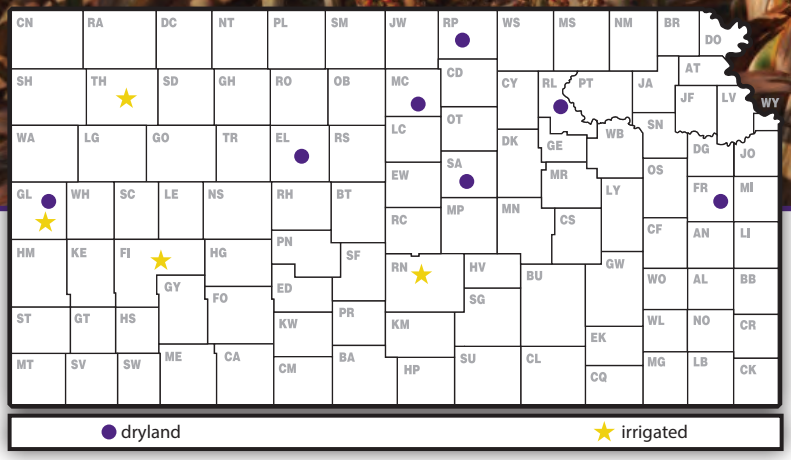
2021 Kansas Performance Tests with

Grain Sorghum Hybrids



Report of Progress 1168

K-STATE
Research and Extension

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

TABLE OF CONTENTS

Contribution no. 22-167-S from the Kansas Agricultural Experiment Station.

2021 GRAIN SORGHUM CROP REVIEW

Statewide Growing Conditions

Grain sorghum has experienced an uptick in interest in the last few years for a variety of reasons: it is well suited for dry soils; the input and seed costs are relatively low; and international demand for the grain remains high. The U.S. Department of Agriculture National Agricultural Statistics Service reported that grain sorghum production was up 13% from last year to 268 million bushels for the state. The average yield was 80 bushels per acre for Kansas, which is down 5 bushels from last year. According to the U.S. Department of Agriculture World Agricultural Supply and Demand Estimate and factoring in the number of acres in production and grain prices in 2021, sorghum producers world-wide hauled in a crop worth about $2.7 billion, which is the most valuable ever in history.

2021 was an up-and-down year for grain sorghum, as it was for corn and soybeans. There were record-breaking sorghum yields in irrigated fields coinciding with dryland fields that were almost a total loss. This happened in the same vicinity in Colby and in the same field under variable rate irrigation in Hutchinson. This up-and-down production trend was true for the most of Kansas with the exception of southeast Kansas, which was generally too wet in 2021 to produce grain sorghum. Sorghum generally does not like wet feet.

The season started by following the fifth wettest March on record since 1895. March was also warmer than normal, but those warm temperatures ended as we moved into April. The month of April was drier and significantly cooler than normal, to the extent that there was snow and a freeze April 20-22 for much of the state. Following the freeze there were numerous reports of chilling injury to some very early planted grain sorghum.

The month of May brought another upward swing in precipitation. The drought in Kansas was temporarily eliminated because 97% of the state was considered drought-free. The extra precipitation did cause saturated soils and standing water that delayed sorghum planting. Saturated soil will slow emergence, make the soil susceptible to compaction, and cause poor uniformity and stand issues. Soils that are too wet at planting followed by dry weather will cause surface crusting, which was another challenge for the crop. The additional rain also often coincided with severe weather for the state: there were 34 tornadoes, 159 hail events, 116 damaging wind events, and flash floods in May.

There was some relief in June with drier and warmer than normal conditions for most parts of the state, however southeast Kansas remained at 124% of the normal precipitation. The dry conditions persisted into July, again except for southeast which was still 133% of normal. The temperatures for July dropped as well; the average temperature was 1.4°F cooler than normal and only 1 new daily record high for the state. The weather was not quite as severe as in earlier months with no tornadoes, 11 hail events, and 51 damaging wind events.

The dry pattern remained through August. Temperatures rebounded and the average daily temperature was 1.7°F warmer than normal with 12 new record high maximum temperatures. There was also 1 tornado, 69 hail events, and 111 damaging wind events in August.

September was also warmer than normal. There was hot and dry weather late in the sorghum season that probably took away some top-end yield potential.

Diseases

Disease-wise it was another quiet year, probably due in part to the fact that the conditions did not remain conducive to favor one disease or another for very long. However, the most important and prevalent diseases of 2021 were again stalk rots, depending on the growing location. Fusarium stalk rot would have given the lower nodes of the plant a tan discoloration; Gibberella stalk rot would have a reddish-brown or purple discoloration; and charcoal stalk rot had a grayish-brown discoloration. Fusarium and Gibberella stalk rot appear when there are dry conditions early in the season and warm, wet weather 2 to 3 weeks after pollination. Charcoal stalk rot occurs when soils are dry and temperatures are high; it is not caused by drought but the plants are weakened and more susceptible to charcoal stalk rot when there are drought conditions. Lodging caused by stalk rot was reported at some of the performance trial sites.

Insects

Sorghum pests were much less problematic across Kansas than in previous years. Chinch bugs caused a few concerns early but, for the most part, did not develop into serious problems. Corn leaf aphid populations have really become more prevalent across the state. However, they have not caused any economic losses, and are generally considered beneficial because they most often serve as early season hosts for many beneficial insects.

There were a few reports of "headworms" but very few required insecticide applications. Sugarcane aphids continued to migrate into Kansas, even into early November. However, very few fields had colonies established to the level that required treatment. Sugarcane aphids,"headworms", and other perennial pests, still should be considered a threat and thus need to be monitored again in 2022. (Jeff Whitworth, Kansas State University Department of Entomology)

2021 PERFORMANCE TESTS

Objectives and Procedures

Grain Sorghum Performance Tests, conducted annually by the Kansas Agricultural Experiment Station, provide farmers, extension workers, and seed industry personnel with unbiased agronomic information on many of the grain sorghum hybrids marketed in the state. Because entry selection and location are voluntary, not all hybrids grown in the state are included in tests, and the same group of hybrids is not grown at all test locations.

A summary of growing-season weather data is given in individual test discussions. These data are from the nearest weather-reporting station and often are supplemented with information from the test site. Precipitation graphs include cumulative lines for 2021 and the 30-year normal in addition to daily rainfall amounts since fall. Temperature graphs include daily maximum and minimum temperatures compared with normal. General trends in precipitation and temperature relative to normal are readily observed in the graphs. A table with monthly totals and averages for the growing season also is included.

Explanatory information precedes data summaries for each test. Tables 2 through 12 contain results from the individual performance tests. Hybrids are listed in order of increasing days to half bloom when that information is available, so hybrids of similar maturity appear together.

As with individual test results, small differences should not be overemphasized. Relative ranking and large differences are better indicators of performance.

Three or four plots (replications) of each hybrid were grown in a randomized complete block design at each location. Each harvested plot consisted of two rows trimmed to a specific length ranging from 20 to 30 feet at the different locations.

Grain yields are reported as bushels per acre of shelled grain (56 lb/bu) adjusted to a moisture content of 12.5%. Yields also are presented as a percentage of test average to speed recognition of highest-yielding hybrids. Hybrids yielding more than 100% of the test average year after year merit consideration. Adaptation to individual farms for appropriate maturity, stalk strength, and other factors must also be considered.

Relative maturity is measured in terms of both number of days from planting to half bloom and grain moisture at harvest. Maturity can be critical when considering a sorghum hybrid for a specific cropping system.

Small differences in yield or other characteristics should not be overemphasized. Least significant differences (LSD) are shown at the bottom of each table. Unless two entries differ by at least the LSD shown, little confidence can be placed in one being superior to the other.

The coefficient of variability (CV) can be used to estimate the degree of confidence one can have in published data from replicated tests. In this testing program, a CV of less than 10% generally indicates reliable, uniform data, whereas a CV of 10 to 15% is not uncommon and usually indicates that data are acceptable for the rough performance comparisons desired from these tests. Tests with a CV greater than 15% still may be useful, especially in situations with low yields.

