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## Sorghum Hybrid Performance Trials in Colorado, 2009

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## SORGHUM HYBRID PERFORMANCE TRIALS IN COLORADO, 2009

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SORGHUM HYBRID PERFORMANCE TRIALS IN COLORADO, 2009  
K.J. Larson, J.J. Johnson and D.L. Thompson \1

The 2009 Colorado grain sorghum crop was estimated at 3.30 million bushels, 27 percent below the 2008 sorghum crop of 4.50 million bushels. For Colorado, the 3.30 million bushels is the second lowest in 25 years. The decrease in sorghum production this year was due to a reduction in harvested acreage. The harvested acreage in 2009 was 110,000 acres, which is 40,000 acres less than last year. In 2009, the average yield of 30.0 bu/acre remained unchanged from its 2008 level. There are no statistical estimates for the Colorado sorghum silage crop in 2009; however, statistics for the 2008 sorghum silage crop were recorded. In 2008, the sorghum silage crop produced 156,000 tons from 12,000 acres, which is the second lowest crop production and harvested acres in 25 years. The sorghum silage yield of 13.0 tons/acres is the modal average for the last 25 years (National Agricultural Statistics Service, Colorado Field Office, 2009).

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, and Extension. The sorghum trials were conducted at three sites in eastern Colorado: dryland grain sorghum trials were conducted at Akron, Brandon, and Walsh; a dryland forage sorghum trial at Walsh; and an irrigated forage sorghum trial at Walsh.

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, Dept. of Soil and Crop Sciences, C12 Plant Science, Fort Collins, Colorado 80523, phone (970) 491-1454, email [Jerry.Johnson@colostate.edu](mailto:Jerry.Johnson@colostate.edu); or Kevin Larson, Plainsman Research Center, Box 477, Walsh, Colorado 81090, phone (719) 324-5643, email [Kevin.Larson@colostate.edu](mailto:Kevin.Larson@colostate.edu) for further details. Names and addresses of firms submitting entries in 2009 are shown in Table 1. Each firm selected entries for testing and furnished seed for the trials. The Agricultural Experiment Station selected open-pedigree hybrids as a standard of comparison. A closed-pedigree corn hybrid was also included in the forage sorghum trials as a comparative standard and was sponsored by the Colorado State Agricultural Experiment Station.

Summary tables for weather data (CoAgMet and NOAA, 2009), soil analysis, fertilization (Soil Testing Laboratory, Colorado State University), and available soil water graphs derived from gypsum block readings are provided for each trial location. Other information, where available, was included: site description, emergence date, irrigation, pest control, field history, and pertinent comments.

\1 Superintendent, Plainsman Research Center, Walsh;  
Extension Crop Specialist, Dept. of Soil and Crop Sciences;  
Technician III, Plainsman Research Center, Walsh.

Table 1.--Entrants in the 2009 Colorado Sorghum Performance Trials.

| Brand            | Entered by   |
|------------------|--|
| AERC             | AERC Inc., 34, Colonnade Road, Suite 200, Ottawa, ON K2E 7J6 Canada    |
| ASGROW           | Monsanto, 7159 N. 247 W., P.O. Box 7, Mt. Hope, KS 67108               |
| DEKALB           | Monsanto, 7159 N. 247 W., P.O. Box 7, Mt. Hope, KS 67108               |
| MYCOGEN          | Mycogen Seeds, 9330 Zionville Road, Indianapolis, IN 46268             |
| SORGHUM PARTNERS | Sorghum Partners, Inc., P.O. Box 189, New Deal, TX 79350               |
| TRIUMPH          | Triumph Seed Co., Inc., P.O. Box 1050, Hwy. 62 Bypass, Ralls, TX 79357 |

Colorado Agricultural Experiment Station entered the following as checks: grain sorghum, TXms399 X TXR2737 (399 X 2737); forage sorghum, NB 305F; corn hybrid, Pioneer 33D49.

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 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. Sorghum forage was cut and chopped with a single row John Deere 8 silage cutter.

Days to Emergence. Seedling emergence was determined as the number of days after planting until approximately half of the seedlings become 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 provides 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 becomes 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 the combine was equipped with a row crop head, 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. 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 corrected to 14 percent moisture content.

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

Forage Dry Matter Analysis. Whole plant samples were taken at boot for each hybrid and sent to Ward Laboratories, Inc., Kearney, Nebraska for NIR analysis.

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, 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. Resistance readings vary 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.

### Statistical Method

Tests 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  $\alpha = 0.20$ . Analysis of variance and regression were performed with CoStat Statistical Software a product of Cohort Software, Berkeley, California.

### Acknowledgements

We are sincerely grateful to the National Sorghum Producers for providing funding through the Sorghum Checkoff Program to support these performance trials, and to Burl Scherler, the grower-cooperator for the Brandon trial for his assistance.

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**Table 2.--2009 Dryland Grain Sorghum Hybrid Performance Trial at Akron**

| Hybrid                  | Yield        | Test Weight | Height    | Mid Bloom Date    | Lodging  |
|-------------------------|--------------|-------------|-----------|-------------------|----------|
|                         | <u>bu/ac</u> | <u>lb</u>   | <u>in</u> | <u>mm/dd/yyyy</u> | <u>%</u> |
| Monsanto DK 28 E        | 114.0        | 54.3        | 40        | 8/16/2009         | 3        |
| Pioneer 8925            | 103.0        | 54.0        | 41        | 8/15/2009         | 2        |
| Monsanto DKS29-28       | 98.9         | 51.4        | 40        | 8/18/2009         | 1        |
| Sorghum Partners 251    | 93.8         | 53.9        | 40        | 8/17/2009         | 3        |
| Sorghum Partners KS310  | 87.5         | 49.3        | 45        | 8/24/2009         | 1        |
| Triumph TR420           | 82.7         | 52.9        | 42        | 8/19/2009         | 4        |
| Sorghum Partners K35-Y5 | 81.3         | 46.5        | 41        | 8/22/2009         | 2        |
| AERC CGSH 8             | 79.4         | 50.1        | 48        | 8/18/2009         | 6        |
| AERC CGSH 27            | 71.3         | 49.6        | 41        | 8/22/2009         | 6        |
| Monsanto DKS37-07       | 68.2         | 44.2        | 47        | 8/24/2009         | 1        |
| Sorghum Partners NK5418 | 64.4         | 43.5        | 42        | 8/26/2009         | 1        |
| Sorghum Partners SP3303 | 58.7         | 42.5        | 43        | 8/26/2009         | 2        |
| <b>Average</b>          | <b>83.6</b>  | <b>49.3</b> | <b>42</b> | <b>8/20/2009</b>  | <b>2</b> |
| LSD <sub>0.30</sub>     | 8.5          |             |           |                   |          |
| LSD <sub>0.05</sub>     | 16.5         |             |           |                   |          |

LSD<sub>(0.30)</sub> is most useful for producers using these results to select a variety but some collaborators find LSD(0.05) useful.

Experimental Design: randomized complete block, 3 replications

Harvest plot size: 2.5' x 31'

**Site Information**

Collaborator: USDA-ARS Central Great Plains Research Station  
 Soil Type: Weld Silt Loam  
 Previous Crop: Sunflower  
 Planting Date: 6/5/2009  
 Fertilization: N-40 lb/ac  
 Herbicide: Roundup, Attrex, Callisto  
 Insecticide: None  
 Harvest Date: 11/24-25/2009

Yields Corrected to 14% moisture

## Dryland Grain Sorghum Hybrid Performance Trial at Brandon, 2009

**COOPERATORS:** Burl Scherler, Sand Creek, Inc., Brandon, Colorado, and Kevin Larson, Superintendent, Plainsman Research Center, Walsh, Colorado.

**PURPOSE:** To identify high yielding hybrids under dryland conditions with 2400 sorghum heat units in Silty Loam soil.

**PLOT:** Four rows with 30" row spacing, 50' long. **SEEDING DENSITY:** 43,600 seed/a. **PLANTED:** June 5. **HARVESTED:** November 20.

