

Processing Syrup cont'd

The syrup is usually finished at a temperature 14° to 15° F higher than the boiling point of water if a syrup of fairly heavy density is desired, although a slightly different finishing temperature may be used with equal success.

Strain the finished syrup through muslin, two thickness of cheesecloth, or 45-mesh screen wire as it runs into a suitable container for cooling. Cool the strained syrup obtained from each "stir-off" in a large container to about 140° to 160° F as quickly as possible before putting it in a permanent container of 1 gallon or smaller. The faster you cool the syrup, the less likely a color will develop.

Composition of Sorghum Syrup

Serving size:
one tablespoon (20 g)

Calories	62	Sodium	1.6 mg
Carbohydrates	13.4 g	Protein	300 mg
Calcium	30 mg	Iron	2.4 mg
Phosphorus	5 mg	Fiber	20 mg
Potassium	120 mg	Zinc	0.8 mg

Sources:

- *Blizer, M.J. 1987. Production of Sweet Sorghum for Syrup in Kentucky College of Agriculture - Cooperative Extension Service*
- *Mark, P.L. and Morris W.C. 1991. Sweet Sorghum Culture and Syrup Production- University of Tennessee - Agriculture-Extension Service*
- *National Sweet Sorghum Producers and Processors Association*

The photos used in this publications are of Alcorn State University's Sweet Sorghum, grown at the Kemper County Off-Campus Center in Preston, Mississippi.

SWEET SORGHUM PRODUCTION

For Value-Added Syrup

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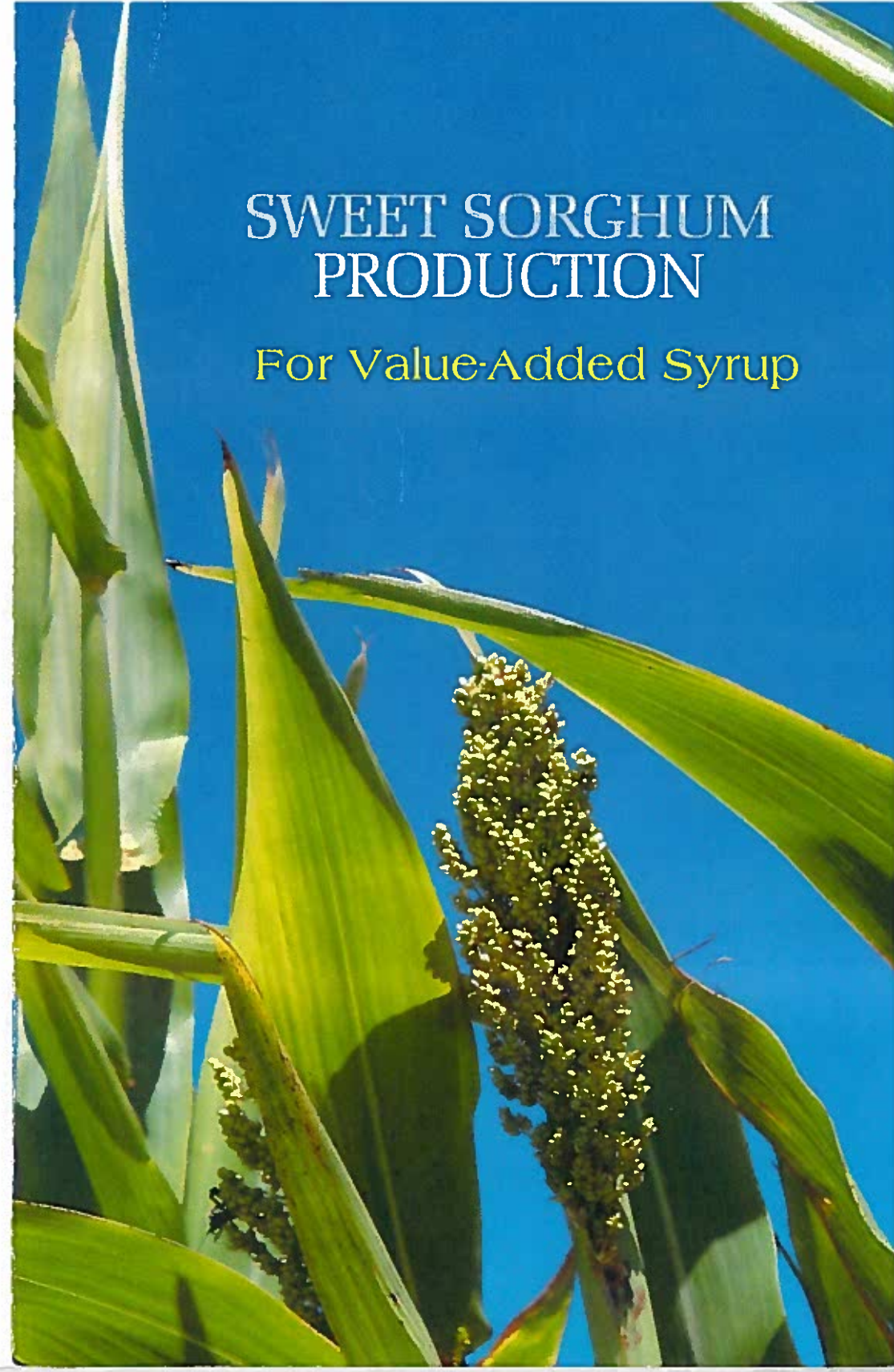
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EXTENSION PROGRAM
ALCORN STATE UNIVERSITY



