Grain Sorghum Considerations for Late Planting in Southern Indiana

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- Sorghum can be a viable alternative to late-planted corn in southern Indiana, but time is running out for this crop also.
- Some risks are involved in growing sorghum.
- Sorghum management tips are provided.

Grain sorghum, sometimes called “milo”, can be a viable late-planting option for southern Indiana farmers faced with late planting dilemmas, especially where fields have already been treated with certain corn herbicides. What are the opportunities and risks involved with switching from corn to sorghum? What cultural practices are followed in producing sorghum?

Opportunities
Grain sorghum is an acceptable crop alternative to corn for hog and cattle producers who otherwise may have to purchase corn this fall. The feed value of grain sorghum approaches or equals that of corn, especially that of yellow endosperm sorghum hybrids.

Grain sorghum is well suited to those soils or conditions often considered marginal for corn. Sorghum can be planted later than corn and still yield reasonably well. Sorghum performs more consistently than corn on light, well-drained, often droughty soils as well as on soils that are prone to flooding or lengthy periods of soil saturation. Sorghum is also more tolerant to mid-summer drought conditions than is corn.

Risks
Potential sorghum growers need to be aware that learning the ins and outs of producing a crop they’ve never grown before can be daunting in normal growing seasons, let alone in an unusually delayed planting season that some are experiencing this year. Because of this, growers faced with feed grain shortages this fall and winter may want to consider planting to soybean instead and using the grain sale revenue to purchase their feed grain later.

Grain sorghum grown for the cash grain market can be risky due to limited market availability. In southern Indiana, marketing opportunities are primarily along the Ohio
River. Growers should attempt to "nail down" a contract to sell their intended grain before venturing into sorghum production.

Herbicide selection for use in grain sorghum is generally more limited than for corn. If Lasso or Dual herbicides are already applied to your fields, then seed sorghum with a commercially applied seed safener should be planted. Otherwise, serious herbicide injury could occur.

Ripening heads of grain sorghum can be very attractive to a number of bird species. Consequently, production of grain sorghum near areas with large populations of birds (typically, urban areas) invites bird feeding on the exposed heads and significant grain damage and yield loss.

Be aware that availability of sorghum seed may be lower than normal this year due to increased demand for seed sorghum in the western Corn Belt. Planting intentions of this drought tolerant crop were greater because of the uncertainty surrounding the alleviation of last year’s drought conditions in that area of the U.S.

Field dry-down of sorghum grain can be slow and unpredictable. Several weeks of rain or high humidity in the fall can result in sprouted, moldy, low-quality grain as well as excessive losses due to stalk lodging, grain shattering, and bird feeding.

If mechanical drying is necessary for storage of sorghum, be prepared for frustration. Air movement through sorghum will be 25 to 40% slower than through corn because the sorghum's smaller kernels pack closer together and sorghum tends to have more foreign matter in it.

**General Cultural Practices**

**Hybrid Selection.** Hybrids suitable for planting from late May through early July must be early enough in maturity to complete dry matter accumulation prior to a killing fall frost. As with corn, there is no industry-wide standard for describing hybrid maturity in grain sorghum. The accompanying table lists relative hybrid maturities for several areas of southern Indiana for several planting periods. Consult your seed dealer for specific recommendations for your area and planting conditions.

**Table 1. Recommended relative hybrid maturity for sorghum planted from late May through early July for several areas of southern Indiana**

<table>
<thead>
<tr>
<th>Location</th>
<th>Planting Period</th>
<th>Relative Hybrid Maturity</th>
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| Southwest Indiana, south of Hwy 50 | Late May - mid June  
Late June - early July  
After early July | Full  
Medium  
Too risky to plant |
| Southwest Indiana, Hwy 50 to Hwy 40 | Late May - mid June  
Late June - early July  
After early July | Medium  
Early  
Too risky to plant |
In addition to maturity factors, select hybrids with yellow endosperm characteristics because of their superior feeding value. Select hybrids with good stress tolerance. Depending on your herbicide program (see the following herbicide sections), you may need to select hybrids treated with chemical seed safeners.

**Planting Depth.** Grain sorghum seed is very small compared to either corn or soybeans, averaging about 16,000 seeds per pound. Therefore, good seed to soil contact is important for uniform and rapid germination. Planting depth should only be about one inch in most soils, up to 2 inches in sands.

**Row Spacing.** Grain sorghum grown this late in the season should be planted in narrow rows if possible. Narrow rows encourage rapid canopy closure and the subsequent shading will help reduce soil moisture evaporation and improve weed control. Use a grain drill with effective furrow closure wheels, or planters with 15- to 20-inch row units. Either would be preferable to 30-inch or greater row spacing.

