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TEXAS A&M AGRILIFE RESEARCH | EXTENSION

2024 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial

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The 2024 Texas A&M AgriLife Research and Extension Forage Sorghum Silage Trials evaluated 74 sorghum hybrids representing forage sorghum (n=52), sorghum sudan (n=12), and grain sorghum (n=10) under center pivot irrigation at the Texas A&M AgriLife Research Farm at Bushland, Texas. Hybrids were submitted by seed companies on a per fee basis except for the grain sorghum (DKS 36-07 and P84G62) and corn hybrid checks. The corn checks (n=3) provide a direct comparison between the forage production potential of corn and sorghum in the same production environment. The 2024 production season (June through August) was marked by hot and dry conditions (Fig. 1). The trial was irrigated at approximately 50% of the corn evapotranspiration requirement. Deficit irrigation coupled with limited rainfall during this period resulted in water stress and overall reduced yields; however, the maximum yielding hybrid was Supra Sorghum X at 11.4 tons DM/acre (Table 3). Data affirms that sorghum maintains yield and quality under water limited conditions.

Agronomic Information

Previous Crop: Corn
Planting Date: June 6, 2024
Forage Sorghum Seeding Rate: 80,000 seeds/acre
Corn Silage Seeding Rate: 32,000 seeds/acre
Fertilizer: Pre-plant strip-tilled 100 lbs. N/ac (4-8-2024)
Cultivation: Pre-plant cultivation sweep plow/rotary hoe (5-31-2024 and 6-5-2024)
Herbicide: Post-emergent: Warrant 48 oz/ac plus Atrazine 1lb/ac plus 2,4-D 5 oz/ac (6-21-2024)
Post-emergent: Huskie oz/ac plus Atrazine 1lb/ac plus AMS 1 lb/ac (7-9-2024)
Insecticide: Sivanto 10 oz/ac with pre-plant strip-tilled N (4-8-2024)
Sivanto 7 oz/ac at 20 gpa with boom sprayer (7-9-2024)
Sorghum aphids (Sugarcane Aphids) identified (8-9-2024)
Sivanto 10 oz/ac Chemigated (8-15-2024)
In-season Irrigation (Jun 6 - Aug 17): 11.0 inches
In-season Rainfall (Jun 6 - Aug 17): 9.3 inches

Hybrids were blocked according to their marketed maturity class so that forages within each block could be mechanically harvested for yield when grain reached soft dough. All hybrids were replicated three times. Uniform sub-samples were collected for dry matter and nutritional composition from all plots. A sub-sample of the chopped forage was dried at 221°F (105°C) to determine harvest moisture. Reported yields were corrected to 65% moisture and on a dry matter basis. A 600-gram sample was submitted to Cumberland Valley Analytical Services in Waynesboro, PA forage nutritional analyses using near infrared reflectance spectroscopy (NIR). Forage constituents are reported on a dry matter (DM) basis (Table 4).

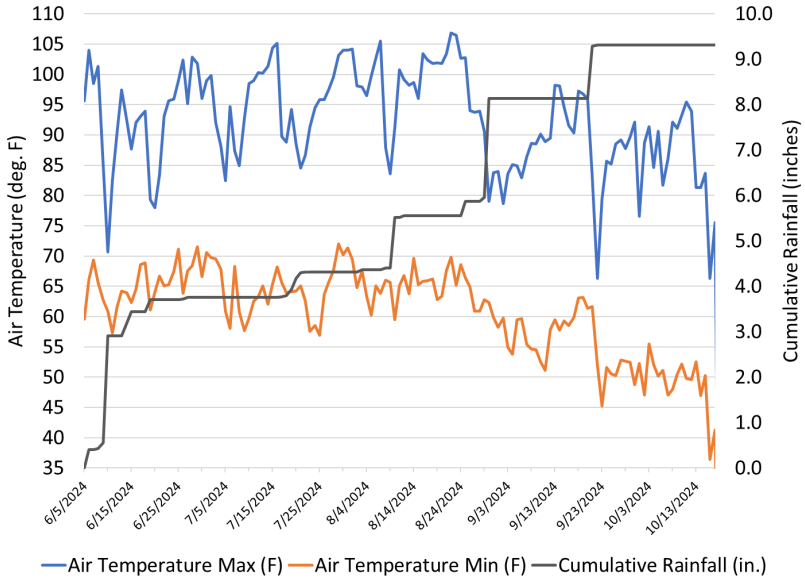

Figure 1. Daily maximum and minimum temperatures along with cumulative rainfall from planting at the field site.

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Hybrid maturity is an important consideration when making hybrid selections. It is important for producers to be aware that the marketed maturity class (e.g. early, medium, etc.) is not stable across all production environments, so producers should inquire about hybrid maturity in their production environment. Maturity and physiological development are influenced by day length, abiotic (moisture and heat) stress, and biotic (insect and disease) stress. The days to half-bloom (HB) provides an indication of maturity. The HB date is when 50% of the plants, in the area of observation, are blooming (Vanderlip, 1993). When evaluating a single plant, HB is when flowering has progressed half-way down the head.

Although the forage yield tends to increase with longer maturing hybrids, forage nutritional parameters may decrease because of greater exposure to abiotic and biotic stresses along with differences in hybrid physiological characteristics. Comparing broad averages for all sorghum hybrids in the 2024 Texas A&M AgriLife Forage Sorghum trial indicates that late maturing hybrids may need an additional 30 days to reach HB compared to early hybrids (Table 1).