Table 1. Entrants in the 2021 Kansas Grain Sorghum Performance Tests

Advanta Seeds
Amarillo, TX
806-340-2031
advantaseeds.com

DeKalb
Monsanto Seed
St. Louis, MO
800-335-2676
dekalb.com

Polansky Seed, Inc
Belleville, KS
785-527-2271
polanskyseed.com

Sorghum Partners
Longmont, CO
720-647-8180
swseedco.com

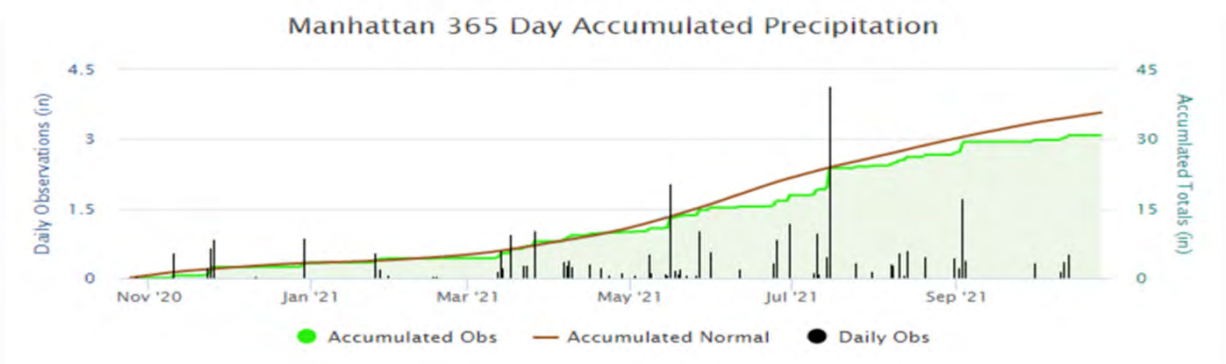
Corteva AgriSciences
Johnston, IA
800-233-7333
pioneer.com
*maturity checks

Dyna-Gro Seed
Goddard, KS
800-950-2231
cpsagu.com

RAGT Semences
Winnipeg, Manitoba Canada
+3-367-225-5830

Table 2. Manhattan, Kansas Grain Sorghum Performance Test, Riley County, 2019-2021

Agronomy North Farm, Kansas State University
Target population: 45,000 plants
Planted: 6/10/2021
180-24-0 lb/a N, P, K
Herbicide: 3 qt/a Lexar EZ applied pre-emergence.

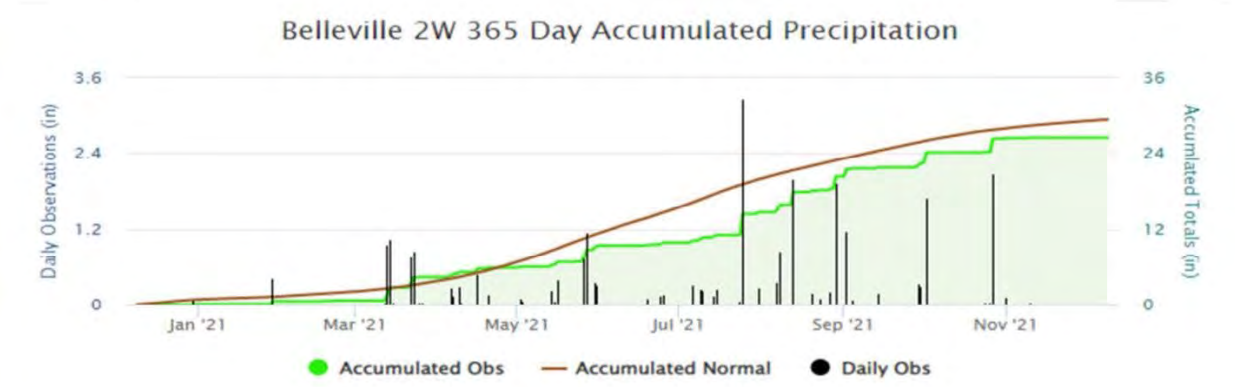


BRAND	NAME	ACRE YIELD, BUSHELS				YIELD AS % OF TEST AVERAGE			TW
		2021	2020	2019	AVG	2021	2020	2019	(lb/bu)
DEKALB	DKS38-16	145	133	120	133	106	106	98	60
DEKALB	DKS45-23	**159**	144	145	149	115	116	118	60
DEKALB	DKS53-53	142	--	132	137	104	--	--	58
DYNA-GRO	GX20970	138	--	--	--	101	--	--	60
DYNA-GRO	GX20973	130	--	--	--	95	--	--	61
DYNA-GRO	GX20998	145	--	--	--	106	--	--	60
DYNA-GRO	GX21965	145	--	--	--	105	--	--	59
DYNA-GRO	M59GB94	126	--	--	--	92	--	--	58
DYNA-GRO	M60GB31	127	126	122	125	93	101	99	60
DYNA-GRO	M63GB78	140	--	--	--	102	--	--	60
DYNA-GRO	M67GB87	**161**	--	--	161	117	--	--	58
DYNA-GRO	M71GR91	149	150	139	146	108	120	113	59
DYNA-GRO	M72GB71	133	141	--	137	97	113	--	58
MATURITY CHECK	EARLY	147	151	134	144	107	121	109	59
MATURITY CHECK	LATE	125	68	106	100	91	55	86	60
MATURITY CHECK	MED	108	125	138	124	79	100	112	59
POLANSKY	5519	141	--	--	--	103	--	--	59
POLANSKY	5629	155	--	--	--	113	--	--	57
POLANSKY	5719	**158**	--	--	--	115	--	--	60
POLANSKY	X65R-D15IG	120	--	--	--	87	--	--	58
POLANSKY	X66R-D17IG	116	--	--	--	84	--	--	59
POLANSKY	X67R-D18IG	114	--	--	--	83	--	--	59
	AVERAGE	137	125	123	128	100	100	100	59
	CV (%)	9	11	8	--	9	11	8	1
	LSD (0.05)	6	19	13	--	4	15	15	1

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD values in bold.**

Table 3. Belleville, Kansas Dryland Grain Sorghum Performance Test, Republic County, 2019-2021

North Central Experiment Field, Republic County
Target population: 50,000 plants
Planted: 6/8/2021
82-0-0 N, P, K
Herbicide: 1.5 qt/a Makaze, 8 oz/a Rifle, 1 pt/a Salvo; 1.5 qt/a Mad Dog, 2 oz/a Sharpen,
1 qt/a Atrazine, 1.6 pt/a Dual II Magnum

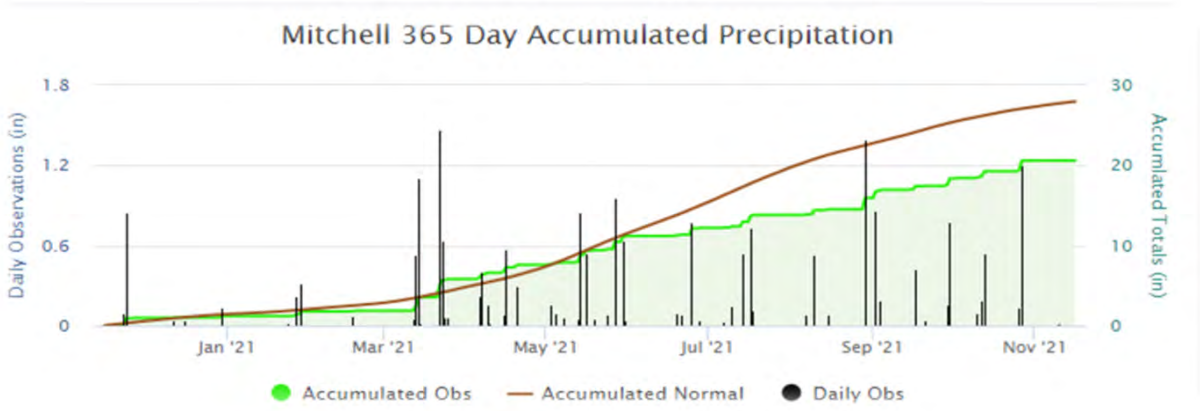


BRAND	NAME	ACRE YIELD, BUSHELS 2021	2020	2019	AVG.	YIELD AS % OF TEST AVERAGE 2021	2020	TW (lb/bu)	HT (in)
ADVANTA	ADV G1120IG	130	--	--	--	94	--	59	57
ADVANTA	ADV G1153	117	--	--	--	85	--	59	55
ADVANTA	ADV G2168IG	129	--	--	--	93	--	59	44
ADVANTA	ADV G2193IG	118	--	--	--	85	--	59	52
ADVANTA	ADV G2275	125	--	--	--	90	--	58	60
ADVANTA	ADV G3127	**171**	--	--	--	123	--	59	59
ADVANTA	ADV G3189	150	--	--	--	108	--	59	59
ADVANTA	ADVG2165	145	--	--	--	104	--	59	56
ADVANTA	ADVG2177IG	126	--	--	--	91	--	59	52
DEKALB	DKS38-16	152	70	--	111	110	69	58	58
DEKALB	DKS45-23	**166**	125	--	146	120	123	60	62
DEKALB	DKS53-53	141	--	--	--	102	--	59	62
DYNA-GRO	GX20970	144	--	--	--	104	--	59	57
DYNA-GRO	GX20973	135	--	--	--	97	--	61	56
DYNA-GRO	GX20998	138	--	--	--	100	--	60	55
DYNA-GRO	GX21965	146	--	--	--	105	--	59	58
DYNA-GRO	M59GB94	128	99	--	114	93	98	59	59
DYNA-GRO	M60GB31	130	61	--	96	94	60	59	55
DYNA-GRO	M63GB78	147	--	--	--	106	--	59	54
DYNA-GRO	M67GB87	160	--	--	--	115	--	59	62
DYNA-GRO	M71GR91	149	122	--	136	108	121	59	62
DYNA-GRO	M72GB71	160	85	--	122	115	84	60	61
MATURITY CHECK	EARLY	156	100	--	128	112	99	58	59
MATURITY CHECK	LATE	129	119	--	124	93	117	60	53
MATURITY CHECK	MED	118	125	--	122	85	123	59	47
SORGHUM PARTNERS	SP 68M57	118	66	--	92	85	65	59	55
SORGHUM PARTNERS	SP7715	131	116	--	123	94	114	59	59
SORGHUM PARTNERS	SPSA308	143	--	--	--	103	--	59	58
SORGHUM PARTNERS	SPSC343	129	--	--	--	93	--	60	58
SORGHUM PARTNERS	SPSC344	126	--	--	--	91	--	59	54
	AVERAGE	139	104	--	121	100	100	59	57
	CV (%)	5	12	--	--	5	12	1	4
	LSD (0.05)	8	24	--	--	6	12	1	2

