



Sweet sorghum

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Sweet Sorghum

- *Sorghum bicolor* (L.) Moench
- Native to Ethiopia
 - First crop sown on newly cultivated land in 18th century Ethiopia
 - Drought tolerant
 - Breaks up soil, scavenges nutrients, roots build fertility through decomposition
- Introduced to America in 1757
- Widely grown in Kentucky since 1853

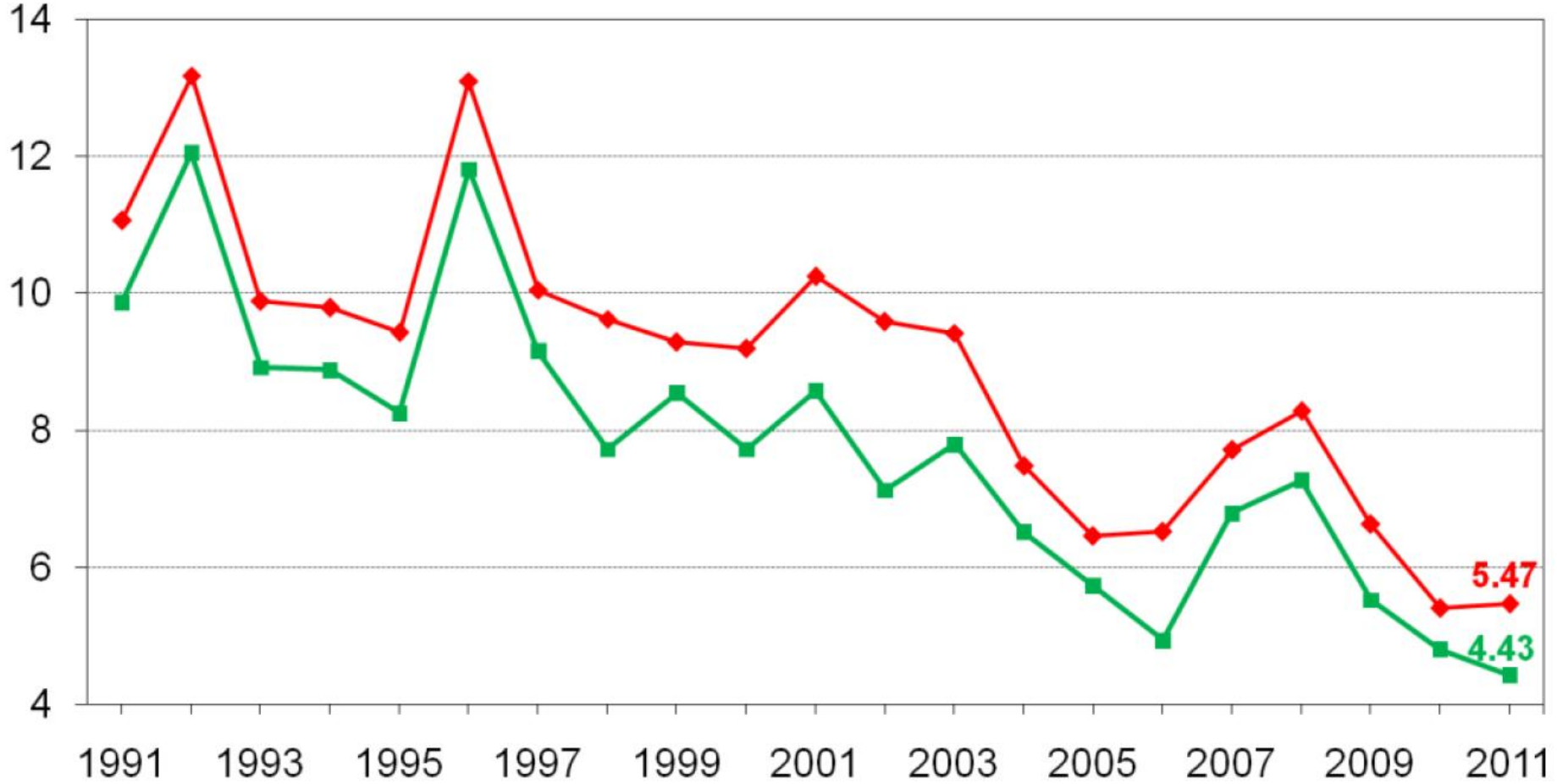
Types of Sorghum

	Grain sorghum (Milo)	Forage sorghum	Sweet sorghum (Sorgo, Cane)
Height	2-4'	6-12'	8-12'
Bred for	High grain:stalk ratio (dwarfing genes)	High dry matter content	High sugar content (15-20%) in juice
Uses	Livestock feed, biofuel, pet food, human food	Silage	Syrup, molasses, sugar, ethanol
US Acres	4.4 million	273,000	30,000



U.S. Sorghum Acres

Million acres



◆ Planted ■ Harvested

Site selection

- Performs well on a wide range of soils
 - Prefers good drainage
- Sensitive to acidity (lime to pH >5.8)
- Low N requirement (~40 lb/ac)
 - No N necessary after legumes
 - Don't plant after poultry litter application
- Out-competes many weeds
 - Tall, allelopathic
 - Plan for 1-2 cultivations between rows when plants are <12" tall