Growing degree day (GDD) accumulation can often be a concern for late planted sorghum or sorghum grown in northern production environments. Cumulative GDDs are a function of planting date and daily (maximum and minimum) temperatures. Calculated GDDs were determined using a 50 °F base (Vanderlip and Reeves, 1972) and an upper limit upper-limit of 100 °F as recommended by Gerik et al. (2003). Roozenboom and Prasad (2019) reported the range of cumulative GDDs required for typical grain sorghum hybrids to reach physiological maturity at Manhattan, Kansas were 2588-3038 using these upper and lower limits. However, there is negligible research reporting the necessary GDDs for forage sorghum hybrid development, but forage sorghum grain should not reach physiological maturity (i.e. black layer) if harvested to optimize forage nutritive value of any forage type (cured hay or silage). The calculated GDDs for each maturity class range evaluated in the 2024 Texas A&M AgriLife Forage Sorghum Silage trial indicates there is not a risk of insufficient GDD accumulation for early to late maturing hybrids planted in June and harvested at soft-dough for silage (Table 1).

Table 1. The average days to specific physiological stages, accumulated growing degree days (GDDs) from planting, and yield and nutritive values on a DM basis for suggested maturity classes based on days to half-bloom (HB) for sorghum hybrids evaluated in the 2024 trial.

Maturity Class	Days to HB Range	Days to Boot	GDDs	Days to HB	GDDs	Days to SD	GDDs	Yield (tons/ac)	% CP	% NDF	% ADF	% Lignin	% Starch	% WSC
Early	<70	53	1520	65	1902	92	2672	4.9	10.8	42.8	26.0	3.3	22.2	34.0
Med-Early	70-79	59	1726	71	2099	96	2759	6.7	10.1	45.9	27.9	3.8	16.5	31.4
Medium	80-85	72	2132	84	2491	105	2964	7.4	9.6	42.6	26.1	3.8	20.6	34.9
Med-Late	86-90	76	2270	88	2604	106	2989	9.1	9.3	45.2	27.8	4.1	18.7	33.0
Late	91-100	80	2389	93	2694	108	3035	9.9	7.8	47.1	29.7	4.6	15.4	32.6
PS	>100	97	2769	107	3025	.	.	9.6	7.7	54.1	33.2	4.5	5.4	24.7

Water availability should be a consideration when selecting a longer maturing hybrid. Total seasonal crop water use (combination of soil water, rainfall, and irrigation) was evaluated for select hybrids representing five of the evaluated maturity classes (Table 2). Total crop water use was significantly different between the maturity classes; late and photoperiod sensitive hybrids used approximately 5 more inches of water.

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Table 2. Total crop water use for select hybrids representing five of the evaluated maturity classes. Soil water use was determined gravimetrically in each plot. Soil samples were collected prior to planting and on the day of harvest for each hybrid. Precipitation was measured at a weather station adjacent to the research field.

Hybrid	Maturity	Soil Water Use	Irrig.	Precip.	Total Crop Water Use
		inches			
F71FS72 BMR	Early	4.5	9.2	6.0	19.7
23015+	Med-Early	3.3	9.2	8.1	20.7
F27	Medium	5.0	9.2	8.1	22.4
SS405	Late	3.8	10.9	9.3	24.0
S473	PS	5.5	10.9	9.3	25.7
				Average	22.0
				p-Value	<.0001
				CV (%)	2.7
				LSD	1.0

Forage Nutritive Analyses Defined:

CP: Crude Protein

ADF: Acid Detergent Fiber; a fraction of the cell wall includes cellulose and lignin.

NDF: Neutral Detergent Fiber; cell wall fraction of the forage includes cellulose, hemicellulose and lignin.

NDFD30: NDF digestibility; estimated fiber digestibility after 30 hours.

Lignin: A structural material for cell walls and thus important for plant standability. Lignin is almost completely indigestible.

Starch: A carbohydrate primarily located in the grain. Starch availability is a function of harvest timing and berry processing.

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.

TDN: % Total Digestible Nutrients representing digestible protein, digestible crude fiber, digestible nitrogen free extract, and digestible fat.

tons TDN produced per acre: Represents the energy production under the evaluated management and environmental conditions. Calculated as % TDN x forage yield (tons/acre; DM basis) = tons of TDN produced per acre

Photoperiod sensitive hybrids were harvested on the last sampling date (October 9, 2024). Male sterile hybrids were randomized as part of the larger trial and pollinated by neighboring plots. The production of male sterile hybrids may not reflect yield and nutritive value in an isolated area. Grain yields for requested hybrids (Table 5) were collected following forage harvest and once grain reached physiological maturity. Grain yield data is annually submitted to the USDA-Farm Service Agency (FSA) to update the table of forage sorghum hybrids eligible for loan deficiency payment.

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Grain production can contribute significantly to forage yield and nutritional profiles, but the desired grain quantity varies depending on end-user-goals. Harvest Index, pound of grain per pound total biomass (forage + grain) provides an indication of the grain fraction of the total biomass yield. Statistical analyses were completed for sorghum hybrids using SAS 9.4. Adjusted least significant differences for multiple comparisons were determined using Tukey's Honest Significant Difference post hoc test. Effects and comparisons were determined significant at the 0.05 probability level.

Reported data and the discussion addresses broad averages for forage sorghums, grain sorghums, and sorghum-sudangrass hybrids evaluated in the 2024 trial as a fresh forage but managed for silage. 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 and nutritive value, actual parameters vary for hybrids of the same forage type, and there is often an overlap among hybrids in these type categories. Because nutrient requirements vary between livestock classes, evaluated parameters provide a broad comparison of forage nutritive value in the respective production environment.

