VEGETABLES FOR SW FLORIDA IN THE SUMMER MONTHS

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Garden at ECHO's Demonstration Farm *Photo: Larry Yarger*

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Introduction

Within a couple days after Bonnie and I arrived in Florida to assume my new role as founding CEO of ECHO I began digging a garden. For an avid gardener used to the long winters "up north" this was an exciting adventure. I was going to grow flowers and vegetables year-round in the Garden of Eden itself - at least something very close to it. Or so I thought.

Then an experienced older gentleman told me, "Son, you don't garden here in the summer. It's like winter up north. You just let the area grow to weeds during the summer, then plant your garden in the fall." I tried anyway.

I could not believe it when none of the seeds I had brought with me from Ohio grew to the point that I had something to eat! (There was one cantaloupe that a raccoon ate the night before I was going to harvest it.) I had no idea what the heat and humidity would do to green beans, broccoli, lettuce and radishes!

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I had not envisioned what disease and insect problems would be like where there is no winter freeze to kill them off. I was taken by surprise by the difficulty of watering plants growing in the fine sand, and then by the suddenly very high water table that killed the roots. I was taken by surprise at the deadly effect of root-knot nematodes. Even the marigolds and zinnias I had planted as a border died before they got big enough to bloom. It is a good thing I had not been sent to Florida to teach the poor Floridians how to garden!

Today if you visit ECHO during the summer you will find food plants growing everywhere. But you will not find many of the "temperate" vegetables that are staples of most northern gardens. Many of them you will not even recognize.

I am reminded of a letter received around 1990 from a family in Illinois that had accepted an assignment in a remote rainforest location in SE Asia. "We are not going there to teach agriculture, but we are worried about where we will find vegetables for our family. We are told that you can't grow vegetables in a rainforest." My reply was that there is bad news. Few, if any plants from your Illinois garden will grow there. However, the good news is that there are vegetables that grow in rainforests; you just need to grow plants that God placed there. And some "sort of bad" news: you will need to "reset your taste buds" because they will probably not be familiar tastes.

SW Florida's hot, humid summers have a lot in common with rainforest conditions, minus the tall trees and of course with less total rainfall and not quite as high humidity. So it is not surprising that some of the standard vegetables in ECHO's summer gardens originated in tropical rainforests and hot, humid lowlands. Other important vegetables have originated in countries where there are perhaps six months without rain and six months that are like our summers.

A Look at Perennial Vegetables

- Plant Once and Eat for Years!

This document features some of our favorite vegetables. We often refer to them by the length of time they will grow before declining or dying. Some vegetables are grown every year from seed. These are referred to as **annual vegetables**. But first let me tell you about a few great **perennial vegetables**. These are vegetables that will grow for several years after they are planted.

Some of the perennial vegetables are the ones best adapted to SW Florida summers. They come from places such as the western Central America where there are very long dry seasons followed by hot, humid summers. They can easily survive both our dry springs and our wet summers. During the coldest days of our winters perennial vegetables from any place in the tropics may be harmed or suspend growth for a few months. Take advantage of that time to grow the temperate vegetables that you enjoy.

Most of the vegetables listed here are normally perennials. Some will act as annuals by virtue of the cooler seasonal changes in the temperate and subtropical regions where they are often grown.

Perennial vegetables have a number of advantages to the home gardener. One, they don't have to be planted each season. Two, perennials usually withstand harsh climates and weather better than annuals. Three, they tend to be higher in nutrition than most vegetables. And, four, perennials often offer more than a single product for the table. For example, sweet potato provides us with delicious roots, but also offers a nutritious green vegetable.

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ECHO's Guide to Summertime Garden Vegetables

If you are growing vegetables for a food kitchen, homeless shelter or similar outreach for those who are hungry, keep the following in mind. Some of these vegetables may sound strange and possibly unappealing, especially to those who have lived in this country all their lives. To people from other countries, they might be preferred foods.

