

2015 Arkansas Grain Sorghum Quick Facts

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2014 Facts:

- 165,000 acres harvested
- 88 bushel per acre state average yield
- Average dates in 2014 GSRVP
 - Planting: April 23
 - Emergence: April 30
 - Harvest: August 26
- 56 lbs = 1 bu
- 14% moisture is dry

Growth and Development:

| | 5 year average from GSRVP 2010-2014 | | |
|------------|-------------------------------------|--------|--------------------------|
| | Days | Inches | Applications |
| Planting | 0 | 0 | ~ April 17 |
| VE | 7 | 0 | |
| V1 | 10 | 1 | |
| V2 | 13 | 2 | |
| V3 | 16 | 2 | |
| V4 | 20 | 3 | Sidedress Fertilizer |
| V5 | 25 | 4 | |
| V6 | 30 | 6 | |
| V7 | 36 | 9 | Atrazine Cutoff (12 in) |
| V8 | 41 | 13 | |
| Boot | 64 | 36 | Scout for Foliar Disease |
| Heading | 71 | 49 | |
| Flowering | 74 | 55 | Scout for Midge |
| Soft Dough | 83 | 55 | Scout for Headworms |
| Hard Dough | 93 | 55 | |
| Maturity | 110 | 55 | |
| Harvest | 131 | 55 | ~ August 24 |

Seeding:

- Seed should be Concep treated to allow the use of metolachlor (Dual) herbicide

- Plant when ground temp is 65° @ 2 inches deep by 9:00 a.m. for three days
- Place seed between 0.75 to 1.5 inches deep
- Irrigated seeding rate should be 90,000 - 100,000 seeds per acre with a final plant population of 75,000 plants per acre assuming 80% germination
- Dryland seeding rate should be 75,000 seeds per acre with a final plant population of 50,000 - 60,000 plants per acre assuming 80% germination
- Consider an insecticide seed treatment such as Cruiser, Poncho, etc. for improving stands

Grain Sorghum Seeding Rates

| Seeding Rate (seeds per acre) | Row Spacing (inches) | | | Final Stand at 80% Germination |
|-------------------------------|----------------------|------|------|--------------------------------|
| | 7" | 30" | 38" | |
| | Seeds per 10 ft row | | | |
| 55,000 | 7.4 | 31.6 | 40.0 | 44,000 |
| 60,000 | 8.0 | 34.4 | 43.6 | 48,000 |
| 65,000 | 8.7 | 37.3 | 47.3 | 52,000 |
| 70,000 | 9.4 | 40.2 | 50.9 | 56,000 |
| 75,000 | 10.0 | 43.0 | 54.5 | 60,000 |
| 80,000 | 10.7 | 45.9 | 58.2 | 64,000 |
| 85,000 | 11.4 | 48.8 | 61.8 | 68,000 |
| 90,000 | 12.1 | 51.7 | 65.4 | 72,000 |
| 95,000 | 12.7 | 54.5 | 69.1 | 76,000 |
| 100,000 | 13.4 | 57.4 | 72.7 | 80,000 |

Determining Final Plant Stands:

- 30" rows measure 17 ft 5 in
- 38" rows measure 13 ft 9 in

Count plants in that distance and multiply by 1,000. This will equal plants per acre. Do this in at least ten stops in the field to get an accurate count. Example: 30" row, count 80 plants in 17 ft 5 in
 80 X 1000 = 80,000 plants per acre

Seeding Rate in Pounds per acre

| Seeds per Acre | Seeds per Pound | | | |
|----------------|-------------------------|--------|--------|--------|
| | 11,000 | 13,000 | 15,000 | 17,000 |
| | Pounds of Seed per Acre | | | |
| 60,000 | 5.5 | 4.6 | 4.0 | 3.5 |
| 70,000 | 6.4 | 5.4 | 4.7 | 4.1 |
| 80,000 | 7.3 | 6.2 | 5.3 | 4.7 |
| 90,000 | 8.2 | 6.9 | 6.0 | 5.3 |
| 100,000 | 9.1 | 7.7 | 6.7 | 5.9 |
| 110,000 | 10.0 | 8.5 | 7.3 | 6.3 |

Hybrid Selection:

3 Year Average Yields in bu/ac from the Arkansas Grain Sorghum Hybrid Testing Program

| Hybrid | Irr Yield ¹ (bu/ac) | Non Irr Yield ² (bu/ac) |
|--------------------|--------------------------------|------------------------------------|
| Pioneer 83P99 | 147.2 | 133.3 |
| Pioneer 84P80 | 146.0 | 140.1 |
| Dyna-Gro 765B | 144.4 | 127.8 |
| Terral REV RV 9782 | 137.4 | 129.5 |
| Terral REV RV 9883 | 135.0 | 125.0 |

