



Pomegranates for Contra Costa County

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- **Scientific Name:** *Punica granatum* L.
- **Family:** Punicacea



Punica granatum, has been grown and admired by humans since prehistoric times. Originating in ancient Persia and neighboring lands, this tree was transported throughout the Mediterranean and Asia Minor where it has become established then onto China and in the 1500s to the Americas. The fruit of the tree is mentioned in religious texts, in the Odyssey, in Greece it was dedicated to Hera, Goddess of Union and Birth, with the abundant seeds implications of fecundity.

CLIMATE: Pomegranates grow best in the Mediterranean climate of their countries of origin, with warm dry summers and cool wet winters. High humidity levels predispose the trees to fungal

problems, and lack of summer heat inhibits fruit ripening. They do best in areas with full sun. Frost damage ranging to mortality occurs at temperatures below 12F. (11.11 C)

SOIL: Tolerant of a wide range of soil types, but does best on well-drained loamy soil with a pH range of 6.0-7.5. Pomegranates will not tolerate standing water in the root zone.

WATER: Although the trees can survive extended drought, fruit production is seriously impaired if not enough water is available during the dry months. For good fruit production, pomegranates need to be watered deeply every 2-4 weeks, depending upon soil type; sandy soils will need more frequent watering; clay soils less frequent. When soil moisture is maintained throughout the season, fruit-splitting is less of a concern in the fall. Furrow, sprinkler and drip systems are all successful if designed well. Trees are tolerant of moderate salinity and alkalinity.

PROPAGATION: Seeds germinate readily, but pomegranates do not come true from seed, and if allowed to grow will produce highly variable fruit. Trees can be propagated by softwood cuttings, but the easiest and most satisfactory method is by hardwood cuttings taken in the winter. Take 8-10" of wood, ¼ to ½" thick; preferably the sucker growth which needs to be removed for winter pruning. Cuttings do not need to be callused prior to planting. Place the cuttings 6-7" in the ground, with 2-3" left showing above ground. Keep moist but not saturated. Cuttings may be rooted in sand in the winter for a spring planting.



FERTILIZING: For the first 1-3 years trees will need about 1 pound of actual nitrogen per year, applied in the fall on clay or loamy soils. On sandy soils applying half in the late winter and half in the spring is preferable. Applications of fertilizers in the late spring or summer delays fruit quality and maturity. Other forms of fertilizers are rarely needed, and should be applied only if deficiency symptoms are noted. Yearly applications of compost are recommended.

PRUNING: Pomegranates sucker freely from the base. Winter pruning requires the regular removal of these suckers, unless a hedge form is desired. A multi-trunked form is preferred by many growers as the trees are more likely to survive frost injury. Light pruning is needed to maintain a good shape and bearing wood. Pomegranates bear on short spurs on 2-3 year old wood at the outer perimeter of the tree. Heavy pruning will remove the spurs; light pruning will stimulate new spur production. Remove crossing and broken branches.

FLOWERS . The flowers are dramatic and show-stopping, a brilliant scarlet-orange, red, white or variegated explosion of color found alone or in small clusters toward the end of the branches in late spring-early summer. Flowers are 1.5-2.5 "(4-6cm) across, and are pollinated by insects. A high percentage of the blossoms are self-fertile.

FRUIT: The pomegranate fruit is white to brownish red in color, depending upon variety, ranging in size from 2" diameter to over 7". It is considered a 'false berry', with a smooth leathery skin covering many seeds, each surrounded by an edible aril which provides the edible juice and pulp. Trees begin fruiting by their 2-3 year, and are annual bearers. Fruit ripens in the fall, 6-7 months after flowers.

CULTIVARS — *The following information is compiled from the resources listed below. There are many cultivars and varieties grown around the world that are not listed:*

(According to the BBC news, Russian and Iranian varieties are much redder and more cold tolerant than American.) is much larger and a deeper red in skin and seed.

‘Ambrosia’ A large to very large fruit, Rind gold blushed with rose; juicy bright carmine pulp, good fresh –eating flavor. Fruit ripens in cool California coastal areas. Originated in Camarillo Ca by S.J. Chater

‘Balegal’ 3” fruit, rind pale pink, very sweet. Originated in San Diego. Selected by Paul H. Thomson

‘Daru’ Small fruit, Rind yellow-green and blushed with red. Arils high acid. Traditionally sun-dried to for the spice anardana. Spreading, very hardy, native to western Himalayas.