Many of the plant descriptions below are abstracted from ECHO's tropical fruit nursery catalog. This unique publication can be purchased inexpensively at ECHO or read on-line at http://www.echotech.org/mambo/index.php?option=com_content&task=view&id=105&Itemid=132

Only vegetables that are lesser known will be described in much detail. Should you have further questions about their culture, contact the ECHO website (www.echotech.org), your local county extension service or write us at echo@echonet.org.

Basket Vine, *Trichostigma octandrum*, a.k.a. Haitian basket vine and hoop vine, *liann panye* in Haiti grows as a large perennial, sprawling bush. It is considered a native species in South

Florida and on many of the islands. It has long pliable stems that are used in making baskets. The young leaves, eaten after cooking, are an outstanding green vegetable. They are reported to be extremely nutritious. Discard the cooking water. Some boil the leaves a second time in fresh water to remove traces of bitterness. It has been killed to the ground in a freeze at ECHO, but will grow back. Although basket vine has a beautiful purple flower, it is propagated principally by cuttings. *Plants available at ECHO's nursery*.



Basket vine, Photo: Larry Yarger



Cassava (Tapioca), Manihot esculenta, a.k.a. Yuca and Manioc is an important root crop that is grown as a staple food in many parts of the tropical and subtropical world. ECHO sells both a good production variety and a variegated, ornamental variety (which can be used like regular cassava). Cassava is tolerant of drought and poor soil, but needs good drainage. It is a perennial shrub harvested for its roots about 8-12 months after planting. Our cultivated varieties grow to

about 8 ft. and tend to sprawl. The ornamental variety grows to about 6 ft. and is more compact.

The young, fully expanded leaves can be eaten cooked and contain 11-39% protein on a dry weight basis. Both the leaves and roots contain cyanide so the leaves should be cooked at least five minutes and the water drained. This reduces cyanide to a very low level. The roots should also be thoroughly cooked and eaten in moderation. The cultivated variety ECHO sells has red petioles and is said to be high-yielding. This cultivar is also reported to be of high quality with large, sweet, tender roots that can be peeled and frozen for long-term storage. Cassava is frost sensitive but can resprout from the underground part of the stem if a freeze kills it to the ground. Cassava is propagated by stem cuttings. *Plants available at ECHO's nursery*.

Chaya, Cnidoscolus aconitifolius is sometimes called "tree spinach." Its large leaves are boiled and eaten, especially in Mexico. It is also used to wrap tamales. The plant becomes a shrub about the height of a person and is quite attractive. Occasional pruning will make a more compact, bushy plant.



As with its cousin, cassava, the leaves of chaya must be cooked five minutes or more in boiling water, a stir fry or baked in a casserole to remove the small amount of cyanide they contain. Do not use them fresh in salads. The



texture of the chaya leaf is firmer than many cooked greens, somewhat resembling collard greens. Most varieties of chaya have small stinging hairs that are harmless after cooking, but the variety ECHO sells is free of these hairs. A USDA study in Puerto Rico reported that one can get higher yields of greens with chaya than any other vegetable they have studied.

Chaya is unique in that it is exceptionally resistant to the hot humid weather of a Florida summer and to extreme dry weather. Insects have not bothered chaya at ECHO. If the plant blows over in a tropical storm or the above-ground part is killed by a freeze, don't worry. This often makes for a prettier, more unique plant, as the main stem sends up additional branches and a bushier plant results. Chaya plants almost never produce seeds, but propagate easily by cuttings. *Plants* available at ECHO's nursery.