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Table 3. 2024 Texas A&M AgriLife Bushland Forage Sorghum Silage trial mean yields sorted by maximum yielding hybrid. Yields highlighted in yellow are not significantly different. FS=Forage Sorghum, SS=Sorghum-Sudan, GS=Grain Sorghum, PS = Photoperiod Sensitive, BMR = Brown Midrib, SCA = Sugarcane Aphid (Sorghum Aphid), HB=Half-Bloom

Hybrid and Characteristics									Days to Half-Bloom (HB), Harvest Date, Height, Lodging, Moisture, and Yield						
Entry	HYBRID	COMPANY	TYPE	MATURITY	SCA TOL.	BMR	BRACH-YTIC	MALE STERILE	Days to HB†	Harvest Date	Height at Harvest (in)	% Lodge	% Moist. at Harvest	Yield (tons/ac) DM Basis	Yield (tons/ac) 65% Moist.[1]
60	Supra Sorghum X	Supra Ag	FS	Late	No	No	No	Yes	97	10/9/2024	120	0	69.8	11.4	32.7 ± 4.3
55	X50665	Scott Seed	FS	Med-Late	No	Yes	Yes	No	84	9/27/2024	60	0	70.5	11.1	31.8 ± 2.4
67	33F70	Wilbur-Ellis	FS	Med-Late	No	Yes	Yes	No	84	9/27/2024	59	0	73.4	11.0	31.4 ± 3.1
9	EXP_Z	Bayer	GS	Med-Late	Yes				71	9/27/2024	59	0	65.4	10.9	31.1 ± 5.7
3	ADVF 8484	Advanta	FS	Late	No	No	Yes	No	92	10/9/2024	69	0	74.1	10.8	30.9 ± 4.1
2	ADVF 8322	Advanta	FS	Medium	Yes	No	No	No	89	9/16/2024	75	0	74.1	10.7	30.5 ± 1.0
66	P4205	Warner Seed	FS	Med-Late	Yes	No	No	No	92	9/27/2024	86	0	73.4	10.6	30.2 ± 4.6
63	KGS 5305AT	Warner Seed	FS	Medium	Yes	No	No	No	90	9/16/2024	83	0	71.2	9.9	28.4 ± 3.3
49	S473	Richardson Seed	SS	PS	Yes	Yes	No	No		10/9/2024	115	0	70.8	9.6	27.5 ± 1.7
14	Danny Boy II BMR	DynaGro	SS	PS	No	Yes	No	No		10/9/2024	113	0	68.4	9.6	27.4 ± 3.2
61	Supra Sorghum/Sud	Supra Ag	SS	Late	No	No	No	Yes	86	10/9/2024	101	0	69.8	9.5	27.1 ± 3.2
26	Super Sile 30	DynaGro	FS	Medium	No	No	No	No	84	9/16/2024	84	0	64.0	9.5	27.1 ± 1.2
41	F27	Richardson Seed	FS	Medium	No	No	Yes	No	84	9/16/2024	69	0	73.2	9.4	26.9 ± 2.8
43	F429	Richardson Seed	FS	Med-Late	No	Yes	Yes	No	92	9/27/2024	73	0	64.1	9.4	26.8 ± 0.4
4	ADVXF193	Advanta	FS	Medium	No	Yes	No	No	86	9/16/2024	90	0	68.4	9.4	26.7 ± 1.5
56	X52242	Scott Seed	FS	Med-Late	Yes	No	No	No	89	9/27/2024	76	0	70.5	9.3	26.6 ± 3.2
25	Super Sile 20	DynaGro	FS	Med-Late	No	No	Yes	No	89	9/27/2024	96	0	64.0	9.2	26.4 ± 2.5
21	Fullgraze II	DynaGro	SS	Med-Late	No	No	No	No	106	9/27/2024	129	0	54.6	9.2	26.4 ± 2.0
57	X54243	Scott Seed	SS	Late	Yes	No	No	No	105	10/9/2024	124	0	70.5	9.2	26.1 ± 0.3
68	38F80	Wilbur-Ellis	FS	Med-Late	Yes	No	No	No	90	9/27/2024	52	0	75.9	8.8	25.2 ± 2.1
53	SS405	S&W Seed	FS	Med-Late	No	No	No	No	103	9/27/2024	111	0	74.1	8.7	25.0 ± 3.0
46	F465	Richardson Seed	FS	Late	Yes	No	No	Yes	68	10/9/2024	74	0	69.8	8.6	24.5 ± 2.1
20	F74FS72 BMR	DynaGro	FS	Medium	No	Yes	Yes	No	90	9/16/2024	65	0	54.6	8.3	23.6 ± 4.2
50	NK300	S&W Seed	FS	Med-Early	No	No	No	No	84	9/4/2024	65	0	70.8	8.2	23.5 ± 1.7
