



## **Grain Sorghum Performance Trials in Oklahoma, 2020**

**Josh Lofton**  
Assistant Professor  
Plant and Soil Sciences Dept.

**Gary Strickland**  
SWREC Regional Agronomy Specialist  
Oklahoma Cooperative Extension Service

**Chase Harris**  
Senior Agriculturist  
Plant and Soil Sciences Dept.

**Anna Zander**  
Graduate Research Assistant  
Plant and Soil Sciences Dept.

**Nikki Wyma**  
Graduate Research Assistant  
Plant and Soil Sciences Dept.

**Sumit Sharma**  
Assistant Irrigation Specialist  
Plant and Soil Sciences Dept.

### **Trial Objectives and Procedures**

Performance trials for hybrid grain sorghum are conducted by OSU Extension each year. These trials provide producers, Extension educators, industry representatives and researchers with information for grain sorghum hybrids marketed in Oklahoma. Performance trials were conducted at eight locations in 2020. Dry-land trials were planted at Adams, Chickasha, Homestead, Lahoma, Bixby and Tipton. All trials were planted within the timeframe associated with full-season production with the exception of Bixby, which was planted in late June to simulate a double-crop system. Additionally, one fully sprinkler-irrigated trial was planted at the McCall Research Station near Elkhart and one limited drip-irrigated trial was planted at Goodwell. Yields presented in this document are for early, medium- and late-maturity hybrids for all locations. A further trial was planted near Gate where a select number of varieties were selected that were >65 days to mid-bloom (DMB). These varieties were planted at two dates—the first and last week of June. Both planting dates were managed similarly to other performance trials.

Grain sorghum hybrids entered in the trial (Table 1) were assigned by companies to their respective maturity groups (early represented less than <60 DMB, medium was 60 to 70 DMB and late being than >70 DMB) and trial locations; therefore, not all hybrids were entered at all locations. Companies designated all hybrid characteristics presented in Table 1. This information was not determined or verified by Oklahoma State University. Company participation was voluntary; therefore, not all hybrids marketed in Oklahoma were included in the trials.

In 2020, 47 hybrids were entered by seven seed companies (Table 1). Among the varieties, only two cultivars were noted as susceptible to sugarcane aphids, with several that have not yet gone through or are currently going through

evaluations. For the hybrid performance trials, each maturity group was tested independently with individual hybrids being arranged in a randomized complete block design and having a minimum of four replications. All locations were two row plots with 30-inch spacing and 35 feet in length. Plots were trimmed to 25 feet prior to harvest. Tractor-powered cone planters were used to plant all trials with seeding rates adjusted for the trial location. Trials were harvested with a Kincaid model, 8XP plot combine in the panhandle and a Wintersteiger Delta combine for all downstate trials.

Planting densities, cooperating producers, fertilization, cultural practices, soil series, herbicides and insecticides used in all trials are listed individually in the results tables. Rainfall data from the nearest Mesonet sites also are listed. Some trials are long distances from the nearest Mesonet site; therefore, rainfall could be greater or less than reported.

### **Growing Conditions and Season Highlights**

Overall, 2020 was an interesting year with plenty of ups and downs both in and out of the field. The downstate region production season should be considered generally favorable. Warmer air and soil temperatures in late March and early April, with an abundance of soil moisture, allowed growers to start planting early within the recommended timeframe. However, the warmup typically occurring throughout April into May did not occur. These cooler or milder conditions later in the planting window allowed later-planted sorghum to emerge in more favorable conditions. Soybeans planted earlier had a longer emergence period, variable stands and slower early season growth. A rapid warmup in the latter half of May allowed for most of the crop to successfully establish. Conditions during late May and early June were very suboptimal with hot and windy conditions. These conditions did impact

stand establishment on later planted, full-season sorghum. A drier-than-average June resulted in less vegetative growth for most of the state. A wetter-than-average July provided above optimal conditions during the early and late grain fill period. These wetter conditions, paired with warmer temperatures, increased late-season weed pressure, especially where stands were spotty or uneven due to early season conditions. Drier conditions in August and September increased natural dry-down cycles for the early planted sorghum. Isolated reports of some grain shrinkage due to rapid dry-down did occur, especially those in droughty areas that were maturing during mid- to late-August. While most of the full-season sorghum planted during the recommended planting window had been harvested, later sorghum and double-crop sorghum systems had to withstand a major late-season snow and ice event that occurred during late October. For most of the downstate region, this precipitation fell as ice. There were several reports of high lodging and grain loss in certain areas, but other producers had relatively unaffected fields. The impact of this ice storm depended on the stage of the crop, area of the state, as well as condition of the crop prior to the storm. In many places that had later planted sorghum, this ice storm terminated the crop early, which resulted in yield loss. This yield loss came from either early dry-down of the plant prior to complete grain fill or rapid dry-down of the grain resulting in shrunken seed. For the Oklahoma Performance trial, yields from around the state could be considered average or slightly above average, but the unpredictable nature of the season made it more of a feast or famine year. Test weights were average to higher than average for most locations due to the moisture present during filling.

The Panhandle region did not have as positive of a year as the downstate region. Dry conditions prior to planting made a lot of growers question whether to continue with planting or to fallow out for the 2020 season. After a significant rain event in mid-May, many producers started planting in later May and early June with adequate moisture to achieve a viable stand. Hot temperatures paired with a significant windstorm that impacted the region in June made the mid- to late-June planting very difficult, if not impossible, in some regions. Hot, dry conditions persisted throughout much of the remainder of the month. July brought relief to certain areas through weekly rainfall events. During July, the Goodwell Mesonet site recorded nearly 7 inches of precipitation, around 4.5 inches above average. With cooler temperatures, isolated locations in the Panhandle were able to start harvest earlier in October than typical. Even if growers were harvesting with slightly elevated moistures, this early harvest helped protect some of the crop, as the Panhandle was not able to escape the impact of the October ice storm. Some areas had no significant negative impact from a mix of ice and snow; however, regions that experienced more than 10 inches of winter precipitation had lodging issues. These winter storms had very little negative impact on the Oklahoma Performance trials as most of the dryland plots, with the exception of the later-planted varieties at Gate, had all been harvested. The irrigated trials had just reached maturity when the storm hit, so neither early termination or lodging was a major issue.

Weeds were the primary pest concern in 2020. Sporadic rainfall during the planting period had a two-fold effect. Not only were stands spotty or uneven in places, but pre-plant herbicide applications that missed activating rain resulted in a negative impact on control. Especially in areas that had prolonged dry periods, this increased competition had the potential to

decrease yields. While possible in-season grass control is on the horizon through new genetics, grasses still plague sorghum producers. Some reports of sugarcane aphids were present in 2020. These were mostly in the north-central and northwest portions of the downstate region. The majority of reports of sugarcane aphids were short-term populations that were below application thresholds. However, there were isolated reports where numbers had reached levels so pesticide applications were warranted. In many areas, especially the north-central region, headworms reached application thresholds and several fields were sprayed as a result. Traditional products, such as prevathon, were still very good at controlling these pests; however, many producers started integrating biological control applications with good to moderate success.

## Results

Grain yields are reported in pounds per acre and bushels per acre of threshed grain, adjusted to a moisture content of 14% (Tables 2 through 25). Test weight also is reported in pounds per bushel. Bird damage is reported when present at a location. Different plant populations at each location prevent accurate comparison between locations. Also, comparisons across maturity were not conducted as they were treated as independent trials. Producers should note that late-maturing hybrids, due to longer periods of vegetative and early reproductive growth, will generally yield more than early and medium-maturity hybrids. The availability of moisture at critical crop development periods, however, often influences yield more than the yield differences associated with maturity groups. When choosing a maturity group, the type of cropping system, planting date, planting rate, the potential moisture should be taken into consideration. For more information, consult Fact Sheets [PSS-2034, Grain Sorghum Planting Rates and Dates](#), and [PSS-2113 Grain Sorghum Production Calendar](#).

