

Technical Report

TR18-1 January 2018

Colorado
State
University

Agricultural
Experiment Station

College of
Agricultural Sciences

Department of
Soil and Crop Sciences

Extension

2017 Sorghum Hybrid Performance
Trials in Eastern Colorado

K. J. Larson, Superintendent and Research Scientist II, Plainsman Research Center

J. J. Johnson, Professor and Extension Specialist, Dept. of Soil and Crop Sciences

M. E. Bartolo, Manager and Senior Research Scientist, Arkansas Valley Research Center

S. M. Jones, Research Associate III, Dept. of Soil and Crop Sciences

B. T. Pettinger, Research Associate II, Plainsman Research Center

K. J. Tanabe, Research Associate III, Arkansas Valley Research Center

Funded by the Colorado Agricultural Experiment Station and

Crop Management and Sorghum Improvement, USDA, NIFA Project No. COL00654

This institution is an equal opportunity provider and employer.

- **Mention of a trademark or proprietary product does not constitute endorsement by the Colorado Agricultural Experiment Station.**

Colorado State University is an equal opportunity/affirmative action institution and complies with all Federal and Colorado State laws, regulations, and executive orders regarding affirmative action requirements in all programs. The Office of Equal Opportunity is located in 101 Student Services. In order to assist Colorado State University in meeting its affirmative action responsibilities, ethnic minorities, women, and other protected class members are encouraged to apply and to so identify themselves.

2017 SORGHUM HYBRID PERFORMANCE TRIALS IN EASTERN COLORADO

	Page
Introduction:	
Seed Companies that Participated in Trials	2
Experimental Methods and Evaluations	3
Statistical Method	4
Acknowledgments	4
References	5
Dryland Grain Sorghum Hybrid Performance Trial at Burlington	6
Dryland Grain Sorghum Hybrid Performance Trial at Sheridan Lake	8
Dryland Grain Sorghum Hybrid Performance Trial at Walsh	10
Irrigated Grain Sorghum Hybrid Performance Trial at Walsh	13
Dryland Forage Sorghum Performance Trial at Walsh	16
Irrigated Forage Sorghum Performance Trial at Rocky Ford	20

SORGHUM HYBRID PERFORMANCE TRIALS IN EASTERN COLORADO, 2017
K.J. Larson^a, J.J. Johnson^b, M.E. Bartolo^c, S.M. Jones^d, B.T. Pettinger^e, K.J. Tanabe^f

This publication is a progress report of the sorghum hybrid performance trials conducted by the Department of Soil and Crop Sciences at Colorado State University, Colorado Agricultural Experiment Station (AES), and Colorado State University Extension. The grain sorghum trials were conducted at four sites in eastern Colorado: Akron, Burlington, Sheridan Lake and Walsh. The Akron site was not harvested because of severe hail damage. Forage sorghum trials were conducted at Rocky Ford (irrigated) and at Walsh (dryland).

The 2017 Colorado grain sorghum crop is estimated at 19.88 million bushels, 4% lower than the 2016 sorghum crop of 20.75 million bushels. The 2017 sorghum crop is the third largest crop in the last 10 years, 2015 had the first and 2016 had the second largest sorghum crops in the past decade. The third highest sorghum production this year was due to the third highest harvested acres, 375,000 acres, for the last 10 years. The grain yield this year was estimated at 53.0 bu/acre, which was 3.0 bu/acre more than last year and 14.1 bu/acre more than the 10 year average. As the production and yield levels indicate, conditions in Eastern Colorado for 2017 were generally wetter than normal. Sorghum silage statistics are not published during the current year; however, Colorado sorghum silage statistics are available for the previous year. In 2016, 90,000 tons of sorghum silage was produced, which is the lowest sorghum silage production in a decade. The average yield was 9.0 tons/acre from 10,000 harvested acres. (USDA and National Agricultural Statistics Service, Colorado Field Office, 2017).

Tests are partially funded by entry fees paid by commercial firms. Commercial seed representatives interested in entering sorghum hybrids in any of the trials should contact Jerry Johnson, phone (970) 491-1454, email Jerry.Johnson@colostate.edu; or Kevin Larson, phone (719) 324-5643, email Kevin.Larson@colostate.edu for further details. Names and addresses of firms submitting entries in 2017 are shown in Table 1. Each firm selected entries for testing and furnished seed for the trials. AES researchers selected closed-pedigree hybrids as standards of comparison.

Summary tables for weather data (CoAgMet and NOAA, 2017), soil analysis (Soil, Plant and Water Testing Laboratory, Colorado State University), fertilization, and available soil water graphs derived from gypsum block readings are provided for certain trial locations. Other information, where available, was included: site description, irrigation, pest control, field history, and pertinent comments.

^aSuperintendent and Research Scientist II, Plainsman Research Center, Walsh;

^bProfessor and Extension Specialist, Dept. of Soil and Crop Sciences;

^cManager and Senior Research Scientist, Arkansas Valley Research Center, Rocky Ford;

^dResearch Associate III, Dept. of Soil and Crop Sciences;

^eResearch Associate II, Plainsman Research Center, Walsh;

^fResearch Associate III, Arkansas Valley Research Center

Table 1.--Entrants in the 2017 Colorado Sorghum Performance Trials.

Brand	Entered by
AGVENTURE	AgVenture, 7300 NW 62 nd Ave., P.O. Box 7034, Johnson, IA 50131
ALTA SEEDS	Advanta US, 2001 E. 1 st St., P.O. Box 2420, Hereford, TX 79045
DEKALB	Monsanto Company, 800 N. Lindbergh Blvd., St. Louis, MO 63167
DYNA-GRO SEED	Crop Production Services, Inc., 3005 Rocky Mountain Ave, Loveland, CO 80538
GAYLAND WARD SEED	Gayland Ward Seed Co. Inc., 4395 US Hwy 60, Hereford, TX 79045
HEARTLAND GENETICS	Heartland Genetics, LLC, 1853 Howard Lane, Beloit, KS 67420
SCOTT SEED CO.	Scott Seed Co., 114 E. New York Ave., Hereford, TX 79045
SORGHUM PARTNERS/ CHROMATIN	Chromatin, Inc., 1301 East 50 th St., Lubbock, TX 79404
WALTER MOSS SEED CO.	Walter Moss Seed Co., P.O. Box 21114, Waco, TX 76702
WARNER SEEDS	Warner Seeds, Inc., 120 South Lawton St., P.O. Box 1877, Hereford, TX 79045

Growing Degree Days for sorghum were calculated from planting through first freeze using a maximum of 111°F and a minimum of 50°F for threshold temperatures (Peacock and Heinrich, 1984). They are calculated by averaging daily high and low temperatures and subtracting the base temperature of 50°F from the average. When daily temperatures are less than 50°F, 50°F is used, when temperatures are above 111°F a maximum temperature of 111°F is used:

$$\frac{(\text{Daily Minimum Temp.} + \text{Daily Maximum Temp.})}{2} - 50^{\circ}\text{F}$$

Experimental Methods and Evaluations

Trials at Walsh were planted with a four-row cone planter and harvested with a modified, self-propelled John Deere 4420 combine equipped with a four-row row-crop head to enhance harvest of lodged tillers. Trials at Akron, Burlington, and Sheridan Lake were planted with a four-row Seeds Research precision planter and harvested with a four-row Case 1620 combine modified as a multiple crop plot combine equipped with a Harvest Master weighing system. Sorghum forage was cut and chopped with a single row John Deere 6 silage cutter.

Days to Emergence. Seedling emergence was determined as the number of days after planting until approximately half of the seedlings became visible down a planted row.

50% Bloom. Number of days after planting until half of the main heads had pollinating florets. Number of days to half bloom provided a good measure of relative maturity between hybrids.

50% Maturity. Number of days after planting until half of the kernels in half of the main heads reached physiological maturity, i.e., the black layer became visible at the base of the kernel.

Plant Height. Plant height was measured in inches from the soil to the tip of the main head.

Lodging. The percentage of tillers with broken basal stems or broken peduncles or were leaning more than a 45 degree angle were considered lodged. Since both of the combines were equipped with row crop heads, most of the leaning tillers were harvested.

Harvest Density. Plant population in plants per acre was counted prior to harvest.