‘Elf’ Small fruit with good flavor. Dwarf, plants, bears heavily. From UC Davis Pomegranate collection

‘Eversweet’ Medium to large fruit, thick pink skin, bright scarlet fruit. Very sweet. Good for fresh eating, syrup, wine and jelly. To 10’ tall, produces 2-3 moderate crops from mid August to Mid November in Southern California. Originated in Camarillo, Ca be S.J. Chater

‘Fleshman’ Large pink fruit with pink seeds. Very sweet. Seeds somewhat soft, quality good. Originated in Fallbrook, Ca. Selected by Paul H. Thomson.

‘Ganesh’ Soft seeded Indian Cultivar. Evergreen in tropical and subtropical climates. Recommended for commercial production in India. Named for the elephant God.

‘Granada’ Bud mutation of Wonderful. Fruit resembles ‘Wonderful’ with a red crown in the green stage. Fruit is deep red. Ripens in August, a month earlier than ‘Wonderful’ Originated in Lindsay, Ca, Introduced in 1966

Mexicans take especial pride in the pomegranates of Tehuacan, Puebla. Many cultivars are grown, including **‘Granada de China’** and **‘Granada Agria’**.

‘Green Globe’ Medium to large greenish fruit striped with pink-red. Bright red pulp, sweet-tart. Very hard seeds. Ripens early in the season. Originated in Camarillo, Ca., by S. J. Chater

‘King’ Fruit somewhat smaller than Balegal and Fleshman, Skin darker pink to red, Flavor sweet, has tendency to split. Originated in Fallbrook, Ca., by Sam King.

‘Malcolm’s Sweet’ very large fruit with sweet juice. Late season,, ripens around thanksgiving. Highly productive ornamental tree. Tree was grown from seed on a Georgia plantation. Adapted to conditions in the southeastern US.

‘Phils Sweet’ Medium to large fruit, Rind yellow-green to slightly pink. Arils red with high sugar content., ample pulp. Very Productive. Originated in Escondido, Ca by Phil Arena.

‘Paper Shell’ round, medium to large, pale-yellow blushed with pink; with very thin rind, fleshy, reddish or pink, sweet, very juicy pulp, very sweet and soft seeds. Bears heavily.

‘Spanish Ruby’ round, small to medium or large; bright-red, with thin rind, fleshy, rose-colored, sweet, aromatic pulp, and small to medium, fairly soft seeds. Considered medium in quality.

In California, 'Spanish Ruby' and 'Sweet Fruited' were the leading cultivars in the past century, but were superseded by 'Wonderful'. In recent years 'Wonderful' is losing ground to the more colorful 'Grenada'.

'Wonderful' originated as a cutting in Florida and propagated in California in 1896. The fruit is oblate, very large, dark purple-red, with medium-thick rind; deep-red, juicy, winey pulp; medium-hard seeds. Plant is vigorous and productive. Originated in Florida, first propagated in California in 1896

HARVEST: Fruits should be harvested prior to fall rains, which cause the molds to colonize any fruits that have split. For best flavor, leave on the trees as long as possible. Experienced growers harvest fruit when it makes a metallic sound when tapped. In most of California harvesting begins in late August, with a second harvest in September. Fruit is picked with clippers and bags similar to those used to harvest oranges. Average production is 5-6 tons per acre. Fruit continues to ripen after picked, but cannot be ripened with ethylene.

Insect Pest and Disease information from UC Fruit and Nut research Information

Growing Pomegranates in California

DANR Publication Leaflet 2459

Reprinted July 1980

The author is the late James H. LaRue, Farm Advisor, Tulare County

Insect Pests:

One widespread insect pest on pomegranates in the commercial producing areas of California is the flat mite, *Brevipalpus lewisi*. This small, light-reddish mite hibernates under flakes of bark on larger tree limbs in foliage in mid to late summer, causing a russetting and checking on mature fruit. In the San Joaquin Valley, one or two sulfur dustings in June or early July gives effective control.

