

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Washington, D.C.

and

CLEMSON UNIVERSITY EXPERIMENT STATION
Clemson, SC

and

COTTON INCORPORATED
Cary, NC

NOTICE OF RELEASE OF PD 06001 AND PD 06078 GERMPLASM LINES OF COTTON

The Agricultural Research Service, United States Department of Agriculture, the Clemson University Experiment Station, and Cotton Incorporated announce the release of two upland cotton germplasm lines, PD 06001 and PD 06078 that possess superior fiber quality, fiber spinning performance, and excellent yield performance under a range of growing environments. The lines provide public and private breeders with resources for concurrent improvement of fiber quality, fiber spinning, and yield performance in Upland cottons with broad adaptation across the United States.

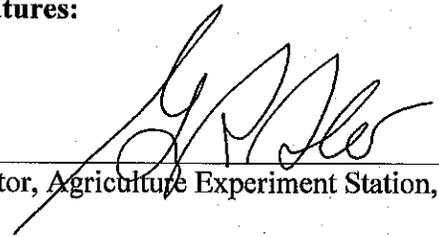
PD 06001 was derived from a cross between PD 93007 and AZ-93-180. PD 93007 was released as a late maturing, high yield, and high quality germplasm line and derived from a cross between PD 5285 and PD 5284. AZ 93-180 was a breeding line developed by the USDA-ARS in Maricopa, AZ. PD 06078 was derived from a cross between PD 94042 and 'Suregrow 105' (SG 105, PVP #9900190). PD 94042 was derived from a cross between 'Jimian 8' and 'PD-3'. SG 105 was developed by Suregrow Seed Company (Centre, AL) from a cross between two experimental breeding lines D6-70 and B3-33. Approximately fifteen F1 plants each of PD 93007/AZ-93-180 and PD 94042/SG 105 were self-pollinated at the ARS winter nursery in Mexico and the F2 seed bulked for each cross. Based on its yield performance, the F2 bulk was advanced to the F3 for single plant selection. The F3 plants were selected for plant type and fiber properties and advanced to F4 progeny rows. PD 06001 and PD 06078 were derived from a single F3:4 progeny row selected for plant type, fiber properties, and yield potential.

PD 06001 displays a full-season maturity and combines excellent yield potential, fiber quality, and fiber spinning performance. Averaged over 15 locations of the 2012 Regional Breeders Testing Network (RBTN) trial from California to Virginia, PD 06001 produced lint yield lower than 'Deltapine 393' and 'Fibermax 958' but equal to 'Suregrow 105' (Table 1). Lint percent and lint index of PD 06001 was lower than the three check cultivars. Boll size and seeds boll-1 were equal to or greater than the three check cultivars, and seed index was less than Suregrow 105 but greater than or equal to Deltapine 393 and Fibermax 958. PD 06001 produced fiber length superior to each of the three check cultivars. PD 06001 micronaire was equal to Suregrow 105 and superior to Deltapine 393 and Fibermax 958. PD 06001 uniformity was less than Deltapine 393 and Fibermax 958 but equal to Suregrow 105. PD 06001 fiber strength was less than Suregrow 105, equal to Deltapine 393, and greater than Fibermax 958. The fiber quality index (a weighted average of fiber length (10 percent), micronaire (10 percent), uniformity (30 percent), and fiber strength (50 percent) of PD

06001 was less than Deltapine 393 but equal to Fibermax 958 and Suregrow 105. Overall, PD 06001 yarn displayed excellent fiber spinning performance (Table 2). The number of thin and thick places was similar to Deltapine 393. The force to break and tenacity was similar to Deltapine 393 and the high quality check Phytogen 72. PD 06078 displays a full-season maturity and combines excellent yield potential, fiber quality, and fiber spinning performance. Averaged over 15 locations of the 2012 Regional Breeders Testing Network (RBTN) trial from California to Virginia, PD 06078 produced lint yield lower than 'Deltapine 393' and 'Fibermax 958' but equal to 'Suregrow 105' (Table 1). Lint percent of PD 06078 was lower than Deltapine 393 but equal to Fibermax 958 and Suregrow 105. Lint index of PD 06078 was lower than the three check cultivars. Boll size of PD 06078 was less than Suregrow 105 but equal to Deltapine 393 and Fibermax 958. Seeds boll-1 was equal to Deltapine 393 and Suregrow 105 and greater than Fibermax 958. Seed index was less than Fibermax 958 and Suregrow 105 but equal to Deltapine 393. PD 06078 produced fiber length superior to each of the three check cultivars. PD 06078 produced micronaire similar to Deltapine 393 and Suregrow 105 but superior to Fibermax 958. Uniformity was equal to Deltapine 393 and Fibermax 958 but greater than Suregrow 105. PD 06078 fiber strength was equal to Suregrow 105 but greater than Deltapine 393 and Fibermax 958. The fiber quality index of PD 06078 was equal to Deltapine 393 but greater than Fibermax 958 and Suregrow 105. Overall, the fiber spinning performance of PD 06078 was similar to the high quality check cultivar Phytogen 72 and greater than Deltapine 393 (Table 2). Compared to Deltapine 393, PD 06078 yarn produced fewer thin and thick places, similar force to break, and higher yarn tenacity.

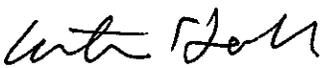
These two germplasm lines provide an excellent source of superior fiber quality, excellent fiber spinning performance, and high yield potential with broad adaptation across the upland cotton belt in the United States. Small quantities of seed (20 g) are available to cotton breeders, geneticists, and other research personnel upon written request to: B.T. Campbell, USDA-ARS, Coastal Plains Soil, Water, and Plant Research Center, 2611 West Lucas Street, Florence, SC 29501. It is requested that appropriate recognition of the source be given when these germplasm lines contribute to the development of a new breeding line, hybrid, or cultivar. Genetic material of this release will be deposited in the National Plant Germplasm System where it will be available for research purposes, including development and commercialization of new cultivars.

Signatures:



Director, Agriculture Experiment Station, Clemson University

4/7/14
Date



Vice President, Ag & Environmental Research
Cotton Incorporated

5/15/2014
Date



Deputy Administrator, Crop Production and Protection
Agricultural Research Service, U.S. Department of Agriculture

5/15/14
Date