Least Significant Difference (LSD) is a statistical test of yield differences and is shown at the bottom of each table. Unless two hybrids differ by at least the LSD shown, little confidence can be placed in one hybrid being superior to another and the difference is probably not real.

The Coefficient of Variation (CV) is provided as an estimate of the precision of the data with respect to the mean for that location and maturity group. To provide some indication of yield stability, multiple-year means for yield and test weight are provided where trials have been conducted for more than one year with more than three entries per maturity group. Producers interested in comparing hybrids for consistency of yield in a specific area should consult these entries. Models with CV's greater than 25 have not been included in this report.

## Acknowledgements

The financial support of the Oklahoma Sorghum Commission is gratefully acknowledged, as well as the efforts of the producer-cooperators: Brook Strader, Gary Graves and Leon Richards. The authors also are grateful for research support from Michael Pettijohn of SCREC, Erich Wehrenberg of NCRS, Mike Schulz of SWREC, Cameron Murley, Skeate Beck and Jeremy Brian of OPREC, and Butch Havener of MVRS. We also are grateful for the help of County Agricultural Educators: Rick Nelson (Garfield County), Aaron Henson (Tillman County), Nathan Anderson (Payne County), Troy Gosney (Major County), Gus Holland (Tulsa County), Loren Sizelove (Beaver County) and David Nowlin (Caddo County) who gave generously of their time to this project in 2020.

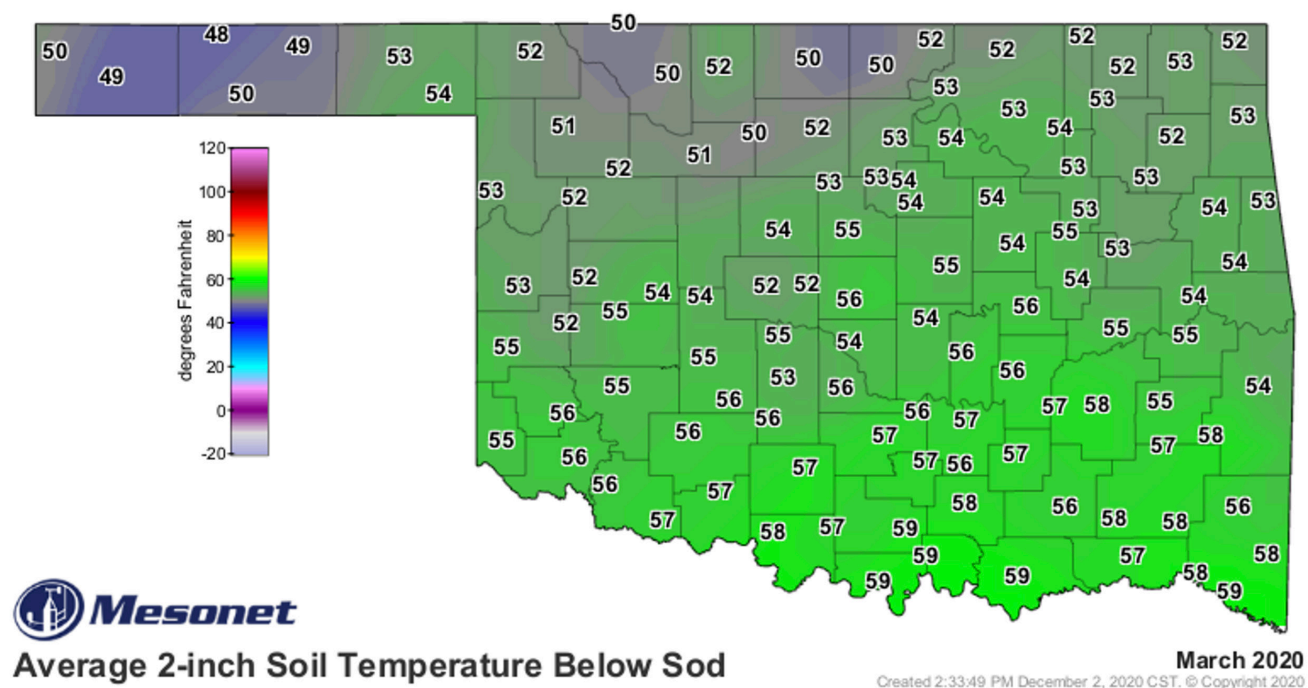


Figure 1. Average soil temperature, March 2020.

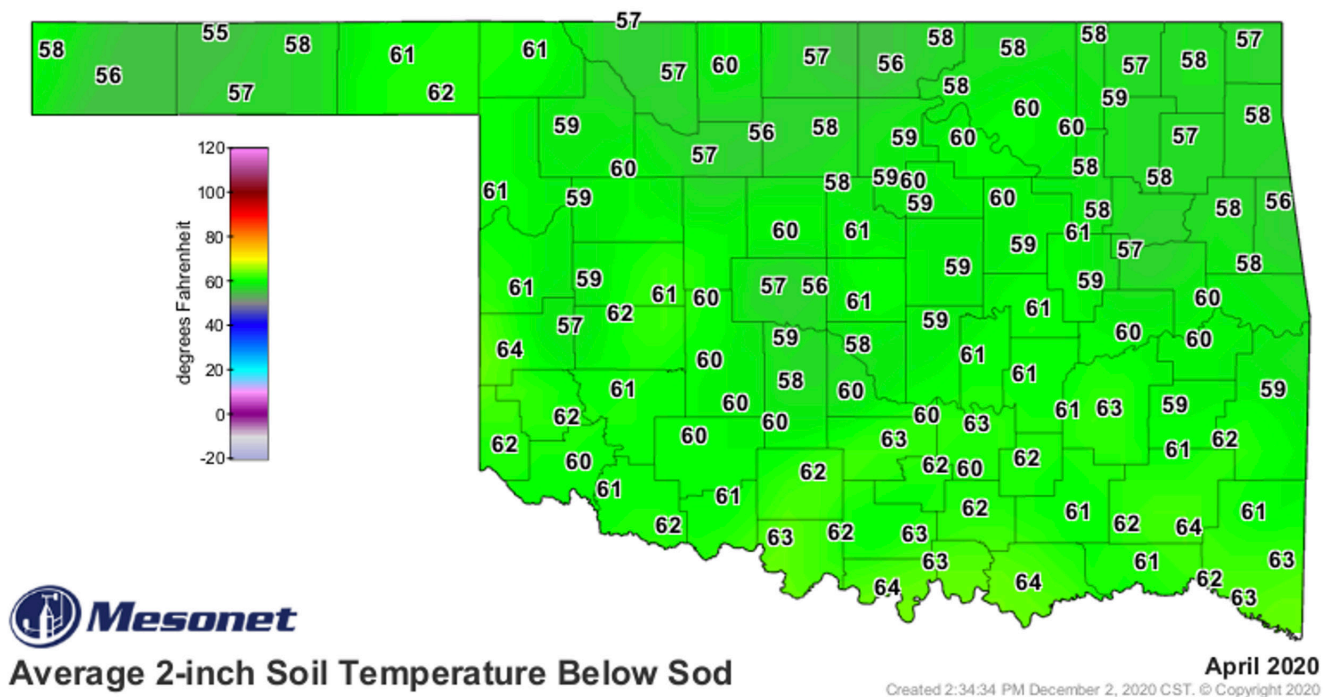


Figure 2. Average soil temperature, April 2020.

