

Okra

Abelmoschus esculentus

Hector R. Valenzuela and Stacy Riede

Okra a native from Africa, is widely grown in the lowland tropics and is popular in the South Eastern US. The plant is popular for its medicinal, ornamental and culinary values. Okra varieties which perform well in Hawaii include 'Blondie' and 'Annie Oakley'. It can be grown year-round in Hawaii at low elevations, and from Spring to Fall at higher elevations. The seed is sowed at a depth of 1/2 to 1" and a spacing of 12" between plants. Soak the seed for 24 hours, prior to sowing, to improve germination. Excessively vigorous plants may be cut back to about 2 ft, and fertilized, to promote new shoot growth and fruit production. The pods will be ready about 5-10 days after flowering. First harvest occurs about 70-80 days after planting, and will plants continue to bear fruit for several weeks. Okra fruits are picked when they are only 3-4 inches long. Large overmature fruits become seedy and fibrous. Okra is very flavorful and the fruit pulp has a slimy texture.

Okra may be pan fried, placed on a barbecue or used in soups. It can be steamed and served with a hollandaise sauce. Okra is best prepared soon after being picked to avoid a rubbery texture.

Okra is also known as Gumbo fruit, because it's used in Gumbo Soup.

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Chayote

Sechium edule

Hector R. Valenzuela, Stacy Riede, and Rhoda M. Yoshino

Chayote is most widely cultivated in Central America, but has been introduced and popularized in Thailand, Philippines, India and Asia. There are several varieties of chayote differing in shape and color (green or white). Chayote is mango sized containing a single seed. Locally chayote is also known as Portuguese squash.

The skin of the chayote fruit is removed and the fruit may be cooked like squash or pickled. A local favorite is to use a pickled mango recipe for pickling chayote.

Peel the skin of chayote fruit off under running water to avoid developing an itchy skin irritation from the fruit sap.

Chayote is cultivated on trellises. Plant 2-3 whole ripe fruit at the base of support. Each fruit contains a single flat seed that sprouts while attached to its mother vine when the fruit ripens. It is a squash and is cultivated in a similar manner. Harvest fruit just before it ripens.

Pork and Chayote

(Microwave recipe)

1/4 -1/2 lb pork steak 1 3/4 lbs. Chayote
1 T. sake or mirin 1/4 c. shoyu
dash of garlic powder 1/4 c. mirin
salt 1 tsp. grated
ginger
pepper

Slice pork into thin slices (1/8" thick and 1-2", long). Sprinkle 1 Tbsp sake, garlic powder, salt and pepper over sliced pork. Wash, peel skin and seed chayote. Cut in half lengthwise, then crosswise into 3/8" wide slices. Place in a 11x7x2" baking dish. Pour shoyu, mirin and ginger over. Cover with plastic wrap. Vent. Microwave full power for 6 minutes. Stir. Microwave full power 4 minutes. Add pork, microwave full power 1-2 minutes until done. Let stand 2-5 minutes. --
---Rhoda Yoshino.

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Angled Luffa (Sequa)

Luffa acutangula

Hector R. Valenzuela and Stacy Riede

Luffa, which originated in India, is very popular in Chinese cuisine where the young fruit is used in soups or stir fried. Prepare young fruit as most squash. Pare off ridges, but leave the skin intact. Mature fruit can be dried and used as sponges, however the smooth skinned luffa variety is better for this purpose. Luffa is also known as Sequa, Chinese okra, Cabatiti, or Dishcloth Gourd.

Luffa is easy to grow and can be cultivated year-round in Hawaii at low elevations. Follow similar cultural practices used to grow cucumbers. If several plants are grown, space 4-5 feet between plants in the row, and 7-10 feet between rows. Plants may also be grown in hills spaced 8-10 feet apart, with 2-3 plants per hill. Optimum growth occurs when the plants are provided with plentiful sunlight, fertilizers and/or composts, and uniform irrigation. Provide the plants with 2-3 lbs of a garden fertilizer per 100 square feet of soil, with follow-up supplemental side-dress applications later in the growing cycle. Nutrients may also be provided by applying about 1 lb of composted chicken manure per hill, and working into the soil prior to planting. Seeds from the previous season's crop can often be used to plant the new crop. For best results trellis and train luffa as you would with cucumbers. Fruits are ready to pick 3-4 months after planting, if used as a

vegetable, or about a month longer if grown for the dry product. At harvest time pick young tender fruit when they are 7-12" long.

