

## Verticillium Variety Trial Results for 2022

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Plots were 35 feet long, 2 rows wide, on 40-inch centers. There were 36 entries at the Floyd County site and 32 entries at the Hale County site. Both sites were irrigated with a center pivot.

Floyd County: This test was planted on May 14<sup>th</sup>. Wilt incidence was rated on 26 August and defoliation on 21 September. The test was harvested on 5 November. Significant Verticillium wilt was very late at this site. Wilt incidence was low at the end of August (range of 0 to 14%). The defoliation ratings do indicate substantial differences between varieties (Table 1), but likely did not impact yield. The most wilt resistant varieties in the test included FM 2202GL (15% defoliation), FM 2498GLT (16% defoliation), DP 2202 B3XF (20% defoliation), NG 4098 B3XF (20% defoliation), and PHY 411 W3FE (22% defoliation) (Table 1). The varieties that were most susceptible to Verticillium wilt included Armor 9371 B3XF (69% defoliation), DP 2038 B3XF (66%), NG 4190 B3XF (61%), ST 5091 B3XF (60%), and ST 4993 B3XF (58%). Yield was not correlated with defoliation but there is value in knowing some of the potential ability for yield (in the absence of wilt, and under hot and dry conditions). The highest yields were with FM 1621GL (1,331 lbs/a), Armor 9512 B3XF (1,274 lbs/a), FM 2202GL (1,218 lbs/a), Armor 9371 B3XF (1,218 lbs/a), and PHY 350 W3FE (1,172 lbs/a). FM 2202GL had the overall best combination of low defoliation and high yield. There were problems in 2022 with high micronaire (Table 2). Varieties that would have received discounts for micronaire were FM 2498GLT (micronaire=5.2), FM 2398GLTP (5.1), DP 2143NR B3XF (5.1), and ST 5600 B2XF (5.1). The variety with the longest fiber length in the test was NG 4098 B3XF (1.27 inches). The variety with the highest fiber strength was FM 1730GLTP (36.6) and length uniformity (85.3). The highest loan values were found with DP 2020 B3XF (\$0.5698/lb).

Hale County: This test was planted on May 17<sup>th</sup>. Wilt incidence was rated on 25 August, and defoliation was rated on 28 September. The test was harvested on 15 November. Verticillium wilt was also late occurring at this site and likely had minimal or no impact on yield. Wilt incidence at the end of August was also low at this site and ranged from 2 to 15%. Defoliation at the end of September did show more differences between varieties. The resistant check variety FM 2334GLT had the lowest defoliation (12%). Other varieties with low defoliation were PHY 394 W3FE (16%), FM 2202GL (17%), PHY 205 W3FE (22%), and PHY 210 W3FE (22%) (Table 3). The varieties with the most defoliation at the end of September included the susceptible check DP 1612 B2XF (60%), DP 2127 B3XF (55%), NG 3299 B3XF (53%), ST 4990 B3XF (47%), and NG 3195 B3XF (47%). Varieties with the highest yields included Armor 9371 B3XF (1,276 lbs/a), NG 3930 B3XF (1,204 lbs/a), DP 1822 XF (1,202 lbs/a), FM 1621GL (1,197 lbs/a), and FM 2202GL (1,180 lbs/a). There were no varieties with low micronaire at this site, but six varieties had high micronaire that fell in the discount range (Table 4). The variety with both the highest fiber length (1.21 inches) and highest fiber strength (31.6) was DP 1820 B3XF.

Table 1. Effect of Verticillium wilt on cotton cultivars for a test in Floyd County in 2022.

