

# Pumpkin

## Introduction

The name “pumpkin” is commonly applied to any plant in the taxonomically diverse *Cucurbita* genus that produces the characteristic yellow to orange, round fruit. Pumpkin cultivars may belong to one of several species: *Cucurbita pepo*, *C. maxima*, *C. moschata*, and *C. mixta*.

## Marketing

Most pumpkins are used for ornamental purposes, with the greatest market demand during the Halloween season. Marketing options include: roadside stands, local retailers, wholesale markets, grower marketing associations, community supported agriculture (CSA), and U-Pick. Kentucky faces major competition in wholesale pumpkin production from surrounding states, especially Tennessee.

Higher and more stable prices can be expected from direct sale or even “pumpkin festival” sales, but this market can become saturated with too many growers. In some cases smaller growers can help supply the larger festival market grower to obtain prices that may be higher than wholesale. Smaller growers could also consider joint marketing efforts to attract wholesale buyers. Larger producers and those who do not have time for direct sales will need to find wholesale buyers or, in some cases, sell directly to supermarkets.

## Market Outlook

Pumpkins have long been a fundamental part of U.S. Halloween and Thanksgiving



celebrations. Additionally, these fruit are often an important component of fall decorations, which now rank just behind Christmas decorations in terms of consumer dollars spent. Although consumer demand for pumpkins has expanded considerably in recent years, more growers are getting into production. Because demand has not kept pace with increased supply, wholesale pumpkin prices were lower during the late 1990s and into the early 2000s. Unfavorable weather and disease difficulties in major production areas in Illinois during the 2009 season resulted in a short wholesale pumpkin crop. Proper production and management is crucial to guarding against risks of crop failure and market loss for wholesale pumpkin production.

## Production Considerations

### *Cultivar selection*

Pumpkin fruit can vary in size from less than a pound to more than 1,000 pounds. Along with the traditional orange-yellow color, there are cultivars that produce red, white, bluish-grey, or striped fruit. Varieties are also bred for specific purposes, such as

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carving, decorative uses, processing, or baking. For example, cultivars that are suitable for carving jack-o'-lanterns are normally too stringy or lack the flavor necessary for pies. While hard shell pumpkins are uncarvable, they have a very long shelf life and are easy to paint. Consideration should be given to the qualities in demand by the intended market. In addition, commercial growers should select well-adapted cultivars that have the necessary disease and pest resistance for their locale.

#### *Site selection and planting*

Pumpkin is a warm-season, vining crop that requires a long season for production. This crop grows best on well-drained, fertile soil. To help avoid some soil-borne disease problems, select fields where other cucurbit crops have not been grown for at least three years. Pumpkins are typically planted between mid-May and early June, with a mid-September harvest for wholesale marketing.

Honeybees are necessary for pollination and are essential for obtaining high yields of good quality fruit. Supplemental irrigation is critical in dry summers during flowering and fruit-set. Abnormally hot weather can present problems in obtaining fruit-set.

Some growers have successfully produced pumpkins using a no-till system of either seeding or transplanting into rye stubble or a rye-legume cover crop that has been killed with herbicide. This method can eliminate the need for washing pumpkins prior to marketing, it may reduce fruit rots, and it makes an easier and cleaner field to walk in for U-Pick customers.

#### *Pest management*

Insect pests of pumpkin include aphids, leafhoppers, cucumber beetles, squash vine borer, spider mites, and squash bugs. Using insect traps or scouting to monitor populations can help the grower determine when and how often insecticides should be applied. Black rot, downy mildew, and powdery mildew are the

most important diseases of late summer and fall cucurbits in Kentucky. Other diseases that can cause crop losses include Fusarium wilt, yellow vine, and several viruses. A good fungicide spray program is essential to produce quality fruit that will store.

#### *Harvest and storage*

Pumpkins are hand-harvested with a sharp cutting tool when the fruit is fully mature; generally when the color deepens uniformly and the rind becomes hard. Leaving a few inches of the stem intact makes the pumpkin more attractive. In addition, pumpkins without a stem do not store as well. Handle fruit carefully to avoid injury that could lead to fruit rot. Multiple harvests over a period of three to four weeks are common. Pumpkins can be stored for two to three months at the proper temperature and relative humidity.

#### *Labor requirements*

Labor needs per acre for non-irrigated pumpkins are approximately five hours for production, 40 hours for harvest, and 30 hours for hauling and handling. An additional 10 hours per acre is needed for black plastic removal following harvest.

### **Economic Considerations**

Initial investments include land preparation and the purchase of seed or transplants. Additional start-up costs can include the installation of an irrigation system and black plastic mulch.

Production costs (2009) for non-irrigated pumpkins are estimated at \$730 per acre, with harvesting and marketing costs at \$895 per acre. Total variable and fixed expenses per acre are approximately \$1,785. Presuming gross returns of \$1,760 per acre for 22,000 pounds of pumpkins (18- to 22-pound size sold at \$0.09 per pound), returns to land, capital and management would be approximately \$220 per acre.

Irrigating pumpkins would add to the above production costs and labor requirements. However, the use of drip irrigation has made the

difference between high profits and total crop failure for some Kentucky pumpkin growers in recent years; irrigating pumpkins easily pays for this expense in a drought year.

### **Selected Resources**

- IPM Scouting Guide for Common Problems of Cucurbit Crops in Kentucky, ID-91 (University of Kentucky, 2009)  
<http://www.ca.uky.edu/agc/pubs/id/id91/id91.pdf>
- Kentucky Pumpkin Integrated Pest Management Grower Manual, IPM-12 (University of Kentucky, 1998)  
<http://www.uky.edu/Ag/IPM/manuals/ipm12pum.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>

- Guide to Commercial Pumpkin and Winter Squash Production, ANR-1041 (Alabama Cooperative Extension, 2000)  
<http://www.aces.edu/pubs/docs/A/ANR-1041/ANR-1041.pdf>
- Organic Pumpkin and Winter Squash Production (ATTRA, 2003)  
<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=30>
- Pumpkins (Agricultural Marketing Resource Center, 2009)  
[http://www.agmrc.org/commodities\\_\\_products/vegetables/pumpkins.cfm](http://www.agmrc.org/commodities__products/vegetables/pumpkins.cfm)
- Pumpkins: Commercial Vegetable Production, MF-2030 (Kansas State University, 2004)  
[http://www.agmrc.org/media/cms/MF2030\\_0C42997F934A4.pdf](http://www.agmrc.org/media/cms/MF2030_0C42997F934A4.pdf)