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Winter Melon (Tohgan)

Benincasa hispida.

Hector R. Valenzuela and Stacy Riede

Although young leaves and flower buds are edible the fruit is considered a delicacy by Asian cultures. Large fruited mature Tohgan is a giant light green to bluish green melon that resembles a watermelon and weighs from 25 to 40 lbs. Fruits harvested younger before the waxy coat is fully developed is more flavorful and weighs from 5 to 10 lbs.

The mature fruit which has a developed white waxy outer coating can be stored for several months if left whole and kept in a cool, dry place. In China, the waxy coat of the fruit was used to make candles.

Winter melon can be grown year-round at low elevation in Hawaii but grows best during the Spring, Summer and Fall. It has similar cultural requirements and pest as other cucurbits. In commercial operations spacing is 10 feet between plants.

Preparation: The seeds of the melon are removed and the meat may be removed from the rind, chopped up and prepared in a variety of manners. The fruit may be stuffed and baked or stir-fried, but its favorite use is in soups. Winter melon soup is a delicacy often served at Chinese banquets with

the same gourd used as a decorative serving bowl.

Other Names: Wax gourd, Winter melon, Winter gourd, Chinese preserving melon, Dong gwa (Mandarin), Tung kwa (Cantonese) and Tohgan (Japanese.)

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Edible Bottle Gourd (Hyotan)

Lagenaria siceraria

Hector R. Valenzuela, Stacy Riede, and Rhoda M. Yoshino

There are many different forms of *Lagenaria siceraria* which produce fruits in all shapes and sizes, however only a few are edible. Some inedible varieties become woody upon maturity and are cultivated for use as water bottles and bowls. The edible variety which is locally referred to as 'Hyotan', produces long bat-shaped fruit and is grown in home gardens and commercially.

Hyotan may be grown as a ground trailing vine or on a trellis. It is naturally a climber and will begin climbing up fences or other supports in the garden. Plants have large foliage and white flowers. Fruits should be covered during early development to prevent melon fly damage (ovipositing eggs and larvae feeding.) Harvest before the skin hardens.

The seeds and the rind are removed before cooking. Hyotan has a delightful flavor and is stir fried or used in soups. The young leaves and shoot tips may be cooked as greens.

Pork and Hyotan

(Microwave recipe)

1/4-1/2 lb pork steak 1 3/4 lbs. hyotan
1 T. sake or mirin 1/4 c.
shoyu
dash of garlic powder 1/4 c. mirin
salt 1 tsp. grated
ginger
pepper

Slice pork into thin slices (1/8" thick and 1-2", long). Sprinkle 1 Tbsp sake, garlic powder, salt and pepper over sliced pork. Wash, pare and seed hyotan. Cut in half lengthwise, then crosswise into 3/8" wide slices. Place in a 11x7x2" baking dish. Pour shoyu, mirin and ginger over. Cover with plastic wrap. Vent. Microwave full power for 6 minutes. Stir. Microwave full power 4 minutes. Add pork, microwave full power 1-2

minutes until done. Let stand 2-5 minutes. --
---Rhoda Yoshino.

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Lotus Root

Nelumbo nucifera

Hector R. Valenzuela and Stacy Riede

Lotus is in the water lily family and is grown in shallow muddy water ponds and swampy areas. Lotus produces a beautiful white and pink flower which has a strong religious affiliation with Buddhism. In China, lotus or “Ho” is a symbol of purity and truth, and was cultivated there since the 12 century BC. Lotus is grown locally near Waialua, Oahu in spring fed shallow beds.

Lotus roots are actually modified underground stems called rhizomes. The rhizomes are jointed resembling a string of sausages with air chambers running through them. The growing season for Lotus root is about 6 months and under favorable conditions the harvest may continue for an additional 3 months. Lotus root sets are typically planted in March, flower in late June or early July, and is harvested from September to December. In Hawaii lotus root was grown commercially on about 50 Acres in the 1930s and decreased to about 10-15 Acres grown annually by the early 1990s. Chinese and Japanese varieties are available, with the Chinese varieties having longer (3-5 ft) and more segmented roots than the Japanese varieties (2-4 ft). The lotus sets are grown in ponds with a gentle flowing water depth of 2-12” and mud depth of 1-3 ft.

