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Growing Pomegranates in Southern Nevada

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The pomegranate, *Punica granatum*, a popular fruit and ornamental of Mediterranean peoples for centuries, is a native from Iran to the Himalayas that has been grown in Southern Nevada since pioneer days. The name pomegranate comes from a Latin word meaning "apple with many seeds." The fruit, which is about the size of an apple, is depicted in ancient Assyrian and Egyptian sculptures and is one of the oldest fruits used by man.

Known for its fruit, this versatile plant may also be used for its aesthetic beauty in hedges, separately as a shrub, or as a tree. A combination fruit, ornamental and windbreak use is common in the home landscape. The plant grows naturally as a bushy shrub but can be trained as a small tree. Plants can grow to 30 ft. but they more typically grow 12 to 16 ft. in height. The most common cultivar has deep green foliage interspersed with brilliant orange-red flowers that are produced over many weeks. The large fruit array the tree like Christmas ornaments and are deep red when mature.

Adaptation and Cultivars

There are over 150 different cultivars of pomegranates in America's official pomegranate collection at Davis California. The collection is part of the National Clonal Germplasm Repository for Fruit and Nut Crops managed by the Agricultural Research Service—the U. S. Department of Agriculture's chief scientific research agency.

The pomegranate is well adapted to the hot, dry climate of the Southwest and grows in a wide range of soils. It does best in deep, well drained loam, but is also suitable for sandy or adobe-clay soils. The plant tolerates mildly alkaline conditions and areas of slow drainage, but yield, fruit quality and tree growth are poor in soils with high pH or poor drainage. The plant tolerates cold temperatures while dormant but can be severely injured below 12^{o}F. Buds are frost sensitive in the spring and again in the fall.

There are differences among cultivars (varieties). There are dwarf cultivars as well as ornamental cultivars. Ornamental cultivars do not produce fruit. Leaves may emerge bronze, turn bright green and then bright yellow in the

fall. Flowers may be single or double in a variety of colors: white, yellow, apricot and deep red. Fruit colors can range from light pink to deep orange, burgundy red or golden yellow on the outside. The thin-skinned rind of the fruit is lined with a layer of white membrane which divides the fruit into cells. Each cell contains numerous seeds encased in a juicy pulp (arils) ranging in color from light yellow to pale pink to a deep red.

The pink- or red-flowered types include most of the common and all the desirable and commercial cultivars of pomegranates used for fruit. 'Wonderful' has long been the major supplier. A late producer with high yields, the large fruit has deep red flesh that is high in juice with a slightly acid taste. It stores well and can be shipped successfully.

'Ruby Red' develops a crimson-purple skin color early in the season, but the fruit matures and ripens at the same time as 'Wonderful'. Fruit maturity is very uniform, but storing and shipping quality is lower than the 'Wonderful' cultivar. 'Granada' and 'Early Red' are patented cultivars that mature earlier than the 'Wonderful' cultivar, which may be an advantage for early fruit production.

No local research on cultivars has been done in this area but other fruit varieties listed by Sunset Western Garden Book (SWGB) that might be suitable for this area are: 'Sweet', 'Fleishman', 'King', 'Eversweet' and 'Utah Sweet'. The California Master Gardener Handbook also suggests 'Ambrosia'. Ornamental varieties to consider from SWGB are: 'Chico', 'Legrellei', 'Nana', 'Nochi Shibori', and 'Tanyosho'.

Several local selections in southern Nevada have large fruit with a sweet, less acid taste than the Wonderful cultivar. The arils contain a smaller seed in a jucier pulp which varies from a light pink to a deep red in color. Many of these plants started from seed and are not an identifiable cultivar.

Propagation

Propagation from cuttings (cloning) produces a plant with the same characteristics as the parent and thus maintains desirable fruiting and ornamental traits. Plants started from seed exhibit different characteristics than the parent plants, and desirable traits may be lost or undesirable ones acquired from parent to offspring.

Hardwood cuttings are the easiest and most satisfactory method of growing pomegranates. Cuttings, preferably from last year's growth, 8 to 10 inches long of wood ¼ to ½ inch in diameter are taken while the plants are dormant. These cuttings are rooted by placing them in a light mix (40% to 60% perlite in a household potting mix) with about 2 to 3 inches of their top exposed. Use of a semi-hardwood (#2) or hardwood (#3) rooting hormone is recommended. Cuttings should be maintained at a temperature above 60^{o}F and the rooting mix should be kept moist, but not wet. After cuttings are rooted (usually 8-16 weeks), they can be planted as individual landscaping shrubs or in rows eight to ten feet apart for fruit production or wind breaks.

Management

Pomegranates can tolerate long periods of drought once the plant is established. However, good water management is important in order to produce large, desirable fruit. Drought conditions will produce a small crop of poor quality fruit or no fruit at all. Avoid excessive water fluctuation during late summer while fruit is maturing or fruit will crack and split. This condition is caused by a sudden uptake of water following a period of drought and may be eliminated by maintaining a uniform level of soil moisture while the fruit is growing. Utilizing a drip irrigation system can help maintain more consistent moisture control if sufficient emitters are spread widely around the tree.

Fertilize with a nitrogen and phosphate fertilizer when planting and in March each year thereafter. Mature plants require from ½ to 1 pound of actual nitrogen per plant per year.