Test Weight. Test weight was determined using a hand-held bushel weight tester at Walsh and recorded by a Harvest Master measuring system at Burlington and Sheridan Lake. A low test weight indicates that a hybrid did not fully mature prior to the first freeze or that it suffered environmental stress, such as a water deficiency.

Grain Yield. The grain yield in bushels per acre was adjusted to 14 percent moisture content.

Yield as a % of Test Average. Yield as a percentage of test average provided a comparison among yields within a trial and allowed comparisons among years, irrespective of annual growing conditions.

Forage Yield. Forage yield in tons per acre was adjusted to 70% moisture content. A representative sample of fresh silage was oven-dried at 167°F (75°C) until there was no more weight loss, and then yields were adjusted to 70% moisture content.

Stem Sugar. The sugar content (Brix), expressed as a percent, in the stem of forage sorghums at harvest was measured with a hand refractometer.

Available Soil Water

Available soil water was measured by placing gypsum blocks at 6, 18, 30, and 42 inches below the soil surface. Electrical resistance readings were made weekly or biweekly. Resistance readings varied with the amount of soil water present. Using resistance readings, available soil water was determined by extrapolating from soil water depletion curves for each particular soil type.

Statistical Method

Trials were planted in a randomized complete block design with four replications. No less than three replications were harvested. Analysis of variance was applied to the results and the least significant difference (LSD) was computed at $\alpha = 0.20$ or 0.30 for all trials. Analysis of variance and regression were performed and with CoStat Statistical Software, a product of Cohort Software, Berkeley, California, and with SAS, SAS Institute, Cary, North Carolina.

Acknowledgements

We are appreciative to the staffs at the Central Great Plains Research Station at Akron, Arkansas Valley Research Center, and Plainsman Research Center at Walsh for their assistance in conducting these trials. We would like to extend a special thank you to Tim Stahlecker, grower-cooperator, for his assistance with the Burlington trial and Burl Scherler for his assistance with the Sheridan Lake trial.

References

- National Agricultural Statistics Service, Colorado Field Office. 2017. Colorado agricultural statistics 2017. USDA, NASS, CDA. 62p.
- NOAA, May-October, 2017. Climatological data, Colorado. vol. 121, no.5-10. NOAA, Dept. of Commerce, NWS, NESDIS, NCDC.
- Peacock, J.M. and G.M. Heinrich. 1984. Light and temperature response in sorghum. pp. 143-158. In: Agrometeorology of Sorghum and Millet in the Semi-Tropics: Proceedings of the International Symposium. November 15-20, 1982. India, ICRISAT, WMO.
- USDA, National Agricultural Statistics Service, Colorado Field Office. November 9, 2017. News release, crop production – November 2017. USDA, NASS. 2p.

Dryland Grain Sorghum Performance Trial at Burlington, 2017

COOPERATOR: Tim Stahlecker.

PURPOSE: To identify high yielding hybrids under dryland conditions with 2500 sorghum heat units in a silt loam soil.

PLOT: Four rows with 30 in. row spacing, 35 ft. long. SEEDING DENSITY: 43,600 seed/ac. PLANTED: June 12. HARVESTED: November 8.

PEST CONTROL: Pre-emergence herbicide: Dual Magnum 16 oz/ac, Atrazine 0.5 lb/ac. Post emergence herbicide: Huskie 16 oz/ac, Atrazine 0.5 lb/ac, 2,4-D ester. Cultivation: None. Insecticides: None.

SOIL: Kuma-Keith silt loam.
FERTILIZER: Preplant: N at 50 lb/ac, P₂O₅ at 20 lb/ac, Zn at 1 lb/ac; Starter: N at 3.5 lb/ac, P₂O₅ at 12 lb/ac, Zn at 0.25 lb/ac; Sidedress: N at 29 lb/ac, S at 5 lb/ac .

FIELD HISTORY: Previous Crop: Wheat.

FIELD PREPARATION: Tilled.

COMMENTS: Planted into very good moisture and excellent stand establishment. Good in-season weed control. Rains were very timely and contributed to high yields.

Summary: Growing Season Precipitation and Temperature Burlington, Kit Carson County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	2.88	398	8	0	18
July	2.12	765	13	0	49
August	4.59	587	0	0	80
September	1.73	446	5	0	110
October	0.37	267	0	0	141
November	0.00	25	0	0	149
Total	11.69	2488	26	0	149

^aGrowing season from June 12 (planting) to November 8 (harvest).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

2017 Dryland Grain Sorghum Hybrid Performance Trial at Burlington

Brand	Hybrid	Grain		Test Weight	Harvest Plant Population	Plant Height	Maturity Group ^b	Grain Color
		Yield ^a	Yield					
		bu/ac	% of test avg.	lb/bu	plants/ac	in		
Dyna-Gro Seed	GX16535	122.4	110	55.6	36,300	53	ME	Bronze/Red
Dyna-Gro Seed	M60GB88	120.4	109	56.0	41,382	48	ME	Bronze
Dekalb	DKS28-05	117.6	106	54.7	37,752	47	E	Bronze
Alta Seeds	AG1203	112.4	101	54.4	42,834	48	ME	Bronze
Alta Seeds	ADV G1150	112.1	101	54.3	38,478	44	ME	Bronze
Dekalb	DKS29-07	109.5	99	54.1	40,656	47	ME	Cream
Dyna-Gro Seed	M59GB57	109.0	98	53.3	40,656	43	E	Bronze
Gayland Ward Seed	GW-1160	108.0	98	54.0	39,930	51	ME	Bronze
Dyna-Gro Seed	M60GB31	107.5	97	54.8	36,300	48	ME	Bronze
Sorghum Partners	SP 34A19	104.8	95	52.1	40,656	45	ME	Bronze
Dyna-Gro Seed	GX16523	104.1	94	54.5	32,670	47	ME	White
Dyna-Gro Seed	M71GB01	101.5	92	55.1	33,396	41	E	Dark Bronze
Average		110.8		54.4	38,418	47		

^cLSD (P<0.30)

4.1

^aYields adjusted to 14% moisture and hybrids ranked by yield.

^bMaturity group: E=early; ME=medium-early.

^cIf the difference between two varieties yields equals or exceeds the LSD value, there is a 70% chance the difference is significant.

Dryland Grain Sorghum Hybrid Performance Trial at Sheridan Lake, 2017

COOPERATOR: Burl Scherler, Sand Creek, Inc., Brandon, Colorado.

PURPOSE: To identify high yielding hybrids under dryland conditions with 2550 sorghum heat units in sandy loam soil.

PLOT: Four rows with 30 in. row spacing, 35 ft. long. SEEDING DENSITY: 43,600 seed/ac. PLANTED: June 9. HARVESTED: October 25.

PEST CONTROL: Preemergence Herbicides: (May 2) Panther 2.5 oz/ac, atrazine 0.5 lb/ac, glyphosate 5 18 oz/ac, 2,4-D ester 6.4 oz/ac, dicamba 2.5 oz/ac; (June 6) S-Metolachlor 21 oz/a, atrazine 0.5 lb/ac, glyphosate 5 18 oz/ac, 2,4-D ester 4.5 oz/ac. Post Emergence Herbicides: None. Cultivation: None. Insecticides: None.

Summary: Growing Season Precipitation and Temperature Chivington, Kiowa County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	1.16	513	14	4	21
July	7.16	805	21	4	52
August	1.60	632	5	0	83
September	2.07	491	13	0	113
October	0.16	106	0	0	123
Total	12.15	2547	53	8	123

^aGrowing season from June 9 (planting) to October 10 (first freeze, 25F).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

SOIL: Fort Collins sandy loam. FERTILIZATION: Preplant: N at 46 lb/ac; Starter: N at 6.5 lb/ac, S at 6.5 lb/ac, Zn at 0.25 lb/ac.

FIELD HISTORY: Previous Crop: Wheat. FIELD PREPARATION: No-till.

COMMENTS: Planted into good soil moisture and good stand establishment. Good in-season weed control. Received abundant rain throughout July and early August during flowering.

