

## Variety Trials in Nematode Fields in 2024

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Funding for these trials were provided by Texas Cotton State Support Committee and Plains Cotton Improvement Program.

All plots are two rows wide, 35 feet long, on 40-inch centers, and entries are randomized and replicated four times per location. Seed was planted with a cone planter at 4 seed per foot row.

**Acuff:** This root-knot (RK) nematode site was planted on 14 May and had 12 entries. The field was subsurface drip irrigated, with drip in the bed on 40-inch centers. The field did have significant hail damage in the season, and there were some drift issues with a 2,4-D type herbicide. Soil samples were taken on 12 August under dry conditions and assayed for root-knot nematode. This field does have a history of Fusarium wilt caused by *Fusarium oxysporum* f. sp. *vasinfectum* (FOV), but no wilt symptoms were observed during the season.

The nematode pressure was mostly low at this location, though there were several higher nematode counts recorded on the susceptible varieties. This may be due to the dryness of the soil when sampled and the actual nematode pressure may be higher than indicated by the counts in Table 1. The highest yielding variety was DP 2436NR B3TXF (1,704 lbs of lint/acre), however, all the varieties with at least partial nematode resistance did not differ in yield significantly from each other. Three of the nematode susceptible varieties (Armor 9371 B3XF, NG 3195 B3XF, and NG 4405 B3TXF) had significantly lower yields than the top yielding variety in this test. The loan values were below the base rate for the nematode susceptible varieties Armor 9512 B3XF, Armor 9371 B3XF, and DP 2127 B3XF. These low loan values and lower yields resulted in lower lint value/acre for all the nematode susceptible varieties (Table 1). These lower loan values were a result of low fiber length and strength, and poor fiber uniformity (Table 2). Overall, the data emphasizes the critical role of selecting resistant or partially resistant cotton varieties in areas with RK nematode pressure to maintain both yield and fiber quality. Economic outcomes were particularly affected by lower loan values in susceptible varieties, reinforcing the need for strategic variety selection and effective nematode management to enhance profitability.

Table 1. Variety trial near Acuff in a root-knot nematode (RK) field.

Variety	Plants/foot in row		Lint Yield (lbs/a)	Lint Value (\$/a)	Loan Value ¢/lb	RK <sup>1</sup> /500 cm <sup>3</sup> soil	Turnout %	RK Rating <sup>2</sup>
	5/31	6/17						
DP 2436NR B3XF	2.08	1.81	<b>1,704</b>	915.18	53.70	470	30.3	R
FM 823AXTP	2.26	2.15	<b>1,650</b>	916.79	55.58	493	29.4	PR
DP 2143NR B3F	2.11	2.04	<b>1,622</b>	888.86	54.80	38	29.6	R
FM 868AXTP	2.56	2.26	<b>1,620</b>	886.28	54.70	30	31.5	PR
DP 2141NR B3XF	2.59	2.35	<b>1,612</b>	895.15	55.53	25	27.3	R
<b>DP 2127 B3XF</b>	2.33	2.10	<b>1,609</b>	<b>730.60</b>	<b>45.40</b>	243	32.9	S
<b>Armor 9512 B3XF</b>	2.24	2.21	<b>1,608</b>	<b>815.26</b>	<b>50.70</b>	3,318	30.9	S
DP 2349NR B3XF	2.25	1.93	<b>1,546</b>	834.84	54.00	30	30.7	R
ST 6000AXTP	2.11	1.79	<b>1,511</b>	828.51	54.85	303	32.4	PR
<b>Armor 9371 B3XF</b>	2.58	2.09	1,419	<b>627.80</b>	<b>44.25</b>	3,103	32.9	S
<b>NG 3195 B3XF</b>	1.77	1.66	1,415	<b>778.25</b>	55.00	955	30.5	S
<b>NG 4405 B3TXF</b>	1.79	1.59	1,321	<b>716.90</b>	54.28	655	27.8	S
Prob>F	0.012	0.0003	0.009	0.001	0.001	0.009	0.014	
MSD <sup>3</sup> (0.05)	0.55	0.33	220	96.19	2.60	2233	0.03	

<sup>1</sup>RK is root-knot nematode eggs + 2<sup>nd</sup> stage juveniles.

<sup>2</sup>R is resistant (either 1 or 2 genes, homozygous in the variety), PR is typically 1 resistant gene in a subset of the population, S is susceptible. Ratings are based on known information about the variety with regards to its resistance genes or observations from multiple trials over several years.

<sup>3</sup>Minimum significant differences between varieties at  $P=0.05$ .

Table 2. Fiber properties for a variety test near Acuff.

Variety	Micro-naire	Length (“)	Unif-ormity	Strength (g/tex)	Elon-gation	Rd	+b	Leaf	CRGD
<b>Armor 9371 B3XF</b>	4.47	<b>1.02</b>	78.40	<b>23.95</b>	6.4	82.9	8.3	2.5	11-1
<b>Armor 9512 B3XF</b>	4.37	<b>1.04</b>	78.85	27.85	6.0	82.9	8.3	2.5	11-1, 21-1
<b>DP 2127 B3XF</b>	4.84	<b>1.03</b>	80.50	<b>25.75</b>	6.4	82.0	8.6	2.0	11-1, 11-2
DP 2141NR B3XF	4.75	1.10	80.10	29.15	6.7	81.1	8.8	3.0	11-2, 21-1
DP 2143NR B3F	4.74	1.10	80.30	29.75	6.5	81.3	8.6	2.5	11-2, 21-1
DP 2349NR B3XF	4.58	1.08	79.75	27.85	6.4	82.2	8.8	2.0	11-1
DP 2436NR B3XF	3.81	1.08	78.25	28.10	7.7	81.0	9.0	2.5	11-1, 11-2
FM 823AXTP	4.24	1.11	80.40	29.80	6.5	82.9	8.2	3.0	11-2, 21-1
FM 868AXTP	4.25	1.09	80.05	30.00	6.4	79.4	8.8	3.0	11-2, 31-1
<b>NG 3195 B3XF</b>	4.36	1.09	80.80	28.30	6.1	82.6	8.4	2.5	11-1, 11-2
<b>NG 4405 B3TXF</b>	3.74	1.08	80.35	28.25	7.2	82.4	8.3	2.5	11-1, 21-1
ST 6000AXTP	4.02	1.10	80.25	29.15	6.5	82.5	8.5	2.5	11-1, 21-1
Prob>F	0.001	0.041	0.158	0.002	0.001	0.118	0.007	0.954	
MSD <sup>1</sup> (0.05)	0.26	0.07		2.18	0.2		0.4		

<sup>1</sup>Minimum significant differences between varieties at  $P=0.05$ .

