PERFORMANCE OF PD 97000 SERIES GERMPLASM LINES AND NOTICE OF THEIR RELEASE

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Abstract

Seven Pee Dee germplasm lines were released in 2000. These lines represent continued efforts to simultaneously improve lint yield and fiber properties by out-crossing Pee Dee lines to high yield and quality germplasm. Female parents of the released lines are previously released Pee Dee lines PD-3-14, PD 5256, PD 5377, PD 5472, and PD 5582, while male parents include MD14-B, bred by Bill Meredith, USDA-ARS, GA 88-133, bred by Shelby Baker, University of Georgia, HB 92-44, bred by Hollybrook Gin Co., and 'SG501', bred by Bob Bridge, SureGrow Seed. All the Pee Dee lines have acceptable fiber properties, while PD 97019, PD 97021, and PD 97100 have the best combination of yield and yield stability. Seed (25g) of each germplasm line are available upon written request to: Dr. Lloyd May, University of Georgia, Coastal Plain Station, P.O. Box 748, Tifton, GA.

Summary

- Seven upland cotton germplasm lines of upland cotton developed through conventional breeding and released in 2000 for use by public and private entities for cultivar development efforts.
- PD97019, PD97021, and PD97100 appear to have best overall yield potential and yield stability across environmentally diverse locations in Georgia (Tifton – southern coastal plain; Plains – mid-coastal plain; Midville – Savannah River Valley).
- All lines have acceptable fiber property packages.
- Seed (25 grams per germplasm line) may be requested from Dr. Lloyd May, University of Georgia, P.O. Box 748, Tifton, GA 31793. email: lmay@lmay@tifton.cpes.peachnet.edu

Table 1. List of PD Germplasm Lines Released in 2000, PI Numbers Assigned by National Seed Storage Lab, and Pedigrees.

GERMPLASM	PI #	PEDIGREE
PD 97006	612476	PD-3-14/MD 14B
PD 97019	612477	PD 5472/GA 88-133
PD 97021	612478	PD 5472/HB 92-44
PD 97047	612479	PD 5377/MD 14B
PD 97072	612480	PD 5582/MD 14B
PD 97100	612481	PD 5256/'SG501'
PD 97101	612482	PD 5256/'SG501'

Table 2. Breeding History of Seven PD Germplasm Lines.

Year	Event
1993	Created F1s, selfed at USDA-ARS winter nursery
1994	Evaluated F2 bulk populations in replicated yield trials; Advanced bulks outyielding checks
1995	Selected individual F3 plants, kept those with best lint fraction and single instrument fiber properties
1996	Planted F3:4 progeny rows in 2-row, 35' plots; Visually selected best rows for yield compared with plots of adjacent check 'SG501'.
1997	Preliminary yield trial – F5
1998	Advanced yield trial – F6
1999	Elite Trial – F7
2000	Release in F8 and test in Georgia and North Carolina Official Variety Trials

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Table 3. 1997-1999 Florence, SC On-Station Performance of PD Germplasm Lines As Percent of 'SureGrow 501' Common Check.

LINE	YIELD	MIC	2.5%SL	UR	STRENGTH
PD97006	100	90	100	100	103
PD97019	108	100	100	98	95
PD97021	108	96	103	100	95
PD97047	97	100	100	100	107
PD97072	98	100	105	100	102
PD97100	108	104	100	100	96
PD97101	105	100	102	100	100

Table 4. Rank and Yield (lbs/ac) of Newly Released Pee Dee Germplasm Lines Averaged Over Locations and Within Locations.