2017 Dryland Grain Sorghum Hybrid Performance Trial at Sheridan Lake

Brand	Hybrid	Grain		Test Weight	Harvest Plant Population	Plant Height	50% Bloom	Maturity	
		Yield ^a	Yield					Group ^b	Grain Color
		bu/ac	% of test avg.	lb/bu	plants/ac	in	days after planting		
Dekalb	DKS29-07	76.8	128	54.3	42,834	48	79	ME	Cream
Dekalb	DKS28-05	76.5	128	57.2	40,656	44	64	E	Bronze
Dyna-Gro Seed	M60GB88	75.4	126	54.9	42,834	49	75	ME	Bronze
Dyna-Gro Seed	M59GB57	74.5	125	59.6	42,108	37	67	E	Bronze
Warner Seeds	W 5701	69.5	116	56.1	39,204	46	78	ME	Red
Sorghum Partners	SP 34A19	68.6	115	55.7	41,382	46	79	ME	Bronze
Alta Seeds	AG1203	65.1	109	54.1	39,204	49	80	ME	Bronze
Alta Seeds	ADV G1150	64.1	107	55.1	37,752	44	79	ME	Bronze
Warner Seeds	W 625 Y	64.0	107	56.2	41,382	50	77	ME	Yellow
Dyna-Gro Seed	M71GB01	57.9	97	55.4	38,478	43	59	E	Dark Bronze
Dyna-Gro Seed	GX16535	57.8	97	56.1	33,396	50	82	ME	Bronze/Red
Warner Seeds	W 5901	53.0	89	58.0	39,204	45	78	ME	Red
Gayland Ward Seed	GW-1160	51.8	87	53.6	42,108	51	80	ME	Bronze
Warner Seeds	W 844 E	51.6	86	50.2	41,382	47	91	ML	Red
Dyna-Gro Seed	M60GB31	47.4	79	53.9	39,930	48	79	ME	Bronze
Dyna-Gro Seed	GX16523	45.3	76	56.7	30,492	44	78	ME	White
Dyna-Gro Seed	GX16855	17.5	29	48.7	31,944	53	96	ML	Bronze/Red
Average		59.8		55.0	39,076	47	78		

^cLSD (P<0.30)

7.9

^aYields adjusted to 14% moisture and hybrids ranked by yield.

^bMaturity group: E=early; ME=medium-early; ML=medium-late

^cIf the difference between two varieties yields equals or exceeds the LSD value, there is a 70% chance the difference is significant.

Dryland Grain Sorghum Hybrid Performance Trial at Walsh, 2017

COOPERATOR: Plainsman Agri-Search Foundation, Walsh, Colorado.

PURPOSE: To identify high yielding hybrids under dryland conditions with 2800 sorghum heat units in a silt loam soil.

PLOT: Four rows with 30 in. row spacing, 50 ft. long. **SEEDING DENSITY:** 43,600 seed/a. **PLANTED:** June 5. **HARVESTED:** October 30.

PEST CONTROL: Preemergence Herbicides: Atrazine 1lb/a, S-Metolachlor 24 oz/a, Mesotrione 6.4 oz/a; Post Emergence Herbicides: Huskie 16 oz/a, Atrazine 0.75 lb/a, AMS 1 lb/a. Cultivation: None. Insecticides: None.

FIELD HISTORY: Previous Crop: Wheat. **FIELD PREPARATION:** Strip-till.

Summary: Growing Season Precipitation and Temperature Walsh, Baca County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	1.20	619	14	3	25
July	4.64	870	23	3	56
August	5.18	641	3	0	87
September	3.52	528	9	0	117
October	1.05	128	0	0	127
Total	15.59	2786	49	6	127

^aGrowing season from June 5 (planting) to October 10 (first freeze, 29 F).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

COMMENTS: Planted in good soil moisture for seed germination and plant stand. Weed control was very good. Sugarcane aphid populations were very light and below control threshold. The growing season precipitation was well above average. June was dry and July through October was wet. August was cool with only three days above 90F. Grain yields and test weights were exceptional with record level grain yields. Because of abundant and timely rains, only 9 bu/a separated this dryland trial from the drip irrigated trial at Walsh.

SOIL: Richfield silt loam for 0-8" and silt loam 8"-24" depths from soil analysis.

Summary: Soil Analysis of Plant Available Nutrients.								
Depth	pH	Salts	OM	N	P	K	Zn	S
		mmhos/cm	%	-----ppm-----				
0-8"	8.3	0.3	2.1	13	5.5	529	0.6	9.6
8"-24"				15				
Comment	Alka	VLo	Hi	Mod	Lo	VHi	Lo	Adeq
Iron was marginal.								

Summary: Fertilization.				
Fertilizer	N	P ₂ O ₅	Zn	S
	-----lb/a-----			
Recommended	0	20	2	0
Applied	50	20	0	0
Yield Goal: 40 bu/a.				
Actual Yield: 133 bu/a.				

**Available Soil Water
Dryland Grain Sorghum, Walsh, 2017**

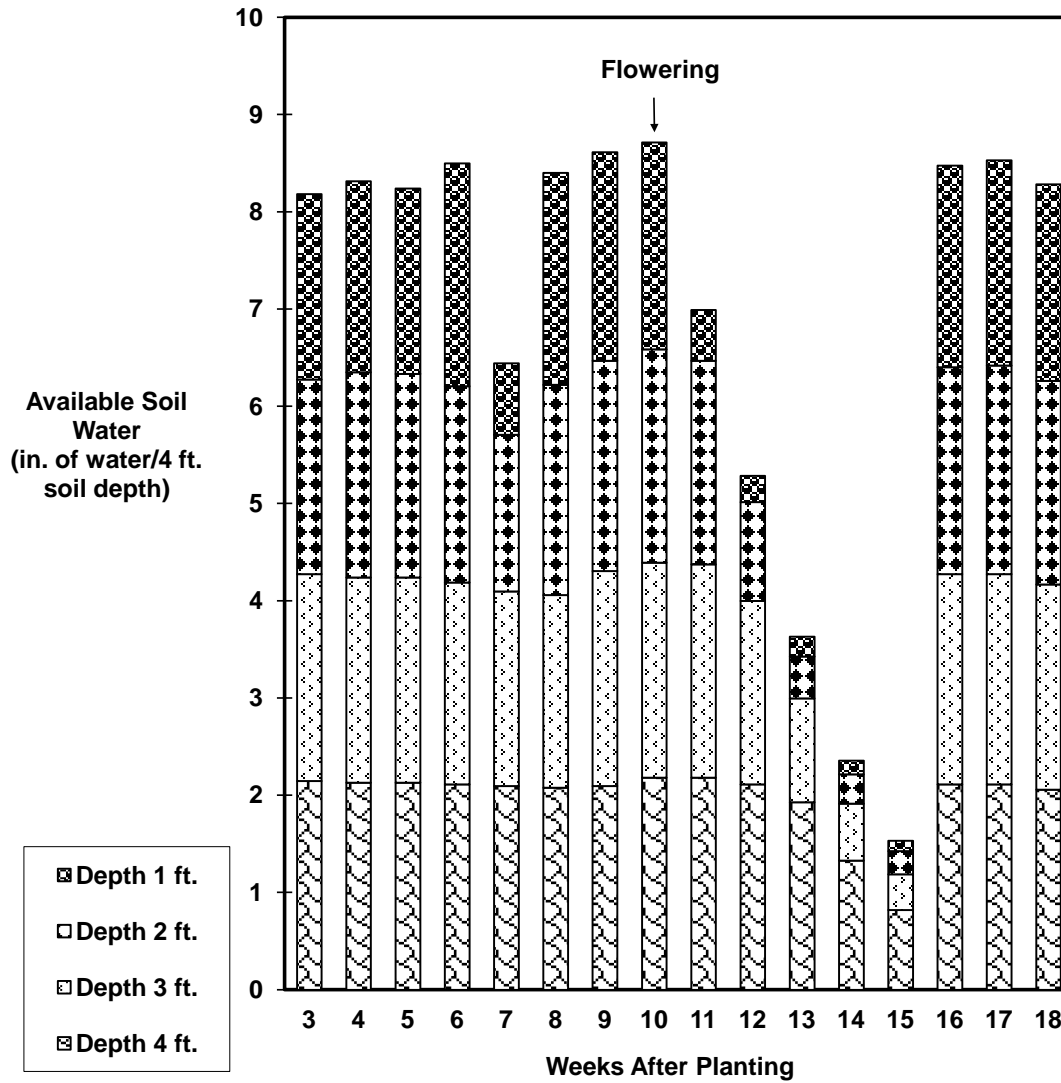


Fig. 1. Available soil water in dryland grain sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to first freeze was 15.59 in. Any increase in available soil water between weeks is from rain.

