

2006 Texas High Plains Cotton Variety Ratings for Verticillium Wilt

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Small plot, replicated variety trials were conducted in fields with a history of *Verticillium* wilt. Incidence of wilt and yield were taken at each site. The varieties with the lowest wilt ratings and highest yields in *Verticillium* wilt fields are listed. The best conventional variety tested in 2006 was AFD Raider 271, which is not commercially available. The best Roundup ready (non/Flex) varieties from both 2005 and 2006 were: Paymaster 2326RR, FiberMax (FM) 960 BR, FM 989 BR, FM 989B2R, and DeltaPine 455BR. The best Roundup Ready Flex varieties from 2006 were Bayer AFD 5065B2RF and Bayer AFD 5064RF, though these two varieties were only tested at one site each. *Verticillium* wilt reduced yield, and also negatively affected micronaire, uniformity, length, and subsequently loan values.

Results from 2006 trials

Three of the five sites (Levelland, Petersburg, and Slaton) had sufficiently high levels of the fungus *Verticillium dahliae* in the soil at planting and substantial disease was observed within the season (Table 1).

Table 1. Relationship between density of *Verticillium dahliae* in the soil and incidence of wilt.

Site	Average Microsclerotia per cc soil	Average Incidence of Wilt	Date of Wilt Rating
Earth	0.0	0.0	Sept. 8
Brownfield	5.5	1.8	Aug. 28
Petersburg	30.75	19.6	Aug. 18
Slaton	31.5	23.6	Aug. 24
Levelland	80.0	16.1	Aug. 8

Petersburg

The lowest wilt ratings were found with Bayer AFD 5065B2RF, Paymaster (PM) 2326RR, and Beltwide Cotton Genetics (BCG) 520R (Table 2). The highest wilt ratings were found with Beltwide (BW) 2038B2RF and FiberMax (FM) 9068RF (Table 2). The highest yield occurred with PM 2326RR. Also yielding well at this site was FM 989RR, BCG 520R, AFD 5065B2RF, NexGen (NG) 2448R, and PM 2280BR (Table 2). The combined statistic of relative wilt and relative yield resulted in four recommended varieties: PM 2326RR, AFD 5065B2RF, BCG 520R, and FM 989RR. Yield was multiplied by the loan value, and then the cost of the seed and technology fees (www.plainscotton.org/Seed/seedindex.html) were subtracted. One variety, PM 2326RR (Table 2, \$704.15/acre), was clearly the best variety that could have been planted at that site, among those tested. Loan values were highest for NG 2448R (\$0.538/lb) and PM 2326RR (\$0.522) (Table 2). Cotton from this field had very low values of micronaire overall (Table 3) and varieties with the highest micronaire also had the highest loan values. Wilt incidence was negatively correlated with micronaire ($r = -0.45$), uniformity ($r = -0.54$), and loan value ($r = -0.49$).

Table 2. Variety performance at a Verticillium wilt site near Petersburg, TX in 2006.

