REGISTRATION OF GP9BR HERBICIDE-TOLERANT SORGHUM COMPOSITE

The Sorghum bicolor (L.) Moench atrazine [2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine]-tolerant (pre-emergence applications) composite GP9BR (Reg. no. GP-314, PI 540313) was cooperatively released as germplasm during April 1990 by the University of Georgia Agricultural Experiment Station (G) and the USDA-ARS Tropical Agriculture Research Station (P) in Mayaguez, PR. The initial composite was established in April 1987 by bulking 2-g subsamples from a random selection of 1000 F$_2$ and F$_3$ segregating progeny from the pedigree/backcross breeding program of R.R. Duncan. The segregating composite was chosen on the basis of a high probability for 3-dwarf segregants emerging from the program. Source pedigrees included

of the emerging sorghum. Soil type at Griffin, GA, was a Pacolet coarse sandy loam (Typic Kanhapludult) with 70% sand, 19% silt, and 11% clay and 1.1% organic matter. Funk G-522DR was used as a standard check hybrid for all field tests at Griffin. Three plants (two rows) on either side of the composite rows of this check were killed by the herbicide stress imposed on it and the segregating composite.

During October 1987, 300 panicles with a total plant survival rate of 10% based on the panicles, panicle size, and vigor; 1-g subsamples of the panicles were composited for planting in a winter nursery. Soil type in Puerto Rico was a Goto clay (Tropeptic Eutrustox) with 25% sand, 10% silt, 65% clay and 2.5% organic matter at pH 5.5. Similar herbicide applications and irrigation regimes were used in Puerto Rico in 1988. 250 panicles were selected (plant survival was approximately 10%) and 5-g subsamples were composited for planting in Georgia during May 1988. The Griffin location, the composite was again planted (1.68 kg ai ha$^{-1}$) on a Greenville sandy clay loam soil (Rhodic Kandudult) with 61% sand, 16% silt, and 23% clay and 1.3% organic matter at pH 6.5 (Ap horizon). This previously produced atrazine injury to sorghum at recommended (1.68 kg ai ha$^{-1}$) postemergence applications, followed by 50 to 100 mm of rain or irrigation activation at both Georgia locations during 1988 and in Puerto Rico was $\approx$ 75%.

Similar cycles of herbicide preemergence application and irrigation activation were repeated in Georgia during May to October 1988, November 1988 to March 1989, and again in Georgia during May to October 1989. Half-bine-height (presumably 3- and 4-dwarf seeded, open to semiopen panicles (total plant survival of >95%) were selected and composited.

The composite should provide a useful germplasm source of F$_6$ to F$_7$ generation combine-height maintainer and restorer lines with exceptional tolerance to recommended applications of atrazine on sandy soils. Seed will be maintained by the senior author at the University of Georgia Agricultural Experiment Station, Griffin, GA 30223-1797 (Fax 404-229-3215).

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References and Notes

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