1-1-1900

Sorghum Culture

William D. Reiss
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Because of the unpredictability of Southern Corn Leaf Blight, many Indiana farmers are considering the production of sorghum for grain in 1971.

However, before a grower decides on sorghum he should carefully consider his ability and experience to 1.) produce the crop, 2.) artificially dry the grain, and 3.) market the grain by feeding to livestock or marketing directly to grain elevators.

Following are some guidelines to help producers obtain higher sorghum yields.

FERTILIZATION

Let soil tests guide the fertility needs of each field. Lime soils to a pH of 6.0 to 6.5. Then, build the soil fertility level to a high-medium test for phosphorus and potassium. In most cases, it is not economically feasible to add sufficient phosphate and potash to build soil levels this high the first year. However, fertilize to supplement the nutrients removed and to build toward the desired fertility level.

Nitrogen, phosphorus and potassium rates are similar to those used for corn at the various yield levels. Adequate fertility gives the crop a good start, improves water use efficiency, improves quality and increases yields.

SELECT ADAPTED HYBRIDS

Select hybrids that are well adapted to the area and have records of

Fertilizer Elements in Sorghum Plant Parts at Yield Levels of 125 Bu. Per Acre

<table>
<thead>
<tr>
<th>Plant Part</th>
<th>Dry Matter</th>
<th>Nitrogen</th>
<th>P</th>
<th>K*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain</td>
<td>7,070</td>
<td>114</td>
<td>19.5</td>
<td>17.9</td>
</tr>
<tr>
<td>Leaves</td>
<td>2,240</td>
<td>35</td>
<td>2.9</td>
<td>13.4</td>
</tr>
<tr>
<td>Stems</td>
<td>4,220</td>
<td>22</td>
<td>1.2</td>
<td>75.1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13,530</td>
<td>171</td>
<td>23.6</td>
<td>106.4</td>
</tr>
</tbody>
</table>

* Even though chemical analysis indicates the quantity of phosphorus and potassium in various plant parts, fertility needs should be based on soil tests and the supplying power of the various soils.
high production. Yield performance information may be obtained from the nearest testing location. In Indiana they are: north - Pinney-Purdue Agricultural Center, Wanatah; central - Purdue Agronomy Farm, Lafayette; and south - Southern Indiana Purdue Agricultural Center, Dubois County. New hybrid sorghums have superior field performance over older varieties because of better standability, threshability and increased tolerance to diseases, insects and drought.

For performance data contact the local county Extension office.

PLANTING DATE

To insure rapid emergence, soils should be moist and soil temperatures should be in the 65°F-70°F range. Soils in southern Indiana will approach 70°F during the period of May 1-15. In northern Indiana soils will approach this temperature during the period of May 15-25.

Early planting causes shorter stalks, earlier harvest, reduced chance of loss to weather and improved standability. Losses from late planting are mostly associated with a decrease in the number of seeds per head. This effect is closely associated with cool temperatures during blooming.

Planting too early (before soil temperatures reach 65-70°F) can severely reduce stands and cause lower yields.

DEPTH OF PLANTING

Sorghum seeds do not have the ability to emerge from deep planting as does corn. When soil temperatures are warm and moist, sorghum should be planted 1 inch deep, but never more than 1-1/2 inches deep. Consider delayed planting if it is necessary to go deeper than 1-1/2 inches to find moisture. Plant shallow if rain is anticipated.

ROW SPACING

For maximum yield potential in the Midwest, sorghum should be planted in row widths of 30 inches or less. If soil moisture and weed control is adequate, row widths of 7 to 15 inches can give superior yields.

POPULATION

An adequate stand is important to the production of top sorghum yields. Populations are adapted over a range of 90,000 to 120,000 plants per acre. In thirty-inch rows this would be a seeding rate of 8 to 10 pounds per acre. When moisture is extremely limiting on sandy soils, populations may be reduced to 50,000 plants per acre, which would give seeding rates of five pounds per acre. As a general rule, there are approximately 16,000 sorghum seeds per pound. Average germination for most sorghum hybrids is about 75 per cent emergence.