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

Table 4. Beloit, Kansas Dryland Grain Sorghum Performance Test, Mitchell County, 2019-2021

Tom Deneke Farm, 39.430674, -98.041377
Target population: 50,000 plants
Planted: 6/18/2021



BRAND	NAME	ACRE YIELD, BUSHELS 2021	2020	2019	AVG	YIELD AS % OF TEST AVERAGE 2021	2020	2019	TW (lb/bu)
DEKALB	DKS38-16	75	139	109	108	85	111	110	60
DEKALB	DKS45-23	**141**	140	104	128	161	112	104	58
DEKALB	DKS53-53	65	124	91	93	74	99	92	58
DYNA-GRO	GX20970	75	--	--	75	86	--	--	58
DYNA-GRO	GX20973	98	--	--	98	112	--	--	60
DYNA-GRO	GX20998	83	--	--	83	95	--	--	59
DYNA-GRO	GX21965	76	--	--	76	87	--	--	57
DYNA-GRO	M59GB94	117	131	--	124	134	105	--	58
DYNA-GRO	M60GB31	69	120	103	97	78	96	103	56
DYNA-GRO	M63GB78	115	--	--	115	132	--	--	59
DYNA-GRO	M67GB87	77	--	--	77	89	--	--	57
DYNA-GRO	M71GR91	73	--	91	82	83	--	92	59
DYNA-GRO	M72GB71	65	--	--	65	74	--	--	58
MATURITY CHECK	EARLY	109	142	119	123	124	113	119	59
MATURITY CHECK	LATE	110	103	90	101	126	83	90	60
MATURITY CHECK	MED	97	125	114	112	111	100	114	59
POLANSKY	5519	79	119	103	100	90	95	103	58
POLANSKY	5629	91	161	102	118	104	129	102	57
POLANSKY	5719	105	126	114	115	120	101	114	59
POLANSKY	X65R-D15IG	95	--	--	95	108	--	--	57
POLANSKY	X66R-D17IG	80	--	--	80	92	--	--	58
POLANSKY	X67R-D18IG	31	--	--	31	35	--	--	59
	AVERAGE	88	125	99	104	100	100	100	58
	CV (%)	9	10	7	--	9	10	7	2
	LSD (0.05)	11	18	10	--	12	15	10	1

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD value in bold.**

Table 5. NORTHEAST Kansas Grain Sorghum Hybrid Yield Summary (% of test avg.), 2021

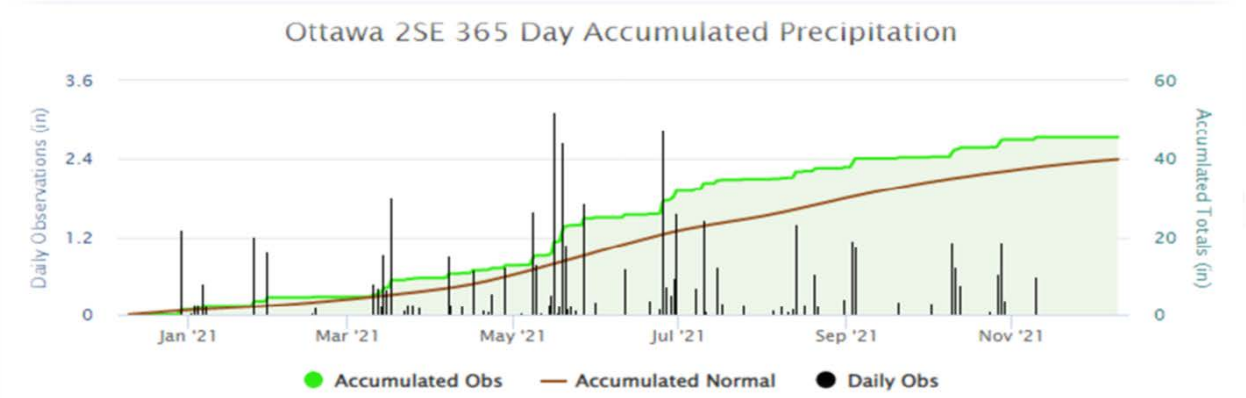
BRAND/NAME	RLD	RPD	MTD	AVG.
ADVANTA				
ADV G1120IG	--	94	--	--
ADV G1153	--	85	--	--
ADV G2168IG	--	93	--	--
ADV G2193IG	--	85	--	--
ADV G2275	--	90	--	--
ADV G3127	--	123	--	--
ADV G3189	--	108	--	--
ADVG2165	--	104	--	--
ADVG2177IG	--	91	--	--
DEKALB				
DKS38-16	106	110	85	100
DKS45-23	115	120	161	132
DKS53-53	104	102	74	93
DYNA-GRO				
GX20970	101	104	86	97
GX20973	95	97	112	101
GX20998	106	100	95	100
GX21965	105	105	87	99
M59GB94	92	93	134	106
M60GB31	93	94	78	88
M63GB78	102	106	132	113
M67GB87	117	115	89	107
M71GR91	108	108	83	100
M72GB71	97	115	74	95
POLANSKY				
5519	103	--	90	--
5629	113	--	104	--
5719	115	--	120	--
X65R-D15IG	87	--	108	--
X66R-D17IG	84	--	92	--
X67R-D18IG	79	--	35	--
SORGHUM PARTNERS				
SP 68M57	--	85	--	--
SP7715	--	94	--	--
SPSA308	--	103	--	--
SPSC343	--	93	--	--
SPSC344	--	91	--	--

BRAND/NAME	RLD	RPD	MTD	AVG.
MATURITY CHECK				
EARLY	107	112	124	114
LATE	91	99	126	105
MED	79	85	111	92
AVERAGES (bu/a)	137	139	88	121
CV (%)	9	9	9	--
LSD (0.05)	6	8	11	--

RLD = Riley County, Manhattan
RPD = Republic County, Belleville
MTD = Mitchell County, Beloit

Table 6. Ottawa, Kansas Dryland Grain Sorghum Performance Test, Franklin County, 2019-2021

East Central KS Experiment Field, Ottawa
Target population: 45,000 plants
Planted: 6/7/2021
121-47-31-10 lb/a N, P, K, S
Herbicide: Glyphosate 40 oz + ams crop oil 1 pt/a and 3 qt/a of Lexar EZ-Callisto
(Mesitrione) (Metolachlor) (Atrazine). Post sprayed with Huskie 13 oz/a atrazine .5lb/a crop oil July 14



BRAND	NAME	ACRE YIELD, BUSHELS 2021	2020	2019	AVG.	YIELD AS % OF TEST AVERAGE 2021	2020	2019	TW (lb/bu)	MAT (days)
DEKALB	DKS38-16	159	115	128	134	107	84	99	62	56
DEKALB	DKS45-23	150	144	143	146	100	105	113	58	60
DEKALB	DKS53-53	151	137	146	145	101	100	110	61	61
DYNA-GRO	M63GB78	145	--	--	--	97	--	--	61	56
DYNA-GRO	M67GB87	154	--	--	--	103	--	--	60	58
MATURITY CHECK	EARLY	154	152	118	141	103	110	91	62	55
MATURITY CHECK	LATE	142	125	146	138	95	91	107	62	60
MATURITY CHECK	MED	137	148	139	141	92	107	113	61	54
	AVERAGE	149	138	130	139	100	100	100	61	57
	CV (%)	7	6	11	--	7	6	11	2	2
	LSD (0.05)	14	12	19	--	9	9	15	1	2

*Yields must differ by more than the LSD value to be considered statistically different.

