Variety Trials Conducted in 2025 in Root-knot Nematode and Reniform Nematode Sites

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1) Variety Trial in a Reniform Nematode Field in Lubbock

This trial consisted of 36 entries, including reniform nematode resistant varieties from BASF, Bayer CropScience, and Phytogen; experimental lines from Auburn University, BASF, Bayer CropScience, Phytogen, Americot, and Armor Seed, and known nematode susceptible varieties. The entries were arranged in a randomized complete plot design with four replications. Seed was planted on May 14th (4 seed/foot row) in plots that were 35 feet long and 2 rows wide. The field was furrow watered five days after planting to assist with emergence and seedling establishment. There were some hail events in the spring as well as possible interactions between reniform nematode and seedlings to cause a lot of stand loss, from what was an excellent initial stand. Final stands were poor (Table 1). Plots were soil sampled on August 11th, 5-6 days after an irrigation event, and assayed for reniform nematodes (vermiform stages) and eggs. Plots were harvested on November 17th.

Results: The top yielding varieties were PHY 475 W3FE, PHY 332 W3FE, and DP 2522NR B3XF (average of 1,220 lbs of lint/acre, Table 1). Top yielding experimental lines (that yielded as much as these varieties) included five from Phytogen and one from BASF. The average yield for the five susceptible varieties (FM 765AX, UA 103, DP 2335 B3XF, DP 393, and NG 2535 B3TXF) was 667 lbs of lint/a. Reniform nematode population was moderate overall, and sufficient to cause significant yield loss. Stands were < 2 plants/foot row for most varieties, so were considered lower than desired. The test was not sprayed with any defoliants or boll openers, but did defoliate naturally, however, this probably led to the low overall turnout.

Micronaire was fine for most entries. Fiber length ranged from a low of 1.07 (PX1150H164) to a high of 1.22 (AMX12512XF) inches (Table 2). Other entries with a fiber length of ≥ 1.19 inches included one line from Auburn University, BX2636AXTP, 24R6833B3TXF, DP 2335 B3XF, and PHY 433 W3FE. Fiber strength ranged from an average low of 27.75 (Armor experimental) to a high of 33.35 (PHY 433 W3FE) grams/tex. Other entries with fiber strength > 32.0 grams/tex were two lines from Auburn University, AMX12612XF, 24R6833B3TXF, NG 2535 B3TXF, and PX1140H138. Loan values were > $0.52/lb lint for all entries (Table 1). Those entries with a loan value > $0.57 were PX1140F330, PX1126F263, 24R6833B3TXF, BX2636AXTP, two experimental lines from Auburn University, PHY 332 W3FE, PHY 357 W3FE, FM 765AX, DP 2335 B3XF, and NG 2535 B3TXF.

Table 1. Effect of variety on reniform nematode (REN) reproduction and cotton lint yield.

Variety[1]	Plants /foot row	Eggs + Reniform /500 cm^3 soil	Turn out %	Lint yield lbs/a	Loan ($/lb)	Yield X Loan ($/acre)	REN Rating
PX1140H150	1.67	**2,070**	28.6	**1,306**	0.556	**726.53**	R
BX2660AXTP	1.19	**1,845**	31.7	**1,280**	0.536	639.58	R
PHY 475 W3FE	1.89	**1,455**	30.7	**1,257**	0.567	**712.18**	R
PX1140F330	2.07	**1,425**	26.0	**1,251**	0.575	**719.47**	R
PX1140H138	1.85	**2,930**	27.7	**1,206**	0.552	**665.25**	R
PHY 332 W3FE	1.99	**2,630**	28.1	**1,206**	0.575	**693.07**	R
DP 2522NR B3TXF	2.00	**1,680**	29.6	**1,196**	0.564	**673.67**	R
PX1126F263	1.82	**1,980**	27.0	**1,170**	0.575	**671.88**	R
PX1140H152	1.98	**2,300**	26.7	**1,164**	0.557	**647.98**	R
PX1120H277	2.06	**1,650**	27.6	1,132	0.566	**640.63**	R
PX1140H143	1.48	**2,595**	27.9	1,122	0.559	626.36	R
PHY 411 W3FE	1.30	**1,450**	26.2	1,106	0.538	594.54	R
AR24X954B3TXF	1.54	**2,000**	26.0	1,091	0.553	602.64	R
PX1120H276	2.43	**3,550**	26.7	1,060	0.563	596.50	R
PHY 357 W3FE	2.04	**1,670**	25.5	1,059	0.576	609.78	R
PX1150H164	1.60	**1,480**	26.9	1,046	0.528	552.29	R
DP 2143NR B3XF	1.89	**2,205**	25.6	1,025	0.550	563.38	R
24R6815B3TXF	1.70	4,305	27.4	1,017	0.564	573.53	?
24R6833B3TXF	1.66	**1,090**	25.3	973	0.578	562.20	R
PHY 433 W3FE	1.28	**1,800**	26.2	967	0.570	551.00	R
BX2662AXTP	1.48	**2,450**	26.3	951	0.534	507.10	R
ST 5931AXTP	1.12	**1,850**	25.8	892	0.564	464.88	R
194-B148(21-13)	1.64	**1,590**	26.2	851	0.575	488.76	R
194-B143(20-2)	1.15	6,660	26.8	846	0.578	332.82	S
PHY 205 W3FE	2.08	**2,830**	25.7	841	0.540	454.53	R
194-A210(2-12)	1.33	**2,840**	25.5	832	0.548	407.30	R
194-A210(18-15)	1.13	4,210	25.8	790	0.552	435.65	S
FM 765AX	1.78	6,070	28.9	774	0.575	444.76	S
UA103	1.55	**2,065**	26.1	756	0.568	429.12	S
DP 2335 B3XF	1.97	3,930	29.1	738	0.578	426.56	S
194-B170(6-18)	1.16	**2,380**	24.8	706	0.559	394.24	R
BX2636AXTP	1.59	**2,300**	24.6	702	0.573	402.60	R
DP 393	1.43	**2,470**	22.7	582	0.549	319.40	S
194-B143(20-15)	1.11	**2,135**	26.3	576	0.557	471.62	R
NG 2535 B3TXF	1.47	4,950	26.7	483	0.578	279.17	S
AMX12612XF	0.92	6,570	26.1	467	0.542	252.88	S
Prob>F	0.001	0.003	0.052	0.001	0.010	0.001	
MSD (0.05)	0.71	3,633	5.4	157	0.035	92.58	

[1]124R and 25R are lines from Bayer CropScience; 194- are lines from Auburn University; BX are lines from BASF; AR are lines from Armor seed; AMX are lines from Americot; PX are lines from Phytogen.