**Brownfield:** This root-knot nematode site was planted on 20 May. The field was subsurface drip irrigated under 40-inch beds. The cotton grew well at this site until early August when the irrigation was lost for about 3 weeks. By the first week of September, some of the varieties had severe defoliation. We investigated that something beyond just water stress was occurring. We isolated the Fusarium wilt fungus (*Fusarium oxysporum* f. sp. *vasinfectum* race 1) from many of the roots, though the fungal density was not high enough to result in any above ground Fusarium wilt symptoms. There was some vascular discoloration in the roots, particularly just below the outer root (epidermis) in the cortex. We rated the percentage of the plot which was defoliated on September 5<sup>th</sup>. The test was soil sampled on September 4<sup>th</sup> to assay for nematodes. The test was harvested on October 24<sup>th</sup> and 25<sup>th</sup>.

Plant stands were > 2 plants/foot of row for almost all entries (Table 3). Root-knot nematode densities in known susceptible varieties indicated moderate to high nematode pressure in the test (Table 3). There were 18 susceptible varieties in the test, and they averaged 6,084 root-knot nematodes/500 cm<sup>3</sup> soil, which is considered a high density. Cultivars with good nematode resistance in this test included DP 2143NR B3XF, DP 2436NR B3TXF, ST 5931AXTP, AMX21T212XF, and DP 2349NR B3XF. Other cultivars with partial nematode resistance were BX2512AXTP and ST 4833AXTP. However, the partially resistant varieties, FM 868AXTP, FM 823AXTP, FM 765AX, FM 813AXTP and ST 60000 AXTP could not be differentiated from the nematode susceptible varieties. Defoliation that was rated on September 5<sup>th</sup> averaged lowest (2-14%) on the varieties Armor 9512 B3XF, Armor 9442 XF, DP 2143NR B3XF, DP 2335 B3XF, DP 2349NR B3XF, FM 814AXTP, NG 5430 B3XF, ST 5931AXTP, and Armor 9831 B3XF. The defoliation averaged > 40% on FM 868AXTP, ST 5855AXTP and ST 6000 AXTP. It is not completely understood whether the defoliation was a function primarily of losing the irrigation water for 3 weeks in August, Fusarium wilt, or possibly due to a foliar fungal pathogen, *Alternaria*, which was prevalent in the field by October. The highest yielding cultivars (average of 841-952 lbs of lint/acre) were NG 5430 B3XF, FM 765AX, DP 2143NR B3XF, Armor 9442 XF, and FM 814AXTP. The lowest yielding variety in the test was DP 1822 XF (499 lbs of lint/acre). The loan values ranged from a low of ¢38.63/lb to a high of ¢50.75/lb (Table 4), so all entries were below the base price. The fiber was short in all entries (discount) and strength was in the discount range for most entries (Table 4).

Table 3. Effect of root-knot nematode (RK) on cotton cultivars at a test in Terry County.

Variety	Plants /ft row	Defol iation (%)	RK/ 500 <sup>1</sup> cm <sup>3</sup> soil	LOG <sub>10</sub> (RK+1)	Lint Yield (lbs/a)	Lint Value (\$/a)	Turn out %	Loan Value ¢/lb	RK rating
NG 5430 B3XF	2.39	7.0	4,295	3.54	952	449.16	32.5	47.18	S
FM 765AX	2.75	19.0	7,258	3.68	888	422.13	31.4	47.55	PR
DP 2143NR B3XF	2.75	4.5	1,673	1.48	886	420.74	31.6	47.50	R
Armor 9442 XF	2.42	4.1	3,315	3.35	852	403.61	31.0	47.40	S
FM 814AXTP	1.91	13.2	2,928	3.32	841	348.49	33.7	41.45	PR
ST 5931AXTP	2.54	2.9	438	2.58	815	413.49	32.0	50.75	R
NG 4405 B3TXF	2.01	16.5	5,425	3.68	794	329.31	33.3	41.50	S
AMX12572B3TXF	1.69	8.3	6,645	3.75	793	340.48	31.3	42.95	UNK
Armor 9413 XF	2.74	17.7	4,665	3.51	790	334.36	32.0	42.35	S
BX2512AXTP	1.69	15.7	2,035	2.98	781	355.13	31.6	45.50	UNK
Armor 9512 B3XF	2.71	2.1	8,928	3.82	769	323.54	33.5	42.10	S
NG 4409 B3XF	2.38	19.4	2,340	3.33	768	331.12	28.8	43.10	S
AMX12506XF	2.29	11.6	14,428	3.91	761	360.22	33.3	47.35	UNK
NG 3195 B3XF	2.43	22.7	4,350	3.33	759	323.44	32.0	42.60	S
NG 3457 B3XF	2.44	14.9	1,200	2.96	746	342.04	33.2	45.85	S
FM 868AXTP	2.95	46.7	2,835	3.26	726	311.42	31.1	42.88	PR
ST 4833AXTP	2.60	19.0	1,830	3.08	721	324.20	29.8	44.95	PR
DP 2414 B3TXF	2.42	24.8	3,495	3.17	703	299.48	34.2	42.60	S
DP 2436NR B3TXF	2.29	20.6	615	2.60	696	323.41	28.8	46.50	R
DP 2127 B3XF	2.44	36.3	4,778	3.38	679	283.28	32.5	41.75	S
DP 2335 B3XF	1.94	4.5	9,758	3.64	671	291.86	32.0	43.48	S
DP 2131 B3TXF	2.43	33.0	14,695	4.09	660	281.82	32.4	42.70	S
DP 2328 B3TXF	2.42	30.5	14,225	4.04	657	279.66	33.1	42.55	S
BX2557AXTP	2.52	14.9	3,205	3.19	646	275.84	33.0	42.70	UNK
DP 2317 B3TXF	2.73	19.8	2,235	3.24	640	269.42	29.0	42.13	S
FM 823AXTP	2.44	31.0	2,563	3.39	635	308.61	29.5	48.58	PR
AMX21T212XF	2.27	13.2	1,425	2.67	631	287.85	29.0	45.60	UNK
Armor 9831 B3XF	2.89	14.0	3,138	3.45	631	267.23	32.4	42.35	S
DP 2349NR B3XF	2.06	7.0	1,473	2.99	625	248.96	31.1	39.85	R
DP 2333 B3XF	2.59	28.9	9,268	3.92	618	261.73	32.1	42.35	S
BX2556AXTP	2.21	21.5	4,640	3.64	614	280.90	28.9	45.73	UNK
ST 6000AXTP	1.95	41.7	7,588	3.85	590	294.29	32.8	49.90	PR
ST 5855AXTP	1.98	40.1	4,848	3.35	544	227.23	29.8	41.75	UNK
NG 3434 B3XF	2.26	36.7	1,138	2.97	533	226.10	28.6	42.40	S
DP 1822 XF	2.91	34.7	12,268	3.93	499	192.86	27.9	38.63	S
BX2511AXTP	1.76	53.8	4,530	3.47	489	197.22	26.7	40.33	UNK
Prob>F	0.001	0.0010	0.006	0.0010	0.001	449.16	0.001	0.191	
MSD <sup>3</sup> (0.05)	0.62	12.6		0.84	136	422.13	2.8		