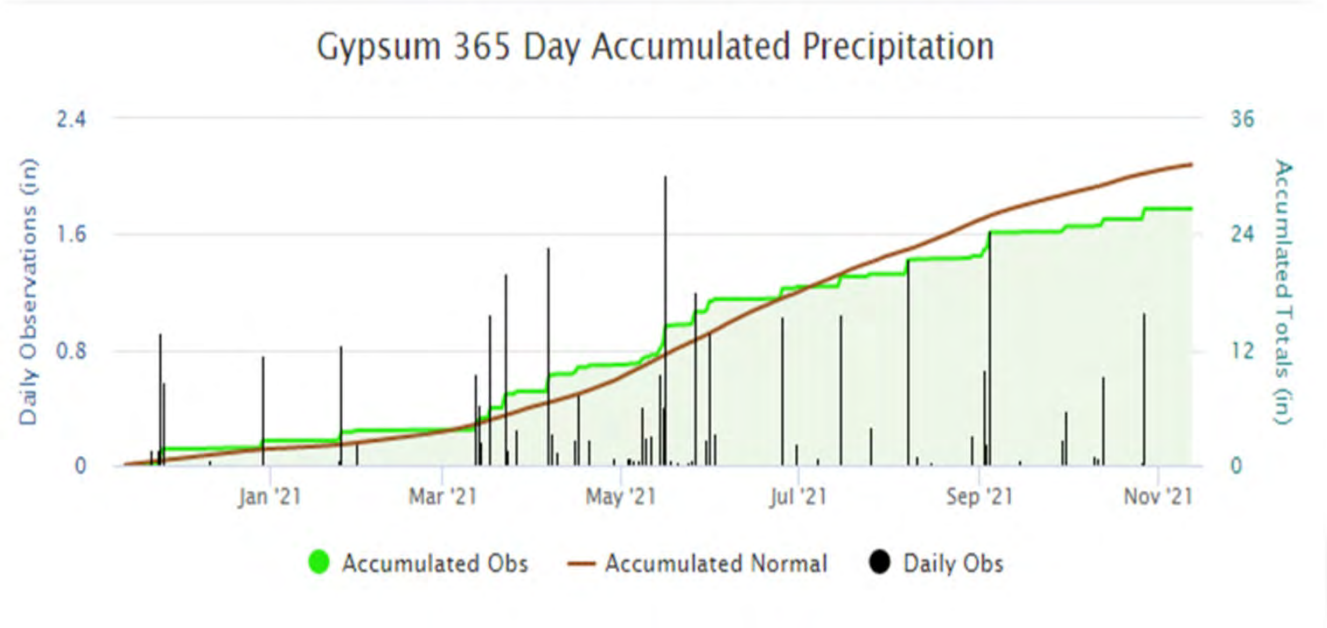
Table 7. EASTERN Kansas Grain Sorghum Hybrid Yield Summary (% of test avg.), 2021

BRAND/NAME	FRD	LBD	AVG.
DEKALB			
DKS38-16	107	--	--
DKS45-23	100	--	--
DKS53-53	101	--	--
DYNA-GRO			
M63GB78	97	--	--
M67GB87	103	--	--
MATURITY CHECK			
EARLY	103	--	--
LATE	95	--	--
MED	92	--	--
AVERAGES (bu/a)	149	--	--
CV (%)	7	--	--
LSD (0.05)	14	--	--

FRD = Franklin County, Ottawa
LBD = Labette County, Parsons. Abandoned due to early season flooding.

Table 8. Assaria, Kansas Dryland Grain Sorghum Performance Test, Saline County, 2019- 2021

Clayton Short Farm, 38.67744704, -97.61132148
Target population: 45,000 plants
Planted: 6/11/2021
Previous crop: wheat



BRAND	NAME	ACRE YIELD, BUSHELS 2021	2020	2019	AVG.	YIELD AS % OF TEST AVERAGE 2021	2020	TW (lb/bu)
ADVANTA	ADV G1153	176	--	--	176	98	--	59
ADVANTA	ADV G2193IG	173	--	--	173	96	--	59
ADVANTA	ADV G2275	177	--	--	177	98	--	60
ADVANTA	ADV G3127	174	--	--	174	96	--	59
ADVANTA	ADV G3189	178	--	--	178	98	--	60
ADVANTA	ADVG2165	175	--	--	175	97	--	59
ADVANTA	ADVG2177IG	**201**	--	--	201	111	--	59
DEKALB	DKS38-16	159	147	--	153	88	107	59
DEKALB	DKS45-23	176	138	--	157	97	100	59
DEKALB	DKS53-53	185	137	--	161	103	100	60
MATURITY CHECK	EARLY	183	157	--	170	101	114	58
MATURITY CHECK	LATE	183	127	--	155	101	92	59
MATURITY CHECK	MED	**209**	159	--	184	116	116	60
SORGHUM PARTNERS	SP 68M57	179	--	--	179	99	--	58
SORGHUM PARTNERS	SP7715	176	--	--	176	97	--	59
SORGHUM PARTNERS	SPSA308	170	--	--	170	94	--	60
SORGHUM PARTNERS	SPSC343	**188**	--	--	188	104	--	58
SORGHUM PARTNERS	SPSC344	**191**	--	--	191	106	--	59
	AVERAGE	181	137	--	159	100	100	59
	CV (%)	9	8	--	--	9	8	1
	LSD (0.05)	21	16	--	--	12	11	1

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

Table 9. CENTRAL Kansas Sorghum Hybrid Yield Summary (% of test avg.), 2021

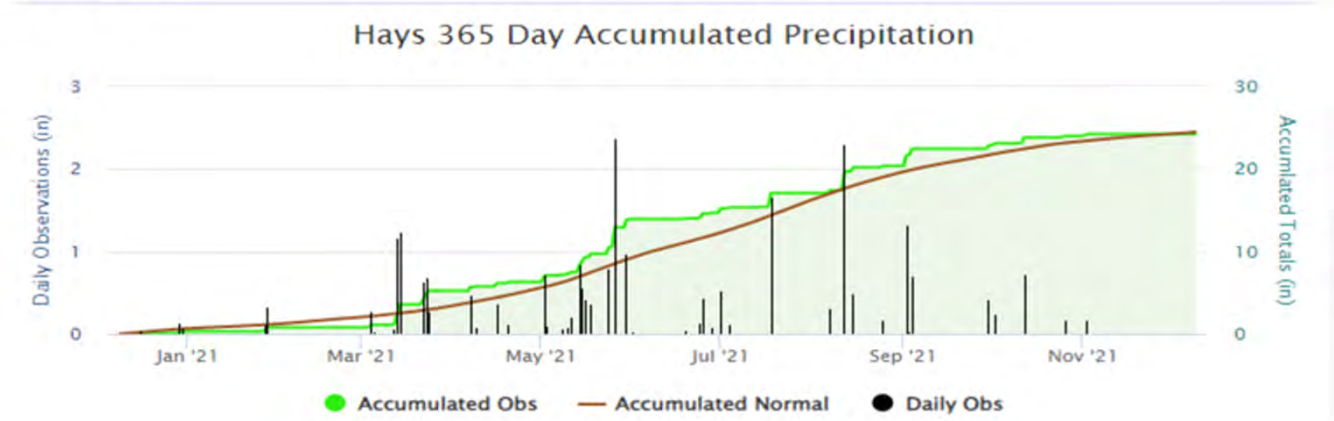
BRAND/NAME	SAD	RND	AVG.
ADVANTA			
ADV G1153	98	--	--
ADV G2193IG	96	--	--
ADV G2275	98	--	--
ADV G3127	96	--	--
ADV G3189	98	--	--
ADVG2165	97	--	--
ADVG2177IG	111	--	--
DEKALB			
DKS38-16	88	--	--
DKS45-23	97	--	--
DKS53-53	103	--	--
SORGHUM PARTNERS			
SP 68M57	99	--	--
SP7715	97	--	--
SPSA308	94	--	--
SPSC343	104	--	--
SPSC344	106	--	--
MATURITY CHECK			
EARLY	101	--	--
LATE	101	--	--
MED	116	--	--
AVERAGES (bu/a)	181	--	--
CV (%)	9	--	--
LSD (0.05)	21	--	--

SAD = Saline County, Assaria

RND = Reno County, Hutchinson. Abandoned; severe drought.