29	22207	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	91	9/4/2024	69	0	60.7	8.2	23.4 ± 2.6
23	FX24067	DynaGro	SS	Med-Late	No	No	No	No	70	9/27/2024	117	0	61.1	8.1	23.1 ± 2.8
48	F92X	Richardson Seed	FS	Medium	Yes	No	Yes	No	75	9/16/2024	70	0	69.8	8.0	22.9 ± 2.1
54	X5061038	Scott Seed	FS	Med-Late	No	Yes	Yes	No	84	9/27/2024	59	0	74.1	8.0	22.7 ± 2.7
58	X56023	Scott Seed	FS	Med-Late	No	Yes	No	No	87	9/27/2024	92	0	69.8	7.9	22.7 ± 2.8
8	EXP_AMA	Bayer	GS	Medium	No				70	9/16/2024	57	0	65.4	7.9	22.6 ± 0.6
6	EXP_21	Bayer	GS	Med-Late	Yes				65	9/27/2024	56	0	68.4	7.9	22.5 ± 3.1
51	SP2606 BMR	S&W Seed	FS	Med-Early	No	Yes	No	No	84	9/4/2024	72	0	70.8	7.9	22.5 ± 2.8
22	Fullgraze II BMR	DynaGro	SS	Med-Late	No	Yes	No	Yes	104	9/27/2024	120	0	61.1	7.9	22.5 ± 1.8
19	F74FS23 BMR	DynaGro	FS	Medium	No	Yes	No	No	92	9/16/2024	90	0	54.6	7.8	22.4 ± 2.8
7	EXP_AB	Bayer	GS	Medium	No				66	9/16/2024	52	0	65.4	7.7	22.1 ± 2.6
30	23502	Mojo Seed	FS	Medium	Yes	No	No	Yes	70	9/16/2024	84	0	60.7	7.7	22.1 ± 3.6
18	F72FS05	DynaGro	FS	Med-Early	Yes	No	No	No	93	9/4/2024	68	0	62.0	7.7	22.0 ± 3.1
11	Cadan	Browning Seed	SS	Medium	No	No	No	No	65	9/16/2024	109	0	70.0	7.4	21.1 ± 2.3
12	Mid-Range-1	Browning Seed	SS	Medium	No	No	No	No	65	9/16/2024	89	0	70.0	7.1	20.4 ± 2.1
44	F430	Richardson Seed	FS	Med-Early	Yes	Yes	No	Yes		9/4/2024	98	0	64.1	7.0	20.1 ± 2.5
52	SP2707 DT	S&W Seed	FS	Med-Early	No	No	No	No	86	9/4/2024	52	0	74.1	7.0	20.0 ± 2.7
1	ADVF 7232	Advanta	FS	Med-Late	No	Yes	Yes	No	91	9/27/2024	62	0	74.1	7.0	20.0 ± 1.2
33	23016+	Mojo Seed	FS	Medium	Yes	No	No	No	69	9/16/2024	58	0	59.7	6.9	19.6 ± 1.4
65	P2880	Warner Seed	FS	Med-Early	Yes	No	Yes	No	67	9/4/2024	57	0	73.4	6.8	19.4 ± 0.3
5	EXP_19	Bayer	GS	Med-Early	No				69	9/4/2024	50	0	68.4	6.7	19.3 ± 0.6
47	F789X	Richardson Seed	FS	Med-Early	Yes	No	Yes	No	65	9/4/2024	53	0	69.8	6.7	19.1 ± 0.6
35	24123+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	65	0	62.1	6.7	19.1 ± 0.6
16	Dynagraze II BMR	DynaGro	SS	Med-Early	No	Yes	No	No	64	9/4/2024	85	0	62.0	6.6	18.8 ± 1.9
36	24124+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	66	0	62.1	6.5	18.6 ± 1.9
24	FX24806	DynaGro	FS	Med-Early	No	Yes	No	No	67	9/4/2024	69	0	61.1	6.5	18.5 ± 2.5
10	3 Little Indians	Browning Seed	FS	Medium	No	No	No	No	67	9/16/2024	101	0	70.0	6.4	18.4 ± 1.4
15	Dynagraze II	DynaGro	SS	Med-Early	No	No	No	No	64	9/4/2024	76	0	68.4	6.4	18.4 ± 1.7
28	Sweet Ton MS	DynaGro	FS	Medium	No	No	Yes	Yes	65	9/16/2024	74	0	60.7	6.4	18.4 ± 3.2
64	P2747	Warner Seed	FS	Med-Early	Yes	No	Yes	No	70	9/4/2024	57	0	71.2	6.4	18.3 ± 2.2
38	PEARL	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	58	0	68.6	6.3	18.0 ± 0.9
76	UC2309	UNR Yerka	FS	Medium	No	No	No	Yes	58	8/28/2024	68	0	73.1	6.2	17.6 ± 1.6
27	Super Sweet 10	DynaGro	FS	Med-Early	No	No	No	No	66	9/4/2024	74	0	64.0	6.1	17.5 ± 1.0

