DEPARTMENT OF
PLANT AND SOIL SCIENCES

2021 Oklahoma State Cotton Official Variety Tests (OVTs)

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An irrigated and dryland OVT were conducted by the Oklahoma State Cotton Agronomy Program during the 2021 season. Both trials were planted on May 20th at the Caddo Research Station in Fort Cobb, OK. There were 38 varieties entered in the dryland trial which was planted at 3.33 seeds ft^{-1} and 40 varieties entered in the irrigated trial planted at 4 seeds ft^{-1}. Both trials including the eight national standards selected by the National Cotton Variety Testing Committee. A total of 20.4 inches of rainfall was received from planting – harvest, with the irrigated OVT receiving an additional 7.5 inches of irrigation delivered through a center pivot. Plant population was determined by taking stand counts when cotton had reached the 1 – 2 leaf stage. All emerged plants in 10 ft. of two rows were counted, and this value was converted to plants per acre.

Both trials suffered from sub-lethal 2,4-D herbicide injury occurring during the bloom period. The visual injury symptoms were slight – moderate in the dryland trial while the irrigated trial suffered only slight injury symptoms. The majority of the varieties entered in both trials, including all Deltapine, FiberMax, NexGen, and Stoneville varieties, as well as the national standard PHY 764 WRF, do not contain the trait that confers resistance to 2,4-D, It is impossible to say how much of an impact this had on the non-2,4-D tolerant varieties entered in the trials, but it is likely the cause of the lack of statistical yield differences in the dryland trial.

The dryland OVT was harvested on November 8th and the irrigated was harvested on November 13th. Both trials were harvested with a two row John Deere 482 cotton stripper without a bur extractor. Once harvested, subsamples were cleaned through a stand alone bur extractor and then ginned on a 20-saw research floor gin.

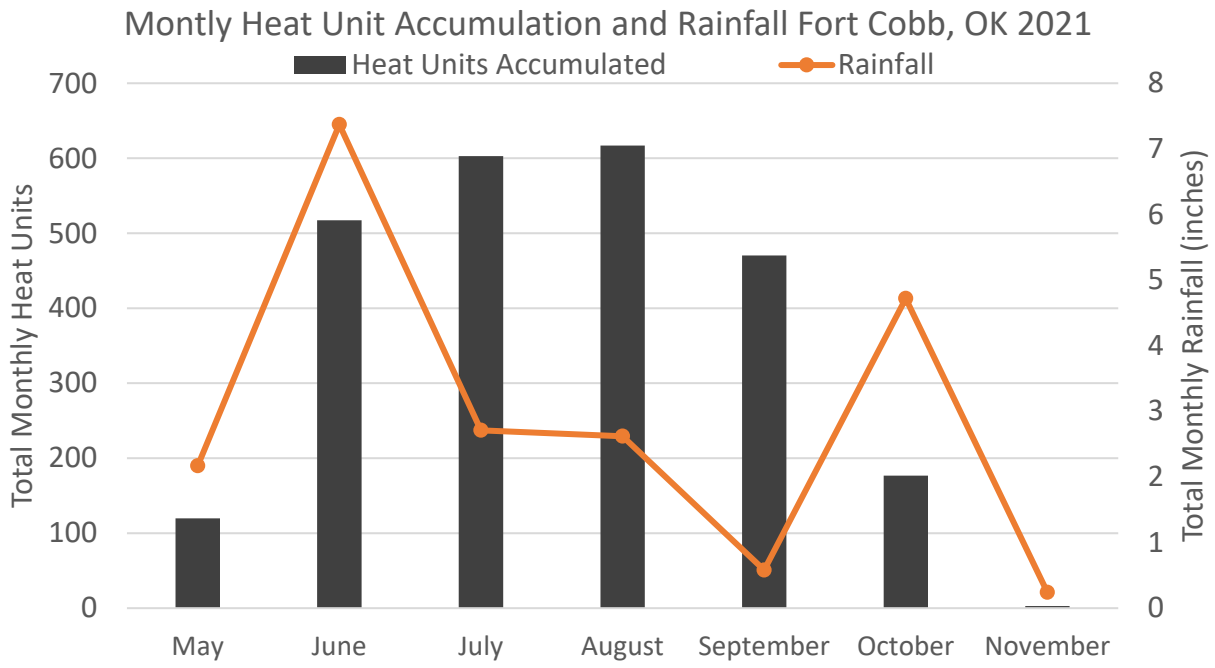

Figure 1. Monthly heat unit accumulation and rainfall received from planting until harvest for both the 2021 Oklahoma Cotton Official Variety Tests.

