

# GROWING PALMS

Horticultural and practical advice for the enthusiast

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## Stem Tapering in *Jubaea chilensis*

*Jubaea chilensis* is a magnificent palm that is a symbol of Chile (Fig. 1). Its most outstanding characteristic is its massive stem – one of the largest in the palm family. A mature palm can have a stem diameter of 1.5 meters at head height. Oddly, the palm stem reaches its maximum girth well before maturity. The large stem and an average height of 15 meters combine to produce a palm that weighs as much as 20,000 kg! The mass of this palm is surpassed only by the *Borassus* palm in Africa.

The largest concentration of the palms in Chile are found within El Parque Nacional la Campana, located 110 km northwest of Santiago on the Panamerican Highway. The palms occur in river valleys and hillsides near Ocoa Village in the northern sector of the park (Fig. 2). Within this population are palms of all ages. The majority of the palms are mature and have developed stem constrictions.

Stem tapering is readily observed in the native populations of *Jubaea chilensis* (Fig 1). While the tapering in *Jubaea chilensis* has been documented, there has been little or no discussion about the characteristics and causes of this narrowing. From the limited descriptions found, the impression is that the stem gradually tapers (“penciling”) over time. Actually, the permanent constriction appears very suddenly and noticeably. The girth of the palm narrows by as much as 50 percent following this event.

The *Jubaea* reaches reproductive maturity in about 50 years in habitat and possibly slightly faster in cultivation. The stem tapering appears to coincide with the maturation of the palm. The hypothesis is that once the palm reaches maturity, large



1. A mature *Jubaea chilensis* in habitat dramatically exhibiting stem tapering.



2. A subpopulation of *Jubaea chilensis* in El Parque Nacional la Campana near Ocoa, Chile.

amounts of energy are redirected to flowering and fruiting. There are probably many other species of palms that exhibit similar physical reactions to attaining reproductive maturity.

It is more difficult to observe stem tapering in cultivated *Jubaea*. A main reason is that most cultivated *Jubaea* have not reached maturity. It takes about 40–50 years for a *Jubaea* to reach the flowering stage. It would require another 10–20 years for the narrowing of the stem to be fully apparent.

Regular irrigation and fertilizer on cultivated palms may reduce the amount of stem tapering. At many old farm houses, with gardens older than 80 years and under good care, the *Jubaea* does not exhibit this feature. Therefore, another possible hypothesis for stem tapering is that it is related to periods of drought.

Are these hypotheses about stem tapering in *Jubaea chilensis* well founded? Further scientific examination will be required to understand this phenomenon. In the meantime, we Italians say “Se non è vero, è ben trovato (If it is not true, it makes a good story).” – *Franco Simonetti, Santiago, Chile* 🌴

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## Hazards of String Trimmers

Palms are structurally different from broadleaf trees and conifers. Palm stems lack a vascular cambium and do not grow in diameter by laying down an annual ring of woody conducting tissue, as broadleaf trees do. This anatomical difference is one of the classic distinctions between the traditionally recognized Monocotyledons and Dicotyledons, or Monocots and Dicots, for short. Palms, as Monocots, have discrete vascular bundles surrounded by fibrous sheaths that are scattered within an unspecialized ground tissue.

The consequence of this structural difference is that palms cannot be girdled, as can other woody plants (dicots and conifers). Girdling severs the vascular cambium that produces sap-transporting

phloem tissue just beneath the bark and water-conducting xylem toward the center of the stem. Girdling is highly injurious or even fatal to most woody plants, and girdling injuries in the landscape most often result from the misuse of string trimmers (also known as weed whackers or strimmers). However, just because palms cannot be girdled like other woody plants does not mean that they cannot be injured by string trimmers.

Palms can be injured by string trimmers in two ways. First, and most obviously, the young shoots of clustering palms can be damaged or cut off by a string trimmer. Palm leaves and shoots are generally tough and fibrous, but tender, young shoots are no match for the string trimmer. New leaves may regrow and the shoot may recover, as long as the trimmer did not actually injure the growing point of the new shoot. String trimmers can also damage the adventitious roots that often emerge from palm stems at or slightly above ground level. Repeated damage can completely prevent root emergence and deprive the palm of roots for anchorage and absorption. The second way string trimmers wound palm stems is by opening routes for infection by soil-borne fungal diseases, such as *Ganoderma* and *Fusarium*. Sustained and regular use of string trimmers can erode and damage even the tough, woody trunks of mature palms and expose these palms to the risk of infection. This sort of stem erosion never heals and will always be visible on the stem, creating both physical and aesthetic damage (Fig. 1).

