

The origins of sweet corn can be traced back to the 19th century when the (su) gene of field corn mutated. The new mutated corn had a sweet, rather than starchy, taste and was dubbed sweet corn. Sweet corn is one of the most popular vegetables in the home garden, roadside stands, and farmers markets. Sweet corn can be produced in three main market segments: fresh, canned, and frozen. Most frozen and canned sweet corn are produced under contracts while most fresh sweet corn is sold in local marketplaces.

Agronomic Characteristics

Sweet corn is a member of the *Gramineae* (grass family) along with barley, wheat, and rice. This mutated grass is native to the tropical environments of the Americas. There are many varieties of sweet corn available, but variety preference is different for each region. Standard yellow sweet corn is the most commonly known variety. In recent years white and mix (yellow and white mixed kernels) also have become popular. Varieties are available that are resistant to fungus, bacteria, and corn borer, as well as a selection of other common ailments.

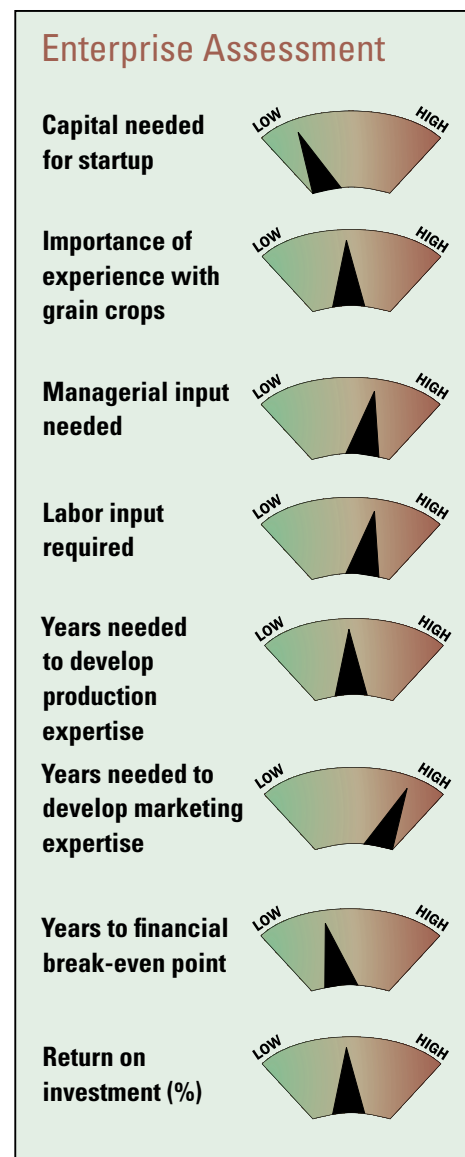


The mutation in sweet corn causes it to produce more sugar than field corn making it popular for human consumption, and also making the storage of sweet corn very difficult. Sweet corn has three main genetic types characterized by the level of sugar they contain.

Normal Sugary (su) is the standard sweet corn commonly grown through the years. Its rich corn flavor and quality are best if picked and cooked the same day. Some varieties germinate quite well at 55°F soil temperatures, and quality is best if isolated from field corn.

Sugary Enhanced (se) varieties have a modifying gene that increases the original levels of sugars in the kernels and extends their flavor. Moisture loss also is slower than normal (su) and tenderness is improved. The result is a sweeter, more tender kernel with good corn flavor that will retain its quality longer than normal (su) corn. As a group, sugary enhanced (se) corns have similar seed weight to normal (su) corn and some germinate nearly as well under the same conditions. They, too, should be isolated from field corn and are slightly better tasting when isolated from normal (su) sweet corn. The so-called Sweet Gene hybrids are similar in most respects to sugary enhanced (se) types.