Garlic Chives, Allium tuberosum (a.k.a. Chinese chives) make a great grass-like border or container plant, thriving through all seasons here in Florida. They are a great addition to an herb garden. Growing best in moist soils, they are also drought resistant. They grow well in sun or partial shade. The white stems and green leaves are used like green onions or chives to add flavor to salads, stir fries, omelets and soups. They also make delicious herb butter and are popular in Oriental cooking. They are perennial and should live for years, with clumps growing larger each year. Garlic Chives do not form a bulb and rarely bloom in southwest Florida. Harvest by cutting



off at ground level. The edible part will grow back amazingly fast. Garlic chives are perennial and are propagated by seed or division. *Plants available at ECHO's nursery and seed from ECHO's bookstore.*

Katuk, Sauropus androgynus, (a.k.a. sweet leaf) a delicious hot weather green vegetable, is one of the staple vegetables in the rainforest climate of Borneo. It has become one of the favorite salad greens of the staff at ECHO, and is eaten either cooked or fresh for its nutritious leaves and shoots. The unique flavor of these leaves is most similar to raw peas. It grows exceptionally well in Florida, going dormant in the winter.

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Katuk is disease and pest resistant, tolerates most soils, and grows in sun or shade. For the best tender shoots and leaves, grow Katuk in half shade and fertilize frequently. This shrub should be kept pruned at 3 to 6 feet since it tends to grow straight up until it falls over. It can be killed back by a frost or freeze but grows back from the ground and may re-grow bushier than before. I grow it very successfully under the north eaves of our house where it thrives on

Katuk Leaves, Photo: Larry Yarger

the reduced sunlight intensity and the concentrated rain runoff from the roof during the drier parts of the year. In Asia, katuk is propagated by seed as well as cuttings, but in SW Florida we have not been successful with seed propagation. *Plants available at ECHO's nursery*.

Moringa, Moringa oleifera, (a.k.a. horseradish tree) is a tree grown for food and seed at ECHO.

It is one of the most requested seeds in ECHO's seed bank. This is due to its many edible parts and its ability to survive in arid parts of the world. It is an exceptionally nutritious leafy vegetable. The large frilly leaves can be broken off easily at the stem and carried inside. The tiny leaflets can then be quickly pulled off between the fingers. Tender growing tips can be cooked stem and all. At ECHO, leaves are boiled as any green or added to soups or rice. In the southern portions of the United States the tree will probably survive a hard freeze but may be killed to the ground. Even where no freeze damage occurs, some people cut it back to about 4 feet each year. This causes the leaves to be closer to the ground for ease of harvesting. If not forced to branch by pruning, the tree becomes tall, spindly and not very attractive. We do not recommend it as a prominent shade tree or landscape specimen.



Moringa leaf Photo: Larry Yarger

Moringa might have potential as an annual vegetable farther north. We are told that as far north as Gainesville Florida it is grown as a "cut and come again" perennial. We were sent a photo of a tree that was started in a greenhouse, transplanted out, and grew to the height of eight feet in Wisconsin before winter killed it. Aside from eating the leaves, young pods can be cooked and eaten like asparagus or green beans. Pod production is variable and seems to be increased by stress. Some trees bloom at less than a year old and others take longer.

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Along with the moringa leaves and pods, the blossoms are also edible. All parts have a taste similar to mild horseradish. When trees are about 3-4 feet tall, they can be pulled out of the ground and the roots grated and used like horseradish. The root bark is toxic and should be peeled off before grating. Eat the roots in moderation only. Crushed raw leaves may irritate the skin and, if eaten, can be purgative. Under good conditions the tree can easily reach 15 feet the first year. The wood is very soft and does not make good fuel wood. Moringa may be propagated either by seed (available in ECHO's bookstore) or cuttings. Plants available at ECHO's nursery.

Pigeon Pea, *Cajanus cajan*, can be grown as an annual maturing over several months or as a perennial. Usually it thrives for only one season at ECHO. It is very popular in parts of the



tropical world as it thrives in both humid and in arid regions. The attractive plant grows to three to eight feet, depending upon the variety, and is used as a dry bean and as a fuel wood plant. Pigeon pea is propagated by seed, and although you can purchase them from seedsmen, you will probably get good results and a good commercial variety by purchasing them ('gandul' in Spanish, 'pwa kongo' in Haitian Creole) in the ethnic foods section at your supermarket. Cook the dried "peas"

As you would other dried peas and beans. Look for recipes on the web. Seed available in ECHO's bookstore.