2017 Dryland Grain Sorghum Hybrid Performance Trial at Walsh

Source	Hybrid	Grain Yield ^a bu/ac	Yield % of trial avg	Test Weight lb/bu	Harvest Plant Population plants/ac	Plant Height in	50% Bloom days after planting	GDD ^b	50% Mature days after planting	Maturity Group ^c	Grain Color
Dyna-Gro Seed	M60GB31	150.4	113	60.3	44,500	58	72	1829	117	ME	Bronze
Alta Seeds	AG1203	146.5	110	61.2	33,300	56	72	1829	116	ME	Bronze
Dyna-Gro Seed	M60GB88	143.5	108	60.1	27,500	56	68	1743	112	ME	Bronze
Gayland Ward Seed	GW Exp 9100	143.0	107	59.4	27,900	66	79	1992	129	ML	-
Alta Seeds	ADV G1150	141.0	106	59.2	31,000	53	74	1871	121	M	Bronze
Heartland Genetics	HG44-R	139.7	105	58.6	29,000	50	74	1871	120	M	Red
AgVenture	7R01	138.9	104	59.3	32,900	55	75	1896	122	M	Red
Gayland Ward Seed	GW Exp 9050	137.6	103	61.3	31,400	55	77	1948	127	ML	-
Warner Seeds	W 5701	137.1	103	60.2	30,600	58	69	1763	117	ME	Bronze
Dyna-Gro Seed	GX16855	135.8	102	58.4	28,700	62	80	2014	128	ML	Red
Gayland Ward Seed	GW Exp 9134	134.3	101	59.4	29,400	63	75	1896	123	M	-
Warner Seeds	W 844 E	134.1	101	59.4	27,500	57	77	1948	128	ML	Bronze
Gayland Ward Seed	GW 15G901	134.0	101	59.6	28,300	66	74	1871	121	M	-
Gayland Ward Seed	GW Exp 9135	132.6	100	59.2	31,600	56	75	1896	124	M	-
Dyna-Gro Seed	GX16535	132.0	99	60.5	25,200	59	72	1829	117	ME	Bronze
Gayland Ward Seed	GW-1160	132.0	99	59.5	33,300	55	74	1871	120	M	Bronze
Dekalb	DKS28-05	131.6	99	59.8	45,700	52	61	1599	109	E	Bronze
Gayland Ward Seed	GW Exp 9092	130.7	98	59.4	30,200	59	71	1807	118	ME	-
Warner Seeds	W 625 Y	130.5	98	60.4	28,700	61	73	1849	121	M	Yellow
Dekalb	DKS29-07	129.3	97	59.8	28,300	57	69	1763	115	ME	Cream
Warner Seeds	W 5901	129.1	97	60.3	27,900	60	67	1724	114	ME	Bronze
Gayland Ward Seed	GW Exp 9127	128.2	96	59.8	33,700	60	74	1871	121	M	-
Gayland Ward Seed	GW Exp 9066	127.7	96	60.4	31,400	63	73	1849	120	M	-
Dyna-Gro Seed	GX16523	127.1	95	59.8	26,300	56	68	1743	114	ME	White
Gayland Ward Seed	GW Exp 9138	125.6	94	61.4	34,100	62	73	1849	120	M	-
Gayland Ward Seed	GW Exp 9139	122.9	92	60.3	34,100	53	75	1896	123	M	-
Heartland Genetics	HG23-R	122.3	92	60.3	35,200	53	67	1724	113	ME	Red
Heartland Genetics	HG Ex-101	121.6	91	60.1	27,900	53	72	1829	118	ME	Bronze
Dyna-Gro Seed	M59GB57	118.5	89	59.6	29,400	48	60	1582	106	E	Bronze
Average		133.0		59.9	31,200	57	72	1833	119		

^dLSD (P<0.20)

6.5

^aYields adjusted to 14% moisture and hybrids ranked by yield.

^bGDD: Growing degree days to 50% bloom date.

^cMaturity Group: E=early; ME=medium-early; M=medium; ML=medium late.

^dIf the difference between two varieties yields equals or exceeds the LSD value, there is an 80% chance the difference is significant.

Drip Irrigated Grain Sorghum Hybrid Performance Trial at Walsh, 2017

COOPERATOR: Plainsman Agri-Search Foundation, Walsh, Colorado.

PURPOSE: To identify high yielding hybrids under subsurface drip irrigated conditions with 2800 sorghum heat units in a silt loam soil.

PLOT: Four rows with 30 in. row spacing, 50 ft. long. SEEDING DENSITY: 87,100 seed/a. PLANTED: June 5. HARVESTED: November 1.

PEST CONTROL: Preemergence Herbicides: Atrazine 1lb/a, S-Metolachlor 24 oz/a, Mesotrione 6.4 oz/a, Glyphosate 32 oz/a, 2,4-D, 0.5 lb/a, Banvel 5 oz/a. Post Emergence Herbicides: Huskie 16 oz/a, Atrazine 0.75 lb/a, AMS 1 lb/a, 2,4-D 0.38 lb/a. Cultivation: Once. Insecticides: None.

Irrigation: 9.3 in/a. of subsurface drip irrigation.

Summary: Growing Season Precipitation and Temperature Walsh, Baca County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	1.20	619	14	3	25
July	4.64	870	23	3	56
August	5.18	641	3	0	87
September	3.52	528	9	0	117
October	1.05	128	0	0	127
Total	15.59	2786	49	6	127

^aGrowing season from June 5 (planting) to October 10 (first freeze, 29 F).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

FIELD HISTORY: Previous Crop: Sunflower. FIELD PREPARATION: Strip-till.

COMMENTS: Planted in good soil moisture for seed germination and plant stand. Weed control was good. Sugarcane aphid populations were very light and below control threshold. The growing season precipitation was well above average. June was dry and July through October was wet. August was cool with only three days above 90F. Grain yields and test weights were exceptional with record level grain yields; however, because of abundant and timely rains, only 9 bu/a separated this drip irrigated trial from the dryland trial at Walsh.

SOIL: Wiley loam for 0-8" and loam 8"-24" depths from soil analysis.

Summary: Soil Analysis of Plant Available Nutrients.								
Depth	pH	Salts	OM	N	P	K	Zn	S
		mmhos/cm	%	-----ppm-----				
0-8"	8.1	0.5	1.9	14	14.4	714	1.2	16
8"-24"				16				
Comment	Alka	VLo	Hi	Mod	HI	VHi	Marg	Adeq
Iron was marginal.								

Summary: Fertilization.				
Fertilizer	N	P ₂ O ₅	Zn	S
	-----lb/a-----			
Recommended	0	0	1	0
Applied	100	40	0.3	10
Yield Goal: 80 bu/a.				
Actual Yield: 142 bu/a.				

