Final Report
2013 Field Demonstrations of Sorghum Forages for the California Dairy Industry

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Introduction

The San Joaquin Valley of California is home to a multi-million dollar dairy industry. The industry, like many in agriculture, is dealing with several issues that impact their bottom line. The demand for water in California is encouraging a renewed look at crops and cropping systems that conserve water and maintain both yield and quality, especially with the ongoing drought which is impacting all of California agriculture. This is the third year of sorghum forage trials planted at the Kearney Agricultural Research and Extension Center and the Westside Research and Extension Center to evaluate commercially available sorghum forages.

Methods and Materials

Five seed companies provided a total of 52 hybrids, which included traditional forage sorghums, Photoperiod (PS) forage sorghums, brown mid-rib (BMR) derivatives of both traditional and PS sorghums. Hybrids were planted in a randomized block design in four row plots planted on 30-inch raised beds and were analyzed as a split-plot design. Irrigation was applied using furrow irrigation at Kearney and a combination of overhead sprinklers and flood irrigation at the Westside Center. Fertility applications followed similar recommendation for forage sorghums for the region. The 2013 growing season had sporadic winter/spring rains temperatures were very high throughout most of the growing season. Temperatures of 100+ were recorded for several weeks in July and were generally warmer than previous years. Trials at both Kearney and Westside were irrigated as needed. Kearney received a total of 20.24 inches of applied irrigation. Rainfall totals from January through June 2013 prior to planting at KARE were 2.36 inches, while rainfall totaled 0.04 inches during the growing season.

Rainfall totals from January through June prior to planting at Westside were 2.06 inches, while rainfall totaled 0.02 inches during the growing season. At the West Side REC site, pre-plant irrigation with sprinklers totaled 4.2 inches. Furrow irrigations totaled an additional 28.2 inches, for a total irrigation application of 32.4 inches for the full growing season plus pre-plant sprinkling.

Each hybrid was harvested for forage yield when grain reached soft dough stage or in the case of the PS sorghum, with the last harvest of late forage sorghum producing some grain.

Other cultural practices and study information are listed below:
Trail Location: Kearney Agricultural Research & Extension Center, Parlier

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Cooperator:	UC-ANR
Previous Crop:	Winter forage (Oats)
Soil Type:	Hanford sandy loam
Plot Size:	Four, 30 inch rows by 20 ft
Replications:	3
Study Design:	Split-Plot
Planting Date:	June 11, 2013
Planting Rate:	100,000 seed acre^{-1}
Seed Method:	John Deere Max-emerge Planter
Fertilizer:	NPK 21x7x14 at 600 lbs acre^{-1} applied on 5-31-12
Herbicide:	None
Irrigation:	See narrative above
Silage Harvest Date:	Plots were harvested with a mechanical forage cutter on September 16, 2013

Trial Location:	Westside Research and Extension Center, Five Points
Cooperator:	UC-ANR Extension
Previous Crop:	Winter forage (wheat grown for silage-not taken to grain)
Soil Type:	Panoche clay loam
Plot Size:	Four, 30 inch rows by 20 ft
Replications:	3
Study Design:	Split-Plot
Planting Date:	June 7, 2013
Planting Rate:	100,000 seed acre^{-1}
Seed Method:	John Deere Max-emerge Planter
Fertilizer:	N-P-K 11-52-00 at 150 lbs acre^{-1} applied pre-plant and a second application of N-P-K 46-0-0 at 200 lbs acre^{-1}
Herbicide:	None pre-plant; Prowl-H20 at layby @ 3 pts/ac
Irrigation:	Sprinklers for pre-irrigation and stand establishment, gated pipe furrow irrigation subsequent irrigations – see narrative for amounts
Silage Harvest Date:	Plots were harvested September 23, 2013

Data Collected:

1. Plant stands
2. Plant height (ft) at silage harvest
3. Lodging at silage harvest. Percent of fallen or significantly leaning plants per plot.
4. Moisture Content at Harvest.
5. Forage (silage) yield. The middle two rows of each plot were harvested with a John Deere forage chopper and placed into a modified weigh wagon. Yields are reported at 65% moisture in tons/acre.
6. Nutrient analysis: Samples were collected from the forage chopper in the field, weighed and then placed in forced air Gruenberg oven (Model T35HV216, Williamsport, PA) at 60º C until dried. These sub-samples were sent to Dairyland Laboratory, Inc, Arcadia, WI for analysis.
7. Key Nutrient Analysis Definitions

a. Crude Protein: 6.25 times % total nitrogen
b. TDN: Estimate of Total Digestible Nutrients
c. NDF: Neutral Detergent Fiber; cell wall fraction of the forage
d. ADF: % Acid Detergent Fiber; constituent of the cell wall includes cellulose and lignin; inversely related to energy availability
e. NEl: Estimate of Net Energy for lactation
f. NEm: Estimate of Net Energy for maintenance
g. NEg: Estimate of Net Energy for gain
h. IVTD: % In Vitro True Digestibility; positively related to energy availability
i. RFV: Relative Feed Value is an index for comparing forages based on digestibility and intake potential. RFV is calculated from ADF and NDF. An RFV of 100 is considered the average score and represents alfalfa hay containing 41% ADF and 53% NDF on a dry matter digestibility.
j. Milk lbs/ton: A projection of potential milk yield per ton for forage dry matter.

Data was analyzed using the SAS statistical package.

Results

A summary of yield, agronomic traits and nutritional analyses are reported by types of forage sorghums grown in the two locations, Kearney and Westside in Table 1. See Tables 2 and 3 for a comparison of the different hybrids agronomic, yield, and nutritional characteristics.

Table 1. Summary of key forage characteristics by type of forage grown at two locations, Kearney and Westside.