Table 2. The effect of variety on fiber properties in a reniform nematode field, Lubbock.

Variety[1]	Mic	Length "	Unif %	Stren g/tex	Elon	Rd	+b	Leaf	CGRD
194-A210(18-15)	4.65	1.16	82.90	32.25	7.5	77.8	9.6	2.0	21-3, 21-4
194-A210(2-12)	4.28	1.10	80.55	28.55	7.1	78.0	9.9	2.0	21-3, 22-1
194-B143(20-15)	4.14	1.13	81.65	31.60	7.0	76.9	9.7	2.0	21-1, 22-1
194-B143(20-2)	3.77	1.17	82.40	32.30	7.0	77.8	9.7	2.5	21-4, 22-2
194-B148(21-13)	4.26	1.20	81.40	31.85	6.9	78.9	8.8	2.0	21-1, 31-1
194-B170(6-18)	4.39	1.11	80.70	29.65	6.8	79.4	8.6	2.0	21-1, 21-2
24R6815B3TXF	4.28	1.16	80.50	28.45	7.0	80.2	7.9	3.0	21-2, 31-1
24R6833B3TXF	3.83	1.19	80.95	32.20	6.8	81.0	8.2	3.0	21-2
AMX12612XF	3.40	1.22	81.95	32.30	7.2	77.0	9.6	3.0	21-1
AR24X954B3TXF	4.34	1.11	80.90	27.75	8.0	80.0	8.8	2.5	21-4, 22-2
BX2636AXTP	4.38	1.21	82.50	30.30	6.8	79.5	9.1	2.0	11-2, 21-2
BX2660AXTP	4.43	1.08	81.05	29.45	7.2	80.1	8.9	2.0	21-1, 21-3
BX2662AXTP	4.41	1.08	81.35	28.95	7.1	78.7	8.9	2.5	21-1
DP 2143NR B3XF	4.71	1.14	82.00	31.05	7.3	78.4	9.9	1.5	21-2, 21-3
DP 2335 B3XF	3.93	1.19	81.10	30.95	6.4	80.9	8.6	2.0	12-2. 21-3
DP 2522NR B3TXF	4.60	1.13	81.50	27.65	6.8	81.7	8.1	2.5	11-2, 21-1
DP 393	3.98	1.12	80.60	29.50	7.1	78.1	9.3	2.5	21-1
FM 765AX	4.32	1.17	82.15	31.30	6.7	79.2	8.8	2.5	21-1, 21-4
NG 2535 B3TXF	4.00	1.17	81.45	32.75	6.6	79.1	9.1	2.0	21-1, 21-2
PHY 205 W3FE	4.42	1.08	81.55	31.10	6.4	80.2	8.1	3.0	21-1, 21-2
PHY 332 W3FE	4.42	1.16	81.90	31.30	7.3	78.8	9.2	2.5	21-2
PHY 357 W3FE	4.36	1.16	81.90	31.30	7.2	78.4	8.8	2.5	21-2
PHY 411 W3FE	4.66	1.08	81.40	30.30	7.4	81.0	8.3	2.0	21-1
PHY 433 W3FE	4.26	1.19	81.90	33.35	7.2	77.6	9.2	3.0	21-2, 22-1
PHY 475W3FE	4.51	1.12	80.90	31.85	7.3	79.8	8.8	2.0	21-1
PX1120H276	4.58	1.13	79.60	30.00	6.5	81.0	7.9	2.5	21-1
PX1120H277	4.29	1.13	80.55	30.35	6.5	81.2	8.0	2.0	21-1, 21-2
PX1126F263	4.16	1.14	81.40	31.75	7.2	79.0	8.9	2.0	21-1
PX1140F330	4.50	1.17	81.50	30.25	7.2	78.9	8.6	3.0	21-1, 21-2
PX1140H138	4.50	1.11	82.05	32.05	7.1	77.6	8.5	3.0	21-2
PX1140H143	4.59	1.12	81.40	31.65	7.3	78.9	9.2	2.5	21-4, 31-2
PX1140H150	4.37	1.15	81.65	31.80	7.1	77.3	9.7	2.0	21-1, 21-3
PX1140H152	4.52	1.13	81.25	30.80	7.5	78.7	9.1	2.0	22-1, 21-4
PX1150H164	4.33	1.07	79.60	28.65	7.8	79.7	8.8	2.0	21-2, 21-4
ST 5931AXTP	3.43	1.18	81.90	31.60	7.3	79.9	9.2	2.5	21-1, 21-3
UA 103	4.03	1.14	81.30	29.75	7.2	78.9	9.4	2.0	21-1, 22-1
Prob>F	0.001	0.001	0.003	0.001	0	0	0	0.021	
MSD (0.05)	0.51	0.04	1.53	1.62	0.3	2.2	1.2	1.1	

[1]124R and 25R are lines from Bayer CropScience; 194- are lines from Auburn University; BX are lines from BASF; AR are lines from Armor seed; AMX are lines from Americot; PX are lines from Phytogen.

2) Variety Trial in a Root-knot Nematode Field in Dawson County

This trial consisted of 36 entries, including root-knot nematode resistant varieties and experimental lines from BASF, Bayer CropScience, and Phytogen. The test contained six susceptible commercial varieties. The entries were arranged in a randomized complete plot design with four replications. Seed was planted on May 15th (4 seed/foot row) in plots that were 35 feet long and 2 rows wide. However, the test was hailed out late in May, so was replanted on June 4th. It is likely that the root-knot nematode second-stage juveniles had already hatched and established feeding sites in the emerged seedlings, so a lot of the nematode population would have been killed when the field was replanted, resulting in lower nematode pressure for the replanted cotton. The field was irrigated with a center pivot system, however there were good rains in-season so replanted cotton was irrigated with 1.8 inches. Plots were soil sampled on August 27th and assayed for root-knot nematodes (vermiform stages) and eggs. Plots were harvested on November 11th.

Results: The average root-knot nematode density (eggs + second-stage juveniles/500 cm^3 soil) late in the season was 6,283, indicating good nematode pressure in the test. Surprisingly, the highest yielding commercial variety was the nematode susceptible Armor 9413 XF (Table 3). There were experimental lines that yielded well in the trial including several from Phytogen. 24R4947XF from Bayer CropScience had the highest yield in the trial but allowed for quite a bit of nematode reproduction.