Variety	(1-relative wilt) + relative yield ^a	Lbs of lint per acre	% Wilt on 8/18/06	Loan Value (\$)	\$/acre ^b
Paymaster 2326RR	1.62 a ^c	1,400 a	11 fg	0.522	704.15 a
AFD 5065B2RF	1.46 ab	1,145 bcd	11 g	0.485	521.54 bcd
Beltwide Cotton Genetics 520R	1.38 abc	1,177 bc	14 efg	0.517	537.33 b
FiberMax 989RR	1.35 abc	1,215 b	16 c-g	0.488	547.63 b
Stoneville NexGen 2448R	1.24 bcd	1,102 b-d	16 b-g	0.538	542.11 b
Paymaster 2167R	1.22 b-e	1,046 def	16 c-g	0.510	452.48 cde
Stoneville 5242BR	1.21 b-f	1,030 d-g	16 c-g	0.478	432.82 efg
FiberMax 989B2R	1.21 b-f	1,026 d-h	16 c-g	0.474	438.17 def
Paymaster 2266RR	1.19 b-g	1,091 cde	17 b-g	0.516	530.49 bc
DynaGrow 2100B2RF	1.19 b-g	946 f-j	14 d-g	0.451	370.90 e-k
Stoneville NexGen 1553R	1.10 c-h	1,020 e-h	19 b-g	0.486	401.80 e-i
Beltwide 3255B2RF	1.09 c-h	906 h-m	17 b-g	0.456	370.71 e-k
Paymaster 2280BR	1.09 c-h	1,118 b-e	21 a-e	0.478	428.71 efg
FiberMax 9063B2RF	1.09 c-h	913 g-l	17 b-g	0.463	362.06 f-k
Cropland Genetics 3020B2RF	1.08 c-h	896 i-n	17 b-g	0.460	352.61 g-l
FiberMax 9060RF	1.04 d-i	1,004 e-i	20 b-f	0.464	407.68 e-h
Stoneville 4664RF	1.03 d-j	791 mno	16 c-g	0.465	325.10 h-m
DeltaPine 424B2R	1.01 d-k	817 k-o	17 b-g	0.473	309.51 j-n
FiberMax 960RR	1.00 d-k	921 g-l	20 b-g	0.448	370.34 e-k
Beltwide 4021B2RF	0.97 d-k	894 i-n	20 b-f	0.432	308.55 j-n
FiberMax 960BR	0.93 e-k	932 f-k	22 a-e	0.505	419.61 efg
Stoneville 4700B2RF	0.92 e-k	785 no	19 b-g	0.433	277.90 lmn
FiberMax 960B2R	0.92 f-k	947 f-j	23 a-e	0.470	376.73 e-j
Beltwide Cotton Genetics 50R	0.91 g-k	937 f-j	23 a-e	0.456	364.84 f-k
Cropland Genetics 3520B2RF	0.88 h-l	848 j-o	22 a-e	0.447	324.97 h-m
FiberMax 9058RF	0.85 h-m	934 f-k	24 abc	0.452	356.25 f-l
All-Tex Atlas RR	0.84 h-m	783 no	21 a-e	0.442	297.08 j-n
Stoneville 4357B2RF	0.84 h-m	891 i-n	24 abc	0.448	322.71 i-m
All-Tex Summitt B2RF	0.81 h-m	817 k-o	23 a-d	0.459	320.66 i-m
DeltaPine 117B2RF	0.76 i-m	806 l-o	24 abc	0.393	234.24 n
Stoneville 4554B2RF	0.74 j-m	755 o	24 abc	0.446	327.07 h-m
DynaGrow 2242B2RF	0.73 j-m	817 k-o	25 ab	0.419	265.55 mn
DeltaPine 110RF	0.72 klm	753 o	24 abc	0.428	287.63 k-n
FiberMax 9068RF	0.60 lm	834 j-o	30 a	0.455	310.69 j-n
Beltwide 2038B2RF	0.57 m	805 l-o	30 a	0.439	278.42 lmn

^a The higher the numbers are the better varieties for Verticillium wilt fields. Relative wilt is the percent wilt, divided by the highest average wilt found in any variety. Relative yield is the yield divided by the highest average yield for any variety.

^bThe \$/acre was calculated by: (Yield (lbs/a) x loan value (\$/lb)), - (seed and technology fees \$/acre), obtained from the Plains Cotton Growers (www.plainscotton.org/Seed/seedindex.html).

^cLetters that are different indicate that the mean values were significantly different at $P=0.05$.

Table 3. Fiber properties of varieties in a Verticillium wilt field near Petersburg, TX.