Okra, Abelmoschus esculentus (a.k.a. gumbo), and **Eggplant,** Solanum melongena, well-known vegetables to most Americans, will grow well planted spring or summer in SW Florida. Both can be harmed by root knot nematodes. The pods of two okra varieties, 'Borneo' and 'African', can be eaten at a much larger size than most standard okra varieties. These two both out-produce most other okra varieties in the late summer planting.

(Photo: ECHO Staff)

Eggplants come in many colors, shapes and sizes, from large, melon-sized to those that are egg-sized to those that are pea-sized. Their cheerful color variations make an appetizing addition to a fresh vegetable platter, soups, stir-fries, casseroles and other dishes.

Both okra and eggplant are propagated by seed and ECHO has a selection of each. *Seed available in ECHO's bookstore.*

Larry Yarge

Ethiopian Kale, *Brassica carinata* (a.k.a. Abyssinian cabbage) is an annual cole crop which originates in the East African Plateau. It tolerates high temperatures and high humidity, setting seed where other kale varieties will not. Young tender leaves and stem tips of Ethiopian kale may be eaten fresh in salads or cooked. Older leaves and stem may be cooked and eaten like collards. Flower stalks may be cooked and eaten like broccoli. It can also be used as a fodder crop species.



Ethiopian kale is reproduced by seed and it is easy to designate an area in the garden for constant production of this prolific, nutritious leafy vegetable. *Seed available in ECHO's bookstore*.

Cherry Tomatoes, Lycopersicon esculentum var. cerasiforme produce during summer months,



but I have stopped trying to grow tomatoes in the summer. Only varieties that are resistant to nematodes should even be tried. The package or at least a catalog description should indicate which diseases the variety is resistant to by using letters (N=nematode; F=Fusarium wilt; T=tobacco mosaic virus, among others). Even tomato vines that do well may not set fruit because of pollination problems during the warm season. Other than cherry tomatoes, romas, grape and salad tomatoes will also produce during the summer

months. Tomatoes are propagated mainly by seed, but some have successfully propagated them by cuttings. ECHO does not yet have in-depth information on the propagation of tomatoes by cuttings. *Seed available in ECHO's bookstore*.

Winged Beans, *Psophocarpus tetragonolobus* are grown principally for their edible "winged" pods. Pick them when you can bend the pod without breaking it or it will become too tough to eat. The leaves and flowers are also edible and quite appealing. The plants thrive in the hot humid summers of southern Florida with few disease or insect problems, though nematodes can be a problem. Most varieties of this jungle plant from Borneo only bloom and set fruit when the days become very short, so they are planted in early fall. For pods in a summer garden in Florida, be sure to purchase a "day neutral" or "long day" variety. ECHO has one or two day neutral varieties. *Seed available in ECHO's bookstore*.









Photos: Larry Yarger

Hot peppers (Capsicum annuum, C. frutescens, C. chinense, and C. pubescens) can be grown as annuals, but they are actually perennials, and in countries where it does not freeze they can grow for several years. The PowerPoint presentation on "Wading Pool Gardens" that can be accessed from this portion of ECHO's website begins with some photos of a three-year-old hot pepper growing at my home (variety 'Indian firecracker'). The small red and green peppers makes the plant look like it is decorated for Christmas. The larger "sweet peppers" are annuals and usually do not do well in the summer.

Peppers are propagated by seed, and if your seed won't germinate well, mix 1 tsp KNO₃ (potassium nitrate fertilizer) in 1 liter of water (1 quart will suffice) and soak the pepper seed in this solution. The KNO₃ helps to break seed dormancy and give more uniform germination of pepper seed. *Seed available in ECHO's bookstore*.