Sorghum Type[1]	% Lodging @ Harvest[2]	Tons/ac @65% Moist.[2]	% Crude Protein[2]	% ADF[2]	% NDF[2]	% Lignin[2]	% Starch[2]	% NDFd[2]	% IVTD[2]	Milk lbs/ton DM[2]	Relative Feed Value (RFV)[2]
NonBMR (18)	10.65 c	19.87 b	7.11 a	40.6 c	59.7 c	6.45 b	14.26 a	45.31 b	67.18 b	2263.3 a	93.24 a
BMR (15)	33.00 b	19.12 b	6.94 ab	41.1 c	62.4 c	5.70 c	7.92 b	54.04 a	71.22 a	2334.0 a	86.53 b
PS NonBMR (16)	14.79 bc	24.46 a	5.03 c	50.3 a	73.8 a	7.82 a	1.91 c	40.12 c	55.65 c	1480.2 c	63.24 d
PS BMR (3)	56.67 a	19.55 b	6.44 b	45.3 b	69.1 b	5.87 c	3.00 c	56.06 a	69.44 ab	2079.0 b	73.09 c
Trial Avg.	21.03	21.06	6.38	44.00	65.37	6.62	7.98	46.85	64.93	2032.1	80.91

[1]Number in parenthesis is the number of hybrids in each sorghum type. BMR = brown midrib, PS = Photoperiod sensitive.
[2]Means followed by the same letter do not significantly differ using LSD (P=0.01)
Lodging percentages represent data from Kearney only

Forage yields for the two locations ranged from a high of 29.6 to 14.4 tons acre^{-1} with an average of 21.1 tons acre^{-1} (see table 2). These yields were lower than yields report from previous year's research and may be attributed to the extremely dry and hot weather experienced in 2013. Forage yields were adjusted to 65% moisture. The non-BMR Photoperiod forages were on average 5 tons acre^{-1} more productive than their BMR counterparts, similar to finding from previous years. Planting at Westside produced on average 1.2 tons acre^{-1} greater yield than those planted at Kearney; however, Westside did apply 12 inches more applied irrigation than what was applied at Kearney.

Similar to previous reports, lodging can be a major issue for forage sorghums. Lodging ranged from 0.0 to 93% (table 2). The Photoperiod non-BMR sorghums lodged the least of the different forage types, but even some of these forages had lodging issues. Different management schemes are being contemplated to better understand the lodging issues seen at both locations. Similar to last year, little stem breakage was observed in the plots, rather the plants tended to bend over from the base of the stem. Stressing the plants early to encourage greater root penetration in the soil, better control of nitrogen applications, and throwing dirt up around the stems to support brace root development may be required to reduce the percentage of lodging in future research trials.

Digestibility as measured by ADF, NDF, IVTD, NDFD and overall forage quality as measured by lbs of milk per dry ton and relative feed value was highest in the BMR sorghums (Table 1), though there were some excellent non-BMR forages as well (table 3). Photoperiod sensitive forage sorghum including the 3 bmr types, though high yielding, were relatively poor nutritionally. Relative feed value and milk per dry ton were greater amongst hybrids grown at Kearney than those grown at Westside, which has been the case in other years.

The top 25% hybrids were ranked in this study by taking those hybrids with the highest % IVTD and eliminating those hybrids with lodging scores of greater than 25% (table 4). Of these hybrids, yield ranged from a low of 16.3 tons acre^{-1} with Chromatin/Sorghum Partners' NK 8828 to a high of 23.4 tons acre^{-1} with Alta Seeds (Advanta US) AS6402.

For many producers, yield is the greatest factor in their selection of sorghum forages. Table 5 highlights the top yielding hybrids that produced more than 23 tons acre^{-1} of yield. The highest yielding forage sorghum was SPX909 from Chromatin/Sorghum Partners, LLC at 29.6 tons acre^{-1} followed closely SPX906 also from Chromatin/Sorghum Partners, LLC at 29.1 tons acre^{-1}. In comparison to years past, there were only 2 hybrids that showed lodging issues in the high yielding hybrids, though these high yielding forage do sacrifice some nutritional quality.

Discussion

This was the third year that a wide range of forage sorghums (52), both commercially and experimental, were evaluated for both yield and quality parameters in large replicated trials in two locations in California. This was an extremely tough year for both locations, with extreme temperatures in July and additional irrigations needed to get the sorghum forages through their peak growing periods. These test results indicate that sorghum forages do have the yield and the quality to meet the needs of dairy farms in the San Joaquin valley, especially under dry environmental conditions and relatively low water inputs. Work is continuing to evaluate management strategies to optimize irrigation levels and management of fertilizer applications. Given the limited amount of irrigation used in these studies, low inputs and high yields, the potential does exist in sorghum forages to save both water and fertilizer, both costly inputs in the production of forages in the State. Forage selection should be a combination of factors that optimize quality, yield and standability and will require some additional management of feed rations to optimize the potential of these forage crops to supplement the feeding needs of dairies in the state. Research will continue to identify those sorghum forages, management strategies, and feed rations that will benefit the farmers of California.

Table 2. 2013 comparisons of sorghum forage hybrids and locations for agronomic characteristics and yield at Westside Research and Extension and Kearney Agriculture Research and Extension Centers by seed company.

Hybrid Information[1]					Lodging, Height and Forage Yield[2]		
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Lodging[3]**	**Height (cm)[4]**	**Ton ac^{-1} 65% Moist.**
AF7101	Advanta US	FS	M	Y	93.3	326.7	15.4 n-o
AF7201	Advanta US	FS	M	Y	85	311.3	14.4 o
AF7401	Advanta US	FS	L	Y	0	203.3	19.4 e-o
AF8301	Advanta US	FS	ML	N	0	232.7	16.4 l-o
AS6402	Advanta US	FS	ML	Y	0	311.3	23.4 a-k
AS6501	Advanta US	FS	ML	Y	70	285.0	20.9 d-o
AS6502	Advanta US	FS	PS	Y	68.3	328.0	20.2 g-o
XAF4452	Advanta US	FS	M	Y	0	230.7	18.3 g-o
XAF4456	Advanta US	FS	ML	Y	0	213.0	16.4 l-o
Blackhawk 12	Blue River Hybrids	FS	M	Y	35	315.7	21.0 d-o
1990	Chromatin/Sorghum Partners	FS	PS	N	8.3	335.0	25.0 a-g
KS989	Chromatin/Sorghum Partners	FS	L	N	0	187.3	21.2 c-n
NK300-1	Chromatin/Sorghum Partners	FS	L	N	0	218.0	21.2 c-n
NK300	Chromatin/Sorghum Partners	FS	ME	N	0	222.3	19.6 e-o
NK8416	Chromatin/Sorghum Partners	FS	L	N	0	198.0	21.5 c-n
NK8817	Chromatin/Sorghum Partners	FS	L	N	0	200.0	23.0 a-m
NK8828	Chromatin/Sorghum Partners	FS	L	N	0	144.0	16.3 m-o
NK8830	Chromatin/Sorghum Partners	FS	L	N	0	147.7	20.9 d-o
NK9916	Chromatin/Sorghum Partners	FS	L	N	0	185.3	20.3 d-o
Sordan 79	Chromatin/Sorghum Partners	FS	?	N	65	364.7	17.0 j-o
Sordan Headless	Chromatin/Sorghum Partners	FS	PS	N	8.3	326.0	22.7 b-m
SPX901	Chromatin/Sorghum Partners	FS	PS	N	0	370.7	24.1 a-i
SPX902	Chromatin/Sorghum Partners	FS	PS	N	8.3	352.3	22.3 c-m
SPX903	Chromatin/Sorghum Partners	FS	PS	N	0	338.3	27.8 a-c
SPX904	Chromatin/Sorghum Partners	FS	PS	N	0	339.0	26.9 a-d
SPX906	Chromatin/Sorghum Partners	FS	PS	N	0	334.7	29.1 ab

Table 2. continued.

