

Tahoe Fruit & Vegetable Workshop Series

Tahoe's Problem Child – The Tomato

Are you Kidding Me – Growing Tomatoes at Tahoe ?



Hobby Junkies image



Pinterest image



passingthru.com image

Tahoe Fruit & Vegetable Workshop Series

Growing Tomatoes at Tahoe

Topics covered:

1. Project overview
2. Phenology
3. Taxonomy and anatomy
4. Planting and care
5. History and culinary aspects
6. Varieties and Supplier information
7. Distribution of plant materials



Beaver Lodge
TomatoFest Image

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Growing Tomatoes at Tahoe

Master Gardeners are community members who have been trained under the direction of the University of California (Davis) Cooperative Extension. **50 hours of formal classroom training**

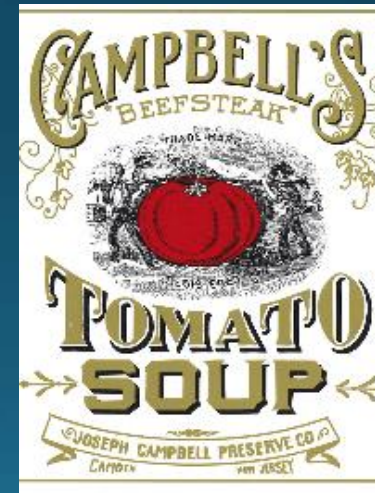


We assist the UC Cooperative Extension by providing practical, scientific gardening information to the home gardeners in the Lake Tahoe Basin.

The Lake Tahoe Master Gardeners offer research-based information by:

Answering questions via email hotlines, farmers markets and at community events.

Offering workshops and classes



Campbell Soup Co.
image

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Growing Tomatoes at Tahoe

Master Gardeners



Work with Community Gardens

Work with School Gardens



Do workshops

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Master Gardeners also

Answer Basic Gardening questions at Farmers' Markets

Most common answer to any question:
It depends



Plant Sales

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Phenology

Phenology looks at growth and development differences between plant varieties that are due to weather and climate.

Varietal Comparative Phenology (VCP) looks at growth and development differences between plant varieties that are due to weather and climate

Merriam-Webster on-line Dictionary



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Why Tomatoes?

Arguably the most common vegetable grown by US home gardeners

The most widely canned or bottled (commercially) vegetable

Challenge to grow in Tahoe/Truckee (No Kidding)

Gained legal status (for commerce) as a vegetable (1893)
Nix v Hedden

The first commercially available genetically modified food licensed for human consumption was Calgene's Flavr Savr tomato, first sold in 1994 and discontinued in 1997

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What is the Flavr Savr?

- A tomato that will not soften while ripening on the vine.
- A tomato implanted with a gene from E. coli
- The transgenic tomato would allow tomatoes to be shipped safely, keep their color, and have their natural flavors.
- Increased shelf life



<http://www.google.com/imgres?imgres?q=tomatoes+nixsto>

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Growing Tomatoes at Tahoe

California leads the nation in total tomato production

Florida and California are neck and neck in fresh tomato production

China is the world production leader followed by India and the US.

Egypt, Tunisia and Turkey have the highest per capita consumption

Italy exports more processed tomatoes than any country



UC Davis images



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Did you know

Eating tomatoes were featured on an episode of “You Were There!” on radio and television

The longest tomato vine was 65 feet in length

The biggest tomato weighed and amazing 7 pounds 12 ounces

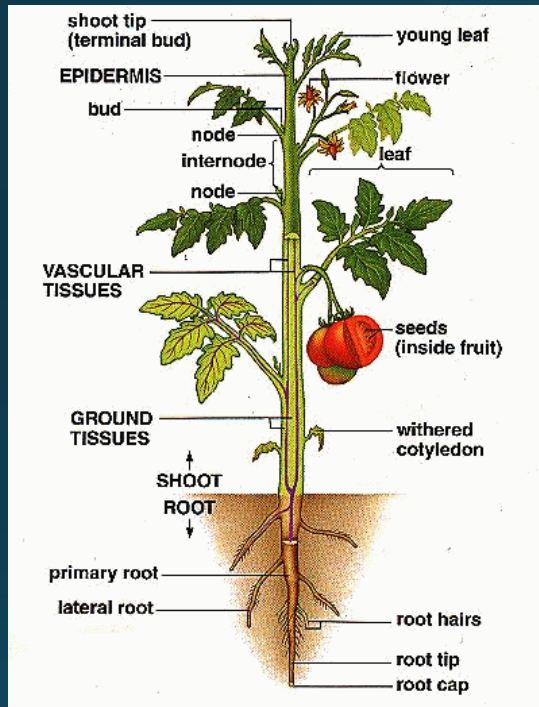
The record for tomato production by a single plant is 342 pounds