<sup>1</sup>RK is root-knot nematode eggs + 2<sup>nd</sup> stage juveniles.

<sup>2</sup>R is resistant (either 1 or 2 genes, homozygous in the variety), PR is typically 1 resistant gene in a subset of the population, S is susceptible, UNK is unknown.

<sup>3</sup>Minimum significant differences between varieties at  $P=0.05$ .

Table 4. Fiber properties for a variety test near Brownfield.

Variety	Micro- naire	Length (“)	Unif- ormity	Strength (g/tex)	Elon- gation	Rd	+b	Leaf	CRGD
AMX12506XF	4.30	1.03	78.10	25.75	6.2	81.4	8.5	4.0	11-2, 21-1
AMX12572B3TXF	4.11	0.97	78.05	24.00	6.4	82.1	8.5	3.5	11-1, 21-1
AMX21T212XF	3.91	0.97	77.80	26.10	6.0	82.4	8.0	3.5	11-1, 21-1
Armor 9413 XF	4.08	0.97	77.65	21.65	5.4	82.9	8.7	3.0	11-1
Armor 9442 XF	4.20	1.02	79.45	26.10	6.6	81.8	7.8	4.0	21-1
Armor 9512 B3XF	4.63	0.96	78.05	24.50	5.6	83.1	8.5	2.5	11-1
Armor 9831 B3XF	4.09	0.97	77.70	24.80	6.3	83.2	8.2	2.5	11-1, 11-2
BX2511AXTP	3.55	0.99	77.85	23.45	5.5	82.1	8.8	2.5	11-1
BX2512AXTP	4.92	1.04	78.75	25.00	5.5	81.4	8.9	2.5	11-1, 21-1
BX2556AXTP	4.24	1.03	78.15	25.40	5.6	80.9	7.9	3.5	21-1, 21-2
BX2557AXTP	4.44	1.00	78.40	23.70	5.5	83.5	8.4	1.5	11-1
DP 1822 XF	3.56	0.98	75.95	22.65	5.7	81.7	9.0	2.5	11-1, 11-2
DP 2127 B3XF	4.34	0.96	78.45	22.50	5.8	82.8	8.5	2.5	11-1
DP 2131 B3TXF	4.01	0.99	76.60	23.10	6.4	83.8	8.3	2.0	11-1
DP 2143NR B3XF	5.21	1.03	79.45	26.65	6.1	81.7	8.8	2.0	11-2
DP 2317 B3TXF	4.04	0.98	77.25	21.25	5.4	83.6	8.3	3.0	11-1
DP 2328 B3TXF	3.85	0.99	76.90	22.40	5.7	83.2	8.0	3.0	11-1, 11-2
DP 2333 B3XF	3.95	0.98	76.35	22.25	5.7	83.6	8.1	2.0	11-1, 21-1
DP 2335 B3XF	4.24	1.01	78.40	24.20	5.5	84.0	8.5	2.0	11-1
DP 2349NR B3XF	5.03	0.98	78.95	24.75	5.9	81.9	8.9	2.0	11-1, 11-2
DP 2414 B3TXF	3.86	0.98	76.45	23.55	6.1	81.6	8.9	2.5	11-1, 11-2
DP 2436NR B3TXF	4.07	1.02	77.55	25.70	6.9	80.5	8.8	4.0	21-1
FM 765AX	3.77	1.01	78.95	26.20	5.9	82.0	8.5	3.0	11-2
FM 814AXTP	4.08	0.94	76.75	21.60	5.7	82.1	8.6	2.0	11-2
FM 823AXTP	3.88	1.03	79.40	27.50	6.0	83.0	8.0	3.0	11-2, 21-1
FM 868AXTP	3.74	1.01	78.00	26.05	6.0	79.9	9.7	2.0	11-2, 12-1
NG 3195 B3XF	4.39	0.98	77.65	23.10	5.8	82.8	8.3	2.5	11-1
NG 3434 B3XF	3.37	1.03	77.50	24.15	6.2	80.1	9.5	3.0	11-2, 11-3
NG 3457 B3XF	4.17	1.01	78.50	25.35	6.7	81.0	9.4	2.0	11-1, 11-4
NG 4405 B3TXF	3.73	1.01	78.70	24.95	6.3	82.5	8.1	3.0	11-2, 21-1
NG 4409 B3XF	4.17	1.01	77.45	23.60	6.0	80.1	9.3	3.0	11-3, 21-1
NG 5430 B3XF	4.34	1.02	79.10	25.30	6.0	82.0	8.4	2.5	11-2, 21-1
ST 4833AXTP	3.98	1.03	78.75	22.40	5.4	80.9	8.6	4.0	21-1
ST 5855AXTP	3.25	1.01	77.60	26.25	5.9	83.0	8.7	2.0	11-1
ST 5931AXTP	4.40	1.04	79.55	26.80	6.2	82.2	8.5	2.5	11-2
ST 6000AXTP	3.90	1.02	78.90	26.90	6.1	82.7	8.7	2.0	11-1
Prob>F	0.001	0.001	0.045	0.001	0.001	0.001	0.001	0.001	
MSD <sup>1</sup> (0.05)	0.52	0.05	2.83	2.44	0.3	1.1	0.7	0.91	

<sup>1</sup>Minimum significant differences between varieties at  $P=0.05$ .