Micronaire was high overall and > 5 for 24R4947XF, Armor 9413 XF, BX2634AXTP, DP 2143NR B3XF, PX1120H280, and PX1140H143 (Table 4). Average fiber length for entries ranged from 1.03 to 1.18 (25R2733B3TXF). Other entries with fiber length ≥ 1.14 were 24R4947XF, Armor 9442 XF, and ST 6000AXTP. Fiber uniformity was < 80% for 24R6730B3TXF, BX2634AXTP, DP 2335 B3XF, DP 2436NR B3TXF, FM 814AXTP, PX1120H277, and PX1150H164. Fiber strength was poor for FM 814AXTP (26.95), and highest (>32) for PHY 475 W3FE, 24R4947XF, 25R2733B3TXF, PX1120H288, PX1140H138, and PX1140H150. Loan values were generally good. Those varieties with loan values < $0.52/lb were Armor 9413 XF, DP 2143NR B3XF, PHY 205 W3FE, and PHY 411 W3FE (Table 3). There were also several experimental lines with low loan values. The value/acre (loan value x lint yield) was highest for 24R4947XF, PX1140H150, and PX1140H152 (Table 3). The highest value for a variety was PHY 475 W3FE at $472/acre.

Table 3. Effect of root-knot nematodes (RK) on varieties in a Dawson County test.

Variety	Plants /foot row	RK /500 cm^3 soil	LOG_{10} Eggs + RK	Turn out %	Lint Yield Lbs/a	Loan $/lb	Lint yield x Loan $/ac	RK Rating[1]
24R4947XF	2.24	4,080	3.41	31.2	**965**	0.551	**549**	S
PX1140H150	2.46	275	**1.31**	30.7	**924**	0.523	**483**	R
PX1140H152	2.54	430	2.47	28.8	**891**	0.539	**480**	PR
Armor 9413 XF	2.74	4,335	3.34	35.7	**891**	0.510	454	S
PX1126F263	2.58	85	**1.10**	30.9	**868**	0.544	472	R
PX1140H143	2.69	220	2.25	30.0	**868**	0.516	447	PR
24R6730B3TXF	2.12	1,480	2.76	30.3	**849**	0.520	442	PR
PHY 475 W3FE	2.32	30	**0.52**	26.6	**837**	0.546	457	R
NG 3572 B3TXF	2.29	10,105	3.77	29.5	819	0.521	427	S
PHY 433 W3FE	2.10	120	**1.16**	26.8	813	0.559	454	R
25R2733B3TXF	2.48	795	1.60	26.2	802	0.564	452	PR
DP 2143NR B3XF	2.34	0	**0.00**	29.7	801	0.510	408	R
FM 765AX	2.11	1,470	3.11	28.7	789	0.549	432	PR
DP 2335 B3XF	2.51	5,295	3.71	31.6	777	0.550	427	S
PX1120H288	2.50	555	2.56	26.6	776	0.559	433	PR
PHY 332 W3FE	2.31	110	**0.66**	28.9	774	0.560	433	R
ST 5931AXTP	2.29	1,990	3.12	29.9	768	0.557	428	PR
PX1140F330	2.33	50	**1.00**	27.7	767	0.557	428	R
PHY 415 W3FE	2.32	1,070	2.83	26.0	763	0.547	417	PR
PX1150H167	2.55	0	**0.00**	26.7	753	0.523	394	R
PHY 357 W3FE	2.56	395	1.44	28.4	743	0.545	405	PR
PX1120H280	2.44	1,810	2.88	28.6	735	0.472	347	PR
NG 4190 B3XF	2.19	2,930	2.15	31.5	732	0.541	396	S
Armor 9442 XF	1.82	1,205	2.80	27.4	724	0.569	412	S
PHY 411 W3FE	2.10	1,230	2.11	27.1	723	0.492	356	R
ST 6000AXTP	2.01	3,730	3.35	30.8	712	0.573	408	PR
PX1150H164	2.39	160	1.68	27.8	710	0.519	368	PR
PX1140H138	2.53	115	**0.67**	28.2	696	0.523	364	R
PX1120H276	2.48	1,070	2.82	28.3	684	0.528	361	PR
DP 2436NR B3TXF	2.24	2,640	2.37	28.6	675	0.553	373	PR
PHY 205 W3FE	2.38	385	**0.80**	27.2	665	0.508	337	R
BX2634AXTP	2.18	1,155	3.00	31.3	645	0.479	309	PR
PX1120H277	2.52	1,745	2.99	26.5	602	0.512	308	PR
FM 814AXTP	2.34	2,780	3.34	28.6	592	0.499	295	PR
NG 3576 XF	2.32	13,825	4.06	28.9	590	0.553	326	S
BX2636AXTP	2.08	55	**1.02**	29.6	582	0.543	316	R
Prob >F	0.01	0.00	0.00	0.01	0.00	0.00	0.00	
MSD (0.05)	0.55	4508	1.4	5.4	136	0.038	72	

[1]R is resistant, S is susceptible, and PR is partially resistant.

Table 4. Fiber properties for a variety trial near Lamesa with root-knot nematode.