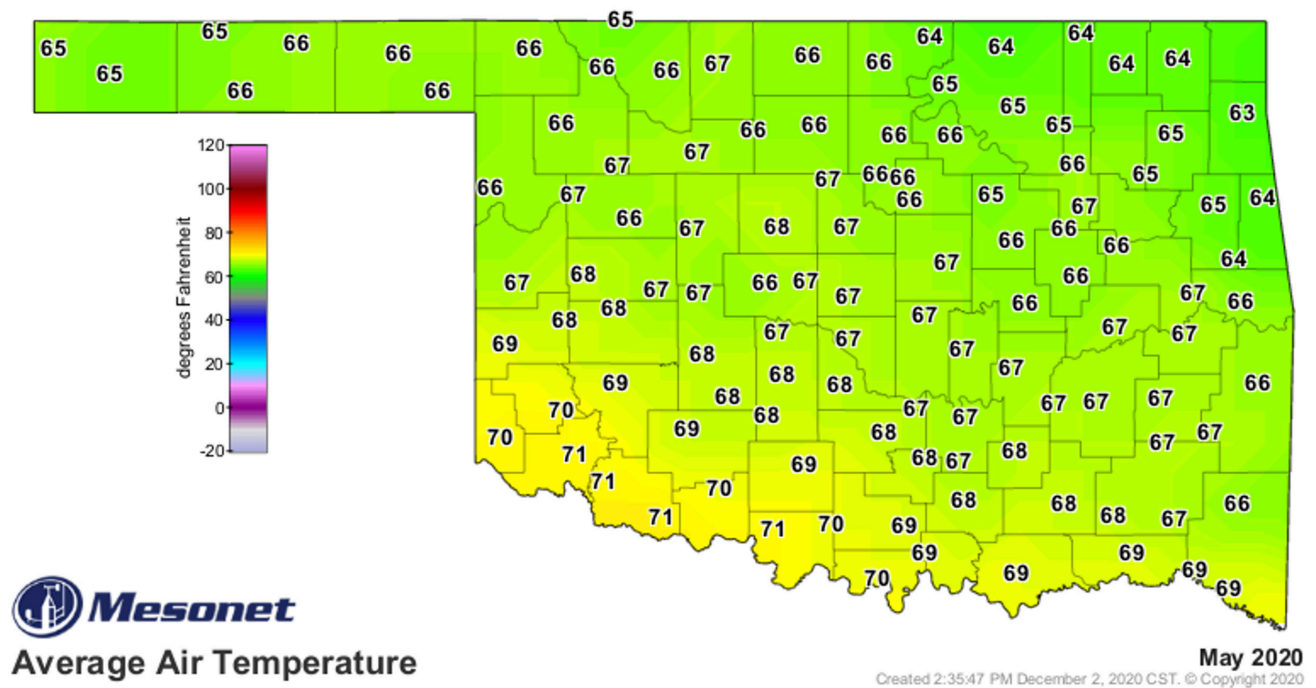


Figure 3. Average air temperature, May 2020.

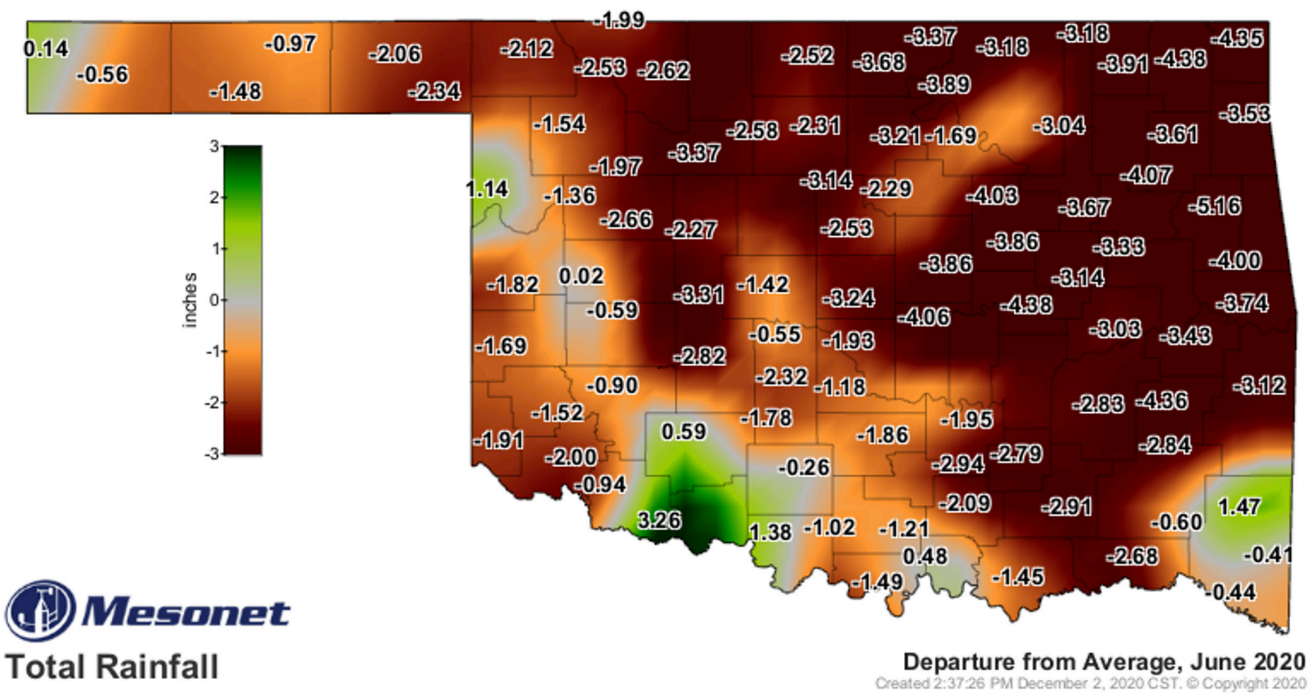


Figure 4. Departure from average monthly rainfall, June 2020.