Table 3. Cont.

Hybrid and Characteristics									Days to Half-Bloom (HB), Harvest Date, Height, Lodging, Moisture, and Yield						
37	OPAL + DT	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	61	0	68.6	6.1	17.4 ± 1.8
32	23015+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	60	0	59.7	6.1	17.4 ± 1.0
34	23024+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	70	9/4/2024	53	0	62.1	6.0	17.1 ± 0.9
13	Mid-Range-2	Browning Seed	SS	Med-Early	No	No	No	No	65	9/4/2024	77	0	68.4	5.9	16.9 ± 2.0
75	UC2304	UNR Yerka	FS	Medium	No	No	No	Yes	58	8/28/2024	69	0	73.1	5.9	16.9 ± 1.1
31	22101+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9/4/2024	64	0	59.7	5.8	16.6 ± 1.2
74	UC2301	UNR Yerka	FS	Medium	No	No	No	Yes	58	8/28/2024	64	0	73.1	5.8	16.4 ± 1.9
70	DK36-07	TAMU Check	GS	Early	Yes	No	No	No	55	8/29/2024	42	0	75.9	5.3	15.1 ± 0.5
62	KGS 5180BD AT	Warner Seed	FS	Early	Yes	No	Yes	No	67	8/29/2024	56	0	71.2	5.2	14.9 ± 1.3
17	F71FS72 BMR	DynaGro	FS	Early	No	Yes	No	No	65	8/29/2024	60	0	62.0	5.2	14.8 ± 0.7
73	P1366Q	TAMU Check	Corn	Medium						9/4/2024	70	0	68.6	5.0	14.3 ± 1.1
69	84G62	TAMU Check	GS	Early	No	No	No	No	65	8/29/2024	41	0	75.9	5.0	14.3 ± 1.4
40	F251	Richardson Seed	FS	Early	Yes	No	No	No	64	8/29/2024	59	0	73.2	4.9	14.1 ± 0.3
71	DKC70-64	TAMU Check	Corn	Medium						9/4/2024	76	0	68.6	4.9	14.0 ± 1.2
42	F382	Richardson Seed	FS	Early	Yes	Yes	No	No	68	8/29/2024	65	0	73.2	4.7	13.3 ± 1.4
45	F431	Richardson Seed	FS	Early	Yes	Yes	Yes	No	68	8/29/2024	52	0	64.1	4.6	13.2 ± 0.5
72	P1548	TAMU Check	Corn	Medium						9/4/2024	76	0	68.6	4.5	13.0 ± 2.0
39	F24	Richardson Seed	FS	Early	Yes	No	Yes	No	66	8/29/2024	55	0	68.6	4.5	12.7 ± 1.4