Variety	Mic	Length in	Unif %	Stren g/tex	Elon	Rd	+b	Leaf	CGRD
24R4947XF	5.2	1.14	81.6	34.2	6.7	77.7	9.0	2.5	21-2
24R6730B3TXF	4.4	1.06	79.9	29.5	6.2	78.6	8.6	3.0	21-2, 31-1
25R2733B3TXF	5.0	1.18	81.4	32.9	6.2	79.4	8.8	2.0	21-1
Armor 9413 XF	5.1	1.08	80.8	27.8	5.9	80.8	7.9	2.0	21-2, 31-1
Armor 9442 XF	4.7	1.15	81.7	31.1	7.4	79.7	7.6	3.5	31-1
BX2634AXTP	5.2	1.04	79.6	29.7	7.0	79.1	8.6	3.0	21-2, 31-1
BX2636AXTP	4.9	1.13	80.9	29.0	6.2	79.5	7.8	3.0	31-1
DP 2143NR B3XF	5.3	1.09	81.0	31.9	6.6	79.4	8.5	2.5	21-2, 31-1
DP 2335 B3XF	4.6	1.10	79.7	30.0	5.9	81.5	8.2	2.0	21-1
DP 2436NR B3TXF	4.6	1.11	79.3	30.8	7.5	79.8	8.7	2.5	21-1, 21-2
FM 765AX	4.9	1.09	80.8	30.5	6.4	80.8	7.7	3.0	21-2
FM 814AXTP	5.0	1.05	79.9	27.0	6.0	79.7	8.1	2.5	21-2, 31-1
NG 3572 B3TXF	4.9	1.05	80.1	28.2	7.2	80.6	8.1	2.0	21-1, 21-2
NG 3576 XF	4.7	1.10	80.0	29.5	6.4	79.0	8.2	3.5	21-1, 31-1
NG 4190 B3XF	4.7	1.08	80.7	27.8	6.5	80.8	7.5	2.0	31-1
PHY 205 W3FE	4.5	1.03	80.2	30.0	6.2	79.6	8.2	3.0	21-1, 31-1
PHY 332 W3FE	4.7	1.12	80.8	30.3	6.8	78.7	9.0	3.0	21-1, 21-2
PHY 357 W3FE	4.8	1.10	82.0	31.4	6.6	78.2	8.3	3.5	21-1, 31-1
PHY 411 W3FE	4.9	1.04	80.1	29.6	6.5	80.2	8.1	3.0	21-1, 31-1
PHY 415 W3FE	4.6	1.10	80.9	31.2	6.6	77.7	8.9	3.5	21-2
PHY 433 W3FE	4.6	1.12	81.1	31.1	7.1	78.7	8.6	3.5	31-1
PHY 475 W3FE	4.8	1.10	80.6	32.4	6.7	79.4	8.6	3.0	21-2, 31-1
PX1120H276	4.7	1.07	80.1	29.5	6.1	79.0	7.9	3.0	21-2, 31-1
PX1120H277	4.7	1.05	79.2	30.1	6.1	79.7	8.2	2.5	31-1, 31-2
PX1120H280	5.2	1.02	80.0	29.7	6.4	79.2	8.2	3.0	21-2, 31-1
PX1120H288	4.7	1.13	80.1	32.9	6.7	79.1	7.5	3.5	21-1, 31-1
PX1126F263	4.7	1.08	80.0	31.7	6.7	78.7	8.7	3.0	31-1
PX1140F330	4.7	1.11	80.3	30.8	6.6	78.5	8.7	3.0	31-1, 31-3
PX1140H138	4.9	1.07	81.0	32.7	6.4	77.0	8.8	3.5	21-2
PX1140H143	5.1	1.07	81.3	31.9	6.5	78.8	8.6	3.0	31-1
PX1140H150	5.1	1.10	82.3	33.5	6.6	78.1	8.1	3.5	21-2
PX1140H152	5.0	1.09	81.3	31.6	6.8	79.1	8.7	2.5	21-1, 31-1
PX1150H164	4.6	1.06	79.8	30.0	7.1	78.7	8.2	3.0	31-1
PX1150H167	4.7	1.06	80.8	30.9	7.0	79.3	8.1	3.0	31-1
ST 5931AXTP	4.7	1.11	81.5	30.3	6.6	81.6	7.8	2.0	21-1, 31-1
ST 6000AXTP	4.9	1.15	81.9	31.9	6.6	81.1	7.9	2.0	21-1, 21-2
Prob>F	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.08	
MSD (0.05)	0.2	0.05		2.1	0.3	1.3	0.6		

3) Variety Trial in a Field with Low Root-knot Nematodes in Cochran County

This trial consisted of 36 entries, including root-knot nematode resistant varieties and experimental lines from BASF, Bayer CropScience, and Phytogen. The test contained six susceptible commercial varieties. The entries were arranged in a randomized complete plot design with four replications. Seed was planted on May 29th (4 seed/foot row) in plots that were 35 feet long and 2 rows wide. This field is irrigated with subsurface drip on 80-inch centers (every other furrow). The surface soil was dry at planting, and so the seed was not adequately wetted for germination until the first rain that occurred on June 5th (0.79 inches). Plots were soil sampled on September 2nd. The Phytogen entries were severely damaged through drift from a dicamba application in-season from a nearby field. These entries were all soil sampled for root-knot nematode but were not harvested. The remainder of the entries were harvested on November 5th.

Results: Only the data from the nonPhytogen entries will be reported. Unfotunately, root-knot nematode pressure at this site was erratic and overall low. The average nematode density for the known susceptible varieties was 1,593 eggs + J2 (second-stage juveniles)/500 cm^3 soil, which does indicate moderate pressure. However, some of the susceptible varieties were < 1000/500 cm^3 soil, indicating low pressure was present for NG 3434 B3XF (620 RK/500 cm^3 soil) and DP 2335 B3XF (845 RK/500 cm^3 soil) (Table 5). The two highest yielding entries were nematode susceptible varieties NG 3434 B3XF and Armor 9413 XF (Table 5). 24R4947XF from Bayer CropScience was the highest yielding experimental line. This line yielded very well in both root-knot nematode sites, plus in a Fusarium wilt/Root-knot nematode site in Terry County (ranked 5th out of 36 entries).

Micronaire was acceptable for all entries (Table 6). Fiber length ranged from 1.09 to 1.20 inches (AMX12612XF). Besides this experimental line, the next highest fiber length was 1.15 inches (24R4947XF, 25R2733B3TXF, and DP 2335 B3XF). Fiber uniformity was > 80% for all entries except DP 2335 B3XF and DP 2436NR B3TXF. Fiber strength ranged from 27.2 to 32.4 grams/tex. The entries with the best fiber strength were 24R4947XF and AMX12612XF. Loan values ranged from \$0.543 to \$0.580/lb lint (Table 5). Lint value/acre was ordered similarly to lint yield/acre, where the top entry was NG 3434 B3XF (\$997/acre), and the top nematode resistant entry was 24R4947XF (Table 5).

Table 5. Affect of variety on root-knot nematodes (RK) and yield in a test near Morton.

