COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

White and Yellow Food-Grade Corn

Introduction

White and yellow food-grade corns are dent corn (*Zea mays*) hybrids with specific starch traits. Uses include cereals, tortillas, corn chips, snack foods, and cornmeal.

Marketing and Market Outlook

Kentucky continues to be one of the leading states in the production of white and yellow corn for food. The demand for food-grade corn remains strong, with an increasing demand for white corn for snack food uses. Food grains can be grown for the open market or under contract to dry mill processors. The contract should be in place prior to planting. There is no on-farm market.

Production Considerations

Hybrid selection

Hybrid selection will depend on the characteristics required by the processor or end-user. Yield potential, standability, maturity, disease and insect resistance, and drought tolerance are all considerations when selecting a hybrid. Other traits, such as ear and kernel qualities, also differ between hybrids. Refer to the University of Kentucky Corn Variety Testing Web page for more information on cultivar performance. Choose hybrids that have performed well during multiple years and over a range of conditions. When grown under contract, the processor specifies both the hybrids to be planted and the number of acres.

Site selection and planting

Field preparation and growing practices for food-grade corn is similar to that of field corn. A key difference is that since food corn is grown for human consumption, maintaining a quality crop from beginning of production through market is of the utmost importance.

Corn does well on a wide variety of soils, but performs best on silt loam soils that are well drained, in good tilth, and free from erosion. No-tillage techniques, pioneered by farmers and researchers in Kentucky, are now so widely used in-state that they dominate seeding methods for corn. No-till is best suited to soils that are moderately well-drained to well-drained. Avoiding droughty soils and following a good crop rotation program is recommended. Standard crop rotations often include corn-soybean or corn-wheat-soybean rotations. Optimum planting dates usually range from the first of April to mid-May in Kentucky. Early planted corn has fewer disease and insect problems, plus it generally out-yields late-planted corn. Seeding populations should range from 22,000 to 30,000 seeds per acre depending on productivity of the soil.

CENTER FOR CROP DIVERSIFICATION

Food-grade corn will freely cross-pollinate with other types of field or sweet corn, making isolation necessary. In addition, white and yellow food corns must be kept separate from each other to prevent contamination of one color type with the other. Isolation can be accomplished by physical separation or by making sure there is a minimum of 14 days difference in the maturities of the different types.

Pest management

Major insect pests include flea beetles, cutworm, corn borer, and corn earworm. Potential disease problems include damping-off, gray leaf spot, stalk rots, and viruses. Crop rotation, seed treatment, and the use of resistant varieties can help reduce disease and insect problems. Seed insecticide and fungicide treatments (whether applied in the furrow or treated on the seed) will help reduce the early-season pest pressure. Historically, white corn hybrids are not as resistant to foliar diseases as yellow corn hybrids. Foliar fungicide sprays may show justifiable economic returns for food-grade and white corn production. Weed control can be achieved by a good crop rotation program and the use of herbicides.

Harvest and storage

Harvest should begin when operators can optimize profits. Factors such as the price of the corn; potential yield; length of harvest period; weather; and costs of equipment, labor, and energy can all influence harvest. Harvesting with a rotary combine generally results in less damage to the kernels. Field-drying is best; however, the kernels may be machine dried at low temperatures. Quality kernels should be low in stress cracks and have low moisture content. Aeration is necessary for extended storage.

Labor requirements

Labor needs are approximately 2 to 4 hours per acre for production and harvest.

Economic Considerations

Initial investments include land preparation and the purchase of seed.

Total 2013 variable costs for yellow and white corn (reduced tillage) were estimated at $650 to $700 per acre. Presuming a harvest of 125 bushels sold at $6.75 per bushel, gross returns of $840 per acre would be expected. Returns to operator labor, land, capital, and management would then range from about $140 to $190 per acre. Producers should remember that costs and returns can vary greatly between production settings and contract requirements.

Selected Resources

• A Comprehensive Guide to Corn Management in Kentucky ID-139 (University of Kentucky, 2001) http://www.ca.uky.edu/agc/pubs/id/id139/id139.htm

• Corn and Soybean Budgets (University of Kentucky, 2014) http://www.ca.uky.edu/agecon/index.php?p=29

• Corn Variety Testing (University of Kentucky) http://www.ca.uky.edu/cornvarietytest/

• Grain Crops Extension Web site: Corn (University of Kentucky) http://www.uky.edu/Ag/GrainCrops/corn.htm

• IPM in Kentucky Farm Stored Grain (University of Kentucky) http://www.ca.uky.edu/entweb/storage/open.html

• Kentucky Integrated Crop Management Manual for Corn (University of Kentucky 2009) http://www.uky.edu/Ag/IPM/manuals/ipm2corn.pdf

• Organic Field Corn Production (ATTRA, 2002) https://attra.ncat.org/attra-pub/summaries/summary.php?pub=90

• White Food Grade Corn (Ohio State University) http://www.oardc.ohio-state.edu/hocorn/white_index.htm

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Photo by Howard F. Schwartz, Colorado State University, courtesy of Bugwood.org **July 2013**