

Verticillium Wilt Trial Results in Cotton for 2019

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The warm temperatures during August and September (Fig. 1) in 2019 were not conducive for development of Verticillium wilt. Therefore, it is not possible to determine the most Verticillium wilt resistant varieties this year, but only those that are highly susceptible to the disease. Those varieties that had unusually high wilt incidence or defoliation are likely to yield poorly in Verticillium wilt fields, when the disease is more severe than was the case in 2019.

Floyd County (Tables 1-2): This trial was replanted on 7 June. There was almost no wilt at the end of August or defoliation in mid-September. However, a late defoliation rating in October did allow for some differentiation between cultivars. The cultivars that did not defoliate much (i.e. may be more resistant) on 9 October were: FM 2202GL, PX2B14W3FE, BX2037GLT, PHY 210W3FE, FM 2334GLT, FM 1911GLT, PX3D32W3FE, NG 3500XF, and FM 2322GL. It is likely that under more severe Verticillium wilt pressure, they would have some wilt tolerance. Of these nine entries, top yielding ones in 2019 were FM 2334GLT (ranked 3rd), NG 3500XF (ranked 5th), and FM 2322GL (ranked 9th).

Hale County (Table 3-4): This trial was replanted on 7 June. Wilt and defoliation were low overall at this site, but still had some significant differences between entries. Entries with the highest category of wilt and/or defoliation (i.e. are susceptible) included: CP (Croplan) 9068B3XF (both in wilt and defoliation), CP 9178B3XF (defoliation), DP 1612B2XF (defoliation), DP 1908B3XF (both wilt and defoliation), DP 1909XF (both wilt and defoliation), three Dynagro experimental lines (DGX 4, 7D, and 10B3XF), and MX19A005B3XF (an experimental line from Americot for both wilt and defoliation). The top yielding entry was DP 1612B2XF, which was also the susceptible check variety in the test. This indicates that yields are not useful in 2019 to identify Verticillium wilt resistant varieties. Loan values were low at this site, which was a function primarily of the very low micronaire in this trial.

Hockley County (Tables 5-6): This trial was planted on 14 May in a drip irrigated field (drip under every row) and got off to a very good start (unlike many fields in 2019). In the Hockley County trial, there was not much disease pressure, but a few highly susceptible varieties could be detected based on wilt incidence and/or defoliation. Entries that were flagged as most likely very susceptible included: CG 9608B3XF, DGX 4, 7D, 11 and 19, DP 1612B2XF (the susceptible check), DP 1835B3XF, DP 1845B3XF, DP 1851B3XF, DP 1909XF, DP 1916B3XF, DP 1948B3XF, M19A005B3XF, NG 2982B3XF, and NG 3994B3XF.

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Table 1. Verticillium wilt results for Floyd County in 2019.