Variety <sup>1</sup>	Lint Yield (lbs/acre)	Wilt (%)	Defoli- ation (%)	Plants /foot row	Loan (\$/lb)	Value (Loan x Yield)	Turnout (%)
AR22x323 XF	1,350	6.1	31.3	2.76	0.558	752.75	33.5
FM 1621GL	1,331	2.3	32.8	2.60	0.546	726.06	33.6
AR 9512 B3XF	1,274	1.2	25.1	2.72	0.557	709.36	34.2
FM 2202GL	1,218	3.3	15.4	2.35	0.546	664.92	34.4
AR 9371 B3XF	1,218	2.9	68.5	2.41	0.544	662.35	33.4
PHY 350 W3FE	1,172	3.3	35.5	2.45	0.557	653.16	34.0
PHY 411 W3FE	1,166	2.1	22.0	2.69	0.555	646.69	31.5
BX2396B3XF	1,155	6.7	43.6	2.36	0.567	654.74	33.2
DP 1822 XF	1,146	1.3	42.4	2.71	0.547	626.63	31.1
NG 5150 B3XF	1,144	2.9	42.1	2.25	0.568	649.42	29.0
DP 2038 B3XF	1,141	5.0	65.8	2.25	0.566	645.38	34.6
FM 2398GLTP	1,138	2.1	35.9	2.38	0.526	598.33	30.4
ST 5600B2XF	1,119	2.4	31.9	2.44	0.551	617.05	29.0
NG 5711 B3XF	1,105	4.0	54.1	2.14	0.557	615.21	29.6
ST 4993 B3XF	1,096	9.2	58.0	2.55	0.555	608.20	37.2
NG 4190 B3XF	1,079	4.8	60.8	2.39	0.558	601.68	30.4
NG 4098 B3XF	1,055	3.8	19.7	2.33	0.547	576.60	34.0
ST 4595 B3XF	1,045	13.9	50.8	2.06	0.525	548.10	32.4
BX2392B3XF	1,033	4.1	57.0	2.13	0.569	587.29	33.5
DP 2123 B3XF	1,014	6.8	29.9	3.00	0.522	529.05	30.8
PHY 332 W3FE	1,011	1.3	24.5	2.66	0.547	552.65	30.3
DP 1612 B2XF	1,009	5.7	51.0	2.55	0.546	551.05	31.1
FM 2334GLT	1,008	1.9	25.7	2.41	0.558	561.96	30.4
FM 2498GLT	1,007	0.4	15.5	2.97	0.551	554.72	33.1
PHY 443 W3FE	1,004	2.7	31.6	2.30	0.569	571.58	34.8
PHY 300 W3FE	1,003	3.8	24.9	2.19	0.565	566.21	31.2
NG 3930 B3XF	980	5.8	32.8	2.46	0.545	534.10	29.9
PHY 400 W3FE	979	3.7	30.8	2.72	0.558	546.72	31.2
AR22x424B3XF	975	5.8	52.2	2.02	0.570	555.76	31.2
PX1122A215-04W3FE	968	2.7	20.8	2.82	0.558	540.14	33.8
DP 2143NR B3XF	964	4.5	49.2	2.36	0.547	527.31	31.3
DP 2020 B3XF	960	5.0	26.4	2.52	0.570	547.15	30.7
FM 1730GLTP	916	4.8	26.2	2.59	0.547	501.33	34.6
DP 2022 B3XF	908	7.1	19.5	2.26	0.525	476.39	33.6
ST 5091 B3XF	871	5.6	59.9	2.43	0.567	494.00	29.3
DP 2141NR B3XF	852	2.6	45.0	2.38	0.558	475.13	31.8
Prob>F	0.001	0.003	0.001	0.001	0.008	0.001	0.015
MSD (0.05)	227	6.5	16.5	0.31	0.031	124.75	5.1

<sup>1</sup>AR=Armor, BX is experimental line for BASF, DP=Deltapine, FM=Fibermax, NG=NexGen, PHY=Phytogen, PX is experimental line for Phytogen, ST=Stoneville.

Table 2. Effect of Verticillium wilt on fiber<sup>2</sup> properties of cultivars in a Floyd County test.

