

Eggplant

Introduction

Eggplant (*Solanum melongena*) is a heat-loving member of the Solanaceous family. While it is generally grown as an annual, eggplant is actually an herbaceous perennial. Long a popular vegetable in Asian, Middle Eastern, Greek, and Italian cuisine, the eggplant was thought to have been first introduced to America by Thomas Jefferson.

Marketing

Fresh market options for Kentucky-grown eggplant include wholesale markets, farmers markets, community supported agriculture (CSA) programs, and roadside stands. Sales to local retail markets, such as supermarkets and restaurants, are also an option. Although eggplant is a lower-volume crop, it can help add profits to the total mix of crops marketed. Point-of-purchase materials, such as recipes provided to farmers market and CSA customers, can help increase consumer familiarity with eggplant.

Market Outlook

While the U.S. consumption of eggplant has doubled since 1990, it is still less than 1 pound per person per year. Growth in eggplant markets has come as consumers diversify their diets, along with the growth of the ethnic Asian consumer market. There are many types and varieties of eggplant, requiring direct marketers to identify varieties preferred by consumers.



Production Considerations

Cultivar selection

Eggplant varieties differ in shape (egg-shaped, oval, elongated, or round), size (standard and miniature), and skin color (purple-black, red, white, green, and bi-color striped). The classic purple-black oval or egg-shaped types are commonly grown commercially in the U.S.; however, Asian cultivars (which come in a variety of shapes and sizes, but are typically long and slender) are increasing in popularity. Growers should only select adapted varieties that have the qualities in demand for the intended market.

Site selection and planting

Eggplant does best when planted in a well-drained loam or sandy soil with supplemental irrigation. A 3-year rotation out of other solanaceous crops (e.g. tobacco, tomato, pepper, and

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potato) is strongly recommended. Because this crop needs warm soil and warm air temperatures to yield well, it should not be transplanted until all danger of frost is past. Staking eggplants helps to prevent late-forming fruit from pulling the branches over to the ground. Approximately 4,000 to 6,000 plants are needed per acre.

Eggplant greatly benefits from the use of black plastic mulch with trickle irrigation. The moisture levels under the plastic must be carefully monitored when using this plasticulture system. While using black plastic increases production costs, these are offset by the higher profits resulting from greater yields and earliness, particularly on a warm season crop such as eggplant.

Pest management

Colorado potato beetle is a key insect pest of this crop. Other insects include flea beetles (which can be devastating to transplants), aphids, and mites. Many growers will cover eggplant seedlings with a row cover (remay) in lieu of using an insecticide to exclude flea beetles until plants are large enough to withstand pressure from this insect. Scouting to monitor populations can help the grower determine when and how often insecticides should be applied. Phytophthora blight, which affects stems and fruit, can be a problem in wet, poorly drained soils. Phomopsis blight, early blight, Verticillium wilt, and tomato spotted wilt virus can also cause crop losses. Disease management involves crop rotation, sanitation, planting in raised beds, and the use of protectant fungicides. Few eggplant cultivars have resistance to diseases other than tobacco mosaic virus (TMV).

Harvest

Most common eggplant varieties are harvested when they reach a dark, glossy, uniform purple-black color. Specialty eggplants should be harvested according to the dictates of the cultivar. Overly mature fruit becomes pithy and bitter, reducing market value. The fruit is hand cut from

the plant leaving the calyx intact. Eggplant is picked frequently for higher yields. A crop may be harvested at least five to six times in a season (at 7- to 10-day intervals). Because the fruit is delicate and bruises easily, it must be handled very carefully. Fruit must be wiped clean or washed after harvest and then cooled to extend shelf life. Even under ideal conditions, eggplant should not be stored longer than 14 days.

Labor requirements

Labor needs per acre are approximately 25 hours for production, 120 hours for harvest and 800 hours for washing and packing. Plasticulture will add 10 hours more per acre for the removal and disposal of the plastic.

Economic Considerations

Initial investments include land preparation and purchase or production of transplants. Additional start-up costs can include the installation of an irrigation system, black plastic mulch, and stakes. Production costs for trickle-irrigated eggplant are estimated at \$1,440 per acre, with harvest and marketing costs at \$3,200 per acre. Total expenses per acre are approximately \$5,120.

Since returns vary depending on actual yields and market prices, the following per acre returns to land and management estimates are based on three different scenarios. Conservative estimates represent the University of Kentucky's statewide average cost and return estimates for 2009.

<i>Pessimistic</i>	<i>Conservative</i>	<i>Optimistic</i>
\$(665) *	\$60	\$1,178

* Parentheses indicate a negative number, i.e. a loss

Selected Resources

- IPM Scouting Guide for Common Pests of Solanaceous Crops in Kentucky, ID-172 (University of Kentucky, 2008)
<http://www.ca.uky.edu/agc/pubs/id/id172/id172.pdf>

- Vegetable and Melon Budgets (University of Kentucky, 2008)
<http://www.uky.edu/Ag/cdbrec/vegbudgets08.html>
- Vegetable Production Guide for Commercial Growers, ID-36 (University of Kentucky)
<http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm>
- Eggplants (Agricultural Marketing Resource Center, 2009)

http://www.agmrc.org/commodities__products/vegetables/eggplants.cfm

- Eggplant Production (University of Missouri Extension, 2005)

<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G6369>

- Guide to Commercial Eggplant Production ANR-1098 (Alabama, 1998)
<http://www.aces.edu/pubs/docs/A/ANR-1098>

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*Photos courtesy of John G. Strang, University of Kentucky (fruit)
and Rebekah D. Wallace, Bugwood.org (blossom)*

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