Variety ¹	Lint Yield (lbs/a)	Turn out	Loan x Yield (\$/acre)	%Wilt on 8/30	Defoliation		Loan (C/lb)	Plants /ft row
					9/18	10/9		
CP 9210B3XF	1,445	0.323	825	0.0	1.9	50.1 f-i ²	57.10	3.06
FM 1621GL	1,400	0.330	777	0.5	0.4	33.8 k-o	55.53	2.69
FM 2334GLT	1,368	0.331	782	0.5	0.0	13.0 rs	57.13	3.15
FM 2498GLT	1,353	0.310	772	0.3	2.3	29.2 m-p	57.05	3.55
NG 3500XF	1,335	0.290	730	0.7	0.8	20.1 p-s	54.68	2.61
NG 4098B3XF	1,328	0.292	755	0.0	0.0	27.5 n-p	56.85	2.71
PX3D43W3FE	1,327	0.285	760	0.9	0.8	30.7 l-p	57.28	2.97
DP 1820B3XF	1,326	0.317	761	0.0	0.4	26.3 n-q	57.38	2.09
FM 2322GL	1,322	0.314	755	1.0	3.1	21.1 p-s	57.10	2.17
DP 1612B2XF	1,299	0.294	740	1.3	0.2	68.9 ab	56.98	3.30
FM 2398GLTP	1,295	0.302	743	0.9	0.0	29.8 m-p	57.38	2.57
FM 2202GL	1,293	0.322	736	0.6	0.2	9.3 s	56.90	2.03
DP 1822XF	1,290	0.279	740	0.0	0.2	40.2 i-m	57.33	2.60
PX2B14W3FE	1,286	0.258	672	0.2	0.0	10.7 s	52.23	3.83
FM 1830GLT	1,283	0.316	736	0.5	1.9	36.9 j-n	57.35	2.43
PX3D32W3FE	1,264	0.284	721	0.3	1.3	19.1 p-s	57.08	3.25
FM 1320GL	1,248	0.301	700	1.0	1.7	26.5 n-p	56.05	2.75
CP 9598B3XF	1,245	0.325	714	0.5	0.2	25.6 n-q	57.35	2.05
DGX19015B3XF	1,242	0.304	711	0.3	1.5	35.9 j-o	57.30	2.13
CP 9830B3XF	1,226	0.326	701	0.3	1.5	43.9 g-k	57.20	2.38
FM 1911GLT	1,210	0.300	684	0.1	0.4	14.5 q-s	56.53	3.11
DGX19019B3XF	1,208	0.293	688	0.7	3.5	59.4 b-f	56.95	3.14
BX2037GLT	1,205	0.337	690	0.0	3.1	11.0 s	57.30	1.76
CP 9178B3XF	1,203	0.331	688	0.6	8.7	80.2 a	57.20	2.38
NG 3930B3XF	1,202	0.297	686	0.4	1.2	24.4 o-r	57.08	2.98
DP 1835B3XF	1,192	0.339	682	2.1	2.5	65.8 bc	57.20	2.40
PHY 210W3FE	1,147	0.293	656	0.2	0.0	12.8 rs	57.20	3.11
NG 2982B3XF	1,147	0.277	627	1.5	0.9	42.4 h-l	54.65	3.27
PHY 250W3FE	1,144	0.276	655	1.3	8.3	55.3 c-g	57.28	2.75
DP 1909XF	1,119	0.294	641	3.6	3.5	66.2 bc	57.30	2.32
DP 1916B3XF	1,087	0.315	619	2.2	7.9	62.1 b-e	56.93	2.20
NG 3994B3XF	1,087	0.317	601	0.7	0.6	50.7 e-i	55.25	2.12
DGX19001B3XF	1,065	0.291	560	0.3	0.6	64.7 b-d	52.55	2.39
DP 1908B3XF	1,040	0.284	577	1.2	2.3	53.4 d-h	55.53	2.09
NG 3956B3XF	1,030	0.275	588	1.2	0.0	44.6 g-k	57.10	2.59
DGX19025B3XF	857	0.203	457	1.0	0.2	47.7 f-j	53.35	2.59
Prob>F	0.001	0.001	0.001	0.016	0.002	0.001	0.001	0.001
MSD (0.05) ²	140	0.024	77	2.2	5.2	11.9	2.72	0.45

¹BX are experimental lines for BASF, CP is Croplan, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, MX are experimental lines for Americot, NG is NexGen, PHY is Phytogen, and PX are experimental lines for Phytogen.

²MSD is minimal significant difference. In the case of defoliation, letters indicating significant differences are provided. The best varieties were those that had the letter s following defoliation.

Table 2. Fiber properties for cultivars tested at Floyd County.

