

# Watermelon

## Introduction

Watermelon (*Citrullus lanatus*) is a warm season crop in the Cucurbit family. As with other vining crops in this family, watermelons can require considerable space, depending on the production method.

## Marketing and Market Outlook

Kentucky fresh market seeded and seedless watermelons are currently being sold at produce auctions and farmers markets throughout the state. Other marketing options include roadside and on-farm stands, local retailers, food services, and wholesale markets.

Seedless watermelons have helped this crop become more popular with U.S. consumers in recent years. Current consumer trends call for smaller “icebox” and seedless melons, pre-cut melon quarters and halves, uniquely colored melon varieties (such as yellow-fleshed watermelons), and “mini” seedless watermelons.

## Production Considerations

### *Cultivar selection*

Watermelon cultivars differ in such horticultural traits as fruit shape (round to oblong), rind color (light to dark green, with or without stripes), fruit size (35 pounds to 10 pounds or less), and flesh color (red, dark red, orange, and yellow).

Varieties may be classified as open-pollinated, F1 hybrid, or triploid (seedless) depending on how they were developed. When growing



seedless varieties, about one third of the plants in the field should be seeded watermelons to provide adequate pollination. Alternately, an unharvested pollinator variety can be inserted between every third plant. Disease resistance to anthracnose, Fusarium fruit rot, and/or Fusarium wilt is available in some cultivars. Growers should select only adapted varieties that have the qualities in demand for the intended market.

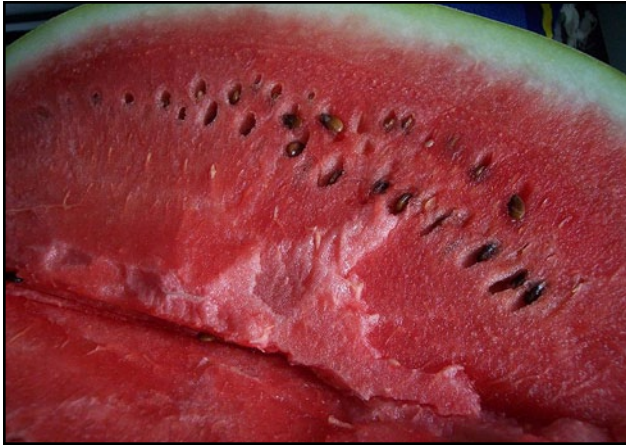
### *Site selection and planting*

Watermelon should not follow watermelon, other cucurbits (such as cucumber, squash, or pumpkin), tomatoes, or peppers for at least 3 years. This crop grows best in sandy or sandy loam soils. Watermelons grown on heavier soils tend to be irregular in shape and may contain less sugar.

Direct-seeding has been the most common way of planting watermelons. Seed should not be planted until the soil temperature has warmed up sufficiently to promote rapid germination. Another method is to set transplants that have been started from seed in a greenhouse. This method

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must be used for seedless watermelons due to their high seed costs and exacting germination requirements. Transplants should be planted in the field around the time the first true leaves appear. Transplanted melons generally mature 10 days to 2 weeks earlier than direct-seeded crops.



Black plastic mulch in raised beds with drip irrigation has been used successfully with watermelons. Advantages of plastic mulch include: soils warm up faster, soil moisture is retained, nutrient leaching is prevented, and weeds are controlled. Planting in raised beds encourages earlier maturity and improves soil drainage. A hand corn planter can be used for planting seed through the plastic while a bulb setter or waterwheel setter may be used effectively for transplanting. Trickle irrigation increases fruit quality and quantity. In addition, fertilizer can be injected through the irrigation system.

Wild bees will help provide pollination; however, beehives should be used to ensure good pollination in commercial plantings. One strong hive per 2 acres is generally considered adequate.

#### *Pest management*

Gummy stem blight is the most widespread and serious disease of watermelon in Kentucky. Other diseases that can result in crop losses include anthracnose, *Alternaria* leaf spot, *Cercospora* leaf spot, and yellow vine decline.

Some disease resistance is available in certain cultivars. Good spray coverage with appropriate fungicides/bactericides is essential. Watermelon insect pests include aphids, cucumber beetles, and mites. As with all vegetables, weeds can be a serious problem in commercial fields. Black plastic mulch usually works well to remove weed pressure from within rows and selective herbicides can be used in middles between rows.

#### *Harvest and storage*

Watermelons are hand-harvested when fully ripe. “Thumping” the fruit is not a reliable indicator of fruit maturity. The presence of a dead tendril at the point where the fruit attaches to the vine helps in determining when to harvest seeded watermelons, but is not useful for seedless varieties. The best indicator for ripeness is the change in color of the underside of the melon where it comes into contact with the ground. However, because this color varies among cultivars, growers must become familiar with the varieties grown to determine the best stage of harvest. Melons should be handled gently to avoid bruising. Cooling harvested fruit removes field heat and prolongs shelf-life. Watermelons may be stored for 3 to 4 weeks at the proper temperature and relative humidity.

#### *Labor requirements*

Per acre labor needs for trickle irrigated watermelon are approximately 20 hours for production, 60 hours for harvest, and 10 hours for grading. An additional 10 hours per acre is needed for 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 for trickle-irrigated watermelon are estimated at \$1,325 (seeded) and \$1,590 (seedless) per acre with harvest and marketing costs at \$1,412 (seeded) and \$1,432 (seedless) per

acre. Total expenses per acre are approximately \$3,170 (seeded) and \$3,450 (seedless).

Since returns vary depending on actual yields and market prices, the following per acre returns to land and management estimates are based on three different scenarios. Conservative estimates represent the University of Kentucky's statewide average cost and return estimates for 2009.

#### SEEDED WATERMELONS

<i>Pessimistic</i>	<i>Conservative</i>	<i>Optimistic</i>
\$(557) *	\$(198) *	\$555

#### SEEDLESS WATERMELONS

<i>Pessimistic</i>	<i>Conservative</i>	<i>Optimistic</i>
\$(600) *	\$210	\$550

\* Parenthesis indicate a negative number, i.e. a net loss

#### 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>

- 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 Watermelon Production, Bulletin 996 (University of Georgia, 2000)  
[http://www.agmrc.org/media/cms/B996\\_B3D54FD90A36C.pdf](http://www.agmrc.org/media/cms/B996_B3D54FD90A36C.pdf)
- Factors Affecting Watermelon Consumption in the United States (USDA, 2000)  
<http://www.ers.usda.gov/briefing/vegetables/vegpdf/watermelonfactors.pdf>
- High Tunnel Melon and Watermelon Production (University of Missouri, 2006)  
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=M173>
- Watermelon (Agricultural Marketing Resource Center, 2011)  
[http://www.agmrc.org/commodities\\_\\_products/vegetables/watermelon.cfm](http://www.agmrc.org/commodities__products/vegetables/watermelon.cfm)

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*Photos courtesy of Steve Patton, UK Ag Communications Services (whole melons) and Wikimedia Commons, public domain (cut melon)*

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