Variety <sup>1</sup>	Mic.	Length	Unif.	Strength	Elon.	Rd	+b	Leaf
AR22x323XF	4.59	1.19	82.9	32.8	5.5	80.3	6.6	2.5
AR22x424B3XF	4.35	1.19	83.8	33.1	6.5	78.9	7.5	3.5
AR 9371 B3XF	4.80	1.17	84.2	30.8	6.4	79.6	6.7	3.0
AR 9512 B3XF	4.60	1.16	82.3	33.5	5.6	79.2	6.9	3.0
BX2392B3XF	4.81	1.18	83.2	31.3	6.2	79.7	6.9	2.5
BX2396B3XF	4.49	1.20	83.3	29.7	7.0	80.6	7.3	2.5
DP 1612 B2XF	4.71	1.18	83.9	33.5	7.5	75.6	7.0	4.5
DP 1822 XF	4.74	1.23	83.9	35.6	5.8	78.0	6.9	3.0
DP 2020 B3XF	4.38	1.22	83.9	31.6	5.7	80.0	7.2	3.0
DP 2022 B3XF	4.38	1.17	82.9	31.6	5.6	75.6	6.2	5.0
DP 2038 B3XF	4.24	1.14	82.5	31.9	6.3	80.4	6.9	2.5
DP 2123 B3XF	5.00	1.18	84.1	32.5	5.5	76.8	7.1	4.0
DP 2141NR B3XF	5.01	1.19	82.9	31.8	6.2	77.4	8.0	3.0
DP 2143NR B3XF	5.07	1.20	83.6	34.3	6.2	77.6	7.8	3.0
FM 1621GL	4.83	1.18	82.9	35.2	5.8	76.5	6.7	4.5
FM 1730GLTP	4.53	1.23	85.3	36.6	5.9	79.3	6.7	3.5
FM 2202GL	4.86	1.16	83.9	34.7	6.6	76.0	7.5	4.0
FM 2334GLT	4.83	1.22	83.4	32.3	6.0	79.3	6.8	2.5
FM 2398GLTP	5.12	1.18	83.6	32.3	6.3	78.5	7.2	2.5
FM 2498GLT	5.21	1.19	83.7	34.3	5.8	78.4	7.7	3.0
NG 3930 B3XF	4.73	1.19	83.9	31.2	6.4	77.2	7.5	3.0
NG 4098 B3XF	4.03	1.27	83.4	34.5	6.2	76.3	6.9	5.5
NG 4190 B3XF	4.06	1.20	84.3	31.3	6.6	79.7	6.6	2.5
NG 5150 B3XF	4.70	1.20	82.9	30.8	6.2	78.9	7.4	2.5
NG 5711 B3XF	4.73	1.21	84.2	31.1	6.6	79.2	7.4	2.5
PHY 300 W3FE	4.76	1.14	83.0	31.3	6.1	77.0	8.0	3.0
PHY 332 W3FE	4.84	1.21	83.7	32.8	6.6	76.9	8.2	3.0
PHY 350 W3FE	4.51	1.18	84.4	32.0	6.6	78.5	7.2	3.0
PHY 400 W3FE	4.53	1.19	83.2	33.8	6.2	78.0	7.4	3.0
PHY 411 W3FE	4.80	1.14	83.3	33.4	6.7	78.9	6.8	3.5
PHY 443 W3FE	4.87	1.17	84.2	33.4	6.6	77.6	7.8	3.0
PX1122A215-04W3FE	4.34	1.17	83.3	33.6	6.5	79.4	7.1	2.5
ST 4595B3XF	5.03	1.17	83.8	31.1	6.7	77.2	7.1	3.5
ST 4993B3XF	5.03	1.15	83.7	33.4	6.8	79.1	7.3	2.0
ST 5091B3XF	4.66	1.16	83.0	30.5	5.8	78.7	7.4	2.5
ST 5600B2XF	5.06	1.18	83.9	33.9	6.8	77.0	8.1	3.5
Prob>F	0.001	0.001	0.039	0.001	0.001	0.001	0.001	0.001
MSD (0.05)	0.50	0.03	1.8	1.8	1.9	1.6	0.5	1.2

<sup>1</sup>AR=Armor, BX is experimental line for BASF, DP=Deltapine, FM=Fibermax, NG=NexGen, PHY=Phytogen, PX is experimental line for Phytogen, ST=Stoneville.

