UK COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY — COLLEGE OF AGRICULTURE

Popcorn & Blue Corn

Introduction

Popcorn and blue corn (*Zea mays*) are harvested for their grain and sold for human consumption. Popcorn is a special type of flint corn, while blue corn is a general term for corn varieties that produce ears with blue or mixtures of blue and white kernels.

Marketing and Market Outlook

Blue corn is used to make cereals, tortillas, cornmeal, some pancake mixes, corn chips, and a number of Mexican foods. Popcorn can be sold unpopped for microwave or conventional use; or it can be packaged as a plain or flavor-added popped product.

Most specialty food grains are grown under contract with a processor who specifies both the hybrids to be planted and the number of acres. Prices received under contracts are sometimes linked to field corn prices through a set formula. The contract should be in place prior to planting. There are some prospects in western Kentucky for local contract popcorn production. A list of Kentucky popcorn producers can be obtained on the Kentucky Department of Agriculture Web site. A number of markets for blue corn in surrounding states may provide opportunities for Kentucky specialty corn producers.

Quality popcorn can also be sold on the open market since the product will keep indefinitely if properly stored. However, this is risky due to the very unpredictable popcorn market. Growers willing to become small-scale processors can also package and sell popcorn for local sales.

Production Considerations

Cultivar selection

Popcorn cultivars vary in terms of kernel size, shape, and whether or not they are hulless. While hulls can be various colors (e.g. yellow, white, blue, red, speckled), the popped corn is generally white to pale yellow. The shape of the popped corn ("mushroom" or round, and "butterfly" or irregular) and expansion rate will also vary between cultivars.

Many blue corn cultivars are derived from American Indian sources dating back to the 1800s and are classified as heirlooms. Kernel color can be blue-gray to darker colors (red or purple) that appear nearly black.

Site selection and planting

Field preparation for specialty corns is similar to that of field corn. 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. 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.

Specialty corns will freely cross-pollinate with other types of corn, making isolation necessary to maintain cultivar integrity and quality. Isolation from other corn types (e.g. field corn and sweet corn) as well as other cultivars of the same type 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.

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Pest management

Major insect pests include flea beetles, cutworm, corn borer, and corn earworm. Scouting to monitor populations can help the grower determine when and how often insecticides should be applied. Potential disease problems include damping-off, gray leaf spot, stalk rots, and viruses. Fungicide sprays typically do not show justifiable economic returns for commercial corn production. Crop rotation, seed treatment, and the use of resistant varieties can help reduce disease and insect problems. Weed control can be achieved by a good crop rotation program and the use of herbicides.

Harvest and storage

Specialty food corns are harvested at various moisture levels, depending on the type of corn and whether it is harvested on the ears or shelled. Popcorn is harvested only after it reaches full maturity to maximize popping potential. Blue corn kernels are initially white, darkening as kernels dry. Harvesting specialty corns with a rotary combine generally results in less damage to the kernels. Aeration is necessary for extended storage.

Labor requirements

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

Economic Considerations

Initial investments include land preparation and the purchase of seed. Blue corn and popcorn prices would be expected to be slightly higher than white/yellow food corns; however, specialty corns generally also have a lower yield. Total 2013 variable costs for contracted popcorn (reduced tillage) are estimated at $240 per acre. Presuming a harvest of 3,800 pounds per acre sold at $16 per hundredweight (cwt), gross returns of $608 per acre would be expected. Returns to operator labor, land, capital and management would then come to approximately $370 per acre. Blue corn returns would also be expected to be in the $350 to $400 per acre range. While these estimates indicate returns about $100 per acre above comparable field corn assumptions, producers should remember that costs and returns can vary greatly between production settings and contract requirements.

Selected Resources

- Business Development (Kentucky Department of Agriculture) http://www.kyagr.com/marketing/agribusiness/index.htm
- Comprehensive Guide to Corn Management in Kentucky, ID-139 (University of Kentucky 2001) http://www.ca.uky.edu/agc/pubs/id/id139/id139.htm
- Field Crop and Forage Enterprise Budgets for Kentucky (University of Kentucky, 2005) http://www.ca.uky.edu/cmspubsclass/tinymce/jscripts/tiny_mce/plugins/filemanager/files/adreum/budgets/archivedbudget/2006fieldcrop_budget.xls
- Kentucky Integrated Crop Management Manual for Corn (University of Kentucky, 2009) http://www.uky.edu/Ag/IPM/manuals/ipm2corn.pdf
- Popcorn Production and Marketing, NCH-5 (University of Kentucky et al.,2009) http://corn.agronomy.wisc.edu/Management/pdfs/NCH05_CR-2104web.pdf
- Where to Buy Kentucky Products (Kentucky Department of Agriculture) http://www.kyagr.com/buyky/
- Alternative Field Crops Manual: Popcorn (University of Wisconsin and University of Minnesota, 2000) http://www.hort.purdue.edu/newcrop/afcm/popcorn.html
- Blue Corn (Purdue University, 1993) http://www.hort.purdue.edu/newcrop/proceedings1993/V2-228.html
- Enterprise Budget: Popcorn (Leopold Center, Iowa State University, 2010) https://store.extension.iastate.edu/ItemDetail.aspx?ProductID=13308
- The Popcorn Agri-Chemical Handbook (The Popcorn Board, 2012) http://www.popcorn.org/PopcornAgriChemicalHandbook/tabid/148/Default.aspx
- Popcorn Profile (Agricultural Marketing Resource Center, 2012) http://www.agmrc.org/commodities__products/grains__oilseeds/corn_grain/popcorn_profile.cfm

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