Variety	Plants /foot row	RK/ 500 cm^3 soil	LOG_{10} (RK+1)	Turnout %	Lint Yield Lbs/a	Loan $/lb	Lint Value $/ac	RK[1] Rating
NG 3434 B3XF	2.82	620	**1.48**	38.6	**1,749**	0.570	**997**	S
Armor 9413 XF	3.17	2,138	3.20	32.4	**1,683**	0.546	**919**	S
24R4947XF	2.46	490	**1.47**	33.6	**1,634**	0.573	**937**	R
FM 823AXTP	2.63	1,663	2.34	34.5	**1,555**	0.566	**880**	PR
24R6730B3TXF	2.76	225	**1.32**	36.5	**1,549**	0.543	841	R
DP 2328 B3TXF	2.49	1,375	2.68	36.2	**1,537**	0.558	857	S
NG 3576 XF	3.19	2,365	3.13	31.6	**1,533**	0.566	**867**	S
DP 2335 B3XF	2.59	845	**1.95**	31.4	**1,529**	0.567	**867**	S
25R2733B3TXF	2.70	140	**1.64**	31.6	**1,522**	0.574	**874**	R
BX2660AXTP	2.80	0	**0.00**	31.7	1,465	0.544	797	R
FM 765AX	2.86	1,585	**1.75**	31.7	1,426	0.559	797	PR
BX2665AXTP	2.62	60	**0.60**	35.1	1,405	0.553	778	R
Armor 9512 B3XF	3.27	2,215	2.94	27.9	1,365	0.551	752	S
FM 814AXTP	2.18	910	**1.53**	29.7	1,356	0.558	756	PR
FM 868AXTP	3.19	1,810	2.80	28.4	1,277	0.546	697	PR
BX2616AXTP	2.31	0	**0.00**	31.1	1,270	0.558	708	R
DP 2436NR B3TXF	2.29	520	**2.12**	27.9	1,244	0.556	691	PR
AMX12612XF	2.74	350	**1.41**	25.3	1,120	0.580	650	R
Prob>F	0.001	0.036	0.016	0.686	0.001	0.075	0.001	
MSD (0.05)	0.43	2,437	2.32		238		131	

[1]R is resistant, S is susceptible, and PR is partially resistant.

Table 6. Affect of variety on fiber properties in a test near Morton.

Variety	Mic	Length in	Unif %	Stren g/tex	Elon	Rd	+b	Leaf	CGRD
24R4947XF	4.8	1.15	81.5	32.4	7.2	80.3	8.9	2.0	21-1
24R6730B3TXF	4.2	1.09	80.4	28.2	6.8	80.5	8.4	2.5	21-1, 21-2
25R2733B3TXF	4.6	1.15	81.7	31.1	6.7	81.2	9.1	2.0	11-1, 11-2
AMX12612XF	4.0	1.20	82.9	32.4	7.3	83.1	7.8	2.0	11-2, 21-1
Armor 9413 XF	4.7	1.09	80.7	27.6	6.8	82.2	8.4	2.0	11-2, 21-1
Armor 9512 B3XF	3.9	1.10	81.7	30.7	6.2	83.1	7.9	2.0	11-2, 21-1
BX2616AXTP	4.4	1.11	80.9	29.1	7.6	81.8	8.2	2.0	21-1
BX2660AXTP	4.7	1.09	81.8	28.6	7.0	79.8	8.8	2.5	11-1, 31-1
BX2665AXTP	4.9	1.11	81.8	30.3	8.0	81.0	8.3	2.0	11-2, 21-2
DP 2328 B3TXF	4.4	1.10	81.2	27.2	6.6	83.4	8.0	2.0	11-1
DP 2335 B3XF	3.9	1.15	79.7	29.1	6.1	83.7	8.6	2.0	11-1
DP 2436NR B3TXF	4.0	1.11	79.7	28.6	8.1	82.0	8.8	2.0	11-1
FM 765AX	4.5	1.12	81.9	29.5	6.8	82.3	8.3	2.0	11-1, 11-2
FM 814AXTP	4.5	1.10	81.0	27.8	6.3	81.1	8.6	2.0	21-1
FM 823AXTP	4.3	1.14	82.1	29.8	7.2	80.3	7.6	3.0	31-1
FM 868AXTP	4.5	1.09	81.5	29.2	7.0	80.8	8.6	2.0	21-1
NG 3434 B3XF	4.6	1.14	82.2	28.4	7.3	81.1	8.5	1.5	11-2, 21-1
NG 3576 XF	4.5	1.14	81.5	29.1	6.8	82.8	8.3	1.5	11-1, 11-2
Prob>F	0.00	0.009	0.01	0.00	0.00	0.01	0.00	0.5	
MSD (0.05)	0.3	0.05	1.6	2.3	0.6	2.1	0.5		