Super Sweets or Extra Sweets have a shrunken (sh) gene, a name that describes the light-weight, wrinkled seed of this group. This gene raises original levels of complex sugars even further, again extending their flavor by slowing conversion to simpler sugars and finally to starch. Moisture also is



retained in this type, and shelf life is remarkably long. There usually will be more seed per pound in the super sweet (sh) types due to low seed density, but growers should wait for ideal conditions (soil temperatures of at least 60 to 65°F and ample moisture) before planting. Shrunken (sh) corns should be isolated from all other types of corn in order to maintain their eating quality.

Sweet Corn

Potential Return

Yields

The state average is 1,000 to 1,200 dozen per acre or 200 to 240 crates for the fresh market and 4 to 6 tons per acre for processing. If water requirements are met with a good irrigation system and other cultural practices optimized, sweet corn yields can be up to 7 to 8 tons per acre or 2,000 dozen.

Price

There has been an upward trend in the price of sweet corn for the past 15 years. Today the trend is starting to level off with an average price in 2007 of \$22.20 per cwt. With an average yield of 120 cwt per acre, returns can average around \$2,664 per acre. The price will fluctuate throughout the year. During the winter, prices may reach \$35 per crate and during the harvest season the price may drop to \$10 per crate.

Risks

The highest risk is finding a stable market with good prices. Possible markets are wholesale, such as grocery stores, or retail, such as farmers markets and roadside stands. Markets for your product should be established before planting. As the season progresses, prices of fresh sweet corn will drop and markets will become saturated.

Production risks are mostly the same for sweet corn as for field corn. However, sweet corn has a more limited root system than field corn. Moisture may need to be carefully monitored. Standard sweet corn has a shelf life of 1 to 2 days without refrigeration. The genetically modified varieties have a longer life of up to 2 weeks. There is a high risk of spoilage involved with sweet corn production, and bruising is a common occurrence during harvesting.

Marketing

Non-commercial sweet corn is normally marketed in one of three ways; Farm/roadside stands, direct retail, and farmers markets. Each of these markets has unique qualities, so before production of sweet corn is undertaken a market should be established. Producers growing for direct retail and corn processors normally have contracts. Most sweet corn grown in Iowa is sold within the state. According to the 2007 U.S. Census of Agriculture, there were 410 farms in Iowa harvesting 3,548 acres. Of these acres, half were harvested for processing and the other to sell at roadside stands and farmers markets.

Management

Plant bed preparation

This is usually determined by personal preference. Sweet corn will grow in conventional, minimum, and no-till operations much like field corn.



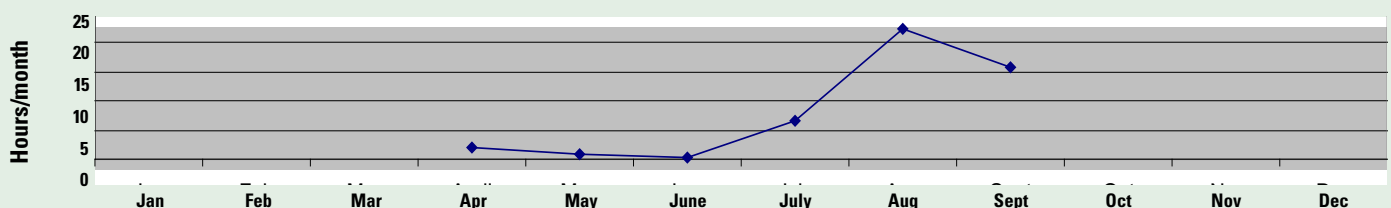
Planting

A continuous supply of sweet corn requires sequential plantings. Soil temperatures should be at least 60 degrees. Plants will grow at different rates as the temperatures begin to warm. The best way to gauge planting is by plant height and waiting until the last crop is 1 to 2 inches to plant the next. Populations will vary among varieties but can be between 15,000 and 24,000 plants per acre. This will require about 10 to 15 pounds of seed per acre.