Table 1. Seed company, herbicide, and insecticide trait abbreviations.

Seed Company	**Abbreviation**	**Trait**	**Abbreviation**
Deltapine	DP	Roundup Ready Flex® (herb.)	RF
Dyna-Gro	DG	FlexEnlist® (herb.)	FE
FiberMax	FM	GlyTol LibertyLink® (herb.)	GL
NexGen	NG	XtendFlex® (herb.)	XF
PhytoGen	PHY	Bollgard 3®(Bt)	B3
Stoneville	ST	TwinLink Plus® (Bt)	TP
		Widestrike 3® (Bt)	W3

2021 Irrigated Oklahoma Official Variety Test, Fort Cobb, OK (page 1 of 2). Trial suffered slight visual 2,4-D damage mid-season.
Planted: May 13th at 58,000 seeds per acre. Harvested November 13th.

Variety	Lint Yield *lbs. acre^{-1}*	Turnout *%*	Micronaire	Fiber Length *inches*	Uniformity *%*	Fiber Strength *g tex^{-1}*	Loan Value *cents lb.$^{-1}$*	Population *plants acre^{-1}*
PHY 400 W3FE*	2,088 a	34.75 b-g	4.18 h-l	1.14 e-m	81.6 d-j	33.3 c-g	54.19	43,923 b-j
PX1130A329[1]	2,077 ab	34.33 e-i	4.43 b-k	1.18 b-e	82.1 a-h	33.7 b-f	54.25	50,276 a-e
PHY 480 W3FE	2,070 a-c	34.12 e-j	4.05 kl	1.15 c-k	82.6 a-g	31.0 i-m	54.24	43,742 b-j
PX1140A385	2,049 a-d	35.53 b-e	4.39 c-k	1.13 g-m	83.0 a-d	33.7 b-f	54.21	41,201 e-l
NG 4190 B3XF	1,969 a-e	35.00 b-g	4.34 d-k	1.15 c-k	82.3 a-h	28.5 o	53.83	32,489 lm
NG 3729 B2XF	1,916 a-f	32.45 k-n	4.61 a-g	1.15 c-k	81.2 g-j	29.5 m-o	53.60	40,475 f-l
PX1140A383	1,911 a-g	34.74 b-h	4.43 b-k	1.17 b-h	81.8 b-j	32.0 f-l	54.21	43,923 b-j
ST 4550 GLTP*	1,908 a-f	34.12 e-j	4.26 f-k	1.15 c-l	82.3 a-h	33.2 c-g	54.25	45,194 a-i
ST 4993 B3XF	1,901 a-g	35.24 b-f	4.67 a-e	1.14 d-l	82.9 a-e	33.1 c-h	54.10	32,852 k-m
PX1150A450	1,883 a-g	34.57 d-h	4.37 d-k	1.13 h-m	82.5 a-g	33.7 b-f	53.94	43,560 b-j
DP 2020 B3XF	1,865 a-h	32.88 i-n	4.41 b-k	1.17 b-f	82.1 a-h	30.4 l-n	54.08	42,290 d-k
PX1150A453	1,857 a-h	35.01 b-g	4.64 a-f	1.13 j-m	82.2 a-h	37.2 a	53.31	45,194 a-i
BX2298[2]	1,856 a-h	35.45 b-e	4.78 a-c	1.11 lm	81.8 b-j	29.8 m-o	53.29	38,297 h-m
NG 3195 B3XF	1,847 a-h	35.18 b-f	4.31 e-k	1.13 i-m	82.5 a-g	30.5 k-n	53.95	34,667 j-m
AMX20B037[3]	1,832 a-h	34.90 b-g	4.67 a-e	1.17 b-f	83.0 a-c	34.0 b-e	53.13	38,841 h-m
NG 3956 B3XF	1,822 a-h	32.35 k-n	4.30 e-k	1.14 d-l	82.1 a-h	31.3 h-m	53.90	49,731 a-f
ST 4595 B3XF	1,820 a-h	37.45 a	4.86 a	1.14 d-l	80.5 j	28.8 no	53.08	49,368 a-f
PHY 545 W3FE	1,813 a-h	34.84 b-g	4.14 j-l	1.12 k-m	82.0 a-h	32.7 d-j	53.58	52,998 ab
