TEXAS A&M AGRILIFE RESEARCH | EXTENSION

2019 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial

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The 2019 Texas A&M AgriLife Research and Extension Forage Sorghum Silage Trial consisted of 89 sorghum hybrids including forage sorghums, sorghum-sudangrasses, and grain sorghum hybrids. Of the 89 sorghum hybrids, 39 were brown midrib (BMR) forage sorghum and sorghum-sudangrass hybrids and 21 were brachytic hybrids (Table 1). Twelve of the 21 hybrids were brachytic BMR hybrids. The average forage yield was 22.2 tons/acre with yields ranging from 28.8 to 14.2 tons/acre. Two grain sorghum hybrids (DKS 37-07 and P84G62) serve as long-term checks for forage hybrid grain production. Grain yields are reported to the USDA-Risk Management Agency to update the Loan Deficiency Payment Tables for forage sorghum hybrids. In-season precipitation plus irrigation totaled 16.3 inches, but 4.7 inches of precipitation was received after October 1, 2019 resulting in harvest delays for later maturing hybrids (Fig. 1). Precipitation after October 1, 2019 did significantly not contribute to forage biomass production, and an early hard freeze on October 11 ceased plant development as well as accelerated dry down of later maturing, un-harvested plots. Consequently, several hybrids harvested in mid-October had reached hard-dough. All yields are corrected to 65% moisture.

Agronomic Information

Cooperator: Michael Menke
Previous Crop: Wheat hay
Planting Date: June 18, 2019
Plot size: Four, 30-inch rows by 25 ft. (30ft planted)
Forage Sorghum Seeding Rate: 75,000 seeds/acre
Corn Silage Seeding Rate: 32,000 seeds/acre
Herbicide: Pre-plant application of Bicep (Atrazine + S-metolachlor) 1.5 pts/ac
Fertilizer: Manure during fallow and 200 lbs. N/acre as granular urea post-emergent
Insecticide: 1 application of Sivanto chemigated on August 12, 2019 (10 oz/ac with 0.25-inch irrigation)
In-season Irrigation: 5 inches
Effective in-season precipitation: 6.6 inches

Total In-season Precipitation:

Harvest Date	Precip. from Planting to Harvest (in.)
9/13/2019	6.0
9/18/2019	6.0
9/26/2019	6.6
9/27/2019	6.6
10/16/2019	11.3
10/17/2019	11.3

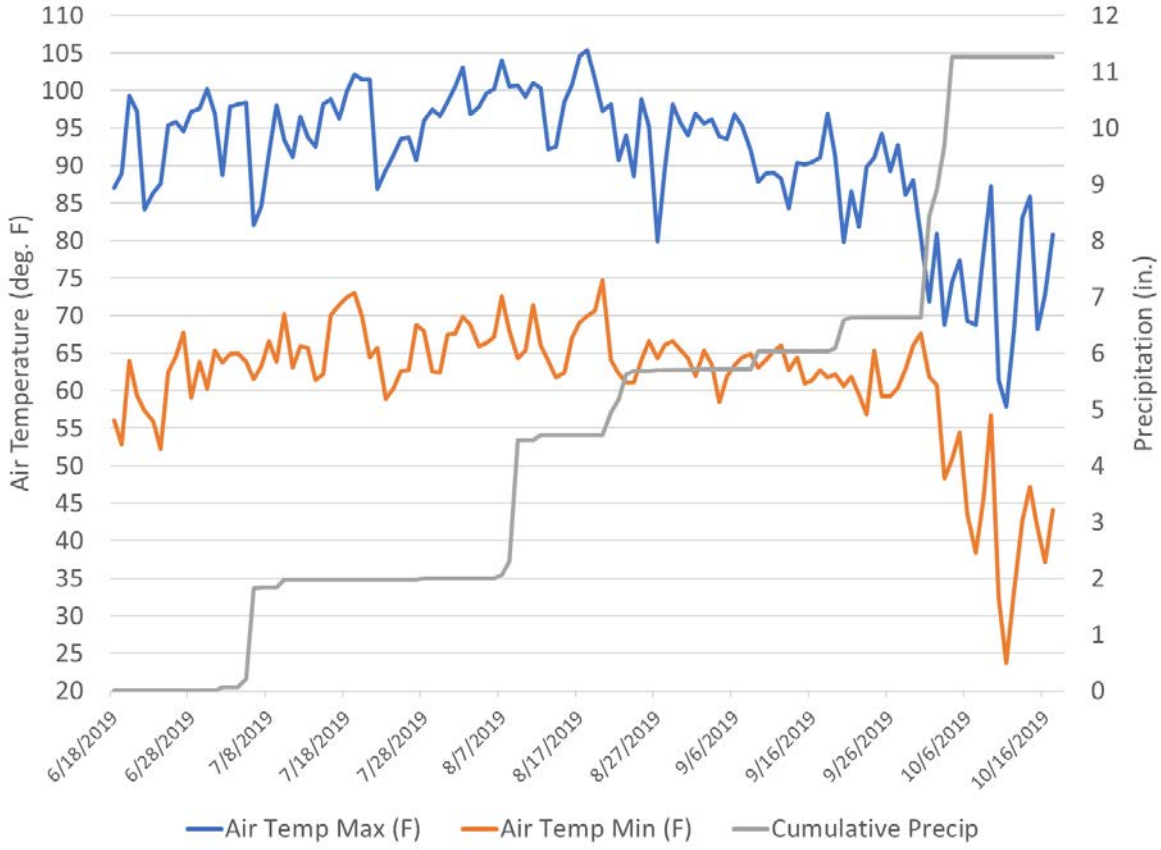

Figure 1. 2019 In-season precipitation and air temperature at Bushland, Texas from planting through the last harvest date.

The trial was located near Bushland, TX with a cooperating producer (Mr. Michael Menke) under center pivot irrigation within a production forage sorghum field. Seed companies submitted forage sorghum hybrids on a per fee basis except for the grain sorghum checks and corn hybrids. Extended wet conditions in May 2019 delayed planting. Plots were planted on June 18, 2019. Hybrids were blocked according to the marketed maturity class so that plots within each block could be mechanically harvested for forage yield when grain reached soft dough. However, planting date and latitude effects the duration of the vegetative phase resulting in deviation from the marketed hybrid maturity and hybrids reaching soft-dough earlier than the maturity class in which they were blocked. Consequently, forage yield was obtained from a 25 ft^2 area (1 row by 10 ft.) by hand for Gayland Ward's 19053 on 18-Sep-2019 and a uniform sub-sample was chopped for nutritional composition. All remaining hybrids were harvested using a mechanical chopper, and the sample size was 2 rows by 25 feet. Hybrids that had not reached soft-dough were all harvested on the last sampling date (October 17, 2019). Uniform sub-samples were collected for

dry matter and nutritional composition. A sub-sample of the chopped forage was dried at 221°F (105°C) to determine harvest moisture. A 600-gram sample 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. Lodging and hybrid height were recorded at harvest.

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

WSC: A measurement of simple sugars (glucose, fructose, and sucrose) and fructans. WSCs accumulate in the stalk until anthesis. After anthesis, they remobilize to the grain. WSCs are important for fermentation as they are used during the development of lactic acid

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 affect forage yield, lodging, 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. Male sterile hybrids were pollinated by neighboring plots.

Sugarcane aphids (SCA) were identified on August 5, 2019. All plots were rated for SCA infestation upon initial identification using the Texas A&M AgriLife Rating scale for the High Plains (Table 5).

SCAs were identified in all plots at low levels. The presence of SCAs on tolerant hybrids agrees with previous research. SCAs may still infest a SCA tolerant hybrid, but SCAs reproduce more slowly on a tolerant hybrid. In response to infestation, the entire field including our test plots was chemigated with Sivanto at 10 oz/ac with 0.25-inch irrigation on August 12, 2019. Because of the timely insecticide application, there was insignificant damage from SCAs in the 2019 trial.

Texas A&M AgriLife Sugarcane Aphid Rating Scale for the High Plains:
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 October following forage harvest for select hybrids upon seed company request at the time of entry. 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 addresses broad averages for types of forage sorghums, grain sorghums evaluated as silage, and sorghum/sudangrass hybrids evaluated in the 2019 test. 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, and there is often an overlap among hybrids in these type categories. 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.

List of Tables

Table 1. 2019 Summary of yield, lodging, and quality (DM basis) by forage type as reported at the time of entry. The number in parentheses represents the number of hybrids that make up each sorghum type.

