

2018 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial

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The 2018 Texas A&M AgriLife Research and Extension Forage Sorghum Silage Trial consisted of 56 entries including forage sorghum, sorghum-sudangrass, sudangrass, and dual-purpose forage/grain sorghum hybrids. Two corn hybrids and two additional grain sorghum hybrids were included as checks. Of the 56 entries, 26 were brown midrib (BMR) forage sorghum and sorghum-sudangrass hybrids, and 13 were brachytic hybrids (Table 1). The average forage yield was 22.5 tons/acre with yields ranging from 28.6 to 16.9 tons/acre. In-season precipitation plus irrigation totaled 25.4 inches, but 7.61 inches of precipitation was received after October 1, 2018 resulting in harvest delays and lodging (Fig. 1). Precipitation after October 1, 2018 did not contribute to forage biomass production. A hail storm the evening of August 1 resulted in leaf shredding and stalk bruising. Earlier maturing varieties were in bloom or a stage of bloom at the time of the hail storm. Longer maturity classes continued to add regrowth during more favorable late August and September conditions.

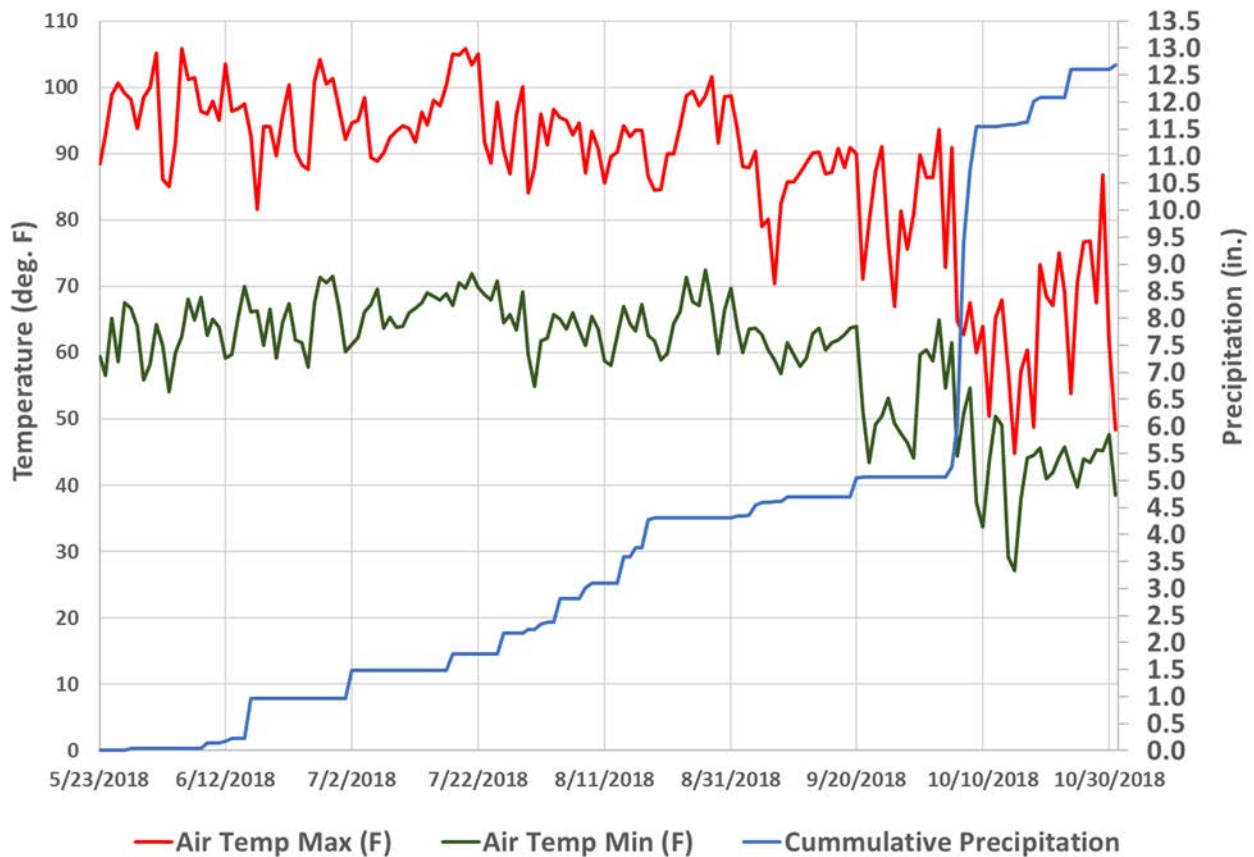


Figure 1. In-season daily maximum and minimum temperatures and cumulative precipitation.

The trial was located near Bushland, TX with a cooperating producer (Mr. Michael Menke) under center pivot irrigation within a forage sorghum circle. Seed companies submitted forage sorghum hybrids on a per fee basis except for the grain sorghum checks and corn hybrids. Plots were planted on May 23, 2018. Hybrids were blocked according to the marketed maturity class so that plots within each maturity class block could be mechanically harvested for forage yield when grain reached soft dough, but numerous hybrids reached soft-dough at dates earlier than the maturity class in which they were blocked. Consequently, forage yield was obtained from a 25 ft² area (1 row by 10 ft.) hand-sample within each plot, and a uniform sub-sample was chopped for nutritional composition. Hybrids that had not reached soft-dough were all harvested on the last sampling date (October 24, 2018). Uniform sub-samples were collected for dry matter and nutritional composition. If possible, plants were harvested from a non-lodged portion of the plot to preserve forage quality. Lodging was recorded at harvest.

Agronomic Information

Cooperator: Michael Menke

Previous Crop: Fallow

Planting Date: May 23, 2018

Seeding Rate: 75,000 seeds/acre

Herbicide: Pre-plant application of Bicep (Atrazine + S-metolachlor) 1.5 pts/ac

Insecticide: 2 applications of Sivanto (SCAs identified July 24, 2018)

Chemigation July 29, 2018 (6 oz/ac with 0.3 inch irrigation)

Aerial application August 6, 2018 (6 oz/ac at 3 GPA)

Fertilizer: Manure during fallow

In-season Irrigation: 12.75 inches applied in 0.75 inch applications

In-season Precipitation: 12.68 inches with 7.61 inches received after 10/1/2018 resulting in harvest delays and lodging; Hail Storm on evening of August 1, 2018
Plot size: Four, 30-inch rows by 25 ft. (30ft planted)

A portion of the chopped forage was dried at 221°F (105°C) to determine harvest moisture. The remaining portion of the chopped forage was submitted to Dairyland Laboratories, Arcadia, WI for forage analyses completed using near infrared reflectance spectroscopy (NIR). Forage quality was determined for hybrids as requested by the company. Forage constituents are reported on a dry matter (DM) basis.

Forage Analyses defined:

CP:	Crude Protein
ADF:	Acid Detergent Fiber; a fraction of the cell wall includes cellulose and lignin, which is inversely related to energy availability
aNDF:	Neutral Detergent Fiber; cell wall fraction of the forage
NDFD:	NDF digestibility; estimated fiber digestibility after the specified length of time (48 hrs.)
uNDFom:	Undigested NDF after fermentation for the specified length of time (240 hrs.) expressed on an organic matter basis (om) in order to account for the ash
TDN:	Total Digestible Nutrients (by Weiss equation) an index of energy concentration.
RFQ:	Relative Forage Quality - an index for comparing forages, not just alfalfa. RFQ is based on the same scoring system as RFV with an average score of 100; higher scores indicate better feeding value
Milk/ton:	An index based on several variables that influence intake and nutritive value. These are applied to a standard dairy cow to project milk produced per ton of forage.