Lotus rhizomes have a crisp texture and mild flavor. They are often

thin sliced for presentation. Lotus can be stir-fried with meat or other vegetables, stuffed with pork or rice, used in soups, battered and fried as well as candied for special occasions. It may also augment the meal as a source of starch. It is also known as, Hasu.

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Yard Long Bean

Vigna unguiculata subsp. *sesquipedalis*

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Yard long bean is a close relative of cowpeas or 'black-eyed peas'. It is an attractive climbing vine with large violet flowers. Although the pods may grow to be a "yard long", these are generally harvested when 6" to 12" long before the seeds have matured. The pods are stringless and are light to dark green or purplish in color.

Yard long beans can be grown year-round in Hawaii at low elevations, and in the late spring, summer, and fall at higher elevations. Plants are spaced 12" apart. The plants require a trellis and the vines need to be trained to the trellis, similarly to trellised tomatoes. Nitrogen-fixing *Rhizobia* bacteria are available to inoculate seeds prior to planting. If not inoculated, fertilize with nitrogen fertilizers as you would other vegetables.

Yard long beans are native to China where they are still very popular in its cookery.

Culinary Uses: The tender green or purple pods, ripe seeds, leaves, and young stems are all edible. The pods have a mild flavor and tender texture if harvested before they become "flabby."

Pods are generally cut in 1-2" lengths for cooking. They are preferably stir fried or boiled rather than steamed. Stemming tends to make the pods too soft. Young pods may also be pickled. Pods can be used in most green bean recipes. Cook until the beans lose their firm texture and absorb juices. Add them to any vegetable or meat combination you are slow-cooking approximately 20 minutes before the dish is complete.

The young, leaves and stems can be steamed, seasoned with olive oil and served.

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Collards (Portuguese Cabbage)

Brassica oleracea (Acephala group)

Hector R. Valenzuela and Stacy Riede

Collards are a large open-head cabbage which produces large leaves rich and the antioxidant, Beta-carotene. It is promoted by the American Cancer Society as one of several key dietary vegetables that help prevent cancer. Collards are very popular in the Southern U.S. and is now also popular as a delicacy and nutritious crop in other parts of the country.

Collards are suited to warm growing conditions and the variety 'Georgia' thrives in Hawaii's climate, however flavor improves and growth is greater during the winter months or at higher elevations. Collards may be direct seeded, but it does better if it is first seeded into trays or small pots and then transplanted into the garden. It takes 60 to 80 days from seeding to produce mature heads. In the home garden, individual leaves may be harvested upon maturity, or earlier and the plant will continue to produce tasty greens for a few months.

In the garden seeds are planted 1/2" deep and plants spaced 18-24" apart. Follow cultural practices similar to growing other plants of the cabbage family. The plants may also be grown in 3-5 gallon containers, provided the plants receive at least 6 hours of full sunlight.

Collard leaves are "tougher" than head cabbage and require a longer cooking period. Collard leaves are cut into bite-sized pieces and pot-boiled

with meat and spices (referred to as 'Soul food' in the Southern US) Locally, collards are referred to as Portuguese cabbage because they can be substituted for kale in Portuguese Caldo Verde Soup.

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Burdock (Gobo)

Arcticum lappa

Hector R. Valenzuela and Stacy Riede

The Japanese are credited for developing Gobo as an edible root. Flavor varies from mild and sweet to strong, depending on age and quality. Roots are tender when young and should snap when bent. Thin or older roots have an earthy flavor and may be fibrous. Gobo is a good source of Vitamin B. The price of gobo in Hawaii during the winter months can reach \$5 per pound, an indication of its popularity for local cuisine. Local annual production has decreased from about 400,000 lbs in the 1960s to about 270,000 lbs in 1993. Optimum temperature for growth of gobo is 65-75°F. Old burdock varieties grown in Hawaii include 'Sunagawa' and 'Takinokawa'. Seed for newer varieties can be obtained from commercial seeds companies. Grow gobo in soils that are free from nematodes. Prepare the soil deeply, at least 2 ft to allow for proper root growth and plant about 1 foot between hills in the row. Fertilize as you would other vegetables in the garden.