Omnivorous leafroller, *Platynola stultana*, has recently become a serious pest in many pomegranate orchards in central California. The larvae of this insect are first observed in the tops of trees nesting in shoot terminals in June and July. As fruit begins to ripen, larvae enter in protected locations; under leaves, near the stem, or where two fruits are touching. Larvae also cause channels to appear in the rind where they feed under leaves. After entering the fruit they feed on kernels and pupate at the entry location. The fruit usually rots just inside the entry location. Control is difficult because timing must be exact when larvae are first noticed nesting in the shoots. It is difficult to get good coverage because the larvae plaster leaves together or to fruit, and are thus well protected.

The western leaf-footed plant bug and grape and Comstock mealybug have caused damage to pomegranates in isolated areas of California with control occasionally being necessary. In addition citricola scale, black scale, California red scale, melon aphid, greenhouse whitefly, katydid and thrips (citrus greenhouse and flower) also attack the pomegranate but seldom, if ever, become serious pest.

Root-knot nematode has been identified in pomegranate roots. Not normally considered a serious pest, it may be responsible for a weakening effect on trees, particularly those planted in sandy areas or areas where the root-knot nematode population is very high.

Few insecticides or nematocides are registered for use in pomegranate orchards. Control measures for some of the foregoing pests must follow prescribed methods given under special permits through the local Agricultural Commissioner.

Diseases:

Pomegranate trees are not affected by any serious disease. The fruit, however, is frequently damaged by heart rot, caused by *Alternaria* fungus.

Heart rot infection takes place in the bloom, and progresses to the interior of the fruit. The central cavity of the infected fruit is partially or totally decayed, yet the rind remains unaffected. Experienced pickers throw out most infected fruit, although infection is difficult to detect. At present, there is no known control. Removal of old fruit from the tree during pruning may eliminate a potential source of fungus as well as shoot dieback for the following season. The disease seems to affect more fruit if there is much rain in blooming season, thus suggesting that moisture in the bloom increases amount of infection.

POMEGRANATE ETHNOBOTANY:

Humans have found multiple uses for all parts of Pomegranate. The bark from the trunk, roots and fruit rind are high in tannins, and have been used to cure leather.

Dyes and inks have been produced by the flowers, fruit rind and seeds and bark.

The hard, close-grained wood has been used to make small-dimension durable agricultural tools, boxes, furniture, and was used extensively as spits when cooking meat.

Medicinal uses have been found for all parts of the tree. Consult a knowledgeable herbalogist before using for any health concerns.

Food Value -1 med. (5.5 oz.)

Calories 104	Sodium 5 mg
Moisture 72.6-86.4 g	Potassium 399 mg
Protein 1.5 g	Carotene None to Trace
Fat Trace only to 0.5 g	Thiamine 0.003 mg
Carbohydrates 26.4 g	Riboflavin 0.012-0.03 mg
Fiber 3.4-5.0 g	Niacin 0.180-0.3 mg
Ash 0.36-0.73 g	Ascorbic Acid 9 mg mg
Calcium 3-12 mg	Citric Acid 0.46-3.6 mg
Phosphorus 8-37 mg	Boric Acid 0.005 mg
Iron 0.3-1.2 mg	

Web resources

<http://www.hort.purdue.edu/newcrop/morton/pomegranate.html> Purdue University Crop information

http://www.ibiblio.org/pfaf/cgi-bin/arr_html?Punica+granatum&CAN=LATIND Plants for a Future ethnobotany data base

<http://www.crfg.org/pubs/ff/pomegranate.html> California Rare Fruit Growers Fruit Facts

<http://www.pomegranates.org/> California Pomegranate council

<http://www.npr.org/templates/story/story.php?storyId=6411097> National Public Radio Archives

<http://www.collectorsguide.com/fa/fa115.shtml> The collectors guide, sharing the art of New Mexico

Resources

Cornucopia II: A source book of Edible plants; Stephen Facciola, Kampong publications 1998

California Master Gardener Handbook pg 470, pg 525

University of California Agriculture and Natural Resources publication

Western Fruit Nut and Berries

Robert L Stebbins, Lance Walheim; Horticulture Publishing Co. Inc; 1981 Fisher Publishing Pg 134

The Home Orchard

University of California Agriculture and Natural Resources [publication 3485](#)