Planting

- Warm season crop
 - Drought tolerant
 - Heat tolerant
 - Grows slowly in cold
 - Frost sensitive
- Early-mid May planting is best; no later than early June
- Direct seed or transplant 2-3 week old seedlings for earlier harvest
- 3' rows; 4-6" between plants



Harvest

- Hand
 - Tobacco knives, machetes, sharpened hoes
- Small machinery
 - Sickle bar mower, hedge trimmer
- Large machinery
 - Corn binder, forage chopper, in field juicer



Juice

- Juice extraction
 - Old roller mills extract 50-60% of stalk weight as juice
 - Short shelf life



Syrup

- Boil down to 78% sugar
- Batch or continuous flow pan
- Energy intensive, time consuming

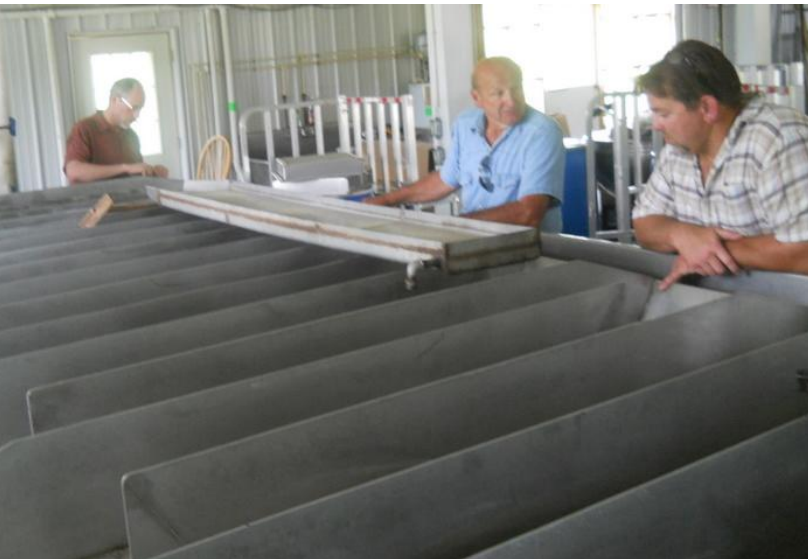


Table 1. Yield of Sweet Sorghum Varieties at Blairsville, GA, and Quicksand, KY.¹

Location and Variety	Stripped stalks	Syrup/ton of stalks	Syrup/acre
	Tons/acre	Gallons	Gallons
Blairsville, GA			
Brandes	18.7	11.7	219
Dale	18.6	13.1	243
Theis	17.9	11.6	208
Williams	19.9	16.6	328
Quicksand, KY			
Brandes	19.0	11.7	222
Dale	20.0	13.9	278
Theis	20.1	13.1	262
Williams	13.4	10.9	146

¹Freeman et al., 1986. USDA Agr. Handbook No. 611.

Economics

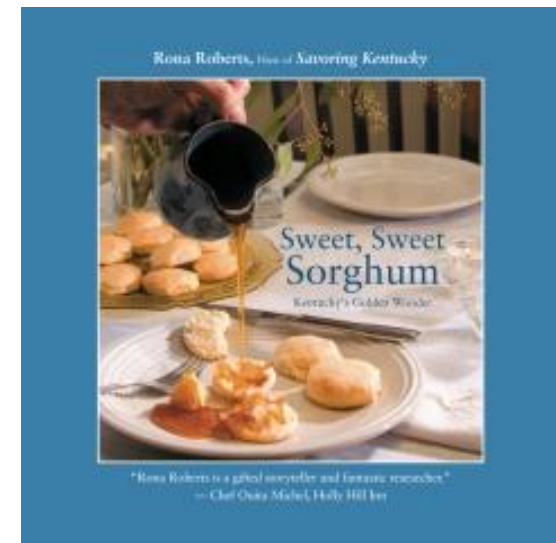
- Fixed & variable costs: \$800-\$1000/acre
- Labor accounts for more than half of cost
- Break even yield is 66 gallons per acre at \$15 per gallon
- Average yield is 175 gallons per acre
- 200-300 gallons per acre possible
- \$20-\$25 per gallon possible
- \$2,500 per acre return possible

Ethanol



Sweet, Sweet Sorghum: Kentucky's Golden Wonder

- “I wrote *Sweet Sweet Sorghum* to encourage more people to eat this luscious, nutritious food I have loved as long as I can remember. Sorghum is that rare food that is good, good for us, good for small farms and farm families, good for communities, and good for the earth...”
- “Eco-friendly, anti-oxidant-rich, cash producing sorghum cane, which growers around the world use for food, fiber, and fuel, can support our farms and small communities. Those of us who love the small farms and farmers of Kentucky and the rest of Sorghum Nation have the future in our sticky hands.”
- “If we eat it, growers will grow it.”
 - Rona Roberts, 2011



National Sweet Sorghum Producers and Processors Association

- Annual meeting:
February 16-18, 2012
Pigeon Forge, Tennessee
- \$20/year membership
- Newsletter, classifieds