† Days to HB represents the number of days from planting to HB. If HB date is not reported, the respective hybrid did not reach HB prior to the last harvest date. *Mean and statistical evaluations do not include corn hybrids. Forage characteristics and advertised maturity are provided by developer/company at the time of entry.
ǂMean for each hybrid is followed by the standard deviation (±).

Mean*	**21.7**
CV (%)	**11.0**
p-val	**<0.0001**
LSD	**3.9**

Table 4. 2024 Texas A&M AgriLife Bushland Forage Sorghum Silage trial forage nutritive values by maximum tons of TDN per acre. FS=Forage Sorghum, SS=Sorghum Sudan, GS=Grain Sorghum, PS=Photoperiod Sensitive, SCA=Sugarcane Aphid (aka Sorghum Aphid), BMR=Brown midrib, HB=Half Bloom

Hybrid and Characteristics										Nutrient Composition (DM Basis)										Yield (tons/ac) DM Basis
Entry	Hybrid	Company	Type	Advertised Maturity	SCA Tol.	BMR	Brach-yitc	Male Sterile‡	Days to HB†	% CP	% NDF	% NDFD30	% ADF	% Lignin	% NFC	% Starch	% WSC	% TDN	tons TDN/ac	
60	Supra Sorghum X	Supra Ag	FS	Late	No	No	No	Yes	97	6.9	46.0	43.8	29.0	4.5	42.5	13.3	20.9	67.8	7.5	11.4
55	X50665	Scott Seed	FS	Med-Late	No	Yes	Yes	No	84	10.1	39.2	37.8	24.1	3.6	44.6	27.5	11.0	66.3	7.4	11.1
67	33F70	Wilbur-Ellis	FS	Med-Late	No	Yes	Yes	No	84	9.9	39.1	37.8	24.6	3.9	44.7	27.9	9.7	67.4	7.9	11.0
9	EXP_Z	Bayer	GS	Med-Late	Yes	.	.	.	71	10.8	38.6	37.7	24.2	3.9	46.4	26.9	10.9	66.9	7.6	10.9
3	ADVF 8484	Advanta	FS	Late	No	No	Yes	No	92	8.6	45.7	44.3	28.5	4.5	40.6	20.2	13.5	66.5	7.2	10.8
2	ADVF 8322	Advanta	FS	Medium	Yes	No	No	No	89	8.8	48.4	46.6	29.3	4.3	36.9	13.0	17.9	67.2	6.8	10.7
66	P4205	Warner Seed	FS	Med-Late	Yes	No	No	No	92	8.3	45.6	44.2	28.1	4.4	40.5	19.1	14.9	70.5	6.9	10.6
63	KGS 5305AT	Warner Seed	FS	Medium	Yes	No	No	No	90	9.6	46.1	44.7	28.0	4.4	38.9	16.0	15.9	71.6	6.4	9.9
49	S473	Richardson Seed	SS	PS	Yes	Yes	No	No	.	7.7	57.2	56.2	34.0	4.4	28.4	5.2	18.2	63.1	5.9	9.6
14	Danny Boy II BMR	DynaGro	SS	PS	No	Yes	No	No	.	7.7	51.0	49.7	32.3	4.6	33.3	5.6	20.5	64.8	5.8	9.6
61	Supra Sorghum/Sudan	Supra Ag	SS	Late	No	No	No	Yes	86	7.6	48.0	45.7	30.4	4.6	38.5	12.2	19.7	73.3	6.0	9.5
26	Super Sile 30	DynaGro	FS	Medium	No	No	No	No	84	9.4	46.0	44.6	28.5	4.4	39.2	16.5	14.4	65.7	6.2	9.5
41	F27	Richardson Seed	FS	Medium	No	No	Yes	No	84	10.0	44.0	42.2	26.6	3.9	39.9	18.4	14.5	68.4	6.2	9.4
43	F429	Richardson Seed	FS	Med-Late	No	Yes	Yes	No	92	8.9	45.5	44.3	27.1	3.5	40.0	19.0	14.7	66.7	6.2	9.4
4	ADVXF193	Advanta	FS	Medium	No	Yes	No	No	86	8.7	45.5	44.0	27.6	3.6	40.3	16.0	17.6	66.6	6.3	9.4
56	X52242	Scott Seed	FS	Med-Late	Yes	No	No	No	89	9.7	44.9	43.4	27.1	3.9	38.9	17.8	14.7	67.5	6.1	9.3
25	Super Sile 20	DynaGro	FS	Med-Late	No	No	Yes	No	89	9.1	48.2	46.6	29.7	4.4	36.7	13.3	16.5	68.1	5.8	9.2
21	Fullgraze II	DynaGro	SS	Med-Late	No	No	No	No	106	8.0	56.6	55.7	35.2	5.2	30.9	7.4	15.5	68.0	5.7	9.2
57	X54243	Scott Seed	SS	Late	Yes	No	No	No	105	7.3	56.9	55.6	36.1	5.5	31.1	8.2	16.0	70.5	5.6	9.2
68	38F80	Wilbur-Ellis	FS	Med-Late	Yes	No	No	No	90	9.3	46.0	45.0	28.0	4.2	38.6	16.4	15.5	67.2	5.7	8.8
53	SS405	S&W Seed	FS	Med-Late	No	No	No	No	103	8.5	52.4	51.4	32.7	5.0	33.4	11.6	16.0	67.2	5.4	8.7
46	F465	Richardson Seed	FS	Late	Yes	No	No	Yes	68	8.8	38.9	37.8	24.2	4.1	48.1	23.0	16.1	74.2	6.0	8.6
20	F74FS72 BMR	DynaGro	FS	Medium	No	Yes	Yes	No	90	9.7	44.9	42.9	27.2	3.5	38.5	13.8	17.5	68.3	5.4	8.3
50	NK300	S&W Seed	FS	Med-Early	No	No	No	No	84	10.9	49.3	48.0	29.5	4.1	32.8	10.9	15.6	67.8	5.2	8.2
29	22207	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	91	9.2	53.6	50.9	32.8	3.5	29.7	5.6	19.2	68.2	5.1	8.2
23	FX24067	DynaGro	SS	Med-Late	No	No	No	No	70	9.6	49.0	47.9	30.1	4.6	35.6	13.4	15.1	71.6	5.1	8.1
48	F92X	Richardson Seed	FS	Medium	Yes	No	Yes	No	75	10.8	40.1	38.9	24.6	3.5	43.7	26.6	8.9	71.7	5.6	8.0
54	X5061038	Scott Seed	FS	Med-Late	No	Yes	Yes	No	84	9.8	42.8	40.9	26.2	3.7	40.7	20.9	13.3	70.5	5.3	8.0
58	X56023	Scott Seed	FS	Med-Late	No	Yes	No	No	87	8.6	42.1	40.3	25.9	3.7	44.1	18.7	18.3	66.6	5.3	7.9
8	EXP_AMA	Bayer	GS	Medium	No	.	.	.	70	10.3	38.0	36.9	23.9	3.8	47.2	27.8	10.1	67.9	5.6	7.9
6	EXP_21	Bayer	GS	Med-Late	Yes	.	.	.	65	10.6	35.0	34.1	22.0	3.6	50.4	30.9	9.9	65.9	5.7	7.9
51	SP2606 BMR	S&W Seed	FS	Med-Early	No	Yes	No	No	84	10.1	49.3	47.3	30.1	3.7	33.9	10.9	16.4	62.5	5.0	7.9
22	Fullgraze II BMR	DynaGro	SS	Med-Late	No	Yes	No	Yes	104	8.4	54.2	52.9	33.0	4.4	31.6	7.6	18.2	68.0	4.5	7.9
19	F74FS23 BMR	DynaGro	FS	Medium	No	Yes	No	No	92	9.1	44.3	42.3	27.4	3.8	40.1	11.4	19.7	66.0	5.1	7.8
7	EXP_AB	Bayer	GS	Medium	No	.	.	.	66	10.2	38.1	37.2	24.5	3.8	46.8	30.8	7.2	63.2	5.5	7.7
30	23502	Mojo Seed	FS	Medium	Yes	No	No	Yes	70	8.4	40.2	38.6	24.9	3.8	47.2	20.8	17.6	66.0	5.4	7.7
18	F72FS05	DynaGro	FS	Med-Early	Yes	No	No	No	93	10.1	53.6	50.6	32.2	3.7	29.1	5.7	17.5	64.9	4.8	7.7
11	Cadan	Browning Seed	SS	Medium	No	No	No	No	65	9.5	47.1	46.0	29.5	4.6	38.4	17.8	13.0	64.6	4.8	7.4
12	Mid-Range-1	Browning Seed	SS	Medium	No	No	No	No	65	9.9	41.6	40.6	25.8	4.4	43.7	22.0	13.0	64.1	4.8	7.1
44	F430	Richardson Seed	FS	Med-Early	Yes	Yes	No	Yes	.	9.2	53.2	52.3	31.0	3.5	31.9	7.3	18.0	64.2	4.5	7.0

Table 4. cont.