BX2297	1,785 b-h	36.27 a-c	4.60 a-g	1.13 i-m	80.6 ij	28.5 o	52.81	37,026 i-m
DG 3520 B3XF*	1,784 b-h	32.39 k-n	3.84 l	1.22 a	83.0 a-e	33.6 b-f	54.46	43,923 b-j
DP 2012 B3XF*	1,776 c-h	33.62 f-k	4.38 c-k	1.17 b-i	81.8 b-j	29.9 m-o	53.95	42,290 d-k
PHY 205 W3FE	1,764 d-h	31.31 n	4.24 f-k	1.17 b-g	82.0 a-i	32.4 e-k	54.25	45,194 a-i
DP 1646 B2XF*	1,755 d-h	36.15 a-d	4.28 e-k	1.19 ab	81.5 e-j	30.0 m-o	53.99	46,827 a-h
PX1150A152	1,750 d-h	34.16 e-j	4.28 e-k	1.14 e-m	82.5 a-g	34.9 bc	54.26	49,187 a-g
NG 4098 B3XF	1,742 e-h	33.46 g-l	4.45 b-j	1.18 bc	82.0 a-i	33.6 b-f	54.20	41,745 d-l
PHY 443 W3FE	1,737 e-h	32.17 k-n	4.48 a-j	1.14 f-m	82.8 a-f	34.5 b-d	54.20	52,091 a-c
DP 2115 B3XF	1,714 e-h	36.37 ab	4.57 a-h	1.16 b-j	81.9 b-j	31.4 g-m	54.05	34,485 j-m
NG 3930 B3XF	1,712 e-h	32.79 i-n	4.26 f-k	1.14 d-l	81.4 g-j	28.9 no	53.81	46,283 a-i
PX3E33	1,711 e-i	32.71 i-n	4.36 c-k	1.16 b-k	82.2 a-h	35.4 ab	54.25	51,183 a-d
FM 1830 GLT*	1,705 e-h	34.23 e-i	4.86 a	1.20 ab	83.0 a-d	32.1 e-l	53.70	49,550 a-f
PHY 350 W3FE	1,688 e-i	31.86 l-n	4.39 b-k	1.16 b-j	83.0 a-d	32.8 d-i	54.30	45,920 a-i
PHY 411 W3FE	1,681 e-i	34.27 e-i	4.45 b-k	1.10 m	82.3 a-h	32.2 e-l	53.35	43,197 c-j

2021 Irrigated Oklahoma Official Variety Test cont. (page 2 of 2)								
Variety	**Lint Yield** *lbs. acre^{-1}*	**Turnout** *%*	**Micronaire**	**Fiber Length** *inches*	**Uniformity** *%*	**Fiber Strength** *g tex^{-1}*	**Loan Value** *cents lb.$^{-1}$*	**Population** *plants acre^{-1}*
DP 1820 B3XF	1,671 e-i	35.51 b-e	4.72 a-d	1.18 b-e	81.6 c-j	32.9 d-h	54.01	39,023 h-m
PHY 332 W3FE	1,653 f-i	32.52 j-n	4.28 e-k	1.16 b-j	80.9 h-j	32.3 e-l	53.94	53,906 a
BX2296	1,649 e-i	36.21 a-d	4.82 ab	1.16 b-k	81.3 f-j	29.4 m-o	52.88	39,567 g-l
NG 4050 XF	1,627 f-i	33.01 h-m	4.15 i-l	1.15 c-l	81.9 a-j	30.8 j-m	52.75	39,204 h-m
FM 1730 GLTP	1,605 g-i	34.72 c-g	4.54 a-i	1.20 ab	83.3 a	33.5 b-f	54.36	39,567 g-l
NG 4936 B3XF*	1,571 hi	32.41 k-n	4.22 g-l	1.18 b-d	81.9 a-j	29.8 m-o	52.26	45,194 a-i
DP 1908 B3XF	1,402 ij	31.42 mn	4.31 e-k	1.18 b-e	81.2 g-j	32.3 e-l	54.24	29,766 m
PHY 764 WRF*	1,269 j	31.44 mn	4.01 kl	1.16 b-k	83.2 ab	37.4 a	54.10	41,564 d-l
Average	1,781	34.05	4.41	1.15	82.09	32.1	53.85	43,143
p-value	0.0002	<0.0001	<0.0001	<0.0001	0.0091	<0.0001	0.1378	<.0001
pLSD	302	1.67	0.40	0.04	1.5	1.9	NS	9,703
CV	15.32	5.78	8.42	3.08	1.39	7.71	1.74	19.56

