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**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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### References and Notes

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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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4. C. Wayne Smith and G.A. Niles, Dep. of Soil and Crop Sci., Texas A&M Univ., College Station, 77843; M.F. Schuster, Dep. of Entomology, Texas Agric. Res. and Ext. Center, Dallas, TX 75252. Registration by CSSA. Accepted 30 April 1990. *Corresponding author.

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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).

Designations and pedigrees of these germplasm lines are: TAM 86III-7, Stoneville 213 × T1055; TAM86III-8, Stoneville 213 × T1055; TAM 86III-11, Rogers 10N × T1041; TAM 86III-15, Lankart 571 × T1124; TAM 86III-16, Lankart 571 × T1124; TAM 86III-22, Rogers 10N × T1041; TAM 86III-24, Lankart 571 × T1041; TAM 86III-26, Lankart 571 × T1124; TAM 86III-31, CS8310 × T1119; TAM 86JJJ-1, Stoneville 213 × Rogers Glandless; TAM 87M-41, (Stoneville 213 × T1055) × Empire Glandless; TAM 87M-48, same; TAM 87N-3, same; TAM 87N-4, same; TAM 87N-5, same; TAM 87N-6, same; and TAM 87N-7, Stoneville 213 × T1055. Lines designated as "T*nnnn*"are primitive race stocks collected from Mexico or India (3).

No line was significantly lower in condensed tannin concentration of mature leaves than 'Pima S-6' (*G. barbadense* L.), the high-tannin control. All lines designated as 86III- or 86JJJ- were rated for two-spotted spidermite resistance under greenhouse conditions at Dallas, TX, in 1987–1988. Each of these lines except TAM 86III-15 and TAM 86JJJ-1 were rated as having significantly less plant damage from two-spotted spidermite than Tamcot CAMD-E.

Lint yields of TAM 86III-22, and 86III-24, 86JJJ-1, and 87N-6 were not significantly different from 'Stoneville 112', the high-yield control, under irrigated conditions at College Station, TX, in 1988. All other lines were deficient in yield compared with Stoneville 112. TAM 86III-26, 87M-48, 87N-3, 87N-5, 87N-6 and 87N-7 had significantly shorter upper-half mean fiber lengths than Stoneville 112 in 1988, while all other lines were not significantly different from Stoneville 112. TAM 87N-4 and 86III-11 had significantly lower fiber-bundle strengths than Stoneville 112; TAM 86III-31 had significantly higher fiber-bundle strength; all other lines did not differ from Stoneville 112.

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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### References and Notes

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## REGISTRATION OF NINE UPLAND COTTON GERMPLASM LINES HAVING ELEVATED LEVELS OF CONDENSED TANNINS

NINE germplasm lines of cotton, *Gossypium hirsutum* L. (Reg. no. GP-470 to GP-478; PI 540302 to PI 540310), 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 levels 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. $F_2$ and $F_3$ generation plants were selected under greenhouse and/or field conditions in the presence of two-spotted spidermite. Selections within and among resulting progeny rows 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 acetone and reaction with HCl-Butanol of mature leaf tissue harvested at first bloom and/or 14 to 21 days post first bloom (1).

Designations and pedigrees of these nine germplasm lines are: TAM 86E-3, (Stoneville 213 × T1055) × Empire Glandless; TAM 86E-4, Stoneville 213 × T1055; TAM 86E-6, same; TAM 86E-7, same; TAM 86E-8, Rogers 10N × T789; TAM 86E-9, Rogers 10N × T1041; TAM 86E-14, (Stoneville 213 × T1055) × Empire Glandless; TAM 86E-19, Stoneville 213 × T1055; and TAM 86E-20, CS8310 × T1119. Lines designated as "T*nnnn*" are primitive race stocks collected in Mexico or Belize (3).

TAM 86E-20 was significantly higher in condensed tannins than 'Pima S-6' (*G. barbadense* L.), the high-tannin control. TAM 86E-3, 86E-6, 86E-7, 86E-8, 86E-14, and 86E-19 were not significantly different from Pima S-6 in tannin content, while TAM 86E-4 and 86E-9 were significantly lower than Pima S-6 but significantly higher in condensed tannins than 'Stoneville 112', the high-yielding control. TAM 86E-3, 86E-4, 86E-8, 86E-9 and 86E-19 had significantly less two-spotted spidermite damage under greenhouse conditions than 'Tamcot CAMD-E', a two-spotted spidermite–susceptible control.

All lines were deficient in lint yield when compared with Stoneville 112 in 1988 under irrigated conditions at College Station, TX. All lines had significantly lower true lint percent than Stoneville 112. TAM 86E-4, 86E-19 and 86E-20 had significantly longer upper-half mean fiber lengths than Stoneville 112, while TAM 86E-3 and 86E-6 were significantly shorter. All other lines were not different in upper half mean lengths than Stoneville 112. TAM 86E-19 had significantly stronger fiber-bundle strength than Stoneville 112, and only TAM 86E-9 had significantly weaker fibers.

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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### References and Notes

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