Sorghum Type	Height at Harvest (in.)	% Lodging at Harvest	%Moisture at Harvest	Avg. Yield (tons/ac) 65% Moist.	%CP	%ADF	%aNDF	%Lignin	%Starch	%WSC	%NDFD 48	%uNDF - om240	RFQ	TDN	Milk/ton
by Brown Midrib Trait															
BMR (39)	85	3.5	65.9	21.8	8.2	30.0	44.2	3.0	14.8	12.9	48.7	16.2	133	67	3301
Non-BMR (50)	84	2.8	64.8	22.6	8.0	29.8	44.9	3.5	15.4	12.7	45.5	17.5	124	67	3285
by Photoperiod Response															
Photoperiod Sensitive (6)	80	2.2	70.1	21.3	7.2	36.3	55.2	2.7	0.5	18.2	57.8	15.9	110	62	2975
Non-Photoperiod Sensitive (83)	85	3.2	64.9	22.3	8.1	29.4	43.8	3.3	16.2	12.4	46.1	17.0	129	67	3315
by Brachytic Trait															
Brachytic (21)	71	0.0	64.6	22.0	8.7	30.1	45.7	3.0	14.0	11.8	50.3	16.3	128	66	3281
Non-Brachytic (68)	89	4.1	65.5	22.3	7.9	29.8	44.3	3.4	15.5	13.1	45.8	17.1	128	67	3295
Test Average[ŧ]	85	3.1	65.3	22.2	8.1	29.9	44.6	3.3	15.1	12.8	46.9	16.9	128	67	3292
Grain Sorghum and Corn Checks															
Grain Sorghum including Checks (6)	57	1.1	63.6	18.9	10.1	27.1	39.3	3.8	26.6	5.7	41.3	16.5	141	68	3473
Corn Checks (3)[‡]	84	0.0	60.7	17.7	9.5	22.1	38.9	3.2	27.3	9.2	61.4	11.9	.	69	3095

ŧThe test average is the average of the 89 sorghum entries not including the corn checks. PS entries included a 53" tall hybrid that reduced the average of the height of PS entries.

Table 2. 2019 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, GS=Grain sorghum

Hybrid Characteristics								Days to Half-Bloom (HB), Lodging, Harvest Date, Moisture and Yield					
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	Days to HB†	Harvest Date	Harvest Height (in)	% Lodge	% Moist. at Harvest	Yield (tons/ac) 65% Moisture
1	AF7201	Advanta Seeds	FS	ME	Yes	No	No	62	9/26/2019	89	10	63.9	23.6 ± 1.53
2	ADV XF025	Advanta Seeds	FS	ME	Yes	Yes	No	60	9/26/2019	95	0	60.6	21.5 ± 3.26
3	ADV F7232	Advanta Seeds	FS	M	Yes	Yes	No	79	10/9/2019	64	0	67.9	22.9 ± 3.64
4	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	83	10/9/2019	66	0	69.8	24.1 ± 1.66
5	AF8301	Advanta Seeds	FS	M	No	No	No	77	10/16/2019	81	57	56.9	26.7 ± 1.38
6	ADV XF033	Advanta Seeds	FS	M	No	No	No	83	10/16/2019	75	0	63.0	26.2 ± 4.34
7	Nutri-Chomp	Fontanelle	FS	ML	Yes	No	Yes	93	10/16/2019	111	0	69.9	20.0 ± 0.96
8	Qualimax	Bayer Crop Science	SS	ML	No	No	No	83	10/16/2019	112	0	67.3	21.8 ± 2.18
9	FX19125 BMR	Dyna-Gro Seed	FS	E	Yes	No	No	59	9/13/2019	85	0	67.9	18.9 ± 0.43
10	SuperSile 30	Dyna-Gro Seed	FS	ME	No	No	No	80	9/26/2019	98	0	72.0	23.7 ± 2.26
11	FX19133	Dyna-Gro Seed	FS	ME	No	No	No	82	9/26/2019	74	0	70.9	24.7 ± 0.98
12	FX19178 BMR	Dyna-Gro Seed	FS	ME	Yes	Yes	No	67	9/26/2019	56	0	71.4	19.3 ± 1.36
13	F75FS13	Dyna-Gro Seed	FS	M	No	No	No	63	10/9/2019	92	0	63.7	22.6 ± 1.09
14	F74FS23 BMR	Dyna-Gro Seed	FS	M	Yes	No	No	82	10/16/2019	87	0	66.5	19.6 ± 0.94
15	F74FS72 BMR	Dyna-Gro Seed	FS	M	Yes	Yes	No	79	10/9/2019	62	0	69.4	22.6 ± 2.99
16	SuperSIle 20	Dyna-Gro Seed	FS	ML	No	No	No	83	10/16/2019	105	0	65.6	23.9 ± 1.25
17	TopTon	Dyna-Gro Seed	FS	ML	No	No	No	84	10/16/2019	116	30	67.7	24.5 ± 3.47
18	Dual Forage SCA II	Dyna-Gro Seed	FS	ML	No	No	No	66	10/16/2019	56	0	45.2	21.3 ± 1.55
19	First Graze	Dyna-Gro Seed	SS	ME	No	No	No	59	9/26/2019	92	0	65.3	20.4 ± 2.21
20	Super Sweet 10	Dyna-Gro Seed	SS	ME	No	No	No	60	9/26/2019	93	0	64.5	19.6 ± 1.81
21	Danny Boy II BMR	Dyna-Gro Seed	SS	PS	Yes	No	No	105	10/16/2019	97	13	72.8	21.6 ± 1.48
22	Fullgraze II	Dyna-Gro Seed	SS	ML	No	No	No	90	10/16/2019	121	0	63.3	22.5 ± 0.15
23	Fullgraze II BMR	Dyna-Gro Seed	SS	ML	Yes	No	No	95	10/16/2019	117	0	69.5	20.2 ± 2.41
24	18116	Gayland Ward		M	Yes	No	No	69	10/9/2019	89	0	62.4	20.7 ± 2.99
25	18118	Gayland Ward		E	Yes	No	Yes	62	10/9/2019	86	0	57.5	23.6 ± 0.34
26	19038	Gayland Ward		L	No	Yes	No	93	10/17/2019	73	0	58.9	22.9 ± 3.03
27	19040	Gayland Ward		L	No	Yes	No	81	10/17/2019	55	0	50.4	21.9 ± 3.78
28	19042	Gayland Ward		L	No	Yes	No	95	10/17/2019	75	0	64.5	22.2 ± 0.22
29	19053	Gayland Ward		E	Yes	No	Yes	62	9/18/2019	87	0	66.2	20.2 ± 3.06
30	19155	Gayland Ward		E	Yes	No	Yes	65	10/9/2019	89	27	65.4	21.4 ± 2.03
31	19174	Gayland Ward		M	Yes	No	No	78	10/9/2019	82	27	64.1	24.9 ± 0.22
32	19175	Gayland Ward		M	Yes	No	No	69	10/9/2019	78	0	58.3	20.8 ± 0.63
33	19176	Gayland Ward		M	Yes	No	No	77	10/9/2019	92	0	61.7	26.4 ± 1.41
34	19177	Gayland Ward		M	Yes	No	No	69	10/9/2019	90	12	62.3	22.9 ± 0.41
35	19178	Gayland Ward		M	Yes	No	No	74	10/9/2019	93	28	59.6	27.6 ± 0.97
36	19179	Gayland Ward		L	No	Yes	No	85	10/17/2019	71	0	59.7	23.0 ± 1.42
39	Mexico 1	Mexico 1	GS	L	No	No	No	66	10/9/2019	55	0	54.1	22.9 ± 1.28
40	Mexico 2	Mexico 2	GS	L	No	No	No	66	10/9/2019	60	0	63.2	20.4 ± 2.50
41	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	77	9/26/2019	77	0	70.5	22.5 ± 4.29
42	X764	MOJO Seed Enterprises	FS	L	No	Yes	No	96	10/16/2019	77	0	63.9	20.2 ± 2.25
43	X715	MOJO Seed Enterprises	FS	ML	No	Yes	No	70	10/9/2019	74	0	59.6	24.7 ± 1.98
44	ET2530/N31L5010	MOJO Seed Enterprises	FS	L	No	No	No	100	10/16/2019	107	55	68.7	22.6 ± 3.74
45	ET2522/N32J3252	MOJO Seed Enterprises	FS	L	No	No	No	95	10/16/2019	100	0	65.8	27.0 ± 1.93
46	ET2523/N3J53	MOJO Seed Enterprises	FS	L	No	No	No	95	10/16/2019	101	0	65.8	24.7 ± 1.01
47	NF9001	Nutrition First	FS	ME	No	No	No	62	9/26/2019	80	0	67.2	20.7 ± 0.75
48	NF9501	Nutrition First	FS	ME	No	No	No	62	9/26/2019	67	0	66.3	24.6 ± 1.24
49	NF0501	Nutrition First	FS	M	No	No	No	70	10/9/2019	85	0	68.6	24.7 ± 3.32
50	845F	Pioneer Seeds	FS	E	No	No	No	60	9/13/2019	66	0	69.1	18.9 ± 1.93
51	Silo 700D	Richardson Seeds	FS	ML	No	No	No	78	10/16/2019	82	0	59.1	25.6 ± 1.95
52	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	86	10/16/2019	87	0	64.0	23.1 ± 1.04
54	9500W	Richardson Seeds	FS	ME	No	No	No	68	9/26/2019	65	0	63.8	20.8 ± 3.42
55	1037X	Richardson Seeds	FS	ME	Yes	No	No	68	9/26/2019	60	0	65.9	18.5 ± 0.73
56	1043X	Richardson Seeds	SS	PS	Yes	No	No	.	10/17/2019	85	0	68.2	24.6 ± 1.31
57	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	88	10/16/2019	103	0	66.2	21.4 ± 2.33
58	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	94	10/16/2019	101	0	68.0	18.4 ± 0.37
60	1067X	Richardson Seeds	FS	E	No	No	No	62	9/13/2019	81	0	72.8	19.6 ± 0.80
61	1071X	Richardson Seeds	FS	ML	No	Yes	No	86	10/16/2019	82	0	63.5	22.4 ± 1.80
62	Canex	Sharp Brothers	FS	ME	No	No	Yes	57	9/26/2019	88	0	66.0	19.6 ± 1.32
63	Canex BMR 210	Sharp Brothers	FS	M	Yes	No	N	69	10/9/2019	93	0	65.4	20.0 ± 2.97
64	Canex BMR 600	Sharp Brothers	FS	ML	Yes	No	Yes	74	10/9/2019	97	10	68.6	19.6 ± 1.25
65	Silex BMR 540	Sharp Brothers	FS	ML	Yes	Yes	No	64	10/9/2019	102	0	62.5	18.6 ± 1.20
66	Grazex BMR 801	Sharp Brothers	SS	M	Yes	No	Yes	93	10/16/2019	120	0	65.2	24.0 ± 4.50
67	Grazex III	Sharp Brothers	SS	M	No	No	Yes	90	10/16/2019	77	0	61.4	18.6 ± 1.87

