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In Writing

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Crown - of - Thorns (*Euphorbia milii*)



Miami-Dade County / University of Florida
Cooperative Extension Service



Crown - of - Thorns (*Euphorbia milii*)

prepared by John McLaughlin* and Joe Garofalo*.

The crown-of-thorns (*Euphorbia milii*) has long been a staple of the sub-tropical to tropical landscape, though its use in South Florida has declined over the past few years. There is, however, reason for renewed interest in this plant at a time when an emphasis is being placed on water conservation and ease of maintenance. In addition, the recent development of more attractive, compact varieties in a range of colors presents landscapers with an ideal subject for use as a salt- and drought-tolerant groundcover.

The genus *Euphorbia* is part of the spurge family (Euphorbiaceae) and comprises some 2000 species of diverse plants from annuals to trees, and is cosmopolitan in its distribution. One other member of the genus that is popular in South Florida landscapes is the poinsettia, *Euphorbia pulcherrima*.

DESCRIPTION.

E. milii is native to Madagascar and is classified as a succulent, a plant with thick fleshy leaves and stems adapted for water storage. The stems are 5-7 sided, greyish brown, branched and 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" in length, but much larger (up to 6") in the Thai hybrids. They have a smooth edge, are spirally arranged on the stem, and range from bright green to greyish green. Foliage is produced on new stem growth. *E. milii var splendens* is similar, but larger, growing 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 tananarivae*, which is often sold as *E. millii var lutea*) occur naturally. Plants are in flower year round, but are at their best in dry, sunny weather (Winter and Spring in South Florida).

As with other euphorbs, *E. milii* produces copious quantities of poisonous milky sap that can cause skin irritation, and contains tumor promoting chemicals (diterpene esters). It would be best to wear gloves when handling the plants, and to wash off any sap that gets on your skin. The numerous spines on the plant should be sufficient warning to handle with care.

PROPAGATION.

Cuttings.

Crown-of-thorns is usually propagated from tip cuttings. Remove 3" cuttings from stem tips, and place the cut ends 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 compound containing a fungicide, and place in a potting mix of equal parts sharp sand, perlite and Canadian peat. This mix should be just moist. Alternatively the cut end of the cutting can be immersed in a solution of rooting hormone for 24 hr, then dusted with a fungicide and placed in fresh potting medium.

V cleft grafts.

E. milii can be successfully propagated by V cleft grafting, and this technique lowers the risk of rot associated with direct rooting of cuttings. The extra skill required means that grafting is more likely to be used for select cultivars by growers and serious hobbyists. A stock plant is cleanly cut down to about 2-3" above the soil line. A ¾" deep V shaped cleft is then cut into

the exposed surface of the stock plant. A 2-3" section of stem tip (a scion) is removed from the plant to be propagated, and the cut end 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 plant, and wrap them together securely with grafting tape.

Seeds.

Seeds can be used to propagate *E. milii*, though it is of most importance for developing new cultivars. In Florida plants rarely produce fruit (a three lobed schizocarp). Since pollen release and receptivity of the stigma usually do not coincide for a single plant, successful pollination requires 2 or more plants. Hand pollination increases the likelihood of success, and is used by breeders to develop new cultivars.

SITE SELECTION.

The most important requirement for planting *E. milii* is a site that will not flood and which has excellent drainage. After these conditions are fulfilled, choose an area that receives at least 70% full sun exposure. Crown-of-thorns can take some limited shade, preferably midday, and "flower" color is better in some poysean hybrids with such limited shade. An open site with good air circulation is also necessary.

A rockery, set aside for succulent plants, is an excellent location, where crown-of-thorns can be planted with other plants having similar cultural requirements: infrequent watering and virtually full sun. If drainage is a problem and there is no existing rockery, consider building up a 12 -18" raised bed using crushed rock and sandy soil.

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

When installing plants use a sandy, gritty soil with some added organic material such as coir,

peat moss or thoroughly rotted compost. If placed in a bed, individual plants should be spaced about 2' apart to permit adequate 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 infrequent 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 75 - 80EF. The plants will survive drought conditions, though under extreme drought leaves will drop. Some time during the middle of both 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. Pruning is best done during cool, dry weather to lessen the risk of stem disease. With the species lightly prune, removing only dead and 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 and mealybugs are most frequently seen, with spider mites and thrips an occasional problem.