Variety	Mic ^a	Length	Unif.	Stren.	Elong.	Leaf	Rd	+b
AFD 5065B2RF	2.70	1.17	81.2	27.4	7.1	3.5	81.5	7.3
All-Tex Atlas RR	2.35	1.10	80.6	27.7	6.6	3.5	80.6	8.1
All-Tex Summitt B2RF	2.55	1.14	80.0	23.8	6.8	3.5	81.3	7.8
Beltwide 2038B2RF	2.45	1.16	79.8	24.5	7.0	4.0	80.0	7.8
Beltwide 3255B2RF	2.40	1.12	80.2	24.0	6.9	3.0	81.7	8.0
Beltwide 4021B2RF	2.15	1.14	79.1	22.3	6.9	3.5	81.6	7.4
Beltwide Cotton Genetics 50R	2.45	1.11	80.3	27.1	7.0	3.5	81.0	7.9
Beltwide Cotton Genetics 520R	3.10	1.14	82.5	27.8	6.6	3.5	80.7	7.8
Cropland Genetics 3020B2RF	2.35	1.13	80.1	24.2	6.8	3.0	82.0	8.1
Cropland Genetics 3520B2RF	2.65	1.15	79.5	23.9	7.3	4.0	80.4	7.7
DeltaPine 110RF	2.40	1.15	81.3	29.2	7.3	5.0	77.7	7.9
DeltaPine 117B2RF	2.25	1.16	79.3	26.5	6.0	5.5	77.5	7.6
DeltaPine 424B2R	2.55	1.13	81.1	25.0	7.1	3.5	81.6	8.0
DynaGrow 2100B2RF	2.35	1.13	80.8	24.6	7.1	3.0	81.8	8.0
DynaGrow 2242B2RF	2.35	1.14	78.6	23.0	7.5	4.0	79.9	7.8
FiberMax 9058RF	2.45	1.20	79.5	26.9	6.1	3.5	81.3	7.3
FiberMax 9060RF	2.40	1.20	79.6	26.9	6.0	3.0	82.5	7.5
FiberMax 9063B2RF	2.35	1.21	80.5	29.0	6.1	3.5	82.7	7.3
FiberMax 9068RF	2.40	1.19	80.3	29.4	6.5	4.0	81.7	7.4
FiberMax 960B2R	2.35	1.15	79.3	26.8	5.2	3.0	82.8	7.4
FiberMax 960BR	2.60	1.11	81.1	29.3	5.5	3.0	82.1	7.5
FiberMax 960RR	2.30	1.16	80.0	28.3	5.6	4.0	82.3	7.4
FiberMax 989B2R	2.35	1.18	81.6	28.7	5.8	3.0	82.5	7.7
FiberMax 989RR	2.55	1.15	81.0	29.1	5.7	3.0	83.0	7.8
Paymaster 2167R	3.25	1.06	82.3	27.0	7.7	3.5	80.6	8.1
Paymaster 2266RR	3.00	1.12	82.7	29.0	7.0	4.0	80.1	7.8
Paymaster 2280BR	2.60	1.13	81.3	28.1	6.4	3.5	80.0	8.0
Paymaster 2326RR	3.25	1.12	82.7	28.3	7.6	4.0	79.1	8.1
Stoneville 4357B2RF	2.35	1.14	78.7	23.2	7.0	3.0	81.0	8.1
Stoneville 4554B2RF	2.50	1.15	80.4	26.4	7.7	4.0	79.4	8.5
Stoneville 4664RF	2.60	1.14	81.1	26.1	7.7	4.0	79.5	8.3
Stoneville 4700B2RF	2.40	1.16	79.3	24.3	7.2	4.0	80.9	7.9
Stoneville 5242BR	2.55	1.10	80.5	24.9	6.8	2.5	82.0	8.7
Stoneville NexGen 1553R	2.70	1.18	81.2	28.4	7.0	3.5	81.0	7.6
Stoneville NexGen 2448R	3.15	1.13	82.5	27.8	6.9	3.0	80.6	7.9

^aMicr=micronaire, length is in hundredths of an inch, stren=strength in grams/tex, unif.=uniformity in percentage, Elong.=elongation is the amount that a fiber will stretch prior to breakage, Leaf=leaf grade, Rd=degree of reflectance which is how light or dark the fiber is where grayer samples have lower values, +b=yellowness, where higher values indicate yellower samples.

Levelland

PM 2326RR had much lower wilt ratings at this site than the other varieties (Table 4). The variety with the highest incidence of wilt at this site was DP 454BR (Table 4). Yield was highest for FM 960BR, FM 960B2R, and DP 455BR (Table 4). Yield was lowest for PhytoGen (PG) 370WR and AT Atlas RR (Table 4). The combined statistic of relative wilt and relative yield resulted in six recommended varieties: PM 2326RR, DP 455BR, FM 960BR, FM 960B2R, AT Patriot RR, and FM 989BR (Table 4). The top two valued varieties ((yield/acre X loan value) minus seed and technology costs) were FM 960BR and PM 2326RR (Table 4). Overall, micronaire was low at this site (Table 5). Wilt incidence was negatively correlated to micronaire ($r = -0.48$), uniformity ($r = -0.25$), degree of reflectance ($r = -0.32$), and loan value ($r = -0.50$), and positively associated with leaf grade ($r = 0.30$).

Slaton

Incidence of wilt at this site was lowest for FM 832LL, AFD 5064RF, PG 440W, and AFD Raider 271 (Table 6). Wilt incidence was highest for Cropland Genetics (CG) 4020B2RF, Americot (AM) 8120, BCG 295, and FM 958 (Table 6). Yield was highest for FM 960BR, FM 988LLB2, PG 440W, AFD 5064RF, FM 958LL, FM 989BR, and AFD Raider 271 (Table 6). Yields were lowest for FM 832, DP 393, BCG 295, BCG 50R, and CG 4020B2RF (Table 6). Plant stands were low at this site for most varieties, and were significantly correlated with incidence of wilt ($R^2=0.24$) and yield ($R^2=0.18$). Varieties with the highest combined yield and wilt ratings included: AFD 5064RF, FM 832LL, PG 440W, AFD Raider 271, and FM 988LLB2 (Table 6). The top valued varieties (yield x loan value, but not including seed and technology fees) include AFD 5064RF, FM 960BR, FM 988LLB2, NG 2448R, AFD Raider 271, and FM 958LL. Seed and technology fees could not be estimated for a number of varieties in this test, so that value is not included. Percent wilt was correlated negatively with length ($r=-0.31$), leaf grade (-0.25), and positively with yellowness ($r=0.25$). Micronaire values were overall low at this site (Table 7), but were not correlated with wilt, unlike the other two sites that were tested.