Malabar spinach, Basella alba, a.k.a. Basella or Ceylon spinach is grown for its attractive edible leaves that are cooked. Some people like the mucilaginous (I didn't want to say "slimy") leaves and some do not. If you like gumbo and okra you may like Malabar spinach leaves. It can grow up a fence or trellis or sprawl along the ground and, on top of mulch, forms a very attractive ground





cover. Malabar spinach is a perennial that comes in two colors, red and green, and both are propagated by seed and by cuttings. *Seed available in ECHO's bookstore*.

New Zealand spinach, *Tetragonia tetragonioides* is an annual green that often behaves more like a perennial, partially because the plant continues to grow and produce until the surrounding environment is no longer favorable for its growth, and partially because it produces seed close to the crown of the plant, and inconspicuously drops them into the soil where they will lie dormant

(even through cold, temperate winters) until conditions are ideal for them to germinate and continue growing the following season.

Soak the seeds overnight before sowing, and when planting into the garden, space the plants at 1-2 foot intervals. New Zealand



spinach likes fertile soil, so the addition of organic matter in the form of compost, worm castings or animal manures will help maintain its lush vegetative growth. Harvest by snipping 3-4 inch tips of the stems or individual leaves. Picking them at least once a week ensures continued lush growth and leaf production. They may be prepared as you would spinach – either by cooking (steamed, boiled, stir-fried) or by eating fresh in salads, and may substitute for spinach in any recipe.

Seed available in ECHO's bookstore.



Bunching onions, *Allium fistulosum*, (a.k.a. Welsh onions) keep dividing, forming bunches that can be cut and used like green salad onions. These perennials may be propagated by divisions or by seed. *Seed available in ECHO's bookstore.*

Tropical pumpkins *Cucurbita moschata*, are one of the same species of squash grown in temperate climates although these have been selected for production in the tropics. They are the only kind of pumpkin that I have seen successfully grown in Florida. It fact they can be very

productive any time except during the coldest weather. Tropical pumpkins can be used the same as the temperate pumpkin, but it can also be baked just like a winter squash or cooked when it is small and green and used like a summer squash. Additionally, the flowers and young shoots may be cooked and eaten as greens or stir-fry.

The pumpkin leaves can be damaged severely and quickly by a small caterpillar. See "vegetable amaranth" for a discussion of how to control it. The vigorous vines will grow along the ground and send out new roots, so planting near an area where it can sprawl is idea. A few months later you might find the vine dead where you planted it but the new portion thriving many feet away. *Seed available in ECHO's bookstore*.



Adzuki Bean Vigna angularis (a.k.a. azuki bean) and Southern Pea (a.k.a. black-eyed pea,

cowpea, crowder pea) Vigna unguiculata subsp. unguiculata. In southern Florida during the summer months Phaseolus green or common beans do not grow well due to the heat and moisture. However, the Vigna beans thrive. Here we feature two types, with a third in the following entry, all of which will do well in the summertime garden. There are similarities, but differences in their uses as well. Southern pea and adzuki have the same bushy growth habits, although the adzuki bean itself is a bit smaller than the pea. Whereas southern pea is prepared more as a shell pea, the adzuki is prepared more as a dried bean or pulse. At ECHO we have also noticed that adzuki bean is



consistently more insect tolerant than the southern pea. Seed available in ECHO's bookstore.



Yard-long Bean Vigna unguiculata subsp. sesquipedalis, (a.k.a. asparagus bean) produces pods similar to climbing green beans of temperate regions except that they really can be up to a yard long. I find two feet to be more common. They require a trellis, though I grew them successfully in northern Indiana when I was working at Purdue University before coming to ECHO. The yard-long bean is eaten as one would eat fresh or green "string" beans, either cooked or uncooked. When Bonnie wanted green beans from the garden for the two of us, I would pick three pods. There is a purple "yard long" bean that is visually quite striking in the garden. I actually prefer its taste to the longer ones, though it only grows to perhaps a foot in length. The yard-long bean is an annual propagated by seed. Seed available in ECHO's bookstore.