Table 10. Hays, Kansas Dryland Grain Sorghum Performance Test, Ellis County, 2019-2021

Western Kansas Agricultural Research Center-Hays
Target population: 45,000 plants
Planted: 6/10/2021

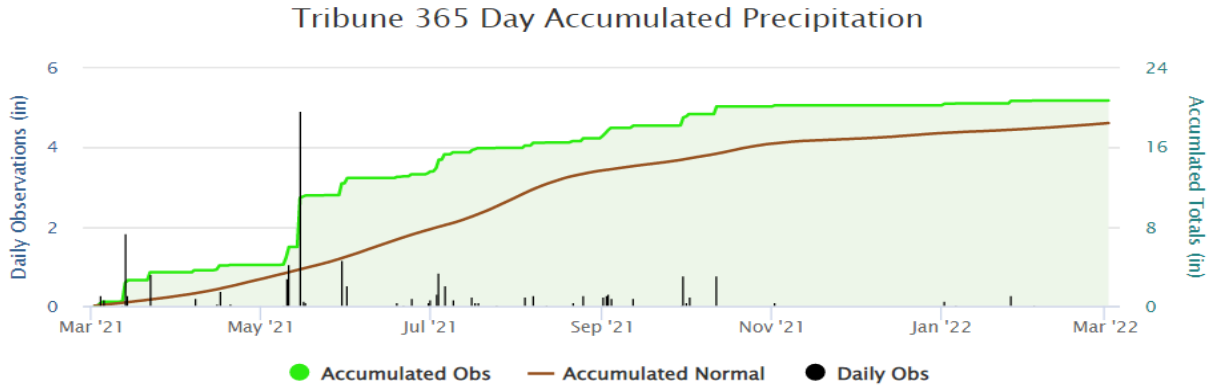


		ACRE YIELD, BUSHELS				YIELD AS % OF TEST AVERAGE			TW	MAT
BRAND	**NAME**	**2021**	**2020**	**2019**	**AVG.**	**2021**	**2020**	**2019**	**(lb/bu)**	**(days)**
ADVANTA	ADV G1120IG	145	--	--	--	105	--	--	54	59
ADVANTA	ADV G1153	129	--	--	--	93	--	--	53	60
ADVANTA	ADV G2168IG	131	--	--	--	94	--	--	53	57
ADVANTA	ADV G2193IG	**158**	--	--	--	114	--	--	54	60
ADVANTA	ADV G2275	115	142	98	118	83	117	94	53	58
ADVANTA	ADVG2165	141	--	--	--	101	--	--	54	61
DEKALB	DKS38-16	144	150	137	144	104	124	131	54	56
DEKALB	DKS45-23	124	147	122	131	90	122	117	52	60
DEKALB	DKS53-53	143	--	--	--	103	--	--	54	65
DYNA-GRO	GX20973	147	--	--	--	106	--	--	52	57
DYNA-GRO	GX20998	121	--	--	--	87	--	--	54	59
DYNA-GRO	M54GR24	**158**	117	88	121	114	97	84	55	59
DYNA-GRO	M59GB57	145	111	92	116	105	92	88	52	52
DYNA-GRO	M59GB94	144	137	101	127	104	113	96	52	55
DYNA-GRO	M60GB31	112	131	115	119	81	109	110	51	58
DYNA-GRO	M63GB78	143	--	--	--	103	--	--	53	60
DYNA-GRO	M67GB87	146	--	--	--	106	--	--	54	59
MATURITY CHECK	EARLY	135	143	135	138	98	118	129	55	52
MATURITY CHECK	LATE	141	130	105	125	101	107	100	53	54
MATURITY CHECK	MED	133	134	101	123	96	111	96	53	60
POLANKSY	X65R-D14IG	**161**	--	--	--	116	--	--	53	62
POLANSKY	5519	122	123	118	121	88	102	113	53	56
POLANSKY	5629	142	150	126	139	102	124	121	54	58
POLANSKY	5719	136	147	126	136	98	122	121	54	61
POLANSKY	X63R-D13IG	141	--	--	--	101	--	--	54	61
POLANSKY	X66R-D16IG	**152**	--	--	--	110	--	--	53	62
SORGHUM PARTNERS	251	137	--	--	--	99	--	--	54	52
SORGHUM PARTNERS	KS310	136	--	--	--	98	--	--	54	60
SORGHUM PARTNERS	SP 31A15	135	122	--	128	97	101	--	52	60
SORGHUM PARTNERS	SP 43M80	146	128	--	137	105	106	--	53	56
SORGHUM PARTNERS	SP 68M57	135	136	--	136	97	113	--	52	58
	AVERAGE	139	121	105	122	100	100	100	53	58
	CV (%)	12	7	9	--	12	7	9	2	1
	LSD (0.05)	12	17	13	--	9	14	13	2	2

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD values in bold.**

Table 11. Tribune, Kansas Dryland Grain Sorghum Performance Test, Greeley County, 2019-2021

Southwest Agricultural Research Center, Tribune
Target population: 35,000 plants
Planted: 6/7/2021
120-30-0 lb/a N, P, K
Herbicide: 86 oz/a Lumax, 22 oz/a PowerMax



			ACRE YIELD, BUSHELS			YIELD AS % OF TEST AVERAGE		TW	HT	DAYS
BRAND	**NAME**	**2021**	**2020**	**2019**	**AVG.**	**2021**	**2020**	**(lb/bu)**	**(in)**	**(bloom)**
ADVANTA	ADV G1120IG	98	--	--	--	95	--	60	51	71
ADVANTA	ADV G1142IG	84	124	--	104	82	101	59	48	78
ADVANTA	ADV G1153	106	--	--	--	103	--	59	46	70
ADVANTA	ADV G1329	92	144	--	118	89	118	60	39	61
ADVANTA	ADV G2168IG	103	145	--	124	100	119	60	44	64
DEKALB	DKS38-16	**121**	120	128	123	117	98	61	50	65
DEKALB	DKS45-23	**118**	--	--	--	115	--	60	54	75
DEKALB	DKS53-53	108	--	--	--	105	--	59	53	76
DYNA-GRO	GX20973	**129**	--	--	--	125	--	62	50	62
DYNA-GRO	M54GR24	99	116	100	105	96	95	61	46	58
DYNA-GRO	M59GB57	103	127	105	112	100	104	60	42	57
DYNA-GRO	M59GB94	109	102	--	105	105	83	60	48	60
DYNA-GRO	M60GB31	91	127	--	109	88	104	61	48	73
DYNA-GRO	M63GB78	111	--	--	111	108	--	60	51	64
MATURITY CHECK	EARLY	96	109	108	104	93	89	61	47	59
MATURITY CHECK	LATE	**124**	105	133	121	121	86	60	50	71
MATURITY CHECK	MED	106	139	110	118	103	113	60	43	60
RAGT	AC2102	96	--	--	--	93	--	62	51	52
RAGT	AC2103	107	--	--	--	104	--	61	49	57
RAGT	AC2104	102	--	--	--	99	--	61	52	57
SORGHUM PARTNERS	251	59	--	--	--	57	--	60	40	54
SORGHUM PARTNERS	KS310	105	--	--	--	101	--	59	46	61
SORGHUM PARTNERS	SP 31A15	108	90	115	104	105	74	58	46	60
SORGHUM PARTNERS	SP 43M80	107	145	110	121	104	118	60	50	61
SORGHUM PARTNERS	SP 68M57	96	93	121	103	93	76	59	49	65
	AVERAGE	103	123	116	114	100	100	60	48	64
	CV (%)	8	12	4	--	8	12	1	3	1
	LSD (0.05)*	13	21	7	--	13	16			

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

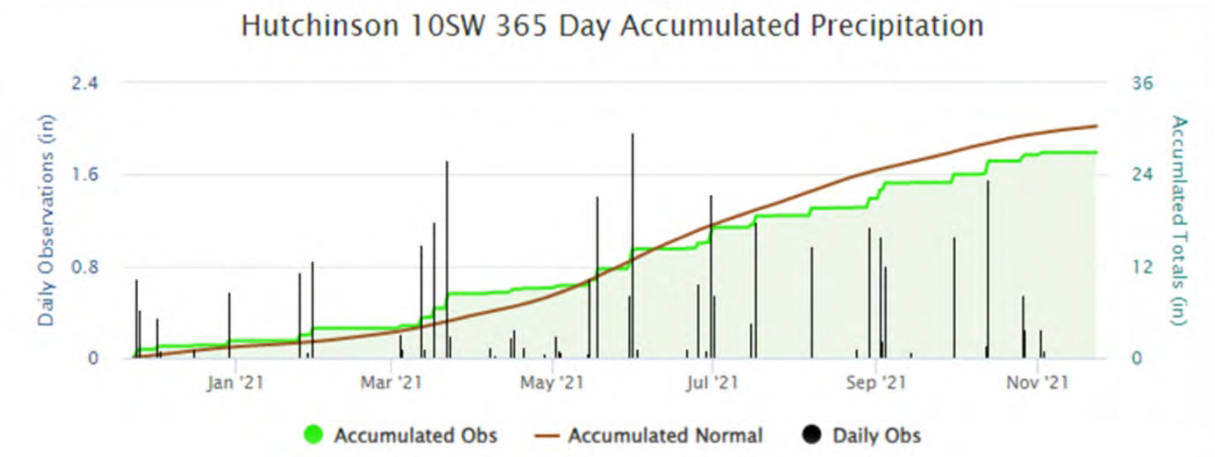
Table 12. WESTERN Kansas Grain Sorghum Hybrid Yield Summary (% of test avg.), 2021