Agronomic production factors including weather, irrigation, fertility, planting population, weed management, and harvest stage can all affect forage yield potential and quality. The large scale of the Bushland trial provides producers and nutritionists the opportunity to compare forage yield and quality parameters for multiple forage sorghum types under the same production environment. The inclusion of corn checks also provides the ability to compare forage sorghums to select corn hybrids in the same production environment. It is not recommended that hybrid selection be made based on marketed forage type. While the marketed forage types provide an indication of potential quality, actual quality parameters vary for hybrids of the same forage type. An evaluation of the % crude protein (CP) for 2018 forage sorghum entries by BMR trait demonstrated negligible difference between the broad averages between BMR and non-BMR hybrids with significant in-type variation (Fig. 2). Because forage quality requirements vary between livestock class and ration formulation, evaluated parameters provide a broad comparison of forage quality in the respective production environment (Table 1).

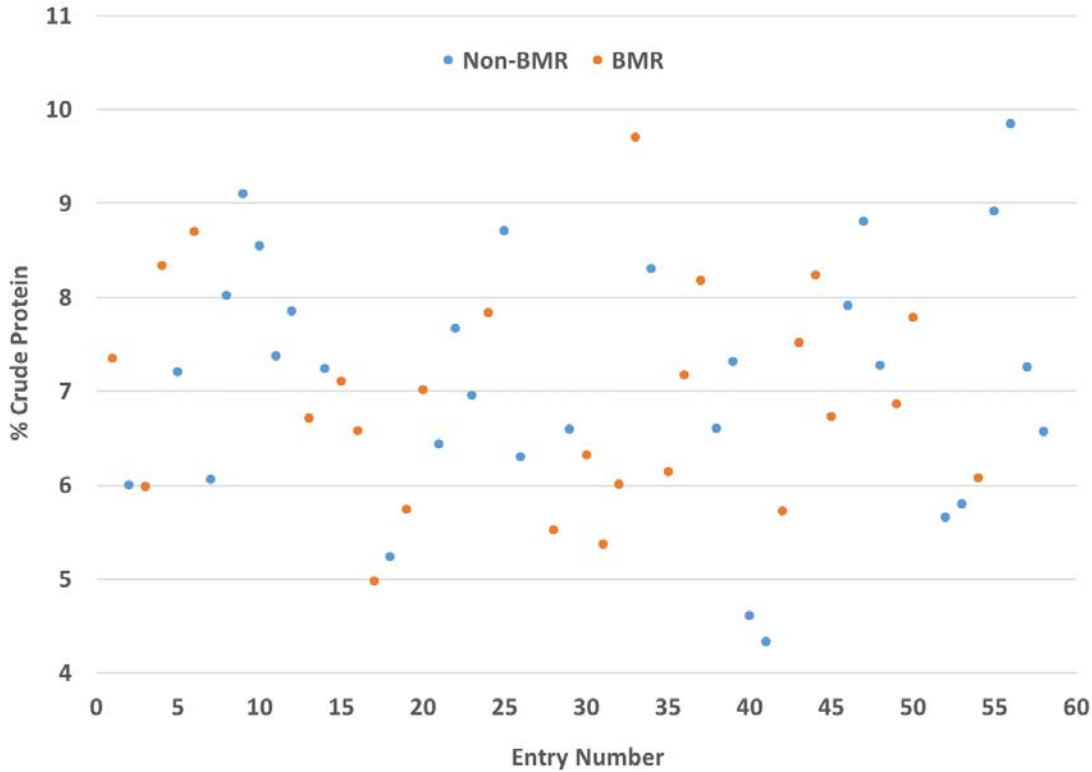


Figure 2. Evaluation of % Crude Protein for BMR and non-BMR hybrids in the 2018 Texas A&M AgriLife Forage Sorghum Silage Trial.

Sugarcane aphid infestations (SCA) became wide spread in late July, which was approximately one month earlier than in 2017. Due to the heavy infestation, the entire field including our test plots was chemigated with Sivanto at 6 oz/ac (0.3 inches of irrigation) on July 29, 2018. Because high numbers of SCA colonies were still located throughout the field after our insecticide application, all plots were rated for SCA infestation and damage using the High Plains Texas A&M AgriLife Rating scale on August 1. The reported ratings are the average of the three replications for each hybrid (Table 5). Maximum infestation occurred on August 1 with damage ratings levels ranging from a low of 2.7 to a high of 6 (which is equivalent to 50% or more of the leaf area infested or damaged) (Table 5). Due to the levels of infestation and potential for significant yield loss after the first application, a second 6 oz/ac aerial application (3 GPA) was applied on August 6, 2018. Subsequent ratings from August 15 to September 12 are reported in Table 5. The second application provided excellent control of the SCAs and damage levels declined from very low levels to no damage. The decline in damage was due to sorghum hybrids continuing to put on new growth that was not damaged from SCAs. This new growth allowed the sorghum hybrids to outgrow any initial SCA damage and prevented any significant yield loss. This demonstrates that timely insecticide applications to control SCA infestations will protect forage sorghums. In addition to two insecticide applications, beneficial insects, predominately lady beetles and syrphid fly larvae, were observed throughout the trial. Due to the presence of beneficial insects present in the 2018 trial, it is reasonable to believe that

beneficial insects were providing biological control. However, without the insecticides applications the beneficial insects alone would not have been able to prevent yield losses.

High Plains Texas A&M AgriLife Sugarcane Aphid Rating Scale:

- 0: no aphids or honey dew found
- 1: 10% of leaf area infested or damaged, colonies establishing on lower leaves or some honey dew visible on 2 or less leaves
- 2: 11-20% of leaf area infested or damaged
- 3: 21-30% of leaf area infested, damaged or dead
- 4: 31-40% of leaf area infested, damaged or dead
- 5: 41-50% of leaf area infested, damaged or dead
- 6: 51-60% of leaf area infested, damaged or dead
- 7: 61-70% of leaf area infested, damaged or dead
- 8: 71-80% of leaf area infested, damaged or dead
- 9: 81-90% of leaf area infested, damaged or dead
- 10: 91% of leaf area damaged to dead

Grain yield was collected in November following forage harvest for select hybrids upon seed company request at the time of entry. Grain yields were reported to the USDA-Risk Management Agency to update the Loan Deficiency Payment Tables for forage sorghum hybrids (Table 6). Statistical analyses were completed using SAS 9.4. Adjusted least significant differences for multiple comparisons were determined using Tukey's HSD. Effects and comparisons were determined significant at the 0.05 probability level. The discussion above addresses broad averages for types of forage sorghums, grain sorghums evaluated as silage, and sorghum/sudangrass hybrids evaluated in the 2018 test. We recommended individual hybrids not be selected or disregarded based on the sorghum type nor based on the relative comparison among types. There is overlap among hybrids in these type categories. It is recommended to evaluate the data based on the individual hybrid, not the forage type category.

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Table 1. 2018 Summary of yield, lodging, and quality (DM basis) by forage type. The number in parentheses represents the number of hybrids that make up each sorghum type.

