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and Fiber Commission. Fiber properties were determined at the International Center for Textile Research and Development of Texas Tech University, Lubbock, TX.

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REGISTRATION OF SEVEN UPLAND COTTON GERMPLASM LINES ADAPTED TO THE COASTAL BEND OF TEXAS

SEVEN germplasm lines of cotton, *Gossypium hirsutum* L. (Reg. no. GP-425 to GP-431; PI 540257 to PI 540263), were released by the Texas Agricultural Experiment Station in November 1989. These germplasm lines were developed as part of a cotton improvement program to provide improved germplasm adapted to the Coastal Bend region of Texas.

These lines were derived by hybridization from 1977 through 1980, followed by pedigree selection. Individual plant selections during the F_2 to F_4 generations were based on apparent yield potential in nurseries at the Texas A&M Research and Extension Center, Corpus Christi, TX. Other characters considered during the selection process were plant conformation and high volume instrument (HVI) fiber properties. Fiber properties were determined at the International Center for Textile Research and Development of Texas Tech University, Lubbock, TX. Designations and pedigrees of these germplasm lines are given in Table 1.

These germplasm lines averaged from 18 to 33% more lint than control cultivars from 1986 through 1988 at Corpus Christi, TX. These germplasm lines were compared with Stoneville 213 during 1986 and 1987 and with Deltapine 50 in 1988. Only four lines, TAM 0033, 0066, 1033, and 8177, were significantly lower in percent lint than the highest-yielding control cultivar, Deltapine 50, and none were significantly lower than Stoneville 213.

Table 1. Designations and pedigrees of seven upland cotton germplasm lines.

Designation	Pedigree
TAM 8165	PD 6520 × ‖{[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840} × DSR6-19‖
TAM 9163	{[North Carolina Smooth 2 × (AE-179 × Tideland 69)] × (Paymaster 1209 × Lankart 57)} × ‖{[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840} × DSR6-19‖
TAM 73840	‖{[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840} × DSR6-19‖ × [(Gregg × Fox 4) × (Lankart 57 × Acala 5675)]
TAM 0033	{Tamcot SP21 S × [(CA 491A × Lankart 57) × 6M-10]} × {(Paymaster 1209 × DSR6-19) × [(Deltapine 14 × Roger's Acala) × Lankart 57]}
TAM 8177	PD 6891 × {[Lankart 57 × (Deltapine 14 × Roger's Acala)] × DSR6-19}
TAM 0066	(New Mexico 1073-30 × 407-20) × [(Paymaster 1209 × DSR6-19) × Tamcot CAMD-E]
TAM 1033	{[(AE-179 × T 501) × (Deltapine 14 × Roger's Acala)] × (Paymaster 1209 × DSR6-19)} × ‖{[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840} × [(Gregg × Fox 4) × (Lankart 57 × Acala 5675)]‖

TAM 0033 had significantly longer upper-half mean length (UHM) of fibers than the average of the two control cultivars and no germplasm had significantly shorter fibers. Only germplasm line TAM 1033 had significantly weaker fibers than Stoneville 213. Three of the seven lines, TAM 0033, 0066, and 8177, had significantly finer fibers as indicated by micronaire readings than either Stoneville 213 or Deltapine 50.

Twenty-five seeds of each germplasm line will be available for distribution from the corresponding author until seed supplies are exhausted. Research and development of these germplasm lines were supported in part by the Texas Food and Fiber Commission.

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REGISTRATION OF 10 UPLAND COTTON GERMPLASM LINES HAVING IMPROVED FIBER BUNDLE STRENGTH

TEN germplasm lines of cotton, *Gossypium hirsutum* L. (Reg. no. GP-432 to GP-441; PI 540264 to PI 540273), were released by the Texas Agricultural Experiment Station in November, 1989. These germplasm lines were developed as part of a cotton breeding program to improve the fiber bundle strength of cotton produced in central and southern Texas. These lines were derived by hybridization in 1981 or 1982 followed by pedigree selection. Individual plant selections during the F_2 to F_4 generations were based on apparent yield potential, plant conformation, and high volume instrument (HVI) determined fiber properties. Plant and progeny selections and agronomic evaluations were conducted at the Texas A&M University Research Farm, College Station, TX. Designations and pedigrees of these germplasm lines are given in Table 1.

Least squares analysis of lint yields of irrigated plants indicated that these lines did not vary significantly from Stoneville 213, the high-yielding control cultivar, during 1986, 1987, and 1988 at College Station, TX. All lines had fiber bundle strengths (as measured by HVI) significantly higher than Stoneville 213 and not different from Acala 1517-75, the high-quality control cultivar. Upper-half mean fiber lengths of TAM 1025, 1057, 1080, 2111, and 2126 were not significantly different from Acala 1517-75, while all other lines were significantly shorter. TAM 1074 and 2111 had significantly coarser fibers than Acala 1517-75, while the remaining eight lines were not significantly different in fiber fineness than Acala 1517-75. TAM 2008 had significantly lower fiber-length uniformity than Acala 1517-75 but is acceptable at a value of 82. All lines had acceptable fiber elongation values.

Twenty-five seeds of each of these germplasm lines will be available for distribution from the corresponding author until seed supplies are exhausted. Research and development of these germplasm lines were supported in part by Cotton, Inc., and the Texas Food and Fiber Commission. Fiber properties were determined at the International Center for Textile

Table 1. Designations and pedigrees of ten upland cotton germplasm lines.