Yard-long Bean, photo: ECHO Staff

Jícama, *Pachyrhizus erosus*, a.k.a. yam bean is a bean plant, the beans of which must *not* be eaten. It is grown for its edible underground tuber. The tubers begin to form around December

and are harvested in January or February, though they need to be planted in the summer to take advantage of the rains to develop the massive vines which pour energy into forming the tubers. Tubers will be the size of a grapefruit if planted in June and the size of an apple if planted in August. You will find it in most grocery stores. The shredded, raw, white crunchy item that you see on fancier salad bars is jícama. It also remains crunchy when cooked in a stir fry or soup, so can be used as an inexpensive substitute for water chestnut. Jícama is an annual propagated by seed. *Seed available in ECHO's bookstore*.



Photo: Larry Yarger

Jícama Roots
Photo: ECHO Staff



Edible hibiscus, *Abelmoschus manihot* is a shrubby perennial from Indonesia, the leaves of which are flavorful eaten fresh as one would eat lettuce or cooked either alone or added to soups. It is grown exclusively for its leaves and is a very prolific producer, outyielding most crops planted for the production of leafy greens. It is touted as having very high nutritive value. Edible hibiscus must be propagated by cuttings, and is susceptible to nematodes. For this reason at ECHO we recommend planting edible hibiscus in containers, as is shown in the photo. *Plants available in the ECHO nursery*.

Tropical lettuce, *Lactuca indica*, (a.k.a. Indian lettuce) grows well in the South Florida summer, growing to perhaps four feet tall. When eaten fresh, the leaves are bitterer than I like, but some people enjoy bitter greens. I find them to have a nice flavor when stir-fried or boiled, but they are still not in my personal garden. Keep in mind when cooking greens or making salads that vinegar counters bitterness to

some extent. Let me know if you find a way to use this that most people like. It is so productive I'd love to find a great way to prepare it.

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As tropical lettuce is perennial, it can be cut back and it will resprout or coppice. When you do this, remember to fertilize it to give it the needed boost. Tropical lettuce can also be propagated by cuttings and by seed. *Seed available in ECHO's bookstore*.

Wax gourd, Benincasa hispida, will grow best in the hot but dry late spring, but might produce into the summer months. It is sometimes called "Chinese winter melon," and is popular in Asian markets and cuisine. The white flesh of the melon-like fruit is the cooked in soups. The fruit is covered with a white waxy "bloom" that protects it from microbial and insect attack and from drying out. So it stores exceptionally well. As with other plants in the cucurbit or cucumber family, the young shoots and flowers of the wax gourd may also be eaten in soups,



in stir-fries or cooked and eaten as greens. Seed available in ECHO's bookstore.

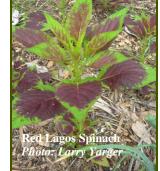
Amaranth (vegetable type), *Amaranthus tricolor* (a.k.a. tampala) is attractive (especially the variety 'tiger leaf') and produces leaves that taste much like spinach when cooked. Though it



will grow well in the summer, stay alert to the likely arrival of small caterpillars that can devastate it within a few days. The natural insecticide called B.t.® or Dipel ® can be bought at your garden center and will control the insect if used in time. Vegetable amaranth or tampala is an annual and is propagated by seed. *Seed available in ECHO's bookstore*.

Photo: Larry Yarger

Lagos spinach, *Celosia argentea* (a.k.a. quail grass), a cousin to vegetable amaranth but less prone to insect damage, is quite popular in SE Asia as well as West Africa where it originates. As a young plant before it flowers, it makes a tasty cooked green. Harvest it when it reaches 8-12 inches in height (before it flowers), cut up the whole plant except for the roots and put it into the pot. Boil it for a minute or two, and discard the dark water. It is very much like cooked spinach in taste and texture.



We found out the hard way not to steam cook it because boiling water is needed to remove oxalates that otherwise leave a burning sensation on

the tongue. It also has a beautiful flower later in the year; though at that stage the leaves become narrow and are not useful in cooking. Lagos spinach is an annual and is propagated by seed. There is a red and a green variety. Seed available in ECHO's bookstore.

