

Grain Sorghum

Introduction

Grain sorghum (*Sorghum bicolor*), commonly called “milo,” is used primarily as a feed grain for livestock. Sorghum stubble makes excellent roughage following harvest and can be used for pasture. Grain sorghum can also be made into silage, although sorghum/sudangrass hybrids are more commonly used for this purpose.

Marketing and Market Outlook

A chief problem in producing grain sorghum in Kentucky is finding a market. Growers will need to locate a cash grain outlet before harvest, or plan to use the crop for feed on the farm. The majority of Kentucky grain sorghum is grown in the Paducah and Green River areas and is sold to a buying station across the Ohio River.

Grain sorghum commands a slightly lower price per pound than corn and, therefore, generally cannot compete with corn. Because grain sorghum is more drought-tolerant than corn, sorghum acreage may temporarily increase the year following a drought.

Production Considerations

Site selection and planting

Grain sorghum does best on deep fertile soils; however, it can be grown satisfactorily on most soil types as long as there is sufficient fertility and moisture. The month of May is normally the optimum time to plant to get good seedling emergence and expected yields. Sorghum can be planted later than corn and is



an option for fields that dry slowly in the spring. A corn planter or grain drill may be used for seeding. Grain sorghum does well in a range of row widths, but is most commonly grown in either 30- or 15-inch rows.

Sorghum can tolerate hot, dry conditions better than corn or soybeans, and it can withstand excessive moisture better than corn. Grain sorghum grown in a rotation usually produces higher grain yields than when grown continuously. The crop rotation plan needs to be considered carefully because, while sorghum follows other crops readily, not all crops follow it successfully.

Pest management

Insects of potential importance include sorghum midge, corn earworm, fall army worm, sorghum webworm, European corn borer, and aphids. Several types of diseases attack grain sorghum, including seed rots and seedling blights, leaf diseases, smuts and root and stalk rots.

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Early weed control is important since sorghum seedlings are slow in growing and poor competitors with weeds. The tool box of herbicides labeled for grain sorghum is very small and pre-plant or pre-emergence herbicides are a necessary component of the weed control program. In addition, grain sorghum seed may need to be treated to provide safety to some herbicides. When this crop is planted in small fields, near trees or buildings, it may be vulnerable to bird damage. Bird-resistant varieties are available and these should be planted if a bird problem is anticipated.

Harvest and storage

Grain sorghum is usually harvested with a combine using a slow cylinder speed to reduce problems with the grain cracking. This crop should be harvested as early as possible after maturity. Harvest-aid treatments may also be used to hasten grain drying in the field. Prior to storage, the grain will need to be dried by using either a heated or natural air drying system. Sorghum will require more drying time than corn. In addition, because sorghum packs more tightly than corn, farmers familiar with drying corn often overburden artificial driers when attempting to condition sorghum. Excellent grain bin management is needed to condition and store grain sorghum.

Labor requirements

Labor needs for producing and harvesting conventional tillage grain sorghum averages 4½ hours per acre.

Economic Considerations

Initial investments include land preparation and purchase of seed. Producing grain sorghum has a lower profitability potential compared to alternative grain production. Variable production costs are estimated at \$280 per acre. Seed costs could be considerably less for grain sorghum when compared to corn and the overall variable production costs are more favorable than for corn. While variable production costs are favored, the crop price and yields for corn compensate for higher costs. Total expenses per acre, including both variable and fixed costs, are approximately \$316.

The table below lists various estimated returns based on University of Kentucky 2009 budget information. Notably, while positive net returns for grain sorghum might occur, generally corn experiences greater positive net returns, thus putting corn at an economic advantage.

Selected Resources

- Field Crop and Forage Enterprise Budgets (University of Kentucky, 2005)
http://www.ca.uky.edu/cmspubsclass/tiny_mce/jscripts/tiny_mce/plugins/filemanager/files/adreum/budgets/archivedbudget/2006fieldcrop_budget.xls *interactive field crop budgets*
- Grain and Forage Crop Guide for Kentucky, AGR-18 (University of Kentucky, 2007)
<http://www.ca.uky.edu/agc/pubs/agr/agr18/agr18.pdf>

Grain Sorghum Return to Land, Capital, and Management at Various Prices and Yields

\$ Per Bushel	Bushels per Acre				
	70	80	90	100	110
\$3.25	-88.50	-56.00	-23.50	9.00	41.50
\$3.75	-53.50	-16.00	21.50	59.00	96.50
\$4.25	-18.50	24.00	66.50	109.00	151.50

- Grain Crops Extension Web site: Milo, Grain Sorghum (University of Kentucky)
http://www.uky.edu/Ag/GrainCrops/grain_sorghum.htm
- Harvesting, Drying and Storing Grain Sorghum (University of Kentucky, 2003)
<http://www.ca.uky.edu/agc/pubs/aen/aen17/AEN17.pdf>
- Insect Recommendations for Grain Sorghum (Milo), ENT-24 (University of Kentucky, 2010)
<http://pest.ca.uky.edu/EXT/Recs/ENT24-Sorghum.pdf>
- Kentucky Integrated Pest Management Manual for Grain Sorghum, IPM-5 (University of Kentucky, 1993)
<http://www.uky.edu/Agriculture/IPM/manuals/ipm5sorg.pdf>
- Plant Disease Management Guide for Corn and Sorghum, PPA-10a (University of Kentucky, 1995)
<http://www.ca.uky.edu/agc/pubs/ppa/ppa10a/ppa10a.pdf>
- Alternative Field Crops Manual: Grain Sorghum (Milo) (University of Wisconsin and University of Minnesota, 1989)
<http://www.hort.purdue.edu/newcrop/afcm/sorghum.html>
- Enterprise Budget: Sorghum (Leopold Center, Iowa State University, 2010) 1.5 MB file
<http://www.leopold.iastate.edu/sites/default/files/pubs-and-papers/2010-03-alternative-enterprise-budget-sorghum.pdf>
- Grain Sorghum Handbook (Kansas State University, 1998)
<http://www.ksre.ksu.edu/library/crpsl2/c687.pdf>
- Grain Sorghum Handbook (University of Arkansas, 2004)
http://www.uaex.edu/Other_Areas/publications/html/MP-297.asp

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Photo courtesy of Morris Bitzer, University of Kentucky

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For additional information, contact your local [County Extension](#) agent