*National Cotton Variety Testing Committee National Standard

[1]Phytogen experimental

[2]FiberMax/Stoneville experimental

[3]Americot/NexGen experimental

2021 Dryland Oklahoma Official Variety Test, Fort Cobb, OK (page 1 of 2). Trial suffered moderate visual 2,4-D damage mid-season.
Planted: May 13th at 48,000 seeds per acre. Harvested November 8th.

Variety	Lint Yield *lbs. acre^{-1}*	Turnout *%*	Micronaire	Fiber Length *inches*	Uniformity *%*	Fiber Strength *g tex^{-1}*	Loan Value *cents lb.$^{-1}$*	Population *plants acre^{-1}*
PX1140A385[1]	1,198	37.41	5.20 ab	1.03 h-l	81.4	30.3 d-l	47.42 g-j	24,200 c-l
PX1140A383	1,177	34.58	4.62 e-l	1.10 b-d	81.4	30.9 c-h	53.30 a-c	33,880 a-c
PHY 411 W3FE	1,149	36.04	4.65 e-k	1.02 j-l	81.0	30.0 d-l	48.98 e-j	27,830 a-k
DP 2123 B3XF	1,121	35.73	4.77 c-i	1.02 j-l	80.1	26.1 op	45.85 j	28,798 a-k
DG 3520 B3XF*	1,106	35.68	4.09 p	1.09 b-e	80.9	30.2 d-l	52.83 a-e	23,474 d-l
PHY 480 W3FE	1,078	35.37	4.53 g-m	1.06 d-k	81.0	28.9 f-n	51.27 a-h	31,944 a-e
PHY 205 W3FE	1,075	39.07	4.46 i-o	0.99 l	81.6	28.3 h-o	47.23 h-j	37,510 a
ST 4550 GLTP*	1,068	36.06	4.79 c-h	1.08 c-g	82.3	31.7 a-e	51.98 a-f	30,492 a-h
PHY 400 W3FE*	1,043	34.53	4.29 l-p	1.07 d-j	80.9	30.7 d-i	51.43 a-h	29,524 a-j
DP 1646 B2XF*	1,029	35.14	4.53 h-m	1.13 ab	80.8	28.4 h-o	53.43 a-c	22,264 e-l
NG 3930 B3XF	1,018	35.74	4.14 op	1.07 d-i	80.2	27.7 l-o	49.73 b-j	28,556 a-k
PX1150A450	1,015	34.76	4.93 b-e	1.03 i-l	80.6	30.2 d-l	49.03 d-j	22,990 d-l
PHY 332 W3FE	1,013	33.33	4.59 f-l	1.09 b-f	80.3	28.7 g-n	52.62 a-e	23,474 d-l
PX1130A329	975	34.28	4.69 d-k	1.05 d-k	79.7	30.5 d-j	50.22 a-i	30,492 a-h
NG 4098 B3XF	962	32.72	4.31 l-p	1.16 a	80.0	33.3 a-c	54.03 a	27,830 a-k
ST 4595 B3XF	939	38.75	4.86 c-g	1.05 d-k	80.5	26.1 op	46.70 ij	30,250 a-i
PHY 443 B3XF	935	32.25	4.43 j-o	1.04 e-k	80.6	30.8 c-h	49.97 a-j	30,976 a-f
AMX20B037[2]	924	36.96	4.74 c-j	1.08 b-f	81.9	31.5 a-e	52.83 a-e	22,506 d-l
PX3E33	901	32.55	4.39 k-p	1.04 f-k	80.0	30.0 d-l	50.57 a-i	30,008 a-j
BX2296[3]	901	38.04	4.88 b-f	1.06 d-k	81.0	26.6 no	49.37 c-j	30,734 a-g
BX2297	901	37.65	5.30 a	1.02 j-l	79.0	24.1 p	40.63 k	30,008 a-j
NG 3956 B3XF	896	33.54	4.79 c-h	1.07 d-i	81.4	28.1 j-o	50.40 a-i	26,620 b-l
ST 4993 B3XF	893	36.48	4.70 d-k	1.05 d-k	80.6	31.0 b-g	51.12 a-h	22,264 e-l
PHY 545 W3FE	888	35.44	4.25 m-p	1.02 kl	79.7	29.3 e-m	48.15 f-j	34,848 ab
DP 2012 B3XF*	888	33.21	4.53 h-m	1.07 d-i	80.9	28.0 k-o	50.78 a-i	32,186 a-d
NG 4050 XF	885	36.71	4.89 b-f	1.10 b-d	80.8	29.3 e-m	51.58 a-g	26,620 b-l
PX1150A453	863	33.73	4.60 f-l	1.04 f-k	81.8	33.5 ab	51.13 a-h	20,328 j-l
FM 1830 GLT*	858	34.29	4.52 h-m	1.13 ab	81.2	31.6 a-e	53.88 ab	24,926 c-l
PX1150A452	842	36.60	4.67 e-k	1.03 g-l	80.6	31.3 a-f	49.90 a-j	17,424 l
NG 4936 B3XF*	840	33.21	4.18 n-p	1.12 a-c	81.1	29.3 e-m	53.53 a-c	28,798 a-k
PHY 350 W3FE	822	30.99	4.47 h-n	1.05 d-k	80.2	28.1 i-o	51.82 a-f	20,812 h-l
NG 3729 B2XF	811	33.79	5.04 a-c	1.08 c-h	80.2	26.1 op	48.35 f-j	22,990 d-l