**EMERGENCE DATE:** 10 days after planting. **SOIL TEMP:** 62 F.

**PEST CONTROL:** Preemergence Herbicides: Glyphosate 32 oz/a, 2,4-D 0.5 lb/a. Post Emergence Herbicides Banvel 4 oz/a, Atrazine 1.0 lb/a, COC 32 oz/a. **CULTIVATION:** Once. **INSECTICIDES:** None.

Summary: Growing Season Precipitation and Temperature \1 Chivington, Kiowa County.

| Month     | Rainfall | GDD \2 | >90 F                 | >100 F | DAP \3 |
|-----------|----------|--------|-----------------------|--------|--------|
|           | In       |        | -----no. of days----- |        |        |
| June      | 2.32     | 523    | 10                    | 0      | 25     |
| July      | 5.14     | 741    | 18                    | 0      | 56     |
| August    | 2.44     | 672    | 13                    | 2      | 87     |
| September | 0.71     | 461    | 4                     | 0      | 117    |
| October   | 0.00     | 7      | 0                     | 0      | 118    |
| Total     | 10.61    | 2404   | 45                    | 2      | 118    |

\1 Growing season from June 5 (planting) to October 1 (first freeze, 25 F).

\2 GDD: Growing Degree Days for sorghum.

\3 DAP: Days After Planting.

**FIELD HISTORY:** Last Crop: Sunflower. **FIELD PREPARATION:** No-till.

**COMMENTS:** Planted in good soil moisture. Weed control was very good. Near normal precipitation for the growing season, however, July was wet and September was dry. No greenbug infestation. Five hybrids had more than 10% lodging. Yields and test weights were good despite the early freeze date.

**SOIL:** Silty Loam for 0-8" and Silty Loam 8"-24" depths from soil analysis.

Summary: Soil Analysis.

| Depth   | pH   | Salts    | OM  | N             | P   | K   | Zn  | Fe   |
|---------|------|----------|-----|---------------|-----|-----|-----|------|
|         |      | mmhos/cm | %   | -----ppm----- |     |     |     |      |
| 0-8"    | 7.7  | 0.7      | 2.5 | 10            | 8.1 | 445 | 0.5 | 3.8  |
| 8"-24"  |      |          |     | 7             |     |     |     |      |
| Comment | Alka | VLo      | VHi | Mod           | Med | VHi | Lo  | Marg |

Manganese and Copper levels were adequate.

Summary: Fertilization.

| Fertilizer  | N              | P <sub>2</sub> O <sub>5</sub> | Zn | Fe |
|-------------|----------------|-------------------------------|----|----|
|             | -----lb/a----- |                               |    |    |
| Recommended | 0              | 20                            | 0  | 0  |
| Applied     | 50             | 20                            | 0  | 0  |

Yield Goal: 50 bu/a.

Actual Yield: 57 bu/a.

**Available Soil Water**  
Dryland Grain Sorghum, Brandon, 2009

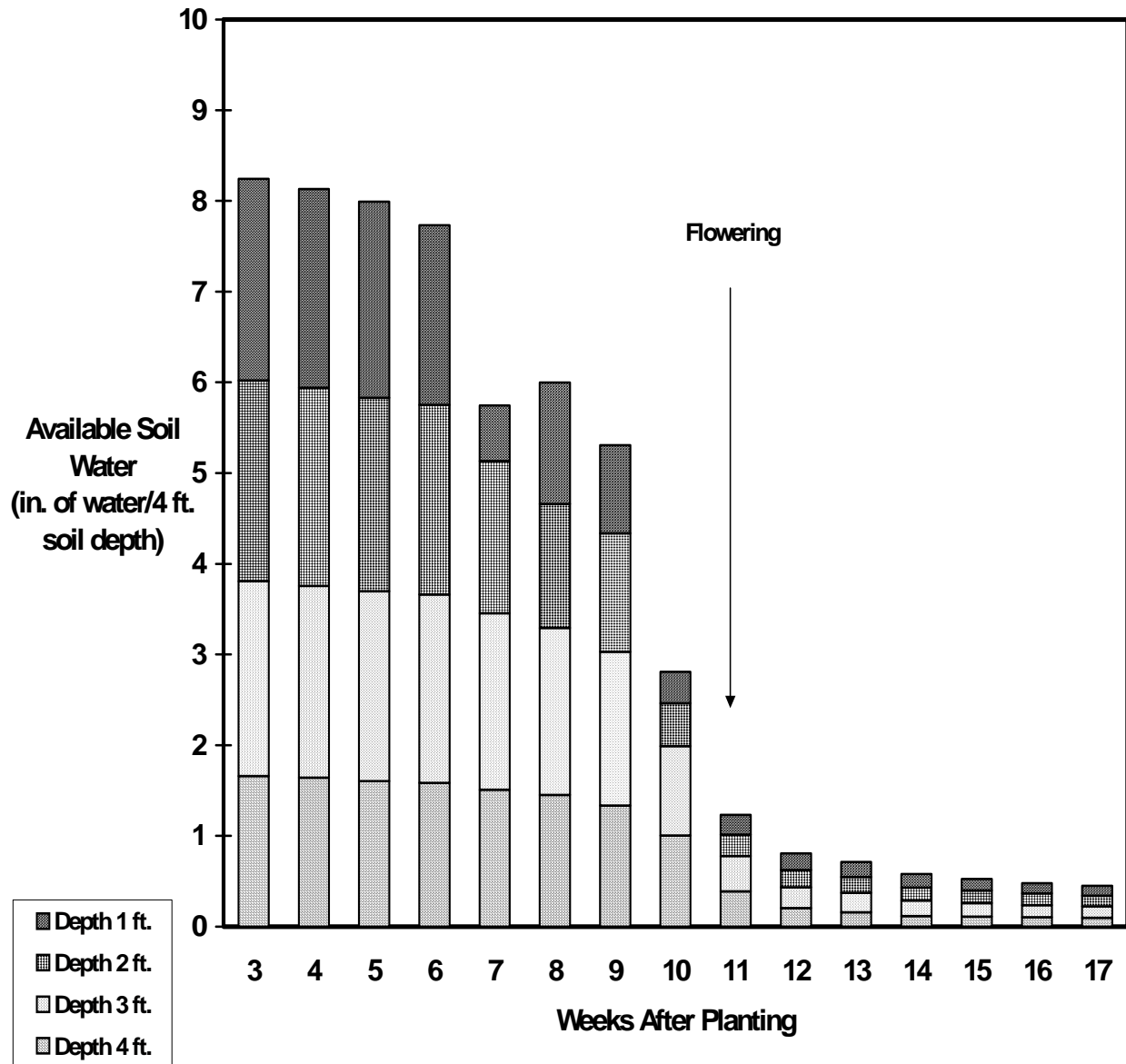


Fig. 1. Available soil water in dryland grain sorghum at Brandon. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Brandon from planting to first freeze was 10.61 in. Any increase in available soil water between weeks not attributed to applied irrigation is from rain.