Irrigation

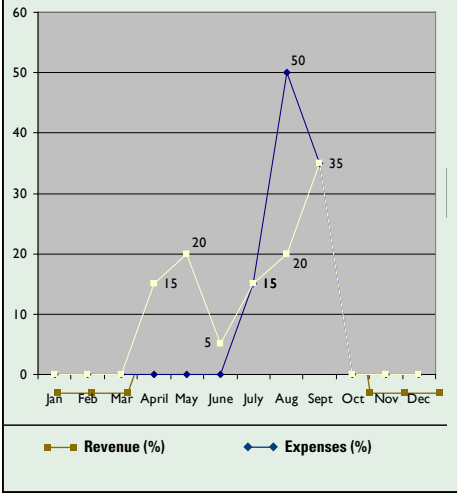
Sweet corn has a more limited root system than field corn. Yields are highly influenced by availability of water. Irrigation can increase yields by 20 to 30 percent. Sweet corn is harvested

Chart 1: Sweet Corn Labor Hours



Sweet Corn

Chart 2: Sweet Corn Enterprise Cash Flow Timings



in its early stages, so it does not have the same yearly water requirements of field corn. The benefits of irrigation are profound; however, irrigation in small-scale production is not practical.

Fertility

Corn grows best in deep fertile soils, and requires abundant fertilizer for optimum growth. Soil pH levels should be in the range of 5.5 to 7.0. Soil tests should be utilized to determine needed nutrients of nitrogen, phosphate, and potash to be applied. Nitrogen is normally applied at 80 to 120 pounds before planting and more is added throughout the growing season. Phosphate and potash are applied at rates between 0 to 150 pounds/acre depending on the soil test.

Weed control

Weeds compete with corn for the same nutrients and moisture, causing reduced yields. Seedbed preparation can reduce weed population. Cultivation is an easy way to help control weed populations. Several field corn herbicides can be used on sweet corn.

Disease and insect control

Sweet corn is vulnerable to a wide range of insect and disease problems. It is essential that growers regularly monitor the crop, follow recommended practices for spraying, and practice weed control. Growers should consult with corn specialists to identify and control diseases and insects.

Harvest

The quality of fresh sweet corn is dependent on harvesting procedures. Harvest should be performed while the corn is in the milk stage, when the kernels squirt milk when punctured. Corn should be picked in the early morning when the plant is cool. This will aid in cooling the ear and minimizing the loss of sugar. Sweet corn should be sold as soon as possible after harvest. The sugar in sweet corn immediately begins to turn to starch once the ear is picked. The time between harvest and consumption will have a significant effect on quality. Most corn is picked by hand; it would take at least 10 or more acres to economically validate having a mechanical harvester.

Market Outlook

Prices vary considerably from year to year and within a given season. Local sales vary with quantity and quality of corn available. For the past few years, prices have

usually averaged around \$4 per dozen for top quality corn. Commercially shipped sweet corn prices vary with season and national crop but usually will bring \$3.50 to \$4.50 per crate of five dozen ears.

Economic Considerations: Sweet Corn Production Budget

	Amount per acre	Price per unit (\$)	Total (\$)
Recipients:			
Sweet corn	1000 dozen	3.50	3,500.00
Variable Costs:			
Seed	12 pounds	10.00	120.00
Nitrogen	120 pounds	0.68	81.60
Phosphate	70 pounds	0.90	63.00
Potash	70 pounds	0.72	50.40
Lime	0.25 ton	14.00	3.50
Pesticides			50.00
Fuel, oil, and grease			7.39
Repairs			5.38
Miscellaneous			8.00
Interest on oper. capital	7 month	7%	14.76
Total Variable Costs			404.03
Fixed Costs:			
Operator	12 hours	11.00	132.00
Labor charge			
Machine and equipment charge			32.53
Land charge (rent)			180.00
Total Fixed Costs			259.00
Total costs			663.03
Return Above Variable Costs			3,095.97
Return Above Total Costs			2,836.97

Sweet Corn

Sources

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