Hybrid and Characteristics										Nutrient Composition (DM Basis)										Yield (tons/ac) DM Basis
Entry	Hybrid	Company	Type	Advertised Maturity	SCA Tol.	BMR	Brach-yitc	Male Sterile‡	Days to HB†	% CP	% NDF	% NDFD30	% ADF	% Lignin	% NFC	% Starch	% WSC	% TDN	tons TDN/ac	
52	SP2707 DT	S&W Seed	FS	Med-Early	No	No	No	No	86	10.4	53.1	51.4	31.7	4.1	30.4	8.4	16.6	66.2	4.4	7.0
1	ADVF 7232	Advanta	FS	Med-Late	No	Yes	Yes	No	91	9.2	43.8	41.9	26.6	3.5	40.7	20.5	14.5	66.1	4.7	7.0
33	23016+	Mojo Seed	FS	Medium	Yes	No	No	No	69	10.6	40.0	38.6	24.6	3.5	44.4	22.4	14.1	63.5	4.8	6.9
65	P2880	Warner Seed	FS	Med-Early	Yes	No	Yes	No	67	9.9	41.9	40.5	25.4	3.5	42.2	23.8	12.0	66.6	4.6	6.8
5	EXP_19	Bayer	GS	Med-Early	No	.	.	.	69	10.7	39.8	38.3	24.4	3.6	44.6	25.9	10.5	62.1	4.7	6.7
47	F789X	Richardson Seed	FS	Med-Early	Yes	No	Yes	No	65	10.9	41.5	39.7	25.2	3.6	41.4	22.2	12.9	62.8	4.5	6.7
35	24123+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9.7	46.1	44.8	28.1	3.7	37.6	14.9	16.2	62.7	4.3	6.7
16	Dynagraze II BMR	DynaGro	SS	Med-Early	No	Yes	No	No	64	10.2	46.9	45.8	28.4	4.0	37.2	16.9	14.0	66.6	4.3	6.6
36	24124+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	10.0	45.4	43.7	27.6	3.7	38.2	14.7	17.1	67.7	4.2	6.5
24	FX24806	DynaGro	FS	Med-Early	No	Yes	No	No	67	9.4	41.1	39.2	25.4	3.5	44.3	18.7	17.4	64.7	4.4	6.5
10	3 Little Indians	Browning Seed	FS	Medium	No	No	No	No	67	9.5	43.4	42.4	27.2	4.3	42.5	22.3	11.9	63.7	4.4	6.4
15	Dynagraze II	DynaGro	SS	Med-Early	No	No	No	No	64	9.8	45.1	43.8	28.5	4.7	40.8	21.1	13.2	66.9	4.3	6.4
28	Sweet Ton MS	DynaGro	FS	Medium	No	No	Yes	Yes	65	9.3	37.8	36.3	23.6	3.9	48.6	23.4	16.3	65.4	4.5	6.4
64	P2747	Warner Seed	FS	Med-Early	Yes	No	Yes	No	70	10.2	44.5	43.0	26.9	3.6	39.3	19.6	12.8	62.1	4.3	6.4
38	PEARL	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	10.7	44.4	42.6	26.8	3.5	38.9	17.8	15.3	67.9	4.2	6.3
76	UC2309	UNR Yerka	FS	Medium	No	No	No	Yes	58	9.2	41.8	40.0	26.0	3.6	42.5	26.1	10.0	66.8	4.2	6.2
27	Super Sweet 10	DynaGro	FS	Med-Early	No	No	No	No	66	10.1	43.5	42.4	27.4	4.5	41.7	21.4	13.0	67.0	4.1	6.1
37	OPAL + DT	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9.7	44.9	43.1	27.7	3.7	39.6	16.8	15.0	62.4	4.1	6.1
32	23015+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	10.1	44.3	41.9	26.9	3.4	39.4	19.4	13.7	68.0	4.1	6.1
34	23024+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	70	10.7	40.8	39.1	24.9	3.2	42.3	23.0	11.5	70.6	4.1	6.0
13	Mid-Range-2	Browning Seed	SS	Med-Early	No	No	No	No	65	10.0	42.6	41.3	26.7	4.2	41.8	20.0	14.1	65.6	4.0	5.9
75	UC2304	UNR Yerka	FS	Medium	No	No	No	Yes	58	9.6	42.2	40.9	25.7	3.6	42.5	25.1	11.1	70.5	4.1	5.9
31	22101+	Mojo Seed	FS	Med-Early	Yes	No	Yes	No	71	9.8	44.5	42.8	27.1	3.5	39.6	17.6	15.0	62.1	3.9	5.8
74	UC2301	UNR Yerka	FS	Medium	No	No	No	Yes	58	9.9	42.3	40.7	25.6	3.6	42.0	22.8	13.3	68.2	4.0	5.8
70	DK36-07	TAMU Check	GS	Early	Yes	No	No	No	55	10.6	34.7	33.7	22.7	3.3	50.1	35.9	4.1	67.1	3.9	5.3
62	KGS 5180BD AT	Warner Seed	FS	Early	Yes	No	Yes	No	67	10.6	45.6	43.9	27.7	3.5	37.7	20.6	11.6	62.7	3.5	5.2
17	F71FS72 BMR	DynaGro	FS	Early	No	Yes	No	No	65	10.0	41.8	40.6	25.3	3.5	42.7	19.7	16.6	66.7	3.5	5.2
73	P1366Q	TAMU Check	Corn	Medium	.	.	.	.	.	10.0	39.2	37.6	23.0	2.6	45.7	23.7	15.7	65.9	3.6	5.0
69	84G62	TAMU Check	GS	Early	No	No	No	No	65	11.6	39.5	38.1	24.1	3.2	42.7	27.2	8.4	66.5	3.5	5.0
40	F251	Richardson Seed	FS	Early	Yes	No	No	No	64	10.1	42.9	41.3	26.4	3.5	40.8	21.6	13.1	66.5	3.3	4.9
71	DKC70-64	TAMU Check	Corn	Medium	.	.	.	.	.	10.4	43.2	41.0	25.7	3.2	40.3	15.8	18.7	67.3	3.3	4.9
42	F382	Richardson Seed	FS	Early	Yes	Yes	No	No	68	10.4	46.5	44.9	27.4	3.3	37.5	18.0	14.4	65.2	3.1	4.7
45	F431	Richardson Seed	FS	Early	Yes	Yes	Yes	No	68	11.3	46.2	44.4	27.2	2.9	36.0	17.1	12.8	67.6	3.1	4.6
72	P1548	TAMU Check	Corn	Medium	.	.	.	.	.	9.3	42.6	39.9	25.8	2.4	41.5	19.6	17.1	64.4	3.2	4.5
39	F24	Richardson Seed	FS	Early	Yes	No	Yes	No	66	11.6	44.9	43.1	27.4	3.5	36.3	17.7	13.1	65.6	2.9	4.5
									Mean*	9.7	44.6	43.2	27.3	3.8	40.0	18.5	14.5	66.5	4.9	7.5
									CV (%)	6.1	4.7	7.2	4.6	7.4	6.6	19.1	23.7	2.3	13.4	13.3
									p-val	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
									LSD	1.0	3.5	3.0	2.1	0.5	4.4	6.0	2.9	2.5	1.1	1.6

† If HB date is not reported, the respective hybrid did not reach HB prior to the last harvest date. *Mean and statistical evaluations do not include corn hybrids. Forage characteristics and advertised maturity are provided by developer/company at the time of entry. ‡ Male sterile hybrids pollinated by neighboring plots and do not represent production in an isolated area.