BRAND/NAME	ELD	THD	GRD	FND	AVG.
ADVANTA					
ADV G1120IG	105	--	95	--	100
ADV G1142IG	--	--	82	--	--
ADV G1153	93	--	103	--	98
ADV G1329	--	--	89	--	--
ADV G2168IG	94	--	100	--	97
ADV G2193IG	114	--	--	--	--
ADV G2275	83	--	--	--	--
ADVG2165	101	--	--	--	--
DEKALB					
DKS38-16	104	--	117	--	111
DKS45-23	90	--	115	--	102
DKS53-53	103	--	105	--	104
DYNA-GRO					
GX20973	106	--	125	--	116
GX20998	87	--	--	--	--
M54GR24	114	--	96	--	105
M59GB57	105	--	100	--	102
M59GB94	104	--	105	--	105
M60GB31	81	--	88	--	85
M63GB78	103	--	108	--	105
M67GB87	106	--	--	--	--
POLANSKY					
X65R-D14IG	116	--	--	--	--
5519	88	--	--	--	--
5629	102	--	--	--	--
5719	98	--	--	--	--
X63R-D13IG	101	--	--	--	--
X66R-D16IG	110	--	--	--	--
RAGT					
AC2102	--	--	93	--	--
AC2103	--	--	104	--	--
AC2104	--	--	99	--	--
SORGHUM PARTNERS					
251	99	--	57	--	78
KS310	98	--	101	--	100
SP 31A15	97	--	105	--	101
SP 43M80	105	--	104	--	104
SP 68M57	97	--	93	--	95
MATURITY CHECK					
EARLY	98	--	121	--	109
LATE	101	--	93	--	97
MED	96	--	103	--	99
AVERAGES (bu/a)	139	--	103	--	121
CV (%)	12	--	8	--	--
LSD (0.05)	9	--	13	--	--

ELD = Ellis County, Hays
THD = Thomas County, Colby. Abandoned; high variability.
GRD = Greeley County, Tribune
FND = Finney County, Garden City. Abandoned; high variability.

Table 13. Hutchinson, Kansas Irrigated Grain Sorghum Performance Test, Reno County, 2019- 2021

Private Farm, Reno County, 37.99662097, -98.15839282
Target population: 55,000 plants
Planted: 5/25/2021
Previous crop: wheat
Pivot irrigation

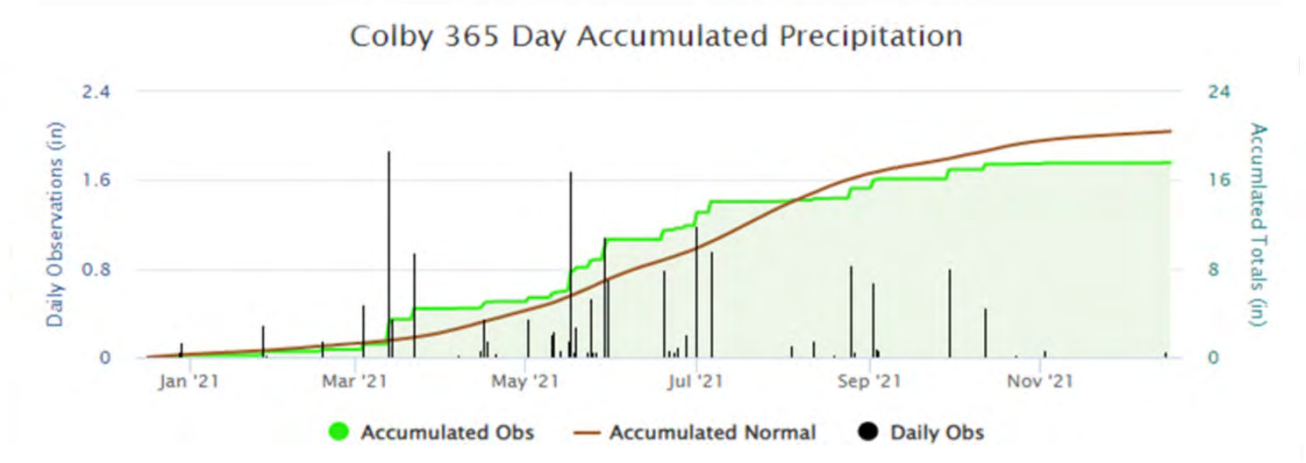


		ACRE YIELD, BUSHELS				YIELD AS % OF TEST AVERAGE			TW
BRAND	**NAME**	**2021**	**2020**	**2019**	**AVG.**	**2021**	**2020**	**2019**	**(lb/bu)**
ADVANTA	ADV G1153	109	--	--	--	96	--	--	59
ADVANTA	ADV G2193IG	115	197	--	156	101	104	--	58
ADVANTA	ADV G2275	100	193	114	136	87	102	81	60
ADVANTA	ADV G3127	116	--	--	--	101	--	--	61
ADVANTA	ADV G3189	118	161	--	140	104	84	--	57
ADVANTA	ADVG2165	108	--	--	--	94	--	--	58
ADVANTA	ADVG2177IG	97	211	--	154	85	111	--	58
DEKALB	DKS38-16	**123**	210	145	159	108	110	103	60
DEKALB	DKS45-23	**131**	212	143	162	115	111	102	60
DEKALB	DKS53-53	**121**	195	150	155	106	102	107	60
DYNA-GRO	GX20970	115	--	--	--	100	--	--	59
DYNA-GRO	GX20973	**124**	--	--	--	109	--	--	61
DYNA-GRO	GX20998	**128**	--	--	--	112	--	--	59
DYNA-GRO	GX21965	113	--	--	--	99	--	--	59
DYNA-GRO	M63GB78	**125**	--	--	--	109	--	--	59
DYNA-GRO	M67GB87	**121**	--	--	--	106	--	--	56
DYNA-GRO	M71GR91	107	205	143	152	93	108	102	59
DYNA-GRO	M72GB71	**121**	200	--	161	106	105	--	58
MATURITY CHECK	EARLY	**129**	140	155	141	113	74	111	60
MATURITY CHECK	LATE	**124**	167	115	135	109	88	82	59
MATURITY CHECK	MED	**119**	189	145	151	104	100	103	58
RAGT	AC2102	46	--	--	--	40	--	--	52
RAGT	AC2103	114	--	--	--	100	--	--	57
RAGT	AC2104	118	--	--	--	103	--	--	58
	AVERAGE	114	190	140	148	100	100	100	59
	CV (%)	8	9	8	--	8	9	8	1
	LSD (0.05)	12	24	16	--	11	13	11	2

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

Table 14. Colby, Kansas Irrigated Grain Sorghum Performance Test, Thomas County, 2019- 2021

Northwest Agricultural Research Center, Colby
Target population: 90,000 plants
Planted: 6/11/2021
200-50-0 lb/a N, P, K
Atrazine 4L 32 oz/a, Detonate 16 oz/a, Buccaneer 5Extra 32 oz/a on 4/2/2021
Atrazine 4L 32 oz/a, Charger Basic 32 oz/a, Mesotrione 6.4 oz/a, Detonate 8 oz/a on 6/2/2021
Irrigation: 7.0 inches