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Growing Tomatoes at Tahoe



Apologia Biology for Home School Image

Tomatoes are in the Solanaceae family as are potatoes, nightshade (belladonna) and eggplant

Tomatoes can be classified based on fruit color, size/shape, or type of plant growth

The tomato, *Solanum lycopersicum* is native to South America, but was not known to be used there as a food. It was a food in Mexico.

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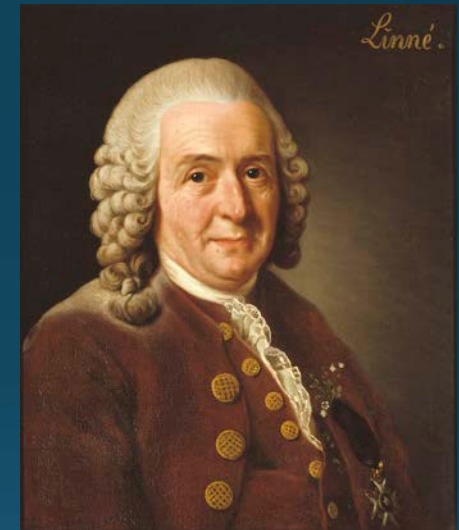
Growing Tomatoes at Tahoe

Pliny the Elder (23-79 AD) is generally credited with providing the name to the genus *Solanum*. Two possible meanings – a. In need of sun; or b. Soothing



wikimedia

Linneaus gave the species name, *lycopersicum* derived from the common name used in Germany and elsewhere (wolf peach)



wikipedia

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Growing Tomatoes at Tahoe

Defining Tomatoes

Tomato by color:

Red
Pink
Orange
Purple or
Blue/Black
Yellow
Green
Striped

Tomato by plant growth:

Determinant
Indeterminate
Semi determinate



UC Davis Image

Tomatoes by size or shape:

Current
Grape
Cherry
Plum
Pear
Standard
Beefsteak
Ox Heart

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Determinant varieties usually have more compact bush shapes and fruit ripen within a brief window, with plants dying shortly after fruit ripen. Sometimes called bush type tomatoes. Common type for processed tomatoes.



Roma type determinant tomato
UC Davis Image

Indeterminate varieties are referred to as vine type tomatoes continue to grow, flower and produce fruit until killed by frost or lack of water. In southern climates may overwinter, or resprout from base.

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Growing Tomatoes at Tahoe

Definitions

Optimist – A Gardener in Tahoe/Truckee

Masochist – Someone attempting to grow tomatoes in Tahoe/Truckee

Sadist – Someone who successfully grows tomatoes in Tahoe/Truckee and who reminds you of it - regularly



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Select site that maximizes heat, daylight and protection



Planting next to a fence or wall (south or west side) allows for radiated heat at night

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Trellised Rows of Heirloom Tomatoes
TomatoFest Image

Soil pH of 6.2-6.8 (Tahoe/Truckee OK) gives best results. Prepare planting area by mixing in 2 pounds of 10-10-10 fertilizer per 100 sq. ft. If planting area is low in organic matter, add some well-aged compost to improve moisture holding capacity. If planting in raised bed or containers, consider adding some silica sand or perlite into the soil mix to help loosen the soil and allow better percolation of water.

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Use of perforated plastic groundcover (clear or red) helps in raising and maintaining soil temperatures as well as help retain soil moisture



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Growing Tomatoes at Tahoe



Bonnie Plants

Darker colored containers help warm the soil

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Water storage systems are placed around or near plants for cold weather protection. A cheap system is to use plastic storage bags with colored water.