Gobo is ready to harvest about 6-8 months after seeding. The roots are normally 1-2 feet long but can grow as long as 4 feet and are brown with white flesh. Young roots can be peeled and eaten raw, but gobo is usually cooked. It is best kept if the soil is not washed off until they are about to be cooked. It is better to rub the outer brown skin off, to prevent discoloration or removal of the flesh beneath the skin. Gobo is then sliced into strips and soaked for an hour to remove any bitterness. After removing the water, roots may be

simmered for 30 minutes or pounded for tenderizing before stir-frying.

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Fern Shoots- Paco and Ho'i'o (Warabi)

Athyrium esculentum (Paco) and A. arnotti (ho'i'o).

Hector R. Valenzuela, Stacy Riede, and Rhoda M. Yoshino

Paco and ho'i'o are large ferns that thrive in wet climates. Paco is native to Southern Polynesia and Ho'i'o is native to Hawaii where it thrives in mountainous regions. The young unfurled fronds of both can be eaten raw or cooked. It is often served in a marinated seafood salad.

Locally it is commonly known by its Japanese name, "Warabi" (literal translation 'fern shoots.')

These ferns can be cultivated from single plants with good roots and runners, if provided with shade and plenty of moisture. They also do quite well in 3-5 gallon plastic pots.

Warabi Salad

1 lb warabi (fern shoots)	3 T.
sugar	
1/2 block kamaboko, cut	1/2
pkg. Shiofuki Konbu	
in strips	
(seasoned seaweed	
(steamed fishcake)	
strips)	
1 T. sesame oil	1/2 pkg.
cod fish strips,	
2 T. soy sauce	
rinsed	

Wash warabi well. Cut into 1-1/2 inch lengths. Separate tender shoots from thick stems. Bring a large pot of water to a boil. Add stem portions and cook for 3 minutes, then add shoots and cook an additional minute. Drain and rinse in cold water. Combine all ingredients together and toss until well mixed. Chill overnight to allow flavors to blend. Makes 4 servings (Rhoda M. Yoshino).

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Kakuma

Cibotium sp.

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Kakuma is a local Japanese delicacy. It is prepared from spineless young unfurled hapu'u (native Hawaiian tree fern) shoots. The shoots are cut into 4-6" pieces. Remove any hairs and boil till the center turns maroon. It is recommended to boil kakuma outdoors, as it produces acrid fumes. The green skin is removed leaving the maroon centers which are placed into a bowl of clean, cool water. The pieces must be rinsed and the water changed daily. The kakuma is ready for consumption when the soaked water is clear and no longer stained tan in color. This process which takes at least a few days, removes the acidic bitterness. The cleaned kakuma should be kept in water which is changed daily and refrigerated until use. Cleaned kakuma is sold in local markets and Chinatown. Kakuma is delicious pickled or pan-fried with pork.

Native Tree fern shoots are normally collected from the rainforest in the Puna District of the Big Island during the early Spring months. (Check with the Hawaii State Dept. of Land and Natural Resources to obtain specifics for collection and permits.) Collection is prohibited in Hawaii Volcanoes National Park.

Hapu'u can be grown from large stump cuttings in the garden provided plenty of water, high humidity and indirect sunlight are available.

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Exotic Vegetable Seed Sources

American Takii, Inc. W. Atlee Burpee
& Co. & Co.
301 Natividad Rd 300 Park Avenue
Salinas, CA 93906
Warminster
PA 18991-0001

Evergreen Y.H. Enterprises
POB 17538
Anaheim, CA 92817

Johnny's Selected Seeds
Foss Hill Rd.
Albion Maine 04910

Marutane Co. Ltd.
C.P.O. Box 65
Kyoto 600 Japan

Park Seed Wholesale Co
Cokesbury Road
Greenwood, SC 29647-0001

Sakata Seed America Inc.
POB 880
18905 Serene Dr.
Morgan Hill, CA 95037-0880

Stokes Seeds Inc.
Box 548
Buffalo, N.Y. 14240-0548
U.S.A.

Sunrise Enterprises
POB 1960
Chesterfield, Virginia 23832

Horse radish tree (Marrungay)

Moringa oleifera and *M. stenopetala*

Hector R. Valenzuela, Stacy Riede and Rhoda Yoshino

Horse radish tree is a small tree which is native to India and derives its name from its roots which taste like horse radish. It has fern-like pinnate leaves and small white fragrant flowers. Although the tree resembles other legumes it belongs to the Moringa Family made up of only 10 species.