Table 3.--Dryland Grain Sorghum Hybrid Performance Test at Brandon, 2009. \1

| Brand            | Hybrid    | Days to<br>Emerge | <u>50% Bloom</u> |      | <u>50% Mature</u> |       | Plant<br>Ht. | Harvest<br>Density | Plants<br>Lodged     | Test<br>Wt. | Grain<br>Yield | Yield %<br>of Test<br>Average |   |
|------------------|-----------|-------------------|------------------|------|-------------------|-------|--------------|--------------------|----------------------|-------------|----------------|-------------------------------|---|
|                  |           |                   | DAP              | GDD  | DAP               | Group |              |                    |                      |             |                |                               |   |
|                  |           |                   |                  |      |                   |       |              | in                 | plants/a<br>(1000 X) | %           | lb/bu          | bu/a                          | % |
| MYCOGEN          | 1G557     | 10                | 66               | 1508 | 116               | E     | 38           | 31.4               | 18                   | 57          | 67             | 118                           |   |
| DEKALB           | DKS 28-05 | 11                | 66               | 1508 | 116               | E     | 41           | 31.8               | 39                   | 57          | 65             | 116                           |   |
| DEKALB           | DKS29-28  | 11                | 66               | 1508 | 118               | E     | 37           | 25.6               | 14                   | 58          | 64             | 114                           |   |
| SORGHUM PARTNERS | 251       | 11                | 63               | 1436 | 112               | E     | 38           | 24.4               | 5                    | 58          | 60             | 106                           |   |
| SORGHUM PARTNERS | SP 3303   | 12                | 69               | 1579 | 118               | E     | 41           | 15.1               | 1                    | 56          | 47             | 84                            |   |
| AERC             | CGSH 8    | 11                | 65               | 1286 | 116               | E     | 43           | 18.2               | 66                   | 56          | 46             | 81                            |   |
| AERC             | CGSH 27   | 11                | 63               | 1436 | 115               | E     | 38           | 10.8               | 93                   | 56          | 40             | 70                            |   |
| DEKALB           | DKS37-07  | 11                | 74               | 1686 | HD                | ME    | 42           | 30.2               | 1                    | 56          | 66             | 117                           |   |
| DEKALB           | DKS36-06  | 11                | 73               | 1670 | 119               | ME    | 44           | 32.4               | 2                    | 56          | 63             | 112                           |   |
| SORGHUM PARTNERS | KS310     | 9                 | 74               | 1686 | 119               | ME    | 40           | 29.4               | 6                    | 56          | 62             | 110                           |   |
| ASGROW           | Pulsar    | 9                 | 73               | 1670 | 119               | ME    | 42           | 25.2               | 5                    | 56          | 58             | 102                           |   |
| DEKALB           | DK39Y     | 11                | 72               | 1652 | 119               | ME    | 37           | 22.8               | 1                    | 57          | 56             | 98                            |   |
| SORGHUM PARTNERS | NK5418    | 10                | 80               | 1813 | HD                | ME/M  | 40           | 22.8               | 1                    | 55          | 55             | 97                            |   |
| TRIUMPH          | TR 452    | 10                | 78               | 1759 | HD                | ME    | 41           | 25.9               | 1                    | 55          | 54             | 96                            |   |
| SORGHUM PARTNERS | K35Y5     | 9                 | 73               | 1670 | 119               | ME    | 37           | 25.6               | 4                    | 56          | 53             | 94                            |   |
| MYCOGEN          | M3838     | 10                | 79               | 1788 | SD                | ME    | 39           | 27.9               | 1                    | 53          | 49             | 87                            |   |
| Average          |           | 10                | 67               | 1603 | 119               | ME    | 40           | 25.0               | 16                   | 56          | 57             |                               |   |
| LSD 0.20         |           |                   |                  |      |                   |       |              |                    |                      |             |                | 6.7                           |   |

\1 Planted: June 5; Harvested: November 20, 2009.

Yields are adjusted to 14.0% seed moisture content.

DAP: Days After Planting or maturation of seed at first freeze.

Seed Maturation: EM, early milk; MM, mid milk; LM, late milk; ED, early dough; SD, soft dough; HD, hard dough; mature (DAP).

GDD: Growing Degree Days for sorghum.

Maturity Group: E, early; ME, medium early; M, medium; ML, medium late; L, late.

## Dryland Grain Sorghum Hybrid Performance Trial at Walsh, 2009

**COOPERATORS:** Plainsman Agri-Search Foundation, and Kevin Larson, Superintendent, Plainsman Research Center, Walsh, Colorado.

**PURPOSE:** To identify high yielding hybrids under dryland conditions with 2550 sorghum heat units in a Silty Loam soil.

**PLOT:** Four rows with 30" row spacing, 50' long. **SEEDING DENSITY:** 43,600 seed/a. **PLANTED:** June 8. **HARVESTED:** November 4.

**EMERGENCE DATE:** 8 days after planting. **SOIL TEMP:** 74 F.

**PEST CONTROL:** Preemergence Herbicides: Glyphosate, 24 oz/a; 2,4-D, 0.5 lb/a. Post Emergence Herbicides: Banvel 4.0 oz/a, Atrazine 1.0 lb/a, COC 32 oz/a. **CULTIVATION:** Once. **INSECTICIDES:** None.

**FIELD HISTORY:** Last Crop: Wheat. **FIELD PREPARATION:** No-till.

**COMMENTS:** Planted in good soil moisture. Weed control was good. Above normal precipitation for the growing season with a very wet July. No greenbug infestation. Only minor lodging. Early freeze date. Yields and test weights were good.

**SOIL:** Silty Loam for 0-8" and Silty Loam 8"-24" depths from soil analysis.

Summary: Growing Season Precipitation and Temperature \1  
Walsh, Baca County.

| Month     | Rainfall | GDD \2 | >90 F                 | >100 F | DAP \3 |
|-----------|----------|--------|-----------------------|--------|--------|
|           | In       |        | -----no. of days----- |        |        |
| June      | 2.18     | 521    | 11                    | 1      | 22     |
| July      | 7.92     | 824    | 19                    | 5      | 53     |
| August    | 1.75     | 712    | 15                    | 0      | 84     |
| September | 2.50     | 467    | 5                     | 0      | 114    |
| October   | 0.00     | 28     | 1                     | 0      | 116    |
| Total     | 14.35    | 2552   | 51                    | 6      | 116    |

\1 Growing season from June 8 (planting) to October 2 (first freeze, 30 F).

\2 GDD: Growing Degree Days for sorghum.

\3 DAP: Days After Planting.

Summary: Soil Analysis.

| Depth   | pH   | Salts    | OM  | N             | P   | K   | Zn  | Fe  |
|---------|------|----------|-----|---------------|-----|-----|-----|-----|
|         |      | mmhos/cm | %   | -----ppm----- |     |     |     |     |
| 0-8"    | 7.6  | 0.6      | 1.7 | 25            | 5.6 | 379 | 0.3 | 2.4 |
| 8"-24"  |      |          |     | 24            |     |     |     |     |
| Comment | Alka | Vlo      | Hi  | Hi            | Lo  | VHi | VLo | Lo  |

Manganese and Copper levels were adequate.

Summary: Fertilization.

| Fertilizer  | N              | P <sub>2</sub> O <sub>5</sub> | Zn  | Fe |
|-------------|----------------|-------------------------------|-----|----|
|             | -----lb/a----- |                               |     |    |
| Recommended | 0              | 20                            | 2   | 0  |
| Applied     | 50             | 20                            | 0.3 | 0  |

Yield Goal: 45 bu/a.

Actual Yield: 53 bu/a.