**Lamesa:** This root-knot nematode site was planted on 9 May at the AGCARES farm. This site has center pivot irrigation utilizing drop hoses. Samples for root-knot nematode assays were taken on August 15. The test was harvested on 31 October.

Results: Stands were excellent at this site for most entries (Table 5). There were two nematode susceptible varieties included in this test, Armor 9371 B3XF, which averaged a high root-knot nematode density (11,780/500 cm<sup>3</sup> soil), and DP 2127 B3XF, which averaged a moderate root-knot nematode density (3,787/500 cm<sup>3</sup> soil). All other entries were either varieties with known partial or high resistance to root-knot nematodes, or experimental lines where the companies asked us to test them in root-knot nematode fields and may have resistance. The highest yielding entries were experimental lines from Phytogen (PX1140F331-04, PX1126F263-04, PX1130F309-04, PX1150F360-04, and PX1140F330-04) which averaged 719 to 845 lbs of lint/acre. The highest yielding variety was PHY 415 W3FE, which averaged 710 lbs of lint/acre (Table 5). Loan values ranged from ¢42.55/lb to ¢55.60/lb (ST 6000AXTP) (Table 5). Those entries with lower loan values tended to have short fiber length (Table 6).

Table 5. Effect of root-knot (RK) nematode on cotton cultivars in a variety test near Lamesa.

Variety	Plants/ Foot row	RK <sup>1</sup> / 500 cm <sup>3</sup> soil	LOG <sub>10</sub> (RK+1)	Lint Yield (lbs/a)	Turnout (%)	Lint X Loan (\$/acre)	Loan Value (¢/lb)	RK <sup>2</sup> rating
PX1140F331-04	2.96	180	1.28	<b>845</b>	0.287	<b>416.16</b>	49.25	R
PX1126F263-04	2.95	0	0.00	<b>821</b>	0.279	322.73	45.38	R
PX1130F309-04	2.73	38	0.54	<b>766</b>	0.293	398.49	52.00	R
PX1150F360-04	3.04	60	0.60	<b>746</b>	0.272	383.49	51.43	R
PX1140F330-04	3.01	0	0.00	719	0.283	372.62	51.80	R
PHY 415 W3FE	2.74	510	0.83	710	0.269	245.49	51.38	R
PX1126F267-04	2.98	97	1.36	697	0.258	378.20	54.30	R
PHY 400 W3FE	2.75	325	<b>2.43</b>	687	0.287	301.45	43.90	R
PX1150F357-04	2.78	30	0.52	679	0.283	341.20	50.25	R
PHY 443 W3FE	2.59	13	0.43	676	0.295	364.97	48.28	R
PHY 475 W3FE	2.31	0	0.00	647	0.254	326.54	49.88	R
FM 814AXTP	2.48	1,200	<b>2.79</b>	638	0.288	299.25	46.88	PR
PX1150F361-04	3.04	25	0.50	635	0.266	311.94	49.15	R
FM 868AXTP	2.64	1,070	<b>2.33</b>	632	0.275	336.72	53.25	PR
<b>Armor 9371 B3XF</b>	2.33	11,780	<b>3.55</b>	606	0.306	289.41	47.73	S
PHY 332 W3FE	3.14	13	0.43	592	0.256	296.90	50.18	R
PHY 205 W3FE	2.87	600	<b>2.02</b>	585	0.251	266.47	45.55	R
BX2512AXTP	2.00	115	0.67	582	0.294	312.42	53.65	R
AMX21T212XF	2.21	5,010	<b>2.69</b>	578	0.246	308.07	53.33	UNK
DP 2141NR B3XF	2.53	30	0.52	577	0.271	292.13	50.60	R
BX2557AXTP	2.52	1,773	<b>2.12</b>	574	0.307	304.24	53.05	UNK
ST 6000AXTP	2.11	1,923	<b>2.11</b>	571	0.294	317.48	55.60	PR
DP 2436NR B3TXF	2.05	253	1.62	567	0.255	291.72	51.45	R
ST 5931AXTP	2.61	1,965	1.75	562	0.288	295.16	52.55	R
<b>DP 2127 B3XF</b>	2.16	3,327	<b>2.41</b>	532	0.295	227.43	42.75	S
AMX12572B3TXF	1.20	1,800	<b>2.03</b>	530	0.288	246.45	46.50	UNK
BX2556AXTP	1.94	1,255	<b>2.07</b>	528	0.257	314.36	50.95	UNK
DP 2349NR B3XF	2.33	360	1.43	527	0.294	246.00	46.68	R
ST 5855AXTP	2.16	5,830	<b>2.85</b>	506	0.317	261.43	51.70	UNK
ST 4833AXTP	2.78	245	1.74	504	0.254	254.08	50.38	R
BX2511AXTP	1.91	1,558	<b>2.32</b>	502	0.281	253.58	50.48	UNK
PX1127D245-04	2.83	0	0.00	501	0.229	213.03	42.55	R
DP 2143NR B3XF	2.66	0	0.00	499	0.267	267.62	53.63	R
AMX12506XF	1.94	6,725	<b>3.62</b>	447	0.262	247.82	55.40	UNK
Prob>F	0.001	0.001	0.001	0.001	0.001	0.001	0.009	
MSD <sup>3</sup> (0.05)	0.48		1.89	126	0.018	61.13	8.01	

<sup>1</sup>RK is root-knot nematode eggs + 2<sup>nd</sup> stage juveniles.

<sup>2</sup>R is resistant (either 1 or 2 genes, homozygous in the variety), PR is typically 1 resistant gene in a subset of the population, S is susceptible, UNK is unknown.

<sup>3</sup>Minimum significant differences between varieties at  $P=0.05$ .

