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

and

CLEMSON UNIVERSTIY EXPERIMENT STATION
Clemson, SC

and

COTTON INCORPORATED
Cary, NC

NOTICE OF RELEASE OF PD 05035 AND PD 05041 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 05035 and PD 05041 that possess the okra leaf trait, 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 05035 was derived from a cross between PD 93007 and SG 747. PD 93007 was derived from a cross between experimental germplasm lines PD 5285 and PD 5485. PD 05041 was derived from a cross between PD 93046 and SG 747. PD 93046, a sister breeding line of PD 93007, was derived from the same cross between experimental germplasm lines PD 5285 and PD 5485. PD 93007 and PD 93046 combined early maturity, high fiber quality, and improved yield potential. SG 747 (PVP #9800118) is a cultivar developed by Sure-Grow Seed, Inc. (Centre, AL) and was a plant selection out of cultivar SG 125 (PVP #9400063). SG 125 was derived from a cross between 'DES 119' and 'DPL 50'. Approximately fifteen F1 plants each of PD 93007/SG-747 and PD 93046/SG-747 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 05035 and PD 05041 were each derived from a single F3:4 progeny row selected for plant type, fiber properties, and yield potential.

PD 05035 displays a mid-season maturity and possesses the okra leaf trait. PD 05035 combines excellent yield potential, fiber quality, and superior fiber spinning performance. Averaged over 17 locations of the 2010 Regional Breeders Testing Network (RBTN) trial from California to Virginia, PD 05035 produced lint yield equal to 'Suregrow 105' and superior to 'Fibermax 958' (Table 1). Although PD 05035 produced lower lint percent and lint index compared to check cultivars, it produced equal to or greater boll size, number of seeds, and seed index. Compared to fiber quality properties of commercial check cultivars, PD 05035 produced fibers with superior length, micronaire, and strength. 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 05035 was equal to 'Deltapine 393' and superior to Fibermax 958 and Suregrow 105. Averaged across three locations of the 2011 Elite Conventional Strains test conducted in South Carolina and North

Carolina, PD 05035 produced fiber with spinning performance superior to Deltapine 393 and similar to the high quality check cultivar 'Phytogen 72' (Table 2). Compared to Deltapine 393, PD 05035 yarn produced fewer thin and thick places, greater force to break, and higher yarn tenacity.

PD 05041 displays a mid-season maturity and possesses the okra leaf trait. PD 05041 combines excellent yield potential, fiber quality, and superior fiber spinning performance. Averaged over 17 locations of the 2010 Regional Breeders Testing Network (RBTN) trial from California to Virginia, PD 05041 produced lint yield equal to Suregrow 105 and superior to Fibermax 958 (Table 1). Compared to check cultivars, PD 05041 produced lower lint percent and lint index less than Fibermax 958 but equal to Deltapine 393 and Suregrow 105. PD 05041 produced boll size, number of seeds, and seed index equal to or greater than check cultivars. Compared to fiber quality properties of commercial check cultivars, PD 05041 produced fibers with superior length, micronaire, and strength. The fiber quality index of PD 05041 was equal to Deltapine 393 and superior to Fibermax 958 and Suregrow 105. Averaged across three locations of the 2011 Elite Conventional Strains test conducted in South Carolina and North Carolina, PD 05041 produced fiber with spinning performance superior to Deltapine 393 and similar to Phytogen 72 (Table 2). Compared to Deltapine 393, PD 05041 yarn produced similar thin and thick places, greater force to break, and higher yarn tenacity.

These two okra leaf 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 — Date 4/2/14

Vice President, Ag & Environmental Research
Cotton Incorporated — Date 5/15/2014

Deputy Administrator, Crop Production and Protection
Agricultural Research Service, U.S. Department of Agriculture — Date 5/15/14