Hybrid Information[1]					Lodging, Height and Forage Yield[2]		
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Lodging**	**Height (cm)**	**Ton ac^{-1} 65% Moist.**
SPX907	Chromatin/Sorghum Partners	FS	PS	N	0	312.0	25.5 a-e
SPX908	Chromatin/Sorghum Partners	FS	PS	N	0	335.7	24.7 a-h
SPX909	Chromatin/Sorghum Partners	FS	PS	N	0	364.0	29.6 a
SPX911	Chromatin/Sorghum Partners	FS	PS	N	41.7	313.3	22.6 b-m
SPX912	Chromatin/Sorghum Partners	FS	PS	N	0	305.0	23.0 a-l
SPX913	Chromatin/Sorghum Partners	FS	PS	N	51.7	327.3	22.3 c-m
SPX916	Chromatin/Sorghum Partners	FS	PS	N	85	316.0	23.6 a-j
SPX919	Chromatin/Sorghum Partners	FS	PS	N	33.3	319.3	16.9 j-o
SS405	Chromatin/Sorghum Partners	FS	L	N	51.7	386.0	24.9 a-g
Trudan 8	Chromatin/Sorghum Partners	FS	?	N	58.3	290.3	18.5 g-o
Trudan Headless	Chromatin/Sorghum Partners	FS	PS	N	0	294.0	25.3 a-f
X840	Chromatin/Sorghum Partners	FS	L	N	0	204.7	21.0 d-o
X843	Chromatin/Sorghum Partners	FS	L	N	0	197	18.1 h-o
X853	Chromatin/Sorghum Partners	FS	L	N	0	179	17.5 i-o
9500	Richardson Seeds Ltd.	FS	ML	N	0	198	16.7 k-o
Bundle King BMR	Richardson Seeds Ltd.	FS	L	Y	75	334.3	22.1 c-n
Dairy Master BMR	Richardson Seeds Ltd.	FS	ML	Y	85	305.7	17.5 i-o
Double 7 BMR	Richardson Seeds Ltd.	FS	L	Y	0	255.7	17.5 i-o
Pacesetter BMR	Richardson Seeds Ltd.	FS	PS	Y	33.3	258.3	17.5 i-o
Pacesetter BMR Red	Richardson Seeds Ltd.	FS	PS	Y	68.3	300.3	21.0 d-o
Silo 700D	Richardson Seeds Ltd.	FS	ML	N	0	239.3	20.1 e-o
Sweeter 'N Honey BMR	Richardson Seeds Ltd.	FS	ME	Y	0	322.7	22.5 b-m
Sweeter 'N Honey BMR Red	Richardson Seeds Ltd.	FS	ME	Y	51.7	250.7	18.6 f-o
Great Scott BMR-R	Scott Seed	FS	L	Y	0	225.7	18.8 f-o
Great Scott BMR-W	Scott Seed	FS	L	Y	0	237.3	20.1 e-o
Premium Stock LS	Scott Seed	FS	L	N	16.7	325.7	23.5 a-k

Hybrid Information[1]					Lodging, Height and Forage Yield[2]		
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Lodging**	**Height (cm)**	**Ton ac^{-1} 65% Moist.**
Means					**21.0**	**277.30**	**21.06**
CV					**75.8**	**7.89**	**27.74**
Location							
Kearney							20.45 a
Westside							21.66 a

[1]Hybrid information provided by seed companies. SS=Sorghum-Sudangrass, FS=Forage sorghum, E=Early, ME=Medium Early, M=Medium, ML=Medium Late, L=Late, PS=Photoperiod Sensitive.
[2]Means followed by the same letter do not significantly differ using LSD (P=0.01)
[3]Kearney Data Only
[4]Kearney Date Only

Table 3. 2013 comparisons of sorghum forage hybrids and locations for nutrient composition and calculations at Westside Research and Extension and Kearney Agriculture Research and Extension Centers by seed company.