Table 6. Fiber properties for a variety test near Lamesa.

Variety	Micro- naire	Length (“)	Unif- ormity	Strength (g/tex)	Elon- gation	Rd	+b	Leaf	CRGD
AMX12506XF	3.65	1.14	79.35	28.45	6.0	79.5	9.4	4.0	21-1, 21-3
AMX12572B3TXF	4.12	1.01	78.15	25.60	6.1	81.0	8.9	3.5	11-2
AMX21T212XF	3.49	1.11	79.95	30.95	5.8	81.4	8.9	4.0	11-1, 21-1
Armor 9371 B3XF	3.94	1.02	78.10	24.35	5.7	81.7	9.4	3.0	11-1, 11-2
BX2511AXTP	3.32	1.09	77.70	27.80	5.1	81.3	9.6	3.5	11-1
BX2512AXTP	4.64	1.07	78.20	27.20	5.2	81.8	9.9	3.0	11-1
BX2556AXTP	3.75	1.03	75.65	26.25	5.6	79.6	9.0	4.5	21-1, 21-2
BX2557AXTP	4.32	1.05	79.10	27.80	5.6	83.8	8.5	2.0	11-1
DP 2127 B3XF	4.26	0.98	77.45	23.75	5.7	81.5	9.6	2.5	11-1
DP 2141NR B3XF	4.80	1.03	77.45	27.20	5.8	80.9	9.3	3.0	11-1
DP 2143NR B3XF	4.49	1.08	79.20	28.90	5.9	80.3	9.8	3.0	11-1, 11-3
DP 2349NR B3XF	4.40	1.02	78.15	26.10	5.7	80.0	10.0	2.5	11-3, 11-4
DP 2436NR B3TXF	3.68	1.07	76.90	29.25	7.0	78.9	10.2	3.5	11-4, 12-1
FM 814AXTP	3.37	1.04	78.50	26.50	5.4	79.9	10.0	3.5	11-3, 11-4
FM 868AXTP	3.81	1.08	78.60	29.45	6.2	79.7	9.9	3.5	11-2, 12-1
PHY 205 W3FE	3.26	1.02	77.45	28.10	5.6	79.7	9.2	4.0	11-2, 21-1
PHY 332 W3FE	3.58	1.07	79.35	27.35	6.3	79.4	10.0	3.0	11-3
PHY 400 W3FE	3.42	1.00	77.00	26.10	6.0	80.0	9.6	4.0	11-2, 11-3
PHY 415 W3FE	3.76	1.05	79.15	27.85	6.3	78.4	9.8	4.0	12-2, 21-3
PHY 443 W3FE	3.95	0.99	78.85	26.20	6.0	80.1	9.7	3.0	11-1, 21-3
PHY 475 W3FE	3.88	1.02	77.50	27.70	6.2	80.9	9.5	3.0	11-1
PX1126F263-04	3.64	0.99	77.40	27.00	6.3	80.0	9.7	3.5	11-3, 21-1
PX1126F267-04	3.99	1.07	80.50	30.55	6.0	80.7	8.7	3.5	21-1
PX1127D245-04	2.88	1.05	77.25	27.20	5.6	80.4	8.7	5.0	21-1
PX1130F309-04	3.93	1.05	79.40	28.50	6.1	80.4	9.6	3.5	11-1, 11-2
PX1140F330-04	3.94	1.05	78.70	28.30	6.2	78.8	9.2	4.0	21-1, 21-3
PX1140F331-04	4.25	1.02	77.50	28.15	6.3	78.6	9.2	4.0	21-1, 21-4
PX1150F357-04	4.08	1.03	79.70	28.85	7.0	79.9	8.9	4.0	21-1
PX1150F360-04	3.97	1.06	79.15	29.00	6.3	78.3	9.1	4.5	21-2, 21-4
PX1150F361-04	3.78	1.02	77.80	27.45	6.4	78.2	9.4	4.0	21-3, 21-4
ST 4833AXTP	3.32	1.11	79.60	27.35	5.3	79.5	9.9	3.5	11-3, 21-3
ST 5855AXTP	3.68	1.05	78.25	28.20	6.0	82.0	9.6	3.0	11-1
ST 5931AXTP	3.69	1.07	78.20	27.65	6.2	81.2	9.1	4.0	11-1, 11-2
ST 6000AXTP	3.77	1.10	79.90	30.60	5.9	80.3	9.7	3.5	11-1, 11-3
Prob>F	0.001	0.008	0.038	0.001	0.001	0.001	0.001	0.001	
MSD <sup>1</sup> (0.05)	0.38	0.08	3.08	2.75	0.2	1.2	0.7	1.2	

<sup>1</sup>Minimum significant differences between varieties at  $P=0.05$ .



Morton: This root-knot nematode site was planted on May 23<sup>rd</sup>. The field was irrigated with subsurface drip on 80-inch centers, every other furrow. The area planted in the trial was the most vulnerable in the field to blowing, even though it was planted into stubble. Stands were less uniform than at the other test locations. The test was soil sampled to extract root-knot nematodes on 19 August. The test was harvested on 14 November.

Results: Average plant stand was low across all entries in the test (Table 7). Root-knot nematode densities indicated moderate to high nematode pressure in the test. The known resistant nematode varieties (rated as R in Table 7) that had lower nematode densities were DP 2436NR B3TXF, DP 2143NR B3XF, DP 2349NR B3XF, and ST 4833AXTP. Experimental lines that also appeared to have lower nematode densities were BX2512AXTP, and AMX21T212XF (Table 7). Lint yields did not differ significantly between entries, though at least numerically the highest yielding varieties were NG 4409 B3XF, FM 868AXTP, FM 814AXTP, FM 765AX, and NG 3457 B3XF. Fiber properties were acceptable to good for most entries, with the exception of leaf grade (Table 8). Loan values were mostly over the base of ¢52/lb cotton.

Table 7. Effect of root-knot (RK) nematode on cotton cultivars in a variety test near Morton.

