

Potatoes

The potato (*Solanum tuberosum*) is a cool-season plant originally from the Andes Mountains of South America. The tubers are underground stems (also known as stolons), not roots. Potatoes are grown in Kentucky as an early crop for fresh market consumption and for sales to potato chip companies for chipping.

Marketing and Market Outlook

Fresh market options include farmers markets, produce auctions, cooperatives, Consumer Supported Agriculture (CSA) shares, and roadside stands.

A reduction in potato supply, caused by the removal of potato acreage in major producing states, helped fresh potato prices strengthen during 2006-2007. Nationally, summer and fall fresh market potato prices hit price highs in 2008 then declined toward more average levels in 2009. Slightly lower shipments from key areas in 2010 kept fresh market potato prices on the high-average side for the 2010 production year.

Opportunities exist for the production of small “new” potatoes, russets, heirlooms, and other specialty or “gourmet” types for local markets, sales to restaurants, or sales to local/area wholesalers. Sales of very small “mini” or “creamer” potatoes (1 to 1½ inches in diameter) are also possible and command premium prices in some markets. There is a potential for increased production to supply these market outlets in Kentucky.



Markets for processing potatoes for chips or frozen products are mainly dominated by northern production areas. Kentucky producers investigating potential processing options for potatoes should recognize that profit margins tend to be much tighter for processing potatoes and high yields are critical for profitability. Most processing potatoes are purchased by contract with experienced growers. Chipping potatoes involve special varieties grown on a large scale. Growers may explore more information about potato processing at the Agricultural Marketing Resource Center Web site.

Production Considerations

Cultivar selection

Potato cultivars differ in such tuber characteristics as skin color (white, shades of red, and purple tones), flesh color (white, yellows, blue, and purple), shape (elongated to round), eye depth (shallow to deep), skin texture (smooth to rough), and size. Varietal differences also include earliness (early, mid- or late-season) and use (baking, chipping, all purpose). Disease resistance/tolerance to scab, early blight, and blackleg are available

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in some selections. “New” potatoes are often red-skinned, but they can be any variety that is harvested early in the season when tubers are 1½ to 2¼ inches in diameter. Gourmet or mini potatoes are produced from varieties that tend to yield high numbers of tubers. Fresh market producers may want to consider adding heirloom cultivars to their mix, along with specialty cultivars. Commercial growers should only select adapted varieties that have the qualities in demand for the intended end-use and market.

Site selection and planting

Loam soils are most desirable for good potato yields; however, potatoes can be grown on a wide range of well-drained soil types. Sod ground should be treated for grub and wireworm control prior to planting. Potatoes should not follow potatoes or other solanaceous crops (e.g. eggplant, peppers, tomatoes, or tobacco) on the same ground year after year. A three- to four-year rotation program should be followed. If tobacco is grown on the same farm, potatoes should not be planted within 200 yards to reduce the risk of aphid-transmitted viruses moving from one crop to the other.

Only certified seed stock should be purchased. Fifteen to 18 100-pound bags of seed potatoes are usually needed to plant an acre. Early potatoes are planted from March 15 to April 10 while a late crop is planted from June 15 to July 15. Cultivation is necessary for weed control and to keep soil hilled up around plants.

Potatoes have been grown on raised beds with black plastic and drip irrigation. Plasticulture production of potatoes generally allows for easier harvest, particularly when harvesting over a long period of time. However, the high soil temperatures obtained under plastic can reduce the size of mid- and late-season maturing varieties. In addition, the plastic can be an impediment to harvest on a larger scale. Therefore, it is not recommended for more than small plantings of potatoes. Potatoes have also been grown under high tunnels for even earlier harvests.

Pest management

Colorado potato beetle and flea beetles are the key insect pests of potato. Potential disease problems include blackleg, early blight, root knot nematodes, *Rhizoctonia* stem canker, scurf, scab, and viruses. Late blight could become a problem during cool, wet growing seasons. Multiple control strategies are needed to prevent or reduce losses. The uses of certified seed, varietal resistance, crop rotation, sanitation, seed treatment, and pesticide applications are important strategies for managing disease and insect pests in potato fields. Scouting to monitor insect populations and to identify disease problems early can help growers determine when and how often pesticides should be applied. Herbicides, mechanical cultivation, and a good rotation system can help manage weeds.