2021 Dryland Oklahoma Official Variety Test cont. (page 2 of 2)								
Variety	**Lint Yield** *lbs. acre^{-1}*	**Turnout** *%*	**Micronaire**	**Fiber Length** *inches*	**Uniformity** *%*	**Fiber Strength** *g tex^{-1}*	**Loan Value** *cents lb.$^{-1}$*	**Population** *plants acre^{-1}*
BX2298	809	35.89	5.01 a-d	1.03 i-l	80.0	27.4 m-o	47.28 h-j	25,894 b-l
FM 1730 GLTP	782	34.03	4.24 m-p	1.07 d-i	81.7	30.4 d-k	51.67 a-g	22,264 e-l
NG 4190 B3XF	710	34.71	4.61 e-l	1.08 c-g	80.2	27.3 m-o	50.67 a-i	19,360 kl
NG 3195 B3XF	681	33.82	4.32 l-p	1.05 e-k	80.0	26.5 n-p	48.00 f-j	20,570 i-l
DP 1822 XF	654	35.92	4.66 e-k	1.12 a-c	81.1	32.5 a-d	53.57 a-c	21,054 g-l
PHY 764 WRF*	578	31.11	4.43 j-o	1.09 b-f	81.6	33.6 a	53.25 a-d	22,022 f-l
Average	927	35.00	4.61	1.07	80.7	29.3	50.30	26,493
p-value	0.2781	0.1858	<0.0001	<0.0001	0.1102	<0.0001	<0.0001	0.01
pLSD	*NS*	*NS*	*0.33*	*0.05*	*NS*	*2.6*	*4.26*	*9,833*
CV	26.59	8.93	7.40	4.29	1.37	9.03	6.93	26.14

*National Cotton Variety Testing Committee National Standard

[1]Phytogen experimental

[2]Americot/NexGen experimental

[3]FiberMax/Stoneville experimental