Designation	Pedigree
TAM 1025	PD 6520 × {[(AE-179 × T501) × (Deltapine 14 × Roger's Acala)] × (Paymaster 1209 × DSR6-19)}
TAM 1057	[79WW-1 (high fiber strength line of unknown origin)] × [[(Paymaster 1209 × DSR6-19) × [Lankart 57 × (Deltapine 14 × Roger's Acala)]] × Lankart 3840]
TAM 1074	[79XX-7 (high fiber strength line of unknown origin)] × PD 9232
TAM 1080	[79XX-10 (high fiber strength line of unknown origin)] × {Tamcot SP 21S × [(CA491A × Lankart 57) × 6M-10]}
TAM 2008	{[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840} × [FJA 347 × {[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840}]
TAM 2055	{[(AE-179 × T501) × (Deltapine 14 × Roger's Acala)] × (Paymaster 1209 × DSR6-19)] × PD 6992
TAM 2073	[FJA 347 × {[Lankart 57 × (Deltapine 14 × Roger's Acala)] × Lankart 3840}] × PD 9363
TAM 2111	PD 6142 × [79XX-5 (high fiber strength line of unknown origin)]
TAM 2112	PD 6142 × 79XX-10
TAM 2126	PD 6992 × {DES Anom 16 × [(DSR6-19 × CA998) × (DSR6-19 × CA998)]}

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REGISTRATION OF 11 UPLAND COTTON GERMPLASM LINES HAVING ELEVATED LEVELS OF CONDENSED TANNINS

ELEVEN germplasm lines of cotton, *Gossypium hirsutum* L. (Reg. no. GP-442 to GP-452; PI 540274 to PI 540284), were released by the Texas Agricultural Experiment Station in November 1989. These germplasm lines were developed as part of a host-plant resistance breeding program designed to increase the level of condensed tannins. Condensed tannins have been shown to condition resistance to a variety of insect and disease pests in cotton (2).

These lines were developed by intercrossing the following breeding lines known to have or suspected of having elevated levels of condensed tannins or spidermite resistance: (Lankart 571 × T1124)-81-412; (CS8310 × T790)-51-3; (CS8310 × T1119)-81-440; (CS8310 × T791)-81-431; (CS8310 × T1123)-81-416; CLWR 1727; DR 19 HTSM; DS 23 HT3; DR9 M35-14-3; and NM 1258 D-1-2. Lines designated as "T*nnnn*" are primitive race stocks collected from Mexico, Belize, and India (3).

These lines were intercrossed by bulking pollen from all parents and pollinating emasculated flowers on all parents. The resulting F_1's were intercrossed following the same procedure in 1983. F_3 progeny rows having apparent agronomic fitness were selected in 1986. Plants within selected rows were bulked to give rise to the following germplasm lines: TAM 86CC-7; TAM 86DD-11; TAM 86CC-11; TAM 86DD-12; TAM 86CC-12; TAM 86DD-16; TAM 86CC-13; TAM 86DD-17; TAM 86CC-17; TAM 86DD-18; and TAM 86CC-18.

None of these lines varied significantly in condensed tannin content from 'Pima S-6' (*G. barbadense* L.), the high-tannin control, when averaged across 1987 and 1988. Condensed tannin concentrations were determined spectrophotometrically after extraction with acetone and reaction with HCl–butanol of mature leaves harvested at first bloom and/or 14 to 21 d post first bloom (1).

These germplasm lines were deficient in lint yield potential when compared with Tamcot CD3H, the high-yield control, at College Station, TX, in 1988. Fiber quality of lines ranged from equivalent to superior when compared with Tamcot CD3H. All lines had significantly lower true lint percent than Tamcot CD3H. TAM 86CC-13, 86DD-12, and 86DD-17 had significantly longer upper-half mean fiber lengths than Tamcot CD3H; while TAM 86CC-7, 86DD-12, 86DD-16, 86DD-17, and 86DD-18 had significantly higher fiber-bundle strengths than Tamcot CD3H.

Twenty-five seeds of each of these germplasm lines will be available for distribution from the corresponding author until supplies are exhausted.

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REGISTRATION OF 17 UPLAND COTTON GERMPLASM LINES HAVING ELEVATED LEVELS OF CONDENSED TANNINS

SEVENTEEN germplasm lines of cotton, *Gossypium hirsutum* L. (Reg. no. GP-453 to GP-469; PI 540285 to PI 540301), were released by the Texas Agricultural Experiment Station in November, 1989. These germplasm lines were developed as part of a host-plant resistance breeding program designed to increase the level of condensed tannins. Condensed tannins have been shown to condition resistance to a variety of insect and disease pests in cotton (2).

These lines were derived by hybridization and pedigree selection. During F_2 and F_3 generations, individual plants were selected in the greenhouse and/or field in the presence of two-spotted spidermite. Selections within and among resulting progeny were based on apparent agronomic fitness and chemical analysis of condensed tannin concentration in mature leaves. Condensed tannin concentrations were determined spectrophotometrically after extraction with aceton and reaction with HCl-Butanol of mature leaves harvested at first bloom and/or 14 to 21 days post first bloom (1).