Hybrid Information[1]					**Nutrient Composition & Calculations**[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Crude Protein**	**% ADF**	**% NDF**	**% Lignin**	**% Starch**	**% Fat**
AF7401	Advanta US	FS	L	Y	8.2 a-c	42.5 k-q	65.0 h-k	5.4 r-u	4.2 l-s	2.1 d-g
AF7201	Advanta US	FS	M	Y	6.7 e-l	41.9 l-r	62.5 j-m	5.7 o-t	7.8 g-n	2.0 e-i
AF7101	Advanta US	FS	M	Y	6.6 f-m	41.1 o-r	62.7 j-m	5.7 o-t	7.3 g-o	2.0 e-i
AF8301	Advanta US	FS	ML	N	6.5 f-m	43.3 j-p	65.4 f-k	6.6 i-k	8.8 g-l	1.7 j-l
XAF4452	Advanta US	FS	M	Y	8.1 a-d	36.9 s-w	54.7 p-r	5.7 o-u	18.4 bc	2.5 a
XAF4456	Advanta US	FS	ML	Y	8.3 a-c	36.1 t-w	54.8 o-r	5.3 s-u	18.5 bc	2.4 ab
AS6402	Advanta US	FS	ML	Y	7.5 a-g	43.2 j-p	65.2 g-k	5.8 n-s	4.3 l-s	2.0 e-i
AS6501	Advanta US	FS	ML	Y	6.8 e-l	45.9 f-k	68.4 e-j	6.4 k-n	2.6 n-s	1.6 k-m
AS6502	Advanta US	FS	PS	Y	7.3 a-h	45.2 g-m	68.4 e-j	5.8 m-s	3.0 n-s	2.0 e-i
Blackhawk 12	Blue River Hybrids	FS	M	Y	6.3 h-o	41.1 o-r	61.1 k-n	6.4 j-m	8.7 g-m	1.8 g-j
1990	Chromatin/Sorghum Partners	FS	PS	N	4.6 s-v	50.3 a-e	74.6 a-d	7.5 e-h	1.8 p-s	1.4 m-p
SS405	Chromatin/Sorghum Partners	FS	L	N	4.8 q-v	44.7 i-o	64.9 h-l	7.3 f-h	7.6 g-n	1.4 m-p
NK300	Chromatin/Sorghum Partners	FS	ME	N	6.9 d-j	39.3 q-t	58.1 m-p	6.2 k-o	16.8 b-e	1.9 f-j
NK8416	Chromatin/Sorghum Partners	FS	L	N	7.9 a-e	40.1 p-s	59.7 k-p	6.1 k-p	14.5 c-f	2.1 d-g
NK8817	Chromatin/Sorghum Partners	FS	L	N	8.0 a-d	35.3 u-w	51.1 qr	5.8 n-s	21.1 ab	2.3 a-d
NK300-1	Chromatin/Sorghum Partners	FS	L	N	7.4 a-h	36.9 s-w	54.8 p-r	5.9 l-s	18.6 bc	2.0 e-i
NK8828	Chromatin/Sorghum Partners	FS	L	N	8.4 a	38.0 r-v	56.4 n-q	5.9 l-r	17.2 b-d	2.1 d-g
NK8830	Chromatin/Sorghum Partners	FS	L	N	8.3 a-c	33.1 w	48.9 r	5.7 o-t	24.4 a	2.2 a-e
NK9916	Chromatin/Sorghum Partners	FS	L	N	7.3 b-i	41.7 m-r	62.3 k-n	6.0 k-p	11.3 f-j	2.1 e-h
KS989	Chromatin/Sorghum Partners	FS	L	N	7.6 a-g	34.5 vw	49.9 r	6.0 l-q	24.3 a	2.4 a-c
X840	Chromatin/Sorghum Partners	FS	L	N	7.0 d-j	42.2 k-q	62.4 j-m	6.5 j-l	12.1 d-i	1.9 f-j
X843	Chromatin/Sorghum Partners	FS	L	N	7.2 c-j	39.0 q-u	57.6 m-p	6.2 k-o	17.1 b-d	2.0 e-i
X853	Chromatin/Sorghum Partners	FS	L	N	8.5 a	36.8 s-w	54.3 p-r	5.8 n-s	18.0 bc	2.1 c-f
Trudan Headless	Chromatin/Sorghum Partners	FS	PS	N	4.8 q-v	53.7 a	77.6 a	8.7 a	1.0 s	1.1 q
Sordan Headless	Chromatin/Sorghum Partners	FS	PS	N	4.8 r-v	52.1 ab	75.1 ab	8.5 a-c	1.3 rs	1.2 n-q
Sordan 79	Chromatin/Sorghum Partners	FS	?	N	5.9 k-q	45.0 h-n	64.3 h-l	7.6 d-h	12.5 d-g	1.8 i-k
Trudan 8	Chromatin/Sorghum Partners	FS	?	N	6.4 f-n	45.7 f-l	65.1 h-k	7.7 d-h	12.4 d-g	1.8 i-k

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Crude Protein**	**% ADF**	**% NDF**	**% Lignin**	**% Starch**	**% Fat**
SPX901	Chromatin/Sorghum Partners	FS	PS	N	4.5 t-v	52.4 ab	77.4 a	8.2 a-d	1.1 s	1.2 o-q
SPX902	Chromatin/Sorghum Partners	FS	PS	N	4.8 q-v	49.4 b-f	73.3 a-e	7.4 e-h	1.8 p-s	1.4 l-o
SPX903	Chromatin/Sorghum Partners	FS	PS	N	4.1 uv	51.4 a-c	75.0 a-c	8.0 b-f	1.2 rs	1.3 n-q
SPX904	Chromatin/Sorghum Partners	FS	PS	N	4.0 v	52.0 a-c	75.5 ab	8.5 ab	1.5 q-s	1.1 pq
SPX906	Chromatin/Sorghum Partners	FS	PS	N	4.8 q-v	50.6 a-e	74.6 a-d	7.9 b-f	2.5 n-s	1.2 n-q
SPX907	Chromatin/Sorghum Partners	FS	PS	N	4.9 q-v	48.1 c-i	71.2 b-g	7.6 d-h	5.3 l-s	1.3 m-q
SPX908	Chromatin/Sorghum Partners	FS	PS	N	4.5 t-v	51.0 a-d	75.2 ab	7.7 d-g	1.2 rs	1.3 n-q
SPX909	Chromatin/Sorghum Partners	FS	PS	N	5.1 p-v	47.5 d-i	71.3 b-f	7.1 h-j	1.1 s	1.5 l-n
SPX911	Chromatin/Sorghum Partners	FS	PS	N	6.2 h-o	48.7 b-h	71.9 a-e	7.6 d-h	1.4 q-s	1.6 k-m
SPX912	Chromatin/Sorghum Partners	FS	PS	N	6.4 g-n	46.8 e-j	68.9 d-i	7.1 g-i	3.0 n-s	1.4 m-o
SPX913	Chromatin/Sorghum Partners	FS	PS	N	6.2 i-p	49.0 b-g	71.7 a-e	7.6 d-h	2.8 n-s	1.4 l-o
SPX916	Chromatin/Sorghum Partners	FS	PS	N	5.7 l-s	50.6 a-e	73.6 a-e	7.8 c-f	2.1 o-s	1.3 m-q
SPX919	Chromatin/Sorghum Partners	FS	PS	N	5.3 n-t	50.6 a-e	74.6 a-d	8.0 b-f	1.3 rs	1.3 n-q
Great Scott BMR-W	Scott Seed	FS	L	Y	7.6 a-f	38.9 q-u	59.6 k-p	5.0 u	7.0 h-p	2.1 c-f
Great Scott BMR-R	Scott Seed	FS	L	Y	8.2 a-c	42.3 k-q	64.9 h-l	5.5 p-u	5.2 l-s	2.1 d-g
Premium Stock LS	Scott Seed	FS	L	N	5.2 o-u	51.2 a-d	74.0 a-e	8.1 b-e	1.9 o-s	1.2 n-q
Bundle King BMR	Richardson Seeds Ltd.	FS	L	Y	6.1 j-p	41.2 n-r	63.5 i-m	5.3 r-u	4.1 l-s	1.8 g-j
9500	Richardson Seeds Ltd.	FS	ML	N	8.4 ab	40.5 p-s	60.7 k-o	6.0 k-p	11.4 e-j	2.0 e-i
Silo 700D	Richardson Seeds Ltd.	FS	ML	N	6.4 f-m	43.2 k-p	64.8 h-l	6.5 j-l	6.6 j-r	1.8 h-j
Dairy Master BMR	Richardson Seeds Ltd.	FS	ML	Y	5.7 l-s	39.0 q-u	60.1 k-p	5.3 r-u	6.8 i-q	2.0 e-i
Pacesetter BMR	Richardson Seeds Ltd.	FS	PS	Y	5.9 k-q	45.7 f-l	69.8 b-h	6.0 k-p	3.3 m-s	1.8 i-k
Pacesetter BMR Red	Richardson Seeds Ltd.	FS	PS	Y	6.0 j-p	45.0 h-n	69.1 c-i	5.7 o-t	2.6 n-s	1.7 j-l

