In common tests with Deltapine 493 (DP493) the lint yield of LA1110017 was 153 kg ha\(^{-1}\) less, significant at \(P = 0.05\). The lint fraction of LA1110017 (40\%) was significantly lower than that of PSC355 at 42\% and also significantly (\(P = 0.05\)) lower than that of DP493 (46\%). The fiber length of LA1110017 (30.2 mm) was significantly greater than that of PSC355 (28.2 mm) or DP493 (28.2 mm). The fiber strength of LA1110017 (346 kN m kg\(^{-1}\)) was significantly greater than that of PSC355 (317 kN m kg\(^{-1}\)) and also of DP493 (291 kN m kg\(^{-1}\)). Significantly lower micronaire values existed in LA1110017 than in DP493 and in PSC355. Elongation mean values for LA1110017 were significantly lower in comparison to PSC355 but significantly greater than DP493. Greater fiber length uniformity was evident in LA1110017 than in either PSC355 or DP493 with the highest mean values associated with LA1110017.

LA1110017 provides cotton breeding programs looking to improve fiber quality an improved fiber package, notably in the areas of length and strength. The highly competitive yield of LA1110017 would imply that these traits could be introgressed without a concomitant yield penalty. Small quantities of seed will be available for distribution and may be requested from the senior author. Unless specifically approved by the Louisiana Agricultural Experiment Station, LA1110017 may not be used as a recurrent parent in a breeding program.

References

Registration of Arkot 9506 and Arkot 9513 Germplasm Lines of Cotton
F.M. Bourland* and D.C. Jones

Two breeding lines of cotton, *Gossypium hirsutum* L., designated as Arkot 9506 (Reg. No. GP-874, PI 643442) and Arkot 9513 (Reg. no. GP-875, PI 643443) were released by the Arkansas Agricultural Experiment Station in 2006. The lines were developed using the generalized procedures outlined by Bourland (2004).

Arkot 9506 was derived from a 1993 cross between two advanced breeding lines, 8703-25-07 and 8726-10-01. The breeding line 8703-25-07 was derived from the double cross of \(F_1\) (‘DP90’/‘ST825’)/\(F_1\) (Miscot 7918/Miscot 7803-52). The breeding line 8726-10-01 was derived from crossing La. HG-063 (Jones et al., 1988) and \(F_1\) (Miscot T8-27/Miscot 7803-52). Miscot 7918 (Bourland and White, 1989b), Miscot 7803-52 (Bourland and White, 1989a), and Miscot T8-27 (Bourland and Bridge, 1988) were developed by crossing lines from the Texas A&M Multi-Adversity Resistance Cotton Breeding program (Bird, 1982) with lines adapted to the Mississippi River Delta region. Arkot 9513 was derived from a 1993 cross of Arkot 8712 (Bourland et al., 2005) and 8923-11, an advanced breeding line derived from crossing ‘H1330’ (Bourland, 1996) and St 81-29-2,268 (a sister line of M-92, M-249, and M-272; Shepherd et al., 1996).

Within \(F_1\) populations grown at the Southeast Branch Station at Rohwer, AR, in 1997, bolls from visually superior plants were harvested and bulked. The \(F_1\) bulk populations were grown at Rohwer in 1998, and superior individual plants were selected and harvested separately. The resulting \(F_2\) progeny rows were evaluated at Clarkedale (Delta Branch Station), and Rohwer, AR, in 1999. Progenies designated as 9506-40 and 9513-28 were among the ones promoted and tested in different replicated strain tests in 2000. Individual plant selections from the \(F_2\) generation of these two strains were made from seed increase blocks planted at Keiser, AR, in 2000. Seed from these selected plants were evaluated as progenies in 2001. Two of these selections produced Arkot 9506 (tested as 9506-40-05) and Arkot 9513 (tested as 9513-28-01).

From 2002 through 2005, the two lines were compared to ‘PSC 355’ and ‘SG 105’ in 13 replicated field tests at five Arkansas Agricultural Research Station sites, two on-farm sites in northeast Arkansas, four Stoneville, MS, sites and one Tifton, GA, site. Arkot 9513 was also evaluated in the 2004 Regional High Quality Strain Test. Both lines were evaluated in the 2005 Regional Breeders’ Testing Network (RBTN), which included 10 locations from South Carolina to west Texas (www.cottonrbtn.com).

Over all Arkansas tests, mean lint yields of Arkot 9506 exceeded the check cultivars by more than 6\%, while yields of Arkot 9513 were similar to the check cultivars. When compared