Variety	Plants/ Foot row	RK <sup>1</sup> / 500 cm <sup>3</sup> soil	LOG <sub>10</sub> (RK+1)	Lint Yield (lbs/a)	Turnout (%)	RK <sup>2</sup> rating	Lint X Loan (\$/acre)	Loan Value (¢/lb)
NG 4409 B3XF	1.34	2,938	3.38	776	29.5	S	413.22	53.25
FM 868AXTP	1.51	943	2.82	767	32.5	PR	419.41	54.70
FM 814AXTP	0.95	4,740	3.55	762	32.7	UNK	394.84	51.80
FM 765AX	1.01	3,220	3.40	755	31.2	PR	374.31	52.85
NG 3457B3XF	1.10	983	2.28	753	31.0	S	405.47	53.83
ST 5931AXTP	1.46	1,195	2.99	723	31.2	UNK	373.52	51.68
NG 3434B3XF	1.09	4,323	3.53	702	32.1	S	384.69	54.80
Armor 9371 B3XF	1.91	12,059	3.94	692	30.8	S	376.93	54.45
DP 2349NR B3XF	1.10	8,005	2.75	691	32.8	R	340.66	49.30
AMX21T212XF	1.49	440	2.62	688	28.4	UNK	383.01	55.65
BX2512AXTP	0.91	3,283	1.73	686	30.6	UNK	322.65	52.98
Armor 9442 XF	0.99	5,158	3.64	679	29.9	S	377.86	55.65
BX2556AXTP	1.06	2,125	2.89	668	28.7	UNK	378.15	56.63
Armor 9383 B3TXF	1.50	11,355	4.02	666	28.4	S	350.85	52.68
ST 5855AXTP	0.73	1,350	2.42	664	31.2	UNK	362.71	54.90
DP 2143NR B3XF	1.50	300	1.34	647	29.6	R	328.67	50.78
ST 4833AXTP	1.78	938	2.72	643	29.6	UNK	359.77	55.93
ST 6000AXTP	0.74	2,625	3.22	643	32.0	PR	352.42	54.83
NG 4405 B3TXF	0.94	7,223	3.79	635	30.0	S	311.66	54.63
DP 2436NR B3TXF	0.96	1,165	2.11	634	29.3	R	355.85	56.15
FM 823AXTP	1.09	2,668	3.16	631	29.5	PR	342.96	54.33
DP 2127 B3XF	1.20	3,215	3.19	629	32.3	S	339.66	54.00
DP 2335 B3XF	1.19	13,126	3.92	616	30.1	S	336.16	54.55
NG 3195 B3XF	0.81	3,718	3.57	614	32.1	S	331.60	54.05
DP 2414 B3TXF	1.06	4,693	3.49	602	32.2	S	316.52	52.60
DP 2333 B3XF	1.11	16,608	4.12	599	30.6	S	308.84	51.58
AMX12506XF	1.04	6,498	3.51	598	29.5	UNK	338.77	56.65
DP 2131 B3TXF	1.19	5,778	3.75	597	30.5	S	324.07	54.26
DP 2328 B3TXF	1.00	8,230	3.54	596	31.2	S	320.66	53.78
DP 2211 B3TXF	0.94	7,084	3.66	590	30.3	S	324.79	55.05
BX2557AXTP	0.84	1,138	2.78	578	32.8	UNK	318.34	55.10
AMX12572B3TXF	0.66	11,188	3.97	573	29.7	UNK	284.83	49.73
DP 2317 B3TXF	1.29	5,453	3.66	561	28.0	S	307.00	54.70
BX2511AXTP	0.76	1,000	2.86	560	30.7	UNK	305.21	54.55
Armor 9512 B3XF	1.41	5,458	3.55	558	30.1	S	306.48	54.90
DP 2123 B3XF	1.76	5,398	3.71	544	27.4	S	300.02	55.15
Prob>F	0.001	0.001	0.001	0.657	0.021		0.711	0.00
MSD (0.05)	0.43		1.35		3.8			2.98

<sup>1</sup>RK is root-knot nematode eggs + 2<sup>nd</sup> stage juveniles.

<sup>2</sup>R is resistant (either 1 or 2 genes, homozygous in the variety), PR is typically 1 resistant gene in a proportion of the plants, S is susceptible, UNK is unknown.

<sup>3</sup>Minimum significant differences between varieties at  $P=0.05$ .

Table 8. Fiber properties for a variety test near Morton.