The horse radish tree can be easily propagated from seed and from cuttings, is easy to establish, and is adapted to a wide range of growing conditions. The trees can be trimmed to a 3-5 ft height and continuously harvested for its young shoots and leaves.

Horse radish tree is locally called "Marrungay" and is popular in Filipino cookery. Young leaves can be added to soups, stews, and can be stir-fried. The flowers can be cooked in batter. The roots can be chopped and prepared with vinegar. Young green pods may be cut up and boiled like string beans. Young pods may also be curried.

It can be easily propagated from cuttings. The dried seeds contain an alkaloid (potentially toxic and care should be taken) which can be fried, and taste like peanuts when eaten. Upon pressing the seeds produce a non-drying oil called, "ben oil" which is used in soaps, salad oil and to oil machinery. The corky bark produces a gum used for printing.

It is also known as ben tree and coalti (Mexico.)

BALATONG WITH MARRUNGAY LEAVES

Balatong is mongo bean and marunggay. The dish serves as a main dish with hot rice.

2 c. mongo beans
2 cloves garlic, mashed
5 c. water
1/4 of a medium size round onion, sliced.
2 c. marunggay leaves.
1/4 lb. pork, sliced thin separate from fat from meat
3 Tbsp. bagoong 20 dried shrimps (ebi) or 1/4 lb shrimps, shelled and sliced thin.

Steps.

1. Wash mongo beans and soak in 4 cups water overnight.
 2. Next day, rub beans between palms to remove out skin. Do this until most of skins are removed. This is optional. Many people prefer not removing the outer skin of beans.
 3. Brown pork fat. Add pork. Add salt to taste. Cook pork until brown. Add garlic and brown with pork.
 4. Remove garlic. Add onions.
 5. Add 3 cups water to pork mixture. Let boil.
 6. Add beans and cook until beans are soft.
 7. Add 2 cups water if soup is too thick. Add 3 Tbsp. bagoong.
 8. Add murrungay leaves and cook for 4 minutes.
 9. Serve hot with rice: approximately 8 servings.
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Bittermelon

Momordica charantia

Hector R. Valenzuela, Stacy Riede and
Rhoda Yoshino

Bittermelon is popular in southeast Asia, China, India and the Philippines both as a vegetable and as a medicinal plant. It is an attractive climbing vine with ornate palmate leaves and light green waxy, warty fruit which hangs from the foliage. Fruits have a high content of quinine which results in a bitter taste.

Bittermelon is propagated by seeds, available from commercial seed suppliers, and is grown on trellises, similar to cucumbers

Fruits are covered with paper upon development as it will become dark and more bitter when exposed to the sun. This also serves to protect the fruit from being “stung” (ovipositing eggs) by fruit & melon flies. Harvest fruit at least 2 inches in length and before any orange coloring appears. The mature fruit is bright orange with red pulp and is not usable for cooking.

Fruits are prepared by removing seeds and blanching or salting to remove some of the bitterness. Halved fruits can be blanched for a couple of minutes or strips may be salted for 10 minutes. (Rinse salted strips and squeeze out moisture.) Bittermelon may be stuffed and steamed, curried, pickled or stir-fry.

It is also known as balsam pear, Fu qua (Cantonese), Ku gua (Mandarin), Niga uri (Japanese) and karella (Indian.)

PINACBIT (Bitter Melon and Eggplant)

3 long eggplant
2 bittermelon or 3/4 lb okra
2 cloves garlic
1 tsp bagoong sauce
1/2 cup water
2 medium sized tomatoes
1/4 cup aramang (shrimp) or ipon
(small dried fish.)

Wash and slice vegetables. Remove seeds from bittermelon. Cut all vegetables in 2" pieces. Mix garlic, bagoong sauce, water, sliced tomatoes, and shrimp in deep pot. Add melon first, then eggplant; cover and simmer until eggplant is cooked, 5 to 8 minutes. Okra may be added, if available. After vegetables are cooked, they may be marinated in thin mayonnaise for 15 minutes before serving.

From: Filipino Foods, Hawaiian Electric Company Circular 347.

Paria Leaf

Momordica charantia

Bittermelon is generally grown for its fruit, but young shoots and leaves of bittermelon may also be consumed. Bittermelon shoots are also known as Paria leaf and are readily found at open or Chinatown markets.