Table 2 cont. 2019 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, GS=Grain sorghum

Hybrid Characteristics								Days to Half-Bloom (HB), Lodging, Harvest Date, Moisture and Yield					
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	Days to HB†	Harvest Date	Harvest Height (in)	% Lodge	% Moist. at Harvest	Yield (tons/ac) 65% Moisture
68	52242X	Scott Seed	FS	ML	No	No	No	83	10/16/2019	82	0	60.8	22.5 ± 5.38
69	51423X	Scott Seed	FS	L	Yes	No	No	81	10/16/2019	93	0	64.2	22.2 ± 1.36
70	55765X	Scott Seed	FS	M	Yes	Yes	No	69	10/9/2019	53	0	64.3	20.6 ± 0.13
71	50643X	Scott Seed	SS	L	Yes	No	No	98	10/16/2019	100	0	69.4	20.5 ± 4.03
72	50654X	Scott Seed	SS	PS	Yes	No	No	.	10/17/2019	77	0	69.5	22.3 ± 4.26
73	50651X	Scott Seed	SS	M	Yes	Yes	No	78	10/9/2019	74	0	65.7	24.5 ± 0.42
74	50652X	Scott Seed	SS	PS	Yes	Yes	No	.	10/17/2019	53	0	67.0	14.2 ± 3.45
75	54243X	Scott Seed	SS	L	No	No	Yes	96	10/16/2019	120	0	63.1	23.8 ± 1.33
76	53554X	Scott Seed	SS	PS	No	No	Yes	.	10/17/2019	80	0	72.6	21.8 ± 5.27
77	NK300	Sorghum Partners	FS	ME	No	No	No	77	9/26/2019	78	0	70.3	25.6 ± 2.72
78	SP2774	Sorghum Partners	FS	ME	Yes	No	No	62	9/26/2019	109	0	68.9	24.7 ± 0.19
79	SS405	Sorghum Partners	FS	ML	No	No	No	82	10/16/2019	125	0	64.7	27.2 ± 1.55
80	SS506	Sorghum Partners	FS	L	No	No	No	94	10/16/2019	105	0	68.1	24.0 ± 3.40
81	SP1880	Sorghum Partners	FS	L	No	No	No	96	10/16/2019	101	0	70.3	21.8 ± 2.01
82	S1615	Sorghum Partners	FS	PS	No	Yes	No	.	10/17/2019	88	0	70.6	23.1 ± 0.22
83	SP3808 SB BMR	Sorghum Partners	FS	ML	Yes	Yes	No	83	10/16/2019	81	0	65.3	24.2 ± 4.62
84	SP3904 BD BMR	Sorghum Partners	FS	ML	Yes	Yes	No	83	10/16/2019	67	0	62.0	24.4 ± 1.45
85	W7051	Warner Seeds	GS	E	No	No	No	62	9/13/2019	63	0	70.9	17.2 ± 2.44
86	W7706-W	Warner Seeds	GS	E	No	No	No	62	9/13/2019	71	0	69.6	18.7 ± 0.22
87	WXF-1714(X)	Warner Seeds	FS	M	No	No	No	79	10/9/2019	87	0	67.1	28.8 ± 3.68
88	WXF-1737(X)	Warner Seeds	FS	M	No	No	No	82	10/9/2019	99	0	71.4	27.5 ± 3.08
89	31F85	Wilbur-Ellis Company	SS	L	No	No	No	94	10/16/2019	117	0	62.2	21.7 ± 1.17
90	31F65	Wilbur-Ellis Company	SS	M	Yes	Yes	No	77	10/9/2019	55	0	68.7	22.5 ± 1.68
91	31F90	Wilbur-Ellis Company	SS	L	Yes	No	No	98	10/16/2019	105	12	68.8	20.3 ± 0.14
92	DKS 37-07	TAMU CHECK	GS	ME	No	No	No	57	9/13/2019	45	0	60.1	18.5 ± 1.58
93	84G62	TAMU CHECK	GS	ML	No	No	No	59	9/13/2019	47	0	63.5	16.1 ± 2.46
94	P0339	TAMU CHECK	Corn					60	10/9/2019	80	0	58.2	17.1 ± 2.89
95	P1244	TAMU CHECK	Corn					60	10/9/2019	86	0	58.7	18.2 ± 2.90
96	DKC70-64	TAMU CHECK	Corn					63	10/9/2019	87	0	65.3	17.9 ± 1.70

† Silking date reported for corn hybrids. If no HB date reported for a sorghum hybrid, it did not reach HB prior to the last harvest date. *Mean and statistical evaluation of only sorghum hybrids. If forage characteristic information is missing, information was not provided by developer/company at the time of entry.

Mean	**22.2***
LSD	**8.4**
CV (%)	**10.6**
p-val	**<0.0001**

Table 3. 2019 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial mean yield, days to half-bloom (HB), lodging, and harvest moisture listed by maximum yield. Male Sterile hybrids were pollinated by neighboring hybrids in the trial. FS=forage sorghum, SS=Sorghum Sudan, GS=Grain sorghum