Variety ¹	Micro- aire	Length	Unif- ormity	Strength	Elon- gation	Rd	+b	Leaf
BX2037GLT	4.17	1.21	82.75	35.85	6.1	81.9	7.65	3.0
CP 9178B3XF	4.24	1.14	83.05	34.05	6.5	80.1	8.90	2.0
CP 9210B3XF	4.56	1.21	83.90	34.30	7.7	79.0	9.35	2.5
CP 9598B3XF	4.15	1.21	83.60	33.90	7.2	80.8	8.75	2.5
CP 9830B3XF	4.03	1.23	82.05	32.95	6.6	80.3	8.15	3.5
DGX19001B3XF	3.25	1.26	82.70	33.30	7.3	80.3	8.15	4.0
DGX19015B3XF	4.13	1.19	83.00	34.25	6.7	80.9	8.55	2.5
DGX19019B3XF	4.38	1.25	84.55	34.50	6.0	77.6	7.90	5.0
DGX19025B3XF	3.28	1.47	85.40	38.25	5.8	77.4	6.90	7.5
DP 1612B2XF	3.69	1.17	83.00	34.35	7.6	77.6	8.45	6.0
DP 1820B3XF	4.12	1.26	84.05	36.30	6.2	80.3	8.15	3.0
DP 1822XF	3.73	1.22	83.60	36.20	6.3	79.6	8.75	2.5
DP 1835B3XF	3.94	1.17	81.90	33.55	6.6	79.3	8.85	4.0
DP 1908B3XF	3.47	1.23	83.25	34.75	6.2	83.5	6.95	3.5
DP 1909XF	4.03	1.18	83.70	33.75	6.1	82.8	7.60	3.5
DP 1916B3XF	3.67	1.15	82.85	34.20	6.6	79.3	9.15	2.5
FM 1320GL	4.62	1.18	82.90	33.25	7.1	80.0	8.10	4.5
FM 1621GL	4.69	1.16	82.90	33.75	5.8	76.6	7.75	6.5
FM 1830GLT	4.36	1.21	83.70	36.30	6.0	81.1	8.15	3.0
FM 1911GLT	4.28	1.16	83.40	33.20	6.3	77.9	7.80	5.0
FM 2202GL	4.49	1.16	84.55	35.60	6.7	77.9	8.40	4.0
FM 2322GL	4.29	1.20	83.50	34.45	5.9	78.0	8.35	5.0
FM 2334GLT	4.62	1.21	83.95	33.60	6.4	80.5	8.20	3.5
FM 2398GLTP	3.81	1.18	83.75	33.95	6.3	80.4	8.85	2.5
FM 2498GLT	4.04	1.19	83.60	33.20	6.2	79.5	8.25	3.0
NG 2982B3XF	3.61	1.14	83.75	35.15	6.3	75.8	7.55	8.0
NG 3500XF	4.72	1.12	83.30	34.60	7.0	77.5	9.50	2.5
NG 3930B3XF	3.77	1.20	83.60	33.15	6.6	80.0	8.50	3.5
NG 3956B3XF	4.01	1.15	82.70	32.35	7.0	79.3	8.75	3.5
NG 3994B3XF	3.72	1.16	82.15	32.40	7.0	78.6	8.95	3.5
NG 4098B3XF	3.64	1.25	83.20	37.50	6.6	76.5	8.55	5.5
PHY 210W3FE	4.38	1.16	83.15	35.05	5.7	80.7	8.20	2.5
PHY 250W3FE	3.94	1.17	83.25	34.65	6.6	79.8	8.65	3.0
PX2B14W3FE	3.30	1.25	81.75	32.50	6.2	78.4	7.65	5.5
PX3D32W3FE	3.84	1.21	83.15	34.85	7.1	79.5	8.40	4.0
PX3D43W3FE	4.09	1.16	84.25	34.90	6.9	79.7	8.80	3.5
Prob>F	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
MSD (0.05)	0.54	0.03	1.38	1.66	0.3	2.4	0.43	2.1

¹BX are experimental lines for BASF, CP is Croplan, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, NG is NexGen, PHY is Phytogen, and PX are experimental lines for Phytogen.

²MSD is minimal significant difference.

Table 3. Verticillium wilt results from Hale County in 2019.