How can string trimmer damage be avoided? Obviously, the best way to avoid damage is never to use string trimmers against a living palm stem, no matter how tough or woody the stem may be. It is good horticulture practice to keep grass, ground covers and weeds away from the stems of palms. When these herbaceous plants must be trimmed from around a palm stem, they should be trimmed by hand, rather than with a string trimmer. If string trimming is essential, one can buy or make plastic tubular guards that slip over or around the trunk of the palm and protect it from the string. However, invariably weeds grow between the guard and the trunk and must be removed by hand. With care and training, operators can use string trimmers without harming palm stems by angling the head of the trimmer and keeping the trimmer far enough from the trunk so that the string never strikes the trunk. In my experience, few operators invest that level of effort and expertise when using string trimmers. Herbicide treatment of weeds growing against palm stems should be avoided, as some herbicides can damage palms even when applied to woody (non-green) trunks or emerging roots. – Scott Zona, Miami, Florida, USA 🌴



1. The bases of these *Sabal palmetto* stems bear permanent scars from repeated attacks by string trimmers.

## Temperamental Licualas

Licualas are considered to be some of the most ornamental palms—and also the most difficult to grow. Highly desirable are the mottled leaf forms such as *Licuala radula* and *L. mattanensis* ‘Mapu’ (Fig. 1) and the circular leaf forms including *L. cordata* (Fig. 2) and *L. orbicularis*. They are similar in difficulty to many *Iguanura* species. Sometimes termed “ego plants,” they challenge the grower to overcome the many obstacles associated with their horticulture.



1. A beautifully mottled *Licuala mattanensis* that has been grown under perfect circumstances. This is one of the most horticulturally challenging species of *Licuala*.

There are many familiar problems encountered in growing Licualas. Extremely slow or non-existent growth, yellowing, weak root systems and tip-browning are some of the most common disorders. Nevertheless, it is possible to grow these species under carefully managed conditions. Discussed below are some of the horticultural methods that growers are using to produce healthier Licualas.

Container culture may be the best way of successfully growing the more challenging *Licuala* species. Artificial conditions that are highly controlled are often required. Using containers in a greenhouse environment, the grower can attempt to simulate the palm’s natural environment. Only under these highly-supervised

conditions can horticultural adjustments be made quickly in response to changes in the health of the palm.

While many Licualas are found growing in swampy conditions, under cultivation they do not want to be too wet. Therefore, the best container for growing many Licualas is a clay pot. When substituted for plastic pots, clay pots are more permeable which helps avoid overwatering. Because these pots also dry out faster, they also require more frequent watering.

Many species want to be kept drier than many growers would assume. For this reason, the container mixture for greenhouse culture should be very fast



2. The pleated circular leaves of the dainty *Licuala cordata* make it a favorite ornamental palm; however, it is also one of the most difficult palms to grow.

draining. The light mix will also warm up more quickly. Lighten the potting mix by amending with orchid bark or clay pellets. Some liken *Licuala* culture to the conditions and constant care necessary to raise orchids.

One of the most critical requirements is the need for constant warmth (Fig. 3). This includes the necessity of sustained nighttime heat. For example, many *Licuala* species do much better on the Florida Keys than on the slightly cooler Florida mainland. Of course, frost is not tolerated.

Most *Licualas* grow under very humid conditions in their native habitat. For example, the natural environment in Borneo, where many *Licualas* are found, is very humid almost to the point of misting. It is difficult to match this high level of humidity in cultivation. However, under drier cultivated conditions, the leaf tips will burn (Fig. 4). Their need for moist air makes many *Licuala* species very difficult to grow as interiorscape plants because of insufficient humidity.



3. The yellowing of this *Licuala paludosa* may be due to the need for constant warmth, micronutrient deficiency or other factors.

In addition to consistent warmth and humidity, Licualas also demand good air circulation. While most need to be grown under the protected area of a canopy, they should not be surrounded by protection which will restrict air flow. Lack of adequate air movement can lead to leaf spotting from fungus. Of course, safeguards from strong wind are a must.

*Licuala* leaves, especially entire leaf forms, will be



4. The tip burn on *Licuala orbicularis* is most likely due to insufficient humidity. Many Licualas require very high humidity.

torn, ripped or shredded by powerful winds. Winds will also have a drying effect that is damaging to most palms, including Licualas.

Many species of *Licuala* are more tolerant of light than is generally assumed. They do not require a deep shade environment. Filtered light is suitable for most species. In tropical climates, where there is more humidity present, some *Licuala* species can even be grown in full sun.

Using an appropriate fertilizer is essential when attempting to grow many of the delicate species of Licualas. A resin-coated balanced fertilizer with slow release duration of 180 days or more appears to be best. Nutricote® from SunGro Horticulture ([www.sungro.com](http://www.sungro.com)) is a product suitable to the requirements of Licualas. It is available in several formulations and release longevities. The resin coating provides a uniform release of nutrients. Some controlled release fertilizers are sensitive to temperature and release too much fertilizer too early. The excess fertilizer not used by the palm builds up as salts in the root zone which will inhibit growth. Some growers also believe that excess fertilization can weaken mottling, causing the yellow mottle to turn green. Slow-release fertilizer is used to fortify the container media. Grower trials have shown that fertilizers like Nutricote can be safely incorporated into the soil mixture without burning even the tenderest Licualas. The relatively high cost of using this advanced fertilizer is offset by its long duration and uniformity of release.

The weak root system exhibited by many *Licuala* species is one cause of the difficulties related to growing this genus. Some species have especially short roots. The use of liquid kelp or kelp meal will be beneficial in helping to promote a stronger root system.

Even under ideal conditions, most Licualas will grow at a slow pace. However, growth should be fairly steady and the rate should increase once the palm is past the seedling stage. Following these horticultural recommendations should improve your odds of growing the most desirable – and temperamental – *Licuala* species. – contributed by Paul Craft, Loxahatchee, Florida; Jeff Marcus, Mt. View, Hawaii and Tri Vuong, Miami, Florida, USA 🌴