or greenhouse at each backcross. A rust resistant plant with desirable agronomic characteristics was selected in BC₄ and selfed for two generations to develop a uniform inbred, Tift 99D₂B₁. In two greenhouse experiments, Tift 99D₂B₁ showed only small necrotic spots with no sporulation (rated 1 on a scale of 0 [no infection sites] to 5 [numerous infection sites and sporulation]) while the susceptible check, Tift 23D₂B₁ (rated 4) showed extensive necrotic lesions with grey sporulation visible. Tift 99D₂B₁ was backcrossed to 90D₂A₁E₁ (cms line used to produce pearl millet grain hybrid HGM-100) (Hanna, 1993) for seven generations to produce cms Tift 99D₂A₁. Seeds of both inbreds are brownish grey. Plants of both inbreds are at 50% anthesis in 54 to 56 d after planting and are 0.6 to 0.8 m in height at maturity.

Breeder seed of these parental inbred lines will be maintained by the corresponding author. Small quantities of seed are available from the corresponding author for research purposes, including development and commercialization of new cultivars until November 2010. Inbreds will be released under a limited or exclusive arrangement. It is requested that appropriate recognition be made if this germplasm contributes to the development of a new breeding line or cultivar.

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Acknowledgments

The authors acknowledge partial financial support by the University of Georgia Research Foundation Cultivar Development Research Program.

References


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doi:10.2135/cropsci2005.0172
Published in Crop Sci. 45:2671 (2005).
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