



# Eggplant

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## Introduction

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

## Marketing

Marketing options for Kentucky-grown eggplant include wholesale markets, farmers markets, community supported agriculture (CSA) programs, produce auctions, and roadside stands. Wholesaling is also an option through local market channels such as supermarkets and restaurants. Eggplant tends to be a lower-volume crop but can complement a farm's vegetable marketing mix and add profitability to production. Point-of-purchase materials, such as recipes provided to farmers market and CSA customers, can help increase consumer familiarity with eggplant.

## Market Outlook

The U.S. consumption of eggplant is less than one pound per person per year, according to USDA data. Consumer interest in diversifying fresh vegetable consumption, along with growth in Asian cuisine, has provided some support for eggplant demand. 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 select only 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 three-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, fruit quality, and earliness, particularly with 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 (Reemay) 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 seven- 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 held at a temperature of 45 to 50 degrees F and 90 to 95 percent relative humidity to extend shelf life. Even under ideal conditions, eggplant should not be stored longer than 14 days.

#### *Labor requirements*

Labor needs to produce 700 1 $\frac{1}{9}$ -bushel boxes of eggplant per acre are approximately 40 hours for production, 70 hours for harvest, and 100 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. Specialty eggplant varieties may require greater seed or transplant expense. 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 \$2,360 per acre, with harvest and marketing costs at \$4,230 per acre. Total costs per acre are approximately \$7,190, including depreciation and other fixed costs.

Since returns vary depending on actual yields and market prices, the following estimated returns to land

and management are based on three different scenarios. Conservative estimates represent the University of Kentucky's statewide average per acre cost and return estimates for 2017.

Pessimistic \$(1,673)*	Conservative \$(417)	Optimistic \$2,725
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\*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, 2011) <http://www.ca.uky.edu/agc/pubs/id/id172/id172.pdf>
- Vegetable and Melon Budgets (University of Kentucky, 2017) <http://www.uky.edu/ccd/tools/budgets>

- Vegetable Production Guide for Commercial Growers, ID-36 (University of Kentucky) <http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm>
- Eggplant (Agricultural Marketing Resource Center, 2017) <http://www.agmrc.org/commodities-products/vegetables/eggplants/>
- 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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*Reviewed by Brent Rowell, UK Extension Professor*  
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