Discussion

The average relative wilt rating and relative yield ratings for varieties that were tested at a minimum of two sites during 2005 and/or 2006 were used to calculate the overall best varieties (Table 8). The highest rated variety was PM 2326RR, followed by FM 960BR, FM 989BR, FM 989B2R, and DP 455BR. The varieties with the highest average relative yields (on a 0 to 1 scale, Table 7) were: PM 2326RR (0.93), FM 960BR (0.92), DP 455BR (0.92), PhytoGen 480WR (0.91), FM 989B2R (0.89), and FM 989BR (0.89). The varieties with the lowest average relative wilt values (Table 8) were: PM 2326RR (0.34), FM 989BR (0.47), FM 989B2R (0.47), FM 960B2R (0.48), and FM 966LL (0.49).

Table 4. Variety performance at a Verticillium wilt site near Levelland, TX in 2006.

Variety	(1-relative wilt) + relative yield ^a	Lbs of lint per acre	% Wilt on 8/8/06	Loan values (\$)	\$/acre ^b
Paymaster 2326RR	1.59 a ^c	1,520 bc	7 c	0.585	860.91 ab
DeltaPine 455BR	1.43 ab	1,597 ab	12 bc	0.539	807.17 b
FiberMax 960BR	1.37 abc	1,668 a	15 abc	0.564	895.42 a
FiberMax 960B2R	1.34 a-d	1,599 ab	14 abc	0.544	824.32 b
All-Tex Patriot RR	1.34 a-d	1,364 de	14 bc	0.531	693.50 cd
FiberMax 989BR	1.32 a-e	1,462 cd	13 bc	0.528	725.51 c
DynaGrow 2520B2F	1.22 b-f	1,378 de	14 bc	0.494	625.16 efg
NexGen 3273B2F	1.19 b-g	1,207 fgh	12 bc	0.513	565.02 ghi
All-Tex Apex B2F	1.18 b-g	1,376 de	15 abc	0.506	640.09 de
Stoneville 5007 B2F	1.14 b-g	1,124 hij	12 bc	0.514	521.47 ij
FiberMax 960RR	1.13 b-g	1,352 de	16 abc	0.518	662.45 cde
PhytoGen 125F	1.07 c-h	1,171 f-i	15 abc	0.524	567.16 f-i
Cropland Genetics 4020B2F	1.06 c-h	1,194 fgh	15 abc	0.514	556.51 hi
All-Tex 55066B2F	1.05 c-h	1,122 hij	14 abc	0.496	not sold in 2006
Beltwide 9775B2F	1.04 c-h	1,136 g-j	15 abc	0.512	526.98 ij
Americot 427R	1.03 c-g	1,174 f-i	16 abc	0.499	560.03 ghi
PhytoGen 480WR	1.03 d-h	1,377 de	18 ab	0.527	672.87 cde
All-Tex 45014F	0.98 e-h	981 k	14 bc	0.531	not sold in 2006
Beltwide 3552B2F	0.97 fgh	971 k	14 bc	0.444	376.25 mn
All-Tex 45039B2F	0.95 f-i	1,169 f-i	17 ab	0.527	not sold in 2006
Beltwide 4630B2F	0.94 f-i	1,219 fgh	18 ab	0.509	565.69 f-i
All-Tex Marathon B2F	0.94 f-i	1,256 efg	19 ab	0.500	570.86 f-i
PhytoGen 425F	0.90 f-j	1,273 ef	20 ab	0.534	632.31 def
All-Tex Titan B2F	0.88 g-j	1,119 hij	18 ab	0.475	475.06 jk
All-Tex Atlas RR	0.87 g-j	844 lm	15 abc	0.522	414.84 klm
Stoneville NexGen 3550F	0.87 g-j	1,173 f-i	19 ab	0.474	516.16 ij
Americot 1532B2F	0.87 g-j	1,204 fgh	20 ab	0.474	518.19 ij
PhytoGen 485WF	0.86 g-j	1,261 ef	21 ab	0.536	621.66 e-h
Beltwide Cotton Genetics 50R	0.77 hij	955 kl	19 ab	0.495	444.99 kl
Beltwide 3220B2F	0.77 hij	1,063 ijk	20 ab	0.495	470.99 jk
DeltaPine 454BR	0.61 ij	1,017 jk	23 a	0.447	403.03 lmn
PhytoGen 370WR	0.58 j	815 m	21 ab	0.488	344.91 n

^aThis measure is an attempt to combine both the wilt ratings and yield to determine the best varieties to grow in Verticillium wilt fields. The higher the numbers are the better varieties for Verticillium wilt fields. Relative wilt is the percent wilt, divided by the highest average wilt found in any variety. Relative yield is the yield divided by the highest average yield for any variety.

