Food Source Information
A Food Production Wiki for Public Health Professionals

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InFORM
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Integrated Food Safety Centers of Excellence

**Goal:** Build health department capacity to track and investigate foodborne disease

- **Trainings**
- **Tools**
- **Technical Assistance**
“Necessity is the mother of invention”
A food production wiki for public health professionals

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About
This Wiki is an interactive website created as a working guide to food production methods for public health professionals.

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FSI Wiki Articles
Articles include pages about production methods for individual food items. Please visit the contact page to become an editor.

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Food Source Information Wiki

- Designed for public health professionals
- Basic information on production practices
- Bridge knowledge gap, improve outbreak response nationwide
FSI Wiki Articles

Articles include pages about production methods for individual food items. Please visit the contact page to become an editor.

Kombucha

Flour

Avocados

Eggs
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However, based on 2011 data, Colorado only ranks sixth among states in cantaloupe production—around 2% of total US cantaloupe production. In most years, over 90% of cantaloupes were grown in California, Arizona, and Texas. Other important 2011 Colorado agricultural data are below:

- Acres planted: 2,200
- Dates planted: April 15 to May 15
- Acres harvested 2,100
- Total harvested: 39,900 pounds
- Dates Harvested: June 15 to October 15 (most by September 15)
- Typical growing period: 70-80 days
- Cash receipts in Colorado: 9,177,000

**Foodborne Outbreaks**

In the United States, in the period between 2000 and 2009, cantaloupes were the third most common produce item to cause foodborne illness, after leafy greens and tomatoes—although they were consumed in much lower quantities. Although over half of all cantaloupe outbreaks have been due to *S. enterica* contamination, there have also been issues related to *Norovirus*, *Campylobacter*, *E. coli O157*, *Listeria*, *Shigella*, and other pathogens.

Although many cantaloupe outbreaks have been linked to imported fruit, the major, multistate listeriosis and salmonellosis outbreaks in 2011 and 2012 were associated with consumption of fresh cantaloupe from farms located in Colorado and Indiana, respectively.

Compared with other foodborne disease outbreaks, cantaloupe outbreaks have been more severe and widespread. Since 1985 there have been 1,520 illnesses, 297 hospitalizations, and 36 deaths (33 in the 2011 outbreak and 3 in the 2012 outbreak). The 2011 outbreak was the deadliest since 1924.

In February 2013 the director of the Center for Food Safety and Applied Nutrition at the FDA issued letters to members of the cantaloupe industry who grow, harvest, sort, pack, process, or ship cantaloupe, directing them to observe the existing best practices for food safety.
Production

Soil & Planting

Cantaloupes are a warm-season annual plant that is sensitive to freezing temperatures at any growth stage. They grow best in sunny, hot weather, with minimal rain and low humidity, and they are typically planted in the spring after the soil temperature is above 65°F. Sandy soils are used for the earliest plantings because they warm more rapidly in the spring, while loam and clay loam soils are preferred for main-season production due to greater water-holding capacity, which favors a prolonged harvest period. Most cantaloupes are direct seeded, in a single seed line per bed. Seed is planted into pre-irrigated, moist soil under 3 to 6 inches of loose soil, and it is important that the soil is well drained to prevent root diseases. 

Cantaloupes are often planted in raised beds, which helps irrigation water get to the roots while the surface remains dry. Also, a lightweight plastic film or mulch is often used to cover a seedbed. See plasticulture for details.

Cantaloupes produce both staminate and perfect flowers, the latter having both male and female parts and ultimately developing into the fruit. Growing cantaloupes requires bee pollination; poor weather conditions (cold, rain, high wind, or prolonged cloud coverage) or use of pesticides that reduce bee activity may reduce yield.

If cantaloupes contact moist soil during the growing period, a “ground spot” may result. This is an area on the rind that is thin and poorly developed and appears as a cosmetic blemish. Presence of a ground spot increases the risk for mold and microorganism growth and accelerated decay and may be more susceptible to internalization by pathogens during post-harvest handling.

In some regions, growers will hand-turn melons to prevent development of a ground spot, increasing the potential for contamination (from human contact). However, ground spot formation can be prevented (without human contact with the melons) using other methods to keep cantaloupes off of the ground and dry, including proper planting-bed preparation and careful irrigation management.
Food Safety

Unfortunately, physical characteristics of their rind and flesh make cantaloupes susceptible to pathogen contamination and growth, and cantaloupe consumption has been associated with many outbreaks in the last few decades—19 reported from 1973-2003 and 23 reported from 1985-2012.

As contamination can arise from soil, water, equipment, animals, or humans, and can occur at any phase of production (growth, harvesting, post harvest handling, packing, transportation, or distribution) it is important to understand the details of each. Also, production methods may vary considerably between growers or by region.

Consumer handling recommendations for safe handling of cantaloupe are to use soon after purchase and wash the outside rind thoroughly under clean running water, scrubbing with a clean vegetable brush to help remove soil or possible contamination before cutting. A clean knife and cutting board should be used and the knife should be rinsed after each cut. Cut melon should be stored at refrigerator temperatures and used within two to three days.

Consumption

Worldwide, the United States is one of the largest consumers of melons. Americans eat an average of 27 pounds of melons per year, and 8.7 pounds of this is cantaloupe. Melon consumption has increased with the introduction of sweeter seedless and hybrid varieties. In the 2006-2007 Population Survey Atlas of Exposures, 31.6% of the survey cohort reported eating cantaloupe within the past 7 days.

Nutrition

Cantaloupes are a low-calorie (27 calories per 1/2 cup serving), nutrient dense fruit. They are a rich source of vitamin A (β-Carotene), vitamin C, potassium, folic acid, and the micronutrients copper, iron, and zinc. Cantaloupe is naturally low in sodium and contains some dietary fiber and calcium.
FSI Wiki Feedback and Usage

“[The FSI wiki] is particularly useful in foodborne illness investigations to understand what might make a particular product risky for certain pathogens and the parts of the food chain process where contamination could occur.”

“The food source wiki is like having an agricultural expert co-located with us at the health department.”

Most popular articles: kombucha, mushrooms
FSI Wiki – Next Steps

• Continue to improve website
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• Continue to add food articles
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