Hybrid Characteristics								Days to Half-Bloom (HB), Lodging, Harvest Date, Moisture and Yield						
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	Days to HB†	Harvest Date	Harvest Height (in)	% Lodge	Stage at Harvest	% Moist. at Harvest	Yield (tons/ac)
87	WXF-1714(X)	Warner Seeds	FS	M	No	No	No	79	10/9/2019	87	0	SD	67.1	28.8 ± 3.68
35	19178	Gayland Ward		M	Yes	No	No	74	10/9/2019	93	28	HD	59.6	27.6 ± 0.97
88	WXF-1737(X)	Warner Seeds	FS	M	No	No	No	82	10/9/2019	99	0	SD	71.4	27.5 ± 3.08
79	SS405	Sorghum Partners	FS	ML	No	No	No	82	10/16/2019	125	0	SD	64.7	27.2 ± 1.55
45	ET2522/N32J3252	MOJO Seed Enterprises	FS	L	No	No	No	95	10/16/2019	100	0	SD	65.8	27.0 ± 1.93
5	AF8301	Advanta Seeds	FS	M	No	No	No	77	10/16/2019	81	57	HD	56.9	26.7 ± 1.38
33	19176	Gayland Ward		M	Yes	No	No	77	10/9/2019	92	0	SD	61.7	26.4 ± 1.41
6	ADV XF033	Advanta Seeds	FS	M	No	No	No	83	10/16/2019	75	0	SD	63.0	26.2 ± 4.34
51	Silo 700D	Richardson Seeds	FS	ML	No	No	No	78	10/16/2019	82	0	HD	59.1	25.6 ± 1.95
77	NK300	Sorghum Partners	FS	ME	No	No	No	77	9/26/2019	78	0	SD	70.3	25.6 ± 2.72
31	19174	Gayland Ward		M	Yes	No	No	78	10/9/2019	82	27	SD	64.1	24.9 ± 0.22
11	FX19133	Dyna-Gro Seed	FS	ME	No	No	No	82	9/26/2019	74	0	SD	70.9	24.7 ± 0.98
43	X715	MOJO Seed Enterprises	FS	ML	No	Yes	No	70	10/9/2019	74	0	HD	59.6	24.7 ± 1.98
49	NF0501	Nutrition First	FS	M	No	No	No	70	10/9/2019	85	0	SD	68.6	24.7 ± 3.32
78	SP2774	Sorghum Partners	FS	ME	Yes	No	No	62	9/26/2019	109	0	SD	68.9	24.7 ± 0.19
46	ET2523/N3J53	MOJO Seed Enterprises	FS	L	No	No	No	95	10/16/2019	101	0	SD	65.8	24.7 ± 1.01
48	NF9501	Nutrition First	FS	ME	No	No	No	62	9/26/2019	67	0	SD	66.3	24.6 ± 1.24
56	1043X	Richardson Seeds	SS	PS	Yes	No	No	.	10/17/2019	85	0	SD	68.2	24.6 ± 1.31
73	50651X	Scott Seed	SS	M	Yes	Yes	No	78	10/9/2019	74	0	SD	65.7	24.5 ± 0.42
17	TopTon	Dyna-Gro Seed	FS	ML	No	No	No	84	10/16/2019	116	30	SD	67.7	24.5 ± 3.47
84	SP3904 BD BMR	Sorghum Partners	FS	ML	Yes	Yes	No	83	10/16/2019	67	0	SD	62.0	24.4 ± 1.45
83	SP3808 SB BMR	Sorghum Partners	FS	ML	Yes	Yes	No	83	10/16/2019	81	0	SD	65.3	24.2 ± 4.62
4	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	83	10/9/2019	66	0	SD	69.8	24.1 ± 1.66
66	Grazex BMR 801	Sharp Brothers	SS	M	Yes	No	Yes	93	10/16/2019	120	0	SD	65.2	24.0 ± 4.50
80	SS506	Sorghum Partners	FS	L	No	No	No	94	10/16/2019	105	0	SD	68.1	24.0 ± 3.40
16	SuperSIle 20	Dyna-Gro Seed	FS	ML	No	No	No	83	10/16/2019	105	0	SD	65.6	23.9 ± 1.25
75	54243X	Scott Seed	SS	L	No	No	Yes	96	10/16/2019	120	0	SD	63.1	23.8 ± 1.33
10	SuperSile 30	Dyna-Gro Seed	FS	ME	No	No	No	80	9/26/2019	98	0	SD	72.0	23.7 ± 2.26
25	18118	Gayland Ward		E	Yes	No	Yes	62	10/9/2019	86	0	HD	57.5	23.6 ± 0.34
1	AF7201	Advanta Seeds	FS	ME	Yes	No	No	62	9/26/2019	89	10	SD	63.9	23.6 ± 1.53
82	S1615	Sorghum Partners	FS	PS	No	Yes	No	.	10/17/2019	88	0	SD	70.6	23.1 ± 0.22
52	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	86	10/16/2019	87	0	SD	64.0	23.1 ± 1.04
36	19179	Gayland Ward		L	No	Yes	No	85	10/17/2019	71	0	HD	59.7	23.0 ± 1.42
34	19177	Gayland Ward		M	Yes	No	No	69	10/9/2019	90	12	SD	62.3	22.9 ± 0.41
26	19038	Gayland Ward		L	No	Yes	No	93	10/17/2019	73	0	HD	58.9	22.9 ± 3.03
3	ADV F7232	Advanta Seeds	FS	M	Yes	Yes	No	79	10/9/2019	64	0	SD	67.9	22.9 ± 3.64
39	Mexico 1	Mexico 1	GS	L	No	No	No	66	10/9/2019	55	0	HD	54.1	22.9 ± 1.28
44	ET2530/N31L5010	MOJO Seed Enterprises	FS	L	No	No	No	100	10/16/2019	107	55	SD	68.7	22.6 ± 3.74
13	F75FS13	Dyna-Gro Seed	FS	M	No	No	No	63	10/9/2019	92	0	SD	63.7	22.6 ± 1.09
15	F74FS72 BMR	Dyna-Gro Seed	FS	M	Yes	Yes	No	79	10/9/2019	62	0	SD	69.4	22.6 ± 2.99
68	52242X	Scott Seed	FS	ML	No	No	No	83	10/16/2019	82	0	HD	60.8	22.5 ± 5.38
22	Fullgraze II	Dyna-Gro Seed	SS	ML	No	No	No	90	10/16/2019	121	0	SD	63.3	22.5 ± 0.15
41	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	77	9/26/2019	77	0	SD	70.5	22.5 ± 4.29
90	31F65	Wilbur-Ellis Company	SS	M	Yes	Yes	No	77	10/9/2019	55	0	SD	68.7	22.5 ± 1.68
61	1071X	Richardson Seeds	FS	ML	No	Yes	No	86	10/16/2019	82	0	SD	63.5	22.4 ± 1.80
72	50654X	Scott Seed	SS	PS	Yes	No	No	.	10/17/2019	77	0	SD	69.5	22.3 ± 4.26
28	19042	Gayland Ward		L	No	Yes	No	95	10/17/2019	75	0	SD	64.5	22.2 ± 0.22
69	51423X	Scott Seed	FS	L	Yes	No	No	81	10/16/2019	93	0	SD	64.2	22.2 ± 1.36
27	19040	Gayland Ward		L	No	Yes	No	81	10/17/2019	55	0	HD	50.4	21.9 ± 3.78
81	SP1880	Sorghum Partners	FS	L	No	No	No	96	10/16/2019	101	0	SD	70.3	21.8 ± 2.01
8	Qualimax	Bayer Crop Science	SS	ML	No	No	No	83	10/16/2019	112	0	SD	67.3	21.8 ± 2.18
76	53554X	Scott Seed	SS	PS	No	No	Yes	.	10/17/2019	80	0	SD	72.6	21.8 ± 5.27
89	31F85	Wilbur-Ellis Company	SS	L	No	No	No	94	10/16/2019	117	0	SD	62.2	21.7 ± 1.17
21	Danny Boy II BMR	Dyna-Gro Seed	SS	PS	Yes	No	No	105	10/16/2019	97	13	SD	72.8	21.6 ± 1.48
2	ADV XF025	Advanta Seeds	FS	ME	Yes	Yes	No	60	9/26/2019	95	0	HD	60.6	21.5 ± 3.26
30	19155	Gayland Ward		E	Yes	No	Yes	65	10/9/2019	89	27	SD	65.4	21.4 ± 2.03
57	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	88	10/16/2019	103	0	SD	66.2	21.4 ± 2.33
18	Dual Forage SCA II	Dyna-Gro Seed	FS	ML	No	No	No	66	10/16/2019	56	0	HD	45.2	21.3 ± 1.55
54	9500W	Richardson Seeds	FS	ME	No	No	No	68	9/26/2019	65	0	SD	63.8	20.8 ± 3.42
32	19175	Gayland Ward		M	Yes	No	No	69	10/9/2019	78	0	HD	58.3	20.8 ± 0.63
24	18116	Gayland Ward		M	Yes	No	No	69	10/9/2019	89	0	SD	62.4	20.7 ± 2.99
47	NF9001	Nutrition First	FS	ME	No	No	No	62	9/26/2019	80	0	SD	67.2	20.7 ± 0.75
70	55765X	Scott Seed	FS	M	Yes	Yes	No	69	10/9/2019	53	0	SD	64.3	20.6 ± 0.13

Table 3 cont. 2019 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial mean yield, days to half-bloom (HB), lodging, and harvest moisture listed by maximum yield. Male Sterile hybrids were pollinated by neighboring hybrids in the trial. FS=forage sorghum, SS=Sorghum Sudan, GS=Grain sorghum