Variety	Micro- naire	Length (“)	Unif- ormity	Strength (g/tex)	Elon- gation	Rd	+b	Leaf	CRGD
AMX12506XF	4.63	1.15	81.45	31.25	6.3	76.6	8.7	4.0	31-1, 31-2
AMX12572B3TXF	4.37	1.03	80.45	27.60	6.6	77.7	8.6	3.5	31-1
AMX21T212XF	4.29	1.13	82.10	33.40	6.4	77.9	8.3	4.0	31-1
Armor 9371 B3XF	4.80	1.09	81.60	27.75	6.2	78.2	8.8	3.0	31-1
Armor 9383 B3TXF	4.03	1.07	79.80	28.10	6.9	77.1	8.6	3.5	31-1
Armor 9442 XF	4.36	1.14	82.30	31.55	7.2	76.1	8.2	4.5	31-2, 41-1
Armor 9512 B3XF	4.35	1.09	81.35	32.60	5.8	77.7	8.2	4.0	31-1, 31-2
BX2511AXTP	4.18	1.08	81.30	29.60	5.5	78.3	8.3	3.5	31-1
BX2512AXTP	5.21	1.12	81.85	30.55	5.8	76.7	8.4	4.0	31-1, 31-2
BX2556AXTP	4.26	1.15	81.00	31.85	5.9	76.7	7.8	5.0	31-2
BX2557AXTP	4.38	1.10	81.70	31.45	6.0	79.4	8.3	3.5	21-2, 31-1
DP 2123 B3XF	4.50	1.12	80.45	30.65	5.7	75.5	8.3	5.0	31-2, 41-1
DP 2127 B3XF	4.69	1.07	81.95	28.30	6.1	78.1	9.0	3.0	21-2, 31-1
DP 2131 B3TXF	4.43	1.10	79.90	28.90	6.6	80.0	8.3	3.0	21-1, 31-1
DP 2143NR B3XF	5.23	1.11	81.60	31.60	6.2	74.2	8.9	4.5	31-4, 41-3
DP 2211 B3TXF	4.19	1.10	80.70	28.30	6.3	79.2	8.7	2.5	21-2
DP 2317 B3TXF	4.38	1.08	80.15	28.30	6.0	79.1	8.6	3.0	21-2, 31-1
DP 2328 B3TXF	4.42	1.09	80.65	29.05	6.1	79.3	8.3	3.0	31-1
DP 2333 B3XF	4.52	1.05	80.25	27.95	6.0	79.2	8.5	2.5	21-2, 31-1
DP 2335 B3XF	4.24	1.11	80.50	31.20	5.7	79.4	8.2	4.0	31-1
DP 2349NR B3XF	5.05	1.05	80.50	27.95	6.3	78.2	8.5	3.0	31-1
DP 2414 B3TXF	4.58	1.07	80.55	28.70	6.5	79.1	8.7	2.5	21-1, 31-1
DP 2436NR B3TXF	4.01	1.12	80.15	31.65	7.1	76.1	8.9	4.0	31-3
FM 765AX	4.31	1.07	81.20	30.40	6.3	78.3	8.2	3.5	31-3
FM 814AXTP	4.61	1.05	81.30	28.05	6.0	78.4	8.5	3.0	31-1
FM 823AXTP	4.37	1.08	81.75	31.40	6.4	78.7	8.5	3.5	21-2, 31-1
FM 868AXTP	4.63	1.09	81.05	31.50	6.5	77.1	9.0	3.5	31-1, 31-3
NG 3195 B3XF	4.49	1.08	82.05	29.65	5.9	77.6	8.9	3.0	21-2, 31-1
NG 3434 B3XF	4.76	1.11	80.60	29.05	6.9	76.3	9.0	3.5	31-3
NG 3457 B3XF	4.68	1.10	82.10	30.05	7.0	77.1	9.4	3.0	21-4
NG 4405 B3TXF	4.02	1.10	81.55	29.60	6.7	77.8	8.3	4.0	31-1
NG 4409 B3XF	4.51	1.08	80.65	30.15	6.2	76.4	9.4	3.5	22-1, 31-3
ST 4833AXTP	4.61	1.13	81.55	29.55	5.7	76.5	8.9	4.5	31-2, 31-3
ST 5855AXTP	4.43	1.08	81.55	30.50	6.5	78.2	8.4	3.0	21-2, 31-1
ST 5931AXTP	4.23	1.05	80.15	29.30	6.4	78.2	8.6	3.0	31-1
ST 6000AXTP	4.57	1.10	81.95	32.25	6.4	77.5	8.9	3.5	31-1
Prob>F	0.001	0.001	0.037	0.001	0.001	0.001	0.001	0.001	
MSD <sup>1</sup> (0.05)	0.43	0.042	2.09	1.49	0.2	0.9	0.4	1.0	

<sup>1</sup>Minimum significant differences between varieties at  $P=0.05$ .

**Lubbock:** This reniform nematode site was planted on 21 May. Soil samples were taken on 21 August and assayed for reniform nematode eggs and vermiform stages. The test was harvested on 9 December. The test was furrow irrigated (every other furrow) once during the season on August 15<sup>th</sup>.

Results: Plant stands were excellent for this test (Table 9). Reniform nematode eggs + vermiform stages ranged from an average of 520 to 9,060/500 cm<sup>3</sup> soil. Based on these nematode assays, it appeared that 20 of the 31 entries had resistance to the reniform nematode (Table 9). Of these, six were known to be resistant varieties, but 14 experimental lines also appeared to have resistance. The top yielding group of entries ranged from 1,006 to 1,233 lbs of lint/acre and all were resistant to reniform nematode. Within this top yielding group, were three commercial varieties (PHY 443 W3FE, PHY 411 W3FE, and PHY 332 W3FE), and nine experimental lines from Phytogen (Table 9). The top dicamba tolerant entries were AMX24001B3TXF (experimental line from Americot) and the new variety ST 5931AXTP. Loan values were generally above \$0.52/lb with just a few exceptions. Fiber length ranged from 1.07 to 1.22 inches, with the best fiber length associated with experimental lines (Table 10).

Table 9. Effect of reniform nematode (REN) on cotton cultivars in a variety test near Lubbock.

Variety	Plants/ Foot row	REN <sup>1</sup> / 500 cm <sup>3</sup> soil	LOG <sub>10</sub> (REN+1)	Lint Yield (lbs/a)	Turnout (%)	REN <sup>2</sup> rating	Lint X Loan (\$/acre)	Loan Value (¢/lb)
PX1150F357-04	3.26	520	2.67	<b>1,233</b>	0.298	R	<b>675.18</b>	54.38
PX1150F360-04	3.64	2,345	3.29	<b>1,190</b>	0.298	R	<b>662.16</b>	55.73
PX1140F331-04	3.50	700	2.83	<b>1,166</b>	0.311	R	<b>641.00</b>	55.70
PX1140F329-04	3.46	940	2.90	<b>1,140</b>	0.304	R	<b>616.98</b>	54.23
PHY 443 W3FE	3.16	1,318	3.09	<b>1,123</b>	0.326	R	<b>609.38</b>	54.03
PX1150F361-04	3.45	1,475	2.82	<b>1,102</b>	0.290	R	<b>606.30</b>	54.78
PX1140F330-04	3.33	788	2.84	<b>1,099</b>	0.313	R	<b>577.37</b>	52.70
PX1130F309-04	3.61	1,820	3.00	<b>1,092</b>	0.309	R	<b>578.19</b>	53.13
PX1126F263-04	3.24	1,038	2.86	<b>1,072</b>	0.314	R	<b>582.41</b>	55.03
PHY 411 W3FE	2.99	405	2.53	<b>1,032</b>	0.321	R	539.52	52.33
PX1126F267-04	3.30	768	2.79	<b>1,018</b>	0.293	R	<b>566.75</b>	55.78
PHY 332 W3FE	3.27	1,050	2.93	<b>1,006</b>	0.286	R	<b>557.05</b>	55.58
AMX24001B3TXF	2.43	613	2.74	980	0.302	R	538.35	55.70
ST 5931AXTP	2.95	933	2.72	921	0.319	R	491.20	54.48
PX1127D245-04	3.19	1,285	2.88	916	0.306	R	507.80	55.68
BX2557AXTP	2.46	1,130	3.04	887	0.315	R	480.38	54.28
FM 765AX	2.37	5,305	3.64	800	0.312	S	414.49	51.90
BX2512AXTP	1.51	415	2.54	792	0.308	R	423.07	53.80
PHY 205 W3FE	3.44	930	2.88	762	0.290	R	403.05	53.88
AMX21T212XF	2.29	2,883	3.40	758	0.276	S	422.98	56.08
FM 868AXTP	2.99	4,710	3.64	722	0.319	S	404.37	56.28
DP 2143NR B3XF	2.52	630	2.66	688	0.252	R	375.58	54.93
Armor 9371 B3XF	2.67	9,060	3.88	679	0.340	S	364.37	53.98
Armor 9831 B3XF	2.51	3,645	3.40	636	0.297	S	351.23	55.53
DP 2141NR B3XF	2.40	1,333	3.04	616	0.278	R	350.14	55.70
NG 3195 B3XF	2.08	6,123	3.71	600	0.310	S	323.78	54.28
DP 2127 B3XF	3.04	3,200	3.46	535	0.303	S	288.43	54.08
AMX12506XF	2.54	3,508	3.49	520	0.289	S	283.58	54.03
DP 2414 B3TXF	2.19	2,390	3.34	519	0.299	S	278.89	55.85
DP 2317 B3TXF	2.69	5,240	3.47	463	0.271	S	254.08	55.50
Armor 9413 XF	2.52	4,530	3.54	257	0.324	S	339.28	49.85
Prob>F	0.0001	0.0001	0.0001	0.001	0.005		0.001	0.42
MSD <sup>3</sup> (0.05)	0.46	3098	0.51	245	0.039		134.47	

