

Crown - of - Thorns, *Euphorbia milii* ... production & landscape use.

prepared by John McLaughlin* and Joe Garofalo*

The crown-of-thorns (*Euphorbia milii*) has long been a staple crop of nursery-growers in the sub-tropics & tropics, although its use in South Florida landscapes has declined over the past few years. There is, however, reason for renewed interest in this plant because of recent emphasis on water conservation and low maintenance.

In addition, the recent development of more attractive, compact cultivars in a wide range of colors gives landscapers an ideal subject for sites requiring a salt- & drought-tolerant groundcover.

The genus *Euphorbia* is in the spurge family (Euphorbiaceae) and includes some 2000 species of diverse plants from annuals to trees. The poinsettia, *E. pulcherrima*, is probably the most familiar species.

DESCRIPTION.

E. milii, a native to Madagascar, is a succulent, with thick, fleshy stems adapted for water storage. The stems are 5-7 sided, greyish-brown, branched & up to 2-3' in height, with many prominent, grey 1" spines. The leaves tend to be obovate (wider near the tip), up to 1½" long, but much larger (to 6") in the Thai hybrids. They are spirally arranged, have smooth margins, & vary from bright green to grey-green. Foliage is present only on new growth. *E. milii* var *splendens* is similar, but grows to 5-6'.

The inflorescence is composed of a specialized structure termed a cyathium comprising a cup-like involucre, within which is set a single much reduced female flower surrounded by three male flowers reduced to single stamens. The cyathia are borne in clusters (cymes) and each cyathium is subtended by two colorful bracts. These are termed cyathophylls, and both red and yellow (in *E. milii* var *lutea*) occur naturally. Plants are in flower year round, but are at their best in dry, sunny weather (Winter & Spring). As with other euphorbs, *E. milii* produces copious

quantities of poisonous, milky sap that can cause skin irritation, & contains tumor promoting chemicals (diterpene esters). The spines should be sufficient warning to handle with care.

PROPAGATION.

Cuttings. Crown-of-thorns is usually propagated from tip cuttings. Remove 3" stem tips, placing the cut end in water until the flow of sap stops. After removing from the water, allow the cuttings to dry for 3-4 days. Then dip in a rooting hormone with fungicide, & place in a well-drained rooting mix. A 1:1:1 mix of sharp sand:perlite:Canadian peat works well. Keep the mix slightly moist, but never wet. They will be well rooted in 20-30 days.

V-Grafts. *E. milii* can be propagated by V-grafting. This method is often used to avoid cutting rots associated with rooting cuttings. The extra skill required means that grafting is more likely to be used for select cvs by growers & serious hobbyists.

A stock plant is cut at 2-3" above the soil line. A ¾" deep V-shaped cut is then made into the stock. A 2-3" stem tip (scion) is removed from the plant to be propagated, & the cut end is trimmed to form a ¾" wedge, matching the V cut in the stock. Immediately after the cut surfaces stop bleeding, insert the scion into the stock, and wrap them together securely with grafting tape.

Seeds. Seeds can be used to propagate *E. milii*, but are mainly used for developing new cvs. In Florida plants rarely produce fruit (a three lobed schizocarp) without help from man. Pollen release & receptivity of the stigma usually do not coincide for a single plant, which in nature encourages out-crossing. So you need 2 or more plants, preferably of different cvs. Controlled pollination increases seed set, & is used by breeders to develop new cvs. Seedlings will bloom in 5-8 months.

PRODUCTION & SITE SELECTION.

The most important requirement for both production and landscape use of *E. milii* is a substrate with excellent drainage, or a site that does not flood. The other requirement is at least 70% sun. With some shade during midday, "flower" color is better in some dwarf forms. Too much shade causes greening. An open site with good air circulation also is necessary.

Nursery production is easiest where the water reaching the plants can be controlled. A cover to shed rain is considered a requirement. Irrigation should be done by hand or a closely monitored semi-automatic system. Unless you are very familiar with the watering system, automatic (timed) irrigation is a recipe for failure.

In a landscape, a rockery set aside for succulent plants is an excellent location for crown-of-thorns, where it can be planted with other plants with similar requirements. Remember that low water & full sun are required. If drainage is a problem & there is no existing rockery, consider building up a 12 -18" raised bed using crushed rock & sandy soil.

Choose an area of the landscape that does not receive water from sprinklers. This is a particularly important consideration if you are installing a bed in a landscape with an existing sprinkler system.

Choose a sandy, gritty soil with some added organic material (peatmoss, coir or thoroughly rotted compost). In beds, space plants about 2' apart to allow for air circulation. After planting, water around the base of the plant without wetting the foliage, and maintain the soil so that it is just moist.

MAINTENANCE.

