

Prickly Pear Cactus

Opuntia species are members of the Cactaceae (cactus) family.

The genus *Opuntia* comprises the prickly pears, which include bunny ears and beaver-tail cacti. During a few weeks in late spring and early summer each pad produces several flowers. Depending on the variety, flowers may be yellow, orange, pink, or red. When the blooms fade, an edible fruit forms on many species.

The pads are fast-growing, flattened stems that vary in size with the variety. They can be 4 to 16 inches long, 3 to 9 inches wide, and up to $\frac{3}{4}$ inch thick. They have a smooth skin, may be elliptical to oblong, and are bright green to blue-gray. Most have numerous inch-long spines. They also have small stickers that easily penetrate a person's skin.

The fruits of all varieties are edible, but only a few varieties of fruit are palatable or sweet. Size, shape, and color vary. Fruit skin and flesh come in a rainbow of colors depending on variety. The sweetest varieties available in this country have dark reddish orange or purple skins and deep red-purple flesh.

Other names. Prickly pear is also called cactus pear and Indian fig, or *figadindi* in Italian. The pads are *cladodes* or *nopales* when whole and *nopalitos* when diced. The fruits are called prickly pears or *tunas*.

Market Information

Current production and yield. The prickly pear cactus is native to the United States, Mexico, and South America, but it grows well in other areas including Africa, Australia, and the Mediterranean region. The plant is particularly well adapted to arid zones, and it grows at elevations from sea level up to the high Andes, about 15,000 feet. In warm climates pads may be harvested as many as six times a year. Established plants may yield 20 to 40 half-pound pads at each harvest.

Use. The pads, fruit, and seeds can be eaten. The pads are eaten as a vegetable, served cooked or raw in a variety of dishes. The small young pads in the early spring are succulent, with a delicate flavor and the fewest spines. Fresh pads are full of water and should be bright green and firm. The pad is prepared by scraping the skin to remove spines, then peeling and preparing it according to a recipe.



Prickly pear pads and blossoms. (Photo: Yvonne Savio)

The fruits are typically eaten fresh, often sprinkled with lime juice after being refrigerated and peeled. Fruit flavor varies among varieties but is similar to that of strawberry, watermelon, honeydew melon, fig, banana, or citrus fruit. The fruit can also be cooked into jellies, desserts, beverages, and candies. The syrup is used in a potent alcoholic drink called *coloncha*. The pulp can be dried, ground into flour, and used for baking. Recipes and informative tips on preparation can be found in Joyce L. Tate's *Cactus Cookbook*, available from the Cactus and Succulent Society of America.

Prickly pear cactus is a very versatile plant. It can be used in landscaping, and the pads are a source of food and water for livestock and poultry. The sap is used medicinally like that of the aloe vera plant to soothe cuts and burns, and is also used in chewing gum and candles and as a stiffening agent for cotton cloth. The pads' strong fibers are woven into mats, baskets, fans, and fabrics.

Nutrition. The composition of the pads changes during development. At commercial size, they are approximately 92 percent water, 1.5 percent protein, 5 percent carbohydrate (including fiber), and 1.1 percent ash, and contain 13 mg Vitamin C per 100 gram portion.

The ripe fruit pulp is 85 percent water and 10 to 15 percent carbohydrates, and contains a significant amount of Vitamin C (25 to 30 mg per 100 gram portion).

Culture

Propagation and care. The prickly pear tolerates many soils, temperatures, and moisture levels. It grows best in sunny locations with well-drained sandy loam soil where it is protected from winter winds. A balanced fertilizer can be applied during the growing period. The plant is drought tolerant once established, but with good drainage it can tolerate a lot of water.

Opuntia species may be started from seed in a shady bed and kept moist until germination. Growth is slow. Flowers and fruits may not appear for 3 to 4 years. Propagation from pads is simpler and faster. Cut pads at least 6 months old from a growing cactus and allow them to form a callus. Then plant each pad upright, 1 inch deep into a mixture of soil and sand. Stake or anchor the pad to keep it upright until it roots, but do not water it in. Protect the potted pad from intense summer sun by orienting the slim side north to south. Roots will form in about a month. Water it then once, but allow it to dry between later waterings. You should wait several months before harvesting new pads so that future harvests will not be reduced. The second or third pad will bear flowers and fruit, but a pad taken from an older plant may flower and set fruit sooner than a pad taken from a younger, immature plant.

If you grow the prickly pear for its pads, feed the plant with a high-nitrogen fertilizer. If you prefer more flowers and fruit, give the plants a non-nitrogen fertilizer once a month, even through the winter. During this dormant period, the plants require bright light and just enough water to keep the pads from shriveling.

Depending on the variety, the cactus will bloom and set fruit from early spring through summer. Each pad can support a number of flowers, each yielding one fruit. You can allow several fruits on each pad and still get good-sized fruit.

Harvest and postharvest. Fruit ripens from early spring through late fall, depending on the variety. Varieties that are best eaten fresh ripen from September through November. The perfect stage of ripeness of each fruit lasts only about a week, and the maximum shelf life of a fruit is only 8 or 9 days.

The fruits are ripe enough to harvest when the glochids (small stickers) fall off. Twist the fruit from the pad rather than pulling it in order to avoid tearing. If the fruits are harvested unripe, they will not be as sweet. Remove the pads by carefully cutting them from their supporting pads. The best time to harvest pads is from mid-morning to mid-afternoon, when the acid content in the pads is at its lowest.

Depending upon the temperature, cladodes may take from 15 to 30 days to grow from bud to a commercially harvestable size, about 8 inches (20 cm) long. Good-quality cladodes are turgid and easy to break. They are shiny and green with the leaflets intact. Low-temperature storage (40°F) will increase cladode acidity, whereas storage at warmer temperatures (70°F) will result in a decrease. Cladodes are sensitive to chilling if held below 50°F. The most serious postharvest problems encountered in handling vegetable cladodes are water loss and rot development at the cut stem end.

Tunas are produced only on mature pads, require 110 to 120 days to develop, and are harvested by twisting the fruit carefully off the pad. The fruits are covered with small glochids (spines), which present the major difficulty in harvesting and handling. As fruit matures the glochids fall off, but the fruit also becomes more susceptible to physical injury so most are harvested commercially in an intermediate stage of ripeness. After harvest, the glochids are removed by sweeping the fruit on a grassy or straw-covered area or by sweeping them mechanically with rotating brushes. They are packed in crates or boxes, transported, and handled, usually without refrigeration. The principal postharvest problems are water loss and stem end rots, and both are related directly to physical damage incurred during harvesting. Because of the prevalence and importance of stem end rots, the fruits have been termed "perishable." They can be stored for more than a month at 68°F if the stem tissue has not been damaged at harvest.

In commercial handling, prickly pear fruit are held at temperatures from 50° to 58°F with 86 to

90% relative humidity. Vegetable cladodes can be held for about one week under these conditions.

Sources

Seeds or plants

Abbey Garden, 4620 Carpinteria Ave., Carpinteria, CA 93013 (plants only)

Desert Botanical Garden, 1201 N. Galvin Parkway, Phoenix, AZ 85008 (plants only)

Sacramento Cactus & Succulent Society, Shephard Garden Art Center, 3330 McKinley Blvd., Sacramento, CA 95816

A Sticky Business, Cactus & Succulents, Allan Leroy, P.O. Box 743, Petaluma, CA 94952

More information

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Prepared by Yvonne Savio and Marita Cantwell de Trejo.