

## Effect of Root-knot Nematodes on Variety Performance near Whiteface

The trial was planted with a cone planter with 4 seed/foot of row. Plots were 35 feet long, on 40-inch centers, and all entries were planted in a randomized complete block design with four replications. The funding for this trial came from Texas Cotton State Support and Plains Cotton Improvement Program.

Whiteface: This trial was planted on 19 May. Soil samples for nematode assays were taken on 10 August, shortly after a substantial rain, so good samples could be taken. The trial was harvested on 10 November. This field had some Fusarium wilt and the % of plants that emerged and then died were measured. Varieties that suffered over 25% stand loss were NG 4792XF, NG 4936B3XF, and Armor 9608B3XF (Table 1). The varieties that displayed the highest resistance to root-knot nematode at this site were DP 1823NRB2XF and DP 1747NRB2XF (Table 1). The top three cultivars in terms of yield and yield x loan value were FM 1730GLTP, PHY 400W3FE, and ST 4946GLB2. All three cultivars had partial resistance to root-knot nematode. The new Fibermax variety FM 1730GLTP also had the highest loan value, with the second longest fiber length (1.17 inches, Table 2) behind only DP 1845B3XF (1.18 inches) and the best fiber strength (33.2 g/tex, Table 2).

Table 1. Effect of moderate root-knot nematode density on cultivars near Whiteface, TX.