Available Soil Water Subsurface Drip Irrigated Grain Sorghum, Walsh, 2017

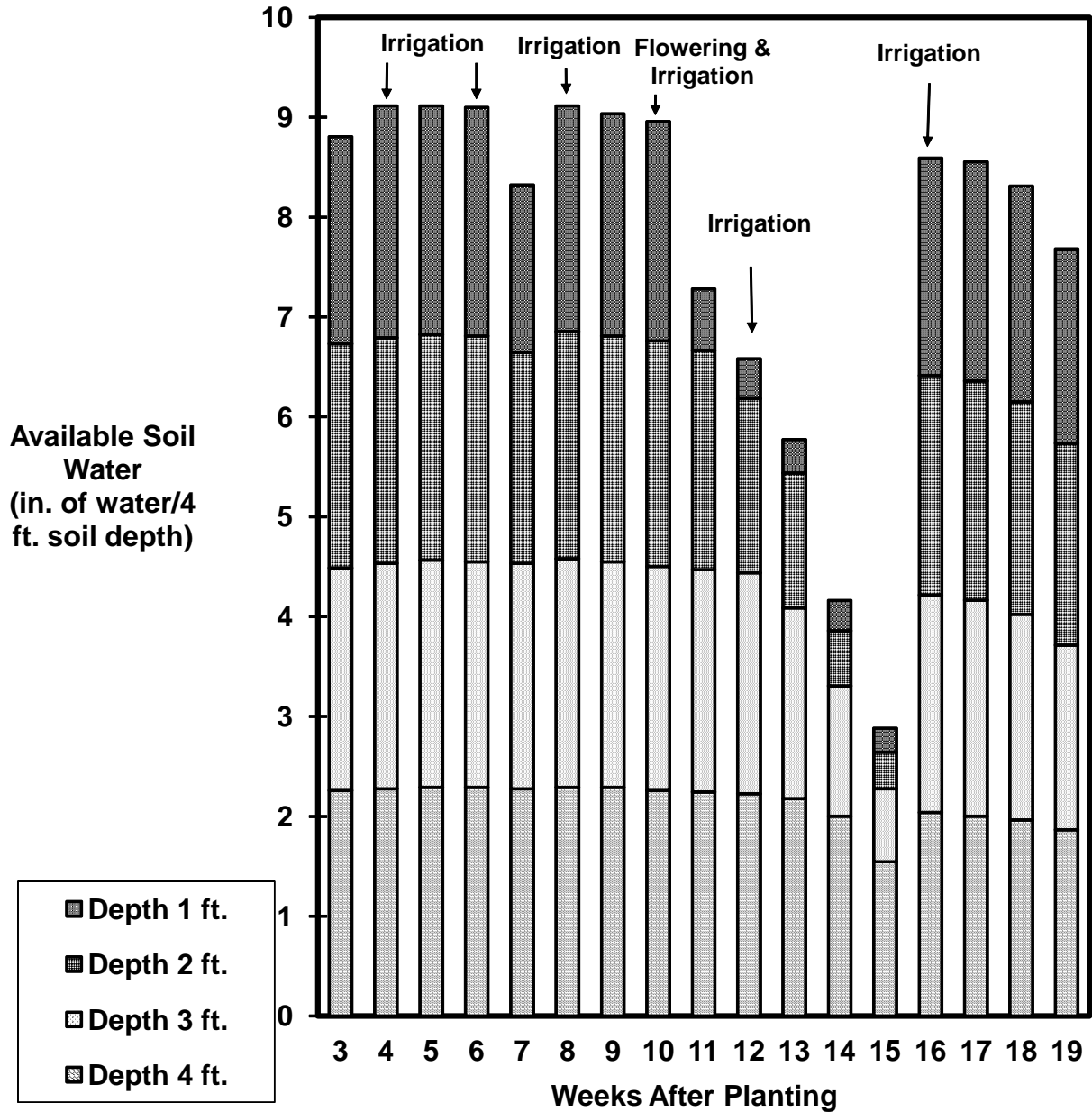


Fig. 2. Available soil water in drip irrigated grain sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to first freeze was 15.59 in. Any increase in available soil water between weeks not attributed to irrigation is from rain

2017 Irrigated Grain Sorghum Hybrid Performance Trial at Walsh

Source	Hybrid	Grain		Test Weight	Harvest Plant Population	Plant Height	50% Bloom	GDD ^b	50% Mature	Maturity Group ^c	Grain Color
		Yield ^a bu/ac	Yield % of trial avg								
Gayland Ward Seed	GW Exp 9100	163.2	115	59.0	45,900	68	78	1974	127	ML	-
Dekalb	DKS45-23	158.2	111	59.1	53,400	62	75	1896	123	M	Bronze
Dekalb	DKS53-53	156.0	110	59.4	51,300	60	77	1948	127	ML	Bronze
Dekalb	DKS51-01	155.1	109	58.7	48,200	63	75	1896	123	M	Bronze
Alta Seeds	AG1203	152.6	108	58.7	47,900	57	70	1784	117	ME	Bronze
AgVenture	7R01	152.2	107	56.6	47,900	55	75	1896	122	M	Red
Gayland Ward Seed	GW 15G901	151.6	107	57.7	51,600	67	71	1807	119	ME	-
Dekalb	DKS38-16	150.1	106	60.7	52,700	63	69	1763	118	ME	Bronze
Gayland Ward Seed	GW Exp 9135	146.7	103	56.1	45,600	59	75	1896	123	M	-
Gayland Ward Seed	GW-1160	146.5	103	57.8	53,100	57	74	1871	121	M	Bronze
Scott Seed Co	502/15	144.6	102	56.5	49,300	58	78	1974	127	ML	Red
Gayland Ward Seed	GW Exp 9050	144.2	102	59.6	44,100	58	77	1948	128	ML	-
Scott Seed Co	545/15	143.7	101	56.6	45,600	56	75	1896	123	M	Red
Dyna-Gro Seed	GX16855	143.5	101	56.2	46,700	65	79	1992	128	ML	Red
Dyna-Gro Seed	GX16535	143.1	101	59.7	52,000	61	71	1807	117	ME	Bronze
Scott Seed Co	504/6	142.7	101	56.5	48,600	58	79	1992	129	ML	Red
Gayland Ward Seed	GW Exp 9066	140.4	99	58.6	44,100	64	75	1896	121	M	-
Dyna-Gro Seed	M60GB88	140.0	99	57.1	54,200	56	68	1743	115	ME	Bronze
Gayland Ward Seed	GW Exp 9134	138.9	98	57.9	41,100	66	75	1896	123	M	-
Dyna-Gro Seed	M60GB31	136.5	96	58.9	45,200	58	73	1849	119	ME	Bronze
Gayland Ward Seed	GW Exp 9092	136.3	96	56.0	50,900	64	72	1829	118	ME	-
Gayland Ward Seed	GW Exp 9127	134.4	95	57.8	51,900	62	70	1784	119	ME	-
Gayland Ward Seed	GW Exp 9139	134.2	95	58.6	43,700	53	75	1896	124	M	-
Gayland Ward Seed	GW Exp 9138	134.1	95	59.2	44,800	64	70	1784	118	ME	-
Alta Seeds	ADV G1150	131.1	92	57.8	51,600	53	74	1871	121	M	Bronze
Dyna-Gro Seed	GX16523	127.9	90	58.2	42,900	58	68	1743	115	ME	White
Scott Seed Co	505/5	123.1	87	59.6	52,400	54	58	1548	105	E	Red
Dyna-Gro Seed	M59GB57	122.9	87	59.6	55,800	48	58	1548	105	E	Bronze
Gayland Ward Seed	GW 15G926	120.3	85	57.6	41,800	66	76	1920	126	ML	-
Average		141.9		58.1	48,400	60	73	1850	121		

^dLSD (P<0.20)

8.4

^aYields adjusted to 14% moisture and hybrids ranked by yield within maturity group.

^bGDD: Growing degree days to 50% bloom date.

^cMaturity Group: E=early; ME=medium-early; M=medium; ML=medium late.

^dIf the difference between two varieties yields equals or exceeds the LSD value, there is an 80% chance the difference is significant.

Dryland Forage Sorghum Performance Trial at Walsh, 2017

COOPERATOR: Plainsman Agri-Search Foundation, Walsh, Colorado.

PURPOSE: To identify high yielding hybrids under dryland conditions with 2800 sorghum heat units in a silt loam soil.

PLOT: Four rows with 30 in. row spacing, 50 ft. long. SEEDING DENSITY: 69,700 seed/a. PLANTED: June 5. HARVESTED: October 23.

PEST CONTROL: Preemergence Herbicides: Atrazine 1 lb/a, S-Metolachlor 24 oz/a. Post Emergence Herbicides: Huskie 16 oz/a, Atrazine 0.75 lb/a, AMS 1 lb/a. Cultivation: None. Insecticides: None.

FIELD HISTORY: Previous Crop: Wheat. FIELD PREPARATION: Strip-till.

COMMENTS: Planted in good soil moisture for seed germination and plant stand. Weed control was very good. Sugarcane aphid populations were very light and below control threshold. The growing season precipitation was well above average. June was dry and July through October was wet. August was cool with only three days above 90F. Record level silage yields.

SOIL: Richfield silt loam for 0-8" and silt loam 8"-24" depths from soil analysis.

Summary: Growing Season Precipitation and Temperature Walsh, Baca County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	1.20	619	14	3	25
July	4.64	870	23	3	56
August	5.18	641	3	0	87
September	3.52	528	9	0	117
October	1.05	128	0	0	127
Total	15.59	2786	49	6	127

^aGrowing season from June 6 (planting) to October 10 (first freeze, 29F).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

Summary: Soil Analysis of Plant Available Nutrients.

