



POHA

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Family: Solanaceae

Scientific Name: *Physalis peruviana* L.

Common Names: Poha, cape gooseberry, ground cherry, husk tomato

Description

Poha is a low-growing, herbaceous plant to 3 feet high with velvety, heart-shaped leaves 4 to 6 inches long and yellow, bell-shaped flowers. The mature fruit is orange skinned, round, 1/2 to 1 inch in diameter, and enclosed in a tan, papery sack. Fruits are many seeded, juicy, sweet, and tangy, with a high vitamin C content. The plant has a shallow, fibrous root system.

Occurrence

Poha occurs at high elevations in the tropics as a perennial and in temperate zones as an annual. In Hawaii it has become naturalized and occurs spontaneously on open mountain slopes at elevations between 1500 and 4000 feet. Plants grow well below 1500 feet but fruit size decreases with decreasing elevation.



Figure 1. Mature poha fruits in husk (left) and with husk partly removed (right).

Use

Poha fruit is eaten fresh or is prepared as jam. It is sometimes canned in heavy sugar syrup. It is also an excellent flavoring for ice cream. Poha is grown commercially in Australia, New Zealand, and South Africa, usually as an annual crop.

Location

Poha grows best in full sunlight and requires well-drained soils with a pH of 5.0 to 6.5. Pohas can produce good growth in relatively poor soils if they are well drained. Fertile soils may favor vegetative growth over fruit production. Areas suitable for tomato production are generally suitable for poha. Relatively dry weather during fruit maturation favors higher yields. In vegetative and fruit development stages of growth, irrigation may be desirable during dry periods.

Harvest

Fruit is ready for picking from three to five months after transplanting seedlings to the field.



Figure 2. A poha plant with flowers and various stages of maturing fruit.

Fruits should be picked when husks turn from green to a straw-yellow color, or they should be allowed to fall and be picked up from the ground at three- to five-day intervals. To avoid wet husks, picking is best done late in the day after the dew has dried.

Harvesting is labor intensive and therefore may be a major cost in poha production. To save time and labor, polyethylene sheets may be spread along the plant rows at harvest; the plants are shaken and fruits fall on the sheet, which is then pulled out; and the fruits are dumped into containers.

Postharvest

After picking, the fruits are spread out to dry overnight or longer to reduce moisture and minimize mildew formation. Poha berries stay in good condition for seven to 10 days if kept cool and dry. For retail sales, poha berries are usually marketed in the husk.

Before processing, berries must be husked. Hand husking is aided by an inclined table so that berries roll away from husks as they are separated. A machine has been designed to remove the husks, although hand husking will probably remain common for small-scale production. By hand, a fast worker can husk 10 to 12 lb per hour, while the prototype machine husked 42 lb per hour. The overall weight loss of poha berries husked by machine was 22 percent, compared with 10 percent for hand husking.¹

Propagation

Pohas are almost always propagated by seed but can also be started from cuttings. Seed is germinated in trays and transplanted to flats or containers so that plants are spaced 1 × 2 inches apart. Transplant young seedlings to the field about seven weeks after germination. Transplanting should be done on a cloudy day or in late afternoon. One ounce of poha seed can plant up to an acre. Stem cuttings, if used, are made from shoots cut 6 to 8 inches in length from desired parent material. The cuttings can be treated with a growth regulator to induce rooting and planted in flats kept in a moist, shaded area. Rooted cuttings are usually ready to transplant after two to three weeks.

Culture

Optimal spacing of poha varies with elevation and soil fertility. Plants are normally spaced 4 feet between plants in rows 6 feet apart. This results in a population of approximately 1800 plants per acre. Although staking is not required, it makes harvesting easier.

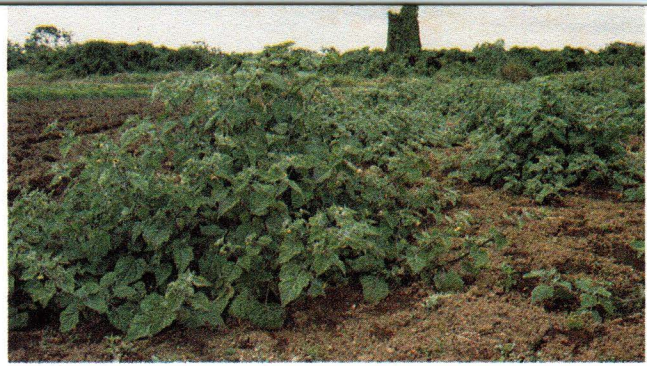


Figure 3. A field in commercial poha production at Volcano, Hawaii.

Preplant nutrition should include application of agricultural lime to adjust the soil to the 5.0 to 6.5 pH range. Mix $\frac{1}{4}$ cup of a fertilizer such as 10-30-10 with the soil at the bottom of the planting hole to insure adequate available phosphorus at planting. Organic soil amendments such as manures may have a favorable effect on the growth of poha's shallow root system by increasing the availability and retention of water and plant nutrients. Subsequent applications should be made with a fertilizer such as 5-10-10 or 10-20-20 at two-week intervals. Apply $\frac{1}{4}$ cup of fertilizer in a ring 6 to 8 inches from the plant base.

Weed control is advisable to reduce competition for water and nutrients, but care is needed to avoid damage to poha's relatively shallow root system.

Poha is a perennial in the tropics and should be severely pruned (ratooned) once a year after the harvest season. Optimum cycling includes one plant crop and one ratoon crop prior to replanting. Fruit size decreases with successive ratoon cycles.

Insect Pests of Poha

Broad mite (*Polyphagotarsonemus latus*)
Red spider mite
Thrips
Solanaaceous tree hopper (*Antianthe expansa*)
Cucumber beetle
Threelined potato beetle (*Lema trilineata*)

Diseases of Poha

Sooty mold (*Asteridiella acervata*)
Leafspot (*Cercospora diffusa*)
Black mildew (*Meliola* sp.)
Root knot nematode (*Meloidogyne* sp.)
Bacterial wilt (*Pseudomonas solanacearum*)
Southern blight (*Sclerotium rolfsii*)
Tobacco mosaic virus
Cucumber mosaic virus

¹J.-K. Wang. 1966. Equipment for husking poha berries. Hawaii Agr. Exp. Sta. Tech. Bull. 60.

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