**Available Soil Water**  
**Dryland Grain Sorghum, Walsh, 2009**

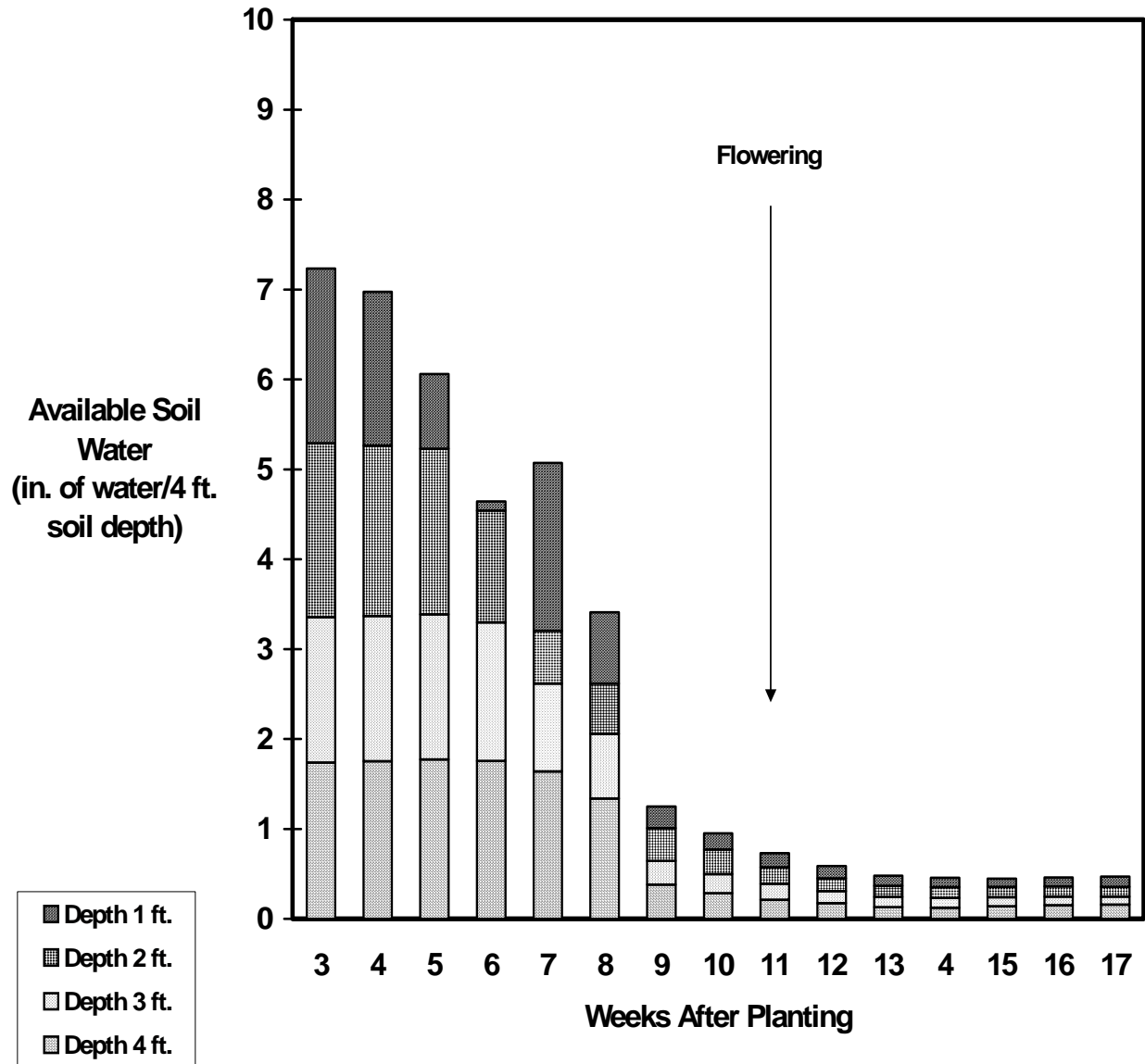


Fig. 2. Available soil water in dryland grain sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to first freeze was 14.35 in. Any increase in available soil water between weeks is from rain.

Table 4.--Dryland Grain Sorghum Hybrid Performance Test at Walsh, 2009. \1

| Brand            | Hybrid     | Days to<br>Emerge | <u>50% Bloom</u> |      | <u>50% Mature</u> |       | Plant<br>Ht. | Harvest<br>Density | Plants<br>Lodged | Test<br>Wt. | Grain<br>Yield | Yield %<br>of Test<br>Average |
|------------------|------------|-------------------|------------------|------|-------------------|-------|--------------|--------------------|------------------|-------------|----------------|-------------------------------|
|                  |            |                   | DAP              | GDD  | DAP               | Group |              |                    |                  |             |                |                               |
| DEKALB           | DKS 28-05  | 8                 | 59               | 1501 | 103               | E     | 44           | 26.3               | 0                | 59          | 61             | 115                           |
| DEKALB           | DKS29-28   | 8                 | 61               | 1562 | 104               | E     | 37           | 34.1               | 0                | 60          | 60             | 113                           |
| SORGHUM PARTNERS | K35Y5      | 8                 | 63               | 1612 | 104               | E     | 35           | 24.4               | 0                | 59          | 55             | 103                           |
| SORGHUM PARTNERS | SP 3303    | 10                | 61               | 1562 | 104               | E     | 39           | 20.1               | 0                | 59          | 46             | 86                            |
| SORGHUM PARTNERS | 251        | 9                 | 57               | 1446 | 99                | E     | 34           | 32.5               | 1                | 59          | 45             | 83                            |
| AERC             | CGSH 8     | 9                 | 58               | 1473 | 101               | E     | 42           | 20.5               | 4                | 56          | 40             | 75                            |
| AERC             | CGSH 27    | 9                 | 55               | 1345 | 99                | E     | 42           | 19.4               | 3                | 56          | 25             | 47                            |
| SORGHUM PARTNERS | KS310      | 7                 | 66               | 1683 | 107               | ME    | 42           | 30.2               | 0                | 60          | 72             | 135                           |
| SORGHUM PARTNERS | NK5418     | 9                 | 69               | 1760 | 110               | ME/M  | 37           | 28.3               | 0                | 58          | 65             | 122                           |
| TRIUMPH          | TR 448     | 8                 | 68               | 1737 | 114               | ME    | 42           | 30.6               | 0                | 60          | 64             | 119                           |
| TRIUMPH          | TR 452     | 8                 | 67               | 1712 | 107               | ME    | 42           | 24.8               | 0                | 58          | 62             | 116                           |
| TRIUMPH          | TR 438     | 9                 | 65               | 1660 | 105               | ME    | 42           | 24.8               | 0                | 58          | 62             | 116                           |
| ASGROW           | Pulsar     | 9                 | 65               | 1660 | 110               | ME    | 41           | 29.4               | 1                | 59          | 56             | 104                           |
| DEKALB           | DK39Y      | 9                 | 65               | 1660 | 109               | ME    | 36           | 28.3               | 0                | 59          | 51             | 96                            |
| DEKALB           | DKS36-06   | 8                 | 71               | 1795 | 117               | M     | 46           | 30.4               | 0                | 56          | 67             | 125                           |
| DEKALB           | DKS37-07   | 8                 | 72               | 1810 | 117               | M     | 41           | 28.7               | 0                | 56          | 65             | 121                           |
| TRIUMPH          | X84732     | 8                 | 73               | 1829 | 117               | M     | 43           | 29.8               | 0                | 56          | 63             | 117                           |
| TRIUMPH          | X95003     | 8                 | 76               | 1891 | HD                | M     | 47           | 27.5               | 0                | 55          | 56             | 104                           |
| (Check)          | 399 X 2737 | 8                 | 79               | 1972 | SD                | ML    | 40           | 25.2               | 0                | 53          | 38             | 72                            |
| TRIUMPH          | X85002     | 9                 | 88               | 2149 | SD                | ML    | 45           | 28.3               | 0                | 52          | 15             | 28                            |
| Average          |            | 8                 | 67               | 1691 | 109               | ME    | 41           | 27.2               | 0                | 57          | 53             |                               |
| LSD 0.20         |            |                   |                  |      |                   |       |              |                    |                  |             | 7.2            |                               |

\1 Planted: June 8; Harvested: November 4, 2009.

Yields are adjusted to 14.0% seed moisture content.

DAP: Days After Planting or maturation of seed at first freeze.

Seed Maturation: EM, early milk; MM, mid milk; LM, late milk; ED, early dough; SD, soft dough; HD, hard dough; mature (DAP).

GDD: Growing Degree Days for sorghum.

Maturity Group: E, early; ME, medium early; M, medium; ML, medium late; L, late.

Table 5.--Summary: Dryland Grain Sorghum Hybrid Performance Tests at Walsh, 2007-2009.