Depth	pH	Salts	OM	N	P	K	Zn	S
		mmhos/cm	%	-----ppm-----				
0-8"	8.2	0.5	1.6	8	5.0	524	0.6	10
8"-24"				11				
Comment	Alka	VLo	Mod	Mod	Lo	VHi	Lo	Marg

Iron was marginal.

Summary: Fertilization.

Fertilizer	N	P ₂ O ₅	Zn	S
	-----lb/a-----			
Recommended	0	20	2	0
Applied	50	20	0	0

Yield Goal: 8 tons/a.

Actual Yield: 21.9 tons/a.

**Available Soil Water
Dryland Forage Sorghum, Walsh, 2017**

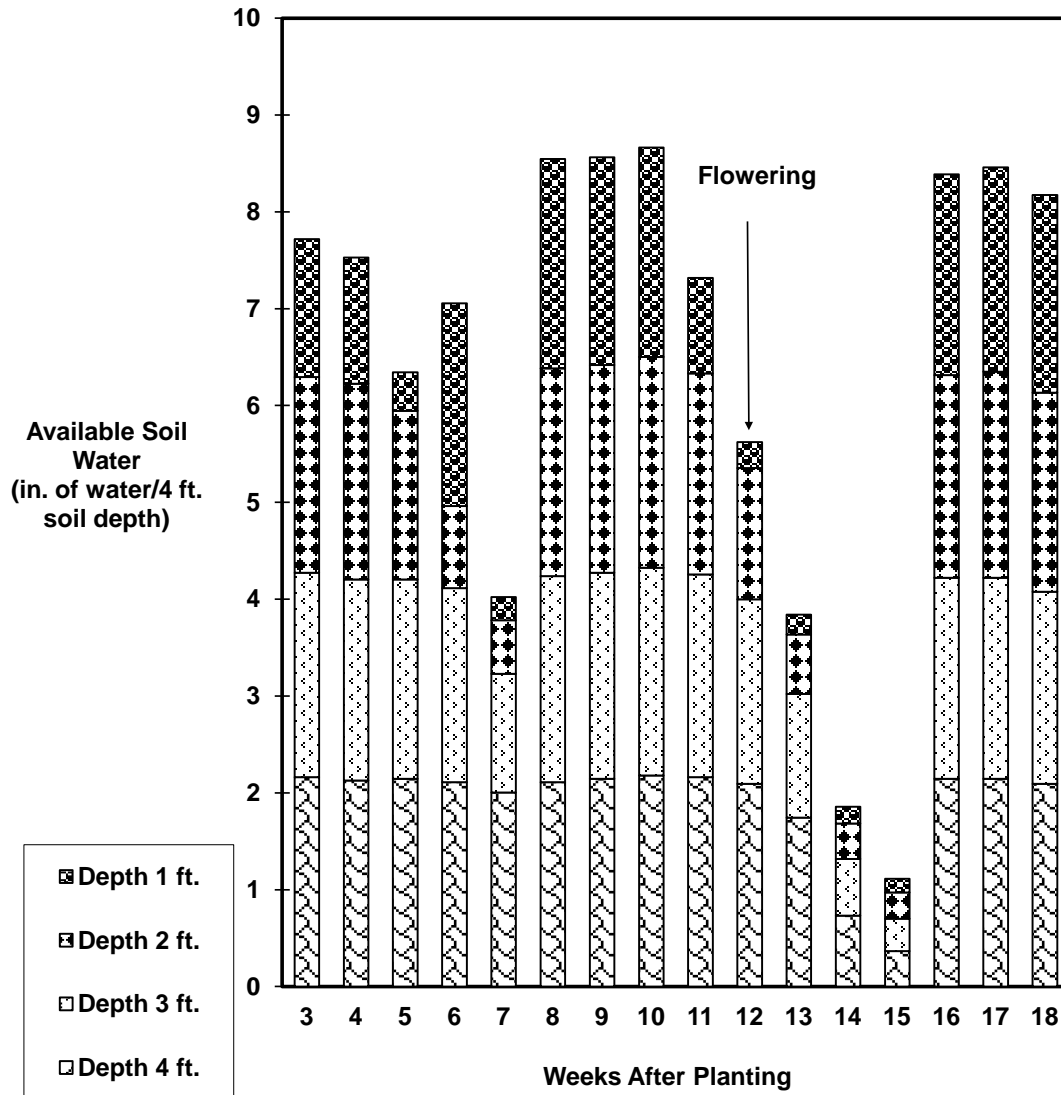


Fig. 3. Available soil water in dryland forage sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to harvest was 15.59 in. Any increase in available soil water between weeks is from rain.

2017 Dryland Forage Sorghum Hybrid Performance Trial at Walsh

Brand	Hybrid	Forage		Stem	Harvest	Plant		Days to Boot	Relative	Forage	Traits ^d
		Yield ^a	Yield	Sugar	Density	Height	Lodging		Maturity ^b	Type ^c	
		tons/ac	% of test avg.	%	plants/ac	in	%	days after planting			
Alta Seeds	AF7401	27.9	127	11.1	51,900	76	0	89	L	FS	BMR-6, BD
Dyna-Gro Seed	705F	27.7	126	5.2	51,500	88	0	82	M	FS	-
Alta Seeds	AF8301	25.1	115	6.9	48,800	89	18	79	M	FS	BMR
Gayland Ward Seed	GW-2120 (sterile)	25.1	114	13.0	46,500	100	0	73	ME	FS	MS
Dyna-Gro Seed	F74FS23 BMR	24.7	113	10.4	53,800	119	0	84	M	FS	BMR
Alta Seeds	XF7302	22.9	104	11.4	48,800	66	0	91	L	FS	BMR-6, BD
Alta Seeds	XF7303	22.9	104	7.5	43,800	60	0	87	L	FS	BMR-6, BD
Dyna-Gro Seed	Fullgraze BMR	21.9	100	13.5	47,200	122	0	94	L	SS	BMR
Gayland Ward Seed	Sweet Forever BMR	21.9	100	14.8	46,900	119	7	88	PS	SS	BMR
Dyna-Gro Seed	F73FS10	21.2	96	11.5	45,300	104	35	71	ME	FS	-
Dyna-Gro Seed	F76FS77 BMR	21.1	96	14.0	46,100	72	0	91	L	FS	BMR, BD
Gayland Ward Seed	Nutri King BMR 6	21.0	96	8.5	48,400	110	0	60	E	SS	BMR-6, BD
Gayland Ward Seed	Super Sugar (delayed mat.)	20.9	95	11.4	52,700	120	0	87	L	SS	-
Gayland Ward Seed	GW-400 BMR (sterile)	20.6	94	13.7	49,200	116	5	70	ME	FS	BMR, MS
Gayland Ward Seed	Sweet Six BMR	20.0	91	13.0	51,900	120	0	60	E	SS	BMR, DS
Channel Seed	216-36DTGV2PRIB	17.5	80	5.5	48,000	78	10	62	M	Corn	-
Alta Seeds	XF7103	17.1	78	6.8	43,800	67	0	68	ME	FS	BMR-6, BD
Dyna-Gro Seed	Danny Boy BMR	15.6	71	12.5	45,300	128	0	93	L	SS	BMR
Average		21.9		10.6	48,328	97	4	79			

^eLSD (P<0.20)

3.6

^aYields are adjusted to 70% moisture content based on oven-dried samples.

^bRelative maturities are provided by the companies. E=early; ME=medium-early; M=medium; ML=medium-late; L=late; PS=photoperiod sensitive

^cForage Type: FS=forage sorghum; SS=sorghum sudangrass

^dTraits are provided by the companies. Dashes mean conventional (no traits) or information isn't available. BD=brachytic dwarf; BMR=brown mid-rib; BMR-6=one of the three main brown mid-rib genes; DS=dry stalk; MS=male sterile

^eIf the difference between two varieties yields equals or exceeds the LSD value, there is an 80% chance the difference is significant.