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Cranberry Hibiscus, *Hibiscus acetosella*, a.k.a. false roselle or red-leaf hibiscus has striking red leaves and is similar to Japanese maple, in both leaf shape and color. It can be planted in the spring and kept pruned for an attractive annual shrub and may be grown as a temporary hedge. Cranberry hibiscus is nematode and insect resistant and does well in sandy soil.

The young tender red leaves have a tart flavor and are an attractive addition to fruit and tossed salads, slaws, or stir fries. In



the fall it has pink blossoms. About thirty blossoms can be picked at dusk after they have folded, and blended with lime juice and sugar to make a beautiful and tasty drink. The petals add a bright red color rather than any special flavor. Pinch the tips of stems as it grows to make it bushy, otherwise it will grow several feet tall and fall over. Cranberry hibiscus may act as a long-term annual or as a short-term perennial and can be propagated by seed or by cuttings. *Plants available at ECHO's nursery; seed from ECHO's bookstore.*

Roselle, *Hibiscus sabdariffa* is sometimes called "Florida cranberry" because of the bright red, crunchy, sour calyx that can be used somewhat similarly to cranberries in recipes. The calyx surrounds the developing fruit and seed and is the size of a small nut. A very popular drink is made from the calyx in many tropical countries by cooking them in water, then adding sugar and lemon juice and cooling. Plant roselle later in the summer to avoid likely root knot nematode damage. It will not bloom and form the edible part until around October. Roselle, an annual is propagated by seed. *Seed available in ECHO's bookstore; plants from ECHO's nursery*.





Photo: Larry Yarger

Okinawa Spinach, *Gynura crepioides* forms a dense, nonvining, edible ground cover, or as a specimen plant that grows well in full sun or partial shade. Grown commercially in China, the plant is a vigorous, perennial vegetable that is adaptable to a variety of tropical climates and requires little if any additional input. Okinawa spinach has attractive pointed leaves that are green on the top side and purple underneath. Young leaves and

shoots can be eaten raw or cooked; at ECHO we use them as a colorful and nutritious addition to our salads. Its rather insignificant yellow blossoms attract a constant stream of butterflies. Okinawa spinach has potential to grow for more than one year but usually declines after about a year at ECHO. It is propagated by cuttings. *Plants available from ECHO's nursery. To top*

Taro, Dasheen, *Colocasia esculenta* (a.k.a. eddo, cocoyam) and **Tanier,** *Xanthosoma spp.* (a.k.a. tannia, yautia, malanga) are two types of root crops that will grow well in the summer. Taro and dasheen are grown principally for their large, edible starchy corms (underground root and stem structure). Taro is grown in wet, paddy-like surroundings, is fibrous and has a spongy texture. It is usually beaten to extract the starch which is made into poi. Dasheen is grown in a drier, upland environment and the corms are crisp, easily cut and are eaten as a boiled or fried



vegetable. *Colocasia* has peltate (petiole attached to the leaf inside the leaf margins) shaped leaves to distinguish it from the *Xanthosoma* leaves which are sagittate (arrow head) shaped.



Xanthosoma species are also grown principally for their starchy corms, but many also have leaves that when cooked make excellent greens. It is recommended to use the leaves that are freshly unrolling, although different species and different cultures will treat this differently. Often the petioles are peeled and cut into sections revealing their spongy insides for use in soups. These crops have varying quantities of oxalates and oxalic acid, and so it is recommended to boil them and discard

the water to remove the acrid taste that may cause the sensation of pins and needles on your tongue.

You can find the corms of these crops in the grocery store and this will be your best source of propagation stock. They can be cut and allowed to heal over or dry before planting them. Make sure each piece has at least 1 bud or eye to sprout.

Sweet Potato, *Ipomoea batatas,* of most varieties will grow well in the summer and beyond in SW Florida. ECHO has several varieties. They need very warm growing conditions so should be planted during spring and summer and harvested four to five months after planting. Propagation is by cuttings stuck directly in the ground or by small fleshy root pieces. These can be planted almost any time of the year, provided there is sufficient soil moisture.