Once established, crown-of-thorns requires only an occasional watering, allowing the top 1" of soil to dry out between applications. It is important not to

over water, particularly when day temperatures are below 75EF. The plants survive drought, but under extreme drought leaves will drop. Some time during both the middle of May and October apply a light application of a complete, slow release fertilizer.

Since crown-of-thorns is not fast growing, pruning is usually not necessary until the second or third year of growth. Pruning is best done during cool, dry weather to lessen the risk of stem disease. With the species lightly prune, removing only dead & overly tangled stems. Perform a major pruning every 2-3 years in late Spring. For the compact varieties, thin out at the base to permit adequate air circulation.

PESTS AND DISEASES.

There are few serious pests: scale insects & mealybugs, & occasionally spider mites & thrips. Diseases are of more concern. The most serious can be prevented by avoiding situations where the soil or foliage remains wet. Remove yellowing leaves & dead foliage that becomes impaled on the spines. These promote disease development by trapping moisture. Diseases include bacterial & fungal leaf spots, fusarium & rhizoctonia stem & root rots & botrytis flower blight. Cold damage (soft stems & burned leaves) should be removed as soon as the damage is evident. Protect plants if temperatures drop below 30EF. Call a local CES office for management recommendations.

CULTIVARS FOR SOUTH FLORIDA.

There are many cvs of *E. milii*, mostly of hybrid origin, produced either naturally or through controlled crosses, & designated *E. x lomi*. These may be divided into 2 broad groups: the more common, older types; & the recently developed Thai hybrids.

The Older Types. The California hybrids were developed by Humel starting in 1960, and are often referred to as the "giant crown-of-thorns" series (e.g.

'Rosalie', 'Vulcanus', and 'Saturnus') and were developed for their stout stems and larger cyathophylls. The formal name *E. x lomi California Group* has been proposed for this group of plants.

Natural crosses similar in appearance, but with thicker leaves and thinner stems, were collected in the wild in Madagascar, then propagated commercially in Germany. This group includes varieties like 'Somona' & 'Gabiella', & the formal name *E. x lomi Heidelberg Group* has been proposed for this group of hybrids. Many of these & other *E. milii* varieties are available from specialist growers.

Locally available in South Florida, and of interest as a bedding plant, is the recent introduction by Oglesby of 'Short and Sweet'™, a compact dwarf with soft spines, dark green leaves, and masses of small bright red cyathophylls for much of the year. These are excellent for use as groundcover in a sunny location, as is 'Mini-Bell' a dwarf cv with a tight growth habit covered with many small red inflorescences & dark green leaves.

The Thai Hybrids. Over the past 20-30 yrs growers in Thailand have developed hybrids with much larger flowers (i.e., cyathophylls) than previous cvs, with a seemingly infinite variety of color combinations. These range from all shades of red & pink to cream & yellow, often with blends of different colors. The subtle pastel shades of some cultivars remind you of old fashioned roses, & the masses of closely-packed cyathophylls remind you of hydrangeas. The color of some cvs changes as they develop. Sun & temperature also affect color. Full sun to 30% shade is considered optimal.

Another attractive feature of these plants is their compact, upright form, as compared to the more leggy, twisted growth of *E. milii* cvs, which can become a tangle of unattractive stems if not carefully trained. In addition to having stout stems & a more attractive form, many of the Thai hybrids have more handsome foliage that is larger & a brighter green.

In Thailand these plants are known as "poysean" (Chinese for 8 saints) & are regarded as bringing good luck. Their exact lineage is uncertain, & the formal botanical name *E. x lomi Poysean Group* has been proposed for them.

More than 2000 different cvs have been developed in Thailand, most of these having local Thai names. Increasingly they are becoming available in the US, either with names in English or simply designated by color. The first introductions to the US were from a Florida nursery, & were called *E. milii Super Grandiflorum*™. This name has no botanical standing, though it may be used in the trade.

Some of the more widely available cvs are described below using names found in current catalogs & advertising. There is confusion over names, & some cvs appear identical. Anyone considering producing these plants or using them in landscapes should not rely solely on the descriptions below. You may wish to visit web sites of those growers who post pictures.

Color descriptions refer to cyathophylls.

- 'Jingle Bells': soft pink with hints of red & green.
- 'Spring Song': light creamy yellow. There is also a dwarf form, 'Mini Spring Song'.
- 'Summer Song': rich, creamy yellow with emerald green splotch at the center margin.
- 'Fall Song': cupped, light creamy yellow.
- 'New Year': color changes from buttery yellow to cherry red.
- 'Pink Christmas': cream, becoming suffused with pale pink & reddish streaks.
- 'Valentine': striking, bright scarlet.
- 'Rosy Yellow': rose pink blend with raspberry red splotches; prominent yellow cyathia. Interesting leaf venation.

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Thai Hybrid Euphorbia milii (www.geocities.com/TheTropics/Coast/5089/milii.htm) Many pictures & descriptions of poysean hybrids.

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