Variety ¹	Lint Yield (lbs/a)	Turn out	Loan x Yield (\$/acre)	%Wilt on 8/27	Defoliation 9/20	Loan (¢/lb)	Plants /ft row
DP 1612B2XF	1,467	0.302	612	5.2	6.8	41.70	2.63
NG 3500XF	1,403	0.267	619	4.6	1.9	44.13	2.20
DP 1822XF	1,295	0.255	493	3.5	1.9	38.05	1.94
PX2C14W3FE	1,290	0.254	589	1.2	0.8	45.65	2.55
FM 1320GL	1,262	0.265	614	3.0	2.7	48.63	2.26
CP 9210B3XF	1,224	0.262	535	3.2	3.5	43.68	2.46
DP 1820B3XF	1,220	0.272	590	7.8	2.5	48.33	1.69
FM 2334GLT	1,197	0.261	586	0.9	2.3	49.00	2.19
NG 3930B3XF	1,196	0.238	483	0.6	1.7	40.38	2.35
FM 2202GL	1,188	0.270	532	1.7	1.3	44.80	1.62
NG 2982B3XF	1,159	0.260	461	8.0	3.8	39.78	2.48
NG 3780B2XF	1,157	0.226	514	5.5	1.3	44.43	2.30
PHY 210W3FE	1,126	0.238	538	1.8	1.0	47.80	2.53
BX2005GLT	1,121	0.268	502	3.0	1.2	44.83	1.73
CP 9598B3XF	1,119	0.271	524	5.9	2.3	46.83	1.67
FM 2398GLTP	1,104	0.258	463	1.0	1.9	41.90	1.84
PX2B14W3FE	1,086	0.229	466	2.9	2.7	42.93	2.74
FM 1621GL	1,074	0.249	381	2.3	5.0	35.48	1.75
CP 9608B3XF	1,070	0.268	358	10.5	6.6	33.43	1.81
DP 1909XF	1,052	0.249	521	13.0	7.7	49.50	1.77
MX19A005B3XF	1,049	0.268	467	9.9	12.0	44.55	1.43
NG 3640XF	1,040	0.264	446	3.6	1.5	42.90	2.03
DGX19021B3XF	1,038	0.241	375	3.0	4.6	36.10	2.72
DGX19015B3XF	1,037	0.251	415	4.1	0.8	40.03	1.36
CP 9178B3XF	985	0.252	374	6.0	6.8	37.98	2.01
DP 1908B3XF	976	0.240	457	13.9	6.6	46.80	1.56
PHY 250W3FE	971	0.232	406	3.8	3.8	41.83	1.96
ST 5600B2XF	959	0.243	338	4.9	1.3	35.20	1.28
FM 2574GLT	957	0.241	420	0.6	2.7	43.88	2.02
DGX19011B3XF	947	0.218	335	4.4	1.5	35.40	1.90
FM 2322GL	942	0.253	368	3.2	2.9	39.08	1.18
NG 3956B3XF	935	0.225	313	0.8	2.1	33.48	1.88
WFU19XB9B3XF	935	0.220	329	2.6	5.0	35.23	2.15
DGX19010B3XF	920	0.255	345	6.2	8.3	37.50	1.40
FM 1911GLT	919	0.229	356	1.0	0.4	38.78	2.35
FM 1830GLT	918	0.236	398	2.3	0.6	43.38	1.61
BX2037GLT	896	0.255	387	1.5	0.6	43.23	1.08
DGX19007DB3XF	870	0.232	365	14.2	11.0	41.95	1.47
BX2076GLTP	861	0.221	304	2.5	2.7	35.30	1.86
DGX19004B3XF	852	0.224	323	12.3	10.8	37.90	1.55
Prob>F	0.001	0.001	0.001	0.001	0.001	0.001	0.001
MSD (0.05)	178	0.036	91	4.5	5.9	9.35	0.38

¹BX are experimental lines for BASF, CG is Croplan Genetics, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, MX are experimental lines for Americot, NG is NexGen, PHY is Phytogen, PX are experimental lines for Phytogen, ST is Stoneville, and WFU are experimental lines for Winfield United.