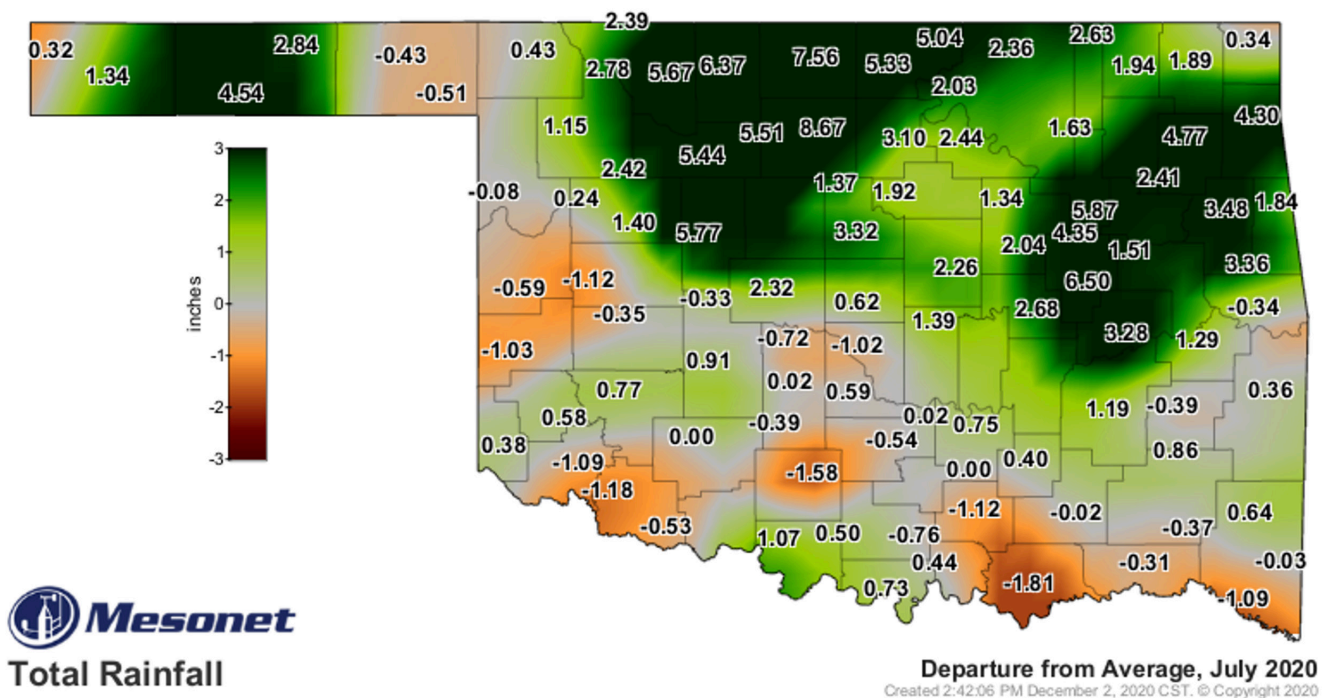


Figure 5. Departure from average monthly rainfall, July 2020.

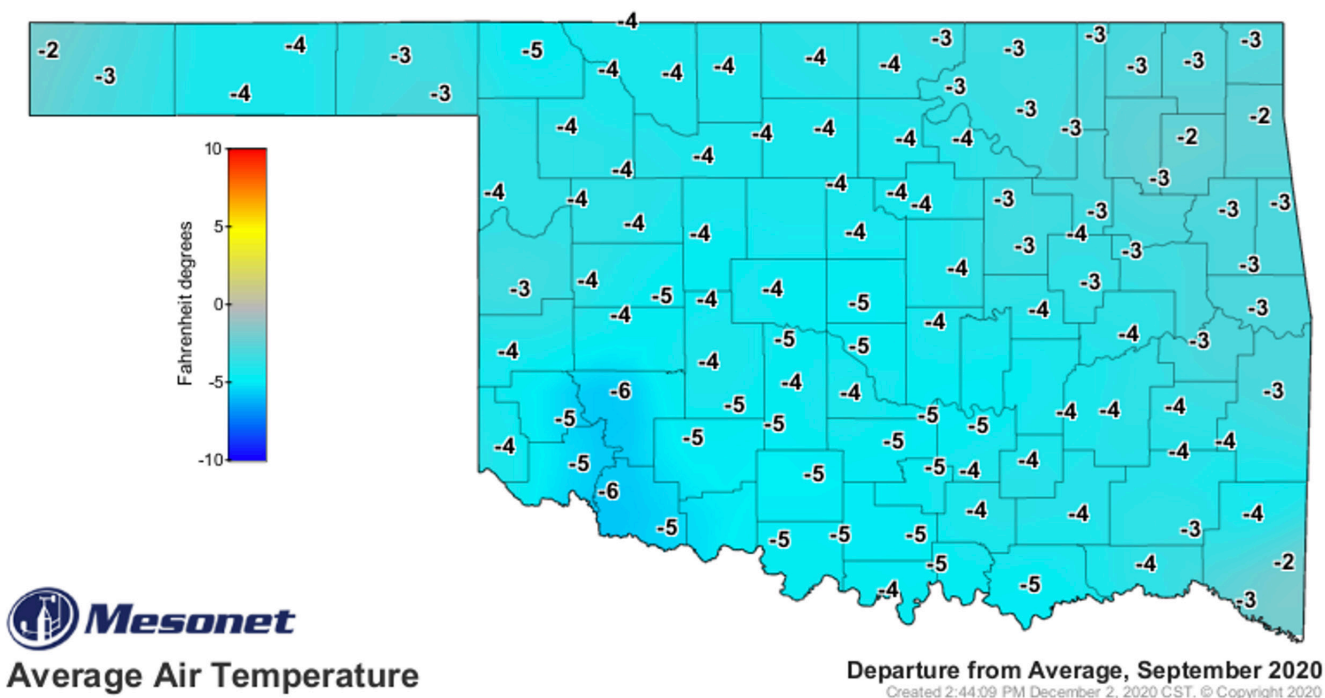


Figure 6. Departure from average daily temperatures, September 2020.

**Table 1. Seed source and hybrid characteristics of grain sorghums in the Oklahoma Grain Sorghum Performance Trials, 2017. All hybrids are susceptible to birds and are single cross.**

<i>Company</i>	<i>Hybrids</i>	<i>Maturity</i>	<i>Seed Color<sup>1</sup></i>	<i>Days to Mid-bloom</i>	<i>Sugarcane Aphid Tolerance<sup>2</sup></i>	<i>Greenbug Resistance<sup>3</sup></i>
Advanta	ADV G3189	Early	Cr	58	Y	--
Advanta	ADV G1329	Late	Cr	58	Y	--
Advanta	ADV XG117IG	Early	R	59	--	--
Advanta	ADV XG116IG	Early	R	60	--	--
Advanta	ADV G2275	Medium	R	67	Y	--
Advanta	ADV XG390IG	Medium	R	63	--	--
Advanta	ADV XG009IG	Medium	R	67	--	--
Advanta	ADV XG141	Medium	R	67	--	--
Advanta	ADV XG256	Medium	R	66	--	--
Advanta	ADV XG9127	Medium	R	63	--	--
Advanta	ADV XG397	Medium	R	68	--	--
Advanta	ADV G2106	Medium	R	66	Y	--
Advanta	ADV XG267	Medium	R	70	--	--
Advanta	ADV XG224	Late	R	70	--	--
Alta Grain	AG1201	Early	R	60	Y	--
Alta Grain	AG1203	Medium	R	63	Y	--
Dyna-Gro	M60GB31	Early	Br	60	Y	C,E,I
Dyna-Gro	M60GB88	Early	Br	60	--	--
Dyna-Gro	M54GR24	Early	R	54	Y	C,E
Dyna-Gro	M59GB57	Early	Br	59	--	C,E
Dyna-Gro	M59GB94	Early	Br	60	Y	C,E
Dyna-Gro	M62GB77	Medium	Br	62	Y	C,E
Dyna-Gro	M69GR88	Medium	R	69	--	C,E
Dyna-Gro	M71GR91	Late	R	71	Y	C,E
Dyna-Gro	M72GB71	Late	Br	72	Y	C,E,I
Dyna-Gro	GX19981	Late	R	71	Y	--
Dekalb	DKS 33-07	Medium	Br	61	Y	--
Dekalb	DKS 36-07	Medium	Br	62	Y	--
Dekalb	DKS 37-07	Medium	Br	62	Y	--
Dekalb	DKS 44-07	Medium	R	67	Y	--
Dekalb	DKS 45-60	Medium	Br	66	N	--
Richardson Seed	RS 124	Early	R	52	Y	--
Richardson Seed	RS 260E	Medium	R	67	Y	--
Richardson Seed	XG 101	Medium	R	64	Y	--
Sorghum Partners	SP 31A15	Early	Br	57	N	--
Sorghum Partners	SP 43M80	Medium	Br	60	Y	--
Sorghum Partners	SP 68M57	Medium	Br	69	Y	--
Sorghum Partners	SP 73B12	Late	Br	72	Y	--
Sorghum Partners	SP 74M21	Late	Br	73	Y	--
Sorghum Partners	SP 74C40	Late	Cr	73	Y	--
Midland Genetics	MG 4590	Early	Br	50	Y	--
Midland Genetics	MG 5710	Medium	R	65	Y	--
Midland Genetics	MG 5750	Medium	R	62	Y	--
Midland Genetics	MG 5745W	Medium	W	60	Y	--
Midland Genetics	MG 5730	Late	R	70	Y	--
Midland Genetics	MG 5740	Late	R	70	Y	--
Midland Genetics	MG 5727	Late	Br	72	Y	--