Hybrid Characteristics								Days to Half-Bloom (HB), Lodging, Harvest Date, Moisture and Yield						
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	Days to HB†	Harvest Date	Harvest Height (in)	% Lodge	Stage at Harvest	% Moist. at Harvest	Yield (tons/ac)
71	50643X	Scott Seed	SS	L	Yes	No	No	98	10/16/2019	100	0	SD	69.4	20.5 ± 4.03
19	First Graze	Dyna-Gro Seed	SS	ME	No	No	No	59	9/26/2019	92	0	SD	65.3	20.4 ± 2.21
40	Mexico 2	Mexico 2	GS	L	No	No	No	66	10/9/2019	60	0	SD	63.2	20.4 ± 2.50
91	31F90	Wilbur-Ellis Company	SS	L	Yes	No	No	98	10/16/2019	105	12	SD	68.8	20.3 ± 0.14
42	X764	MOJO Seed Enterprises	FS	L	No	Yes	No	96	10/16/2019	77	0	SD	63.9	20.2 ± 2.25
29	19053	Gayland Ward		E	Yes	No	Yes	62	9/18/2019	87	0	SD	66.2	20.2 ± 3.06
23	Fullgraze II BMR	Dyna-Gro Seed	SS	ML	Yes	No	No	95	10/16/2019	117	0	SD	69.5	20.2 ± 2.41
7	Nutri-Chomp	Fontanelle	FS	ML	Yes	No	Yes	93	10/16/2019	111	0	SD	69.9	20.0 ± 0.96
63	Canex BMR 210	Sharp Brothers	FS	M	Yes	No	N	69	10/9/2019	93	0	SD	65.4	20.0 ± 2.97
20	Super Sweet 10	Dyna-Gro Seed	SS	ME	No	No	No	60	9/26/2019	93	0	SD	64.5	19.6 ± 1.81
14	F74FS23 BMR	Dyna-Gro Seed	FS	M	Yes	No	No	82	10/16/2019	87	0	SD	66.5	19.6 ± 0.94
62	Canex	Sharp Brothers	FS	ME	No	No	Yes	57	9/26/2019	88	0	SD	66.0	19.6 ± 1.32
64	Canex BMR 600	Sharp Brothers	FS	ML	Yes	No	Yes	74	10/9/2019	97	10	SD	68.6	19.6 ± 1.25
60	1067X	Richardson Seeds	FS	E	No	No	No	62	9/13/2019	81	0	SD	72.8	19.6 ± 0.80
12	FX19178 BMR	Dyna-Gro Seed	FS	ME	Yes	Yes	No	67	9/26/2019	56	0	SD	71.4	19.3 ± 1.36
9	FX19125 BMR	Dyna-Gro Seed	FS	E	Yes	No	No	59	9/13/2019	85	0	SD	67.9	18.9 ± 0.43
50	845F	Pioneer Seeds	FS	E	No	No	No	60	9/13/2019	66	0	SD	69.1	18.9 ± 1.93
86	W7706-W	Warner Seeds	GS	E	No	No	No	62	9/13/2019	71	0	SD	69.6	18.7 ± 0.22
65	Silex BMR 540	Sharp Brothers	FS	ML	Yes	Yes	No	64	10/9/2019	102	0	SD	62.5	18.6 ± 1.20
67	Grazex III	Sharp Brothers	SS	M	No	No	Yes	90	10/16/2019	77	0	SD	61.4	18.6 ± 1.87
92	DKS 37-07	TAMU CHECK	GS	ME	No	No	No	57	9/13/2019	45	0	HD	60.1	18.5 ± 1.58
55	1037X	Richardson Seeds	FS	ME	Yes	No	No	68	9/26/2019	60	0	SD	65.9	18.5 ± 0.73
58	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	94	10/16/2019	101	0	SD	68.0	18.4 ± 0.37
95	P1244	TAMU CHECK	Corn					60	10/9/2019	86	0	HD	58.7	18.2 ± 2.90
96	DKC70-64	TAMU CHECK	Corn					63	10/9/2019	87	0	SD	65.3	17.9 ± 1.70
85	W7051	Warner Seeds	GS	E	No	No	No	62	9/13/2019	63	0	SD	70.9	17.2 ± 2.44
94	P0339	TAMU CHECK	Corn					60	10/9/2019	80	0	HD	58.2	17.1 ± 2.89
93	84G62	TAMU CHECK	GS	ML	No	No	No	59	9/13/2019	47	0	SD	63.5	16.1 ± 2.46
74	50652X	Scott Seed	SS	PS	Yes	Yes	No	.	10/17/2019	53	0	SD	67.0	14.2 ± 3.45

† Silking date reported for corn hybrids. If no HB date reported for a sorghum hybrid, it did not reach HB prior to the last harvest date. *Mean and statistical evaluation of only sorghum hybrids. If forage characteristic information is missing, information was not provided by developer/company at the time of entry.

Mean	**22.2***
LSD	**8.4**
CV (%)	**10.6**
p-val	**<0.0001**

Table 4. 2019 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, GS=Grain sorghum