Table 4. Fiber properties for cultivars tested at Hale County.

Variety ¹	Micro- aire	Length	Unif- ormity	Strength	Elon- gation	Rd	+b	Leaf
BX2005GLT	2.68	1.15	81.50	30.95	6.50	74.6	10.9	4.0
BX2037GLT	2.50	1.17	78.20	29.35	6.00	77.5	9.0	4.5
BX2076GLTP	2.22	1.13	79.10	27.70	6.00	74.5	11.1	3.5
CP 9178B3XF	2.54	1.16	80.30	31.25	6.55	73.7	11.8	2.5
CP 9210B3XF	2.97	1.16	80.70	30.15	7.20	74.4	11.9	1.5
CP 9598B3XF	2.75	1.18	80.45	28.90	7.15	76.1	10.8	2.5
CP 9608B3XF	2.42	1.15	79.20	26.45	6.20	72.7	12.1	3.0
DGX19004B3XF	2.43	1.13	78.35	25.70	7.25	75.4	10.7	3.0
DGX19007DB3XF	2.55	1.14	79.85	28.85	7.20	77.1	11.0	1.5
DGX19010B3XF	2.57	1.19	79.75	28.05	6.15	72.5	11.8	4.0
DGX19011B3XF	2.47	1.15	80.20	28.75	6.30	72.0	12.2	2.5
DGX19015B3XF	2.64	1.16	79.75	28.45	6.50	75.3	11.7	2.0
DGX19021B3XF	2.48	1.27	83.15	32.60	6.25	71.5	11.9	3.5
DP 1612B2XF	2.64	1.14	79.70	30.10	7.25	73.5	10.8	5.5
DP 1820B3XF	2.95	1.22	80.05	30.95	6.00	76.1	11.3	2.0
DP 1822XF	2.42	1.19	79.20	31.15	6.25	76.2	10.7	3.0
DP 1908B3XF	2.66	1.20	81.00	31.25	6.25	80.7	9.0	3.0
DP 1909XF	2.94	1.16	79.95	29.40	6.25	81.6	8.6	3.0
FM 1320GL	2.96	1.12	80.20	30.35	7.00	76.3	10.3	4.5
FM 1621GL	2.67	1.14	78.70	28.55	6.00	70.9	10.7	6.5
FM 1830GLT	2.48	1.18	79.75	29.85	6.00	77.6	9.9	3.5
FM 1911GLT	2.37	1.15	79.45	28.25	6.30	74.5	10.3	5.0
FM 2202GL	2.80	1.12	81.15	30.20	6.55	75.5	10.1	4.0
FM 2322GL	2.55	1.14	79.00	28.85	5.75	73.8	10.3	4.0
FM 2334GLT	2.88	1.23	80.80	30.35	6.30	78.3	9.9	2.0
FM 2398GLTP	2.46	1.13	79.55	28.85	6.35	76.6	10.6	4.0
FM 2574GLT	2.45	1.18	78.80	29.25	6.15	79.6	8.9	3.0
MX19A005B3XF	2.73	1.16	80.00	29.15	7.00	76.9	10.8	2.0
NG 2982B3XF	2.52	1.15	82.60	31.95	6.55	75.3	10.1	5.0
NG 3500XF	3.06	1.09	80.20	30.40	6.95	71.5	12.1	2.5
NG 3640XF	2.90	1.09	80.85	29.40	7.05	71.9	12.1	3.0
NG 3780B2XF	2.82	1.15	80.05	29.80	7.05	73.6	11.2	4.5
NG 3930B3XF	2.62	1.16	80.85	27.70	6.90	75.1	11.3	3.0
NG 3956B3XF	2.26	1.15	79.85	28.40	6.90	73.7	11.7	2.5
PHY 210W3FE	2.85	1.17	81.05	31.55	5.95	78.4	9.3	3.5
PHY 250W3FE	2.50	1.14	79.25	29.30	5.95	76.0	10.5	3.5
PX2B14W3FE	2.59	1.17	77.60	27.75	6.05	75.6	9.9	4.0
PX2C14W3FE	2.82	1.11	79.45	28.80	6.90	76.5	10.0	4.0
ST 5600B2XF	2.42	1.13	78.80	27.80	6.90	73.4	11.4	4.0
WFU19XB9B3XF	2.27	1.20	79.60	29.65	6.65	73.1	11.3	5.0
Prob>F	0.008	0.001	0.003	0.001	0.001	0.001	0.001	0.001
MSD (0.05)	0.52	0.04	2.35	2.42	0.33	2.3	1.0	1.9