1. Seed Color: Br- Bronze; W- White; R- Red; Cr- Cream

2. Sugarcane Aphid Tolerance- Listed by parent company

3. Greenbug Resistance: Biotype hybrid

--. Indicates information is not provided

## Downstate Trials

### Chickasha

**Table 2. Early hybrids (<60 DMB) at the Chickasha location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	5,220	8.7	53.7	29.8
M60GB31	3,722	7.2	57.9	30.1
M60GB88	4,524	9.4	57.1	33.2
AG1201	4,598	9.1	55.8	29.9
RS 124	4,449	9.3	55.9	30.4
ADV G3189	4,341	9.2	59.0	30.7
ADV XG117IG	5,193	9.0	56.1	26.8
ADV XG116IG	4,690	7.4	45.0	31.1
ADV G1329	3,363	8.5	55.3	31.8
M54GR24	4,226	9.9	55.9	29.8
M59GB57	5,678	8.7	55.2	30.3
M59GB94	4,158	7.5	59.1	28.9
MG 4590	4,711	9.0	55.6	22.9
Average	4,626	8.7	55.5	29.7
CV	8.9			
LSD <sub>0.05</sub>	622.5			

**Table 3. Medium hybrids from the Oklahoma Grain Sorghum Hybrid Tests located at Chickasha.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	5,985	9.3	58.8	30.1
ADV XG390IG	4,308	8.9	54.1	33.2
ADV XG009IG	3,212	3.4	56.0	34.1
RS 260E	3,724	7.4	58.0	30.8
XG 101	3,408	7.5	58.5	29.7
SP 43M80	5,234	9.1	58.7	30.5
SP 68M57	4,223	7.2	57.7	31.6
M62GB77	4,071	9.4	57.1	30.8
M69GR88	4,821	8.9	57.1	33.2
ADV XG141	3,516	7.1	56.0	32.4
ADV XG256	4,234	7.5	56.9	31.7
ADV XG9127	4,514	9.0	58.1	29.9
ADV XG397	3,610	9.4	58.6	31.4
ADV G2106	4,001	5.4	57.4	30.7
AG1203	4,370	5.3	56.0	30.0
ADV XG267	4,014	7.2	56.8	29.4
DKS 33-07	5,186	8.8	55.5	26.7
DKS 36-07	3,573	8.9	56.6	31.0
DKS 37-07	4,423	8.8	56.0	29.6
DKS 44-07	6,653	9.3	59.1	31.2
DKS 45-60	6,251	9.3	59.5	33.6
MG 5710	5,582	9.0	56.8	30.1
MG 5750	3,795	7.2	56.7	28.7
MG 5745W	3,329	5.6	57.3	29.2
Average	4,418	7.9	57.2	30.8
CV	14.3			
LSD <sub>0.05</sub>	1,011.7			

**Table 4. Late hybrids (>70 DMB) at the Chickasha location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 73B12	4,086	9.1	56.4	33.4
SP 74M21	4,174	7.2	57.1	29.6
SP 74C40	4,122	9.1	58.2	35.1
GX19981	6,250	9.1	59.3	30.8
ADV XG224	5,330	6.8	57.7	33.0
M71GR91	5,548	8.8	58.4	30.3
M72GB71	4,118	7.2	59.2	28.9
MG 5730	4,833	8.8	57.7	26.4
MG 5740	5,286	9.1	59.7	27.1
MG 5727	4,446	8.9	56.6	26.3
Average	4,687	8.4	58.0	30.1
CV	11.9			
LSD <sub>0.05</sub>	847.2			

**Cooperator: Michael Pettijohn****Tillage Practice: Conventional****Soil Series: Dale Silt Loam****Seeding rate: 37,200 seeds/ac****Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac****Fertilizer: N- 145 lbs/ac, P- 40 lbs/ac,****Planting Date: April 30, 2020****Harvest Date: August 27, 2020**

## Homestead

**Table 5. Early hybrids (<60 DMB) at the Homestead location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	3,988	8.8	50.7	24.5
M60GB31	3,906	9.0	54.8	26.3
M60GB88	3,342	8.7	54.4	22.8
AG1201	4,197	8.6	51.5	29.7
RS 124	3,148	8.9	51.6	26.3
ADV G3189	4,621	9.6	57.5	24.5
ADV XG117IG	4,279	8.9	53.5	20.6
ADV XG116IG	3,555	8.9	52.7	24.9
ADV G1329	3,545	8.1	54.1	26.2
M54GR24	2,952	9.0	54.7	24.7
M59GB57	4,076	8.4	52.9	22.6
M59GB94	4,055	8.9	54.8	26.9
MG 4590	2,918	8.5	52.6	26.7
Average	3,753	8.8	53.5	25.1
CV	12.8			
LSD <sub>0.05</sub>	668.9			

**Table 6. Medium hybrids (60 to 70 DMB) at the Homestead location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	3,476	9.6	57.3	26.5
ADV XG390IG	2,979	10.6	53.5	22.3
ADV XG009IG	4,276	11.4	52.8	25.5
RS 260E	3,379	9.4	57.6	25.1
SP 43M80	3,400	9.0	54.1	25.3
SP 68M57	4,376	9.1	57.5	25.0
M62GB77	3,500	9.1	57.4	24.3
M69GR88	5,185	10.4	57.8	25.8
AG1203	3,918	8.9	55.5	26.7
DKS 33-07	3,461	8.6	51.6	22.8
DKS 36-07	4,170	9.4	58.9	21.8
DKS 37-07	3,667	8.9	54.2	26.4
DKS 44-07	4,236	9.6	60.7	24.8
DKS 45-60	3,987	8.5	57.4	24.9
MG 5710	4,500	9.0	55.9	22.9
MG 5750	3,712	9.2	58.7	22.7
MG 5745W	3,215	8.3	54.4	22.2
Average	3,849	9.3	56.2	24.4
CV	11.4			
LSD <sub>0.05</sub>	601.4			

**Table 7. Late hybrids (>70 DMB) at the Homestead location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 74M21	4,214	10.1	59.0	27.0
SP 74C40	5,564	10.2	60.8	28.9
M71GR91	4,603	9.6	60.2	26.8
M72GB71	4,521	9.5	60.8	25.2
MG 5730	4,785	9.7	59.3	24.7
MG 5740	4,642	9.7	59.9	22.8
MG 5727	4,876	9.6	56.8	24.4
Average	4,594	9.8	59.5	25.7
CV	9.5			
LSD <sub>0.05</sub>	629.1			

**Cooperator: Brook Strader****Tillage Practice: No-till into terminated wheat cover crop****Soil Series: Canadian Fine Sandy Loam****Seeding rate: 37,200 seeds/ac****Herbicide: Burndown- 32 oz glyphosate/ac; Pre- Charger Max ATZ 1.6pt/ac + 32 oz glyphosate/ac****Fertilizer: N- 143 lbs/ac, P- 50, K- 0****Planting Date: April 17, 2020****Harvest Date: September 1, 2020**