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Greenhouse Megastore Images



Frost Blanket

Tomato hood



Anchor pins



Insulated row cover
with water bag

Methods for frost or cool weather protection are important for tomato production in Tahoe/Truckee

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Support of vines essential



Bonnie Plants – Bamboo trellis



Bonnie Plants



Lowes Image



Mother Earth

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Harvest and year end issues: Pick tomatoes when fully ripe if possible. As cooler weather becomes the norm in the fall, consider picking fruit when partially ripe and ripening indoors in sunny area. Alternately placing in a paper bag with other fruit will sometimes speed ripening. Another method suggested by Gary Romano – (July and Winter) is to remove the whole plant minus roots and allow to ripen on a table.

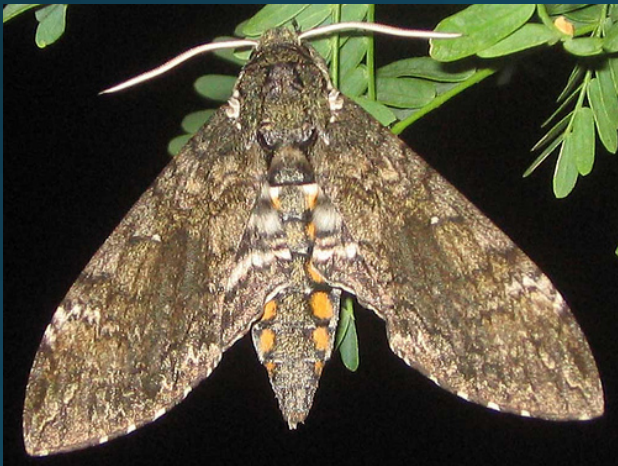
After Harvest, remove and dispose of all plants.

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Gardening Know How image



Inaturalist image

Pests: Aphids, cutworms, flea beetles and the ever frightening horn worms (Hawk moth) are the most common insect pests and can be controlled with good field sanitation, hand picking and encouraging beneficial insects. Every couple years there seem to be an issue with white flies. Both cutworms and horn worms can be biologically controlled with *Bacillus thuringiensis* containing baits or sprays. White flies and aphids can be controlled with soap sprays and horticultural oils.

Birds, mice, squirrels are best controlled with exclusion systems.

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Condensed Tomato History

Spanish find tomatoes in Mexico used as food.

First reported in Europe in 1544 from Mexican seeds.

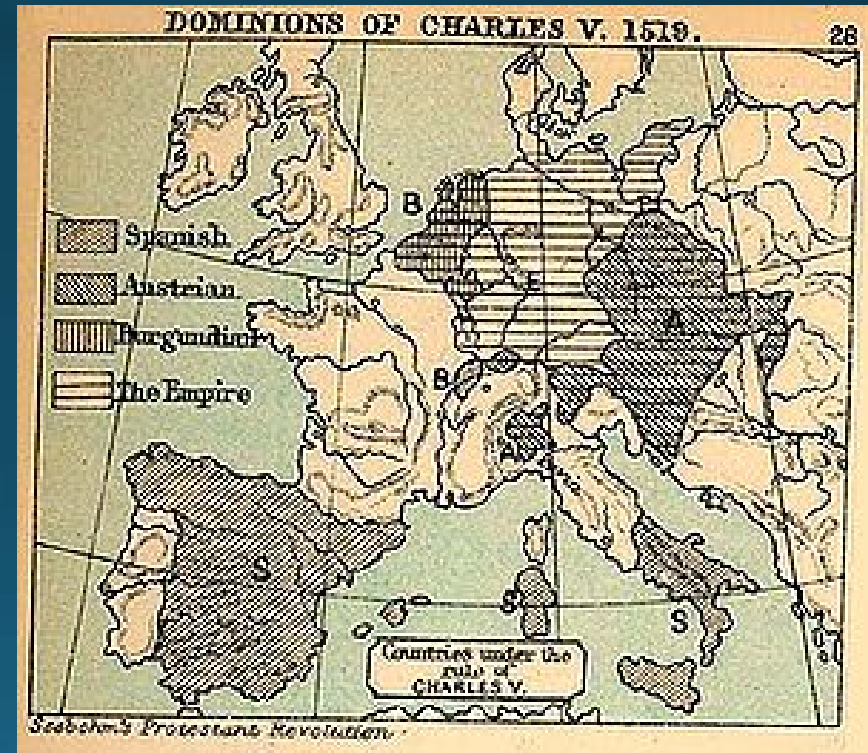
First tomatoes in Europe probably were yellow varieties (Pomodoro or Golden Apples).