| Brand            | Hybrid     | Grain Yield    |      |      |            |            | Yield as % of Test Average |      |      |            |            |
|------------------|------------|----------------|------|------|------------|------------|----------------------------|------|------|------------|------------|
|                  |            | 2007           | 2008 | 2009 | 2-Year Avg | 3-Year Avg | 2007                       | 2008 | 2009 | 2-Year Avg | 3-Year Avg |
|                  |            | -----bu/a----- |      |      |            |            | -----%-----                |      |      |            |            |
| ASGROW           | Pulsar     | 63             | 75   | 56   | 66         | 65         | 108                        | 112  | 104  | 108        | 108        |
| DEKALB           | DKS37-07   | 62             | 75   | 65   | 70         | 67         | 105                        | 112  | 121  | 117        | 113        |
| DEKALB           | DKS36-16   | 60             | 73   | 67   | 70         | 67         | 102                        | 110  | 125  | 118        | 112        |
| DEKALB           | DKS29-28   | 61             | 65   | 60   | 63         | 62         | 104                        | 98   | 130  | 114        | 111        |
| DEKALB           | DK39Y      | --             | 63   | 51   | 57         | --         | --                         | 95   | 96   | 96         | --         |
| NC+              | NC+ 5B89   | 62             | 69   | --   | 66         | --         | 105                        | 109  | 109  | 109        | --         |
| NC+              | NC+ 5C35   | 55             | 71   | --   | 63         | --         | 93                         | 107  | 107  | 107        | --         |
| NC+              | NC+ Y363   | 60             | 73   | --   | 67         | --         | 103                        | 110  | 110  | 110        | --         |
| NC+              | NC+ 6B50   | 61             | 75   | --   | 68         | --         | 104                        | 113  | 113  | 113        | --         |
| NC+              | NC+ 7C22   | 66             | 71   | --   | 69         | --         | 112                        | 107  | 107  | 107        | --         |
| SORGHUM PARTNERS | KS310      | 54             | 63   | 72   | 68         | 63         | 92                         | 95   | 135  | 115        | 107        |
| SORGHUM PARTNERS | 251        | 50             | 49   | 45   | 47         | 48         | 86                         | 74   | 83   | 79         | 81         |
| SORGHUM PARTNERS | NK5418     | 72             | 77   | 65   | 71         | 71         | 123                        | 116  | 122  | 119        | 120        |
| (Check)          | 399 X 2737 | 42             | 58   | 38   | 48         | 46         | 71                         | 87   | 72   | 80         | 77         |
| Average          |            | 59             | 66   | 53   | 60         | 59         |                            |      |      |            |            |

Grain Yields were adjusted to 14.0% seed moisture content.

The site was pre-irrigated with furrow irrigation in 2008.



## Dryland Forage Sorghum Hybrid Performance Trial at Walsh, 2009

COOPERATORS: Plainsman Agri-Search Foundation, and Kevin Larson, Superintendent, Plainsman Research Center, Walsh, Colorado.

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

PLOT: Four rows with 30" row spacing, 50' long. SEEDING DENSITY: 69,700 seed/a. PLANTED: June 9. HARVESTED: October 26.

EMERGENCE DATE: 9 days after planting. SOIL TEMP: 75 F.

PEST CONTROL: Preemergence Herbicides: Glyphosate 24 oz/a, 2,4-D 0.5 lb/a. Post Emergence Herbicides: Atrazine 1.0 lb/a, Banvel 4 oz/a, COC 32 oz/a. CULTIVATION: Once. INSECTICIDES: None.

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

COMMENTS: Planted in good soil moisture. Weed control was good. Above normal precipitation for the growing season with a very wet July. No greenbug infestation. Three hybrids had greater than 10% lodging. Forage yields were good.

SOIL: Silty Loam for 0-8" and Silty Loam 8"-24" depths from soil analysis.

Summary: Growing Season Precipitation and Temperature \1 Walsh, Baca County.

| Month     | Rainfall | GDD \2 | >90 F                 | >100 F | DAP \3 |
|-----------|----------|--------|-----------------------|--------|--------|
|           | In       |        | -----no. of days----- |        |        |
| June      | 2.18     | 503    | 11                    | 1      | 21     |
| July      | 7.92     | 824    | 19                    | 5      | 52     |
| August    | 1.75     | 712    | 15                    | 0      | 83     |
| September | 2.50     | 467    | 5                     | 0      | 113    |
| October   | 0.00     | 28     | 1                     | 0      | 115    |
| Total     | 14.35    | 2534   | 51                    | 6      | 115    |

\1 Growing season from June 9 (planting) to October 2 (first freeze, 30F).

\2 GDD: Growing Degree Days for sorghum.

\3 DAP: Days After Planting.

Summary: Soil Analysis.

| Depth   | pH   | Salts    | OM  | N             | P   | K   | Zn  | Fe  |
|---------|------|----------|-----|---------------|-----|-----|-----|-----|
|         |      | mmhos/cm | %   | -----ppm----- |     |     |     |     |
| 0-8"    | 7.6  | 0.6      | 1.7 | 25            | 5.6 | 379 | 0.3 | 2.4 |
| 8"-24"  |      |          |     | 24            |     |     |     |     |
| Comment | Alka | VLo      | Hi  | VHi           | Lo  | VHi | VLo | Lo  |

Manganese and Copper levels were adequate.

Summary: Fertilization.

| Fertilizer  | N              | P <sub>2</sub> O <sub>5</sub> | Zn | Fe |
|-------------|----------------|-------------------------------|----|----|
|             | -----lb/a----- |                               |    |    |
| Recommended | 0              | 20                            | 2  | 0  |
| Applied     | 50             | 20                            | 0  | 0  |

Yield Goal: 9 ton/a.

Actual Yield: 13.5 ton/a @ 70% MC.

### Available Soil Water Dryland Forage Sorghum, Walsh, 2009

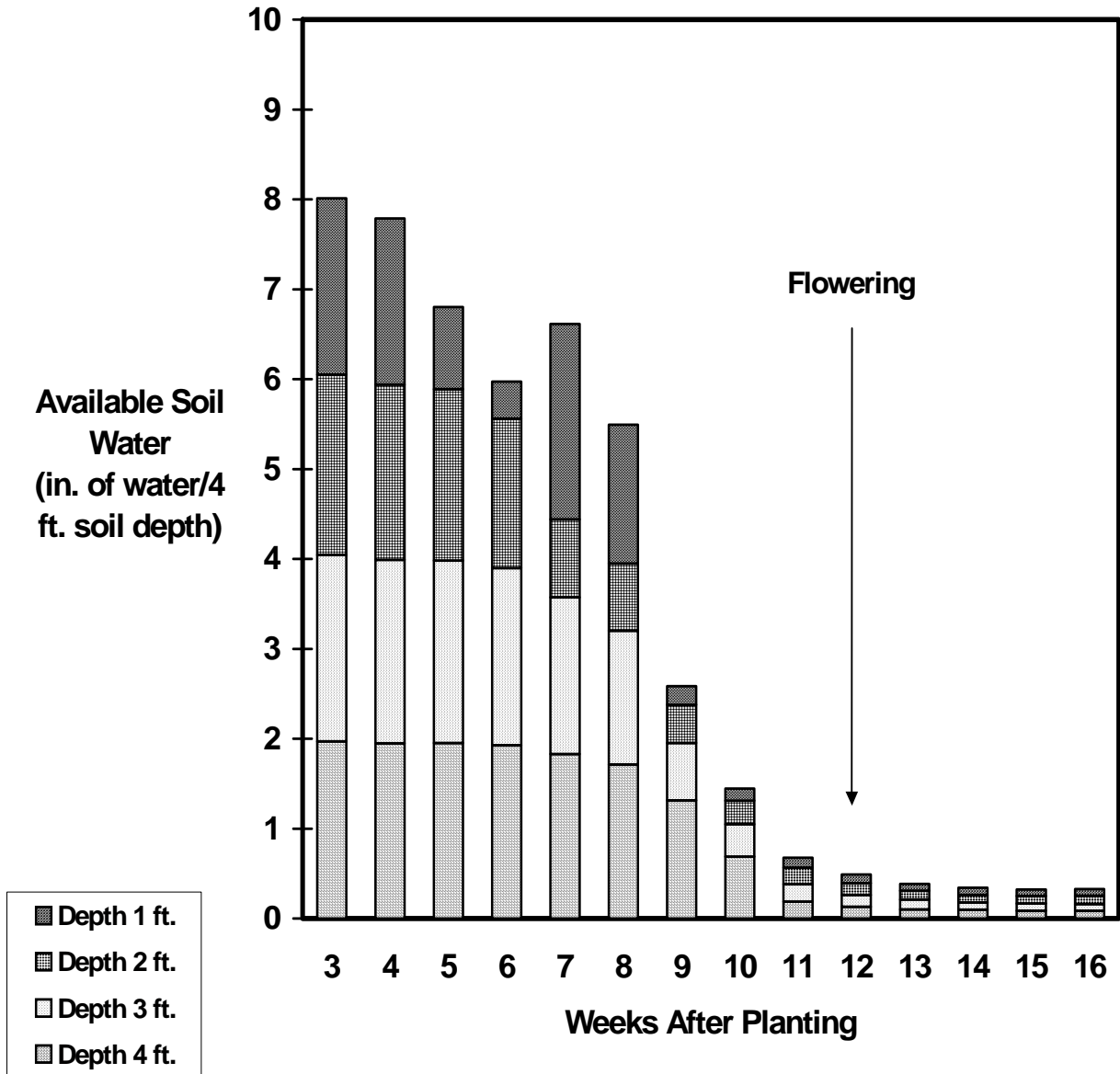


Fig. 3. Available soil water in dryland forage sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to harvest was 14.35 in. Any increase in available soil water between weeks is from rain.