## Lahoma

**Table 8. Early hybrids (<60 DMB) at the Lahoma location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	4,536	8.8	54.0	24.2
M60GB31	5,417	10.1	58.0	25.9
M60GB88	4,447	9.7	56.1	26.7
AG1201	5,043	9.2	53.6	28.1
RS 124	4,672	9.2	52.4	26.4
ADV G3189	5,834	9.9	56.6	24.6
ADV XG117IG	5,170	9.7	55.9	26.1
ADV XG116IG	4,792	9.3	55.0	27.0
ADV G1329	4,579	8.7	53.7	24.6
M54GR24	4,312	8.9	51.2	24.5
M59GB57	4,260	9.1	53.0	27.6
M59GB94	5,523	9.7	55.0	29.1
MG 4590	4,879	9.3	53.8	22.6
Average	4,907	9.4	54.5	26.0
CV	9.7			
LSD <sub>0.05</sub>	735.9			

**Table 9. Medium hybrids (60 to 70 DMB) at the Lahoma location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	4,970	10.0	57.4	26.9
ADV XG390IG	5,110	9.8	58.4	28.2
ADV XG009IG	3,614	9.7	54.1	25.6
RS 260E	5,993	10.1	58.0	27.9
XG 101	6,723	10.0	57.8	27.7
SP 43M80	5,516	9.6	56.6	24.6
SP 68M57	5,997	9.7	57.8	26.8
M62GB77	5,191	9.9	58.1	27.0
M69GR88	5,622	9.7	56.5	26.3
ADV XG141	5,481	9.6	55.6	30.1
ADV XG256	5,314	9.8	56.2	29.8
ADV XG9127	4,928	9.8	56.6	25.7
ADV XG397	4,116	10.0	57.0	26.3
ADV G2106	4,814	9.3	54.7	23.8
AG1203	5,929	9.7	57.2	28.1
ADV XG267	2,592	9.3	53.1	26.0
DKS 33-07	4,679	9.6	56.1	26.6
DKS 36-07	5,408	9.6	56.8	30.1
DKS 37-07	5,471	9.7	56.6	31.3
DKS 44-07	6,050	10.0	59.6	30.5
DKS 45-60	5,665	10.1	59.4	29.8
MG 5710	5,455	9.5	53.8	26.1
MG 5750	5,155	9.7	57.4	24.7
MG 5745W	4,886	9.2	55.8	25.5
Average	5,195	9.7	56.7	27.3
CV	11.1			
LSD <sub>0.05</sub>	836.9			

**Table 10. Late hybrids (>70 DMB) at the Lahoma location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 73B12	4,893	9.8	56.9	26.5
SP 74M21	4,954	9.8	57.8	25.9
SP 74C40	5,659	9.6	55.9	26.0
GX19981	5,135	9.9	59.7	25.1
ADV XG224	5,600	9.6	57.6	25.8
M71GR91	4,967	9.5	58.5	28.3
M72GB71	5,303	9.8	58.5	25.2
MG 5730	4,498	9.8	57.6	22.0
MG 5740	4,300	9.7	58.9	24.1
MG 5727	4,899	9.4	56.5	23.9
Average	4,980	9.7	57.8	25.3
CV	7.4			
LSD <sub>0.05</sub>	572.5			

**Cooperator: Erich Wehrenberg****Tillage Practice: Conventional Tillage****Soil Series: Grant Silt Loam****Seeding rate: 37,200 seeds/ac****Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac****Fertilizer: N- 143 lbs/ac, P- 50 lbs/ac****Planting Date: April 28, 2020****Harvest Date: September 3, 2020**

## Tipton

Table 11. Early hybrids (<60 DMB) at the Tipton location.

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	4,842	9.7	54.0	27.3
M60GB31	3,574	8.7	52.8	22.3
M60GB88	3,303	6.8	58.1	22.3
AG1201	4,838	8.0	57.1	21.5
RS 124	4,978	9.5	57.6	25.6
ADV G3189	2,671	7.9	55.1	21.6
ADV XG117IG	3,148	7.8	56.0	20.8
ADV XG116IG	3,431	6.9	56.2	19.3
M54GR24	4,122	9.4	57.7	20.3
M59GB57	4,791	9.2	56.2	23.5
M59GB94	3,660	9.4	55.5	20.9
MG 4590	3,907	8.1	56.5	19.0
Average	3,939	8.5	56.1	22.0
CV	15.9			
LSD <sub>0.05</sub>	691.5			

**Table 12. Medium hybrids (60 to 70 DMB) at the Tipton location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	2,262	7.1	52.7	24.5
ADV XG390IG	2,117	7.3	56.3	23.3
ADV XG009IG	1,980	6.3	50.3	23.3
RS 260E	3,421	10.0	55.0	16.9
XG 101	4,019	11.8	55.9	20.3
SP 43M80	5,860	11.0	58.6	23.8
SP 68M57	4,775	11.0	58.2	23.5
M62GB77	3,310	10.9	57.6	20.0
M69GR88	2,574	8.6	53.9	24.5
ADV XG141	4,427	9.9	55.7	24.9
ADV XG256	3,452	12.3	56.8	19.0
ADV XG9127	3,555	7.2	56.5	22.0
ADV XG397	2,861	8.4	60.1	18.9
ADV G2106	4,440	9.4	54.6	23.8
AG1203	4,002	12.3	54.0	25.0
ADV XG267	2,723	8.6	52.9	17.8
DKS 33-07	3,012	7.0	56.3	24.3
DKS 36-07	1,766	6.9	60.5	18.0
DKS 37-07	4,561	8.7	56.3	23.6
DKS 44-07	2,247	7.5	56.4	20.8
DKS 45-60	1,808	6.5	49.8	20.6
MG 5710	4,697	11.4	56.4	23.9
MG 5750	4,304	11.6	57.5	20.4
MG 5745W	5,018	11.7	57.6	16.3
Average	3,466	9.3	55.8	21.6
CV	17.1			
LSD <sub>0.05</sub>	1,145.7			

**Cooperator: Mike Schultz and Gary Strickland****Tillage Practice: Conventionally tilled****Soil Series: Tipton Loam****Seeding rate: 37,200 seeds/ac****Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac****Fertilizer: N- 145 lbs/ac, P- 40 lbs/ac****Planting Date: April 20, 2020****Harvest Date: August 25, 2020**

## Panhandle Trials

### Adams

**Table 13. Early hybrids (<60 DMB) at the Adams location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	3,015	7.5	51.2	34.2
M60GB31	3,489	7.8	52.8	33.6
M60GB88	2,922	7.7	53.4	35.1
AG1201	4,072	7.5	51.9	33.9
RS 124	3,533	7.7	53.2	34.7
ADV G3189	4,100	7.8	52.8	36.3
ADV XG117IG	3,304	7.7	52.4	32.8
ADV XG116IG	4,103	7.8	52.5	33.9
ADV G1329	3,844	7.6	51.7	31.4
M54GR24	3,730	7.9	53.4	33.3
M59GB57	3,172	7.7	52.4	34.0
M59GB94	3,611	8.3	54.6	35.6
MG 4590	3,999	7.7	51.3	34.8
Average	3,607	7.7	52.6	34.1
CV	11.9			
LSD <sub>0.05</sub>	517.9			