Initially not well received, except in Spanish areas such as Italy (nightshade family). Called wolf peach in many parts of Europe, though Love Apple in England.

By 1800 Tomatoes are important in many dishes, salads and deserts

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Condensed Tomato History II

Growing Tomatoes at Tahoe

In the colonies and early US tomatoes were generally believed to be poisonous

Jefferson was aware of the food value from introduction to the fruit while in Europe

In 1819 Jefferson ate a ripe tomato to the astonishment of the Lynchburg populous

The southern states were first to grow and regularly eat tomatoes – due to proximity to Spanish areas where tomatoes were regularly consumed



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Condensed Tomato History III



While slow to gain acceptance as a food, tomatoes made “National News” as a medicine for all that ailed you. With Tomato Pills (containing the undefined extract tomatine).

In Hartford Connecticut (1839) as much as 30% of the entire newspaper consisted of tomato pill advertisements.

From the claimed health benefits, people started growing, consuming and enjoying tomatoes. Many recipes that originated in the south were published.

The fresh tomato demand led to inventiveness

And... the tomato surplus led to industrial opportunity

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Condensed Tomato History IV

As the demand for fresh tomatoes grew after 1835 northeastern farmers looked at ways to be first to market where premium prices could be asked.

The yearly late season tomato glut often lowered pricing to less than the cost of growing.

The new industry of canning foods would make use of the inexpensive tomato excess.

Oregon State
University image



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Growing Tomatoes at Tahoe

Farmers bought land in Maryland and Virginia and used new railways to ship partially ripened tomatoes to major cities

Arrangements were made to ship tomatoes via ship up the Mississippi to northern towns

They experimented with growing in hothouses, cold frames and hotbeds

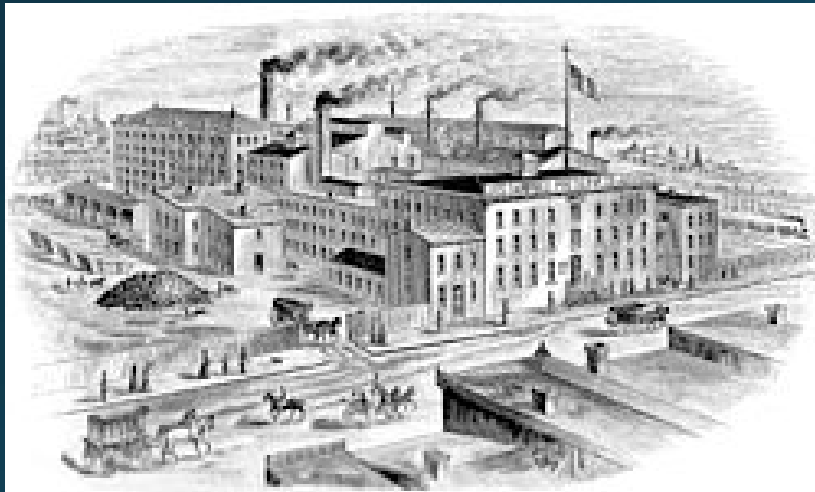
They also looked to earlier ripening varieties, and those that could transport well

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Condensed Tomato History V

Joseph A. Campbell
Preserve Co. 1894



Campbell's Soup Company Image

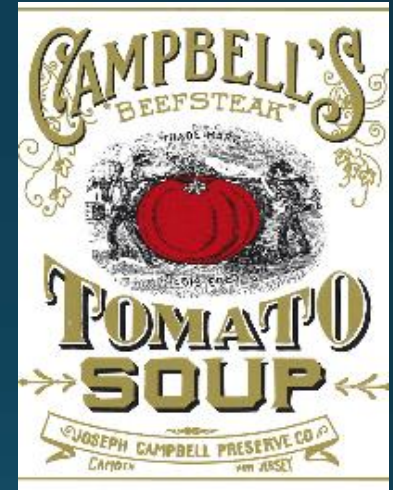
While tomato canning and bottling began in earnest in the 1840s the need for war rations during the Civil War set the stage for mass production

Joseph Campbell's started in 1869, changed name to Campbell's Preserve Company in 1876

1897 Campbell's condensed tomato soup introduced

1922 Campbell's Soup Co.

1931 M'm M'm Good jingle introduced



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Condensed Tomato History VI



Ketchup was a southeast Asian invention often fermented and containing fish, but used as a condiment, not needing refrigeration.