Paria leaf must be parboiled few minutes at the water drained. It can be re-boiled or stir-fried.

Yam Bean (Chop Suey Yam)

Pachyrrizus erosus

Stacy Riede, Hector Valenzuela and Rhoda Yoshino

Yam Bean is not related to a true yam. It is actually a tuberous beet - shaped root of a climbing legume (bean.) The mature pods and leaves contain the poison rotenone. Therefore remove the attractive white or blue flowers from the plant to avoid development and accidental consumption of these pods. Removing the flowers may also enhance large root formation which takes about 5 months to develop. The leaves are also poisonous and should not be fed to animals. Yam Bean is propagated by seeds. Cultural requirements of Yam Bean are similar to that of other climbing beans. Short day-lengths are required to promote good fleshy root development. Spacing for planting is about 3 ft between plants and 5 ft between rows.

Although Yam Bean is native to the Americas, it is very popular in Southern Chinese cookery. It is known locally as "Chop Suey Yam" and in the mainland US and Mexico it is called, "Jicama" (pronounced "Hicama"). Yam Bean is also known as Mexican turnip, Sha ge (Mandarin) and Sha kot (Cantonese).

Culinary Uses: Yam Bean can be eaten raw or cooked. It has a crunchy, juicy texture and a sweet bland flavor which compliments most any food. It can be used raw, sliced, cubed, shredded or cut in sticks. It is low in calories and can be a good alternative to chips or crackers when served with a dip.

A common way to serve jicama is to sprinkle chilled slice with chili powder, lime juice and salt. It is also frequently sliced thin and incorporated into vegetable or fruit salads for added texture.

It retains its crunchy texture even when cooked. It is a common addition to many stir fried Chinese vegetable dishes.

It is also a common substitute for water chestnuts in recipes.

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Catuday

Sesbania grandiflora

Hector R. Valenzuela and Stacy Riede

Catuday is a medium sized and short-lived tree which belongs to the legume or bean family. It has fern-like pinnate leaves and very large white or pink bean flowers which are quite ornamental. It has slender long seed pods which often reach 2 feet in length. It was introduced to Hawaii before 1840 and is known as 'Ohai-ke'oke'o' by Hawaiians.

Catuday originated in Indonesia but is grown throughout the tropics. The tree is adapted to both dry and moist conditions. The leaves are valuable as green manure. Young leaves, seed pods and flowers are all edible. However the flowers are bitter and the taste is disliked by many people. In South Asia, chopped young leaves can be prepared with a spicy coconut milk curry. The young pods can be prepared like green beans. The leaves may be prepared as spinach. Ripe seeds are not eaten. In the Philippines unopened flowers are steamed or cooked in soups after the stamen (feathery part) and calyx (green flower sheath) are removed. It can be used as a fodder for cattle and goats, but is toxic to chickens.

Saluyot

Corchorus olitorius

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Saluyot is a medium sized shrubby annual native to India. It has yellow flowers and narrow ovate, serrated leaves, 2 to 5 inches long. The leaves and young shoots have a slimy texture and is sometimes referred to as Bush Okra. It is an important crop in India, Africa and Egypt where the leaves and young are an import leafy vegetable. The stems make a economically important fiber known as, “Jute”. Jute fiber is used to make paper, twine and burlap bags. Saluyot is harvested early, when the crop is only 6 to 9 inches tall. Saluyot is a good source of iron and vitamin A and a fair source of thiamine and phosphorus. Saluyot is also called, Filipino spinach.

Saluyot Dinengdeng

3 cups Saluyot, cut 2
cups water
1 cup tiny fresh shrimp (optional.)
2-3 Tbsp patis or bagoong

Wash Saluyot and cut off about 4-5 inches of tough (bottom) stems. Cut the leaves and tender tips into pieces about 1” long. Wash shrimps. Boil water and add bagoong and Saluyot, cover, and cook 2 minutes. Add shrimps and cook about 5 minutes or until shrimps turn pink.