Harvest and storage

The best time to dig potatoes will depend on the price and the market. For “new” potatoes or smaller-sized “gourmet” varieties that will be sold locally early in the season, it may be necessary to dig before the vines die back. In these situations cutting or mowing the plants a couple of days prior to digging, while not necessary, can help firm the skin. The vines of potatoes dug for storage should be dead prior to digging. Using chemicals to kill the plant tops will aid in earlier harvest and promote a firmer skin set.

Washing potatoes for fresh market is desirable. Potatoes may be stored for long periods at the proper temperature and relative humidity. Sprouting in storage can be reduced by spraying potato plants with a growth regulator while still in the field. Potatoes are marketed in a variety of containers depending on the size/type of potato and the market. Fingerling potatoes are often sold in clamshell containers or small mesh bags.

Labor requirements

Labor needs for potato production are approximately 25 hours per acre. Harvesting fresh market potatoes requires approximately 50 hours per acre with an additional 25 hours per

acre for washing, grading, bagging, and packing. Harvest labor requirements will be higher for hand-dug “new” or mini potatoes. Potatoes for chipping require approximately 20 hours per acre for harvest and marketing.

Economic Considerations

Initial investments include land preparation, fertilization, and purchase of seed potatoes. An additional start-up cost for a wholesale market operation can include the installation of an irrigation system.

Pre-harvest production costs (2010) for fresh market potatoes are estimated as much as \$1,100 per acre, with harvest and marketing costs at \$1,110 per acre. Total expenses per acre are approximately \$2,300. Presuming gross returns of \$2,750 per acre, returns to land, capital and management come to approximately \$43 per acre (assuming primarily wholesale price levels). Returns to land, labor, capital and management are estimated at \$200 per acre.

This projection assumes an average price of \$10 per hundredweight (cwt) for fresh market potatoes. This price is based mainly on wholesale price levels with limited direct sales. Producers marketing directly to customers at higher prices per pound (\$0.25 to \$1 retail) can greatly increase the potential profitability of potato production.

Production of potatoes for processing (chipping) would only be economically feasible with strong yields, larger acreages, and contracts that lock in reasonable price levels.

Growers in Kentucky have had some success marketing potatoes on a smaller scale through produce auctions and farmers markets; potatoes are typically sold by the peck or bushel during the early summer markets. Irish-type baking potatoes as well as small red and white potatoes have had strong demand, including buyers in the local restaurant community. Historic prices can be found in CDBREC produce auction and farmers market price reports online.

Selected Resources

- An 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>
- Price Reports (CDBREC)
<http://www.uky.edu/Ag/NewCrops/price.html>
- 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>
- Commercial Potato Production and Management (Manitoba Agriculture, Food and Rural Initiatives, 2007)
<http://www.gov.mb.ca/agriculture/crops/potatoes/index.html>
- Commercial Potato Production in North America (The Potato Association of America, 2010)
<http://vric.ucdavis.edu/pdf/POTATOES/Commercial%20Potato%20Production%20in%20North%20America%202010.pdf>
- Gourmet Potato Production (Manitoba Agriculture, Food and Rural Initiatives, Canada, 2003)
<http://www.gov.mb.ca/agriculture/crops/potatoes/bda04s10.html>
- Growing Irrigated Potatoes, AE-1040 (North Dakota State University, 1999)
<http://www.ext.nodak.edu/extpubs/plantsci/rowcrops/ae1040w.htm>
- Guidelines for Seed Potato Selection, Handling and Planting, PP-877 (North Dakota State University, 1997)
<http://www.ext.nodak.edu/extpubs/plantsci/rowcrops/pp877w.htm>
- Organic Alternatives for Late Blight Control in Potatoes (ATTRA, 2004)
<http://attra.ncat.org/attra-pub/lateblight.html>
- Potato Profile (Agricultural Marketing Resource Center, 2010)
http://www.agmrc.org/commodities__products/vegetables/potato_profile.cfm

- Potatoes (Agricultural Marketing Resource Center, 2010)

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

- Potatoes: Organic Production and Marketing (ATTRA, 2009)

<http://attra.ncat.org/attra-pub/potatoes.html>

- Potato Varieties: A Comprehensive List (Washington State University, 2010)

<http://potatoes.wsu.edu/varieties/vars-all.htm>

- Specialty Potatoes (University of California at Davis Small Farm Center, 1992)

<http://www.sfc.ucdavis.edu/pubs/brochures/Specialtypotatoes.html>

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