Sorghum Type	% Lodging at Harvest	%Moisture at Harvest	Avg. Yield (tons/ac) 65% Moist.	%CP	%ADF	%aNDF	%Lignin	%Starch	%NDFD48	%uNDF - om240	RFQ	TDN	Milk/ton
BMR (26)	12.6	68.6	22.3	6.9	34.4	50.5	3.5	13.4	50.7	18.1	114	63	3062
Non-BMR (30)	7.9	68.2	23.1	7.2	32.3	47.7	4.1	20.2	43.5	20.2	110	64	3110
Test Average [†]	10.1	68.4	22.4	7.0	33.3	49.0	3.8	17.0	46.8	19.2	112	63	3088
by Photoperiod Response													
Photoperiod Sensitive (9)	37.4	72.9	21.3	6.3	42.2	61.4	4.0	1.5	55.0	19.5	90	58	2680
Non-Photoperiod Sensitive (47)	4.9	67.5	23.0	7.1	32.2	47.5	3.8	19.2	45.5	19.2	114	64	3136
by Brachytic Trait													
Brachytic (13)	4.1	65.7	22.9	7.8	31.3	45.4	3.5	21.5	47.7	19.6	123	64	3191
Non-Brachytic (43)	11.9	69.2	22.6	6.8	33.9	50.1	3.9	15.7	46.6	18.0	108	63	3057
Grain Sorghum and Corn Checks													
Grain Sorghum Checks (2)	0.0	69.0	17.7	9.5	26.9	39.5	4.0	30.3	40.0	19.2	135	67	3347
Corn with Ears (2) [‡]	0.0	67.2	19.9	8.2	25.5	39.6	3.1	23.6	60.5	11.5	.	69	2908
Corn without Ears (2)	0.0	71.9	13.3	7.1	34.1	51.3	3.9	4.1	60.0	15.0	.	62	1631
†The test average is the average of the forage entries not including the grain sorghum or corn checks.													
‡Corn samples were processed from all replicaitons with and without the ear for both hybrids.													

Table 2. 2018 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial mean yield, days to half-bloom (HB), lodging, and harvest moisture listed by seed company. Male Sterile hybrids were pollinated by neighboring hybrids in the trial. FS=forage sorghum, SS=Sorghum Sudan, SU=Sudangrass, GS=Grain sorghum.

Hybrid Characteristics								Days to HB, Lodging, Harvest Date, Moisture and Yield				
Entry	Hybrid	Company	Sorghum Type	Mat - urity	BMR	Brach - ytic	Male Sterile	Days to HB [†]	Harvest Date	% Lodge	% Moist. at Harvest	Yield (tons/ac) 65% Moisture [§]
1	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	95	9/26/2018	0	65.9	25.7 ± 5.3
2	AF8301	Advanta Seeds	FS	M	No	No	No	86	9/21/2018	17	66.7	23.4 ± 4.5
3	ADV S6504	Advanta Seeds	SS	PS	Yes	No	No	130	10/24/2018	40	73.7	16.9 ± 1.9
4	ADV XF372	Advanta Seeds	FS	M	Yes	Yes	No	89	9/28/2018	0	63.6	24.0 ± 5.1
5	ADV XF033	Advanta Seeds	FS	M	No	No	No	89	9/28/2018	0	66.2	24.1 ± 4.6
6	ADV XF378	Advanta Seeds	FS	M	Yes	Yes	No	87	9/27/2018	0	64.8	17.3 ± 3.5
7	Val-4	American Hybrids	FS	L	No	No	No	96	9/29/2018	0	71.8	20.6 ± 4.4
8	841F	DuPont Pioneer	FS	E	No	No	No	79	9/13/2018	0	56.1	21.7 ± 5.3
9	845F	DuPont Pioneer	FS	E	No	No	No	63	9/1/2018	0	73.5	20.4 ± 5.0
10	849F	DuPont Pioneer	FS	E	No	No	No	66	9/1/2018	0	68.8	20.7 ± 4.3
11	705F	DynaGro Seed	FS	ME	No	No	No	81	9/18/2018	0	74.4	22.8 ± 3.5
12	Super Sile 30	DynaGro Seed	FS	ME	No	No	No	86	9/23/2018	0	63.0	24.4 ± 2.7
13	F74FS23 BMR	DynaGro Seed	FS	M	Yes	No	No	89	9/28/2018	0	69.2	21.7 ± 3.1
14	FX18811	DynaGro Seed	FS	M	No	No	No	87	9/28/2018	55	75.5	21.6 ± 3.2
15	FX18851 BMR	DynaGro Seed	FS	M	Yes	No	No	91	9/29/2018	0	72.1	18.7 ± 3.6
16	Danny Boy BMR	DynaGro Seed	SS	PS	Yes	No	No	84	9/24/2018	0	75.8	17.9 ± 1.9
17	Fullgraze BMR	DynaGro Seed	SS	MF	Yes	No	No	95	10/11/2018	0	66.1	21.3 ± 4.4
18	FX18835SS	DynaGro Seed	SS	MF	No	No	Yes	98	10/3/2018	0	58.3	22.8 ± 2.5
19	FX18843SS BMR	DynaGro Seed	SS	MF	Yes	No	Yes	95	10/3/2018	25	69.5	24.6 ± 5.2
20	F76FS77 BMR	DynaGro Seed	FS	MF	Yes	Yes	No	91	9/28/2018	0	71.7	24.3 ± 5.6
21	Super Sile 20	DynaGro Seed	FS	MF	No	No	No	92	9/24/2018	0	77.9	25.9 ± 0.9
22	GX16921	DynaGro Seed	FS Dual	MF	No	No	No	75	9/4/2018	0	62.9	20.4 ± 3.3
23	HG82-HF	Heartland Genetics	FS	ME	No	No	No	79	9/8/2018	0	78.6	24.8 ± 5.9
24	H-BMR85-HF	Heartland Genetics	FS	M	Yes	Yes	No	79	9/27/2018	0	63.0	24.4 ± 2.0
25	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	82	9/12/2018	0	67.4	22.0 ± 4.5
26	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	98	9/29/2018	0	69.1	20.0 ± 1.6
28	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	103	10/12/2018	0	67.0	22.5 ± 2.7
29	Silo 700D	Richardson Seeds	FS	ML	No	No	No	87	9/18/2018	0	67.5	25.2 ± 1.6
30	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	95	9/28/2018	0	71.2	24.5 ± 3.1
31	Pacesetter BMR	Richardson Seeds	FS	PS	Yes	No	No	0	10/24/2018	57	73.5	18.3 ± 1.3
32	Bundle King BMR	Richardson Seeds	FS	L	Yes	No	Yes	104	10/12/2018	0	71.5	24.1 ± 6.5
33	X1037	Richardson Seeds	FS	E	Yes	No	No	70	9/1/2018	0	64.3	20.3 ± 4.0
34	9500W	Richardson Seeds	FS	E	No	No	No	67	9/1/2018	0	66.7	20.2 ± 6.8
35	X1043	Richardson Seeds	SS	PS	Yes	No	No	145	10/24/2018	37	72.7	22.8 ± 3.7
36	514/23	Scott Seed	FS	L	Yes	No	No	91	9/26/2018	0	65.8	25.9 ± 1.1
37	506/10	Scott Seed	FS	L	Yes	Yes	No	93	9/26/2018	23	69.7	24.3 ± 3.5
38	52242X	Scott Seed	FS	M	No	No	No	89	9/23/2018	0	72.5	25.9 ± 4.6
39	52845X	Scott Seed	FS	L	No	Yes	No	107	10/5/2018	0	57.6	25.9 ± 3.0
40	54243X	Scott Seed	SS	L	No	No	Yes	108	10/18/2018	10	66.3	27.4 ± 5.3
41	53543X	Scott Seed	SS	L	No	No	Yes	103	10/1/2018	0	64.8	26.4 ± 4.6
42	50643X	Scott Seed	SS	L	Yes	No	No	106	10/18/2018	27	66.6	22.7 ± 5.7
43	50651X	Scott Seed	SS	M	Yes	Yes	No	84	9/26/2018	0	64.5	22.5 ± 2.2
44	50652X	Scott Seed	SS	PS	Yes	Yes	No	0	10/24/2018	0	69.9	20.1 ± 5.4
45	50644X	Scott Seed	SS	PS	Yes	No	No	0	9/19/2018	47	71.7	23.2 ± 4.2
46	55210X	Scott Seed	FS	L	No	Yes	No	101	10/7/2018	0	70.3	22.8 ± 3.5
47	52815X	Scott Seed	FS	L	No	No	No	76	9/12/2018	0	68.4	22.7 ± 3.5
48	NK300	Sorghum Partners	FS	ME	No	No	No	81	9/8/2018	0	79.5	20.5 ± 1.6
49	SPX56216	Sorghum Partners	FS	F	Yes	Yes	No	95	9/29/2018	0	65.7	20.2 ± 2.8
50	SP3808SB BMR	Sorghum Partners	FS	F	Yes	Yes	No	96	10/1/2018	30	60.0	24.8 ± 2.6
52	4EverGreen	Walter Moss	FS	PS	No	No	No	0	10/24/2018	80	71.9	24.9 ± 6.4
53	Mega Green	Walter Moss	SS	PS	No	No	No	145	10/24/2018	33	71.8	21.9 ± 2.2
54	Mega Green BMR	Walter Moss	SS	PS	Yes	No	No	0	10/24/2018	43	75.0	25.8 ± 4.5
55	W7051	Warner Seeds	GS	M	No	No	No	70	9/1/2018	0	63.5	21.7 ± 3.1
56	W7706-W	Warner Seeds	GS	M	No	No	No	73	9/1/2018	0	67.2	20.1 ± 3.0
57	WXF-1714	Warner Seeds	FS	M	No	No	No	89	9/28/2018	0	64.2	23.7 ± 3.6
58	WXF-1737	Warner Seeds	FS	M	No	No	No	86	9/14/2018	42	62.4	28.6 ± 5.9
59	84G62	Check 1	GS					66	8/22/2018	0	67.2	17.2 ± 0.7
60	DKS37-07	Check 2	GS					61	8/22/2018	0	70.8	18.2 ± 2.0
61a	P1151 With Ear	Corn Check 1	Corn						9/18/2018	0	64.8	17.4 ± 1.0
61b	P1151 Without Ear	Corn Check 1	Corn						9/18/2018	0	71.4	11.2 ± 0.4
62a	DK70-03 With Ear	Corn Check 2	Corn						9/18/2018	0	69.6	22.5 ± 4.0
62b	DK70-03 Without Ear	Corn Check 2	Corn						9/18/2018	0	72.4	15.3 ± 1.0
[§] Due to the need to initiate harvest prior to the plot tour and issues getting field equipment into plots, all plots hand harvested (1 Row x 10 ft.). Early season heat and drought resulted in variability across field. Hail storm on August 1 had greater impact on earlier maturing hybrids; longer maturity classes continued to add new growth. Hybrids harvested after 10/5/2018 were prone to lodge as a result of October precipitation and weather. *Mean of only sorghum hybrids † If no HB date, hybrid did not reach HB prior to the last harvest date.											Mean	22.4*
											CV (%)	16.2
											p-val	0.0273