The first tomato ketchup (called love apples) based ketchup was an 1812 recipe by Englishman James Mease and contained brandy as a preservative

The modern Ketchup (spelled many ways) began appearing in the 1860s using vinegar and sugar as partial preservatives. The Heinz Co. out competed the Hazard Tomatoketchup based in part on purity

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Condensed Tomato History Epilogue

The need for uniformity in product quality and taste led to companies developing their own tomato varieties and paying farmers to grow under contract.

Most industrial tomatoes are determinate varieties that ripen uniformly

Besides taste and color, moisture/pulp ratios, size uniformity, and transportability are important, attributes that the Flavr Savr tomato was designed to address

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Buckbee's New 50 Day Tomato



BakerCreek Rare Seeds Image

Buckbee 50 Day Tomato

A n indeterminate Good yields of great tasting 4-6 oz. red round fruit. A great cooler, short season variety. 55-68 days to maturity

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Buckbee's New 50 Day Tomato



BakerCreek Rare Seeds Image

Buckbee 50 Day Tomato

A respected commercial heirloom from before 1930 that was introduced by H.W. Buckbee. Their 1930 catalog states, "The largest fruited, the smoothest, the finest in quality of all early scarlet tomatoes." Donated to USDA in 1962 then Craig LeHoullier obtained seeds from the National Seed Storage Lab around 1995.

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Growing Tomatoes at Tahoe

Buckbee's 50 Day Tomato

H. W. BUCKBEE
ROCKFORD, ILLINOIS

Kind Friend:
Now that the time approaches when it is seasonable to consider your seed supply for the coming season, I beg to remind you that our New and Beautifully Illustrated Seed and Plant Catalogue and Guide Book for the year 1905 is ready to mail to our friends and patrons in every part of this vast land--"over 500,000 strong." You have favored me with your valued favors during the past seasons; would you like to receive a copy of our New Catalogue this year?

IT IS FREE FOR THE ASKING!

Please fill out the attached postal card in places designated and return to me today.

Wishing you continued success and hoping to be favored with your continued patronage, which at all times will have my best attention.

Yours for success,
H. W. BUCKBEE.
Rockford Seed Farms
Forest City Greenhouses

MONEY IN TOMATOES. Buckbee's Prosperity Tomato

The Great \$10,000.00 Wonder Now Offered for the first time

THE original seed of this marvelous Tomato cost at the rate of \$10,000.00 per pound to originate and properly develop. **Early, Fine Size, Bright Red Color, Splendid Keeper, Enormous Yield**—Worth its weight in gold. Invaluable for the home garden, market garden and shipping purposes. I control the entire stock of this Grand New Tomato. **Send to Buckbee for choicest stock seed.**

Packet 25c; 3 packets 40c; 1/2 ounce \$1.25; 1 ounce \$2.00 (not more than one ounce of seed will be sold to any one person.)

NOTICE—If you will keep this part of this postal card and return it with an order before June 1, 1905, I will make you a present of a liberal package of Buckbee's Prosperity Tomato.

AMERICAN RELAY CARD

THIS SIDE IS FOR THE ADDRESS ONLY.

ROCKFORD, ILLINOIS.

FOR **H. W. BUCKBEE**
Rockford Seed Farms.
Forest City Greenhouses.

rockfordreminisce.com Image



Dr. Craig LeHoullier Image

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Honeyman Farms Image

Earliana (Stokes Earliana)

Plants produce short, indeterminate, regular-leaf plants that yield clusters of 4-6 beautiful, uniformly round, 6 oz., red-pink tomatoes. Considered a perfect market tomato because of its visual appeal and its wonderful sweet/tart flavors. Earliana produces well until frost and appears to have good disease resistance.

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Honeyman Farms Image

Earliana (Stokes Earliana)

Developed by George Sparks of Salem, New Jersey. It was first offered commercially in 1900 by Johnson and Stokes of Philadelphia. The 'Earliana' tomato was developed at the turn-of-the-century as growers attempted to bring the earliest tomato to market. It was first offered commercially in 1900 by Johnson and Stokes.