¹BX are experimental lines for BASF, CP is Croplan, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, MX are experimental lines for Americot, NG is NexGen, PHY is Phytogen, PX are experimental lines for Phytogen, ST is Stoneville, and WFU are experimental lines for Winfield United.

Table 5. Verticillium wilt trial in Hockley County in 2019

Variety ¹	Lint Yield (lbs/a)	Turn out	Loan x Yield (\$/acre)	%Wilt on 8/27	Defoliation 9/20	Loan (¢/lb)	Plants /ft row
FM 2498GLT	2,038	0.311	1,156	6.1	3.5	56.70	3.19
NG 4777B2XF	2,006	0.311	1,135	2.8	5.2	56.60	2.89
NG 4792XF	1,956	0.307	1,082	4.2	6.2	55.33	2.51
CP 9598B3XF	1,954	0.340	1,075	5.6	6.8	55.05	1.93
FM 2398GLTP	1,938	0.307	1,080	5.4	3.5	55.70	2.48
FM 1830GLT	1,934	0.307	1,110	6.5	7.9	57.40	2.56
PX3D32W3FE	1,894	0.295	1,065	2.9	7.9	56.25	3.11
FM 2574GLT	1,880	0.307	1,079	2.3	2.3	57.43	2.74
PX3D43W3FE	1,879	0.289	1,041	6.1	9.7	55.43	3.13
BX2005GLT	1,876	0.316	1,066	5.2	6.4	56.83	2.62
NG 4098B3XF	1,871	0.294	1,016	7.2	5.6	54.30	2.74
PX2C14W3FE	1,871	0.279	1,042	3.3	5.2	55.70	2.92
BX2076GLTP	1,868	0.319	1,040	7.4	7.7	55.68	2.36
CP 9830B3XF	1,845	0.336	1,051	2.3	5.4	56.98	3.14
NG 4689B2XF	1,844	0.304	1,022	3.3	9.7	55.43	2.61
NG 3640XF	1,841	0.298	996	3.8	7.0	54.13	2.30
FM 2334GLT	1,831	0.314	1,048	2.3	5.0	57.25	2.73
ST 4550GLTP	1,818	0.323	1,042	8.2	16.6	57.35	2.56
ST 5707B2XF	1,784	0.283	952	6.0	7.7	53.38	2.83
WFU19XB9B3XF	1,765	0.295	983	2.5	8.3	55.70	3.84
DP 1612B2XF	1,744	0.307	963	6.7	22.6	55.20	2.98
DGX19019B3XF	1,742	0.298	997	11.9	24.7	57.23	3.05
DGX19011B3XF	1,736	0.286	994	10.2	1.5	57.30	2.26
DP 1909XF	1,732	0.281	985	12.2	6.4	56.85	2.22
DGX19007DB3XF	1,718	0.307	970	13.5	2.7	56.48	1.85
CP 9608B3XF	1,695	0.343	942	11.2	8.7	55.55	2.48
FM 1911GLT	1,661	0.315	945	2.7	1.9	56.88	2.87
DGX19004B3XF	1,660	0.303	933	8.5	6.8	56.20	2.11
DP 1948B3XF	1,625	0.308	915	9.9	9.3	56.33	2.11
DP 1840B3XF	1,621	0.293	902	5.6	3.9	55.63	2.30
ST 5600B2XF	1,608	0.316	858	2.9	3.5	53.40	1.58
DP 1845B3XF	1,606	0.292	886	9.8	4.4	55.15	2.22
DP 1916B3XF	1,600	0.316	886	10.3	19.5	55.38	2.38
NG 2982B3XF	1,560	0.278	855	6.9	20.0	54.85	2.96
NG 3930B3XF	1,537	0.271	870	4.2	12.5	56.63	2.84
DP 1851B3XF	1,524	0.299	846	9.6	14.7	55.53	2.14
NG 3994B3XF	1,522	0.317	855	10.1	19.5	56.20	1.85
NG 4936B3XF	1,520	0.289	868	5.2	9.7	57.13	2.42
MX19A005B3XF	1,467	0.307	825	13.5	9.9	56.25	2.25
DP 1835B3XF	1,420	0.297	788	12.5	15.1	55.48	2.26
Prob>F	0.001	0.006	0.001	0.001	0.001	0.017	0.001
MSD(0.05)	203	0.039	112	5.4	9.8	2.82	0.26