Table 3. 2018 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial sorted by maximum yielding hybrids. Male sterile hybrids were pollinated by neighboring hybrids in the trial. FS=forage sorghum, SS=Sorghum Sudan, SU=Sudangrass, GS=Grain sorghum.

Hybrid Characteristics								Days to HB, Harvest Date, Lodging, Moisture and Yield				
Entry	Hybrid	Company	Sorghum Type	Mat - ury	BMR	Brach - ytic	Male Sterile	Days to HB [†]	Harvest Date	% Lodge	% Moist. at Harvest	Yield (tons/ac) 65% Moisture [§]
58	WXF-1737	Warner Seeds	FS	M	No	No	No	86	9/14/2018	42	62.4	28.6 ± 5.9
40	54243X	Scott Seed	SS	L	No	No	Yes	108	10/18/2018	10	66.3	27.4 ± 5.3
41	53543X	Scott Seed	SS	L	No	No	Yes	103	10/1/2018	0	64.8	26.4 ± 4.6
38	52242X	Scott Seed	FS	M	No	No	No	89	9/23/2018	0	72.5	25.9 ± 4.6
39	52845X	Scott Seed	FS	L	No	Yes	No	107	10/5/2018	0	57.6	25.9 ± 3.0
36	514/23	Scott Seed	FS	L	Yes	No	No	91	9/26/2018	0	65.8	25.9 ± 1.1
21	Super Sile 20	DynaGro Seed	FS	MF	No	No	No	92	9/24/2018	0	77.9	25.9 ± 0.9
54	Mega Green BMR	Walter Moss	SS	PS	Yes	No	No	0	10/24/2018	43	75.0	25.8 ± 4.5
1	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	95	9/26/2018	0	65.9	25.7 ± 5.3
29	Silo 700D	Richardson Seeds	FS	ML	No	No	No	87	9/18/2018	0	67.5	25.2 ± 1.6
52	4EverGreen	Walter Moss	FS	PS	No	No	No	0	10/24/2018	80	71.9	24.9 ± 6.4
23	HG82-HF	Heartland Genetics	FS	ME	No	No	No	79	9/8/2018	0	78.6	24.8 ± 5.9
50	SP3808SB BMR	Sorghum Partners	FS	F	Yes	Yes	No	96	10/1/2018	30	60.0	24.8 ± 2.6
19	FX18843SS BMR	DynaGro Seed	SS	MF	Yes	No	Yes	95	10/3/2018	25	69.5	24.6 ± 5.2
30	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	95	9/28/2018	0	71.2	24.5 ± 3.1
24	H-BMR85-HF	Heartland Genetics	FS	M	Yes	Yes	No	79	9/27/2018	0	63.0	24.4 ± 2.0
12	Super Sile 30	DynaGro Seed	FS	ME	No	No	No	86	9/23/2018	0	63.0	24.4 ± 2.7
20	F76FS77 BMR	DynaGro Seed	FS	MF	Yes	Yes	No	91	9/28/2018	0	71.7	24.3 ± 5.6
37	506/10	Scott Seed	FS	L	Yes	Yes	No	93	9/26/2018	23	69.7	24.3 ± 3.5
5	ADV XF033	Advanta Seeds	FS	M	No	No	No	89	9/28/2018	0	66.2	24.1 ± 4.6
32	Bundle King BMR	Richardson Seeds	FS	L	Yes	No	Yes	104	10/12/2018	0	71.5	24.1 ± 6.5
4	ADV XF372	Advanta Seeds	FS	M	Yes	Yes	No	89	9/28/2018	0	63.6	24.0 ± 5.1
57	WXF-1714	Warner Seeds	FS	M	No	No	No	89	9/28/2018	0	64.2	23.7 ± 3.6
2	AF8301	Advanta Seeds	FS	M	No	No	No	86	9/21/2018	17	66.7	23.4 ± 4.5
45	50644X	Scott Seed	SS	PS	Yes	No	No	0	9/19/2018	47	71.7	23.2 ± 4.2
35	X1043	Richardson Seeds	SS	PS	Yes	No	No	145	10/24/2018	37	72.7	22.8 ± 3.7
18	FX18835SS	DynaGro Seed	SS	MF	No	No	Yes	98	10/3/2018	0	58.3	22.8 ± 2.5
46	55210X	Scott Seed	FS	L	No	Yes	No	101	10/7/2018	0	70.3	22.8 ± 3.5
11	705F	DynaGro Seed	FS	ME	No	No	No	81	9/18/2018	0	74.4	22.8 ± 3.5
42	50643X	Scott Seed	SS	L	Yes	No	No	106	10/18/2018	27	66.6	22.7 ± 5.7
47	52815X	Scott Seed	FS	L	No	No	No	76	9/12/2018	0	68.4	22.7 ± 3.5
28	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	103	10/12/2018	0	67.0	22.5 ± 2.7
43	50651X	Scott Seed	SS	M	Yes	Yes	No	84	9/26/2018	0	64.5	22.5 ± 2.2
62a	DK70-03 With Ear	Corn Check 2	Corn						9/18/2018	0	69.6	22.5 ± 4.0
25	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	82	9/12/2018	0	67.4	22.0 ± 4.5
53	Mega Green	Walter Moss	SS	PS	No	No	No	145	10/24/2018	33	71.8	21.9 ± 2.2
13	F74FS23 BMR	DynaGro Seed	FS	M	Yes	No	No	89	9/28/2018	0	69.2	21.7 ± 3.1
8	841F	DuPont Pioneer	FS	E	No	No	No	79	9/13/2018	0	56.1	21.7 ± 5.3
55	W7051	Warner Seeds	GS	M	No	No	No	70	9/1/2018	0	63.5	21.7 ± 3.1
14	FX18811	DynaGro Seed	FS	M	No	No	No	87	9/28/2018	55	75.5	21.6 ± 3.2
17	Fullgraze BMR	DynaGro Seed	SS	MF	Yes	No	No	95	10/11/2018	0	66.1	21.3 ± 4.4
10	849F	DuPont Pioneer	FS	E	No	No	No	66	9/1/2018	0	68.8	20.7 ± 4.3
7	Val-4	American Hybrids	FS	L	No	No	No	96	9/29/2018	0	71.8	20.6 ± 4.4
48	NK300	Sorghum Partners	FS	ME	No	No	No	81	9/8/2018	0	79.5	20.5 ± 1.6
9	845F	DuPont Pioneer	FS	E	No	No	No	63	9/1/2018	0	73.5	20.4 ± 5.0
22	GX16921	DynaGro Seed	FS Dual	MF	No	No	No	75	9/4/2018	0	62.9	20.4 ± 3.3
33	X1037	Richardson Seeds	FS	E	Yes	No	No	70	9/1/2018	0	64.3	20.3 ± 4.0
34	9500W	Richardson Seeds	FS	E	No	No	No	67	9/1/2018	0	66.7	20.2 ± 6.8
49	SPX56216	Sorghum Partners	FS	F	Yes	Yes	No	95	9/29/2018	0	65.7	20.2 ± 2.8
44	50652X	Scott Seed	SS	PS	Yes	Yes	No	0	10/24/2018	0	69.9	20.1 ± 5.4
56	W7706-W	Warner Seeds	GS	M	No	No	No	73	9/1/2018	0	67.2	20.1 ± 3.0
26	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	98	9/29/2018	0	69.1	20.0 ± 1.6
15	FX18851 BMR	DynaGro Seed	FS	M	Yes	No	No	91	9/29/2018	0	72.1	18.7 ± 3.6
31	Pacesetter BMR	Richardson Seeds	FS	PS	Yes	No	No	0	10/24/2018	57	73.5	18.3 ± 1.3
60	DKS37-07	Check 2	GS					61	8/22/2018	0	70.8	18.2 ± 2.0
16	Danny Boy BMR	DynaGro Seed	SS	PS	Yes	No	No	84	9/24/2018	0	75.8	17.9 ± 1.9
61a	P1151 With Ear	Corn Check 1	Corn						9/18/2018	0	64.8	17.4 ± 1.0
6	ADV XF378	Advanta Seeds	FS	M	Yes	Yes	No	87	9/27/2018	0	64.8	17.3 ± 3.5
59	84G62	Check 1	GS					66	8/22/2018	0	67.2	17.2 ± 0.7
3	ADV S6504	Advanta Seeds	SS	PS	Yes	No	No	130	10/24/2018	40	73.7	16.9 ± 1.9
62b	DK70-03 Without Ear	Corn Check 2	Corn						9/18/2018	0	72.4	15.3 ± 1.0
61b	P1151 Without Ear	Corn Check 1	Corn						9/18/2018	0	71.4	11.2 ± 0.4
§ Due to the need to initiate harvest prior to the plot tour and issues getting field equipment into plots, all plots hand harvested (1 Row x 10 ft.). Early season heat and drought resulted in variability across field. Hail storm on August 1 had greater impact on earlier maturing hybrids; longer maturity classes continued to add new growth. *Mean of only sorghum hybrids											Mean	22.4*
											CV (%)	16.2
											p-val	0.0273

Table 4. 2018 Summary of forage nutrient composition reported on a dry matter (DM) basis and calculated nutritional quality indices. Male sterile entries were pollinated by other hybrids. FS=Forage Sorghum, SS=Sorghum Sudan, SU=Sudangrass, GS=Grain Sorghum