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Territorial Seed Image

Siletz Tomato

Developed for growing in cooler climates. Determinate, stocky, regular leaf plants produce plentiful crops of 10 oz., deep red, full-flavored slicing tomatoes. Does very well in cooler climates producing deep-red, excellently flavored round, slicing tomatoes with a nice acidic tang. Very good flavor considering how early a tomato it is.

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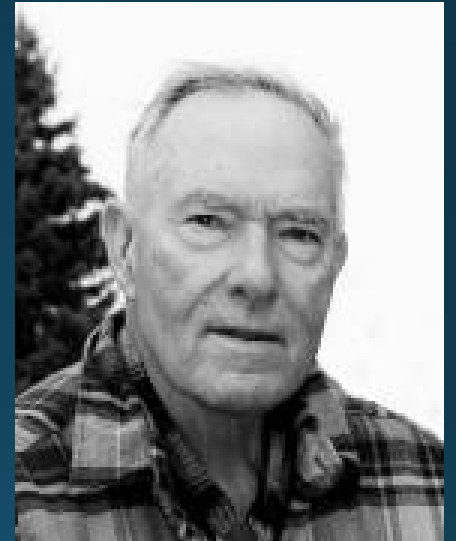
Growing Tomatoes at Tahoe



Territorial Seed Image

Siletz Tomato

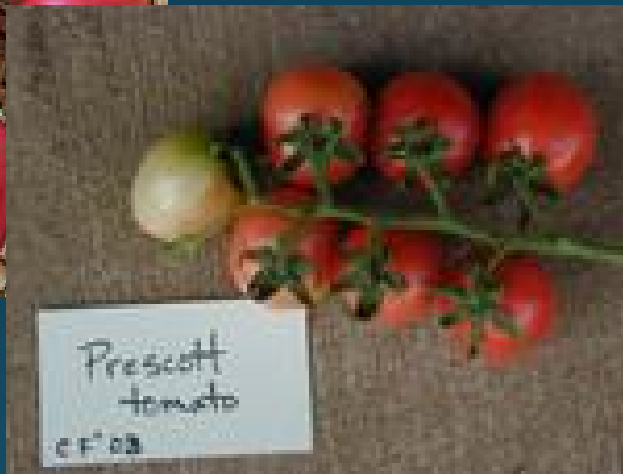
Developed by Dr. James Baggett of Oregon State University for growing in cooler climates. Dr. Baggett developed a number of tomato and pea varieties. He died in 2016



SaveSeeds.org Image

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Prescott Tomato

A stocky determinate plant that produces abundant amounts of 1 3/4-inch, pink, oval, fleshy fruits with delicious slightly tart flavors. Prescott is a good choice for high altitude or cooler growing regions. A very good canning tomato or salad tomato.

Nativeseeds.org Images

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Pelicanplants.co.uk.com Image

Nicolayev (Nicholayev) Tomato

A Russian yellow cherry tomato. Semi-determinate, regular leaf plant produces huge amounts of 3/4-inch, bright-yellow, round to oval cherry tomatoes. A variety that produces fruit even in cooler growing regions. Disease resistant.

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Growing Tomatoes at Tahoe



Gary and Dagma cleaning tomato seeds
TomatoFest Image

Most home gardeners purchase plants for transplanting into their gardens.

Open pollinated varieties can be grown from retained seeds.

1. Squeeze seeds and juice from ripe tomato into container labeled with variety name
2. Set open container in warm dark location (expect flies and odor)
3. Allow mixture to sit until surface covered in mold (white or tan). You may need to add water.

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Sunset Image

4. Scrape off mold
5. Fill container with water and stir slightly
6. Good seeds will sink
7. Pour off water and floating seeds retaining good seeds in container
8. Repeat washing until seeds are clean
9. Pour seeds onto a nonporous surface and spread in single layer
10. Allow to dry thoroughly.
11. Store in labeled container