Hybrid Characteristics								Nutrient Composition and Calculations (DM basis)											
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	%CP	%ADF	%aNDF	%Lignin	%Starch	%WSC	%NDFD 48	%uNDF - om240	RFQ	TDN	Milk/ton	tons/ac (65%
1	AF7201	Advanta Seeds	FS	ME	Yes	No	No	9.4	28.0	39.7	3.2	21.9	9.2	45.7	15.7	143.1	67.8	3435	23.6 ± 1.5
2	ADV XF025	Advanta Seeds	FS	ME	Yes	Yes	No	9.6	29.2	42.8	3.5	20.1	8.6	46.2	16.7	131.1	66.8	3370	21.5 ± 3.3
3	ADV F7232	Advanta Seeds	FS	M	Yes	Yes	No	9.0	28.2	42.7	2.8	19.8	8.3	51.6	15.3	142.6	67.5	3432	22.9 ± 3.6
4	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	8.1	28.5	42.9	2.6	18.3	10.4	49.7	15.5	137.1	67.8	3396	24.1 ± 1.7
5	AF8301	Advanta Seeds	FS	M	No	No	No	8.2	28.3	43.0	4.3	27.3	3.3	37.0	20.4	113.3	67.2	3353	26.7 ± 1.4
6	ADV XF033	Advanta Seeds	FS	M	No	No	No	8.3	27.7	43.0	3.8	23.5	7.2	41.2	19.1	121.4	67.3	3368	26.2 ± 4.3
7	Nutri-Chomp	Fontanelle	FS	ML	Yes	No	Yes	5.5	32.5	49.6	2.5	4.5	21.8	53.3	16.1	119.6	66.2	3231	20.0 ± 1.0
8	Qualimax	Bayer Crop Science	SS	ML	No	No	No	5.4	34.4	49.2	3.4	7.4	18.4	45.7	18.7	103.1	64.3	3058	21.8 ± 2.2
9	FX19125 BMR	Dyna-Gro Seed	FS	E	Yes	No	No	10.1	28.3	42.0	3.4	21.1	10.3	49.2	15.0	141.0	67.2	3442	18.9 ± 0.4
10	SuperSile 30	Dyna-Gro Seed	FS	ME	No	No	No	7.8	29.2	46.0	2.9	11.6	17.3	50.6	16.2	125.6	66.3	3286	23.7 ± 2.3
11	FX19133	Dyna-Gro Seed	FS	ME	No	No	No	8.0	29.8	48.0	2.8	9.2	17.5	52.6	16.0	123.2	66.0	3274	24.7 ± 1.0
12	FX19178 BMR	Dyna-Gro Seed	FS	ME	Yes	Yes	No	10.3	29.0	46.2	3.0	13.9	10.8	53.8	16.0	129.7	64.9	3238	19.3 ± 1.4
13	F75FS13	Dyna-Gro Seed	FS	M	No	No	No	7.5	25.2	35.1	3.0	23.7	12.6	34.6	17.2	148.2	70.8	3501	22.6 ± 1.1
14	F74FS23 BMR	Dyna-Gro Seed	FS	M	Yes	No	No	7.1	29.2	43.1	2.0	10.7	19.2	50.1	15.1	136.8	68.5	3358	19.6 ± 0.9
15	F74FS72 BMR	Dyna-Gro Seed	FS	M	Yes	Yes	No	9.4	27.5	42.5	2.5	18.2	10.1	51.0	15.1	142.3	68.4	3431	22.6 ± 3.0
16	SuperSIle 20	Dyna-Gro Seed	FS	ML	No	No	No	7.4	29.9	44.1	3.7	20.1	9.2	42.0	18.9	116.9	66.8	3302	23.9 ± 1.3
17	TopTon	Dyna-Gro Seed	FS	ML	No	No	No	6.3	31.1	45.6	3.1	14.2	13.3	44.6	18.4	116.0	66.5	3230	24.5 ± 3.5
18	Dual Forage SCA II	Dyna-Gro Seed	FS	ML	No	No	No	10.0	25.8	34.8	4.0	33.7	0.8	31.1	18.4	145.1	70.2	3516	21.3 ± 1.5
19	First Graze	Dyna-Gro Seed	SS	ME	No	No	No	8.0	30.3	44.0	4.0	17.2	11.1	40.6	19.1	113.8	65.8	3257	20.4 ± 2.2
20	Super Sweet 10	Dyna-Gro Seed	SS	ME	No	No	No	8.3	29.7	42.8	4.3	19.1	10.6	37.2	19.9	113.1	66.2	3276	19.6 ± 1.8
21	Danny Boy II BMR	Dyna-Gro Seed	SS	PS	Yes	No	No	6.4	34.6	50.0	1.7	1.4	21.2	59.0	13.7	127.0	65.2	3127	21.6 ± 1.5
22	Fullgraze II	Dyna-Gro Seed	SS	ML	No	No	No	5.9	36.3	55.5	3.5	3.1	18.0	49.4	19.0	94.5	63.3	3016	22.5 ± 0.2
23	Fullgraze II BMR	Dyna-Gro Seed	SS	ML	Yes	No	No	5.6	36.3	53.7	3.0	3.3	19.5	54.1	17.3	108.3	63.8	3088	20.2 ± 2.4
24	18116	Gayland Ward		M	Yes	No	No	8.7	25.8	35.4	2.9	25.1	9.2	37.2	16.5	152.5	70.6	3513	20.7 ± 3.0
25	18118	Gayland Ward		E	Yes	No	Yes	8.7	25.4	35.2	2.8	25.3	9.0	39.5	15.8	158.3	71.0	3586	23.6 ± 0.3
26	19038	Gayland Ward		L	No	Yes	No	8.2	30.1	48.4	2.6	7.8	15.8	53.6	15.9	123.4	65.9	3238	22.9 ± 3.0
27	19040	Gayland Ward		L	No	Yes	No	9.4	30.1	47.9	2.9	8.2	14.1	54.4	15.7	125.8	64.9	3208	21.9 ± 3.8
28	19042	Gayland Ward		L	No	Yes	No	8.2	31.2	49.6	2.5	4.4	17.9	56.2	15.2	124.7	65.4	3204	22.2 ± 0.2
29	19053	Gayland Ward		E	Yes	No	Yes	8.8	25.7	35.2	3.1	25.1	9.5	36.6	16.6	150.3	69.9	3485	20.2 ± 3.1
30	19155	Gayland Ward		E	Yes	No	Yes	9.1	26.4	37.7	2.3	18.8	13.6	45.9	14.7	153.0	69.2	3449	21.4 ± 2.0
31	19174	Gayland Ward		M	Yes	No	No	9.1	28.6	40.3	2.7	23.1	6.4	47.5	15.5	144.7	68.7	3458	24.9 ± 0.2
32	19175	Gayland Ward		M	Yes	No	No	8.8	27.1	36.9	2.8	25.0	7.5	41.1	16.0	150.9	70.5	3551	20.8 ± 0.6
33	19176	Gayland Ward		M	Yes	No	No	8.0	30.6	44.0	3.9	22.5	5.0	40.5	19.0	115.5	66.8	3312	26.4 ± 1.4
34	19177	Gayland Ward		M	Yes	No	No	8.7	27.3	36.2	2.8	24.4	8.3	39.1	15.8	149.9	70.3	3509	22.9 ± 0.4
35	19178	Gayland Ward		M	Yes	No	No	9.0	28.5	38.8	3.1	26.2	5.5	41.1	16.8	139.3	69.2	3466	27.6 ± 1.0
36	19179	Gayland Ward		L	No	Yes	No	8.9	29.8	46.7	3.4	16.2	8.0	50.1	17.5	123.0	65.7	3282	23.0 ± 1.4
39	Mexico 1	Mexico 1	GS	L	No	No	No	10.0	24.6	32.8	4.1	35.4	0.8	26.2	18.7	149.8	71.3	3546	22.9 ± 1.3
40	Mexico 2	Mexico 2	GS	L	No	No	No	9.5	27.7	39.3	3.8	27.1	4.0	37.5	18.4	130.7	68.4	3419	20.4 ± 2.5
41	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	8.6	28.6	44.3	3.1	15.0	12.1	48.3	16.8	129.2	67.0	3365	22.5 ± 4.3
42	X764	MOJO Seed Enterprises	FS	L	No	Yes	No	7.7	30.7	48.6	2.8	6.3	17.9	51.0	16.8	117.7	66.2	3234	20.2 ± 2.3
43	X715	MOJO Seed Enterprises	FS	ML	No	Yes	No	8.8	28.9	39.8	3.6	27.1	4.1	37.7	18.2	128.4	68.6	3405	24.7 ± 2.0
44	ET2530/N31L5010	MOJO Seed Enterprises	FS	L	No	No	No	5.6	31.6	47.8	2.2	3.4	23.9	48.7	16.5	116.0	67.5	3239	22.6 ± 3.7
45	ET2522/N32J3252	MOJO Seed Enterprises	FS	L	No	No	No	6.1	28.9	45.2	2.0	4.4	23.1	49.0	15.7	127.1	68.8	3351	27.0 ± 1.9
46	ET2523/N3J53	MOJO Seed Enterprises	FS	L	No	No	No	5.8	30.1	45.6	2.4	6.9	21.1	47.6	16.5	122.2	67.7	3283	24.7 ± 1.0
47	NF9001	Nutrition First	FS	ME	No	No	No	8.4	25.4	37.2	2.6	19.6	13.8	43.3	15.4	155.5	70.9	3588	20.7 ± 0.8
48	NF9501	Nutrition First	FS	ME	No	No	No	9.1	25.3	35.9	3.7	28.5	5.5	34.2	18.0	145.5	70.5	3565	24.6 ± 1.2
49	NF0501	Nutrition First	FS	M	No	No	No	7.8	25.8	37.1	2.7	20.3	13.2	40.5	15.9	149.9	71.2	3571	24.7 ± 3.3

Table 4 cont. 2019 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, GS=Grain sorghum