^bThe \$/acre was calculated by: (Yield (lbs/a) x loan value (\$/lb)), - (seed and technology fees \$/acre), obtained from the Plains Cotton Growers (www.plainscotton.org/Seed/seedindex.html).

^cLetters that are different indicate that the mean values were significantly different at $P=0.05$.

Table 5. Fiber properties of varieties at a Verticillium wilt field near Levelland, TX in 2006.

Variety	Mic ^a	Length	Unif	Stren	Elon	Leaf	Rd	+b
All-Tex 45014F	3.50	1.12	82.6	33.3	7.0	4.0	78.8	7.3
All-Tex 45039B2F	3.10	1.12	80.7	31.0	6.3	3.5	80.5	7.3
All-Tex 55066B2F	2.70	1.14	79.6	25.9	7.3	3.0	81.0	7.6
All-Tex Apex B2F	2.90	1.14	79.6	26.1	6.9	3.0	81.8	7.8
All-Tex Atlas RR	3.00	1.13	82.2	32.3	6.8	3.5	81.2	7.7
All-Tex Marathon B2F	2.90	1.13	78.8	24.7	7.1	3.0	82.1	7.7
All-Tex Patriot RR	3.05	1.15	80.3	27.5	6.9	2.5	83.0	7.8
All-Tex Titan B2F	2.85	1.17	79.4	28.0	6.8	4.0	80.1	7.3
Americot 1532B2F	2.80	1.12	78.8	25.5	6.6	3.5	81.4	7.7
Americot 427R	2.90	1.09	79.4	26.6	6.6	3.0	81.2	7.8
Beltwide 3220B2F	2.75	1.15	81.3	30.7	6.3	3.5	82.0	6.8
Beltwide 3552B2F	2.50	1.14	78.8	29.5	6.4	4.0	81.1	7.0
Beltwide 4630B2F	2.80	1.13	79.0	26.4	7.1	3.0	81.7	7.7
Beltwide 9775B2F	3.05	1.19	80.9	27.2	7.0	3.5	82.1	7.6
Beltwide Cotton Genetics 50R	2.75	1.11	80.2	28.5	6.9	3.0	82.5	7.8
Cropland Genetics 4020B2F	2.95	1.14	80.5	25.8	6.7	3.0	81.4	7.9
DeltaPine 454BR	2.50	1.09	79.5	27.2	6.2	4.0	81.1	7.1
DeltaPine 455BR	3.20	1.14	80.0	30.5	5.9	3.0	81.0	8.5
DynaGrow 2520B2F	2.95	1.16	79.7	25.7	6.8	3.5	81.5	7.7
FiberMax 960B2R	3.25	1.14	79.6	29.3	5.6	2.5	82.7	7.7
FiberMax 960BR	3.30	1.13	80.9	33.0	5.8	3.0	83.1	7.5
FiberMax 960RR	2.85	1.15	80.2	30.3	5.6	3.0	82.5	7.3
FiberMax 989BR	3.15	1.14	80.8	29.5	5.9	3.0	83.2	7.5
Paymaster 2326RR	4.05	1.11	83.5	29.9	7.0	3.0	80.6	8.3
PhytoGen 125F	3.35	1.11	83.2	32.4	6.7	4.0	80.1	7.4
PhytoGen 370WR	2.75	1.09	80.2	26.8	6.8	3.5	81.3	8.0
PhytoGen 425F	3.35	1.15	81.7	29.0	7.4	4.0	79.3	8.1
PhytoGen 480WR	3.10	1.15	82.0	28.2	7.8	3.5	80.2	7.9
PhytoGen 485WF	3.45	1.14	82.0	27.7	7.7	4.0	79.3	8.2
Stoneville 5007 B2F	2.80	1.20	80.8	27.9	6.8	3.0	81.9	7.4
Stoneville NexGen 3273B2F	2.90	1.12	80.1	24.8	7.0	3.0	82.9	7.5
Stoneville NexGen 3550F	3.00	1.14	80.0	29.4	7.2	4.0	79.8	7.2

^aMicr=micronaire, length is in hundredths of an inch, stren=strength in grams/tex, unif.=uniformity in percentage, Elong.=elongation is the amount that a fiber will stretch prior to breakage, Leaf=leaf grade, Rd=degree of reflectance which is how light or dark the fiber is where grayer samples have lower values, +b=yellowness, where higher values indicate yellower samples.

Table 6. Variety performance at a Verticillium wilt site in Slaton, TX in 2006.