**Table 14. Medium hybrids (60 to 70 DMB) at the Adams location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	4,281	9.2	55.7	36.8
ADV XG390IG	3,113	7.7	52.1	35.9
ADV XG009IG	2,416	8.0	50.1	37.1
RS 260E	2,909	7.9	53.1	35.4
XG 101	3,531	8.1	53.4	34.8
SP 43M80	4,069	7.7	53.1	34.0
SP 68M57	4,579	7.6	52.1	36.2
M62GB77	4,072	8.0	54.8	33.2
M69GR88	3,452	8.4	53.2	33.7
ADV XG141	3,419	7.8	52.7	36.5
ADV XG256	3,737	8.4	55.8	35.1
ADV XG9127	3,545	8.2	53.5	34.8
ADV XG397	2,787	8.1	53.4	33.8
ADV G2106	3,487	7.4	50.2	32.6
AG1203	3,963	6.9	47.3	36.0
ADV XG267	3,570	7.6	50.5	34.2
DKS 33-07	3,436	8.2	51.9	33.9
DKS 36-07	4,328	8.0	53.4	36.7
DKS 37-07	4,169	7.4	51.8	31.8
DKS 44-07	4,221	8.2	55.1	33.5
DKS 45-60	3,863	8.1	54.8	36.9
MG 5710	4,015	7.3	48.5	34.1
MG 5750	3,020	7.4	52.5	32.4
MG 5745W	2,981	6.3	41.8	31.8
Average	3,623	7.8	52.1	34.6
CV	12.3			
LSD <sub>0.05</sub>	648.0			

**Table 15. Late hybrids (>70 DMB) at the Adams location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 73B12	3,865	9.6	53.0	32.5
SP 74M21	4,375	9.4	51.3	31.5
SP 74C40	4,154	8.6	53.7	32.2
GX19981	5,940	8.4	56.1	33.9
ADV XG224	4,692	8.0	53.0	30.8
M71GR91	4,568	8.1	54.2	32.6
M72GB71	4,150	8.0	52.9	33.4
MG 5730	5,495	8.2	54.3	28.9
MG 5740	5,074	8.0	53.2	30.1
MG 5727	4,195	8.2	52.3	33.0
Average	4,651	8.4	53.4	31.9
CV	13.7			
LSD <sub>0.05</sub>	901.8			

**Cooperator: Leon Richard****Tillage Practice: Conventional Till****Soil Series: Dalhart Fine Sandy Loam****Seeding rate: 37,200 seeds/ac****Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac****Fertilizer: N- 123 lbs N/ac; 40 lbs P/ac****Planting Date: May 21, 2020****Harvest Date: October 15, 2020**

## McCall (Irrigated)

**Table 16. Early hybrids (<60 DMB) at the McCall location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>
SP 31A15	9,004	8.9	54.8
M60GB31	7,551	9.6	58.7
M60GB88	9,439	9.3	57.5
AG1201	9,159	9.1	56.3
RS 124	8,535	9.5	59.0
ADV G3189	9,479	9.6	59.4
ADV XG117IG	9,508	9.5	57.9
ADV XG116IG	9,510	9.6	58.7
ADV G1329	7,274	8.9	56.1
M54GR24	8,032	9.5	58.8
M59GB57	8,698	9.3	57.0
M59GB94	5,612	9.6	59.1
MG 4590	8,310	9.5	58.8
Average	8,470	9.4	57.9
CV	11.8		
LSD <sub>0.05</sub>	1,201.2		

**Table 17. Medium hybrids (60 to 70 DMB) at the McCall location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>
ADV G2275	8,916	9.6	59.1
ADV XG390IG	8,684	9.5	57.8
ADV XG009IG	8,688	9.5	57.0
RS 260E	8,242	9.5	59.4
XG 101	2,868	9.5	57.5
SP 43M80	8,816	9.4	57.2
SP 68M57	9,439	9.6	58.9
M62GB77	8,372	7.6	47.0
M69GR88	9,760	9.1	55.2
ADV XG141	6,272	9.2	56.5
ADV XG256	6,710	9.6	58.5
ADV XG9127	9,284	9.4	57.7
ADV XG397	6,374	9.7	59.1
ADV G2106	9,797	9.3	56.6
AG1203	7,686	9.5	58.4
ADV XG267	7,553	9.0	55.1
DKS 33-07	9,425	9.4	57.3
DKS 36-07	8,728	9.4	58.1
DKS 37-07	8,641	9.5	58.2
DKS 44-07	9,374	9.5	60.1
DKS 45-60	9,127	9.6	59.3
MG 5710	11,114	9.1	55.9
MG 5750	7,332	9.4	58.8
MG 5745W	7,736	9.2	57.7
Average	8,289	9.3	57.3
CV	8.9		
LSD <sub>0.05</sub>	1,622.3		

**Table 18. Late hybrids (>70 DMB) at the McCall location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>
SP 73B12	7,146	9.6	56.1
SP 74M21	9,173	9.4	56.7
SP 74C40	7,433	9.4	57.4
GX19981	8,253	9.5	58.8
ADV XG224	7,699	9.3	56.9
M71GR91	8,330	9.3	58.6
M72GB71	7,156	9.5	57.9
MG 5730	7,958	9.5	59.0
MG 5740	9,265	9.3	58.6
MG 5727	5,781	9.2	54.9
Average	7,819	9.4	57.5
CV	9.7		
LSD <sub>0.05</sub>	1,074.2		

**Cooperator: Cameron Murley**

**Tillage Practice: Strip-till into corn residue**

**Soil Series: Gruver Clay Loam**

**Target Population: 47,700 seeds/ac**

**Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac**

**Fertilizer: N- 150 lbs N/ac**

**Planting Date: June 3, 2020**

**Harvest Date: November 4, 2020**

## Goodwell (Drip Irrigated)

**Table 19. Early hybrids (<60 DMB) at the Goodwell drip location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	7,013	8.4	49.0	41.5
M60GB31	9,818	9.4	54.1	47.6
M60GB88	10,499	8.8	54.1	46.9
AG1201	8,482	9.0	54.1	48.3
RS 124	8,358	9.3	55.0	43.9
ADV XG117IG	9,237	8.8	50.8	44.0
ADV XG116IG	8,859	8.6	49.0	47.2
M54GR24	8,822	9.4	56.0	40.7
M59GB57	8,001	9.2	53.8	44.2
M59GB94	8,768	9.3	54.0	40.9
MG 4590	6,706	9.2	55.5	41.8
Average	8,596	9.0	53.2	44.3
CV	11.8			
LSD <sub>0.05</sub>	1,424.8			

**Table 20. Medium hybrids (60 to 70 DMB) at the Goodwell drip location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV XG390IG	7,059	9.3	51.8	48.8
ADV XG009IG	7,077	9.3	53.1	46.9
RS 260E	6,542	8.8	51.5	46.3
SP 43M80	5,748	7.2	41.1	45.9
SP 68M57	8,483	9.6	55.4	46.3
M62GB77	8,128	9.6	55.5	42.8
M69GR88	8,914	9.2	51.4	48.0
AG1203	8,862	9.3	52.0	46.6
DKS 33-07	8,181	9.4	53.0	44.3
DKS 36-07	9,242	9.2	52.0	42.7
DKS 37-07	8,213	9.3	53.9	45.1
DKS 44-07	9,776	9.6	56.7	43.0
DKS 45-60	8,701	10.1	55.2	41.6
MG 5710	6,396	6.3	36.7	42.2
MG 5750	8,191	8.8	51.7	40.6
MG 5745W	6,304	9.0	54.0	43.2
Average	7,863	9.0	51.6	44.6
CV	13.1			
LSD <sub>0.05</sub>	1,305.6			

**Table 21. Late hybrids (>70 DMB) at the Goodwell drip location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 73B12	7,896	9.7	53.5	45.8
SP 74M21	5,899	9.4	54.1	46.2
SP 74C40	4,214	9.6	54.5	43.9
M71GR91	5,291	9.3	53.4	45.0
M72GB71	4,200	9.7	51.0	43.7
MG 5730	7,300	9.5	53.3	41.0
MG 5740	5,695	9.5	51.5	42.8
MG 5727	5,033	9.3	52.6	43.6
Average	5,691	9.5	53.0	44.0
CV	16.5			
LSD0.05	1,528.4			