Table 5. 2024 Texas A&M AgriLife Bushland Forage Sorghum Silage Trial Grain Yields

Yields for all hybrids evaluated as a percent of the trial's long-term grain sorghum check Pioneer 84G62.

(2024 84G62 yield: 6,259 lbs/acre; 15 year average: 8,356 lbs/acre)

Forage Trial Entry #	HYBRID	COMPANY	TYPE	Advertised Maturity	SCA TOL.	BMR	BRACH-YTIC	MALE STERILE	Days to HB	Grain Yield (lb/ac) 13% GM	Grain Yield as a % of 2024 84G62 Grain Yield	Grain Yield as a % of 84G62 15-year Avg. Grain Yield	Forage Yield (tons/ac) DM Basis	Harvest Index (Grain:Total Biomass) DM Basis
8	EXP_AMA	Bayer	Grain Sorghum	Medium	No				70	7421	119	89	7.9	0.41
6	EXP_21	Bayer	Grain Sorghum	Medium Late	Yes				65	7338	117	88	7.9	0.40
7	EXP_AB	Bayer	Grain Sorghum	Medium	No				66	6940	111	83	7.7	0.39
5	EXP_19	Bayer	Grain Sorghum	Medium Early	No				69	6729	108	81	6.7	0.43
50	NK300	S&W Seed	Forage Sorghum	Medium Early	No	No	No	No	84	6682	107	80	8.2	0.35
55	X50665	Scott Seed	Forage Sorghum	Medium Late	No	Yes	Yes	No	84	6383	102	76	11.1	0.25
69	84G62	TAMU Check	Grain Sorghum	Early	No	No	No	No	65	6259	100	75	5.0	0.54
75	UC2304	UNR Yerka	Forage Sorghum	Medium	No	No	No	Yes	58.0	5801	93	69	5.9	0.43
76	UC2309	UNR Yerka	Forage Sorghum	Medium	No	No	No	Yes	58.0	5718	91	68	6.2	0.40
54	X5061038	Scott Seed	Forage Sorghum	Medium Late	No	Yes	Yes	No	84	5558	89	67	8.0	0.30
70	DK36-07	TAMU Check	Grain Sorghum	Early	Yes	No	No	No	55	5431	87	65	5.3	0.45
74	UC2301	UNR Yerka	Forage Sorghum	Medium	No	No	No	Yes	58	5362	86	64	5.8	0.41
47	F789X	Richardson Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	65	4927	79	59	6.7	0.32
9	EXP_Z	Bayer	Grain Sorghum	Medium Late	Yes				71	4834	77	58	10.9	0.19
34	23024+	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	70	4680	75	56	6.0	0.34
52	SP2707 DT	S&W Seed	Forage Sorghum	Medium Early	No	No	No	No	86	4473	71	54	7.0	0.28
32	23015+	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	3840	61	46	6.1	0.27
37	OPAL + DT	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	3524	56	42	6.1	0.25
38	PEARL	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	3329	53	40	6.3	0.23
48	F92X	Richardson Seed	Forage Sorghum	Medium	Yes	No	Yes	No	75	3238	52	39	8.0	0.18
33	23016+	Mojo Seed	Forage Sorghum	Medium	Yes	No	No	No	69	3216	51	38	6.9	0.20
51	SP2606 BMR	S&W Seed	Forage Sorghum	Medium Early	No	Yes	No	No	84	2577	41	31	7.9	0.14
26	Super Sile 30	DynaGro	Forage Sorghum	Medium	No	No	No	No	84	2503	40	30	9.5	0.11
31	22101+	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	2286	37	27	5.8	0.17
36	24124+	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	2277	36	27	6.5	0.15
24	FX24806	DynaGro	Forage Sorghum	Medium Early	No	Yes	No	No	67	2248	36	27	6.5	0.15
35	24123+	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	71	1623	26	19	6.7	0.11
56	X52242	Scott Seed	Forage Sorghum	Medium Late	Yes	No	No	No	89	1319	21	16	9.3	0.06
58	X56023	Scott Seed	Forage Sorghum	Medium Late	No	Yes	No	No	87	1302	21	16	7.9	0.07
29	22207	Mojo Seed	Forage Sorghum	Medium Early	Yes	No	Yes	No	91	1106	18	13	8.2	0.06
25	Super Sile 20	DynaGro	Forage Sorghum	Medium Late	No	No	Yes	No	89	1058	17	13	9.2	0.05
53	SS405	S&W Seed	Forage Sorghum	Medium Late	No	No	No	No	103	762	12	9	8.7	0.04
19	F74FS23 BMR	DynaGro	Forage Sorghum	Medium	No	Yes	No	No	92	741	12	9	7.8	0.04
57	X54243	Scott Seed	Sorghum Sudan	Late	Yes	No	No	No	105	400	6	5	9.2	0.02