2017 Dryland Forage Sorghum Hybrid Performance Trial Feed Quality at Walsh

Brand	Hybrid	Forage Type ^a	RFQ	CP	ADF	NDF	NDFD	IVTDMD	TDN	Net Energy		
										Main.	Gain	Lact.
										MCal/lb		
										percent		
Alta Seeds	XF7303	FS	172	8.8	33.2	56.8	80	78.7	64.7	0.67	0.40	0.67
Dyna-Gro Seed	Fullgraze BMR	SS	163	8.4	34.8	58.8	75	78.7	62.9	0.64	0.38	0.65
Alta Seeds	AF7401	FS	160	12.2	33.2	57.5	76	77.5	64.7	0.67	0.40	0.67
Dyna-Gro Seed	Danny Boy BMR	SS	159	9.5	37.4	61.9	74	75.8	59.9	0.59	0.33	0.61
Alta Seeds	XF7103	FS	156	12.6	31.5	62.2	67	78.0	66.6	0.69	0.42	0.69
Dyna-Gro Seed	F76FS77 BMR	FS	155	8.1	35.6	61.0	73	73.1	62.0	0.63	0.36	0.64
Dyna-Gro Seed	F74FS23 BMR	FS	151	10.2	37.5	63.0	74	74.5	59.8	0.59	0.33	0.61
Gayland Ward Seed	Sweet Six BMR	SS	147	15.0	35.1	63.2	72	75.1	62.5	0.63	0.37	0.64
Gayland Ward Seed	Nutri King BMR 6	SS	146	14.9	35.8	62.6	73	77.2	61.7	0.62	0.36	0.63
Alta Seeds	XF7302	FS	140	10.4	34.6	62.6	57	70.2	63.1	0.64	0.38	0.65
Gayland Ward Seed	GW-400 BMR (sterile)	FS	137	13.5	38.9	64.0	72	75.4	58.2	0.57	0.31	0.59
Alta Seeds	AF8301	FS	135	11.1	36.5	63.2	64	69.7	60.9	0.61	0.35	0.62
Gayland Ward Seed	GW-2120 (sterile)	FS	134	12.7	37.8	62.6	65	72.9	59.4	0.59	0.33	0.61
Channel Seed	216-36DTGVT2PRIB	Corn	128	10.5	38.0	66.2	62	71.1	59.3	0.58	0.33	0.61
Dyna-Gro Seed	F73FS10	FS	128	13.7	39.4	65.4	65	70.4	57.7	0.56	0.30	0.59
Gayland Ward Seed	Super Sugar (DM)	SS	126	9.5	38.8	65.8	62	69.3	58.3	0.57	0.31	0.60
Dyna-Gro Seed	705F	FS	118	9.9	38.6	65.1	58	66.9	58.6	0.57	0.32	0.60
Gayland Ward Seed	Sweet Forever BMR	SS	118	8.7	41.6	69.8	64	70.7	55.2	0.52	0.27	0.56
Average			143	11.1	36.6	62.9	69	73.6	60.9	0.61	0.35	0.62

^aForage Type: FS=forage sorghum; SS=sorghum sudangrass.

RFQ=relative forage quality; CP=crude protein; ADF=acid detergent fiber; NDF=neutral detergent fiber; NDFD=neutral detergent fiber digestibility; IVTDMD=in vitro total dry matter digestibility; TDN=total digestible nutrients; Main.=Maintenance; Lact.=Lactation.

Irrigated Forage Sorghum Hybrid Performance Trial at Rocky Ford, 2017

COOPERATOR: Arkansas Valley Research Center.

PURPOSE: To identify high yielding hybrids under irrigated conditions with 2800 sorghum heat units in a silty clay loam soil.

PLOT: Two rows with 30 in. row spacing, 35 ft. long. SEEDING DENSITY: 113,250 seed/ac. PLANTED: May 31. HARVESTED: October 11.

IRRIGATION: Three furrow irrigations: June 2, June 28, and July 18.

PEST CONTROL: Preemergence Herbicides: None. Post Emergence Herbicides: Huskie 16 oz/ac. Cultivation: Once. Insecticides: None.

SOIL: Rocky Ford silty clay loam. FERTILIZATION: N at 27 lb/ac and P₂O₅ at 69 lb/ac as 18-46-0.

FIELD HISTORY: Previous Crop: Corn. FIELD PREPARATION: Disc-ripper, packer-mulcher, level, and furrow.

COMMENTS: This forage sorghum trial had hail damage from two separate storms: July 26 and August 5.

Summary: Growing Season Precipitation and Temperature Rocky Ford, Otero County.^a

Month	Rainfall	GDD ^b	>90 F	>100 F	DAP ^c
	In		-----no. of days-----		
June	0.58	724	15	4	31
July	5.77	826	22	0	62
August	1.48	657	6	0	93
September	2.15	499	10	0	123
October	0.28	127	0	0	134
Total	10.26	2833	53	4	134

^aGrowing season from May 25 (planting) to October 11. (harvest).

^bGDD: Growing Degree Days for sorghum.

^cDAP: Days After Planting.

2017 Irrigated Forage Sorghum Hybrid Performance Trial at Rocky Ford

Brand	Hybrid	Forage		Stem	Plant	Harvest	Relative	Forage	Traits ^c
		Yield ^a	Yield	Sugar	Height	Maturity ^b	Maturity ^c	Type ^d	
		tons/ac	% of test average	%	in				
Scott Seed Co	54243X	35.7	134	8.0	132	HD	L	SS	-
Walter Moss Seed Co.	4EVER Green	34.2	129	7.5	104	FL	PS	FS	-
Gayland Ward Seed	Exp 10219	33.9	128	5.2	90	HD	ML	FS	-
Dyna-Gro Seed	705F	33.2	125	10.5	78	PM	ME	FS	-
Walter Moss Seed Co.	Mega Green	33.0	124	9.5	114	HD	PS	SS	-
Alta Seeds	AF8301	32.9	124	8.0	77	PM	M	FS	BMR
Gayland Ward Seed	Exp 10217	31.1	117	11.8	78	HD	ML	FS	-
Gayland Ward Seed	GW-2120 (sterile)	29.8	112	10.0	106	PM	M	FS	MS
Gayland Ward Seed	Super Sugar DM	29.8	112	4.0	117	PM	L	SS	-
Dyna-Gro Seed	Danny Boy BMR	29.6	111	9.0	115	HD	M	SS	BMR
Scott Seed Co	506/43X	29.1	109	14.3	123	HD	L	SS	BMR-6
Gayland Ward Seed	Exp 15F910	29.0	109	15.5	107	PM	M	FS	-
Gayland Ward Seed	Nutra-King BMR 6	28.9	109	5.5	104	PM	ME	SS	BMR-6
Gayland Ward Seed	Sweet Six BMR	28.8	108	7.0	113	PM	ME	SS	BMR, DS
Gayland Ward Seed	Sweet Forever BMR	28.7	108	12.0	110	HD	PS	SS	BMR
Scott Seed Co	506/44X	28.5	107	5.5	88	FL	PS	SS	BMR-6
Gayland Ward Seed	Exp 15F909	28.2	106	9.5	112	PM	M	FS	-
Alta Seeds	XF7302	28.0	105	14.5	68	PM	M	FS	BMR-6, BD
Scott Seed Co	506/10	27.5	103	7.0	72	PM	L	FS	BMR-6, BD
Gayland Ward Seed	GW-400 BMR (sterile)	26.7	101	13.0	103	PM	ME	FS	BMR, MS
Gayland Ward Seed	GW-600 BMR (fertile)	26.1	98	8.5	113	PM	M	FS	BMR
Walter Moss Seed Co.	Mega Green BMR	26.1	98	7.5	89	FL	PS	SS	BMR-6
Dyna-Gro Seed	F73FS10	26.0	98	7.0	107	PM	M	FS	-
Alta Seeds	AF7401	25.7	97	12.5	72	PM	L	FS	BMR-6, BD
Dyna-Gro Seed	F74FS23 BMR	24.2	91	9.0	95	PM	M	FS	BMR
Scott Seed Co	503/15	23.9	90	4.0	65	PM	ML	FS	-
Dyna-Gro Seed	F76FS77 BMR	23.8	90	9.0	71	PM	ML	FS	BMR, BD
Scott Seed Co	506/52X	23.2	87	8.0	71	FL	PS	SS	BMR-6, BD
Alta Seeds	XF7303	22.9	86	5.0	57	PM	M	FS	BMR-6, BD
Scott Seed Co	514/23	22.5	85	10.5	93	PM	ME	FS	MS, BMR-6
Alta Seeds	XF7103	22.3	84	4.5	68	PM	E	FS	BMR-6, BD
Gayland Ward Seed	Exp 10218	21.4	80	15.0	70	HD	ML	FS	-
Scott Seed Co	514/10	20.9	79	4.0	75	PM	L	FS	BMR-6, BD
Scott Seed Co	506/03	20.9	79	12.0	105	PM	ME	FS	MS, BMR-6
Scott Seed Co	506/51X	20.6	78	6.5	82	PM	ME	SS	BMR-6, BD
Dyna-Gro Seed	Fullgraze BMR	20.6	77	10.0	105	HD	ML	SS	BMR
Gayland Ward Seed	Exp 15F1097	19.6	74	14.0	91	PM	M	FS	-
Gayland Ward Seed	Silo Pro BMR	19.6	74	10.0	74	PM	ML	FS	BMR-6, BD
Scott Seed Co	506/32	19.2	72	3.5	56	PM	M	FS	BMR-6
Average		26.6		8.9	91				

