

# Garlic and Elephant Garlic

## Introduction

Garlic (*Allium sativum*) is commonly used as a flavoring for food, as a condiment, and for medicinal purposes. The milder-flavored elephant garlic (*Allium ampeloprasum*) is actually a leek that produces large cloves.

## Marketing

Fresh market options for Kentucky-grown garlic include wholesale markets, farmers markets, and roadside stands. Sales to local retail markets, such as supermarkets and specialty produce stores, are also an option. In addition to whole bulbs, garlic can be sold in a number of other forms. Immature plants may be marketed as 'scallions,' also referred to as 'green garlic.' Tops may be sold as greens. There is no market for commercially processed garlic due to the lack of local garlic dehydration facilities.

Flower stalks (scapes) harvested from hardneck types can be sold as a specialty item. Value-added techniques include braiding tops and pickling. Garlic spreads are not an option for small-scale production since Kentucky state regulations (HB 391) prohibit the use of garlic-in-oil mixtures in home-based processing and microprocessing. The processing requirements for these and other low-acid products are stringent due to the potential danger of botulism poisoning developing from improper processing.



## Market Outlook

Increased use of garlic has been attributed to a rise in the popularity of international foods and a greater awareness of garlic's reported health benefits. The per capita consumption of garlic soared during the 1990s and per capita consumption stood at 2½ pounds in 2010. Consumers have been receptive to both organically and conventionally grown garlic in Kentucky. Locally grown garlic has been successfully marketed at upscale retailers in the Lexington area. Kentucky restaurants featuring local foods have ranked garlic as one of the top produce crops that they are interested in sourcing from local growers.

## Production Considerations

### *Cultivar selection*

Garlic cultivars are grouped into two main categories: hardneck (produce a scape) or softneck (do not produce a scape); both types can be grown in Kentucky. Other traits that can differ between cultivars include clove arrangement, number of cloves, size of cloves, color, skin tightness,

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and flavor. Some of these characteristics can change depending on the production location and environmental conditions, thereby complicating varietal selection. Even hardneck and softneck designations can break down in different climates. Growers should select only adapted varieties that have the qualities in demand for the intended market.

Cultivar selection for elephant garlic is simple: there is only one. Even the hardneck and softneck types, which may be sold under different names, have been identified as the same cultivar.



#### *Site selection and planting*

Garlic does best in well-drained soil high in organic matter. Heavy soils, which hamper bulb enlargement and stain the garlic, should be avoided. Garlic is planted by hand in the fall and harvested the following summer. Planting in raised beds promotes good soil drainage, reduces soil compaction, and increases the ease of harvest. Drip or trickle irrigation is recommended during the growing season, especially during bulb formation. Irrigation should be discontinued approximately two weeks prior to harvest. Mulching immediately after planting is beneficial.

#### *Pest management*

Disease problems include downy mildew, bulb and neck rots, purple blotch, and Botrytis leaf blight. Purchasing disease-free bulbs, rotating crops, and following good cultural practices can help prevent many of these diseases; however,

fungicide sprays may be needed in some years. The most common insect pests of garlic include onion thrips and onion maggot. Scouting to monitor populations can help determine when and how often insecticides should be applied. Weed control is essential since garlic is a poor competitor. Mechanical cultivation, hand hoeing, mulch, crop rotations, and herbicide applications are typical weed management strategies.

#### *Harvest and storage*

Garlic is ready for harvest when the leaf tops begin to dry and bend towards the ground. The presence of three to five wrapper leaves is the best indication of maturity. Before harvesting, random bulbs should be pulled to be sure they have reached the desirable size. Mature elephant garlic bulbs are about twice the size of regular garlic. Rain during harvest causes serious problems because wet soil stains the bulbs and can increase the possibility of decay.

Garlic and elephant garlic bulbs are hand-harvested. Soil is loosened prior to pulling using a garden fork, bed lifter, or potato digger. Properly cured or dried garlic can be stored for up to 3 months in a standard warehouse or up to 6 months in cold storage.

#### *Labor requirements*

Garlic production is labor intensive because the crop is planted and harvested by hand. Labor needs per acre are approximately 24 hours for production, 32 to 40 hours for harvesting, and 16 hours for curing bulbs and packaging.

### **Economic Considerations**

The cost of seed cloves plus the hand labor for planting and harvest makes the initial investment for garlic production high in comparison to some other vegetable crops. Additional costs include land preparation and the installation of an irrigation system.

Garlic returns are very dependent on how the crop is marketed. Wholesale marketing of well-

managed garlic at prices from \$1.50 to \$2.50 per pound could generate returns of \$800 to \$2,400 per acre to land, operator, and management for Kentucky producers. An acre of well-managed conventional or organic garlic that is directly marketed at prime locations by the producer (perhaps in braids and other forms) could return in excess of \$5,000 per acre. Management, price per pound, and markets will determine the profitability of garlic for the producer.

### **Selected Resources**

- Selected Internet Resources for Herb Marketing (University of Kentucky, 2011)  
<http://www.uky.edu/Ag/cdbrec/herbmarketing.pdf>
- Garlic: Flavor for the Ages (USDA, 2000)  
<http://www.ers.usda.gov/Publications/AgOutlook/jun2000/ao272e.pdf>
- Garlic Production (Ontario Ministry of Agriculture, Food and Rural Affairs, 2009)  
<http://www.omafra.gov.on.ca/english/crops/facts/09-011w.htm>
- Production and Management of Garlic, Elephant Garlic and Leek, Circular 852 (University of Georgia, 2009)  
[http://www.caes.uga.edu/Publications/displayHTML.cfm?pk\\_id=7806](http://www.caes.uga.edu/Publications/displayHTML.cfm?pk_id=7806)
- Garlic: Organic Production (ATTRA, 2008)  
<http://attra.ncat.org/attra-pub/garlic.html>

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*Photos by Rüdiger Wolk, Wikimedia Commons (garlic bulbs)*

*and H.F. Schwartz, Colorado State University, Bugwood.org (garlic planting)*

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