

# A Guide to Growing Mirlitons (long version)

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[www.mirliton.org](http://www.mirliton.org)

## Introduction:

The mirliton, a native plant to Mexico, has a long and unique history in New Orleans. Popularly known as Chayote (botanical name: *Sechium edule*), records of this member of the gourd family indicate that it was grown in New Orleans since the early 1800s. The proximity to the Caribbean and the large migrations from that area, as well as the banana trade, probably contributed to its popularity. In the 1920s, the U.S. Agriculture Department attempted to introduce the mirliton to a broader public in a project based in Homestead, Florida, using varieties imported from Cuba. That project ultimately failed because most U.S. consumers had no idea what this odd vegetable was: was it a squash or a fruit? It is, in fact, a member of the gourd family, *Cucurbitaceae*—or Cucurbit for short, and botanists refer to the vegetable as “fruit.”

The “backyard mirliton vine” was a staple of New Orleans homes. A generally self-sufficient plant resistant to most diseases and pests, homeowners traditionally planted mirlitons to run along fences (the vines can grow to 50 feet), over shrubs, and even straight up trees. The fruit is highly perishable: within thirty days of harvesting, it can germinate and send out a shoot which draws water and nutrients from the fruit causing it to shrivel. Because the soft inner seed cannot be planted apart from the fruit shell (the whole fruit must be planted for propagation), the vine was an ideal fall-yielding crop. It was a very “sociable” vegetable in that its abundant yield and small commercial market helped create a tradition of backyard growers giving mirlitons to neighbors and “sacking” fruit under the sink to give sprouted seedlings to new growers.

The tradition of the backyard mirliton (locally pronounced “mel-uh-tawn) was strong only a few decades ago, but in recent years, people stopped growing mirlitons, especially as imported varieties from Latin America became available inexpensively and year-round. In 2005, Hurricane Katrina brought saline flood waters that destroyed much of the traditional Louisiana mirliton variety. A few growers retained their plants, but in 2008, hurricane Gustav’s high winds traumatized the vines and virtually wiped out the varieties that had been grown for decades in South Louisiana. Some growers attempted to propagate imported varieties purchased at local markets, but found that the fruits would not germinate (perhaps a result of new chilling practices) and that the commercial varieties, grown using pesticides and fungicides and bred for uniformity in size and color, were not as disease resistant as the traditional Louisiana varieties and lacked flavor.

So, we formed [mirliton.Org](http://mirliton.Org) in 2008 to identify, preserve, and popularize the traditional Louisiana heirloom variety that had adapted over two centuries to our climate, altitude, and diseases.

### **Mirliton Overview:**

The mirliton is a perennial—once planted it will, in warm climates, grow anew annually up to eight years. In the “cucurbit family” along with cucumbers and melons, the plants are vulnerable to disease in damp climates, so mirliton plants are normally replaced after three years because of root-knot nematode root problems. The mirliton is monoecious or “self-compatible,” meaning that a single plant has both male and female flowers and can be fertilized by its own pollen. For some reason, many New Orleanians are convinced that you need to plant two plants to ensure fertilization, but one will do. The succinct botanical definition of mirliton is that it is a “monoecious perennial herbaceous vine.”

Mirlitons love to climb, sending out slender, branching stems up to 40 feet long, and a mature plant can sprawl out over an overhead trellis thirty feet and fifteen feet wide. Although it produces fruit best when trellised horizontal to the ground so the stems grow longitudinally, it will produce more than enough fruit if grown along a vertical fence or even on shrubs and trees.

If planted in fall, mirlitons may flower and fruit in the spring, but they will definitely flower in late September when the days are as long as the nights, generally presenting mature fruit in October and well into December. Vines will flower at different times in the fall, so the fruiting season can last several weeks but usually peaks in October. Once temperatures dip below 55° F, the immature fruit will die and fall off the vine. Yields in the first year are typically 30 fruit; second year can be up to 80; and third year even more.

### **Varieties:**

There are scores of varieties of *Sechium edule* (Seek'-ee-uhm Ed'-yew-lee), though they fall into two commercial varieties: (1) pear-shaped, medium size, smooth skin, with pale green exterior and a lighter green flesh or (2) globular, small, pale green, smooth skin exterior and lighter green flesh. The Louisiana traditional varieties (called a landrace) are often more pear-shaped and have furrows (creases) that run from top to bottom of the fruit. The fruit's characteristics in the rest of the world can vary widely, from dark green to pure white, smooth to spiny, ridged and creased to smooth. Flavors and textures differ as well.