WEED CONTROL

Pre-emergence - For most annual broadleafed weeds and annual grasses apply Milorgard 80W (Propazine) as a spray. For broadcast treatment use 2-1/2 pounds on sandy loam or soils low in organic matter and three pounds on silt loam and clay loam soils and soils high in organic matter. Do not use on sandy or loamy sand soils. Apply pre-emergence application at planting or shortly thereafter. Corn may be planted in rotation 12 months after treatment. Other crops should not be planted for 18 months following treatment.

For most annual grasses and broadleaved weeds on mineral soils only, apply pre-packaged Ramrod-atrazine mixture as a spray. For broadcast or overall coverage use labeled rates. Apply 5-7 pounds on three per cent or less organic matter soils and 6-8 pounds on soils over three per cent organic matter - in at least 20 gallons water per acre. Apply pre-emergence application at planting or shortly thereafter. Do not graze or feed sorghum forage to dairy cattle. Label information for prepackage mixture restricts following year's crop to corn, sorghum or soybeans. Follow label instructions and comments for Ramrod-atrazine tank mixtures.
Post-emergence - For most broad-leaved annual weeds application of 2,4-D will check growth of perennials, but there is no effect on grasses. Apply 2,4-D (four pounds per gallon) at 1/2 pint amine or 1/3 pt. low volatile ester in 10 gallons water per acre. When spraying with drops, in the row only, reduce rate to 1/4 pint amine of 1/6 pint low volatile ester per acre. Apply after weeds are up. Spray is most effective when weeds are small. Apply with straight boom sprayer if sorghum is small and use drops when sorghum is 10 inches or taller. Crop tolerance is greatest in 4-12 inch sorghum. Excessive rates cause deformed roots and stalks.

Atrazine plus oil may be used post-emergence to stunt grassy weeds and allow the sorghum plants to develop. After sorghum forms a canopy, grassy weeds will not be able to compete. Check label recommendations for rates according to soil type.

For current weed control recommendations, contact the local county Extension office for publication 1D-1, "Weeding with Chemicals."

INSECTS

Insects of potential importance in grain sorghum production in Indiana include aphids, corn earworm, webworms and green bug. Although aphids may appear throughout the season, earworm and webworm infestations don't develop until late in the season when the grain heads are maturing. Green bug infestations are normally found in areas of heavy small grain production. Sorghum must be inspected more often than corn to detect the build-up of insect infestations.

Follow recommendations from entomology specialists when problem infestations develop.

DISEASES

Common diseases found on sorghum plants are: Downy Mildew, Fusarium stalk rot, Charcoal Rot Anthracnose and Maize Dwarf Mosaic. Fields planted adjacent to Johnson grass infestations should be observed closely for Maize Dwarf Mosaic. For positive identification and details concerning disease control, check with your local Extension office.

HARVESTING

For high grain quality, harvest when moisture content is 20-22 per cent. Wet grain must be dried immediately to 12-13 per cent for safe storage. Do not attempt to hold wet grain overnight, as it will sprout in less than 24 hours at high temperature and moisture.

Contact your local Extension office for information concerning sorghum harvesting, drying and storage.

PHYSIOLOGY

When sorghum is planted as soon as soil temperatures warm to 65-70°F, about 75 days are required from planting to 50 per cent bloom. Another 40 to 50 days are required from 50 per cent bloom until harvest.

As sorghum plantings are delayed, the number of days required to reach 50 per cent bloom are reduced. For example, sorghum planted during mid- or late-June will reach 50 per cent bloom in 60 to 65 days.

ROTATION

Continuous sorghum culture will cause yield reductions because of accumulated compounds from residue decomposition. For best results rotate to other crops after two years of sorghum production.

CAUTION

Inspect sorghum fields frequently to detect insect, weed, disease, bird or other production problems. Early detection allows a grower to use control measures which will minimize yield losses.

Watch for stray plants of black amber "Wild Cane" and remove the heads before the seeds are scattered.