Variety	Lint Yield (lbs/a)	Yield x Loan (\$/a)	Loan (\$/lb)	Turn Out	RK <sup>1</sup> /500 cm <sup>3</sup> soil	Final Plants /ft	% Stand loss	LOG10 (RK+1)	RK Rating
FM 1730GLTP	<b>1,100</b>	<b>637.23</b>	<b>0.5790</b>	0.2789	1,765	<b>1.24</b>	<b>18.30</b>	3.04	PR
PHY 400W3FE	<b>1,087</b>	<b>615.79</b>	<b>0.5665</b>	0.2912	2,455	<b>1.27</b>	<b>14.57</b>	3.09	PR
ST 4946GLB2	<b>1,037</b>	<b>594.92</b>	<b>0.5730</b>	0.2795	2,640	<b>1.22</b>	4.67	3.02	PR
NG 4050XF	<b>1,030</b>	<b>582.18</b>	<b>0.5643</b>	0.3162	9,585	0.96	3.09	3.86	S
FM 2398GLTP	<b>1,027</b>	<b>580.24</b>	<b>0.5648</b>	0.3082	10,015	<b>1.37</b>	<b>10.48</b>	3.53	S
FM 1621GL	<b>973</b>	<b>538.08</b>	0.5523	0.2630	3,715	<b>1.23</b>	<b>11.85</b>	3.48	PR
FM 2202GL	<b>961</b>	<b>535.98</b>	0.5573	0.2958	9,520	<b>1.18</b>	3.50	3.91	S
ST 5600B2XF	<b>951</b>	<b>528.97</b>	<b>0.5715</b>	0.2788	10,860	<b>1.06</b>	<b>13.98</b>	3.68	S
DP 2012B3XF	<b>939</b>	<b>535.19</b>	<b>0.5695</b>	0.2895	10,075	<b>1.09</b>	<b>10.91</b>	3.50	S
DP 2020B3XF	<b>936</b>	<b>535.21</b>	<b>0.5738</b>	0.3231	2,320	<b>1.01</b>	<b>21.47</b>	3.24	U
DP 1822XF	<b>931</b>	<b>535.34</b>	0.5555	0.2883	1,050	<b>1.14</b>	<b>16.43</b>	2.90	R
WFUT9	<b>924</b>	<b>530.91</b>	<b>0.5745</b>	0.2884	14,305	<b>1.16</b>	<b>7.81</b>	4.01	S
NG 4689B2XF	<b>917</b>	<b>500.82</b>	0.5460	0.2896	7,190	0.96	<b>19.69</b>	3.64	S
FM 2334GLT	<b>895</b>	<b>514.75</b>	0.5610	0.2736	4,740	<b>1.10</b>	<b>15.33</b>	3.57	S
FM 1320GL	<b>891</b>	<b>500.55</b>	<b>0.5628</b>	0.2838	4,760	0.97	<b>21.87</b>	3.56	S
PHY 350W3FE	<b>890</b>	487.47	0.5585	0.3005	3,830	<b>1.28</b>	<b>8.68</b>	3.29	S
NG 3956B3XF	<b>889</b>	<b>497.06</b>	<b>0.5735</b>	0.2986	4,810	<b>1.30</b>	5.52	3.35	S
NG 4098B3XF	<b>886</b>	<b>499.20</b>	0.5470	0.2568	4,130	<b>1.12</b>	5.99	3.52	PR
DP 1840B3XF	<b>870</b>	<b>500.56</b>	<b>0.5775</b>	0.2953	15,740	<b>1.04</b>	<b>11.43</b>	3.93	S
FM 2498GLT	<b>869</b>	485.50	0.5580	0.3087	6,690	<b>1.00</b>	<b>20.03</b>	2.88	S
DP 1646B2XF	<b>860</b>	493.78	0.5608	0.3061	5,595	0.97	5.99	3.64	S
DP 2038B3XF	<b>859</b>	456.36	<b>0.5723</b>	0.2963	9,545	<b>1.19</b>	<b>14.46</b>	3.77	S
DP 1916B3XF	<b>857</b>	481.17	<b>0.5693</b>	0.2407	4,500	0.98	7.23	2.64	S
DP 1845B3XF	<b>837</b>	483.66	<b>0.5723</b>	0.2933	6,715	<b>1.01</b>	<b>9.11</b>	3.57	S
Armor 9210B3XF	<b>827</b>	473.86	0.5595	0.2661	12,650	<b>1.01</b>	<b>9.66</b>	3.58	S
DP 1823NRB2XF	823	456.22	0.5308	0.3146	6,830	0.87	<b>14.88</b>	3.44	S
FM 1911GLT	821	455.63	<b>0.5740</b>	0.2970	8,625	0.91	<b>11.07</b>	3.78	S
DP 2022B3XF	815	456.41	0.5540	0.2909	690	<b>1.17</b>	<b>9.56</b>	<b>1.53</b>	R
NG 2982B3XF	811	462.27	0.5548	0.2896	5,170	<b>1.17</b>	<b>7.40</b>	3.44	PR
NG 4792XF	806	444.25	<b>0.5668</b>	0.3034	4,675	0.84	<b>29.86</b>	3.26	S
DP 1820B3XF	804	460.42	<b>0.5735</b>	0.3092	2,455	0.85	<b>12.41</b>	3.16	S
ST 4550GLT	803	455.57	<b>0.5733</b>	0.2874	25,645	<b>1.14</b>	<b>17.60</b>	4.11	S
FM 2322GL	794	456.33	0.5505	0.2879	14,445	<b>1.07</b>	<b>23.85</b>	4.11	S
ST 4480B3XF	753	432.74	<b>0.5743</b>	0.2610	10,535	<b>1.03</b>	-0.15	3.90	S
Armor 9608B3XF	748	402.92	<b>0.5720</b>	0.2684	9,545	0.65	<b>26.71</b>	3.78	S
NG 3500XF	741	407.52	<b>0.5703</b>	0.2805	5,530	<b>1.06</b>	<b>6.96</b>	3.46	S
ST 4990B3XF	724	414.56	0.5383	0.2825	3,625	<b>1.03</b>	<b>8.51</b>	3.42	S
DP 2044B3XF	723	412.47	<b>0.5723</b>	0.2981	15,415	0.92	<b>14.80</b>	4.03	S
DP 1747NRB2XF	716	380.46	0.5503	0.2815	14,125	0.69	<b>18.47</b>	3.97	S
NG 4936B3XF	701	401.75	0.5310	0.2729	835	0.85	<b>27.07</b>	<b>2.17</b>	R
Prob>F	0.004	0.001	0.0001	0.001	0.001	0.001	0.027	0.001	
MSD <sup>2</sup> (0.05)	265	142.20	0.018	0.0290	11,395	0.39	23.29	1.09	

<sup>1</sup>RK is root-knot nematode. For ratings: R=resistant, PR=partially resistant, S = susceptible.

<sup>2</sup>MSD = minimum significant difference at  $P=0.05$ .

Table 2. Effect of cultivars on fiber properties for a test near Whiteface, TX.