<sup>2</sup>Mic=micronaire, Unif=uniformity, Elon=elongation.

Table 3. Effect of Verticillium wilt on cotton cultivars for a test in Hale County in 2022.

Variety <sup>1</sup>	Lint Yield (lbs/acre)	Wilt (%)	Defoli- ation (%)	Lint Yield x loan	Loan (\$/lb)	Plants /foot row	Turnout (%)
AR 9371 B3XF	1,276	5.0	42.3	731.01	0.573	1.76	31.0
BX2396B3XF	1,228	7.1	27.2	688.44	0.561	1.73	26.5
NG 3930 B3XF	1,204	6.2	31.7	676.97	0.563	1.93	27.0
DP 1822 XF	1,202	2.4	23.8	652.58	0.543	2.19	28.5
FM 1621GL	1,197	12.1	25.0	628.32	0.525	1.69	29.7
FM 2202GL	1,180	8.4	16.8	644.60	0.547	1.91	28.4
DP 2012 B3XF	1,157	9.9	30.0	657.76	0.569	2.15	28.7
DP 2127 B3XF	1,154	4.4	55.1	641.26	0.556	2.03	24.8
BX2398B3XF	1,152	5.5	39.4	660.73	0.574	1.23	26.5
DP 1820 B3XF	1,149	5.5	28.6	641.49	0.558	1.71	29.0
PX1122A215-04W3FE	1,136	3.9	33.8	620.60	0.546	2.33	26.4
DP 1612 B2XF	1,121	15.3	60.1	633.93	0.566	1.52	28.6
NG 3956 B3XF	1,099	10.1	35.5	584.18	0.532	2.41	27.6
PX1140Z383-04W3FE	1,096	5.7	29.6	621.15	0.567	2.11	26.8
DP 2020 B3XF	1,094	4.1	31.7	627.34	0.573	2.03	25.6
FM 2334GLT	1,085	2.2	12.2	621.85	0.573	1.79	29.7
BX2394B3XF	1,084	10.8	46.7	612.06	0.565	2.03	26.7
DP 2123 B3XF	1,070	5.4	37.9	592.38	0.554	2.28	26.4
AR 9442 XF	1,059	6.3	28.8	576.81	0.545	1.63	27.7
PHY 332 W3FE	1,057	3.5	31.7	579.28	0.548	2.08	24.8
FM 1730GLTP	1,032	11.2	28.4	587.87	0.570	1.99	27.9
DP 2115 B3XF	1,032	11.6	32.8	575.58	0.558	1.66	26.9
PHY 205 W3FE	1,029	6.2	21.7	539.89	0.525	1.95	27.7
BX2392B3XF	1,020	8.1	43.8	579.67	0.568	1.57	26.3
DP 2022 B3XF	978	5.0	25.9	555.17	0.568	1.86	22.9
PHY 210 W3FE	966	7.0	21.7	521.99	0.541	2.30	25.3
ST 4595 B3XF	965	10.2	37.8	518.69	0.538	1.60	25.6
NG 3195 B3XF	962	8.3	46.9	513.86	0.534	1.35	27.7
NG 3299 B3XF	937	14.1	53.0	510.67	0.545	1.52	26.1
PHY 250 W3FE	917	7.1	26.3	503.11	0.549	2.08	25.5
ST 4990B3XF	855	12.2	47.1	473.21	0.553	1.80	25.6
PHY 394 W3FE	819	4.2	15.5	467.63	0.571	2.27	20.9
Prob>F	0.0001	0.048	0.0001	0.001	0.121	0.0001	0.808
MSD (0.05)	213	11.4	12.5	114.62		0.30	

<sup>1</sup>AR=Armor, BX is experimental line for BASF, DP=Deltapine, FM=Fibermax, NG=NexGen, PHY=Phytogen, PX is experimental line for Phytogen, ST=Stoneville.

Table 4. Effect of Verticillium wilt on fiber<sup>2</sup> properties for a test in Hale County.