Use about one-tenth of a pound (three tablespoons) per plant of 16:20:0 or equivalent fertilizer when planting. Increase the amount slightly each year until about three pounds is applied on a five-year-old pomegranate plant. Use less fertilizer on dwarf plants. Do not apply it next to the trunk of the tree. Start at the dripline (outer edge of the canopy of the plant) and apply the fertilizer to the soil using a shovel. Push the shovel a few inches into the ground and push forward. You will create a slice or opening in the soil just behind the shovel. Place a handful of fertilizer in this slice, remove the shovel and push it closed with your foot. Repeat this in slices about two feet apart all the way around the plant. Otherwise purchase fertilizer stakes for fruit trees and use these in the same manner. They are more expensive to use but they work and can be more convenient. If the plants are on drip irrigation, then apply the fertilizer at each emitter or use a fertilizer injector. Always water fertilizer into the soil after applications.

Excessive or late applications of nitrogen may cause excessive vegetative growth, reduce fruit production and delay fruit maturity and color. High pH levels in southern Nevada soils may result in nutrient deficiencies. Check with your local University of Nevada Cooperative Extension office for more information.

Insect Pests

In southern Nevada the pomegranate is not affected by any serious insects or diseases if the fruit hulls and debris are removed each year after harvest. Commercial producing areas of California have problems with flat mite, *Brevipalpus lewisi*, and Omnivorous leafroller, *Platynota stultana*. The western leaf-footed plant bug, *Leptoglossus zonatus*, and grape and Comstock mealybugs, *Pseudo-coccus maritimus* and *Pseudococcus comstocki*, have caused damage in isolated areas of California, with control occasionally being necessary.

Diseases

Pomegranate trees are not affected by any serious diseases, but the fruit can be damaged by heart rot caused by *Alternaria* fungus. Heart rot infection takes place in the bloom and spreads to the interior of the fruit. The central cavity of the infected fruit can be partially or totally decayed while the rind remains unaffected. Throw out the infected fruit when picking. There is no chemical control recommendation currently; however, removal of old fruit from plants during pruning may help eliminate sources of fungus as well as shoot dieback for the following year. Rain during the blooming season seems to promote more infection.

Pruning

Pruning is necessary for good fruit production. If a tree-type plant is desired, then prune to a single trunk. Basal shoots will continue to appear and must be removed each year.

If a shrub-type plant is preferred, leave five or six main shoots. Each year, remove one of the old shoots and leave a new basal shoot to replace it. Plants trained to multiple trunks require less frequent care and pruning and come into bearing sooner than plants with only one trunk. Some pruning and tying with ropes for support may be needed for the first 3 or 4 years or until trunks are large enough to support the developing top.

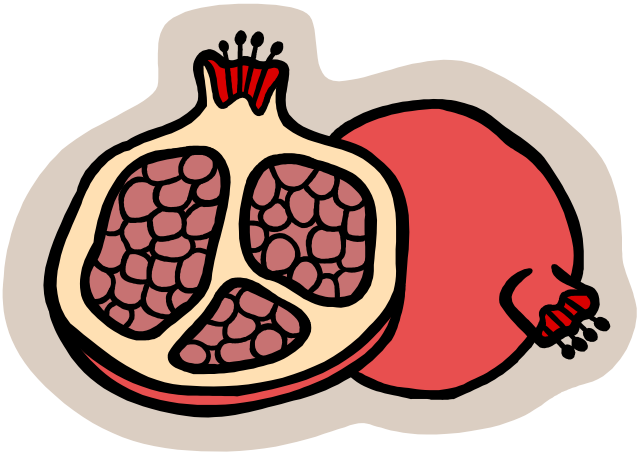
Pruning should be done in the winter while the plants are dormant. Remove all dead, broken or diseased material and interfering or crossing branches; then shape the plant as desired. The short spurs on 2- or 3-year-old-wood growing mostly on the outer edge of the tree produce flowers and fruit. These spurs develop on slow-growing, mature wood. They bear fruit for several years. As the tree increases in size the wood loses its fruiting habit. Light annual pruning encourages new wood and enhances fruit production. Heavy pruning will reduce yields. If the plant produces more than eight to ten inches of new growth each year or produces a profusion of water sprouts, reduce the amount of winter pruning.

Harvesting

In southern Nevada fruit can be picked from late September into early December. The split and cracked fruit should be picked and used as soon as possible. Rain will increase splitting. Handle the fruit carefully! It bruises easily. Fruit will retain its freshness and flavor over an extended period of time. Harvested fruit should be stored in a cool area (40-50^{o}F). Ripening will continue to full flavor at these temperatures. Fruit stored at 32-40^{o}F will keep for weeks/months, especially at high relative humidity (80%). Storing at a warmer temperature or lower humidity increases dehydration, causing the fruit skin to harden and shrink.

Use

The pomegranate is an excellent ornamental tree or shrub for home landscaping and the fruit has a variety of uses. The whole fruit is used in ornamental decorations. The flesh-covered seeds can be used as a garnish in fruit cups, compotes, salads, desserts, and as a snack.



The juice is used in making jellies, puddings, desserts, wine and fruit drinks. Grenadine, made from pomegranate juice, is indispensable in flavoring some beverages.

One medium apple-sized pomegranate (3-3/8" in diameter, 154 grams in weight) has about 100 calories, 399 milligrams of potassium, and 9 milligrams vitamin C. It is a good source of polyphenol antioxidants and has fiber as well as small amounts of several other vitamins and minerals.

For directions on processing and using the fruit and juice, obtain a copy of University of Nevada Cooperative Extension Fact Sheet "Pomegranate Fruit and Juice".

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