

Sweet Sorghum Production Basics

Sweet sorghum are varieties of sorghum that have a high concentration of soluble sugars in the plant sap. Sweet sorghum has numerous characteristics that make it an interesting candidate for biofuel development in Pennsylvania. It is relatively drought tolerant, has a high forage and ethanol yield per acre, has relatively low cost of production, is adaptable to no-till, has a co-product called bagasse that could be used for animal feed, and the crop itself could be used for silage if needed. It is also a late planted crop that fits well into cover cropping systems. Yields of 25 tons (fresh weight) are possible with juice yields of 2500-3000 gallons per acre possible.

Planting

- Planting should be delayed until soil temperatures reach 65°F at the 2- to 4-inch depth. This usually occurs in mid to late May.
- Sorghum is often planted in 30 inch rows but could be planted in 15 or 20 inch rows to maximize production potential
- Seeding rates range from about 60,000 to 80,000 seeds per acre. This is about 3-4 seeds per foot of row in 30 inch rows and translates into about 5 pounds of seed per acre.
- Planting depth is 0.75 to 1.25 inches.
- Sorghum is well adapted to no-till planting.



Soil Fertility

- The nitrogen requirement is likely in the range of 100 to 120 pounds per acre. We have recommended higher rates of N for forage sorghum production in the past, similar to corn silage production, but these could result in more lodging and lower sugar levels
- P and K requirements are modest and probably depend on whether the bagasse is removed from the site. If that is the case, then The nutrient recommendation for a soil testing in the optimum range for P and K is 120 pounds of N, 65 pounds of P₂O₅, and 120 pounds of K₂O for a crop with a 21-ton per acre yield potential.
- Soil pH should be near 6.0

Crop Rotation

- Sorghums are very flexible and can be planted after many crops. They are tolerant of atrazine so following corn is not an issue.
- The later planting of sorghum makes it possible to harvest a hay or small grain crop prior to planting.



Weed Control

- Fewer herbicides are available for forage sorghum compared to corn, so control of some problem weeds may be a bit more challenging without tillage.
- Sorghum seed treated with Concep II seed safened allows the grass herbicide Dual to be applied without injuring the crop.
- Specific herbicide recommendations are updated annually in the Penn State Agronomy Guide.
- A good sorghum crop can function as a smother crop- reducing weed pressure in subsequent crops.

Pest Management

- Sorghum has few insect pests in Pennsylvania. Occasionally fall armyworm damage may be observed.
- Sorghum is not a host for western corn rootworm, hence corn can follow sorghum with no risk of rootworm.
- Some foliar diseases can appear on sorghum. Anthracnose is a foliar disease that can appear on leaves and stalks.
- Sorghum is less preferred by groundhogs and deer than other crops like corn, soybeans, sunflowers or canola.

Harvesting

- Traditionally sweet sorghum was harvested by hand and fed through a press to extract juice.
- Mechanized systems are being developed that are similar to silage chopping and hauling the material to plant for processing.
- Others are considering on site processing to extract and store juice.
- Harvesting occurs near the soft dough stage often 120 days or so after planting. A Brix meter can be used to assess the sugar content at harvest.
- Stalks, leaves, and grain left after processing could be used for pelletizing for energy, digested for energy or ensiled into a feedstuff.
- One issue with sorghum is that the material needs to be processed soon after harvest unlike other grain crops used for biofuel.

For more information, contact:

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