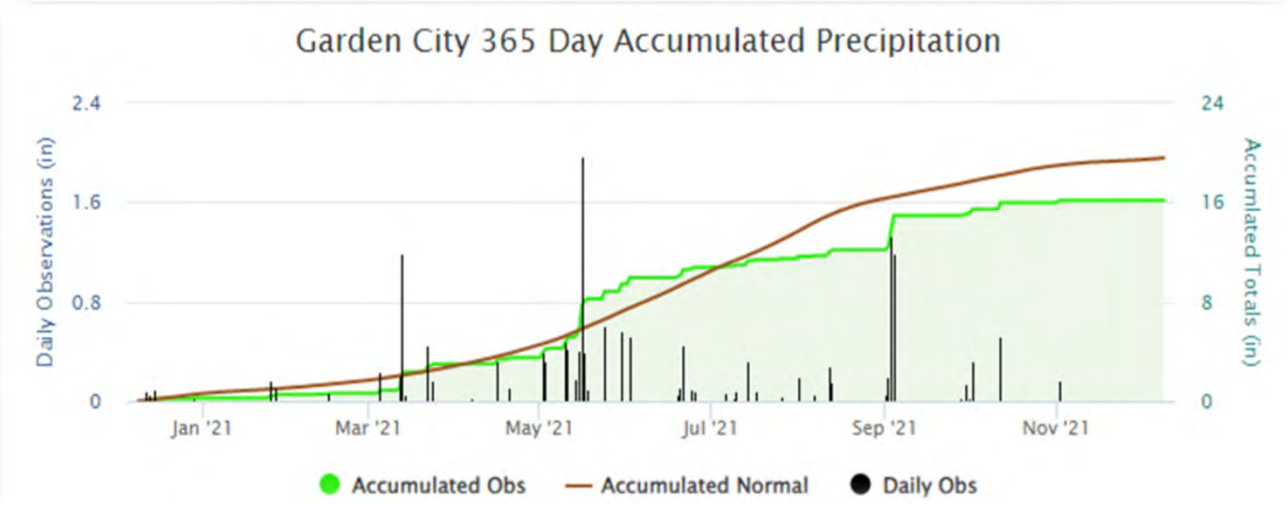


BRAND	NAME	ACRE YIELD, BUSHELS				YIELD AS % OF TEST AVERAGE			TW	PHT	DAYS
		2021	2020	2019	AVG.	2021	2020	2019	(lb/bu)	(in)	(bloom)
ADVANTA	ADV G1120IG	216	--	--	--	103	--	--	55	60	62
ADVANTA	ADV G1142IG	189	--	--	--	91	--	--	53	55	64
ADVANTA	ADV G1153	201	--	--	--	96	--	--	52	55	63
ADVANTA	ADV G1329	168	--	--	--	80	--	--	51	43	62
ADVANTA	ADV G2168IG	194	--	--	--	93	--	--	53	53	62
ADVANTA	ADV G2275	214	--	108	161	102	--	108	57	60	63
ADVANTA	ADVG2177IG	194	--	--	--	93	--	--	53	54	67
DEKALB	DKS38-16	**242**	--	110	176	116	--	107	57	63	61
DEKALB	DKS45-23	**258**	--	90	174	123	--	87	52	62	63
DEKALB	DKS53-53	**249**	--	127	188	119	--	123	52	61	65
DYNA-GRO	GX20973	231	--	--	--	111	--	--	57	60	60
DYNA-GRO	GX20998	225	--	--	--	107	--	--	54	59	63
DYNA-GRO	M54GR24	154	--	--	--	73	--	--	52	50	59
DYNA-GRO	M59GB57	161	--	90	125	77	--	88	50	50	59
DYNA-GRO	M59GB94	219	--	--	--	105	--	--	53	59	60
DYNA-GRO	M60GB31	223	--	100	162	107	--	97	52	55	63
DYNA-GRO	M63GB78	216	--	--	--	103	--	--	54	60	62
DYNA-GRO	M67GB87	228	--	--	--	109	--	--	52	65	63
MATURITY CHECK	EARLY	**232**	--	99	165	111	--	96	55	59	64
MATURITY CHECK	LATE	218	--	79	148	104	--	77	54	58	60
MATURITY CHECK	MED	203	--	107	155	97	--	104	54	53	60
RAGT	AC2102	176	--	--	176	84	--	--	54	56	61
RAGT	AC2103	216	--	--	216	103	--	--	53	59	60
RAGT	AC2104	203	--	--	203	97	--	--	55	61	60
SORGHUM PARTNERS	SP 43M80	198	--	--	198	95	--	--	52	56	59
SORGHUM PARTNERS	SP 68M57	213	--	--	213	102	--	--	55	56	63
SORGHUM PARTNERS	SP 74M21	203	--	--	203	97	--	--	52	63	65
SORGHUM PARTNERS	SPSA308	220	--	--	220	105	--	--	53	61	64
SORGHUM PARTNERS	SPSC343	196	--	--	196	94	--	--	55	63	63
SORGHUM PARTNERS	SPSC344	217	--	--	217	104	--	--	50	58	63
	AVERAGE	209	--	103	156	100	--	100	53	57	61
	CV (%)	8	--	10	--	8	--	10	3	4	2
	LSD (0.05)	26	--	15	--	12	--	14	2	4	2

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

Table 15. Garden City, Kansas Irrigated Grain Sorghum Performance Test, Finney County, 2019-2021

Southwest Agricultural Research Center, Garden City
Target population: 90,000 plants
Planted: 6/15/2021

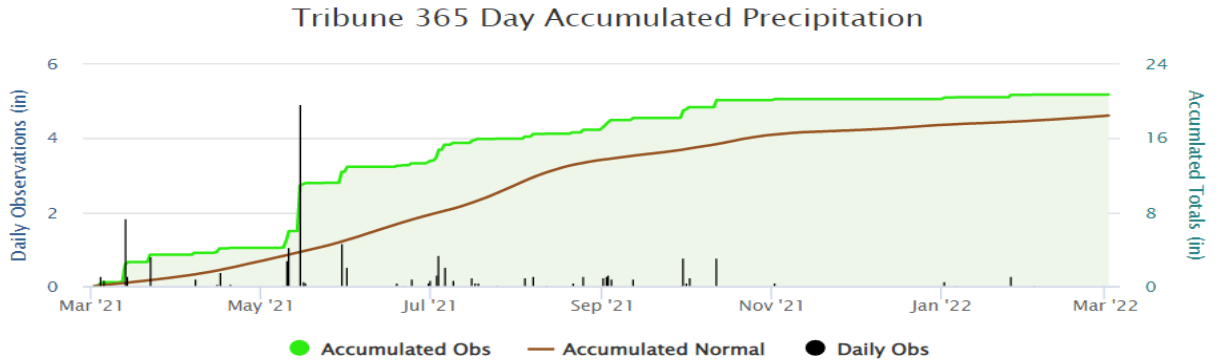


BRAND	NAME	ACRE YIELD, BUSHELS 2021	2020	2019	YIELD AS % OF TEST AVERAGE 2021	2020	2019	TW (lb/bu)
DEKALB	DKS38-16	115	--	--	98	--	--	58
DEKALB	DKS45-23	114	--	--	98	--	--	59
DEKALB	DKS53-53	144	--	--	124	--	--	58
DYNA-GRO	GX20970	**199**	--	--	170	--	--	58
DYNA-GRO	GX20973	121	--	--	104	--	--	58
DYNA-GRO	GX20998	112	--	--	96	--	--	58
DYNA-GRO	GX21965	100	--	--	86	--	--	58
DYNA-GRO	M63GB78	77	--	--	66	--	--	58
DYNA-GRO	M67GB87	113	--	--	97	--	--	57
DYNA-GRO	M71GR91	125	--	--	107	--	--	59
DYNA-GRO	M72GB71	132	--	--	113	--	--	59
MATURITY CHECK	EARLY	102	--	--	87	--	--	57
MATURITY CHECK	LATE	75	--	--	65	--	--	58
MATURITY CHECK	MED	121	--	--	104	--	--	56
RAGT	AC2102	97	--	--	83	--	--	57
RAGT	AC2103	103	--	--	88	--	--	57
RAGT	AC2104	87	--	--	74	--	--	57
SORGHUM PARTNERS	SP 68M57	160	--	--	137	--	--	57
SORGHUM PARTNERS	SP 74M21	101	--	--	87	--	--	57
SORGHUM PARTNERS	SPSA308	97	--	--	83	--	--	59
SORGHUM PARTNERS	SPSC343	118	--	--	101	--	--	58
SORGHUM PARTNERS	SPSC344	154	--	--	132	--	--	57
	AVERAGE	117	--	--	100	--	--	58
	CV (%)	11	--	--	11	--	--	2
	LSD (0.05)	18	--	--	15	--	--	1

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD value in bold.**

Table 16. Tribune, Kansas Irrigated Grain Sorghum Performance Test, Greeley County, 2019-2021

Southwest Agricultural Research Center, Tribune
Target population: 80,000 plants
Planted: 6/10/2021
160-40-0 lb/a N, P, K
Herbicide: 86 oz/a Lumax, 22 oz/a PowerMax
Irrigation: 12.1 inches



		ACRE YIELD, BUSHELS				YIELD AS % OF TEST AVERAGE		TW	HT	DAYS
BRAND	**NAME**	**2021**	**2020**	**2019**	**AVG.**	**2021**	**2020**	**(lb/bu)**	**(in)**	**(bloom)**
ADVANTA	ADV G1120IG	130	--	--	--	95	--	60	58	68
ADVANTA	ADV G1142IG	103	132	--	118	75	106	58	51	78
ADVANTA	ADV G1153	141	--	--	--	103	--	60	51	70
ADVANTA	ADV G1329	107		--	--	78	--	58	41	64
ADVANTA	ADV G2168IG	128	131	--	130	94	106	60	49	63
ADVANTA	ADV G2275	156	143	--	150	114	115	61	56	69
ADVANTA	ADVG2177IG	125	130	--	128	91	105	59	50	76
DEKALB	DKS38-16	**173**	137	105	138	126	110	62	59	64
DEKALB	DKS45-23	162	104	142	136	119	84	61	58	70
DEKALB	DKS53-53	**167**	109	135	137	121	88	60	58	71
MATURITY CHECK	EARLY	143	112	102	119	105	90	61	54	58
MATURITY CHECK	LATE	**169**	116	94	126	123	94	60	55	71
MATURITY CHECK	MED	127	130	80	112	93	105	60	50	60
RAGT	AC2102	129	--	--	--	94	--	59	54	53
RAGT	AC2103	130	--	--	--	95	--	60	53	59
RAGT	AC2104	120	--	--	--	88	--	60	57	58
SORGHUM PARTNERS	SP 43M80	119	--	--	--	87	--	60	56	62
SORGHUM PARTNERS	SP 68M57	138	131	--	135	101	106	59	53	65
	AVERAGE	137	124	97	119	100	100	60	53	66
	CV (%)	7	12	7	--	7	12	1	3	3
	LSD (0.05)*	9	24	9	--	9	13	1	2	2