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New Zealand Spinach

Tetragonia tetragonioides

Hector R. Valenzuela and Stacy Riede

New Zealand Spinach is used and has a similar and milder flavor to spinach, but the plant is very different. Each individual plant may reach 1 to 2 feet in height and is highly branched. It is a heat-tolerant plant and herbaceous. The new and tender shoot and leaves are harvested and new growth will develop at the nodes below the cut. The seeds are large and germinate slowly. Soak the seeds overnight prior to sowing to improve germination. Plants should be spaced 12-18" apart with 2-3 ft spacing between rows. When the plants have reached 1-2 ft in height, the top 2-3" of shoots may be harvested and prepared as spinach. The plant will continue to produce new shoots and the new growth can be harvested as needed. When grown commercially the plant is cut 2" above the ground. Because of its heat tolerance it can be grown year round in Hawaii, at low elevations. Cultural requirements for New Zealand spinach are similar to that of other leafy green vegetables. Composts are recommended to complement garden fertilizer applications and to improve texture and aeration in heavy soils. Mulching is recommended for weed control and to conserve moisture in the summer months.

It is also called, alocbate.

New Zealand spinach may be consumed fresh in salads or cooked like spinach. The crop is very nutritious. A serving contains 11 calories and 72% of the Vitamin A, 72%

of the Vitamin C, and 10% of the iron, required on a daily diet for adults.

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Ung Tsoi

Ipomea aquatica

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Ung Tsoi is a close relative of the sweet potato which is grown throughout Asia. There are two types of Ung Tsoi: An aquatic type which grows along muddy river banks where it can become a weed which clogs waterways and the dry land type which is cultivated in raised beds provided with plenty of moisture.

The young stems and leaves of Ung Tsoi may be steamed, boiled, stir-fried or eaten raw. Ung Tsoi has a sweet mild flavor which may enhance the flavor of salad mixtures. When cooked, leaves may have a slippery texture, but the stems remain crisp. It is a rich source of vitamins and minerals.

Ung Tsoi is also known as swamp cabbage, water spinach and asagaona (Japanese).

Ung Tsoi with Pork and Harm Ha Sauce.

1 bunch ung tsoi	2 tsp shoyu
1/4 lb. lean pork sliced thin	1/2 tsp. sugar
2 cloves garlic, minced	1 Tbsp. oil
1 Tbsp. harm ha (shrimp sauce.)	

Wash and cut ung tsoi into 2" pieces, separating the stems and leaves. Combine pork slices, garlic, shoyu, harm ha and sugar. Heat oil in large skillet or wok. Add pork mixture and stir fry on high heat for 3 min. Add stems and stir fry 2 min., add leaves and cook additional 2 min. Serve immediately.

-Oahu County Circular #3, 6/77

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University of Hawaii at Manoa.

Green Papaya

Carica papaya

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Green papaya is gaining popularity in Hawaii as a vegetable. Thai Green Papaya salad is prepared by mixing shredded green papaya, chopped tomatoes, dried shrimp flakes with a spicy dressing and can be found on the menus of most Thai restaurants. Green papaya may also be pickled or prepared like a squash for use in soups.

To prepare green papaya peel the skin and remove the immature white seeds. Rinse in cold water. The fruit may be shredded in a food processor for use in a Thai salad, sliced for pickling or cubed and used like squash for use in soups.

ACHARA

(Pickled Green Papaya)

1 med. papaya	1/2 tsp. chopped ginger root
2 Tbsp. vinegar	Dash black pepper
1 tsp. salt	

Wash and peel papaya, remove seeds and shred flesh. Add vinegar, salt, ginger and pepper. Blend thoroughly. Cover and let stand for 30 minutes or place in covered container and keep in refrigerator until ready to serve.

From: About Filipino Foods. Hawaiian Electric Company Circular 347

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Tomatillo

Physalis ixocarpa

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Tomatillo is a close relative of the husk tomato and poha berry. It is native to Peru, but has become naturalized in Mexico where it used in green salsa and chili sauces and where it has been cultivated since pre-Columbian times. It is suited for warm climates. Plants reach 3 feet in height and are cultured similarly to tomatoes. Seeds are sowed into transplant cells, seedling trays, or small pots, at 1/4" in depth and transferred to the garden after the 2nd set of true leaves emerge. Plants may be spaced 1-3 feet apart, in the row. Staking is not required, but may simplify harvesting of the fruit. For fertilizer place a 1/4 cup of 10-30-10 or similar fertilizer per hill and mix with the soil, prior to planting. Supplemental applications of 1/4 cup of 5-10-10 or similar fertilizer may be side-dressed beginning 2-4 weeks after planting. The fruits are walnut sized with a papery husk. The fruits are harvested green after the papery husk turns brown. The first harvest occurs about 70 to 80 days after seeding, and harvest continue for about 2 months or longer. The mature green fruit has a tart flavor and a solid texture. Mature fruits are yellow or purple, bland and not desirable for salsas.