Hybrid Characteristics								Nutrient Composition and Calculations (DM basis)										
Entry	Hybrid	Company	Sorghum Type	Mat - urity	BMR	Brach - ytic	Male Sterile	%CP	%ADF	%aNDF	%Lignin	%Starch	%NDFD 48	%uNDF - om240	RFQ	TDN	Milk/ton	Yield tons/ac (65% Moist.)
1	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	7.4	28.4	40.2	4.2	31.3	38.8	19.4	129.6	66.7	3372	25.7 ± 5.3
2	AF8301	Advanta Seeds	FS	M	No	No	No	6.0	33.3	47.3	4.5	23.3	41.1	21.1	103.1	62.7	3045	23.4 ± 4.5
3	ADV S6504	Advanta Seeds	SS	PS	Yes	No	No	6.0	40.7	58.2	3.1	0.1	56.1	17.7	97.2	60.2	2803	16.9 ± 1.9
4	ADV XF372	Advanta Seeds	FS	M	Yes	Yes	No	8.3	29.0	44.5	3.6	24.8	49.5	17.4	128.9	64.8	3283	24.0 ± 5.1
5	ADV XF033	Advanta Seeds	FS	M	No	No	No	7.2	28.7	44.9	3.9	24.7	42.8	19.9	114.4	65.5	3261	24.1 ± 4.6
6	ADV XF378	Advanta Seeds	FS	M	Yes	Yes	No	8.7	26.6	40.8	3.5	28.4	43.9	17.9	133.5	66.5	3347	17.3 ± 3.5
7	VaL-4	American Hybrids	FS	L	No	No	No	6.1	34.3	50.5	4.5	18.0	42.8	21.3	94.5	62.7	3042	20.6 ± 4.4
8	841F	DuPont Pioneer	FS	E	No	No	No	8.0	29.5	42.7	4.1	27.2	41.9	19.5	122.4	65.2	3240	21.7 ± 5.3
9	845F	DuPont Pioneer	FS	E	No	No	No	9.1	24.4	34.3	3.6	35.8	35.9	17.7	158.3	70.5	3589	20.4 ± 5.0
10	849F	DuPont Pioneer	FS	E	No	No	No	8.6	27.4	43.2	3.9	24.1	42.5	19.1	122.7	66.5	3351	20.7 ± 4.3
11	705F	DynaGro Seed	FS	ME	No	No	No	7.4	31.0	45.5	4.1	22.7	41.0	20.6	106.2	63.9	3105	22.8 ± 3.5
12	Super Sile 30	DynaGro Seed	FS	ME	No	No	No	7.9	29.4	43.5	3.4	22.3	44.1	18.6	124.4	66.2	3275	24.4 ± 2.7
13	F74FS23 BMR	DynaGro Seed	FS	M	Yes	No	No	6.7	27.8	41.8	1.9	13.1	51.7	14.6	144.5	68.3	3384	21.7 ± 3.1
14	FX18811	DynaGro Seed	FS	M	No	No	No	7.2	31.2	45.8	4.0	23.1	44.8	19.4	113.6	63.9	3145	21.6 ± 3.2
15	FX18851 BMR	DynaGro Seed	FS	M	Yes	No	No	7.1	32.4	45.9	2.9	17.2	51.7	16.5	128.8	64.0	3130	18.7 ± 3.6
16	Danny Boy BMR	DynaGro Seed	SS	PS	Yes	No	No	6.6	33.2	48.9	3.3	12.9	49.8	17.9	113.3	63.5	3092	17.9 ± 1.9
17	Fullgraze BMR	DynaGro Seed	SS	MF	Yes	No	No	5.0	38.6	59.0	4.2	3.4	51.2	20.5	89.8	60.9	2944	21.3 ± 4.4
18	FX18835SS	DynaGro Seed	SS	MF	No	No	Yes	5.2	38.4	59.4	4.3	3.8	49.2	21.7	84.9	60.9	2903	22.8 ± 2.5
19	FX18843SS BMR	DynaGro Seed	SS	MF	Yes	No	Yes	5.7	38.5	57.9	3.7	3.9	54.4	18.9	96.7	60.7	2912	24.6 ± 5.2
20	F76FS77 BMR	DynaGro Seed	FS	MF	Yes	Yes	No	7.0	31.9	43.4	3.7	27.5	46.6	18.5	123.9	63.7	3143	24.3 ± 5.6
21	Super Sile 20	DynaGro Seed	FS	MF	No	No	No	6.4	36.2	52.7	5.2	18.4	41.4	23.5	84.6	60.8	2922	25.9 ± 0.9
22	GX16921	DynaGro Seed	FS Dual	MF	No	No	No	7.7	29.1	40.0	4.1	30.8	35.9	20.4	120.3	65.7	3188	20.4 ± 3.3
23	HG82-HF	Heartland Genetics	FS	ME	No	No	No	7.0	30.0	45.1	3.9	26.2	41.9	20.4	112.5	64.6	3164	24.8 ± 5.9
24	H-BMR85-HF	Heartland Genetics	FS	M	Yes	Yes	No	7.8	28.3	42.0	2.8	22.5	48.2	16.7	137.4	66.8	3322	24.4 ± 2.0
25	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	8.7	30.2	44.2	3.7	22.7	44.6	18.7	119.3	65.2	3218	22.0 ± 4.5
26	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	6.3	34.9	53.0	3.3	4.5	50.2	18.7	100.7	62.5	2970	20.0 ± 1.6
28	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	5.5	36.6	54.8	3.6	4.5	50.2	19.2	95.9	61.9	2944	22.5 ± 2.7
29	Silo 700D	Richardson Seeds	FS	ML	No	No	No	6.6	31.9	46.8	3.5	15.7	46.2	18.7	111.2	63.8	3087	25.2 ± 1.6
30	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	6.3	32.5	48.2	4.2	21.5	45.2	20.3	107.5	63.9	3164	24.5 ± 3.1
31	Pacesetter BMR	Richardson Seeds	FS	PS	Yes	No	No	5.4	39.1	59.5	3.1	0.1	57.3	17.2	99.8	61.6	2935	18.3 ± 1.3
32	Bundle King BMR	Richardson Seeds	FS	L	Yes	No	Yes	6.0	35.5	53.6	3.7	9.7	51.5	18.6	103.3	62.7	3068	24.1 ± 6.5
33	X1037	Richardson Seeds	FS	E	Yes	No	No	9.7	23.8	34.8	3.4	33.8	39.7	17.1	161.4	70.3	3615	20.3 ± 4.0
34	9500W	Richardson Seeds	FS	E	No	No	No	8.3	26.1	38.1	3.3	30.2	38.7	18.5	140.6	68.2	3375	20.2 ± 6.8
35	X1043	Richardson Seeds	SS	PS	Yes	No	No	6.2	44.2	68.2	5.0	0.1	54.4	21.9	76.8	55.8	2587	22.8 ± 3.7
36	514/23	Scott Seed	FS	L	Yes	No	No	7.2	28.8	42.5	2.4	13.6	50.0	15.7	137.4	67.3	3324	25.9 ± 1.1
37	506/10	Scott Seed	FS	L	Yes	Yes	No	8.2	31.5	44.4	4.0	26.0	45.7	19.1	121.3	63.6	3139	24.3 ± 3.5
38	52242X	Scott Seed	FS	M	No	No	No	6.6	31.5	45.6	4.4	25.8	42.6	20.6	112.0	64.3	3199	25.9 ± 4.6
39	52845X	Scott Seed	FS	L	No	Yes	No	7.3	33.0	48.0	4.1	21.7	46.2	19.6	109.8	63.8	3161	25.9 ± 3.0
40	54243X	Scott Seed	SS	L	No	No	Yes	4.6	43.5	64.6	4.9	0.6	49.1	23.1	72.9	58.2	2696	27.4 ± 5.3
41	53543X	Scott Seed	SS	L	No	No	Yes	4.3	41.4	60.7	4.4	2.4	48.3	22.0	78.0	59.1	2729	26.4 ± 4.6
42	50643X	Scott Seed	SS	L	Yes	No	No	5.7	43.5	63.3	4.4	3.7	53.2	21.1	81.4	57.2	2655	22.7 ± 5.7
43	50651X	Scott Seed	SS	M	Yes	Yes	No	7.5	30.6	44.1	3.0	19.6	48.6	17.0	126.3	64.9	3194	22.5 ± 2.2
44	50652X	Scott Seed	SS	PS	Yes	Yes	No	8.2	42.4	60.5	3.5	0.1	61.2	16.7	100.2	56.7	2649	20.1 ± 5.4