Disease problems are of more concern, and the most serious of these can be prevented by not growing the plants in situations where the soil or foliage remains wet. Remove yellowing leaves, as well as any dead foliage that becomes impaled on the stems of compact varieties. Dead leaves that remain stuck on the spiny stems can encourage disease development by trapping moisture.

Diseases include bacterial and fungal leaf spots, fusarium and rhizoctonia stem and root rots and a botrytis flower blight. For control recommendations contact the local County Extension Office.

Stems that are cold-damaged (soft stems with burned leaves) are likely to rot and should be removed as soon as the damage is evident. Plants should be protected if temperatures are expected to drop below 30EF.

CULTIVARS FOR SOUTH FLORIDA.

There are a large number of cultivars of *E. milii*, mostly of hybrid origin, produced either naturally or through controlled crosses, and designated *E. x lomi*. Most cultivars of horticultural interest involve crosses between *E. milii* and a related species, *Euphorbia lophogona*, often referred to as “white crown-of-thorns.” These may be divided into two broad groups: the more common, older types; and the recently developed Thai hybrids.

The older types.

The California hybrids were developed by Humel starting in 1960 and are often referred to as “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 (Madagascar), and then propagated commercially in Germany. This group includes varieties such as ‘Somona’ and ‘Gabriella’, and the formal name *E. x lomi* Heidelberg Group has been proposed for this group of hybrids. If not locally available, many of these hybrids and other *E. milii* varieties are available from specialist growers by mail order.

Locally available in South Florida, and of interest

as a bedding plant, is the recent introduction by Oglesby of ‘Short and Sweet’TM, a compact dwarf cultivar with soft spines, dark green leaves and covered with small bright red cyathophylls for much of the year. This is excellent for use as a groundcover in a sunny location, as is ‘Mini-Bell’, a dwarf cultivar with a tight growth habit covered with many small red inflorescences and dark green leaves.

The Thai hybrids.

For the past 20 -30 years growers in Thailand have developed an array of hybrids with much larger flowers (i.e. the cyathophylls) than found in previous cultivars, with a seemingly infinite variety of color combinations. These range from all shades of red and pink to cream and yellow, often with blends of different colors. The subtle pastel shades of some cultivars are reminiscent of some “old fashioned” rose blooms, while the masses of cyathophylls packed together are reminiscent of hydrangeas. The color of the blooms of some cultivars can change as they develop. Sun and temperature also effect color, full sun to 30% shade being optimum.

Another attractive feature of these plants is their compact, upright form, as compared to the more leggy twisted growth of *E. milii* cultivars. These latter can become a tangle of unattractive stems if not carefully trained. Apart from having stout stems and a more attractive form, many of the Thai hybrids have far more handsome foliage, the leaves being larger and a brighter green.

In Thailand these plants are known as “poysean” (Chinese for eight saints) and are regarded as bringing good fortune (lucky plants). Though their exact lineage is uncertain, the formal botanical name *E. x lomi* Poysean Group has been proposed for this group of cultivars.

More than two thousand different cultivars 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 as *E. milii Super Grandiflorum*TM. This name has no botanical standing, though it may be used by nurseries and in plant catalogs.

Some of the more widely available Poysean Group cultivars are described below using names found in current catalogs and “plant finder” publications. There is confusion over names, and some cultivars appear almost identical. Anyone considering buying these plants should not rely solely on the descriptions given below. If there is no local nursery where you can see the actual plants, send for color catalogs from appropriate growers. You can also visit the web sites of those growers and enthusiasts who post pictures.

Unless otherwise stated color descriptions refer to cyathophylls.

‘**Jingle Bells**’: soft pink with hints of red and green.

‘**Spring Song**’: a 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**’: light creamy yellow, cupped.

‘**New Year**’: color changes from a buttery yellow to cherry red.

‘**Pink Christmas**’: cream, becoming suffused with pale pink and reddish streaks.

‘**Valentine**’: striking, bright scarlet.

‘**Rosy Yellow**’: prominent yellow cyathia, cyathophylls rose pink blend with raspberry red splotches; interesting leaf venation.

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