Because mirlitons easily cross-pollinate by bees and insects, it is difficult to breed and maintain genetic uniformity or to define a specific variety. Fortunately, mirlitons can be grown from cuttings of the mother plant, so growers can always retain an exact copy of the original plant, though plants grown from cuttings do not produce as well in the first year.

We recommend only using certified Louisiana certified varieties. Read about how we certify them [here](#).

### **Names**

There are hundreds of names for *Sechium edule*, but the most popular word for mirlitons is “chayote”, which is used throughout the Spanish-speaking world and is most frequently used by botanists.

### **Growing Requirements:**

Mirlitons need at least six hours of full sun daily and can endure a full day of tropical sun. The plant, which will spread shallow roots in a 12-foot diameter circle, can be started in part sun and if trellised correctly, will seek out full sun. Sun and air circulation are important in suppressing airborne plant diseases. The plant likes well-drained sandy loam soil. This means placing the plant at a high point in your yard: water-logging the mirliton is the best way to kill it. You may have to create a raised bed or build up a high mound in your yard by adding garden soil and sand.

Mirlitons are compact at the ground level only, taking up a few feet, but they require a six-foot root radius around the plant. The rooting area should be mulched constantly to retain water and create more nutrients; because the roots are very shallow, never cultivate the rooting area. If you don't have a 12-foot diameter planting site, the mirliton will still do well if the roots are allowed to run six feet in either direction along a narrow bed.

Mirlitons will climb straight up a vertical trellis and then branch out longitudinally to the ground if provided horizontal support (wire or trellis), so a fence will do fine, but adding a horizontal trellis along the fence works better. Horizontal trellises also cause less fruit bruising.

Remember, mirlitons descended from ground climbers, so it helps to think like a mirliton if you want a good yield. The progenitor of mirlitons, the wild varieties of *Sechium*, grew on the ground on mountainsides in rain forests (and still are grown on the hill sides in some places or in the understory of banana groves or sunny forests) so the plant produces fruit when it senses that its seed has ground beneath it. Horizontal raised trellises also prevent predation by animals.

The bottom line is to grow mirlitons in the way that is most convenient for. All the suggested growing methods will increase production, but a vine left to grow on a linear fence or over a stand of shrubs will produce plenty of fruit for one household. If you want healthier, more dependable plants with greater yields, then give attention to fertilizing, trellising, pollination, and disease treatment.

### **Planting and Propagation Overview:**

Mirlitons come complete with their own supply of water and fertilizer: the fruit flesh. You just plant the entire fruit: in the middle of the fruit is the true seed (ovule), a soft inner seed that cannot be dried and preserved like most plant seeds.

See the [Quick Guide](#) for planting instructions.

### *Vine Growth, Flowering and Fruiting*

Once planted in the spring, the mirliton will start to send off stems and will flourish through the summer. Typically, the plant will begin to flower 110-120 days after planting. Mirlitons are “photoperiodic” plants that flower when the length of day and night is equal (the spring and fall equinox). There will be hundreds of male flowers and only a few females. Once fertilized, the female flower will mature into a harvestable fruit in three to four weeks.

## **How to Grow Mirlitons**

### **Select the Right Variety**

First, obtain a certified heirloom Louisiana mirliton. Growers sell and gift them at <https://www.facebook.com/groups/mirliton.org>. We don't recommend buying them from online markets, nurseries, or farmers' markets unless they are identified as certified varieties.

### **Sprouting:**

Mirliton fruit can be directly planted before sprouting, but sprouting ensures rooting and increases plant survival.

### **Container-plant the Sprout:**

We've found that it's best to immediately plant the sprout in a 3-gallon container and overwinter it as a container plant. That will help it develop a good root ball, and when you transplant it in the spring, it may produce a spring crop. You can train and prune it on a tomato cage. See the [Quick Guide](#) for complete directions on caring for a new sprout.