Vine tips are high in protein; they may be cooked and eaten. The fleshy roots are a good energy food, and the roots with orange-colored flesh indicate high quantities of vitamin A. *Plants available at ECHO's nursery*.



Water Chestnut, *Eleocharis dulcis*, (a.k.a. Chinese water chestnut) is a popular ingredient of Chinese cooking can be easily grown in an inexpensive plastic wading pool from K-Mart. The best planting time in south Florida is March through June. Place 4-6 plants on the bottom of

the pool, stuff pine needles tightly around them and periodically add some fertilizer. Keep flooded with water. When the tops die down in November, you should find dozens of "chestnuts" on the bottom. Corms can be stored in moist mud or refrigerated at 50 to 55° F. They should not be allowed to dry out.

You can find chestnut corms in fresh markets where Asian vegetables are sold.

Yam, Dioscorea alata, (a.k.a. greater yam) is often confused with sweet potato, which is sometimes called 'yam' in the United States. Those who know the tropical yam, however, will not mistake it with sweet potato. Yam is a tuber crop that is well known throughout the humid tropics of Tropical America, the Caribbean, Africa, and Asia. In Florida you will see it sold in the supermarkets under the Spanish name, 'ñame' (pronounced: nyah-may).

The yam is an important carbohydrate food that is relatively easy to grow. Yams have a very specific life cycle. Unlike the sweet potato, which can be planted by vine cuttings almost year-round, the yam is planted once-a-year, when the stored tuber begins sprouting. At ECHO, this usually begins in February or March. As the tuber breaks dormancy, the energy is transferred from the tuber into stem and leaf growth. This vegetative stage, lasting 6 to 8 months, occurs during the warm and humid summer months. A new root system with multiple tubers develops with most of the tuber development occurring toward the end of the rainy season and into fall. When the vine dies back, the tubers are ready for harvest. At ECHO this usually occurs in late November.



Yams do well in sun or partial shade and prosper with ample rainfall. They require good drainage, and therefore, are often planted on mounds or ridges. They are most commonly staked but can be planted on a trellis or at the base of a sufficiently strong tree. At ECHO it has worked well to stake them with bamboo, not more than 1 inch in diameter as the vines have some difficulty twining up the large bamboo's slick exterior. Growth is lush and very vigorous once the rains begin. Remember the vines die back in the fall. They then get a number of leaf diseases and look sickly; however, this has little effect on the tuber.

When harvesting, be careful as the tuber skin is thin and easily damaged. The tubers are often large, several lbs. a piece, often as great as 15 lbs. or more. The yam is consumed much like a potato - peeled, then boiled or baked. Peel or cut away any discolored areas. Yams reportedly make good French fries and chips. The storage life of the yam tuber is short, averaging maybe 2 to 3 months, due to the high moisture content. One recommendation is to harvest them as needed when they are in the dormant stage. If unused, the tuber will begin to sprout in the spring.

For propagating, yam sprouts first at the top, which is the most desirable planting piece next to a whole 'seed' tuber. Cut off a section about the size of an adult's fist and cure it a few days in the shade before planting. ECHO carries several varieties, available only in the winter months. Yam is a wonderful food and is generally an easy, dependable crop to grow.

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Note: Planting should be done in February or March to allow for the greatest amount of sunlight and heat units for growth and tuber development. Yam is then harvested in November to January. For this reason, yams are not available in the ECHO nursery except around the New Year. You may, however purchase yams in the supermarket (generally found under the Spanish name, 'ñame') and these may be sprouted and planted in your garden.

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Word of Caution: A wild form of *Dioscorea alata* called "winged yam" is a noxious, class I invasive weed species in Southern Florida. It is not the same as *D. bulbifera* the "air potato," also a class I invasive, but care must be taken when planting this crop.