¹BX are experimental lines for BASF, CP is Croplan, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, MX are experimental lines for Americot, NG is NexGen, PHY is Phytogen, PX are experimental lines for Phytogen, ST is Stoneville, and WFU are experimental lines for Winfield United.

Table 6. Fiber properties for cultivars tested at Hockley County.

Variety ¹	Micro- aire	Length	Unif- ormity	Strength	Elon- gation	Rd	+b	Leaf
BX2005GLT	4.27	1.20	84.35	35.05	6.7	76.6	9.0	5.0
BX2076GLTP	4.33	1.20	83.55	33.55	6.4	77.6	10.0	3.5
CP 9598B3XF	4.83	1.18	83.35	33.10	7.6	76.8	9.1	5.0
CP 9608B3XF	4.11	1.18	83.40	31.10	6.6	76.3	9.7	4.0
CP 9830B3XF	4.32	1.22	82.35	31.15	7.0	78.9	9.1	3.0
DGX19004B3XF	4.06	1.16	82.50	29.60	8.0	78.4	9.1	3.5
DGX19007DB3XF	4.48	1.21	84.75	34.00	7.5	78.6	9.2	3.5
DGX19011B3XF	4.02	1.17	82.80	32.35	6.9	78.5	8.8	3.5
DGX19019B3XF	4.16	1.26	84.40	34.60	6.5	77.1	8.6	4.5
DP 1612B2XF	4.19	1.21	83.95	33.10	8.0	75.9	9.4	6.0
DP 1835B3XF	3.73	1.19	82.30	32.95	6.4	77.1	10.3	2.0
DP 1840B3XF	3.90	1.22	83.50	34.10	7.4	77.1	10.8	1.5
DP 1845B3XF	4.03	1.24	83.00	32.30	7.9	76.2	8.9	6.5
DP 1851B3XF	3.51	1.18	82.45	34.55	8.0	77.7	10.7	2.5
DP 1909XF	4.02	1.21	82.65	33.30	6.2	80.1	7.7	5.5
DP 1916B3XF	4.02	1.15	82.30	34.10	7.0	77.5	9.9	1.0
DP 1948B3XF	3.87	1.28	82.30	33.25	8.9	77.1	9.1	6.0
FM 1830GLT	4.25	1.27	83.80	33.55	6.2	79.6	8.3	3.0
FM 1911GLT	4.26	1.19	83.10	32.90	6.4	78.7	8.7	3.5
FM 2334GLT	4.09	1.26	83.70	33.55	6.7	78.7	8.9	4.0
FM 2398GLTP	4.36	1.20	83.40	32.40	6.8	78.3	9.6	2.5
FM 2498GLT	4.63	1.19	83.05	32.40	6.6	78.2	9.7	3.0
FM 2574GLT	4.27	1.24	83.90	34.10	6.2	79.9	8.4	4.0
MX19A005B3XF	4.22	1.16	82.70	31.70	7.1	79.1	9.5	1.5
NG 2982B3XF	3.70	1.17	84.20	35.10	6.4	74.7	7.8	7.5
NG 3640XF	4.58	1.12	83.00	34.20	7.5	76.4	10.6	1.0
NG 3930B3XF	3.70	1.19	83.30	31.50	6.9	77.3	9.4	5.0
NG 3994B3XF	4.46	1.18	82.90	32.15	7.3	76.9	9.1	5.0
NG 4098B3XF	3.90	1.26	82.80	36.50	6.8	75.2	9.4	5.0
NG 4689B2XF	4.69	1.15	83.25	33.55	6.2	76.7	10.1	2.0
NG 4777B2XF	4.77	1.17	82.70	34.10	5.5	77.9	9.9	2.0
NG 4792XF	4.67	1.14	83.90	34.60	7.2	75.9	10.1	3.0
NG 4936B3XF	4.15	1.20	83.20	31.15	7.9	79.8	9.2	1.0
PX2C14W3FE	3.70	1.14	82.50	32.20	7.5	77.5	9.4	4.0
PX3D32W3FE	4.12	1.22	83.50	33.35	7.3	78.0	9.9	3.5
PX3D43W3FE	4.11	1.18	83.10	33.40	7.5	77.2	9.7	2.5
ST 4550GLTP	4.23	1.17	83.50	34.45	7.7	78.2	9.0	5.0
ST 5600B2XF	4.45	1.19	83.85	33.95	7.5	74.8	11.3	3.5
ST 5707B2XF	4.11	1.21	83.70	36.00	7.1	75.6	10.6	4.0
WFU19XB9B3XF	4.15	1.27	84.85	35.55	7.4	76.8	10.1	4.5
Prob>F	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
MSD(0.05)	0.46	0.033	1.47	1.4	0.35	1.79	1	2.01