**Seeding Rates.** Necessary equipment for row crop planters would include 60 cell milo plates (plate planters), sorghum cups (Deere), special drums (Case-IH Cyclo), or sorghum seed disks (air and vacuum planters). Harvest populations should be approximately 60,000 to 100,000 plants per acre for lower and higher productivity soils, respectively.

To achieve such harvest populations, figure on seeding rates of about 86,000 to 143,000 seeds per acre (assuming 70% field emergence). Be sure to check the seed size and adjust planted pounds per acre accordingly. At 12,000 seeds per pound, these seeding rates equal 7.2 to 11.9 pounds per acre. At 16,000 seeds per pound, these seeding rates equal 5.5 to 9.0 pounds per acre. Time spent on calibrating your planter or drill to achieve accurate seed drop is time well spent.

**Corn Herbicides Already Applied to Fields.** Where corn herbicides have already been applied to fields, caution is necessary when grain sorghum is planted instead. Sorghum may be planted immediately where Dual/Dual II Magnum, all Bicep II Magnum products, Lasso/Microtech/Partner, Bullet/Lariat, atrazine, Frontier/Outlook, all Guardsman/Leadoff products, Banvel, Clarity or Marksman have been applied.

Sorghum may be planted 1 month after the corn herbicide Define has been applied. Commonly used corn herbicides with a 2 month or longer rotational interval to grain sorghum include: All acetochlor products, Accent products, Axiom, Balance Pro, Basis products, Beacon products, Callisto/Lumax, Celebrity Plus, Distinct, Epic, Exceed/Spirit, FieldMaster, Hornet, Lightning, Northstar, Princep, Python, Steadfast.

Commercially applied seed safeners are usually required when either metolachlor (Dual) or alachlor (Lasso) have been or will be applied. The safener “Screen” is required where Lasso/Microtech/Partner/Lariat have been applied, while “Screen” or “Concep” are

<table>
<thead>
<tr>
<th>Season</th>
<th>Maturity Factors</th>
<th>Seedling Characteristics</th>
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<tbody>
<tr>
<td>Southeast Indiana</td>
<td>Late May - mid June</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>Late June - early July</td>
<td>Early</td>
</tr>
<tr>
<td></td>
<td>After early July</td>
<td>Too risky to plant</td>
</tr>
</tbody>
</table>

Adapted from conversations with seed industry agronomists.
recommended where Dual or Bicep products have been applied. Since it's rather difficult to determine how much herbicide residue remains in fields treated this spring, a seed safener is an inexpensive insurance premium to ensure seedling emergence.

**Herbicides Registered For Use With Grain Sorghum.** Consult your Extension Educator or dealer for specific details on timing and application rates.

2,4-D may be applied for broadleaf control in sorghum that is 6 to 15 inches tall. Use drop pipes if sorghum is taller than 8 inches. Use amine formulations at 1 pt/A and ester formulations at 0.5 pt/A. Shotgun (2,4-D + atrazine) can be used on sorghum at 2 pt/A as a broadcast spray from spike to 8 inches tall and with drop tubes on 8 to 12 inch tall sorghum.

Aim (carfentrazone) may be used postemergence at 0.5 oz/A for control of velvetleaf, morningglories, nightshade and pigweeds/waterhemp less than 4 inches tall. The label doesn't provide specific information on sorghum growth stage limitations.

Atrazine may be applied to medium-textured soils with more than 1 percent organic matter, but the rates are lower than for corn. Atrazine can also be applied postemergence at 4 to 6 pints 4L per acre without crop-oil concentrate (COC) or at 2.4 pints per acre with COC for broadleaf control only. Use equivalent rates of atrazine 90DF. Apply after grain sorghum reaches 3-leaf stage, but before it reaches 12 inches in height. Atrazine is a restricted-use pesticide.

Banvel (dicamba) or Marksman (dicamba + atrazine) can be applied to grain sorghum after the 2-leaf stage. Marksman can be applied at 1-1/2 to 2 pints per acre until sorghum has five leaves or is 8 inches tall; Banvel can be applied at 0.5 pint per acre to sorghum up to 15 inches tall. Do not graze or feed treated forage to animals before the mature grain stage. Marksman is a restricted-use pesticide.

Basagran (bentazon) may be used at 1.5 to 2 pints per acre on sorghum or forage sorghum that is between the first and fifth leaf stage. Laddok (bentazon + atrazine) can be used postemergence to control broadleaf weeds in grain sorghum if applied before the crop is 12 inches tall. Laddok is a restricted-use pesticide. Gramoxone Extra (paraquat) or Roundup (glyphosate) can be used to control existing vegetation before planting grain sorghum in reduced-tillage systems.