Variety	(1-relative wilt) + relative yield ^a	Lbs of lint per acre	% Wilt on 8/24/06	Plants/ ft. row	Loan value \$/lb	Lbs/a X Loan value
AFD 5064RF	1.66 a ^b	1,510 ab	10.8 hi	1.8 a-g	0.536	808.87 a
FiberMax 832LL	1.60 ab	1,369 a-d	9.7 i	2.3 ab	0.456	624.55 c-f
PhytoGen 440W	1.58 abc	1,514 ab	13.8 ghi	2.4 a	0.484	732.60 abc
AFD Raider 271	1.50 a-d	1,461 ab	15.3 f-i	2.1 abc	0.512	747.43 ab
FiberMax 988LLB2	1.50 a-d	1,518 ab	16.8 e-i	1.9 a-f	0.510	773.18 a
FiberMax 958LL	1.46 a-e	1,478 ab	17.4 e-i	2.0 a-d	0.497	734.96 ab
NexGen 2448R	1.45 a-f	1,442 abc	16.9 e-i	1.9 a-f	0.529	762.54 ab
FiberMax 960BR	1.45 a-f	1,587 a	20.4 d-i	1.7 c-i	0.497	788.17 a
FiberMax 989BR	1.45 a-f	1,473 ab	17.7 e-i	2.1 abc	0.480	707.40 a-d
FiberMax 966LL	1.27 a-g	1,340 b-e	21.3 c-i	1.7 c-i	0.490	655.84 b-e
DynaGro 2242B2RF	1.24 a-h	1,154 def	17.9 e-i	1.6 c-i	0.495	570.43 e-j
PhytoGen 125F	1.24 a-i	1,156 def	18.2 e-i	1.6 c-i	0.499	577.33 e-i
FiberMax 981LL	1.16 b-j	1,215 c-f	22.5 b-i	1.8 a-f	0.474	576.36 e-i
FiberMax 5035LL	1.15 b-j	1,215 c-f	22.5 b-i	1.8 b-h	0.476	578.48 e-h
FiberMax 965LLB2	1.14 c-j	1,195 def	22.7 b-i	1.3 ghi	0.488	582.48 e-h
Deltapine 117B2RF	1.08 d-j	1,090 fgh	22.5 b-i	1.9 a-f	0.434	472.33 h-m
AFD 5062LL	1.02 e-j	1,159 def	26.2 a-g	1.8 a-g	0.485	561.95 e-k
Beltwide Cotton Genetics 245	1.00 f-l	1,019 f-i	23.8 a-h	1.4 d-i	0.459	467.75 i-m
Beltwide Cotton Genetics 50R	0.97 g-m	873 hij	21.5 c-i	1.4 e-i	0.491	428.19 lmn
FiberMax 832	0.96 g-m	776 j	19.6 d-i	1.5 d-i	0.457	354.04 n
Americot 1532B2RF	0.95 g-m	1,020 f-i	25.4 a-g	1.1 i	0.480	488.90 g-l
Deltapine 448B	0.95 g-m	1,114 efg	27.8 a-f	1.7 b-h	0.500	556.41 e-k
FiberMax 955LLB2	0.91 g-m	1,057 fgh	27.8 a-f	1.9 a-e	0.511	539.88 f-j
NexGen 3550RF	0.84 g-m	1,001 f-j	29.2 a-e	1.9 a-f	0.452	451.79 k-n
Deltapine 393	0.84 g-m	817 ij	25.0 a-g	1.6 c-i	0.446	364.05 mn
All-Tex Atlas	0.78 h-m	1,119 efg	34.1 abc	1.5 d-i	0.529	591.37 efg
FiberMax 958	0.78 i-m	1,191 def	35.9 ab	1.4 e-i	0.510	607.48 def
All-Tex Marathon B2RF	0.71 j-m	990 f-j	33.9 abc	1.3 ghi	0.470	465.20 j-m
Americot 427R	0.67 k-m	891 g-j	32.9 a-d	1.2 hi	0.475	423.15 lmn
Americot 8120	0.67 k-m	1,055 fgh	36.7 a	1.4 e-i	0.521	549.90 e-k
Cropland Genetics 4020B2RF	0.55 lm	873 hij	36.9 a	1.3 f-i	0.477	416.50 lmn
Beltwide Cotton Genetics 295	0.53 m	822 ij	36.4 a	1.5 e-i	0.483	396.82 lmn

^aThis measure is an attempt to combine both the wilt ratings and yield to determine the best varieties to grow in Verticillium wilt fields. The higher the numbers are the better varieties for Verticillium wilt fields. Relative wilt is the percent wilt, divided by the highest average wilt found in any variety. Relative yield is the yield divided by the highest average yield for any variety.