Sweet Sorghum

Sweet sorghum, or "sorgo" is closely related to other sorghum crops. It differs from grain sorghum mainly because its grain yields are low, its stalks are taller and juicier, and have high sugar content. It reproduces by seed and produces tillers, but it has no rhizomes. Sweet sorghum is also a perennial grass under tropical conditions, but it is winter-killed in areas where frost occurs. Some sweet sorghum varieties are grown for syrup production, while others are grown for forage (silage).

Planting

Sweet sorghum, is commonly grown in rows spaced 36 to 42 inches apart. Spacing wider than 42 inches can result in some yield reduction. Planting sweet sorghum in hills of two or more plants has been common in the past. Drill planting with plants spaced 8 inches apart in the row has resulted in comparable stalk and syrup yields. Planting depths for sweet sorghum seed should be about 1 inch, with deeper coverage on light sandy soils and shallower coverage on heavy clay soils.

Fertilization

Fertilizer requirements for sweet sorghum depend on the fertility levels of the field in which it is grown. Soil test should be taken to determine what kind and amount of fertilizer should be used.

The basic fertilization on a well-drained silt loam soil with medium fertility is a 1:1:1 ratio to supply approximately 40 lbs



Fertilization CONT'D

each of nitrogen (N) phosphorus (P₂O₅) and potassium (K₂O) per acre. Rates should not be increased to over 50 lbs per acre on low fertility soils and only nitrogen (not over 40 lbs per acre) is required on high fertility soils.

Weed Control

The best weed control is by cultivation. Start cultivation when plants are 4-5 inches high. As plants get larger, be careful not to prune off the roots with deep cultivation.

Harvesting

The stalks may be harvested by hand; cut with a mower or binder and picked up, or mechanically cut and squeezed in the field. If leaves are removed from plants prior to processing, stripping should be done while the stalks are standing. If leaves are not removed, they should be allowed to dry before squeezing the juice from the stalks.

The seed head and peduncle are removed prior to processing. This can be accomplished either prior to harvest with a mechanical de-header; by hand shortly after cutting the stalk down; or with a chain saw after the stalks have been loaded on a wagon. Early de-heading will result in higher sugar content in the syrup. The head should be cut off at least below the top node.

Economic Considerations

Sweet sorghum constitutes a meaningful cash crop for most producers. At a price of \$15 per gallon, a yield of 66 gallons per acre will be needed to break even for all variable and fixed cost if canes are stripped before they are cut

Economic Considerations CONT'D

The average yield for sweet sorghum is 175 gallons per acre; however, yields can go as high 200 to 300 gallons per acre. If producers can obtain prices of \$20 to \$25 per gallon of sorghum syrup, net returns of more than \$2,500 per acre are possible at yield levels of 175 gallons and above.

Processing Syrup

Processing sweet sorghum syrup is the most critical aspect of making high quality syrup. The yield and quality of sorghum syrup is influenced by the equipment and process used in manufacturing and by the syrup maker's knowledge and skills.

The percentage of juice extracted is an important factor in mill operation. The juice extraction rate depends upon the mill speed, the moisture content of the cane, the mill adjustment, and the feeding rate. The rollers must be adjusted to spacing close enough to produce maximum extraction.

Care should be taken to ensure that grease from the gears does not contaminate the raw juice. This problem can be corrected by placing a strip of sheet metal below the grease to deflect any excess grease.

Use only food grade grease for this process.

The juice is then evaporated with the use of a batch (kettles) or continuous-flow type evaporator. The 12-foot continuous flow evaporator is the most common.