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, consumer supported agriculture (CSA), and U-Pick. Kentucky faces major competition in wholesale pumpkin production from surrounding states, especially Tennessee. Smaller-sized and unique pumpkin varieties, especially those with good eating characteristics, may appeal to many direct market customers.

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. This is more likely to be the case in urban areas such as Louisville, Lexington and Frankfort; however, at this time, Kentucky does not have enough pumpkin producers to meet demand. 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. Many of the big box stores are requiring no-till production to avoid having to wash pumpkins, which is not an option in parts of Kentucky lacking large, flat fields suitable for no-till.

Market Outlook
Pumpkins have long been a fundamental part of U.S. Halloween and Thanksgiving celebrations. They are often an important component of fall decorations, which now rank just behind Christmas decorations in consumer spending. 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. Wholesale prices reflect trends in major production areas; for example, unfavorable weather and disease pressure 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 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 3 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, plectosporium 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 3 to 4 weeks are common. Pumpkins can be stored for 2 to 3 months at the proper temperature and relative humidity.

**Labor requirements**
Labor needs per acre for non-irrigated pumpkins are approximately 5 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 (2014) for non-irrigated pumpkins are estimated at $715 per acre, with harvesting and marketing costs at $895 per acre. Total variable and fixed expenses per acre are approximately $1,770. Presuming gross returns of $1,980 per acre for 22,000 pounds of pumpkins (18- to 22-pound size averaging $0.09 per pound), returns to land, capital and management would be approximately $235 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
• Vegetable and Melon Budgets (University of Kentucky, 2013) http://www.uky.edu/Ag/CCD/vegbudgets13.html
• Vegetable Production Guide for Commercial Growers, ID-36 (University of Kentucky) http://www.ca.uky.edu/agc/pubs/id/id36/id36.htm
• Commercial Production and Management of Pumpkins and Gourds, Bulletin 1180 (University of Georgia, 2001) http://www.caes.uga.edu/Publications/pubDetail.cfm?pk_ID=6279
• Pumpkins (Agricultural Marketing Resource Center, 2013) http://www.agmrc.org/commodities__products/vegetables/pumpkins.cfm

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For additional information, contact your local County Extension agent

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