Hybrid Characteristics								Nutrient Composition and Calculations (DM basis)										
Entry	Hybrid	Company	Sorghum Type	Mat - urity	BMR	Brach - ytic	Male Sterile	%CP	%ADF	%aNDF	%Lignin	%Starch	%NDFD 48	%uNDF - om240	RFQ	TDN	Milk/ton	Yield tons/ac (65% Moist.)
45	50644X	Scott Seed	SS	PS	Yes	No	No	6.7	43.8	61.4	3.5	0.1	57.8	18.3	92.0	57.1	2616	23.2 ± 4.2
46	55210X	Scott Seed	FS	L	No	Yes	No	7.9	31.1	45.1	3.9	24.5	43.9	19.6	116.4	65.2	3234	22.8 ± 3.5
47	52815X	Scott Seed	FS	L	No	No	No	8.8	27.8	40.7	3.6	28.2	42.4	18.1	131.9	66.8	3335	22.7 ± 3.5
48	NK300	Sorghum Partners	FS	ME	No	No	No	7.3	30.5	46.1	3.5	20.6	45.4	19.5	112.2	63.9	3093	20.5 ± 1.6
49	SPX56216	Sorghum Partners	FS	F	Yes	Yes	No	6.9	34.7	51.9	2.9	5.8	56.3	16.2	114.6	62.1	2998	20.2 ± 2.8
50	SP3808SB BMR	Sorghum Partners	FS	F	Yes	Yes	No	7.8	28.7	41.2	2.9	24.7	46.3	16.8	139.4	67.8	3418	24.8 ± 2.6
52	4EverGreen	Walter Moss	FS	PS	No	No	No	5.7	44.3	65.6	4.9	0.1	51.1	22.9	72.6	55.6	2523	24.9 ± 6.4
53	Mega Green	Walter Moss	SS	PS	No	No	No	5.8	47.0	67.4	5.6	0.1	49.4	24.3	64.8	53.1	2344	21.9 ± 2.2
54	Mega Green BMR	Walter Moss	SS	PS	Yes	No	No	6.1	44.5	62.4	3.8	0.1	58.1	18.3	89.7	56.2	2574	25.8 ± 4.5
55	W7051	Warner Seeds	GS	M	No	No	No	8.9	24.8	37.5	3.8	32.6	37.7	18.9	140.7	68.9	3488	21.7 ± 3.1
56	W7706-W	Warner Seeds	GS	M	No	No	No	9.8	24.6	38.3	3.6	31.1	42.8	17.4	148.2	68.8	3531	20.1 ± 3.0
57	WXF-1714	Warner Seeds	FS	M	No	No	No	7.3	30.7	45.3	4.3	25.9	42.0	20.4	110.2	64.0	3148	23.7 ± 3.6
58	WXF-1737	Warner Seeds	FS	M	No	No	No	6.6	33.8	50.6	4.9	19.5	39.7	23.0	89.4	62.0	2953	28.6 ± 5.9
59	84G62	Check 1	GS					9.5	27.2	41.4	3.9	28.1	44.7	18.7	135.3	66.4	3282	17.2 ± 0.7
60	DKS37-07	Check 2	GS					9.4	26.5	37.7	4.2	32.6	35.2	19.7	134.2	68.0	3412	18.2 ± 2.0
61a	P1151 With Ear	Corn Check 1	Corn					8.4	23.8	37.2	2.7	25.0	61.3	10.9	.	70.3	2920	17.4 ± 1.0
61b	P1151 Without Ear	Corn Check 1	Corn					7.4	32.7	50.3	3.5	3.7	62.7	13.8	.	62.8	1643	11.2 ± 0.4
62a	DK70-03 With Ear	Corn Check 2	Corn					8.1	27.2	42.1	3.5	22.1	59.7	12.2	.	67.7	2896	22.5 ± 4.0
62b	DK70-03 Without Ear	Corn Check 2	Corn					6.9	35.6	52.3	4.4	4.5	57.3	16.2	.	60.4	1620	15.3 ± 1.0

Table 5. 2018 Sugarcane aphid ratings and the seasonal average aphid rating. Means followed by the same letter do not significantly differ using LSD (0.05).

Hybrid Characteristics								SCA Ratings								
Entry	Hybrid	Company	Sorghum Type	Mat - ury	BMR	Brach - ytic	Male Sterile	7/24/2018	8/1/2018	8/15/2018†	8/20/2018	8/29/2018	9/6/2018	9/12/2018	Average Rating	
1	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	1.0	2.7 ABC	1.7	0.0	0.3	0.3	0.7	1.0 A-E	
2	AF8301	Advanta Seeds	FS	M	No	No	No	1.0	2.3 ABC	1.3	0.0	0.7	0.0	0.3	0.8 A-E	
3	ADV S6504	Advanta Seeds	SS	PS	Yes	No	No	1.3	3.7 ABC	0.3	0.0	0.0	0.0	0.0	0.8 A-E	
4	ADV XF372	Advanta Seeds	FS	M	Yes	Yes	No	0.0	3.0 C	0.7	0.3	0.7	0.0	0.0	0.7 B-E	
5	ADV XF033	Advanta Seeds	FS	M	No	No	No	0.3	4.0 BC	0.7	0.0	0.0	0.7	0.7	0.9 A-E	
6	ADV XF378	Advanta Seeds	FS	M	Yes	Yes	No	0.7	4.0 ABC	1.0	0.3	0.0	0.3	0.7	1.0 A-E	
7	VaL-4	American Hybrids	FS	L	No	No	No	1.0	2.7 ABC	0.7	0.0	0.0	0.0	0.0	0.6 B-E	
8	841F	DuPont Pioneer	FS	E	No	No	No	0.7	4.0 ABC	1.3	0.0	0.3	0.0	0.0	0.9 A-E	
9	845F	DuPont Pioneer	FS	E	No	No	No	0.3	4.3 BC	0.3	0.3	1.0	0.0	0.0	0.9 A-E	
10	849F	DuPont Pioneer	FS	E	No	No	No	1.3	5.0 ABC	0.0	0.0	0.7	0.0	0.0	1.0 A-E	
11	705F	DynaGro Seed	FS	ME	No	No	No	1.3	5.3 ABC	0.7	1.0	0.7	0.0	1.0	1.4 A-D	
12	Super Sile 30	DynaGro Seed	FS	ME	No	No	No	1.3	4.7 ABC	0.7	0.0	0.3	0.0	1.0	1.1 A-E	
13	F74FS23 BMR	DynaGro Seed	FS	M	Yes	No	No	0.3	4.3 BC	0.3	0.3	0.7	0.0	0.3	0.9 A-E	
14	FX18811	DynaGro Seed	FS	M	No	No	No	0.7	3.0 BC	0.3	0.0	0.3	0.0	0.0	0.6 B-E	
15	FX18851 BMR	DynaGro Seed	FS	M	Yes	No	No	1.0	6.0 ABC	1.3	0.0	1.0	0.0	1.0	1.5 ABC	