Variety <sup>1</sup>	Mic	Length	Unif	Stren	Elon	Rd	+b	Leaf
AR 9371 B3XF	4.55	1.18	82.8	30.3	6.4	82.9	7.1	2.0
AR 9442 XF	4.87	1.19	83.3	32.0	7.8	79.4	6.8	4.0
BX2392B3XF	4.35	1.16	81.9	29.8	6.4	83.0	6.7	2.0
BX2394B3XF	4.38	1.14	82.6	30.8	6.8	81.4	7.0	2.0
BX2396B3XF	4.95	1.19	83.0	30.2	6.9	81.6	7.9	2.5
BX2398B3XF	4.56	1.21	83.1	30.8	6.8	83.2	7.5	2.0
DP 1612 B2XF	4.66	1.15	81.7	32.2	7.6	80.0	7.4	3.0
DP 1820 B3XF	4.98	1.21	82.6	34.6	5.8	81.7	7.0	2.5
DP 1822 XF	5.09	1.17	82.8	33.1	6.1	81.1	7.3	2.0
DP 2012 B3XF	4.70	1.14	82.1	30.8	5.9	82.4	7.4	2.0
DP 2020 B3XF	4.77	1.19	82.5	31.3	5.9	82.5	7.1	2.0
DP 2022 B3XF	4.45	1.16	83.0	31.5	5.7	81.4	6.4	3.5
DP 2115 B3XF	4.83	1.15	81.6	30.6	7.3	81.9	7.4	2.5
DP 2123 B3XF	4.90	1.15	81.2	32.4	5.6	79.6	7.4	3.0
DP 2127 B3XF	4.83	1.16	83.0	30.9	6.4	81.7	6.4	2.0
FM 1621GL	5.16	1.12	81.3	33.3	5.9	79.2	7.5	3.0
FM 1730GLTP	4.78	1.17	82.8	34.4	6.0	81.6	7.1	3.0
FM 2202GL	4.95	1.12	82.4	32.8	6.9	79.0	7.6	3.0
FM 2334GLT	4.71	1.19	82.0	31.7	6.1	81.7	7.3	2.0
NG 3195 B3XF	5.00	1.09	81.9	30.8	6.1	81.0	7.4	2.5
NG 3299 B3XF	5.10	1.14	82.7	33.7	6.3	80.8	7.5	2.5
NG 3930 B3XF	4.69	1.14	82.2	29.0	6.5	79.2	7.7	3.0
NG 3956 B3XF	4.98	1.11	82.1	30.5	7.1	79.8	7.9	2.5
PHY 205 W3FE	5.06	1.10	82.2	33.3	6.2	81.1	7.4	2.5
PHY 210 W3FE	5.00	1.12	82.2	32.4	6.0	81.2	7.3	2.5
PHY 250 W3FE	4.46	1.13	81.0	32.8	5.7	81.7	7.1	3.0
PHY 332 W3FE	4.65	1.16	82.4	31.4	6.8	79.9	8.2	2.5
PHY 394 W3FE	4.06	1.18	80.6	31.2	5.9	80.2	7.6	3.5
PX1122A215-04W3FE	4.74	1.12	82.1	32.5	6.7	81.1	7.1	2.5
PX1140Z383-04W3FE	4.33	1.17	82.4	33.8	6.6	78.7	8.0	2.5
ST 4595B3XF	4.67	1.16	82.0	30.4	7.1	80.9	7.1	3.5
ST 4990B3XF	4.89	1.16	82.2	30.6	7.0	81.1	6.9	3.0
Prob>F	0.006	0.002	0.124	0.001	0.001	0.001	0.001	0.004
MSD (0.05)	0.57	0.06		1.6	0.3	1.8	0.5	1.1

<sup>1</sup>AR=Armor, BX is experimental line for BASF, DP=Deltapine, FM=Fibermax, NG=NexGen, PHY=Phytogen, PX is experimental line for Phytogen, ST=Stoneville.

<sup>2</sup>Mic=micronaire, Unif=uniformity, Stren=strength, Elon=elongation.