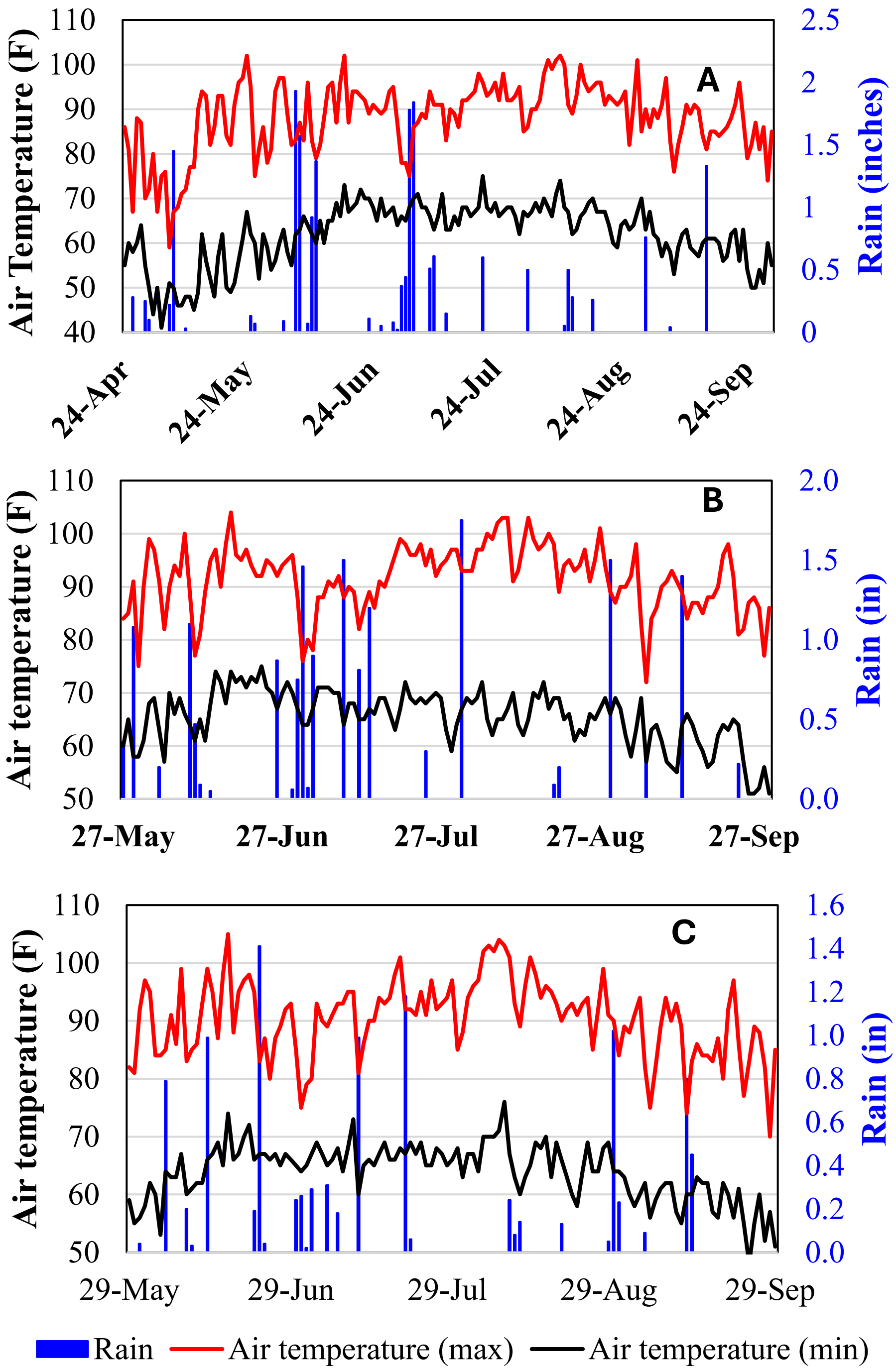

Figure 1. Maximum and minimum air temperature and rain at A) Lubbock; B) Lamesa; C) Morton based on the West Texas Mesonet.

4) Fusarium Wilt/Root-Knot Nematode Variety Trial in Terry County

This test consisted of 36 entries arranged in a randomized complete block design with four replications. Plots (35 feet long and two rows wide on 40-inch centers) were planted on June 2nd at 4 seed/ft or row and irrigated with subsurface drip under every bed. Fusarium wilt symptoms became apparent by late June, with plants beginning to die. Emergence was somewhat sporadic due to different planting depths caused by the surface roughness; some seed absorbed sufficient moisture soon after planting to emerge, while some were delayed 4-5 weeks before emergence while waiting on a substantial rain. A count of plants with Fusarium wilt symptoms was taken on July 14th. It is likely that some plants that had died early were missed in the count (no plant was present by then), and some plants that had delayed emergence had symptoms that developed later. It is a difficult disease to accurately quantify by counting symptomatic plants. However, the ratings at this time did provide some benchmark of susceptibility, even if not completely accurate. A total of eight soil samples per replication were also assayed for the Fusarium wilt fungus (*Fusarium oxysporum* f. sp. *vasinfectum* race 1, abbreviated FOV1). A final plant stand count was taken on October 23rd. A soil sample was taken from all plots on September 3rd and assayed for root-knot nematode second-stage juveniles (J2) and eggs (J2 + eggs), reported as RK/500 cm^3 soil for comparison between varieties. The plots were harvested on October 29th.

Results: Plants with symptoms ranged from 0 to 51 per plot on 14 July. The varieties with an average of 12 or more symptomatic plants per plot had the seven lowest average yields in the trial (Table 7), indicating a strong field relationship between early Fusarium wilt symptoms and yield loss. On average, these high-symptom varieties yielded 1,021 lb/a, compared with 1,506 lb/a for the remaining varieties, a 32% reduction in lint yield associated with higher Fusarium wilt. Fusarium wilt had not historically been a problem at this field, but beginning in 2024 some highly susceptible varieties were planted that greatly increased the density of FOV1 in the soil, particularly in replications 1 and 2. The most susceptible varieties based on the July 14th symptoms were NG 4507 B3TXF, DP 2537 B3TXF, DP 2541 B3XF, and Armor 9371 B3XF. These varieties consistently had greater numbers of symptomatic plants and ranked among the lowest in lint yield. The soil FOV concentrations were highest for replication 1 (2.72 pg DNA/g soil), followed by replication 2 (2.43 pg DNA/g soil), and lower in replications 3 and 4 (2.04 and 1.84 pg DNA/g soil, respectively). Lint yield was strongly correlated with field disease indicators: varieties with fewer Fusarium-affected plants maintained higher final stands and higher lint yields, while those with greater early plant mortality suffered substantial yield losses.

Root-knot nematode densities ranged from 205 to 20,005 eggs + J2/500 cm^3 soil (Table 7). DP 2143NR B3XF appeared to have the strongest resistance among commercial varieties, while experimentals with excellent resistance included BX2636AXTP, BX2662AXTP, BX2660AXTP, BX2666AXTP, and 25R2733B3TXF.

The highest yielding varieties included nematode susceptible NG 5430 B3XF, nematode resistant experimental from Deltapine 25R2733B3TXF, partially nematode resistant ST 5931AXTP and nematode susceptible NG 4405 B3TXF. These four varieties all had very low number of plants per plot with symptoms of Fusarium wilt, supporting the strong field evidence that early wilt pressure was a main factor driving yield outcomes in this trial. None of these four entries had a high level of root-knot nematode resistance, though 25R2733B3TXF and ST 5931AXTP had moderate resistance to root-knot nematodes. None of the varieties achieved an optimal final stand (> 2 plants/ft row), largely due to early-season environmental challenges and Fusarium wilt mortality. Despite this, the field data clearly separated the varieties based on their Fusarium response, final stand, and yield.

Fiber length ranged from 1.05 (NG 3572 B3TXF) to 1.22 (25R2733B3TXF) inches. Entries with an average fiber length ≥ 1.17 inches were 25R2733B3TXF, AMX12612XF, DP 2239 B3TXF, DP 2436NR B3TXF, and NG 4409 B3XF (Table 8). Fiber strength ranged from a low of 26.90 (DP 2541 B3XF) grams/tex to a high of 31.95 (AMX12612XF) grams/tex. Loan values (Table 7) were > $0.54/lb lint for most entries, and entries > $0.570/lb lint included AMX12612XF, 25R2733B3TXF, 24R4947XF, Armor 9442 XF, BX2665AXTP, DP 2239 B3TXF, NG 4409 B3XF, and NG 4507 B3TXF. The value/acre (lint yield x loan value) were highest for NG 5430 B3XF ($1,155/acre), 25R2733B3TXF (experimental from Deltapine), and ST 5931AXTP (Table 7).