Variety	Mic. <sup>2</sup>	Length	Unif.	Strength	Elon.	Rd	+b	Leaf	CG
Armor 9210B3XF	4.49	1.13	81.35	31.05	6.40	81.60	8.95	2.5	11-1,11-2
Armor 9608B3XF	4.18	1.07	80.80	26.25	5.65	79.85	9.50	1.5	11-1,21-2
DP 1646B2XF	4.32	1.16	81.60	28.80	6.85	84.20	8.50	1.5	11-1
DP 1747NRB2XF	4.41	1.06	81.65	29.45	6.20	79.40	9.80	1.0	11-3,11-4
DP 1820B3XF	4.64	1.13	81.25	30.80	5.45	84.10	8.30	1.5	11-1
DP 1822XF	4.57	1.14	81.40	32.15	5.70	83.25	8.50	1.0	11-1
DP 1823NRB2XF	4.05	1.10	81.60	30.25	6.70	81.05	9.15	2.5	11-1
DP 1840B3XF	4.48	1.14	82.60	30.35	6.15	84.10	8.55	1.0	11-1
DP 1845B3XF	4.36	1.18	82.45	31.80	6.70	84.10	7.90	1.5	11-1
DP 1916B3XF	4.35	1.09	82.65	30.15	5.95	83.30	8.35	1.0	11-1
DP 2012B3XF	4.54	1.13	82.00	28.70	5.30	84.35	8.50	1.0	11-1
DP 2020B3XF	4.55	1.15	82.50	28.40	5.35	84.60	8.35	1.0	11-1
DP 2022B3XF	4.19	1.10	81.80	29.25	5.95	83.60	8.15	2.0	11-1
DP 2038B3XF	4.51	1.05	80.10	28.10	6.00	82.65	8.40	1.0	11-1,21-1
DP 2044B3XF	4.36	1.12	81.80	28.40	6.50	84.25	8.25	1.0	11-1
FM 1320GL	4.53	1.09	82.25	30.70	6.15	83.90	8.25	1.0	11-1
FM 1621GL	4.79	1.11	81.95	29.05	5.50	82.55	8.10	2.5	11-2,21-1
FM 1730GLTP	4.02	1.17	83.65	33.20	5.30	85.45	7.50	2.0	11-1
FM 1911GLT	4.33	1.09	81.20	29.55	5.80	84.65	7.75	1.5	11-1
FM 2202GL	4.47	1.09	83.25	32.40	6.15	81.45	8.65	1.5	11-2
FM 2322GL	4.41	1.12	81.90	31.15	5.15	82.40	8.40	1.5	11-1,11-2
FM 2334GLT	4.71	1.16	82.20	29.85	5.50	84.10	8.20	1.5	11-1
FM 2398GLTP	4.78	1.11	82.65	29.40	5.80	83.95	8.05	1.5	11-1
FM 2498GLT	4.80	1.10	81.55	29.30	5.55	84.10	7.85	1.0	11-1
NG 2982B3XF	3.85	1.10	82.65	31.50	5.70	81.55	7.85	4.5	21-1,21-2
NG 3500XF	4.68	1.08	82.95	31.65	6.25	81.80	9.05	1.0	11-1
NG 3956B3XF	4.53	1.10	82.15	29.25	6.25	83.15	8.70	1.5	11-1
NG 4050XF	4.37	1.11	81.80	30.20	6.20	83.75	7.75	2.0	11-1,11-2
NG 4098B3XF	4.71	1.14	81.80	31.80	6.40	82.25	8.80	2.0	11-1
NG 4689B2XF	4.57	1.07	81.70	28.55	5.20	81.45	9.10	1.0	11-1
NG 4792XF	4.81	1.07	82.70	31.50	6.55	81.55	9.25	1.5	11-1
NG 4936B3XF	4.38	1.15	82.55	28.95	6.60	84.45	8.10	1.0	11-1
PHY 350W3FE	4.22	1.09	81.40	28.05	5.65	82.85	8.25	1.0	11-1,11-2
PHY 400W3FE	4.40	1.11	81.20	31.25	6.05	83.60	8.50	2.0	11-1
ST 4480B3XF	4.44	1.16	82.05	30.00	5.45	86.50	7.25	1.0	11-1
ST 4550GLT	4.34	1.10	81.75	30.45	6.75	82.35	9.00	1.5	11-1
ST 4946GLB2	4.56	1.12	82.50	31.05	6.60	81.85	8.85	1.0	11-1,11-2
ST 4990B3XF	4.29	1.14	82.05	28.95	6.45	84.75	8.20	1.0	11-1
ST 5600B2XF	4.91	1.12	82.50	30.85	6.50	81.75	9.10	1.0	11-1
WFUT9	4.44	1.14	82.50	30.10	6.85	82.00	9.20	1.0	11-1
Prob>F	0.016	0.0001	0.0130	0.0001	0.0001	0.0001	0.0001	0.0001	
MSD <sup>1</sup> (0.05)	0.60	0.03	1.76	2.41	0.46	1.29	0.64	1.2	

<sup>1</sup>MSD is the minimum significant difference for that measurement ( $P=0.05$ ).

<sup>2</sup>Mic=micronaire, unif=uniformity, elon=elongation, CG=color grade.