Line	All		Midville		Plains		Tifton	
HCR9162	1	991	12	936	1	1273	1	765
5415RR	2	990	5	1029	2	1261	13	680
DPX9C84	3	983	4	1040	4	1217	9	692
PD97100	**4**	**960**	**9**	**985**	**5**	**1213**	**12**	**681**
GA96211	5	959	8	992	7	1180	5	705
ACSI0781	6	957	2	1104	20	1067	7	698
STX7G104	7	953	1	1110	13	1116	19	633
HCR8129	8	950	6	1018	9	1165	16	667
IF1000	9	931	13	933	14	1102	3	759
STX7G101	10	924	3	1056	19	1069	17	647
PD97019	**11**	**916**	**18**	**831**	**6**	**1197**	**4**	**719**
FMAX989	12	913	7	999	25	978	2	761
PD97021	**12**	**913**	**10**	**958**	**18**	**1075**	**5**	**705**
STX7G043	13	912	11	945	15	1097	8	696
GC271	14	893	17	833	3	1223	21	624
DP565	15	892	21	821	11	1137	4	719
94WE37A	16	882	16	842	12	1117	11	686
GC377	16	882	15	860	17	1085	6	701
PD97006	**17**	**873**	**14**	**897**	**8**	**1166**	**23**	**554**
GA95251	18	858	16	842	16	1093	18	638
HCR7163	19	856	19	825	19	1069	15	674
HCR8414	20	844	20	822	22	1034	14	677
PD97072	**21**	**833**	**22**	**816**	**10**	**1145**	**24**	**539**
PD97047	**22**	**827**	**24**	**807**	**21**	**1042**	**20**	**630**
PD97101	**22**	**827**	**23**	**815**	**24**	**985**	**13**	**680**
GA96153	23	813	27	718	23	1033	10	689
GC333	24	746	26	723	27	921	22	594
GA95138	25	705	28	693	26	933	26	490
GA95200	26	696	25	783	28	781	25	524
DP6207	27	566	29	628	29	655	27	416
LSD0.010		106		144		122		94

Table 5. Performance of Released Pee Dee Germplasm Lines (highlighted below) in 2000 Later Maturity Strains Trial Averaged Over Midville, Plains, and Tifton, Georgia Locations.

LINE	LINT YIELD	UHM	UR	STR	MIC
HCR9162	991	1.09	83.5	31.6	5
5415RR	990	1.09	82.1	32.2	5.2
DPX9C84	983	1.08	82.5	29.4	5.3
PD97100	**960**	**1.08**	**83.1**	**33.2**	**5**
GA96211	959	1.09	82.4	31.4	4.8
ACSI0781	957	1.07	82.6	32.2	4.8
STX7G104	953	1.08	82.7	32.3	5
HCR8129	950	1.07	82.8	29.4	5.3
IF1000	931	1.1	82.5	32.8	4.9
STX7G101	924	1.07	82.6	31	5.1
PD97019	**916**	**1.1**	**83.2**	**30.1**	**5**
FMAX989	913	1.1	83.3	32.7	4.7
PD97021	**913**	**1.13**	**83.4**	**31.4**	**4.9**
STX7G043	912	1.09	83.6	31.7	4.8
GC271	893	1.12	83.1	32.5	5.2
DP565	892	1.1	83.3	31.3	5.1
GC377	882	1.11	82.7	30.2	5.2
94WE37A	882	1.15	83.7	29.7	4.5
PD97006	**873**	**1.08**	**83**	**32.9**	**4.8**
GA95251	858	1.1	82.8	32.9	5.1
HCR7163	856	1.1	82.7	31.4	4.9
HCR8414	844	1.06	82.6	33.5	5.1
PD97072	**833**	**1.1**	**83.4**	**32.9**	**4.9**
PD97047	**827**	**1.09**	**83.7**	**32.8**	**5.1**
PD97101	**827**	**1.09**	**82.7**	**32.6**	**5**
GA96153	813	1.1	82.6	31.7	4.8
GC333	746	1.06	82	32.6	5
GA95138	705	1.08	82.2	31	5
GA95200	696	1.07	82.6	31.1	5
DP6207	566	1.08	83.6	33.8	4.5
LSD0.10	106	0.03	0.9	1.8	0.3