Table 7. Variety test in a Fusarium (FOV) wilt/Root-knot nematode (RK) field in Terry County.

Variety	Turn out (%)	Lint Yield X Loan ($/a)	Lint yield (lb/A)	FOV plants/ plot	Final stand (plants /ft row)	RK/ 500 cm^3 soil	Loan $/ lb	RK[1] Rating
NG 5430 B3XF	41.5	**1,155**	**2,047**	5.3	1.61	15,255	0.564	S
25R2733B3TXF	29.7	**1,120**	**1,938**	5.8	1.58	1,460	0.578	PR
ST 5931AXTP	34.4	**1,078**	**1,887**	5.8	1.77	2,185	0.571	PR
NG 4405 B3TXF	38.6	1,004	**1,813**	2.8	1.13	8,540	0.554	S
24R4947XF	29.5	962	1,672	6.0	1.26	10,585	0.576	?
NG 3457 B3XF	30.9	928	1,646	8.3	1.57	1,900	0.564	S
BX2660AXTP	32.9	873	1,632	5.0	1.33	205	0.535	R
24R6730B3TXF	33.6	893	1,631	8.5	1.62	5,535	0.548	PR
BX2665AXTP	31.5	904	1,573	3.0	1.11	8,715	0.575	S
NG 4409 B3XF	29.9	894	1,565	3.8	1.49	3,545	0.572	S
FM 765AX	28.7	883	1,562	3.5	1.56	8,330	0.565	PR
BX2616AXTP	32.3	867	1,544	3.8	1.33	3,290	0.562	?
AMX12612XF	29.0	894	1,543	3.3	1.49	4,220	0.580	?
AR25X966B3TXF	31.3	824	1,454	1.3	1.25	8,825	0.567	S
FM 814AXTP	32.5	820	1,453	1.0	1.46	20,005	0.564	S
NG 3572 B3TXF	31.5	740	1,442	7.8	1.04	6,335	0.513	S
DP 2239 B3TXF	31.3	820	1,433	3.3	1.24	14,225	0.572	S
BX2636AXTP	30.1	806	1,430	3.0	1.41	300	0.564	R
Armor 9512 B3XF	30.7	783	1,421	1.0	1.80	12,410	0.551	S
DP 2143NR B3XF	28.4	757	1,395	4.5	1.48	280	0.543	R
DP 2335 B3XF	31.1	759	1,393	1.8	1.76	8,110	0.545	S
BX2634AXTP	33.1	736	1,387	7.0	1.31	5,315	0.531	?
NG 4522 XF	26.7	749	1,359	1.5	1.64	8,090	0.551	S
Armor 9442 XF	28.0	762	1,329	4.3	1.40	17,845	0.573	S
BX2643AXTP	33.9	748	1,327	5.0	0.96	4,390	0.564	?
DP 2436NR B3TXF	29.4	714	1,283	1.5	0.89	730	0.557	PR
BX2666AXTP	30.5	697	1,243	3.5	1.22	1,105	0.561	PR
BX2662AXTP	31.2	594	1,165	3.5	0.99	2,120	0.510	PR
FM 757AXTP	30.3	626	1,101	6.8	0.70	3,845	0.569	PR
DP 2541 B3XF	31.5	615	1,098	19.8	1.04	5,685	0.560	S
DP 2414 B3TXF	33.4	592	1,083	12.0	1.06	5,580	0.547	S
Armor 9371 B3XF	31.1	604	1,071	16.5	1.26	3,835	0.564	S
ST 5855AXTP	33.0	585	1,032	11.5	0.92	8,865	0.567	PR
DP 2537 B3TXF	31.2	579	1,025	21.0	0.98	4,800	0.565	S
NG 4507 B3TXF	27.6	569	997	23.0	1.43	2,160	0.571	S
NG 4190 B3XF	29.7	476	840	12.3	1.04	5,600	0.567	S
Prob>F	0.001	0.001	0.001	0.001	0.001	0.040	0.004	
MSD (0.05)	3.1	139	249	8.0	0.43	16,690	0.36	

[1]R is resistant, S is susceptible, and PR is partially resistant.

Table 8. Fiber properties for variety from a trial in Terry County.

Variety	Mic	Length “	Unif %	Strength g/tex	Elon	Rd	+b	CGRD
24R4947XF	4.16	1.16	81.10	31.60	7.5	78.6	8.9	21-2
24R6730B3TXF	3.80	1.09	81.00	27.90	6.6	80.2	8.6	21-1, 21-2
25R2733B3TXF	4.20	1.22	82.40	31.25	6.8	80.1	9.1	11-2, 21-1
AMX12612XF	3.93	1.21	82.20	31.95	7.2	82.3	7.9	21-1
AR25X966B3TXF	3.86	1.15	80.95	29.85	7.2	80.9	8.4	21-1
Armor 9371 B3XF	3.86	1.14	81.00	27.75	6.6	82.7	8.0	11-2
Armor 9442 XF	4.09	1.16	82.20	29.50	8.0	81.3	8.0	21-1, 21-2
Armor 9512 B3XF	3.96	1.09	80.70	30.60	6.0	83.4	7.9	11-2, 21-1
BX2616AXTP	4.17	1.13	81.05	29.35	7.6	80.6	8.4	31-1, 11-2
BX2634AXTP	4.52	1.07	80.50	28.10	7.6	80.7	8.7	11-2, 21-1
BX2636AXTP	4.24	1.16	80.80	28.90	6.9	81.1	8.2	31-1, 11.2
BX2643AXTP	4.61	1.13	82.40	28.40	7.6	80.9	8.4	21-1
BX2660AXTP	4.66	1.08	81.00	28.90	6.9	81.6	8.6	11-1, 21-1
BX2662AXTP	4.34	1.06	79.50	28.30	7.0	80.5	8.0	21-2, 31-1
BX2665AXTP	4.22	1.15	82.75	30.15	8.0	82.1	8.4	11-2, 21-1
BX2666AXTP	4.19	1.13	80.55	28.00	6.7	81.0	7.9	21-1, 31-1
DP 2143NR B3XF	4.73	1.12	80.55	29.30	7.1	81.1	8.5	21-1
DP 2239 B3TXF	4.06	1.17	81.55	28.85	7.0	82.6	8.3	11-2
DP 2335 B3XF	3.51	1.14	79.75	28.85	6.3	83.6	8.3	11-1
DP 2414 B3TXF	4.25	1.10	80.80	27.50	7.3	81.7	8.3	11-2, 21-1
DP 2436NR B3TXF	3.49	1.17	80.65	30.20	8.2	80.8	8.7	21-1
DP 2537 B3TXF	4.32	1.13	82.45	28.85	7.6	81.6	8.7	11-1, 21-1
DP 2541 B3XF	4.33	1.13	80.05	26.90	6.8	82.6	8.1	21-1
FM 757AXTP	3.93	1.15	79.65	28.75	6.2	82.3	7.9	11-2, 21-1
FM 765AX	3.82	1.15	81.90	31.70	7.0	81.9	7.7	21-1, 21-2
FM 814AXTP	4.18	1.12	81.40	28.05	6.4	81.5	8.2	21-1
NG 3457 B3XF	4.07	1.13	81.50	27.95	7.8	81.9	8.6	11-1, 11-2
NG 3572 B3TXF	4.13	1.05	79.60	27.15	8.2	81.8	8.0	21-1, 21-2
NG 4190B3XF	3.83	1.13	80.30	28.30	6.8	82.1	8.1	21-1
NG 4405 B3TXF	3.46	1.15	81.85	29.60	7.3	81.7	8.0	21-1
NG 4409 B3XF	4.37	1.17	82.60	28.95	7.6	80.8	8.8	11-2, 21-1
NG 4507 B3TXF	3.67	1.14	80.65	29.20	7.5	82.5	7.7	21-1
NG 4522 XF	4.27	1.11	81.70	30.95	6.8	78.0	8.9	21-4, 31-1
NG 5430 B3XF	4.21	1.13	81.00	29.20	7.4	81.3	8.4	21-1
ST 5855AXTP	3.84	1.12	80.65	30.50	6.7	82.6	8.0	11-2, 21-1
ST 5931AXTP	3.97	1.14	82.15	29.00	7.0	82.7	8.0	11-2, 21-1
Prob>F	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
MSD (0.05)	0.76	0.05	1.25	1.82	0.4	1.0	0.6	