^bLetters that are different indicate that the mean values were significantly different at $P=0.05$.

Table 7. Fiber properties of varieties at a Verticillium wilt field near Slaton, TX in 2006.

Variety	Micr ^a	Length	Unif.	Strength	Elong.	Leaf grade	Rd	+b
AFD 5062LL	3.0	1.12	81.5	28.6	6.5	4.5	78.5	7.3
AFD 5064RF	3.5	1.10	82.3	29.6	7.0	4.0	78.4	7.6
AFD Raider 271	3.2	1.21	82.3	31.9	6.5	4.0	79.1	7.5
Americot 1532B2F	2.6	1.16	80.4	25.9	6.4	3.5	80.9	7.9
Americot 427R	2.7	1.08	80.3	27.4	6.8	3.0	80.5	7.9
Americot 8120	3.0	1.12	81.4	25.7	6.6	3.0	80.5	8.1
All-Tex Atlas	3.4	1.11	82.8	29.9	7.2	4.0	77.8	7.8
All-Tex Marathon B2F	2.7	1.16	80.3	25.2	7.0	3.5	81.2	7.9
Beltwide Cotton Genetics 245	2.6	1.19	80.9	30.0	5.7	4.0	80.6	7.6
Beltwide Cotton Genetics 295	2.5	1.17	81.5	29.7	6.0	3.0	80.9	7.7
Beltwide Cotton Genetics 50R	2.7	1.13	80.6	27.6	7.0	3.0	80.2	7.9
Cropland Genetics 4020B2F	2.8	1.16	79.1	25.2	6.8	3.5	80.6	8.3
Dyna-Gro 2242B2F	2.9	1.17	79.9	24.9	7.5	3.0	79.0	7.9
Deltapine 117B2RF	2.7	1.16	81.3	30.4	6.0	4.5	76.1	7.5
Deltapine 393	2.5	1.13	79.5	28.2	7.4	4.0	77.6	8.3
Deltapine 448B	2.8	1.16	81.2	28.9	6.6	3.0	81.7	7.9
FiberMax 5035LL	2.9	1.10	82.6	28.9	8.0	4.5	78.0	7.7
FiberMax 832	2.4	1.16	80.3	29.6	6.2	3.5	80.5	7.3
FiberMax 832LL	2.6	1.19	81.2	30.0	6.3	4.0	78.9	7.3
FiberMax 955LLB2	2.8	1.19	81.3	28.5	6.0	3.0	80.7	7.5
FiberMax 958	2.9	1.15	81.3	30.2	5.8	3.0	80.4	7.4
FiberMax 958LL	2.9	1.21	81.2	30.2	5.7	3.5	81.0	7.2
FiberMax 960BR	2.8	1.10	81.6	31.0	5.9	3.0	81.7	7.5
FiberMax 965LLB2	2.7	1.15	81.6	30.3	5.7	3.5	81.5	7.2
FiberMax 966LL	2.9	1.17	82.3	32.2	5.9	4.0	79.9	7.3
FiberMax 981LL	2.6	1.17	80.8	30.2	6.1	3.5	80.8	7.7
FiberMax 988LLB2	2.9	1.18	81.1	29.1	5.8	3.5	81.0	7.1
FiberMax 989BR	2.6	1.13	80.5	29.8	6.0	3.5	81.1	7.3
NexGen 2448R	3.1	1.14	82.8	29.7	7.4	3.5	79.6	7.7
NexGen 3550RF	2.6	1.16	80.9	29.2	7.3	4.0	78.8	7.7
PhytoGen 125RF	3.0	1.12	82.8	30.7	7.3	4.0	78.0	7.9
PhytoGen 440W	2.9	1.16	81.7	28.0	7.6	4.0	78.3	8.0

^aMicr=micronaire, length is in hundredths of an inch, stren=strength in grams/tex, unif.=uniformity in percentage, Elong.=elongation is the amount that a fiber will stretch prior to breakage, Leaf=leaf grade, Rd=degree of reflectance which is how light or dark the fiber is where grayer samples have lower values, +b=yellowness, where higher values indicate yellower samples.

Table 8. Relative ratings of varieties in terms of yield and wilt incidence, that were tested at a minimum of two sites during the 2005 and/or 2006 growing season.

