

Jicama, Yam Bean

Pachyrrhizus erosus is a member of the Fabaceae (pea) family.

Jicama (pronounced "hee-ca-ma") is a tropical legume that produces an edible fleshy taproot. It is native to Mexico and northern Central America, and is widely cultivated there and in Southeast Asia. The plant is a vigorous spreading prostrate vine growing to several feet in diameter. Blue or white flowers and pods that look something like lima bean pods grow on fully developed plants. There are several species of jicama, but the one found in our markets is *Pachyrrhizus erosus*. The two cultivated forms are *jicama de agua* and *jicama de leche*. The latter has an elongated root and milky juice. The *agua* form has a top-shaped or oblate root and translucent juice, and is the only one marketed in the United States.

Market Information

Jicama is imported into the United States, mostly from Mexico. There are three important areas of jicama production in Mexico: Guanajuato and the central highland area, where the roots are harvested in autumn; the Morelos area, where they are harvested in winter; and Nayarit, where they are harvested in winter and spring. Despite recurrent interest in producing this crop in California, no successes have been documented. The known efforts to grow jicama have resulted in luxurious vine growth with prolific flowering and pod production, but low-quality fibrous taproots.

A long, warm growing season with relatively short days is required to initiate good development of the fleshy root. Research by Cotter and Gomez confirms this and suggests that the species may be sufficiently variable to allow selection for longer-day types. Since the temperature and day length conditions necessary for production of good-quality roots from currently available cultivars do not exist in the United States (except perhaps in south Florida), current cultivars probably cannot be grown successfully in this country. Any production of good roots in California has probably occurred when roots matured under unusually warm October and November conditions. This sort of weather is rare even in Southern California.

Use. Jicama is most commonly eaten fresh. After the fibrous brown outer tissue of the root is peeled



When mature, the jicama plant displays either blue or white flowers. (Photo: Hunter Johnson)



Harvested jicama roots. (Photo: Hunter Johnson)

away, the crisp white flesh can be sliced, diced, or cut into strips for use as a garnish, in salads, or with dips. It is frequently served as a snack, sprinkled with lime or lemon juice and a dash of chili powder. Jicama remains crisp after boiling and serves as a textural substitute for water chestnuts. Jicama is similar in food value to white potatoes, but with slightly fewer calories. In tropical production areas, the immature pods are sometimes cooked and eaten, but mature pods contain

rotenone, and are said to be toxic. At one time growers considered commercial cultivation of jicama as a means of producing this insecticide.

Nutrition. Jicama has 20 mg of Vitamin C, 1.4 g of protein, 9 g of carbohydrates, and 15 mg of calcium in each 100 g edible, raw portion.

Culture

Jicama is propagated from seed. The seeds are squarish, brown or tan, and have the general characteristics of other bean seeds. Sandy loam soil with good drainage is the best choice for production of smooth roots. Rows should be 2 to 3 feet apart with plants every 8 to 10 inches in the row. Information on fertilizer requirements is limited, but one source suggests 1,500 pounds per acre of 6-6-12. In the tropics, development of marketable roots takes 3 to 6 months, depending on temperatures at the site. The literature on jicama indicates that for best root production growers should remove flowers at an early stage. Flower removal is said to cause the root to expand in diameter. Yields are in the range of 5 to 7 tons per acre.

Harvest and postharvest practices. Like potatoes, jicama may be harvested at any time during root development, but it is generally allowed to reach full size. Immature roots have a very tender skin. In Mexico, the mature roots are lifted out of the ground by hand or with a modified plow, selected for uniform shape and freedom from defect, and placed in baskets that are then emptied into trucks

or trailers that transport the produce in bulk under ambient conditions to market.

Much of the jicama destined for U.S. markets is handled through intermediaries in Tijuana. There, the jicama is unloaded, washed with water, selected, trimmed (the taproot and remaining stem are cut off), packed into crates of about 50 pounds each, and dipped in a solution of about 10 percent calcium hypochlorite to sanitize and whiten the root. The crates are drained, palletized, and transported again under ambient conditions to U.S. wholesale markets. There the produce may be reselected and repacked and shipped anywhere in the United States in mixed-load shipments. In Mexico, jicama may be stored in the ground for as long as three months.

Store harvested jicama in a cool, dry area. Too much moisture will cause mold. Common postharvest problems include sprouting in storage, decay, and dehydration. USDA recommends storage at 55° to 65°F and 65 to 70% relative humidity, with an approximate storage life of 1 to 2 months. Research at UC Davis has concluded that jicama is sensitive to chilling, and that storage below 54.5°F causes major problems. Chilling injury symptoms include external decay and internal discoloration. Development depends upon both the temperature and the length of storage. For example, at the end of 2 weeks' storage at 50°F, the roots appear capable of recovery. At 3 weeks, however, the roots are permanently and seriously damaged. At 32°F, serious chilling damage occurs within 1 week. At 40°F, damage occurs within 1 or 2 weeks.

Sources

Seed

Gurney's Seed and Nursery Co., Yankton SD 57079

Hastings, P.O. Box 115535, Atlanta, GA 30310

J. L. Hudson Seedsman, P.O. Box 1058, Redwood City, CA 94064

Lockhart Seeds Inc., P.O. Box 1361, Stockton, CA 95205

Nichols Garden Nursery, 1190 N. Pacific Highway, Albany, OR 97321

Redwood City Seed Co., P.O. Box 361, Redwood City, CA 94064

Sunrise Enterprises, P.O. Box 10058, Elmwood, CT 06110-0058

Tsang and Ma International, P.O. Box 5644, Redwood City, CA 94063

More information

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Prepared by Hunter Johnson, Jr., Warner Orozco, Marita Cantwell de Trejo, and Luis Hernandez.