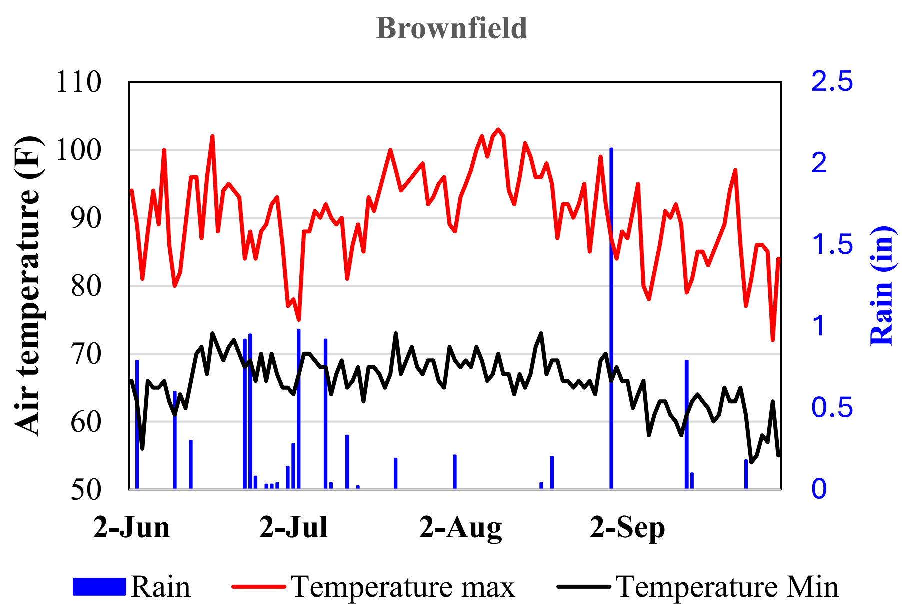

Figure 2. Air temperature and rain based on the west Texas mesonet.

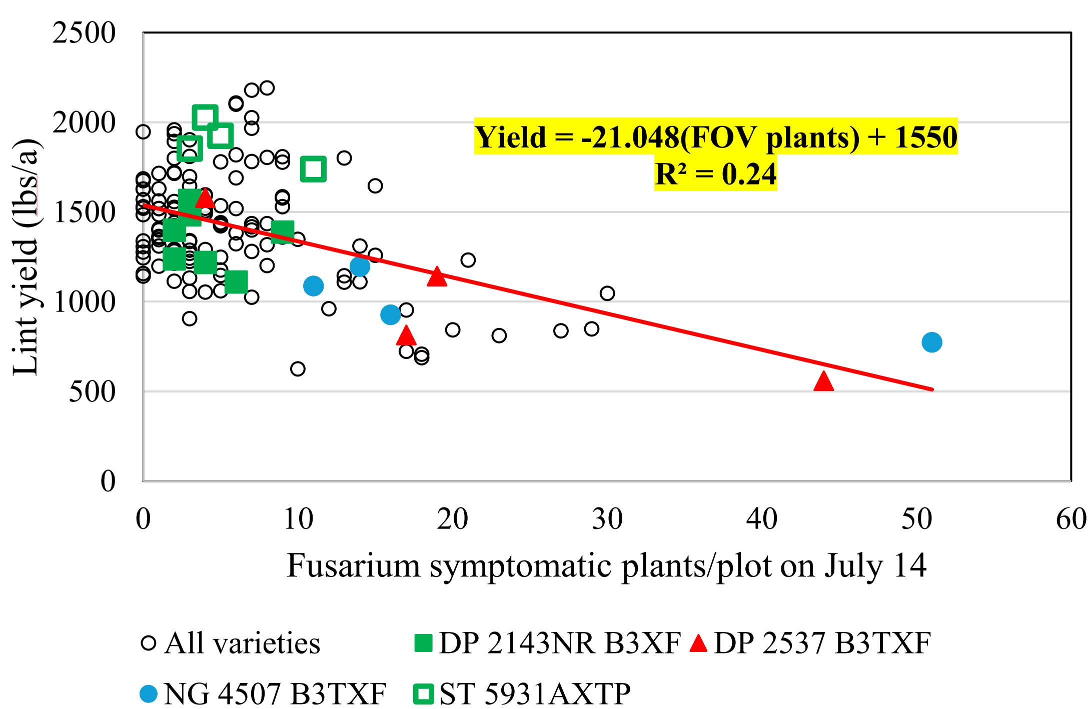

Figure 3. Relationship between Fusarium wilt symptomatic plants and lint yield.