Table 6.--Dryland Forage Sorghum Hybrid Performance Trial at Walsh, 2009. \1

| Brand             | Hybrid          | Forage Type \2 | Days     | Days         | Harvest Density   | Plant Ht. | Stage \3   |              |              | Forage Yield | Yield % of Test Avg. |
|-------------------|-----------------|----------------|----------|--------------|-------------------|-----------|------------|--------------|--------------|--------------|----------------------|
|                   |                 |                | to Emerg | to 50% Bloom |                   |           | at Harvest | Stem Sugar % | Plant Lodg % |              |                      |
|                   |                 |                |          |              | plants/a (1000 X) | in        |            |              |              |              |                      |
| SORGHUM PARTNERS  | HIKANE II       | FS             | 8        | 72           | 43.8              | 79        | MT         | 13           | 2            | 16.1         | 119                  |
| SORGHUM PARTNERS  | Sordan Headless | SS             | 9        | 107          | 47.6              | 83        | FL         | 17           | 0            | 15.4         | 114                  |
| SORGHUM PARTNERS  | NK300           | FS             | 9        | 85           | 40.3              | 53        | HD         | 18           | 0            | 15.1         | 112                  |
| SORGHUM PARTNERS  | Trudan Headless | HS             | 9        | 101          | 41.8              | 89        | FL         | 15           | 0            | 14.0         | 103                  |
| MISS. STATE UNIV. | Topper 76-6     | SW             | 9        | 99           | 36.8              | 76        | PM         | 20           | 0            | 13.9         | 102                  |
| SORGHUM PARTNERS  | Sordan 79       | SS             | 8        | 70           | 46.1              | 83        | MT         | 13           | 25           | 13.7         | 101                  |
| (Check)           | NB 305F         | FS             | 11       | 85           | 22.1              | 65        | SD         | 19           | 0            | 13.6         | 101                  |
| AERC              | CSSH 45         | SW             | 9        | 70           | 29.4              | 78        | MT         | 16           | 12           | 11.4         | 84                   |
| SORGHUM PARTNERS  | Trudan 8        | HS             | 8        | 65           | 39.9              | 89        | MT         | 11           | 12           | 11.2         | 82                   |
| PIONEER           | 33D49           | Corn           | 7        | 70           | 26.7              | 72        | SD         | 11           | 0            | 11.1         | 82                   |
| Average           |                 | FS             | 9        | 82           | 37.5              | 77        | LM         | 15           | 5            | 13.5         |                      |
| LSD 0.20          |                 |                |          |              |                   |           |            |              |              | 1.91         |                      |

\1 Planted: June 9; Harvested: October 26.

\2 Forage Type: FS, Forage Sorghum; SS, Sorghum Sudangrass; HS, Hybrid Sudangrass; SW, Sweet Sorghum.

\3 Harvest Stage: Veg, vegetative; BT, boot; FL, flowering; PM, premilk; EM, early milk; MM, midmilk; LM, late milk; ED, early dough; SD, soft dough; HD, hard dough; MT, mature.

Forage Yield adjusted to 70% moisture content based on oven-dried sample.

Table 7.--Summary: Dryland Forage Sorghum Hybrid Performance Tests at Walsh, 2007-2009.

| Brand             | Hybrid          | Forage Yield     |      |      |            |            | Yield as % of Test Average |      |      |            |            |
|-------------------|-----------------|------------------|------|------|------------|------------|----------------------------|------|------|------------|------------|
|                   |                 | 2007             | 2008 | 2009 | 2-Year Avg | 3-Year Avg | 2007                       | 2008 | 2009 | 2-Year Avg | 3-Year Avg |
|                   |                 | -----tons/a----- |      |      |            |            | -----%-----                |      |      |            |            |
| MISS. STATE UNIV. | M81-E           | 12.4             | 18.5 | --   | 15.5       | --         | 108                        | 117  | --   | 113        | --         |
| MISS. STATE UNIV. | Topper 76-6     | 12.3             | 15.9 | 13.9 | 14.9       | 14.0       | 107                        | 100  | 102  | 101        | 103        |
| MISS. STATE UNIV. | Dale            | 11.4             | 15.0 | --   | 13.2       | --         | 99                         | 95   | --   | 97         | --         |
| MISS. STATE UNIV. | Theis           | 9.7              | 14.1 | --   | 11.9       | --         | 85                         | 89   | --   | 87         | --         |
| SORGHUM PARTNERS  | NK 300          | 13.1             | 19.0 | 15.1 | 17.1       | 15.7       | 112                        | 120  | 112  | 116        | 115        |
| SORGHUM PARTNERS  | HIKANE II       | 12.5             | 15.5 | 16.1 | 15.8       | 14.7       | 107                        | 98   | 119  | 109        | 108        |
| SORGHUM PARTNERS  | Sordan 79       | 11.2             | 15.1 | 13.7 | 14.4       | 13.3       | 96                         | 96   | 101  | 99         | 98         |
| SORGHUM PARTNERS  | Sordan Headless | --               | 19.0 | 15.4 | 17.2       | --         | --                         | 120  | 114  | 117        | --         |
| SORGHUM PARTNERS  | Trudan Headless | --               | 19.0 | 14.0 | 16.5       | --         | --                         | 120  | 103  | 112        | --         |
| (Check)           | NB 305F         | 14.0             | 16.2 | 13.6 | 14.9       | 14.6       | 120                        | 103  | 101  | 102        | 108        |
| (Check)           | Corn            | 6.7              | 15.9 | 11.1 | 13.5       | 11.2       | 57                         | 101  | 82   | 92         | 80         |
| Average           |                 | 11.7             | 15.8 | 13.5 | 14.7       | 13.7       |                            |      |      |            |            |

Forage Yields were adjusted to 70% moisture content based on oven-dried sample.

The site was pre-irrigated with furrow irrigation in 2008.

Table 8.--Dryland Forage Sorghum Hybrid Dry Matter Analysis at Walsh, 2009.

| Brand             | Hybrid          | Forage Type \1 | Days to Boot Plant |    | CP          | ADF  | NDF  | TDN  | RFV  | Net Energy        |      |       |      |
|-------------------|-----------------|----------------|--------------------|----|-------------|------|------|------|------|-------------------|------|-------|------|
|                   |                 |                | Boot               | Ht |             |      |      |      |      | Main.             | Gain | Lact. |      |
|                   |                 |                | in                 |    | -----%----- |      |      |      |      | -----MCal/lb----- |      |       |      |
| SORGHUM PARTNERS  | Sordan Headless | SS             | 97                 | 69 | 5.8         | 33.5 | 49.3 | 64.4 | 119  | 0.66              | 0.39 | 0.66  |      |
| MISS. STATE UNIV. | Topper 76-6     | SW             | 90                 | 70 | 6.2         | 34.0 | 51.9 | 63.8 | 112  | 0.65              | 0.39 | 0.66  |      |
| SORGHUM PARTNERS  | NK300           | FS             | 77                 | 40 | 10.5        | 34.0 | 52.1 | 63.8 | 111  | 0.65              | 0.39 | 0.66  |      |
| SORGHUM PARTNERS  | Trudan Headless | HS             | 92                 | 72 | 5.6         | 35.6 | 53.3 | 62.0 | 107  | 0.63              | 0.36 | 0.64  |      |
| MYCOGEN           | 2T828           | Corn           | 65                 | 73 | 11.7        | 35.5 | 55.2 | 62.1 | 103  | 0.63              | 0.36 | 0.64  |      |
| (Check)           | NB 305F         | FS             | 74                 | 55 | 10.7        | 35.3 | 55.6 | 62.3 | 103  | 0.63              | 0.37 | 0.64  |      |
| SORGHUM PARTNERS  | Trudan 8        | HS             | 57                 | 57 | 12.5        | 38.3 | 57.6 | 58.8 | 95   | 0.58              | 0.32 | 0.60  |      |
| AERC              | CSSH 45         | SW             | 63                 | 64 | 8.7         | 38.2 | 58.1 | 59.0 | 95   | 0.58              | 0.32 | 0.60  |      |
| SORGHUM PARTNERS  | HIKANE II       | FS             | 65                 | 62 | 9.1         | 38.9 | 60.6 | 58.2 | 90   | 0.57              | 0.31 | 0.59  |      |
| SORGHUM PARTNERS  | Sordan 79       | SS             | 61                 | 63 | 9.7         | 40.4 | 61.3 | 56.5 | 87   | 0.54              | 0.29 | 0.57  |      |
| Sorghum Average   |                 |                | FS                 | 74 | 63          | 9.1  | 36.4 | 55.5 | 61.1 | 102               | 0.61 | 0.35  | 0.63 |

\1 Forage Type: FS, Forage Sorghum; SS, Sorghum Sudangrass.