Table 3. continued.

Hybrid Information[1]					**Nutrient Composition & Calculations**[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% Crude Protein**	**% ADF**	**% NDF**	**% Lignin**	**% Starch**	**% Fat**
Double 7 BMR	Richardson Seeds Ltd.	FS	L	Y	5.9 k-q	41.3 n-r	65.0 h-k	5.4 q-u	5.7 l-s	1.9 f-j
Sweeter 'N Honey BMR	Richardson Seeds Ltd.	FS	ME	Y	5.5 m-t	47.0 e-j	68.7 d-i	7.4 e-h	6.0 k-s	1.4 m-o
Sweeter 'N Honey BMR Red	Richardson Seeds Ltd.	FS	ME	Y	6.7 e-l	38.9 q-u	59.1 l-p	5.1 tu	12.3 d-h	2.2 b-f
Means					**6.38**	**44.00**	**65.34**	**6.62**	**7.98**	**1.76**
CV					**15.89**	**7.76**	**7.97**	**8.34**	**59.08**	**13.67**
Location										
Kearney					**6.21 b**	**41.09 b**	**61.89 b**	**6.38 b**	**9.71 a**	**1.87 a**
Westside					**6.56 a**	**46.90 a**	**68.85 a**	**6.83 a**	**6.25 b**	**1.65 b**

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% TDN**	**48 hr NDFD**	**48hr IVTD**	**% Ca**	**% P**	**% Mg**
AF7401	Advanta US	FS	L	Y	51.7 j-p	56.6 a-d	71.7 b-f	0.348 a-d	0.238 ab	0.205 i-n
AF7201	Advanta US	FS	M	Y	53.0 g-m	53.0 d-f	70.6 c-g	0.325 a-h	0.207 d-l	0.200 k-n
AF7101	Advanta US	FS	M	Y	54.0 e-k	53.6 c-f	70.9 c-f	0.298 b-k	0.183 l-p	0.183 n
AF8301	Advanta US	FS	ML	N	52.1 i-o	46.2 j-l	64.5 ij	0.298 b-k	0.192 i-o	0.233 b-k
XAF4452	Advanta US	FS	M	Y	57.8 a-d	51.4 e-h	73.5 a-c	0.302 b-k	0.228 a-d	0.197 l-n
XAF4456	Advanta US	FS	ML	Y	56.9 b-e	52.8 d-g	74.2 a-c	0.340 a-e	0.235 a-c	0.212 e-n
AS6402	Advanta US	FS	ML	Y	52.5 h-n	54.6 b-e	70.3 c-h	0.328 a-g	0.208 d-k	0.198 l-n
AS6501	Advanta US	FS	ML	Y	49.7 m-t	50.7 f-i	66.1 h-i	0.353 a-c	0.213 c-h	0.217 d-n
AS6502	Advanta US	FS	PS	Y	50.3 l-s	53.3 c-f	68.0 e-i	0.353 a-c	0.217 b-h	0.208 g-n
Blackhawk 12	Blue River Hybrids	FS	M	Y	54.6 d-k	47.5 h-j	67.8 f-i	0.283 e-k	0.168 o-s	0.218 d-m
1990	Chromatin/Sorghum Partners	FS	PS	N	47.1 s-x	41.3 o-s	56.1 l-o	0.307 b-k	0.150 s-u	0.248 a-d
SS405	Chromatin/Sorghum Partners	FS	L	N	51.5 k-q	39.9 p-t	60.6 jk	0.275 f-k	0.165 p-t	0.217 d-n
NK300	Chromatin/Sorghum Partners	FS	ME	N	55.4 d-i	45.0 j-o	68.1 e-i	0.303 b-k	0.203 e-m	0.235 a-j
NK8416	Chromatin/Sorghum Partners	FS	L	N	55.0 d-j	47.9 h-j	68.9 d-h	0.278 e-k	0.223 a-g	0.218 d-m
NK8817	Chromatin/Sorghum Partners	FS	L	N	59.0 a-c	47.7 h-j	73.5 a-c	0.282 e-k	0.227 a-e	0.200 k-n
NK300-1	Chromatin/Sorghum Partners	FS	L	N	56.5 c-f	45.3 j-n	70.2 c-h	0.303 b-k	0.212 c-j	0.238 a-i
NK8828	Chromatin/Sorghum Partners	FS	L	N	55.8 c-h	48.2 h-j	70.8 c-g	0.293 b-k	0.242 a	0.225 b-l
NK8830	Chromatin/Sorghum Partners	FS	L	N	60.1 ab	47.0 i-k	74.1 a-c	0.285 d-k	0.228 a-d	0.223 c-l
NK9916	Chromatin/Sorghum Partners	FS	L	N	52.2 i-o	48.6 h-j	68.0 e-i	0.308 b-k	0.225 a-f	0.235 a-j
KS989	Chromatin/Sorghum Partners	FS	L	N	60.4 a	45.1 j-o	72.6 a-d	0.302 b-k	0.202 f-m	0.223 c-l
X840	Chromatin/Sorghum Partners	FS	L	N	53.2 f-l	46.5 j-l	66.5 g-i	0.327 a-g	0.203 e-m	0.240 a-h
X843	Chromatin/Sorghum Partners	FS	L	N	56.0 c-g	45.5 j-m	69.1 d-h	0.290 c-k	0.203 e-m	0.222 d-m
X853	Chromatin/Sorghum Partners	FS	L	N	57.3 a-e	48.7 h-j	72.1 a-e	0.292 b-k	0.228 a-d	0.212 e-n
Trudan Headless	Chromatin/Sorghum Partners	FS	PS	N	45.1 x	37.7 s-u	51.7 pq	0.257 jk	0.182 m-q	0.210 f-n
Sordan Headless	Chromatin/Sorghum Partners	FS	PS	N	45.4 wx	37.0 tu	52.5 o-q	0.330 a-f	0.177 n-r	0.258 ab
Sordan 79	Chromatin/Sorghum Partners	FS	?	N	52.3 i-o	38.9 r-u	60.3 j-l	0.260 i-k	0.185 k-p	0.202 j-n
Trudan 8	Chromatin/Sorghum Partners	FS	?	N	51.8 j-p	39.1 q-u	60.3 j-l	0.245 k	0.212 c-j	0.183 n
SPX901	Chromatin/Sorghum Partners	FS	PS	N	46.4 t-x	39.2 q-u	52.9 o-q	0.270 f-k	0.145 s-u	0.238 a-i