*Yields must differ by more than the LSD value to be considered statistically different. **Top LSD group in bold.**

Table 17. Kansas IRRIGATED Grain Sorghum Hybrid Yield Summary (% of test avg.), 2021

BRAND/NAME	RNI	THI	GRI	FNI	AVG.
ADVANTA					
ADV G1120IG	--	103	95	--	99
ADV G1142IG	--	91	75	--	83
ADV G1153	96	96	103	--	98
ADV G1329	--	80	78	--	79
ADV G2168IG	--	93	94	--	94
ADV G2193IG	101	--	--	--	--
ADV G2275	87	102	114	--	101
ADV G3127	101	--	--	--	--
ADV G3189	104	--	--	--	--
ADVG2165	94	--	--	--	--
ADVG2177IG	85	93	91	--	90
DEKALB					
DKS38-16	108	116	126	98	107
DKS45-23	115	123	119	98	112
DKS53-53	106	119	121	124	116
DYNA-GRO					
GX20970	100	--	--	170	135
GX20973	109	111	--	104	108
GX20998	112	107	--	96	105
GX21965	99	--	--	86	93
M54GR24	--	73	--	--	--
M59GB57	--	77	--	--	--
M59GB94	--	105	--	--	--
M60GB31	--	107	--	--	--
M63GB78	109	103	--	66	93
M67GB87	106	109	--	97	104
M71GR91	93	--	--	107	100
M72GB71	106	--	--	113	110
RAGT					
AC2102	40	84	94	87	70
AC2103	100	103	95	85	96
AC2104	103	97	88	104	101
SORGHUM PARTNERS					
SP 43M80	--	95	87	--	91
SP 68M57	--	102	101	137	113
SP 74M21	--	97	--	87	92
SPSA308	--	105	--	83	94
SPSC343	--	94	--	101	98
SPSC344	--	104	--	132	118
MATURITY CHECK					
EARLY	113	111	123	87	104
LATE	109	104	105	65	93
MED	104	97	93	104	102
AVERAGES (bu/a)	114	209	137	117	147
CV (%)	8	8	7	11	--
LSD (0.05)	12	26	9	18	--

RNI = Reno County, Hutchinson
THI = Thomas County, Colby
GRI = Greeley County, Tribune.
FNI = Finney County, Garden City

Table 18. Entries in the 2021 Grain Sorghum Performance Tests

Brand/Name	GC	EC	PC	Mat	Days	GB	SCA	IGR
ADVANTA								
ADV G1120IG	--	--	--	--	--	--	--	Y
ADV G1142IG	R	--	--	ME	63	--	--	Y
ADV G1153	--	--	--	--	--	--	--	--
ADV G1329	C	--	--	E	58	--	--	--
ADV G2168IG	R	--	--	ME	63	--	--	Y
ADV G2193IG	R	--	--	ME	63	--	--	Y
ADV G2275	B	--	R	M	66	--	--	--
ADV G3127	--	--	--	--	--	--	--	--
ADV G3189	--	--	--	--	--	--	--	--
ADVG2165	--	--	--	--	--	--	--	--
ADVG2177IG	R	--	--	ME	63	--	--	Y
DEKALB								
DKS38-16	B	HY	P	E	62	--	--	--
DKS45-23	B	HY	P	M	68	--	--	--
DKS53-53	B	HY	P	L	72	I	--	--
DYNA-GRO								
GX20970	B	HY	P	ML	68	C,E,I	R	--
GX20973	B	HY	P	M	62	C,E,I	R	--
GX20998	B	HY	P	M	65	C,E,I	R	--
GX21965	B	HY	P	ML	69	C,E,I	R	--
M54GR24	R	HY	P	E	54	--	R	--
M59GB57	B	HY	P	E	59	--	R	--
M59GB94	B	HY	P	E	59	C,E	R	--
M60GB31	B	HY	T	ME	60	C,E,I	R	--
M63GB78	B	HY	P	M	63	C,E,I	R	--
M67GB87	B	HY	P	M	67	C,E,I	R	--
M71GR91	B	HY	P	MF	70	C,E,I	R	--
M72GB71	B	Y	P	ML	72	C,E,I	R	--
MATURITY CHECKS								
EARLY	--	--	--	E	--	--	--	--
LATE	--	--	--	ML	--	--	--	--
MED	R	W	P	M	69	--	--	--
POLANSKY								
X65R-D14IG	R	--	--	--	65	--	--	Y
5519	B	--	--	ME	62	--	--	--
5629	B	--	--	M	65	--	--	--
5719	R	--	--	ML	70	--	--	--
X63R-D13IG	R	--	--	--	63	--	--	Y
X65R-D15IG	R	--	--	--	65	--	--	Y
X66R-D16IG	R	--	--	--	66	--	--	Y
X66R-D17IG	R	--	--	--	66	--	--	Y
X67R-D18IG	R	--	--	--	67	--	--	Y

Brand/Name	GC	EC	PC	Mat	Days	GB	SCA	IGR
RAGT								
AC2102	R	O	G	E	--	--	--	--
AC2103	C	O	G	M	--	--	--	--
AC2104	R	O	G	M	--	--	--	--
SORGHUM PARTNERS								
251	--	--	--	--	--	--	--	--
KS310	--	--	--	--	--	--	--	--
SP 31A15	B	--	P	E	58	--	--	--
SP 43M80	B	--	P	ME	60	--	--	--
SP 68M57	B	--	P	M	68	--	--	--
SP 74M21	B	--	P	ML	72	--	--	--
SP7715	B	--	P	ME	73	--	--	--
SPSA308	--	--	--	--	--	--	--	--
SPSC343	--	--	--	--	--	--	--	--
SPSC344	--	--	--	--	--	--	--	--

Information provided by entrants.

GC = grain color: bronze, cream, red, white

EC = endosperm color: white, yellow

PC = plant color: purple, tan

Mat = relative maturity: early, medium, late

Days = days to half bloom

GB = resistance to greenbug biotypes: C, E, I

SCA = resistance to sugarcane aphids

IGR = igrowth imidazolinone tolerance technology

To access crop performance testing information electronically, visit our website. The information contained in this publication, plus more, is available for viewing or downloading at:

www.agronomy.k-state.edu/services/crop-performance-tests/index.html

Excerpts from the University Research Policy Agreement with Cooperating Seed Companies

Permission is hereby given to Kansas State University (KSU) to test varieties and/or hybrids designated on the attached entry forms in the manner indicated in the test announcements. I certify that seed submitted for testing is a true sample of the seed being offered for sale.

I understand that all results from Kansas Crop Performance Tests belong to the University and the public and shall be controlled by the University so as to produce the greatest benefit to the public. Performance data may be used in the following ways: 1) Tables may be reproduced in their entirety provided the source is referenced and data are not manipulated or reinterpreted; 2) Advertising statements by an individual company about the performance of its entries may be made as long as they are accurate statements about the data as published, with no reference to other companies' names or cultivars. In both cases, the following must be included with the reprint or ad citing the appropriate publication number and title: "See the official Kansas State University Agricultural Experiment Station and Cooperative Extension Service Report of Progress 1168, '2021 Kansas Performance Tests with Grain Sorghum Hybrids,' or the Kansas Crop Performance Test website, *www.agronomy.k-state.edu/services/crop-performance-tests/index.html*, for details.

Contributors

Main Station, Manhattan

Jane Lingenfelser, Department of Agronomy
Isaac Barnhart, Department of Agronomy
Ignacio Ciampitti, Department of Agronomy
Mary Knapp, Department of Agronomy
Rodrigo Borba Onofre, Department of Plant Pathology
Troy Ostmeyer, Department of Agronomy
Dustan Ridder, Department of Agronomy
R. Jeff Whitworth, Department of Entomology

Experiment Fields

Eric Adee, Topeka
Scott Dooley, Belleville
Jim Kimball, Ottawa
Michael Larson, Belleville
Doug Stensaas, Belleville

Research Centers

Rob Aiken, Colby
Amanda Burnett, Tribune
Lucas Haag, Tribune
Freddie Lamm, Colby
Lonnie Mengarelli, Parsons
Ram Perumal, Hays
Gretchen Sassenrath, Parsons
Alan Schlegel, Tribune

Cooperators

Tom Deneke, Beloit
Clayton Short, Assaria
Southwest Seed Research, Hutchinson

Publications from Kansas State University are available at:
www.ksre.ksu.edu

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

K-State Research and Extension is an equal opportunity provider and employer.

SRP 1168 February 2022