Infrared analysis performed on whole plant samples taken at boot.

CP, Crude Protein; ADF, Acid Detergent Fiber; NDF, Neutral Detergent Fiber; TDN, Total Digestible Nutrients;

RFV, Relative Feed Value; Net Energy: Maintenance, Gain, Lactation..

## Irrigated Forage Sorghum Hybrid Performance Trial at Walsh, 2009

COOPERATORS: Plainsman Agri-Search Foundation, and Kevin Larson, Superintendent, Plainsman Research Center, Walsh, Colorado.

PURPOSE: To identify high yielding hybrids under irrigated conditions with 2550 sorghum heat units in a Silty Loam soil.

PLOT: Four rows with 30" row spacing, 50' long. SEEDING DENSITY: 113,250 seed/a. PLANTED: June 8. HARVESTED: October 23.

EMERGENCE DATE: 9 days after planting. SOIL TEMP: 74 F.

IRRIGATION: Two furrow irrigations: July 10 and August 19, total applied 12 a-in./a.

PEST CONTROL: Preemergence Herbicides: Glyphosate 24 oz/a, 2,4-D 0.5 lb/a. Post Emergence Herbicides: Atrazine 1.0 lb/a, Banvel 4 oz/a, COC 32 oz/a. CULTIVATION: Once. INSECTICIDES: None.

FIELD HISTORY: Last Crop: Cotton. FIELD PREPARATION: No-till.

COMMENTS: Planted in good soil moisture. Weed control was fair. Above normal precipitation for the growing season with a very wet July. No greenbug infestation. There was only minor lodging. Forage yields were good.

SOIL: Silty Loam for 0-8" and Silty Loam 8"-24" depths from soil analysis.

Summary: Growing Season Precipitation and Temperature \1 Walsh, Baca County.

| Month     | Rainfall | GDD \2 | >90 F                 | >100 F | DAP \3 |
|-----------|----------|--------|-----------------------|--------|--------|
|           | In       |        | -----no. of days----- |        |        |
| June      | 2.18     | 521    | 11                    | 1      | 22     |
| July      | 7.92     | 824    | 19                    | 5      | 53     |
| August    | 1.75     | 712    | 15                    | 0      | 84     |
| September | 2.50     | 467    | 5                     | 0      | 114    |
| October   | 0.00     | 28     | 1                     | 0      | 116    |
| Total     | 14.35    | 2552   | 51                    | 6      | 116    |

\1 Growing season from June 8 (planting) to October 2 (first freeze, 30F).

\2 GDD: Growing Degree Days for sorghum.

\3 DAP: Days After Planting.

Summary: Soil Analysis.

| Depth   | pH   | Salts    | OM  | N             | P   | K   | Zn  | Fe  |
|---------|------|----------|-----|---------------|-----|-----|-----|-----|
|         |      | mmhos/cm | %   | -----ppm----- |     |     |     |     |
| 0-8"    | 7.6  | 1.0      | 2.0 | 41            | 4.3 | 442 | 0.7 | 2.9 |
| 8"-24"  |      |          |     | 43            |     |     |     |     |
| Comment | Alka | VLo      | Hi  | VHi           | Lo  | VHi | Lo  | Lo  |

Manganese and Copper levels were adequate.

Summary: Fertilization.

| Fertilizer  | N              | P <sub>2</sub> O <sub>5</sub> | Zn | Fe |
|-------------|----------------|-------------------------------|----|----|
|             | -----lb/a----- |                               |    |    |
| Recommended | 0              | 40                            | 2  | 0  |
| Applied     | 50             | 20                            | 0  | 0  |

Yield Goal: 18 ton/a.

Actual Yield: 20.0 ton/a @ 70% MC.

### Available Soil Water Irrigated Forage Sorghum, Walsh, 2009

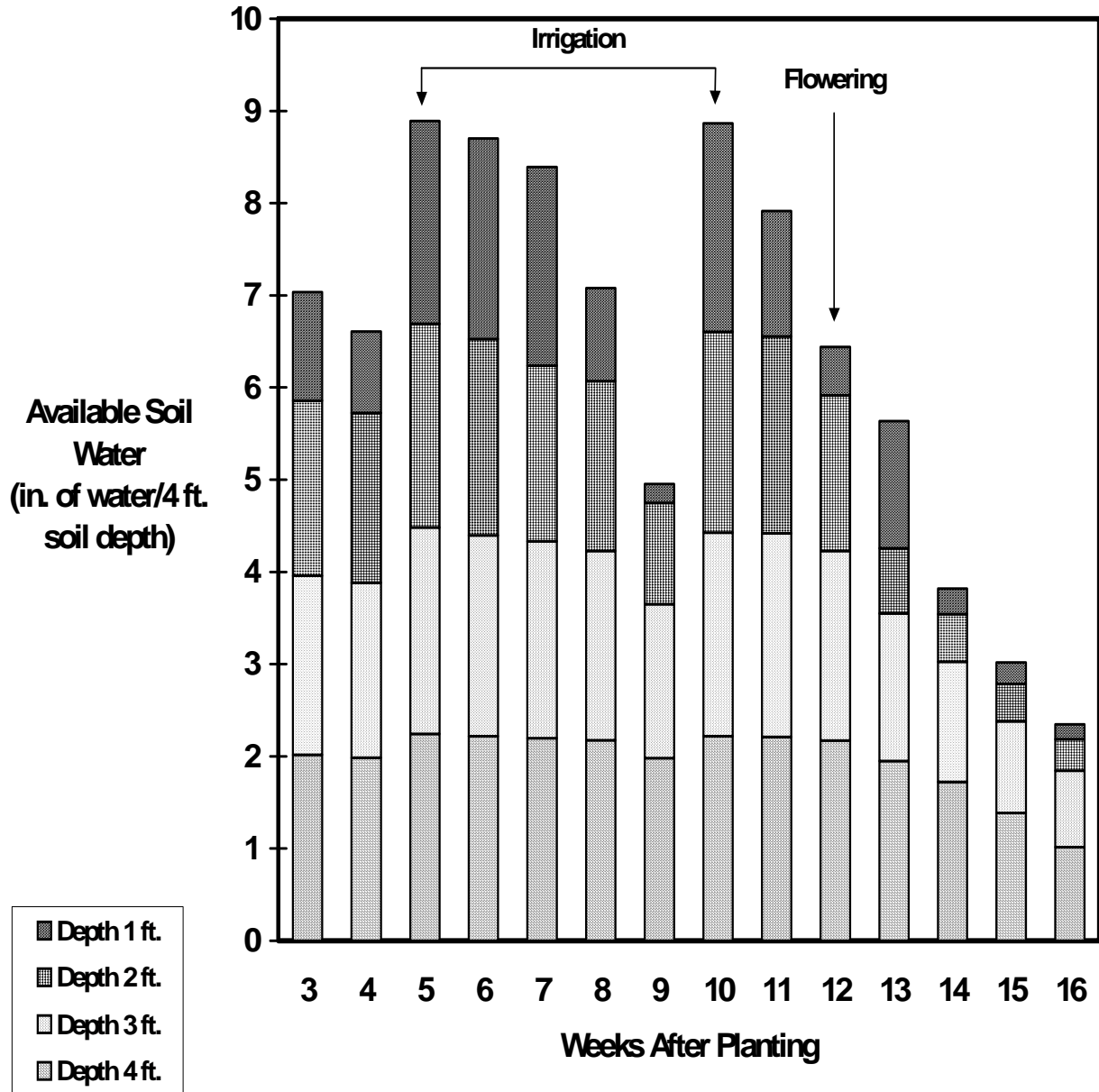


Fig. 4. Available soil water in irrigated forage sorghum at Walsh. Gypsum block measurements taken to 4 ft. with 1 ft. increments. Total rainfall at Walsh from planting to harvest was 14.35 in. Any increase in available soil water between weeks not attributed to applied irrigation is from rain.