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% TDN**	**48 hr NDFD**	**48hr IVTD**	**% Ca**	**% P**	**% Mg**
SPX902	Chromatin/Sorghum Partners	FS	PS	N	48.3 q-w	42.1 m-r	57.5 k-n	0.302 b-k	0.158 q-t	0.237 a-i
SPX903	Chromatin/Sorghum Partners	FS	PS	N	47.3 r-x	39.3 q-u	54.2 n-q	0.297 b-k	0.142 tu	0.240 a-h
SPX904	Chromatin/Sorghum Partners	FS	PS	N	47.5 r-x	35.7 u	51.2 q	0.262 h-k	0.133 u	0.237 a-i
SPX906	Chromatin/Sorghum Partners	FS	PS	N	47.8 r-w	39.4 q-u	54.7 n-q	0.265 g-k	0.148 s-u	0.222 d-m
SPX907	Chromatin/Sorghum Partners	FS	PS	N	48.6 p-w	38.7 r-u	56.4 k-o	0.297 b-k	0.152 s-u	0.245 a-e
SPX908	Chromatin/Sorghum Partners	FS	PS	N	46.8 t-x	41.4 n-s	55.8 m-p	0.303 b-k	0.150 s-u	0.242 a-g
SPX909	Chromatin/Sorghum Partners	FS	PS	N	49.2 n-u	43.4 k-p	59.6 k-m	0.317 b-j	0.158 q-t	0.243 a-f
SPX911	Chromatin/Sorghum Partners	FS	PS	N	46.4 t-x	41.8 m-r	58.1 k-n	0.387 a	0.188 j-p	0.268 a
SPX912	Chromatin/Sorghum Partners	FS	PS	N	48.9 o-v	42.8 l-q	60.5 jk	0.352 a-c	0.200 g-n	0.257 a-c
SPX913	Chromatin/Sorghum Partners	FS	PS	N	47.0 s-x	40.9 p-t	57.4 k-n	0.342 a-e	0.193 h-n	0.250 a-d
SPX916	Chromatin/Sorghum Partners	FS	PS	N	46.0 u-x	40.7 p-t	56.3 k-o	0.322 b-i	0.192 i-o	0.245 a-e
SPX919	Chromatin/Sorghum Partners	FS	PS	N	46.5 t-x	40.3 p-t	55.5 m-q	0.297 b-k	0.183 l-p	0.238 a-i
Great Scott BMR-W	Scott Seed	FS	L	Y	54.5 d-k	57.0 a-c	74.3 a-c	0.342 a-e	0.212 c-j	0.222 d-m
Great Scott BMR-R	Scott Seed	FS	L	Y	52.3 i-o	54.3 b-f	70.3 c-h	0.355 ab	0.225 a-f	0.230 b-l
Premium Stock LS	Scott Seed	FS	L	N	45.7 v-x	38.6 r-u	54.4 n-q	0.332 a-f	0.193 h-n	0.242 a-g
Bundle King BMR	Richardson Seeds Ltd.	FS	L	Y	54.5 d-k	59.0 a	73.8 a-c	0.308 b-k	0.155 r-u	0.243 a-f
9500	Richardson Seeds Ltd.	FS	ML	N	53.3 f-l	48.9 g-j	68.8 d-i	0.312 b-j	0.235 a-c	0.228 b-l
Silo 700D	Richardson Seeds Ltd.	FS	ML	N	51.7 j-p	48.5 h-j	66.5 g-i	0.310 b-j	0.193 h-n	0.238 a-i
Dairy Master BMR	Richardson Seeds Ltd.	FS	ML	Y	56.7 c-e	60.2 a	76.0 ab	0.265 g-k	0.147 s-u	0.207 h-n
Pacesetter BMR	Richardson Seeds Ltd.	FS	PS	Y	51.6 k-q	57.7 ab	70.1 c-h	0.287 d-k	0.187 k-p	0.242 a-g
Pacesetter BMR Red	Richardson Seeds Ltd.	FS	PS	Y	50.5 l-r	57.2 a-c	70.2 c-h	0.318 b-j	0.182 m-q	0.250 a-d

Table 3. continued.

Hybrid Information[1]					**Nutrient Composition & Calculations**[2]					
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% TDN**	**48 hr NDFD**	**48hr** IVTD	**% Ca**	**% P**	**% Mg**
Double 7 BMR	Richardson Seeds Ltd.	FS	L	Y	54.1 e-k	59.2 a	73.5 a-c	0.298 b-k	0.158 q-t	0.230 b-l
Sweeter 'N Honey BMR	Richardson Seeds Ltd.	FS	ME	Y	49.1 o-u	41.3 o-s	59.4 k-m	0.303 b-k	0.185 k-p	0.225 b-l
Sweeter 'N Honey BMR Red	Richardson Seeds Ltd.	FS	ME	Y	56.7 c-e	59.4 a	76.1 a	0.270 f-k	0.198 h-n	0.188 mn
Mean					**51.81**	**46.85**	**64.93**	**0.305**	**0.192**	**0.226**
CV					**5.66**	**7.26**	**5.82**	**18.22**	**10.94**	**13.24**
Location										
Kearney					**54.95 a**	**48.32 a**	**67.79 a**	**0.319 a**	**0.172 b**	**0.254 a**
Westside					**48.67 b**	**45.38 b**	**62.07 b**	**0.291 b**	**0.212 a**	**0.199 b**