¹BX are experimental lines for BASF, CP is Croplan, DGX are experimental lines for DynaGro, DP is Deltapine, FM is Fibermax, MX are experimental lines for Americot, NG is NexGen, PHY is Phytogen, PX are experimental lines for Phytogen, ST is Stoneville, and WFU are experimental lines for Winfield United.

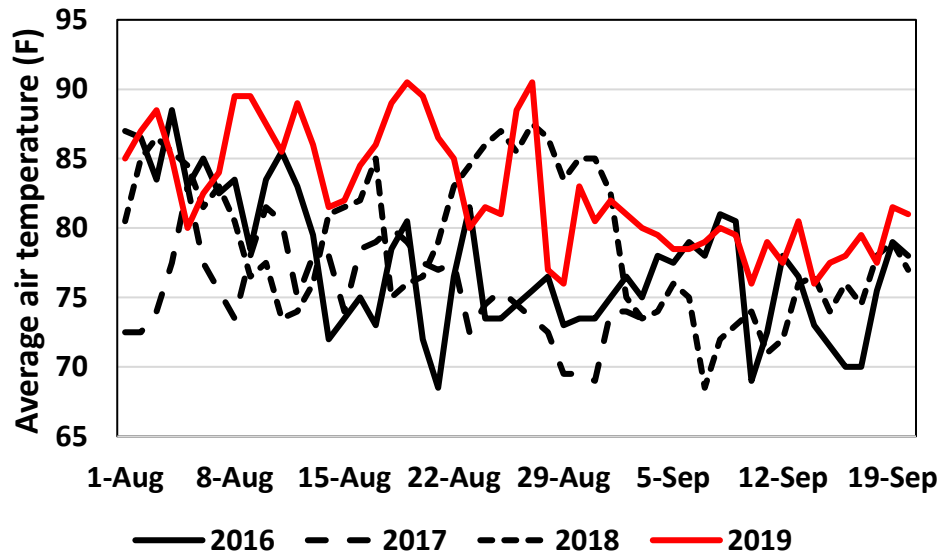


Figure 1. Average air temperature in Lubbock during August and early September for 2016 to 2019.