<sup>1</sup>REN is reniform nematode eggs + vermiform stages.

<sup>2</sup>R is resistant and S is susceptible.

<sup>3</sup>Minimum significant differences between varieties at  $P=0.05$ .

Table 10. Fiber properties for a variety test near Lubbock.

Variety	Micro- naire	Length (")	Unif- ormity	Strength (g/tex)	Elon- gation	Rd	+b	Leaf	CRGD
AMX12506XF	4.26	1.10	79.05	28.60	6.3	78.0	7.7	4.0	31-2
AMX21T212XF	4.02	1.22	82.55	34.30	6.3	78.0	7.0	4.5	31-2, 41-1
AMX24001B3TXF	4.70	1.18	80.30	32.10	5.9	78.6	6.8	4.0	31-2, 41-1
Armor 9371 B3XF	4.81	1.15	81.65	28.65	6.0	77.1	7.2	3.5	41-1
Armor 9413 XF	4.69	1.07	79.20	26.30	5.5	79.7	7.6	2.5	21-2, 31-2
Armor 9831 B3XF	4.84	1.15	81.20	31.15	6.9	77.5	7.4	3.0	31-2, 41-1
BX2512AXTP	5.29	1.20	82.10	32.25	5.4	77.3	7.7	4.0	31-2
BX2557AXTP	5.02	1.17	81.10	32.15	5.7	79.9	6.9	3.0	31-2, 41-1
DP 2127 B3XF	4.86	1.11	81.05	28.85	6.2	78.6	7.2	3.0	31-2
DP 2141NR B3XF	4.89	1.14	81.20	32.05	6.2	77.8	8.1	3.0	31-1, 31-2
DP 2143NR B3XF	5.05	1.16	81.60	31.15	6.4	78.2	7.8	3.0	31-1, 31-2
DP 2317 B3TXF	4.32	1.16	81.40	29.75	5.6	78.6	7.3	3.0	31-1, 41-1
DP 2414 B3TXF	4.02	1.13	79.75	28.65	6.5	79.7	7.8	2.5	31-1
FM 765AX	4.74	1.08	78.80	28.35	6.1	78.5	7.6	3.0	31-1, 31-2
FM 868AXTP	4.57	1.13	81.10	30.55	6.3	77.3	8.0	3.5	31-2
NG 3195 B3XF	4.49	1.11	81.25	28.50	5.9	78.3	7.1	3.5	31-2, 41-1
PHY 205 W3FE	4.56	1.07	80.20	30.10	5.7	78.4	7.9	3.5	31-1
PHY 332 W3FE	4.48	1.13	81.10	30.60	6.5	76.7	8.5	4.0	31-1
PHY 411 W3FE	4.89	1.07	80.25	30.20	6.4	79.0	7.1	4.0	31-2
PHY 443 W3FE	4.80	1.11	79.60	29.15	6.5	77.0	8.3	3.0	31-1, 31-2
PX1126F263-04	4.81	1.12	80.75	31.00	6.5	77.3	8.3	3.5	31-1, 31-2
PX1126F267-04	4.87	1.17	81.90	32.90	6.2	76.5	7.8	4.0	31-2, 41-1
PX1127D245-04	4.55	1.14	81.45	31.85	6.0	77.4	7.1	4.5	31-2, 41-1
PX1130F309-04	4.84	1.12	81.35	30.45	6.1	77.9	7.9	3.0	31-1, 41-1
PX1140F329-04	4.58	1.17	80.50	30.90	6.5	75.5	7.8	4.5	41-1
PX1140F330-04	4.89	1.12	80.80	29.80	6.6	75.6	7.5	5.0	41-1
PX1140F331-04	4.82	1.16	81.90	31.85	6.4	76.6	7.6	4.0	31-2, 41-1
PX1150F357-04	4.48	1.15	82.75	32.50	7.3	75.6	7.4	5.0	41-1
PX1150F360-04	4.63	1.17	81.65	32.30	6.5	75.7	7.8	4.5	31-2, 41-1
PX1150F361-04	4.75	1.21	82.85	32.90	6.5	75.5	8.1	4.5	41-1
ST 5931AXTP	4.60	1.16	81.15	31.10	6.4	78.4	7.4	4.0	31-1, 41-1
Prob>F	4.26	1.10	79.05	28.60	6.3	78.0	7.7	4.0	
MSD <sup>1</sup> (0.05)	4.02	1.22	82.55	34.30	6.3	78.0	7.0	4.5	

<sup>1</sup>Minimum significant differences between varieties at  $P=0.05$ .