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]			
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% K**	**% S**	**Milk Lbs ton^{-1}**	**Rel. Feed Value**
AF7401	Advanta US	FS	L	Y	2.04 a	0.133 a	2149.7 e-i	80.56 h-l
AF7201	Advanta US	FS	M	Y	1.71 b-j	0.110 g-i	2238.1 e-h	84.59 g-k
AF7101	Advanta US	FS	M	Y	1.46 h-n	0.103 g-l	2331.5 d-g	84.99 f-k
AF8301	Advanta US	FS	ML	N	1.58 e-m	0.092 i-q	2046.6 g-i	80.85 h-l
XAF4452	Advanta US	FS	M	Y	1.48 h-n	0.122 a-e	2688.9 a-c	105.21 b-d
XAF4456	Advanta US	FS	ML	Y	1.57 e-m	0.128 a-c	2588.5 a-d	105.06 b-d
AS6402	Advanta US	FS	ML	Y	1.84 a-f	0.117 a-f	2208.9 e-i	79.19 i-n
AS6501	Advanta US	FS	ML	Y	1.93 a-c	0.115 a-g	1901.3 i-k	72.83 j-p
AS6502	Advanta US	FS	PS	Y	1.83 a-g	0.128 a-c	1962.8 h-j	73.55 j-o
Blackhawk 12	Blue River Hybrids	FS	M	Y	1.44 j-n	0.095 h-n	2330.1 d-g	87.73 f-i
1990	Chromatin/Sorghum Partners	FS	PS	N	1.55 f-m	0.083 m-r	1456.6 lm	62.47 o-q
SS405	Chromatin/Sorghum Partners	FS	L	N	1.55 g-m	0.073 q-s	1900.5 i-k	79.64 h-m
NK300	Chromatin/Sorghum Partners	FS	ME	N	1.46 h-n	0.098 g-m	2349.2 d-g	94.93 d-g
NK8416	Chromatin/Sorghum Partners	FS	L	N	1.67 b-k	0.118 a-e	2343.6 d-g	92.54 d-h
NK8817	Chromatin/Sorghum Partners	FS	L	N	1.39 k-n	0.117 a-f	2749.4 ab	113.72 a-c
NK300-1	Chromatin/Sorghum Partners	FS	L	N	1.46 i-n	0.107 g-j	2445.0 b-e	104.23 b-e
NK8828	Chromatin/Sorghum Partners	FS	L	N	1.70 b-j	0.123 a-d	2430.6 b-e	103.23 c-e
NK8830	Chromatin/Sorghum Partners	FS	L	N	1.36 l-o	0.103 g-l	2840.0 a	121.50 a
NK9916	Chromatin/Sorghum Partners	FS	L	N	1.83 a-g	0.115 a-g	2085.1 f-i	85.88 g-j
KS989	Chromatin/Sorghum Partners	FS	L	N	1.09 o	0.110 g-i	2843.9 a	116.73 ab
X840	Chromatin/Sorghum Partners	FS	L	N	1.60 d-m	0.110 g-i	2166.9 e-i	85.84 f-j
X843	Chromatin/Sorghum Partners	FS	L	N	1.55 f-m	0.112 b-h	2416.7 c-e	98.06 d-f
X853	Chromatin/Sorghum Partners	FS	L	N	1.58 e-m	0.127 a-c	2592.1 a-d	105.05 b-d
Trudan Headless	Chromatin/Sorghum Partners	FS	PS	N	1.66 b-k	0.078 n-r	1281.0 m	56.70 q
Sordan Headless	Chromatin/Sorghum Partners	FS	PS	N	1.75 b-h	0.087 k-r	1292.6 m	60.18 pq
Sordan 79	Chromatin/Sorghum Partners	FS	?	N	1.34 m-o	0.092 i-q	1973.4 h-j	82.84 g-k

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]			
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% K**	**% S**	**Milk Lbs ton^{-1}**	**Rel. Feed Value**
Trudan 8	Chromatin/Sorghum Partners	FS	?	N	1.58 e-m	0.105 g-k	1947.8 h-j	79.20 i-n
SPX901	Chromatin/Sorghum Partners	FS	PS	N	1.56 f-m	0.075 p-r	1384.7 lm	57.94 q
SPX902	Chromatin/Sorghum Partners	FS	PS	N	1.64 c-k	0.085 l-r	1607.2 k-m	64.38 o-q
SPX903	Chromatin/Sorghum Partners	FS	PS	N	1.55 f-m	0.070 rs	1458.0 lm	60.96 o-q
SPX904	Chromatin/Sorghum Partners	FS	PS	N	1.24 no	0.055 s	1418.8 lm	60.39 o-q
SPX906	Chromatin/Sorghum Partners	FS	PS	N	1.49 h-n	0.073 q-s	1520.5 lm	62.04 o-q
SPX907	Chromatin/Sorghum Partners	FS	PS	N	1.53 h-n	0.082 m-r	1580.2 k-m	68.26 l-q
SPX908	Chromatin/Sorghum Partners	FS	PS	N	1.69 b-j	0.077 o-r	1472.6 lm	60.94 o-q
SPX909	Chromatin/Sorghum Partners	FS	PS	N	1.82 a-g	0.082 m-r	1703.2 j-l	67.78 l-q
SPX911	Chromatin/Sorghum Partners	FS	PS	N	1.92 a-c	0.107 g-j	1467.0 lm	66.02 n-q
SPX912	Chromatin/Sorghum Partners	FS	PS	N	1.91 a-c	0.103 g-l	1702.2 j-l	71.75 k-p
SPX913	Chromatin/Sorghum Partners	FS	PS	N	1.83 a-g	0.103 g-l	1489.0 lm	67.02 m-q
SPX916	Chromatin/Sorghum Partners	FS	PS	N	1.86 a-e	0.092 i-q	1406.9 lm	63.13 o-q
SPX919	Chromatin/Sorghum Partners	FS	PS	N	1.88 a-d	0.082 m-r	1443.0 lm	61.93 o-q
Great Scott BMR-W	Scott Seed	FS	L	Y	1.82 a-g	0.117 a-f	2405.8 c-f	92.32 d-i
Great Scott BMR-R	Scott Seed	FS	L	Y	2.07 a	0.130 ab	2155.0 e-i	80.84 h-l
Premium Stock LS	Scott Seed	FS	L	N	1.84 a-g	0.090 j-q	1329.0 m	62.23 o-q
Bundle King BMR	Richardson Seeds Ltd.	FS	L	Y	1.74 b-i	0.095 h-n	2467.1 b-e	83.99 g-k
9500	Richardson Seeds Ltd.	FS	ML	N	1.95 ab	0.130 ab	2208.8 e-i	91.31 e-i
Silo 700D	Richardson Seeds Ltd.	FS	ML	N	1.75 b-h	0.097 g-n	2070.9 g-i	80.44 h-l
Dairy Master BMR	Richardson Seeds Ltd.	FS	ML	Y	1.46 i-n	0.078 n-r	2720.3 a-c	92.46 d-i
Pacesetter BMR	Richardson Seeds Ltd.	FS	PS	Y	1.95 ab	0.093 h-p	2206.0 e-i	72.52 k-p
Pacesetter BMR Red	Richardson Seeds Ltd.	FS	PS	Y	1.95 ab	0.098 g-m	2068.1 g-i	73.20 j-p
Double 7 BMR	Richardson Seeds Ltd.	FS	L	Y	1.74 b-i	0.093 h-p	2441.7 b-e	81.79 g-k