**Direct Planting of Sprouts:**

Choose your plant destination location and prepare the soil. If you are starting with untilled soil, cover a 12-foot diameter circle with black plastic for a few weeks to kill the grass. Work and amend the soil in a twelve-foot circle around where you intend to plant. If you are planting along a fence, don't worry about making a circle—just till up a bed about three feet wide, six feet in both directions along the fence so the roots have a place to run. Dig a planting hole (pit) about 18 inches deep and three feet in diameter. If you have a sandy soil (batture sand), you may want to fill with a good commercially produced garden soil.

**Raised Garden Bed:**

If you have low-lying ground that does not drain well, or if you have only a paved area available, consider using a large planter box. See the [Quick Guide](#).

**Trellising:**

Cattle panels make the best trellis because they are the right-sized wire. Don't use fencing with small mesh, or the mirlitons won't hang down for harvest. Read why wire gauge and mesh make a difference [here](#).

Overhead trellises keep the bulk of the plant away from the soil and protect the plant from splash-ups of soil-borne toxins. This is probably why it is the most popular way of trellising in Louisiana.

**Fertilization:**

Experts disagree on the exact amount of nitrogen best for mirlitons. Some suggest fertilizing only three times with an 8-8-8 or similar chemical fertilizer—upon planting, once in the middle of the season, and once before flowering. The nitrogen available in your soil can vary depending on soil type and rainfall, so these suggestions are just guidelines—just fertilize evenly over a period of time so that the plant is growing well and not too pale green. Manure is the best fertilizer because it is a naturally slow-release that makes nitrogen available when the plant needs it.

**Watering:**

Water the same amount on a weekly basis and use a [soil moisture gauge](#) to test if you are over/under-watering. A healthy mirliton will [wilt](#) during the day in the August summer heat through transpiration, but that is not a bad sign and does not mean the plant needs watering. The plant may have plenty of water, and it will, as many plants do, regain water at night through the process of “imbibition.” You can also check the vine visually

for signs that it is properly watered by looking for guttation. All this is explained in the Quick Guide.

### **Hand Pollinating:**

Flowering will begin in September and the plant is self-reproducing with both male and female flowers on the same plant. Male flowers will far outnumber female flowers, which contain the actual ovule that develops into the fruit (see photos). Normally, bees and insects will pollinate the mirliton, moving from male (stamen) to female (pistil) flowers and transferring pollen from the male flower to the ovule-bearing female flowers. See how to hand-pollinate [here](#).

### **Cross-Pollination Problems**

We recommend that you grow only one certified Louisiana mirliton at a time. Cuttings are the best way to clone a variety. See the Quick guide.

### **Harvesting:**

Fruit will mature within about 30 days of pollination (the flower will drop from the female if successfully pollinated). *You can test for harvesting by pushing on the fruit skin with your thumbnail: if the fruit skin dents, the fruit is still immature and will be too watery; if it is firm and does not dent, you are ready to pick.*

### **Container Gardening:**

It is not clear how large a container is required for successfully growing mirlitons. The only successful container mirliton I have seen is a 30-gallon shallow plastic tub. The problem is that mirlitons are stressed by large fluctuations in soil moisture content. Read how a few growers succeeded in container-growing them [here](#).

### **Insects:**

Mirlitons don't normally have insect problems in Louisiana, though there are recent reports of leaf-footed stink bug attacking fruit (see updates). Vine borers can be a problem—see the [Quick Guide](#) on managing them.

### **Diseases:**

The two principal diseases are powdery mildew and anthracnose. Powdery mildew is easily controlled. Anthracnose is more difficult to control, but the vine almost always rebounds. If the plant gets infected, remove the affected leaves after they yellow and turn brown, and dispose of them in a plastic bag. Removing diseased leaves is important since the fungus will evolve on the leaf and create “sporelators” that issue more fungus spores into the wind--which can contaminate the rest of the plant or adjacent plants. If

you remove enough leaves from a single stem, the stem will die, and it should be pruned off as well. But for every stem pruned, the plant will send up a new shoot. See the [Quick Guide](#) on treating diseases.

**Wintering Over:**

If you don't intend to extend the fall harvest, cut back the vines to about two inches from the ground (the plant crown). Then, to protect the plants from freezing weather, heavily mulch the base of the plants.

**Join the Mirliton Growers Network List by emailing Lance Hill at:** [www.mirliton.org](http://www.mirliton.org)

**Join the Facebook group at:** <https://www.facebook.com/groups/mirliton.org>

If you have any questions, you can contact me at [Lance@mirliton.org](mailto:Lance@mirliton.org)