Variety ^a	Av. Rel Yield ^b	Av. Rel. Wilt ^c	Best variety ^d	# of entries
Paymaster 2326RR	0.929	0.339	1.59	3
FiberMax 960BR	0.924	0.476	1.45	7
FiberMax 989BR	0.887	0.469	1.42	6
FiberMax 989B2R	0.890	0.471	1.42	4
Deltapine 455BR	0.921	0.517	1.40	4
FiberMax 958LL	0.857	0.502	1.36	2
FiberMax 966LL	0.805	0.489	1.32	2
Paymaster 2379RR	0.820	0.540	1.28	3
Deltapine 5690RR	0.840	0.570	1.27	2
FiberMax 960RR	0.794	0.538	1.26	7
Paymaster 2167R	0.885	0.635	1.25	3
NexGen 2448R	0.794	0.547	1.25	7
PhytoGen 470WR	0.830	0.590	1.24	2
FiberMax 989RR	0.840	0.608	1.23	5
FiberMax 960B2R	0.872	0.651	1.22	6
AFD 3602R	0.700	0.510	1.19	2
Deltapine 444BR	0.760	0.570	1.19	4
Stoneville 5242BR	0.774	0.588	1.19	3
FiberMax 5035LL	0.729	0.555	1.17	2
PhytoGen 480WR	0.913	0.748	1.17	2
FiberMax 981LL	0.751	0.588	1.16	2
Paymaster 2280BR	0.809	0.647	1.16	3
PhytoGen 125F	0.715	0.563	1.15	2
Stoneville 5303R	0.790	0.640	1.15	2
All-Tex Patriot RR	0.692	0.545	1.15	4
NexGen 1553R	0.789	0.646	1.14	3
Cotton States 370001G	0.654	0.529	1.13	3
Paymaster 2266RR	0.749	0.653	1.10	3
Cotton States 010001G	0.681	0.601	1.08	2
FiberMax 5045BR	0.760	0.680	1.08	3
Deltapine 424B2R	0.641	0.573	1.07	4
FiberMax 958	0.815	0.753	1.06	2
AFD 3511R	0.610	0.550	1.06	2
Stoneville 6636BR	0.730	0.670	1.06	2
Deltapine 449BR	0.760	0.700	1.06	2
All-Tex Atlas RR	0.636	0.582	1.05	4
PhytoGen 410R	0.610	0.570	1.04	2
Stoneville 4686R	0.620	0.600	1.02	2
Paymaster 2145R	0.740	0.720	1.02	2
Deltapine 434RR	0.580	0.590	0.99	5
Deltapine 555BR	0.720	0.730	0.99	2
NexGen 3969R	0.670	0.710	0.96	3
Stoneville 4575BR	0.750	0.790	0.96	2
Americot 262R	0.590	0.660	0.93	4

PhytoGen 310R	0.560	0.640	0.92	3
Deltapine 445BR	0.620	0.700	0.92	2
Cotton States 450001G	0.688	0.768	0.92	7
Deltapine 117B2RF	0.631	0.711	0.92	2
Deltapine 393	0.597	0.678	0.92	2
Deltapine 494RR	0.660	0.760	0.90	2
Stoneville 5599BR	0.590	0.700	0.89	2
Cotton States 530001G	0.559	0.670	0.89	4
All-Tex Warrior RR	0.560	0.700	0.86	2
Deltapine 432RR	0.630	0.770	0.86	2
NexGen 3550F	0.665	0.813	0.85	2
Beltwide Cotton Genetics 28R	0.560	0.710	0.85	4
Deltapine 5415RR	0.590	0.740	0.85	2
Americot 427R	0.632	0.782	0.85	2
Beltwide Cotton Genetics 50R	0.554	0.709	0.84	4
Beltwide Cotton Genetics 245	0.590	0.755	0.83	2
All-Tex Marathon B2F	0.687	0.866	0.82	2
Americot 821R	0.570	0.770	0.80	2
Beltwide Cotton Genetics 295	0.602	0.831	0.77	2
Beltwide Cotton Genetics 30R	0.540	0.780	0.76	2
Americot 8120	0.607	0.998	0.61	2
All-Tex Magnum RR	0.510	0.920	0.59	2

^aCotton States followed by a specific number represents multiple varieties, some of which are listed as the following: 010001G = Dyna-Gro (DG) 2215 B2RF, NexGen 3273 B2RF, BW 4021 B2RF, AM 1521 B2RF; 370001G = DG 2100 B2RF, Croplan Genetics (CG) 3020 B2RF, BW 3255 B2RF, AM 1504 B2RF; 450001G = DG 2520 B2RF, CG 4020 B2RF, BW 4630 B2RF, ST 4357 B2RF, AM 1532 B2RF; and 530001G = CG 3520 B2RF, ST 4700 B2RF, DG 2242 B2RF.

^bRelative yield is the average yield of a variety divided by the average yield of the best yielding variety at that site.

^cRelative wilt is the average incidence of wilt for a variety divided by the average incidence of wilt for the variety with the highest wilt rating at that site.

^dThe best variety was calculated by the formula: Relative yield + (1 – Relative wilt).

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