^fLSD (P<0.20)

3.5

^aYields are adjusted to 70% moisture content based on oven-dried samples

^bMaturity at harvest: FL=flowering; HD=hard dough; PM=physiological maturity

^cRelative maturities are provided by the companies. E=early; ME=medium-early; M=medium; ML=medium-late; L=late; PS=photoperiod sensitive

^dForage Type: FS=forage sorghum; SS=sorghum sudangrass

^eTraits are provided by the companies. Dashes mean conventional (no traits) or information isn't available. BD=brachytic dwarf; BMR=brown mid-rib; BMR-6=one of the three main brown mid-rib genes; DS=dry stalk; MS=male sterile

^fIf the difference between two hybrid yields equals or exceeds the LSD value, there is an 80% chance the difference is significant

2017 Irrigated Forage Sorghum Hybrid Performance Trial Feed Quality at Rocky Ford

Brand	Hybrid ^a	Forage		percent						Net Energy		
		Type ^b	RFQ	CP	ADF	NDF	NDFD	IVTDMD	TDN	Main.	Gain	Lact.
Gayland Ward Seed	Silo Pro BMR	FS	176	9.4	28.9	50.8	74.0	82.1	69.6	0.74	0.46	0.72
Scott Seed Co	514/23	FS	173	8.8	22.7	40.2	68.0	75.5	76.7	0.84	0.55	0.80
Gayland Ward Seed	GW-400 BMR (sterile)	FS	169	8.2	30.2	53.0	74.0	77.9	68.1	0.71	0.44	0.70
Dyna-Gro Seed	F74FS23 BMR	FS	166	8.8	26.1	44.9	65.0	73.1	72.8	0.78	0.50	0.76
Scott Seed Co	506/03	FS	163	8.7	26.8	47.7	67.0	73.8	72.0	0.77	0.49	0.75
Scott Seed Co	514/10	FS	163	8.7	24.3	46.6	75.0	83.0	74.9	0.81	0.53	0.78
Scott Seed Co	506/43X	SS	159	7.4	34.0	58.0	72.0	74.6	63.7	0.65	0.39	0.66
Gayland Ward Seed	Exp 15F1097	FS	156	10.3	33.9	58.1	74.0	77.1	63.9	0.65	0.39	0.66
Gayland Ward Seed	Sweet Forever BMR	SS	156	6.3	35.2	60.8	83.0	80.2	62.5	0.63	0.37	0.64
Gayland Ward Seed	Exp 10219	FS	155	8.6	19.9	41.7	61.0	83.8	79.9	0.88	0.59	0.83
Walter Moss Seed Co.	Mega Green BMR	SS	155	8.8	37.2	62.2	80.0	77.3	60.1	0.60	0.34	0.62
Scott Seed Co	506/51X	SS	153	10.4	30.5	50.0	65.0	68.7	67.8	0.71	0.44	0.70
Alta Seeds	AF8301	FS	152	8.3	26.2	44.4	49.0	70.4	72.7	0.78	0.50	0.75
Gayland Ward Seed	GW-2120 (sterile)	FS	150	7.2	25.0	47.6	62.0	77.2	74.0	0.80	0.52	0.77
Alta Seeds	XF7302	FS	149	9.3	29.0	50.4	60.0	77.6	69.5	0.74	0.46	0.72
Dyna-Gro Seed	Fullgraze BMR	SS	147	8.3	34.4	59.7	71.0	77.6	63.4	0.65	0.38	0.65
Scott Seed Co	506/10	FS	146	8.6	23.9	43.8	60.0	82.2	75.4	0.82	0.53	0.78
Alta Seeds	XF7103	FS	146	9.6	23.3	44.0	48.0	77.3	76.0	0.83	0.54	0.79
Dyna-Gro Seed	F76FS77 BMR	FS	144	9.8	31.0	55.3	66.0	77.9	67.2	0.70	0.43	0.69
Scott Seed Co	506/32	FS	139	10.4	29.7	53.0	59.0	77.0	68.7	0.72	0.45	0.71
Gayland Ward Seed	Super Sugar (DM)	SS	139	8.6	30.9	54.1	56.0	73.8	67.4	0.70	0.43	0.70
Alta Seeds	XF7303	FS	139	10.6	29.1	50.2	51.0	76.4	69.4	0.73	0.46	0.72
Scott Seed Co	54243X	SS	135	7.7	32.1	55.3	55.0	67.4	66.0	0.68	0.41	0.68
Gayland Ward Seed	Exp 10218	FS	135	10.6	35.2	58.8	59.0	65.3	62.4	0.63	0.37	0.64
Gayland Ward Seed	Sweet Six BMR	SS	134	9.1	31.9	55.8	52.0	71.5	66.2	0.69	0.42	0.68
Gayland Ward Seed	GW-600 BMR (fertile)	FS	133	6.1	33.4	58.8	63.0	72.3	64.5	0.66	0.40	0.66
Gayland Ward Seed	Nutri King BMR	SS	133	8.4	31.5	54.7	52.0	71.6	66.6	0.69	0.42	0.69
Gayland Ward Seed	Exp 15F910	FS	130	6.9	23.3	44.3	44.0	76.1	76.0	0.83	0.54	0.79
Gayland Ward Seed	Exp 10217	FS	129	6.9	27.1	52.0	58.0	75.5	71.7	0.77	0.49	0.74
Walter Moss Seed Co.	4EVER Green	FS	127	7.6	36.8	64.0	66.0	71.3	60.6	0.60	0.34	0.62
Scott Seed Co	503/15	FS	127	8.6	28.1	50.9	49.0	74.0	70.5	0.75	0.47	0.73
Walter Moss Seed Co.	Mega Green	SS	127	9.2	37.4	63.9	60.0	69.2	59.9	0.59	0.33	0.61
Scott Seed Co	506/52X	SS	126	11.2	40.5	67.2	71.0	74.6	56.4	0.54	0.29	0.57
Alta Seeds	AF7401	FS	123	10.9	36.3	60.5	61.0	73.3	61.1	0.61	0.35	0.63
Dyna-Gro Seed	F73FS10	FS	121	7.1	35.2	59.2	56.0	68.9	62.5	0.63	0.37	0.64
Gayland Ward Seed	Exp 15F909	FS	116	6.8	30.0	54.4	45.0	70.2	68.4	0.72	0.45	0.71
Dyna-Gro Seed	Danny Boy BMR	SS	114	8.8	42.7	67.1	67.0	70.0	53.8	0.50	0.25	0.54
Scott Seed Co	506/44X	SS	105	10.3	42.0	65.6	61.0	57.3	54.7	0.51	0.26	0.55
Dyna-Gro Seed	705F	FS	104	6.3	32.2	56.0	49.0	65.8	65.9	0.68	0.41	0.68
Average			141	8.7	31.0	54.0	61.7	74.1	67.3	0.70	0.43	0.69

^aHybrids ranked according to relative forage quality score (RFQ)

^bForage Type: FS=forage sorghum; SS=sorghum sudangrass

All analyses results are dry basis values. RFQ=relative forage quality; CP=crude protein; ADF=acid detergent fiber; NDF=neutral detergent fiber; NDFD=neutral detergent fiber digestibility; IVTDMD=in-vitro total dry matter digestibility; TDN=total digestible nutrients; Main.=maintenance;