Table 3. continued.

Hybrid Information[1]					Nutrient Composition & Calculations[2]			
Hybrid	**Company**	**Type**	**Maturity**	**BMR**	**% K**	**% S**	**Milk Lbs ton^{-1}**	**Rel. Feed Value**
Sweeter 'N Honey BMR	Richardson Seeds Ltd.	FS	ME	Y	1.56 f-m	0.088 j-r	1695.5 j-l	71.94 k-p
Sweeter 'N Honey BMR Red	Richardson Seeds Ltd.	FS	ME	Y	1.65 c-k	0.105 g-k	2687.8 a-c	94.53 d-g
Mean					**1.66**	**0.017**	**2032.12**	**80.91**
CV					**15.25**	**17.14**	**14.23**	**14.36**
Location								
Kearney					1.44	0.12 a	2259.4 a	102.3 a
Westside					1.42	0.11 b	1849.8 b	74.8 b

[1]Hybrid information provided by seed companies. SS=Sorghum-Sudangrass, FS=Forage sorghum, E=Early, ME=Medium Early, M=Medium, ML=Medium Late, L=Late, PS=Photoperiod Sensitive.
[2]Means followed by the same letter do not significantly differ using LSD (P=0.01)

Table 4. Top 25% of hybrids in the 2032 Kearney and Westside trials based on %IVTD, lodging, and yield[1].

Hybrid	Company	Type	Maturity	BMR	% Lodging	T ac^{-1} 65% Moist.	% Crude Prot.	48 hr IVTD	Milk lbs ton^{-1}	Rel. Fedd Value
Great Scott BMR-W	Scott Seed	FS	L	Y	0	20.1	7.6	74.3	2405.8	92.3
XAF4456	Advanta US	FS	ML	Y	0	16.4	8.3	74.2	2588.5	105.1
NK8830	Chromatin/Sorghum Partners	FS	L	N	0	20.9	8.3	74.1	2840.0	121.5
Double 7 BMR	Richardson Seeds Ltd.	FS	L	Y	0	17.5	5.9	73.5	2441.7	81.8
NK8817	Chromatin/Sorghum Partners	FS	L	N	0	23.0	8.0	73.5	2749.4	113.7
XAF4452	Advanta US	FS	M	Y	0	18.3	8.1	73.5	2688.9	105.2
KS989	Chromatin/Sorghum Partners	FS	L	N	0	21.2	7.6	72.6	2843.9	116.7
X853	Chromatin/Sorghum Partners	FS	L	N	0	17.5	8.5	72.1	2592.1	105.1
AF7401	Advanta US	FS	L	Y	0	19.4	8.2	71.7	2149.7	80.6
NK8828	Chromatin/Sorghum Partners	FS	L	N	0	16.3	8.4	70.8	2430.6	103.2
AS6402	Advanta US	FS	ML	Y	0	23.4	7.5	70.3	2208.9	79.2
Great Scott BMR-R	Scott Seed	FS	L	Y	0	18.8	8.2	70.3	2155.0	80.8
NK300-1	Chromatin/Sorghum Partners	FS	L	N	0	21.2	7.4	70.2	2445.0	104.2

[1]The top 25% list was derived by taking those hybrids with the highest %IVTD and eliminating those hybrids that lodged by more than 25%.

Table 5. Top yielding hybrids that yielded over 23 tons acre^{-1} averaged over Kearney and Westside trials in 2013.

Hybrid	Company	Type	Maturity	BMR	% Lodging	Ton acre^{-1} 65% Moist.	48 hr IVTD	Milk lbs ton^{-1}
SPX909	Chromatin/Sorghum Partners	FS	PS	N	0.0	29.6	59.6	1703.2
SPX906	Chromatin/Sorghum Partners	FS	PS	N	0.0	29.1	54.7	1520.5
SPX903	Chromatin/Sorghum Partners	FS	PS	N	0.0	27.8	54.2	1458.0
SPX904	Chromatin/Sorghum Partners	FS	PS	N	0.0	26.9	51.2	1418.8
SPX907	Chromatin/Sorghum Partners	FS	PS	N	0.0	25.5	56.4	1580.2
Trudan Headless	Chromatin/Sorghum Partners	FS	PS	N	0.0	25.3	51.7	1281.0
1990	Chromatin/Sorghum Partners	FS	PS	N	8.3	25.0	56.1	1456.6
SS405	Chromatin/Sorghum Partners	FS	L	N	51.7	24.9	60.6	1900.5
SPX908	Chromatin/Sorghum Partners	FS	PS	N	0.0	24.7	55.8	1472.6
SPX901	Chromatin/Sorghum Partners	FS	PS	N	0.0	24.1	52.9	1384.7
SPX916	Chromatin/Sorghum Partners	FS	PS	N	85	23.6	56.3	1406.9
Premium Stock LS	Scott Seed	FS	L	N	16.7	23.5	54.4	1329.0
AS6402	Advanta US	FS	ML	Y	0.0	23.4	70.3	2208.9
NK8817	Chromatin/Sorghum Partners	FS	L	N	0.0	23.0	73.5	2749.4
SPX912	Chromatin/Sorghum Partners	FS	PS	N	0.0	23.0	60.5	1702.2

[1]Hybrid information provided by seed companies. SS=Sorghum-Sudangrass, FS=Forage sorghum, ME=Medium Early, M=Medium, ML=Medium Late, L=Late, PS=Photoperiod Sensitive.