Table 9.--Irrigated Forage Sorghum Hybrid Performance Trial at Walsh, 2009. \1

| Brand            | Hybrid          | Forage Type \2 | Days     | Days         | Harvest Density   | Plant Ht. | Stage \3   |              |              | Forage Yield | Yield % of Test Avg. |
|------------------|-----------------|----------------|----------|--------------|-------------------|-----------|------------|--------------|--------------|--------------|----------------------|
|                  |                 |                | to Emerg | to 50% Bloom |                   |           | at Harvest | Stem Sugar % | Plant Lodg % |              |                      |
|                  |                 |                |          |              | plants/a (1000 X) | in        |            | %            | %            | tons/a       | %                    |
| SORGHUM PARTNERS | Trudan Headless | HS             | 7        | 99           | 59.6              | 116       | FL         | 14           | 0            | 22.0         | 110                  |
| SORGHUM PARTNERS | NK300           | FS             | 7        | 84           | 54.6              | 77        | HD         | 12           | 5            | 21.5         | 107                  |
| SORGHUM PARTNERS | Sordan Headless | SS             | 7        | 104          | 48.0              | 118       | FL         | 14           | 0            | 21.4         | 107                  |
| (Check)          | NB 305F         | FS             | 7        | 85           | 29.8              | 90        | SD         | 15           | 0            | 19.4         | 97                   |
| PIONEER          | 33D49           | Corn           | 6        | 71           | 34.5              | 84        | SD         | 9            | 0            | 18.4         | 92                   |
| AERC             | CSSH 45         | SW             | 7        | 71           | 42.2              | 89        | MT         | 16           | 5            | 17.4         | 87                   |
| Average          |                 | FS             | 7        | 86           | 44.8              | 96        | SD         | 13           | 2            | 20.0         |                      |
| LSD 0.20         |                 |                |          |              |                   |           |            |              |              | 2.37         |                      |

\1 Planted: June 8; Harvested: October 23.

\2 Forage Type: FS, Forage Sorghum; SS, Sorghum Sudangrass; HS, Hybrid Sudangrass; SW, Sweet Sorghum.

\3 Harvest Stage: Veg, vegetative; BT, boot; FL, flowering; PM, premilk; EM, early milk; MM, midmilk; LM, late milk; ED, early dough; SD, soft dough; HD, hard dough; MT, mature.

Forage Yield adjusted to 70% moisture content based on oven-dried sample.



Table 10.--Summary: Irrigated Forage Sorghum Hybrid Performance Tests at Walsh, 2007-2009.

| Brand             | Hybrid          | Forage Yield |      |      |             |        | Yield as % of Test Average |      |      |        |        |
|-------------------|-----------------|--------------|------|------|-------------|--------|----------------------------|------|------|--------|--------|
|                   |                 | 2007         | 2008 | 2009 | 2-Year      | 3-Year | 2007                       | 2008 | 2009 | 2-Year | 3-Year |
|                   |                 |              |      |      | Avg         | Avg    |                            |      |      | Avg    | Avg    |
| -----tons/a-----  |                 |              |      |      | -----%----- |        |                            |      |      |        |        |
| MISS. STATE UNIV. | M81-E           | 27.9         | 17.2 | --   | 22.6        | --     | 118                        | 102  | --   | 110    | --     |
| MISS. STATE UNIV. | Topper 76-6     | 26.5         | 17.4 | --   | 22.0        | --     | 112                        | 103  | --   | 108    | --     |
| MISS. STATE UNIV. | Dale            | 24.4         | 18.2 | --   | 21.3        | --     | 103                        | 108  | --   | 106    | --     |
| MISS. STATE UNIV. | Theis           | 22.1         | 15.5 | --   | 18.8        | --     | 93                         | 92   | --   | 93     | --     |
| SORGHUM PARTNERS  | NK 300          | 24.8         | 19.4 | 21.5 | 20.5        | 21.9   | 104                        | 115  | 107  | 111    | 109    |
| SORGHUM PARTNERS  | HIKANE II       | 21.8         | 16.6 | --   | 19.2        | --     | 92                         | 98   | --   | 95     | --     |
| SORGHUM PARTNERS  | Sordan 79       | 24.8         | 17.1 | --   | 21.0        | --     | 104                        | 101  | --   | 103    | --     |
| SORGHUM PARTNERS  | Sordan Headless | --           | 19.4 | 21.4 | 20.4        | --     | --                         | 115  | 107  | 111    | --     |
| SORGHUM PARTNERS  | Trudan Headless | --           | 19.4 | 22.0 | 20.7        | --     | --                         | 115  | 110  | 113    | --     |
| (Check)           | NB 305F         | 25.6         | 16.4 | 19.4 | 17.9        | 20.5   | 108                        | 97   | 97   | 97     | 101    |
| (Check)           | Corn            | 21.1         | 18.4 | 18.5 | 18.5        | 19.3   | 89                         | 109  | 92   | 101    | 97     |
| Average           |                 | 23.7         | 16.9 | 20.0 | 18.5        | 20.2   |                            |      |      |        |        |

Forage Yields were adjusted to 70% moisture content based on oven-dried sample.

Table 11.--Irrigated Forage Sorghum Hybrid Dry Matter Analysis at Walsh, 2009.

| Brand            | Hybrid          | Forage<br>Type \1 | Days Boot  |             | CP          | ADF  | NDF  | TDN  | RFV  | <u>Net Energy</u> |      |       |      |
|------------------|-----------------|-------------------|------------|-------------|-------------|------|------|------|------|-------------------|------|-------|------|
|                  |                 |                   | to<br>Boot | Plant<br>Ht |             |      |      |      |      | Main.             | Gain | Lact. |      |
|                  |                 |                   | in         |             | -----%----- |      |      |      |      | -----MCal/lb----- |      |       |      |
| MYCOGEN          | 2T828           | Corn              | 66         | 81          | 8.8         | 38.6 | 58.7 | 58.5 | 93   | 0.57              | 0.32 | 0.60  |      |
| SORGHUM PARTNERS | NK300           | FS                | 76         | 55          | 8.6         | 40.1 | 59.3 | 56.8 | 90   | 0.55              | 0.29 | 0.58  |      |
| SORGHUM PARTNERS | Sordan Headless | SS                | 94         | 94          | 5.6         | 42.3 | 62.5 | 54.3 | 83   | 0.51              | 0.26 | 0.55  |      |
| (Check)          | NB 305F         | FS                | 75         | 61          | 7.6         | 40.8 | 64.7 | 56.0 | 82   | 0.54              | 0.28 | 0.57  |      |
| SORGHUM PARTNERS | Trudan Headless | HS                | 90         | 94          | 5.3         | 43.6 | 62.8 | 52.9 | 81   | 0.49              | 0.23 | 0.53  |      |
| AERC             | CSSH 45         | SW                | 64         | 69          | 6.7         | 43.4 | 64.1 | 53.0 | 80   | 0.49              | 0.24 | 0.54  |      |
| Sorghum Average  |                 |                   | FS         | 78          | 76          | 7.1  | 41.5 | 62.0 | 55.3 | 85                | 0.53 | 0.27  | 0.56 |

\1 Forage Type: FS, Forage Sorghum; SS, Sorghum Sudangrass.

Infrared analysis performed on whole plant samples taken at boot.

CP, Crude Protein; ADF, Acid Detergent Fiber; NDF, Neutral Detergent Fiber; TDN, Total Digestible Nutrients;

RFV, Relative Feed Value; Net Energy: Maintenance, Gain, Lactation..