16	Danny Boy BMR	DynaGro Seed	SS	PS	Yes	No	No	0.7	5.0 ABC	0.3	0.0	0.3	0.0	0.0	0.9 A-E	
17	Fullgraze BMR	DynaGro Seed	SS	MF	Yes	No	No	1.0	3.7 ABC	1.0	0.3	0.3	0.3	0.0	1.0 A-E	
18	FX18835SS	DynaGro Seed	SS	MF	No	No	Yes	0.3	3.3 BC	0.3	0.0	0.0	0.0	0.0	0.6 CDE	
19	FX18843SS BMR	DynaGro Seed	SS	MF	Yes	No	Yes	1.0	4.0 ABC	1.0	0.0	0.3	0.0	0.3	1.0 A-E	
20	F76FS77 BMR	DynaGro Seed	FS	MF	Yes	Yes	No	1.7	4.3 ABC	4.0	0.0	0.3	0.0	0.3	1.5 A	
21	Super Sile 20	DynaGro Seed	FS	MF	No	No	No	1.0	3.7 ABC	1.0	0.0	0.0	0.0	0.0	0.8 A-E	
22	GX16921	DynaGro Seed	FS Dual	MF	No	No	No	1.0	3.3 ABC	4.0	0.0	0.3	1.0	0.0	1.4 A-D	
23	HG82-HF	Heartland Genetics	FS	ME	No	No	No	1.0	5.3 ABC	0.3	0.3	0.3	0.0	0.0	1.0 A-E	
24	H-BMR85-HF	Heartland Genetics	FS	M	Yes	Yes	No	1.7	5.3 ABC	1.0	0.7	0.7	0.3	0.0	1.4 ABC	
25	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	0.7	3.0 ABC	0.7	0.0	0.7	0.3	1.0	0.9 A-E	
26	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	1.0	2.7 ABC	0.0	0.0	0.0	0.0	0.0	0.5 DE	
28	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	1.3	3.0 ABC	0.7	0.0	0.0	0.0	0.0	0.7 A-E	
29	Silo 700D	Richardson Seeds	FS	ML	No	No	No	2.0	4.3 ABC	2.7	0.3	0.3	0.3	0.0	1.4 A-E	
30	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	1.3	4.3 AB	0.7	0.0	0.3	0.7	0.3	1.1 AB	
31	Pacesetter BMR	Richardson Seeds	FS	PS	Yes	No	No	1.7	3.7 ABC	0.0	0.0	0.0	0.0	0.0	0.8 A-E	
32	Bundle King BMR	Richardson Seeds	FS	L	Yes	No	Yes	1.0	2.7 ABC	0.3	0.0	0.0	0.0	0.0	0.6 A-E	
33	X1037	Richardson Seeds	FS	E	Yes	No	No	1.0	4.3 ABC	0.3	0.7	0.3	0.0	0.0	1.0 CDE	
34	9500W	Richardson Seeds	FS	E	No	No	No	1.0	3.7 ABC	0.0	0.7	1.0	0.0	0.0	0.9 A-E	
35	X1043	Richardson Seeds	SS	PS	Yes	No	No	1.7	3.0 ABC	0.0	0.0	0.0	0.0	0.0	0.7 A-E	
36	514/23	Scott Seed	FS	L	Yes	No	No	1.7	5.0 ABC	0.7	0.0	0.3	0.3	0.3	1.2 B-E	
37	506/10	Scott Seed	FS	L	Yes	Yes	No	2.3	4.3 ABC	2.7	0.0	0.3	0.3	0.0	1.4 A-E	
38	52242X	Scott Seed	FS	M	No	No	No	0.7	3.7 A	0.7	0.0	0.7	0.0	0.3	0.9 AB	
39	52845X	Scott Seed	FS	L	No	Yes	No	1.0	3.0 ABC	1.7	0.0	0.0	0.0	0.0	0.8 A-E	
40	54243X	Scott Seed	SS	L	No	No	Yes	1.0	2.7 ABC	0.0	0.0	0.0	0.0	0.0	0.5 A-E	
41	53543X	Scott Seed	SS	L	No	No	Yes	1.3	2.7 ABC	0.3	0.0	0.0	0.0	0.0	0.6 DE	
42	50643X	Scott Seed	SS	L	Yes	No	No	2.3	3.3 ABC	0.0	0.0	0.0	0.0	0.0	0.8 B-E	
43	50651X	Scott Seed	SS	M	Yes	Yes	No	1.0	5.7 A	0.7	0.3	0.7	0.0	0.0	1.2 A-E	
44	50652X	Scott Seed	SS	PS	Yes	Yes	No	2.3	4.3 ABC	0.3	0.0	0.0	0.0	0.0	1.0 A-D	
45	50644X	Scott Seed	SS	PS	Yes	No	No	1.7	3.3 A	0.3	0.0	0.0	0.0	0.0	0.8 A-E	
46	55210X	Scott Seed	FS	L	No	Yes	No	1.7	3.3 ABC	1.0	0.0	0.0	0.0	0.0	0.9 A-E	
47	52815X	Scott Seed	FS	L	No	No	No	1.0	2.7 ABC	1.3	0.0	0.0	0.0	0.0	0.7 A-E	
48	NK300	Sorghum Partners	FS	ME	No	No	No	1.0	4.3 ABC	0.3	0.3	1.0	0.0	0.0	1.0 A-E	
49	SPX56216	Sorghum Partners	FS	F	Yes	Yes	No	1.0	2.7 ABC	1.0	0.0	0.0	0.0	0.0	0.7 A-E	
50	SP3808SB BMR	Sorghum Partners	FS	F	Yes	Yes	No	1.7	2.7 ABC	0.7	0.0	0.0	0.0	0.3	0.8 B-E	
52	4EverGreen	Walter Moss	FS	PS	No	No	No	1.3	4.3 ABC	0.0	0.0	0.0	0.0	0.0	0.8 A-E	
53	Mega Green	Walter Moss	SS	PS	No	No	No	1.0	3.0 ABC	0.3	0.0	0.0	0.0	0.0	0.6 B-E	
54	Mega Green BMR	Walter Moss	SS	PS	Yes	No	No	1.3	3.0 ABC	0.0	0.0	0.3	0.0	0.0	0.7 A-E	
55	W7051	Warner Seeds	GS	M	No	No	No	0.7	3.0 ABC	0.7	0.3	0.7	0.0	0.0	0.8 E	
56	W7706-W	Warner Seeds	GS	M	No	No	No	0.7	2.3 ABC	0.7	0.0	0.0	0.0	0.0	0.5 B-E	
57	WXF-1714	Warner Seeds	FS	M	No	No	No	0.7	3.7 ABC	0.3	0.3	0.0	0.3	0.3	0.8 A-E	
58	WXF-1737	Warner Seeds	FS	M	No	No	No	1.7	5.3 ABC	0.3	0.0	0.0	0.0	0.0	1.0 DE	
59	84G62	Check 1	GS					1.0	5.0 ABC	1.0	0.0	0.0	0.0	0.0	1.0 A-E	
60	DKS37-07	Check 2	GS					0.7	2.7 ABC	0.7	0.0	0.0	0.0	0.0	0.6 A-E	
								Average	3.8	0.8	0.1	0.3	0.1	0.2	0.9	
								P-Val	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	