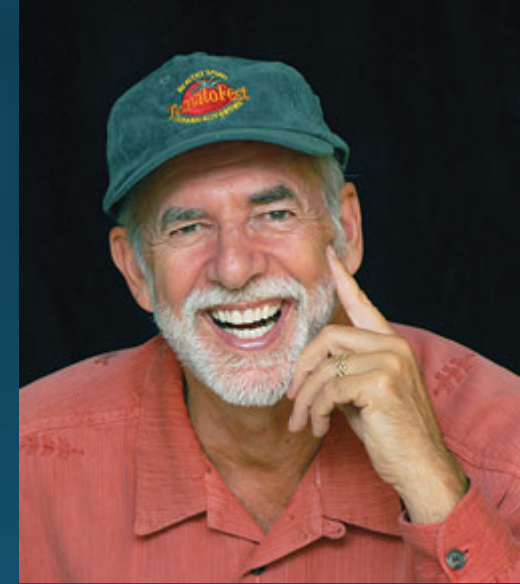
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Dagma Lacey

Gary Ibsen and Dagma Lacey operate TomatoFest farm where they grow 650 types of organic open-pollinated heirloom tomatoes. While many are eaten and sold, the main focus of the farm is seed sale. The farm started in 1991. Gary was also Executive Director of the Carmel TomatoFest celebrating the tomato.



Gary Ibsen

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Charles Schembre, Manager of the UNR High Desert Farming Initiative. The program supports small farmers in identifying and growing higher value crops in western Nevada.

The Tahoe Master Gardener vegetable growing workshops qualified for participation – Looking at high elevation issues of food production.

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Helsing Junction Blues
TomatoFest Image



Tatiana Kouchnareva image

Helsing Junction Blue – A recently released cultivar from Washington State by Tom Wagner. Helsing Junction Farms gave this interesting variety its name (not Abraham Van Helsing of Dracula fame). Leaves have a tendency to curl at leaflet margins. This is a blue/red cherry tomato that has an indeterminate growth pattern. 69 days from transplant to harvest.

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Abraham Van Helsing
(Edward Van Sloan)
Universal Pictures



Universal Pictures



Helsing Junction Blues

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Tom Wagner

Developed in 2012
by Tom Wagner and
named after
Helsing Junction



Helsing Junction
Farms Image

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Bloody Butcher
TomatoFest Image

Bloody Butcher - An deep red indeterminate tomato in noted for early production especially in cooler climates. Good for canning. The fruits are 2” in diameter, borne in clusters of 5-9 fruit. Sets fruit until frost. 54 days from transplant to harvest. Reportedly introduced around 1998 from the Netherlands, name refers to dark red color of fruit and juice.

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Tomato Growers
Supply Company Image

Growing Tomatoes at Tahoe

Matina – This is heirloom tomato is from Germany. Red indeterminate plant with large cherry size fruit. A very early producing variety that will set fruit even during cool evenings. This is a good all round tomato with reported slightly tart taste. Fruit are 4-6 oz. each and are borne in clusters. Heavy leaf canopy protects fruit. 58-75 days from transplanting for production. May require heavy support or **trellising**.

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Azoychka Heirloom
TomatoFest Image

Azoychka – A yellow indeterminate Russian heirloom that produces a large crop in about 70 days. The tomatoes are 4” in diameter and 5-8 (10) oz. each. Reportedly brought from Russia in 1995 by tomato specialist Kent Whealy where he found it at the Bird Market (which specializes in animals) in Moscow. Alternately reported as being developed by Russian horticulturalist Valentina Petrovna Kruglova.

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Northern Lights
TomatoFest Image

Northern Lights – A yellow orange (with red blush) indeterminate tomato that is a beefsteak type, up to 4” in diameter. Irregular shape common with heirloom varieties. This cultivar will continue to set fruit until frost. This is an early producer, 55 days from transplanting to harvest.

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Beaver Lodge
TomatoFest Image

Beaver Lodge – A red determinate slicing tomato that matures earlier than most. A good choice for container growing. Tomatoes approximately 2' in diameter, with good flavor. Developed at the Beaverlodge Research Center in Alberta, Canada. Produces 54 days from transplant.

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Russian Orange
TomatoFest Image

Russian Orange – Another indeterminate tomato, having distinct color when ripe. Plants take a little longer to produce (89 days). The tomatoes are heart shaped and a pound or more in weight. Reportedly good for canning and tomato paste, though the light color might put off some who are used to only seeing red tomatoes. The irregular shape of this type tomato is referred to as ox heart.

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Sarah Schwarze – This interesting tomato is another indeterminate plant with origins in Germany. The harvest is supposedly 79 days from transplant. The fruit is about 3 inches in diameter and is pink with purple hues and green shoulders.