Hybrid Characteristics								Nutrient Composition and Calculations (DM basis)											
50	845F	Pioneer Seeds	FS	E	No	No	No	10.6	28.8	42.5	3.7	22.8	7.2	48.6	15.1	139.1	66.7	3423	18.9 ± 1.9
51	Silo 700D	Richardson Seeds	FS	ML	No	No	No	7.9	30.7	46.0	4.3	22.1	4.6	41.6	20.1	108.5	64.9	3216	25.6 ± 2.0
52	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	7.6	28.9	45.9	2.6	13.3	14.3	53.0	15.5	133.6	67.7	3409	23.1 ± 1.0
54	9500W	Richardson Seeds	FS	ME	No	No	No	9.9	25.8	37.3	3.6	28.6	3.7	39.4	17.4	146.1	69.5	3544	20.8 ± 3.4
55	1037X	Richardson Seeds	FS	ME	Yes	No	No	10.5	27.4	41.7	3.4	21.0	5.7	48.3	15.9	140.4	67.5	3467	18.5 ± 0.7
56	1043X	Richardson Seeds	SS	PS	Yes	No	No	6.4	37.1	58.0	3.2	0.4	17.3	56.6	17.1	102.0	62.0	2985	24.6 ± 1.3
57	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	6.6	32.5	49.0	2.8	5.3	19.3	49.0	17.1	110.8	65.1	3121	21.4 ± 2.3
58	Sweeter N Honey II BM	Richardson Seeds	SS	L	Yes	No	No	6.6	35.2	55.3	3.1	0.8	18.9	55.0	17.2	105.1	62.6	3017	18.4 ± 0.4
60	1067X	Richardson Seeds	FS	E	No	No	No	9.1	27.7	44.2	3.0	16.4	15.9	52.7	14.1	138.3	66.7	3384	19.6 ± 0.8
61	1071X	Richardson Seeds	FS	ML	No	Yes	No	8.3	29.6	45.4	3.1	12.7	13.1	49.1	16.8	125.7	66.5	3313	22.4 ± 1.8
62	Canex	Sharp Brothers	FS	ME	No	No	Yes	7.8	24.7	36.6	2.5	19.1	17.0	40.8	15.7	152.0	70.7	3538	19.6 ± 1.3
63	Canex BMR 210	Sharp Brothers	FS	M	Yes	No	No	7.9	26.5	38.2	2.7	19.2	13.8	42.9	15.6	148.1	70.6	3553	20.0 ± 3.0
64	Canex BMR 600	Sharp Brothers	FS	ML	Yes	No	Yes	8.1	32.8	49.1	3.6	11.4	12.0	47.1	18.4	107.9	64.7	3172	19.6 ± 1.2
65	Silex BMR 540	Sharp Brothers	FS	ML	Yes	Yes	No	6.9	32.9	46.2	4.1	15.3	11.4	38.9	20.1	102.4	65.5	3168	18.6 ± 1.2
66	Grazex BMR 801	Sharp Brothers	SS	M	Yes	No	Yes	5.9	31.5	49.0	2.3	3.3	22.9	54.2	15.3	123.1	66.5	3255	24.0 ± 4.5
67	Grazex III	Sharp Brothers	SS	M	No	No	Yes	8.1	29.6	46.6	2.7	11.8	14.6	53.5	15.3	130.7	66.7	3344	18.6 ± 1.9
68	52242X	Scott Seed	FS	ML	No	No	No	7.8	30.2	45.7	3.7	19.8	8.3	44.3	18.5	116.0	66.6	3312	22.5 ± 5.4
69	51423X	Scott Seed	FS	L	Yes	No	No	7.6	27.6	40.9	2.0	13.3	17.5	51.5	14.2	149.4	69.0	3439	22.2 ± 1.4
70	55765X	Scott Seed	FS	M	Yes	Yes	No	9.6	27.9	41.7	3.4	22.5	6.6	46.8	16.7	135.7	66.8	3381	20.6 ± 0.1
71	50643X	Scott Seed	SS	L	Yes	No	No	7.2	34.9	53.0	2.4	1.0	18.3	56.8	16.0	113.3	63.2	3017	20.5 ± 4.0
72	50654X	Scott Seed	SS	PS	Yes	No	No	7.3	37.5	56.2	2.4	0.1	18.4	59.6	15.3	109.6	61.8	2912	22.3 ± 4.3
73	50651X	Scott Seed	SS	M	Yes	Yes	No	8.7	28.5	41.0	2.2	16.8	13.2	49.4	14.4	143.7	68.5	3399	24.5 ± 0.4
74	50652X	Scott Seed	SS	PS	Yes	Yes	No	9.7	34.8	54.4	2.6	0.6	15.6	62.5	14.3	119.8	61.2	2945	14.2 ± 3.4
75	54243X	Scott Seed	SS	L	No	No	Yes	5.9	35.2	53.3	3.6	5.8	15.9	47.7	19.3	101.4	63.8	3075	23.8 ± 1.3
76	53554X	Scott Seed	SS	PS	No	No	Yes	6.0	36.5	53.7	2.6	0.2	20.1	53.4	16.6	104.8	63.4	2992	21.8 ± 5.3
77	NK300	Sorghum Partners	FS	ME	No	No	No	8.7	29.1	45.8	3.7	19.6	6.9	47.5	18.0	121.6	65.6	3316	25.6 ± 2.7
78	SP2774	Sorghum Partners	FS	ME	Yes	No	No	8.0	27.9	42.3	3.2	17.8	12.9	45.8	16.8	133.2	68.1	3444	24.7 ± 0.2
79	SS405	Sorghum Partners	FS	ML	No	No	No	6.2	33.4	51.3	3.9	10.2	16.3	45.2	20.1	99.0	64.3	3115	27.2 ± 1.5
80	SS506	Sorghum Partners	FS	L	No	No	No	6.8	34.5	54.8	3.6	4.0	16.2	51.4	18.8	101.4	63.1	3063	24.0 ± 3.4
81	SP1880	Sorghum Partners	FS	L	No	No	No	7.3	33.3	52.7	2.8	2.2	18.9	53.9	17.3	109.8	63.8	3070	21.8 ± 2.0
82	S1615	Sorghum Partners	FS	PS	No	Yes	No	7.2	37.3	58.9	3.5	0.5	16.9	55.5	18.1	96.2	60.6	2888	23.1 ± 0.2
83	SP3808 SB BMR	Sorghum Partners	FS	ML	Yes	Yes	No	8.2	29.2	42.8	2.2	14.4	14.5	52.7	14.5	143.1	67.9	3394	24.2 ± 4.6
84	SP3904 BD BMR	Sorghum Partners	FS	ML	Yes	Yes	No	8.6	30.1	45.3	3.4	19.7	7.0	49.7	17.5	126.3	65.3	3278	24.4 ± 1.5
85	W7051	Warner Seeds	GS	E	No	No	No	9.7	29.3	44.8	3.7	19.3	9.8	50.4	15.2	131.5	65.9	3369	17.2 ± 2.4
86	W7706-W	Warner Seeds	GS	E	No	No	No	10.0	28.2	43.0	3.4	21.3	8.9	50.2	14.9	138.3	66.9	3423	18.7 ± 0.2
87	WXF-1714(X)	Warner Seeds	FS	M	No	No	No	7.7	29.5	44.2	3.5	18.1	11.2	42.5	18.2	117.3	67.1	3307	28.8 ± 3.7
88	WXF-1737(X)	Warner Seeds	FS	M	No	No	No	6.8	28.3	42.1	2.7	13.6	17.4	45.3	16.5	130.9	67.9	3340	27.5 ± 3.1
89	31F85	Wilbur-Ellis Company	SS	L	No	No	No	6.4	36.9	56.5	3.6	2.1	16.9	49.5	19.7	90.9	62.0	2923	21.7 ± 1.2
90	31F65	Wilbur-Ellis Company	SS	M	Yes	Yes	No	8.7	29.1	41.8	2.6	17.0	11.8	48.7	15.5	137.7	67.3	3336	22.5 ± 1.7
91	31F90	Wilbur-Ellis Company	SS	L	Yes	No	No	7.2	32.7	49.6	2.6	5.3	17.7	53.5	15.6	124.4	65.0	3174	20.3 ± 0.1
92	DKS 37-07	TAMU CHECK	GS	ME	No	No	No	10.2	25.9	35.6	4.0	31.5	3.9	36.7	16.5	152.9	70.1	3595	18.5 ± 1.6
93	84G62	TAMU CHECK	GS	ML	No	No	No	11.1	26.7	40.5	3.7	24.7	6.5	46.7	15.4	142.6	67.6	3486	16.1 ± 2.5
94	P0339	TAMU CHECK	Corn					9.7	22.0	38.6	3.2	28.2	8.7	61.8	11.7	.	69.4	3117	17.1 ± 2.9
95	P1244	TAMU CHECK	Corn					9.3	22.0	38.7	2.9	28.9	8.6	64.5	10.9	.	70.0	3205	18.2 ± 2.9
96	DKC70-64	TAMU CHECK	Corn					9.4	22.5	39.3	3.5	24.7	10.4	57.9	13.0	.	68.4	2963	17.9 ± 1.7
							Mean	**8.0**	**30.0**	**44.9**	**3.1**	**14.9**	**12.7**	**47.1**	**16.8**	**127.3**	**66.8**	**3305**	**22.2**
							CV (%)	**6.5**	**5.9**	**6.4**	**14.1**	**21**	**20.5**	**6.4**	**7.5**	**8.2**	**2.5**	**3.2**	**10.6**
							p-val	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**	**<0.0001**

Table 5. 2019 Sugarcane aphid ratings and the seasonal average aphid rating prior to a Sivanto chemigation and approximately one month post application using the AgriLife rating scale of Porter and Bynum. *Known SCA tolerant hybrids.