¹3 year (2012 – 2014) average from Keiser

²3 year (2012 – 2014) average from Keiser

More information on Arkansas Grain Sorghum Hybrid Yields can be found at:

<http://www.arkansasvarietytesting.com>

Fertilization:

Nitrogen (N):

- Apply 1/3 to 1/2 of N immediately before or after planting
- Apply sidedress N between the V4 and V6 stage

N Recommendation

| Yield Goal (bu/ac) | Units of N to apply per acre | |
|--------------------|------------------------------|------|
| | Sandy, Silt Loams | Clay |
| Dryland | 110 | 150 |
| 90 | 110 | 150 |
| 110 | 135 | 175 |
| ≥130 | 160 | 200 |

Nitrogen sources:

- 32% UAN (1 gal = 3.5 lbs of N)
- Urea (46-0-0)
- DAP (18-46-0)
- Ammonium Sulfate (21-0-0-24)

Phosphorus (P) and Potassium (K):

P₂O₅ Recommendation

| Yield Goal (bu/ac) | Soil Test P (ppm) | | | | |
|--------------------|---|-------|-------|-------|-----|
| | <16 | 16-25 | 26-35 | 36-50 | >50 |
| | ----- lbs of P ₂ O ₅ per acre ----- | | | | |
| Dryland | 90 | 70 | 50 | 0 | 0 |
| 90 | 90 | 70 | 50 | 0 | 0 |
| 110 | 100 | 80 | 60 | 40 | 0 |
| ≥130 | 110 | 90 | 70 | 50 | 0 |

K₂O Recommendation

| Yield Goal (bu/ac) | Soil Test K (ppm) | | | | |
|--------------------|--|-------|--------|---------|------|
| | <61 | 61-90 | 91-130 | 131-175 | >175 |
| | ----- lbs of K ₂ O per acre ----- | | | | |
| Dryland | 140 | 90 | 60 | 0 | 0 |
| 90 | 140 | 90 | 60 | 0 | 0 |
| 110 | 140 | 100 | 70 | 0 | 0 |
| ≥130 | 150 | 100 | 70 | 40 | 0 |

Diseases and Fungicide Timing:

- Fungicides should only be applied when disease is present
- Try to plant resistant hybrids to help with anthracnose and target leaf spot

- Check the MP 154 for the latest fungicide recommendations

Irrigation:

| Potential Yield Reduction from Moisture Stress | |
|--|-------------------|
| Growth Stage | % Yield Reduction |
| Emergence to V8 | 10 – 15 |
| Boot to Flowering | 30 – 50 |
| Soft dough to maturity | 10 – 20 |

| Estimated Grain Sorghum Water Use | |
|-----------------------------------|-------------|
| Days after planting | Inches/day |
| 0-30 (early plant growth) | 0.05 – 0.10 |
| 30-60 (rapid plant growth) | 0.10 – 0.20 |
| 60-80 (boot and flowering) | 0.25 – 0.30 |
| 80-120 (grain fill to maturity) | 0.25 – 0.10 |

Irrigation Termination

- Furrow Irrigation –when >50% of the heads are at hard dough and there is adequate moisture
- Pivot Irrigation –when >75% of the heads are at hard dough and there is adequate moisture

Herbicides:

- Make sure seed is treated with Concep prior to planting
- Apply metolachlor (Dual Magnum) PRE followed by atrazine plus Dual Magnum POST
- 1 qt of atrazine 4L = 1 lb of atrazine
- Do not apply more than 2.5 lb of atrazine in a season
- Do not apply atrazine after 12 inches
- Apply atrazine to healthy and growing grain sorghum to avoid injury
- Apply metolachlor (Dual Magnum) at planting on Concep treated seed ONLY

- There is a 10 month plant back on grain sorghum following fomesafen (Prefix, Flexstar)
- There is a 18 month plantback following Newpath
- Check the MP 44 for the latest herbicide recommendations

Insects:

- Check the MP 144 for the latest insecticide recommendations

| Insect | Threshold |
|-----------------|--|
| Whorl Feeders | 3-6 larvae per whorl |
| Chinch Bug | When stand is threatened |
| Greenbug | Plants up to 6 inches – visible damage 6 inches to preboot – treat before entire leaves die Preboot to hard dough – treat when 2 or more entire leaves die |
| Sorghum Midge | 1 adult midge per head when 25% - 30% of plants are flowering |
| Corn Earworm | 1 larvae ½ inch long or longer per head |
| Fall Armyworm | 1 larvae ½ inch long or longer per head |
| Sorghum Webworm | 5 to 6 larvae per head |
| Stink Bug | 5 per head from flowering to soft dough 16 per head during hard dough |

More information and additional copies of this fact sheet are available at:

<http://www.arkansascrops.com>
<http://www.uaex.edu>