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Registration of PD-3-14 Germplasm Line of Upland Cotton with High Yield and Fiber Quality

PD-3-14, a cotton (*Gossypium hirsutum* L.) (Reg. no. GP-628, PI 591417) germplasm line that combines high yield potential and improved fiber quality, was developed at the Pee Dee Research and Education Center, Florence, SC. This line was released in 1995 by the USDA-ARS and the South Carolina Agricultural Experiment Station.

PD-3-14 was derived from the bulk seed increase of a single-plant selection made in a purification block of breeder seed of 'PD-3'. PD-3 is a southeastern USA cultivar combining high lint yield and superior fiber and spinning quality (1).

Frego bract (2) occurred at low frequency in the initial production of PD-3. Subsequently, C.C. Green and T.W. Culp conducted a selection program to reduce the frequency of frego bract in PD-3. They coincidentally identified a non-frego bract strain with increased lint yield and improved fiber quality. In nine trials in Florida, Georgia, and South Carolina, PD-3-14 averaged 7% higher lint yield than PD-3. Data from the 1993 High Quality Regional Cotton Variety Test (3) and the Georgia Strains Test indicated that PD-3-14 yielded about 3% higher than 'Deltapine 90'.

Fiber quality of PD-3-14 is superior to Deltapine 90 and yarn strength is superior to PD-3. Compared with Deltapine 90, fiber strength (by stelometer measurement) of PD-3-14 is about 10% higher, 2.5% span length is about 2% higher, and micronaire reading is about 6% lower. Compared with PD-3, yarn strength of PD-3-14 averaged 2% higher in 3 yr of testing. Other fiber properties such as fiber strength, length, and micronaire reading are similar between PD-3 and PD-3-14.

PD-3-14 should be useful to breeders and geneticists as a source of excellent fiber and spinning properties combined with high yield.

Seed (25 g) of this germplasm line may be obtained from the corresponding author. Recipients of seed are asked to appropriately acknowledge the source of the germplasm if it is used in the development of new germplasm, cultivars, or hybrids.

O. L. May,* D. S. Howle, C. C. Green, and T. W. Culp (4)

References and Notes

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4. O.L. May, USDA-ARS and Dep. of Agronomy, Clemson Univ., 2200 Pocket Rd., Florence, SC 29501-9706; D.S. Howle, Dep. of Seed Certification, Clemson Univ., 1162 Cherry Rd., Clemson, SC 29634-0393; C.C. Green, Delta and Pine Land Co., P.O. Box 1529, Hartsville, SC 29550; and T.W. Culp (retired), USDA-ARS, Florence, SC. Joint contribution of the USDA-ARS and the South Carolina Agric. Exp. Stn. Tech. Paper no. 4130. Registration by CSSA. Accepted 30 Apr. 1996. *Corresponding author (Email: cotton@florence.ars.usda.gov).

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