Tomatillo is used in Mexican sauces and salsas. They can also be added raw into salads and tacos. Because of their popularity tomatillos are now a "staple" in the specialty produce section of most supermarkets.

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Winged Bean

Psophocarpus tetragonolobus

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Winged bean is grown throughout Asia and the Pacific. The vine and foliage resembles that of string beans and is cultivated in a similar manner. The pods are 6 to 9 inches in length and are one inch in diameter with four angled leaf-like wings running along its length. Individual mature seeds are green and resemble individual soybean. Most varieties of winged bean need short days to initiate flowering.

All plant parts are edible and the tuberous root and pod are high in protein. The tender pods are used in stir fries and soups. Also called goa, princess and asparagus bean.

Winged Beans and Chicken

8 oz chicken breast, skineless
1 T. sugar
boneless, sliced thin 1
clove garlic, minced
1-1/2 lb winged beans 1 t.
oil
1 onion, sliced thin
1/2 t. salt
2 T. soy sauce 1/4 t.
pepper

Wash beans and remove ends and strings. Slice beans diagonally into bite size pieces. Combine soy sauce and sugar and marinate chicken slices for 15 minutes. Heat oil in fry pan or wok. Add garlic and onion and saute for 3 minutes. Add marinated chicken pieces and stir fry until chicken is cooked

about 4 to 5 minutes. Add beans and stir fry until beans are tender. Season with salt and pepper. Garnish with chopped green onion or Chinese parsley. Makes 4 to 6 servings (Rhoda M. Yoshino).

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Tahitian Taro

Xanthosoma brasiliense

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Tahitian Taro is a native to the West Indies and was introduced to Hawaii and Tahiti prior to 1933. Tahitian Taro is actually a cousin to the taro (genus: *Colocasia*) and belongs to the genus *Xanthosoma*. It is cultivated primarily for its pointy heart shaped leaf which is 6 to 16 inches in length. The plant grows 1 to 3 feet tall and has small corms. The corms are edible but too small to be a suitable or sustainable food source. Because the leaves are consumed, and not the underground corms like taro, closer planting densities can be used for Tahitian taro. Other cultural requirements are similar to that of dryland taro. Fertilize the crop with garden fertilizers as you would other leafy vegetables. Organic composts and well decomposed manure applications will also contribute toward greater foliage production. Organic mulches are also favorable for weed control and to conserve moisture during the summer months. Tahitian taro prefers full sunshine or moderate shade and a uniform water supply for maximum yields. It can be grown year-round in Hawaii at lower elevations with slower growth rates at higher elevations.

The leaves taste similar to taro leaf, but due to its lower calcium oxalate content it requires less preparation (pare of the leaf veins) and a shorter cooking time. Cooking breaks down the calcium oxalate crystal which cause a painful itchy throat irritation when un- or under- cooked taro leaves and corms are consumed.

Tahitian taro is also known as Tahitian spinach and Belembe (West Indies.)

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Chinese Amaranth

Amaranthus sp.

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Chinese Amaranth a native of Tropical Asia is a variety of amaranth grown for greens. It is a close relative to the Spiny Amaranth which is a troublesome weed in Hawaiian home-gardens. Chinese Amaranth is spineless, and has smooth ovate green leaves with a red center. It is harvested young when the plant is only 4 to 12 inches in height. New shoots will emerge after the first harvest and the plant can continue to be harvested as needed for up to 6 months. Supplemental fertilizer applications will be required if the crop is harvested continuously. Plants are ready for harvest 3-6 weeks after sowing. It thrives in warm climates and is normally propagated from seeds. Higher planting densities may be used if the plants will be harvested only once when still young. Spacing is 1 foot between plants. Chinese Amaranth is also known locally as Chinese spinach or 'yin choi'. Locally it can be grown year-round at low elevations and during the late spring, summer, and fall at higher elevations. Cultural requirements of amaranth are similar to that of lettuce and other leafy greens.

Young leaves can be used raw in salads or cooked in a variety of manners. The flavor has a tangy "bite"

to it. It is sometimes used as substitute for spinach and is rich in vitamin A, iron, potassium and calcium.

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