**Cooperator: Cameron Murley**

**Tillage Practice: Minimum Till**

**Soil Series: Gruver Clay Loam**

**Target Population: 47,700 seeds/ac**

**Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac**

**Fertilizer: N- 100 lbs N/ac applied through the drip**

**Planting Date: June 3, 2020**

**Harvest Date: November 4, 2020**

**Table 22. Planting date variety trial in Gate Oklahoma. Difference was determined by subtracting early planting from late planting. Early hybrids were designated as >60 DMB, while medium was 60 DMB to 70 DMB. Difference was the yield decline associated with later planting, more negative value would indicate a greater yield loss with late planting.**

<i>Maturity</i>	<i>A</i>	<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Early Planted Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Yield lbs/ac</i>	<i>Late Planted Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Difference Yield lbs/ac</i>
E		SP 31A15	3,791	7.6	53.6	2,421	8.4	52.3	-1,370
E		M60GB31	4,239	7.9	58.1	2,210	9.6	52.8	-2,029
E		M60GB88	4,105	8.2	58.1	1,934	9.1	53.2	-2,171
E		RS124	4,693	8.6	60.3	1,943	10.1	52.4	-2,750
E		M54GR24	4,054	8.5	60.1	1,837	8.4	54.1	-2,218
E		M59GB94	3,842	7.6	57.7	3,240	9.1	53.1	-602
E		MG 4590	4,245	8.7	60.3	1,831	7.6	53.8	-2,414
M		RS 260E	4,480	8.9	62.9	1,712	8.7	53.8	-2,768
M		SP 43M80	3,893	8.4	60.2	2,208	8.8	51.8	-1,685
M		SP 68M57	4,385	9.1	61.5	1,703	7.9	50.9	-2,681
M		M62GM77	4,301	8.7	60.9	1,635	7.7	52.7	-2,666
M		M69GR88	4,771	10.0	60.1	1,639	8.3	53.1	-3,132
M		AG1203	4,362	8.9	60.6	1,833	8.8	53.4	-2,529
M		DKS 33-07	4,334	9.2	61.4	1,848	8.9	54.2	-2,487
M		DKS 37-07	4,726	8.7	60.2	1,812	7.7	54.0	-2,915
M		MG 5710	4,883	8.9	58.1	1,794	8.5	52.9	-3,089
M		MG 5750	4,698	8.8	62.6	2,088	9.9	52.2	-2,610
			Average			1,982		Average	-2,360
			CV			16.9			
			LSD0.05			829.6			

**Cooperator: Gary Graves**  
**Tillage Practice: Conventional Till**  
**Soil Series: Darrouzett Clay Loam**  
**Target Population: 47,700 seeds/ac**  
**Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac**  
**Fertilizer: N- 100 lbs N/ac; P- 40 lbsP/ac**  
**Early Planting:**  
     Planting Date: May 21, 2020  
     Harvest Date: October 15, 2020  
**Late Planting:**  
     Planting Date: June 24, 2020  
     Harvest Date: November 5, 2020

## Bixby (Late-Planting)

**Table 23. Early hybrids (<60 DMB) at the Bixby location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 31A15	2,136	9.1	41.4	36.5
M60GB31	2,128	13.9	48.9	33.3
M60GB88	3,352	23.4	59.4	31.8
AG1201	3,083	10.5	57.6	37.2
RS 124	2,498	11.0	57.4	32.8
ADV G3189	2,593	11.7	55.3	32.0
ADV XG117IG	3,483	17.9	58.1	36.9
ADV XG116IG	2,526	19.1	57.3	35.8
ADV G1329	4,987	19.0	61.0	28.2
M54GR24	2,184	11.7	57.8	34.2
M59GB57	2,374	8.0	54.7	31.7
M59GB94	2,195	9.4	55.2	32.0
MG 4590	2,419	13.1	58.8	31.8
Average	2,766	13.7	55.6	33.4
CV	14.3			
LSD0.05	802.3			

**Table 24. Medium hybrids (60 to 70 DMB) at the Bixby location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
ADV G2275	4,270	21.1	60.6	33.2
ADV XG390IG	4,119	14.4	60.4	31.2
ADV XG009IG	3,818	9.6	60.9	30.8
RS 260E	4,759	20.6	59.3	29.9
XG 101	3,664	27.3	61.1	30.2
SP 43M80	4,717	19.7	61.4	28.5
SP 68M57	6,178	26.5	59.4	30.4
M62GB77	3,084	21.8	60.2	31.2
M69GR88	4,028	13.0	60.4	33.8
ADV XG141	3,683	15.8	61.4	32.9
ADV XG256	4,333	21.7	58.2	34.1
ADV XG9127	4,237	21.2	59.0	32.0
ADV XG397	4,774	17.7	60.1	27.6
ADV G2106	4,843	14.0	59.8	30.1
AG1203	4,663	14.5	59.8	29.9
ADV XG267	4,482	8.8	59.9	30.5
DKS 33-07	3,611	11.8	60.3	31.1
DKS 36-07	4,448	11.1	61.2	32.4
DKS 37-07	4,178	9.9	59.6	30.8
DKS 44-07	3,119	9.8	60.8	30.4
DKS 45-60	4,117	23.2	62.1	28.9
MG 5710	3,976	18.2	63.2	29.7
MG 5750	4,960	9.4	58.9	30.6
MG 5745W	3,827	24.5	59.9	24.6
Average	4,245	16.9	60.3	30.6
CV	11.8			
LSD0.05	718.2			

**Table 25. Late hybrids (>70 DMB) at the Bixby location.**

<i>Hybrid</i>	<i>Yield lbs/ac</i>	<i>Harvest moisture %</i>	<i>Test weight lbs/bu</i>	<i>Plant Density (x1,000) plant/ac</i>
SP 73B12	5,783	26.0	58.7	28.9
SP 74M21	4,800	25.4	60.4	26.7
SP 74C40	4,256	24.7	59.9	25.9
GX19981	4,485	23.3	61.1	26.3
ADV XG224	3,558	22.8	60.3	27.1
M71GR91	3,223	21.2	55.1	26.3
M72GB71	3,658	24.1	58.2	27.4
MG 5730	3,593	22.9	54.4	28.2
MG 5740	5,743	17.9	62.2	29.0
MG 5727	4,586	19.0	55.0	28.1
Average	4,368	22.7	58.5	27.4
CV	15.3			
LSD0.05	1,008.7			

**Cooperator: Butch Havener****Tillage Practice: Conventional Till****Soil Series: Wynona Silty Clay Loam****Target Population: 47,700 seeds/ac****Herbicide: 1.6 qt/ac Charger Max ATZ + 32oz glyphosate/ac****Fertilizer: N- 75 lbs N/ac****Planting Date: June 22, 2020****Harvest Date: October 20, 2020**

## **The Oklahoma Cooperative Extension Service**

### ***Bringing the University to You!***

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

Oklahoma State University, as an equal opportunity employer, complies with all applicable federal and state laws regarding non-discrimination and affirmative action. Oklahoma State University is committed to a policy of equal opportunity for all individuals and does not discriminate based on race, religion, age, sex, color, national origin, marital status, sexual orientation, gender identity/ expression, disability, or veteran status with regard to employment, educational programs and activities, and/or admissions. For more information, visit <https://eeo.okstate.edu>.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President for Agricultural Programs and has been prepared and distributed at a cost of 40 cents per copy. Revised 02/2021 GH.