Buctril (bromoxynil) applied alone can be used from the 3-leaf to boot stage, while Buctril that has been tank-mixed or premixed with atrazine can only be applied to grain sorghum up to 12 inches in height. Buctril+Atrazine is a restricted-use pesticide.

Dual, Dual II Magnum (metolachlor), Bicep, Bicep II Magnum (metolachlor + atrazine) products can be used if grain sorghum seed has been treated with Concep II. The Bicep products are restricted-use pesticides.

Paramount (quinclorac) may be used at 5.3 to 8 oz/A as a preemergence or postemergence application on sorghum up to 12 inches tall. This product will provide postemergence control of foxtail up to 2 inches tall. We recommend using atrazine with Paramount to broaden the spectrum of activity and help control larger foxtail as a postemergence treatment.
Peak (prosulfuron) is a postemergence broadleaf herbicide used at 0.5 to 1 oz/A that can be applied to grain sorghum that is between 5 and 30 inches tall. However, Peak herbicide is persistent in the soil and the recropping interval is a minimum of 10 months for soybean, with a longer rotational interval on high pH soils.

Permit (halosulfuron) is a postemergence broadleaf herbicide that can be applied at 0.67 to 1.33 oz/A to grain sorghum up to 30 inches tall. Permit requires a 9-month rotational interval for soybean.

Prowl + atrazine may be used as an early postemergence treatment in sorghum at a Prowl 3.3E rate of 1.8 to 2.4 pints per acre. Apply after the 3-leaf stage of grain sorghum, but before it is 12 inches tall.

Ramrod (propachlor) alone or with atrazine can be used only preemergence in grain sorghum. Do not graze or feed forage to dairy animals. Lasso (alachlor) or Lariat (alachlor + atrazine) can be used if grain sorghum seed is treated with Screen. Micro-Tech and Bullet are not registered for use in grain sorghum. Lasso and Lariat are restricted-use pesticides.

Roundup (glyphosate) may be applied as a spot treatment in grain sorghum prior to heading. Glyphosate will kill emerged grain sorghum plants, so this treatment is for spot treating only.

Yukon (dicamba + halosulfuron) can be used at 4 to 6 oz/A as a postemergence treatment. Apply after grain sorghum has 2 leaves but before it is 8 inches tall.

Fertility Needs. Sorghum’s nitrogen needs are similar to those of corn. For sorghum following soybean, figure 1 lb. of actual nitrogen per bushel of expected yield. For sorghum following corn or wheat, figure 1.2 lb. of actual nitrogen per bushel of expected yield. Since expected grain yields of sorghum planted from mid-June to early July in southern Indiana range from 70 to 110 bushels per acre, the crop’s total nitrogen needs will be 70 to 110 lbs N for sorghum following soybean and 84 to 132 lbs N for sorghum following corn. If nitrogen has already been applied to a field that was subsequently subjected to extensive rainfall and flooding, some loss will have occurred due to denitrification or leaching. Nitrogen losses from fertilizer applications prior to April 1 may be greater than 50%.

Roguing. Be prepared for off-type sorghum plants that may occur in a field of grain sorghum. These are natural in many sorghum hybrids. Most are genetic mutants with similar grain heads, but taller than normal. Others with off-type grain heads should be removed (rogued) from the field to reduce the risk of volunteer sorghum “weeds” coming back next year.

Harvesting. As with corn, grain sorghum is physiologically mature (maximum grain dry weight) at about 30% grain moisture. Minimal harvest loss and seed damage occurs when harvested at grain moistures of about 20 percent. Achieving this grain moisture by field dry-down under Indiana rainfall and humidity conditions may be risky. Be prepared for frustration!
For More Information.
At the risk of offending or neglecting some seed companies, brand names to consider for seed sorghum in Indiana include Dekalb, Asgrow, NC+, Pioneer, Garst, Croplan Genetics, Golden Harvest, Mycogen, and Triumph. Talk to your local seed representative or company agronomist for more information about the risks, opportunities, hybrid maturity selection criteria, and other concerns regarding grain sorghum production for delayed planting in southern Indiana.

Related References:

Sorghum Seed Suppliers: [URLs verified 6/13/03]
Monsanto (Dekalb, Asgrow). http://www.farmsource.com

Don’t forget, this and other timely information about corn can be viewed at the Chat ‘n Chew Café on the Web at http://www.kingcorn.org/cafe. For other information about corn, take a look at the Corn Growers’ Guidebook on the Web at http://www.kingcorn.org.

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