Hybrid Characteristics								Sugarcane Aphid Ratings	
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	8/5/2019	9/9/2019
1	AF7201	Advanta Seeds	FS	ME	Yes	No	No	0.5	0.0
2	ADV XF025	Advanta Seeds	FS	ME	Yes	Yes	No	0.5	0.0
3	ADV F7232	Advanta Seeds	FS	M	Yes	Yes	No	0.5	0.0
4	AF7401	Advanta Seeds	FS	ML	Yes	Yes	No	0.5	0.0
5	AF8301	Advanta Seeds	FS	M	No	No	No	0.5	0.0
6	ADV XF033*	Advanta Seeds	FS	M	No	No	No	0.5	0.0
7	Nutri-Chomp	Fontanelle	FS	ML	Yes	No	Yes	0.5	0.0
8	Qualimax	Bayer Crop Science	SS	ML	No	No	No	0.5	0.0
9	FX19125 BMR	Dyna-Gro Seed	FS	E	Yes	No	No	0.5	0.2
10	SuperSile 30	Dyna-Gro Seed	FS	ME	No	No	No	0.5	0.0
11	FX19133	Dyna-Gro Seed	FS	ME	No	No	No	0.5	0.0
12	FX19178 BMR	Dyna-Gro Seed	FS	ME	Yes	Yes	No	0.5	0.0
13	F75FS13	Dyna-Gro Seed	FS	M	No	No	No	0.5	0.0
14	F74FS23 BMR	Dyna-Gro Seed	FS	M	Yes	No	No	0.5	0.0
15	F74FS72 BMR	Dyna-Gro Seed	FS	M	Yes	Yes	No	0.5	0.0
16	SuperSIle 20	Dyna-Gro Seed	FS	ML	No	No	No	0.5	0.0
17	TopTon	Dyna-Gro Seed	FS	ML	No	No	No	0.5	0.0
18	Dual Forage SCA II	Dyna-Gro Seed	FS	ML	No	No	No	0.5	0.0
19	First Graze	Dyna-Gro Seed	SS	ME	No	No	No	0.5	0.0
20	Super Sweet 10	Dyna-Gro Seed	SS	ME	No	No	No	0.5	0.0
21	Danny Boy II BMR	Dyna-Gro Seed	SS	PS	Yes	No	No	0.5	0.0
22	Fullgraze II	Dyna-Gro Seed	SS	ML	No	No	No	0.5	0.0
23	Fullgraze II BMR	Dyna-Gro Seed	SS	ML	Yes	No	No	0.5	0.0
24	18116	Gayland Ward	0	M	Yes	No	No	0.5	0.0
25	18118	Gayland Ward	0	E	Yes	No	Yes	0.5	0.0
26	19038	Gayland Ward	0	L	No	Yes	No	0.5	0.0
27	19040	Gayland Ward	0	L	No	Yes	No	0.5	0.0
28	19042	Gayland Ward	0	L	No	Yes	No	0.5	0.0
29	19053	Gayland Ward	0	E	Yes	No	Yes	0.5	0.0
30	19155	Gayland Ward	0	E	Yes	No	Yes	0.5	0.0
31	19174	Gayland Ward	0	M	Yes	No	No	0.5	0.0
32	19175	Gayland Ward	0	M	Yes	No	No	0.5	0.0
33	19176	Gayland Ward	0	M	Yes	No	No	0.5	0.0
34	19177	Gayland Ward	0	M	Yes	No	No	0.5	0.0
35	19178	Gayland Ward	0	M	Yes	No	No	0.5	0.0
36	19179	Gayland Ward	0	L	No	Yes	No	0.5	0.0
39	Mexico 1	Mexico 1	GS	L	No	No	No	0.5	0.0
40	Mexico 2	Mexico 2	GS	L	No	No	No	0.5	0.0
41	OPAL	MOJO Seed Enterprises	FS	M	No	Yes	No	0.5	0.0
42	X764	MOJO Seed Enterprises	FS	L	No	Yes	No	0.5	0.0
43	X715	MOJO Seed Enterprises	FS	ML	No	Yes	No	0.5	0.0
44	ET2530/N31L5010	MOJO Seed Enterprises	FS	L	No	No	No	0.5	0.0
45	ET2522/N32J3252	MOJO Seed Enterprises	FS	L	No	No	No	0.5	0.0
46	ET2523/N3J53	MOJO Seed Enterprises	FS	L	No	No	No	0.5	0.0
47	NF9001	Nutrition First	FS	ME	No	No	No	0.5	0.0
48	NF9501	Nutrition First	FS	ME	No	No	No	0.5	0.0
49	NF0501	Nutrition First	FS	M	No	No	No	0.5	0.0
50	845F*	Pioneer Seeds	FS	E	No	No	No	0.5	0.0

Table 5 cont. 2019 Sugarcane aphid ratings and the seasonal average aphid rating prior to a Sivanto chemigation and approximately one month post application using the AgriLife rating scale of Porter and Bynum. *Known SCA tolerant hybrids.

Hybrid Characteristics								Sugarcane Aphid Ratings	
Entry	Hybrid	Company	Sorghum Type	Advertised Maturity	BMR	Brach - ytic	Male Sterile	8/5/2019	9/9/2019
51	Silo 700D	Richardson Seeds	FS	ML	No	No	No	0.5	0.0
52	Silo 700D BMR	Richardson Seeds	FS	ML	Yes	No	No	0.5	0.0
54	9500W	Richardson Seeds	FS	ME	No	No	No	0.5	0.0
55	1037X	Richardson Seeds	FS	ME	Yes	No	No	0.5	0.0
56	1043X	Richardson Seeds	SS	PS	Yes	No	No	0.5	0.0
57	Sweeter N Honey II	Richardson Seeds	SS	L	No	No	No	0.5	0.0
58	Sweeter N Honey II BMR	Richardson Seeds	SS	L	Yes	No	No	0.5	0.0
60	1067X	Richardson Seeds	FS	E	No	No	No	0.5	0.0
61	1071X	Richardson Seeds	FS	ML	No	Yes	No	0.5	0.0
62	Canex	Sharp Brothers	FS	ME	No	No	Yes	0.5	0.0
63	Canex BMR 210	Sharp Brothers	FS	M	Yes	No	No	0.5	0.0
64	Canex BMR 600	Sharp Brothers	FS	ML	Yes	No	Yes	0.5	0.0
65	Silex BMR 540	Sharp Brothers	FS	ML	Yes	Yes	No	0.5	0.0
66	Grazex BMR 801	Sharp Brothers	SS	M	Yes	No	Yes	0.5	0.0
67	Grazex III	Sharp Brothers	SS	M	No	No	Yes	0.5	0.0
68	52242X	Scott Seed	FS	ML	No	No	No	0.5	0.0
69	51423X	Scott Seed	FS	L	Yes	No	No	0.5	0.0
70	55765X	Scott Seed	FS	M	Yes	Yes	No	0.5	0.0
71	50643X	Scott Seed	SS	L	Yes	No	No	0.5	0.0
72	50654X	Scott Seed	SS	PS	Yes	No	No	0.5	0.0
73	50651X	Scott Seed	SS	M	Yes	Yes	No	0.5	0.0
74	50652X	Scott Seed	SS	PS	Yes	Yes	No	0.5	0.0
75	54243X	Scott Seed	SS	L	No	No	Yes	0.5	0.0
76	53554X	Scott Seed	SS	PS	No	No	Yes	0.5	0.0
77	NK300	Sorghum Partners	FS	ME	No	No	No	0.5	0.0
78	SP2774	Sorghum Partners	FS	ME	Yes	No	No	0.5	0.0
79	SS405	Sorghum Partners	FS	ML	No	No	No	0.5	0.0
80	SS506	Sorghum Partners	FS	L	No	No	No	0.5	0.0
81	SP1880	Sorghum Partners	FS	L	No	No	No	0.5	0.0
82	S1615	Sorghum Partners	FS	PS	No	Yes	No	0.5	0.0
83	SP3808 SB BMR	Sorghum Partners	FS	ML	Yes	Yes	No	0.5	0.0
84	SP3904 BD BMR	Sorghum Partners	FS	ML	Yes	Yes	No	0.5	0.0
85	W7051	Warner Seeds	GS	E	No	No	No	0.5	0.0
86	W7706-W	Warner Seeds	GS	E	No	No	No	0.5	0.0
87	WXF-1714(X)	Warner Seeds	FS	M	No	No	No	0.5	0.0
88	WXF-1737(X)	Warner Seeds	FS	M	No	No	No	0.5	0.0
89	31F85	Wilbur-Ellis Company	SS	L	No	No	No	0.5	0.0
90	31F65	Wilbur-Ellis Company	SS	M	Yes	Yes	No	0.5	0.0
91	31F90	Wilbur-Ellis Company	SS	L	Yes	No	No	0.5	0.0
92	DKS 37-07	TAMU CHECK	GS	ME	No	No	No	0.5	0.0
93	84G62	TAMU CHECK	GS	ML	No	No	No	0.5	0.0
94	P0339	TAMU CHECK	Corn					0.0	0.0
95	P1244	TAMU CHECK	Corn					0.0	0.0
96	DKC70-64	TAMU CHECK	Corn					0.0	0.0