Table 6. 2018 grain yields reported for FSA to update Loan Deficiency Payment Tables as requested at the time of entry to the trial. Grain yields for all hybrids evaluated as a percent of the trial's long-term grain sorghum check Pioneer 84G62. (2018 84G62 yield: 7154 lbs/acre; 9 year average: 8005 lbs/acre)

Entry	Hybrid	Company	Sorghum Type	Mat - urity	BMR	Brach - ytic	Male Sterile	Grain Yield, lb/ac (13% Moist.)	Grain Yield as a % of 2018 84G62 Grain Yield	Grain Yield as a % of 84G62 9-year Avg. Yield
60	DKS37-07	Check 2	GS					9598	134.2	119.9
37	506/10	Scott Seed	FS	L	Yes	Yes	No	8473	118.4	105.8
47	52815X	Scott Seed	FS	L	No	No	No	7813	109.2	97.6
9	845F	DuPont Pioneer	FS	E	No	No	No	7684	107.4	96.0
8	841F	DuPont Pioneer	FS	E	No	No	No	7229	101.1	90.3
5	ADV XF033	Advanta Seeds	FS	M	No	No	No	7169	100.2	89.6
59	84G62	Check 1	GS					7154	100.0	89.4
22	GX16921	DynaGro Seed	FS Dual	MF	No	No	No	7110	99.4	88.8
11	705F	DynaGro Seed	FS	ME	No	No	No	6990	97.7	87.3
23	HG82-HF	Heartland Genetics	FS	ME	No	No	No	6739	94.2	84.2
29	Silo 700D	Richardson Seeds	FS	ML	No	No	No	6579	92.0	82.2
38	52242X	Scott Seed	FS	M	No	No	No	6460	90.3	80.7
4	ADV XF372	Advanta Seeds	FS	M	Yes	Yes	No	6126	85.6	76.5
33	X1037	Richardson Seeds	FS	E	Yes	No	No	6108	85.4	76.3
46	55210X	Scott Seed	FS	L	No	Yes	No	5816	81.3	72.7
25	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	5753	80.4	71.9
39	52845X	Scott Seed	FS	L	No	Yes	No	5601	78.3	70.0
34	9500W	Richardson Seeds	FS	E	No	No	No	5567	77.8	69.5
10	849F	DuPont Pioneer	FS	E	No	No	No	5127	71.7	64.0
30	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	5108	71.4	63.8
24	H-BMR85-HF	Heartland Genetics	FS	M	Yes	Yes	No	4903	68.5	61.2
7	VaL-4	American Hybrids	FS	L	No	No	No	4859	67.9	60.7
12	Super Sile 30	DynaGro Seed	FS	ME	No	No	No	4437	62.0	55.4
6	ADV XF378	Advanta Seeds	FS	M	Yes	Yes	No	4402	61.5	55.0
43	50651X	Scott Seed	SS	M	Yes	Yes	No	2546	35.6	31.8
36	514/23	Scott Seed	FS	L	Yes	No	No	2475	34.6	30.9