

Eucalyptus Production Guidelines

At A Glance: To protect endemic 'ōhi'a trees from the introduction of new diseases, Hawai'i has banned the import of other plants belonging to the Myrtle family, such as eucalyptus. To ensure that local florists have access to eucalyptus foliage for arrangements, researchers with the College of Tropical Agriculture and Human Resources (CTAHR) have studied eucalyptus production in Hawai'i, focusing on *Eucalyptus* species with low potential for invasiveness.

Background

In 2020 the Hawai'i State Department of Agriculture (HDOA) put a ban on importation of any seed or plant parts from the myrtle family (Myrtaceae), to prevent the introduction of diseases that may further impact native 'ōhi'a trees. Included in this ban was eucalyptus, a foliage popular with floral designers. CTAHR received several grants, from both HDOA and the County of Hawai'i, to study local production of eucalyptus and trial species desired by florists, using seeds and plants that were already in-state at the time of the ban. These included *Eucalyptus cinerea* 'Silver Dollar' (Figure 1A), *E. gunnii* 'Silver Drop' (Figure 1B), *E. polyanthemos* (Figure 1C), and *E. pulverulenta* 'Baby Blue' (Figure 1D). The guidelines in this document are drawn from statewide evaluation trials accomplished as part of this grant project.

Preferred Growing Conditions

Most *Eucalyptus* species are native to Australia and evolved under different environmental conditions. The optimal elevation range for growing *Eucalyptus* species in Hawai'i has not been fully researched. *Eucalyptus polyanthemos*, *E. pulverulenta* 'Baby Blue' and *E. gunnii* 'Silver Drop' have been reported to grow successfully from sea level up to 3,000-ft elevation. Although *Eucalyptus cinerea* 'Silver Dollar' has been reported to grow successfully from 400-ft elevation to 3,000-ft elevation, it may be able to grow at sea level. During our evaluation trials, 'Silver Dollar' was not thriving at the experimental plot in Pearl City, O'ahu at 20-ft elevation but produced the most marketable branches of species trialed in Wailua Homesteads on Kaua'i (532 ft). The eucalyptus varieties discussed here are known to survive in low temperatures between 10–20°F.

Eucalyptus prefer full sunlight. These four *Eucalyptus* species are not salt tolerant. Most *Eucalyptus* species prefer free-draining mineral loam-type soils, but can grow adequately in most soil types. Drainage is extremely important for growing *Eucalyptus* species at lower elevations and in heavy rainfall areas. They prefer a soil pH of 5.5–6.5 (Whelton 2020).

Propagation

Eucalyptus species used for cut foliage production are primarily propagated through seeds. More information on seed propagation of eucalyptus is available in Lutgen et al. (2024a).

There is little information about effective vegetative/cutting propagation; additional research is needed to determine the feasibility of this method and is the subject of grant research currently underway.

Fertilization

Generally, eucalyptus should be fertilized at planting with a balanced Nitrogen–Phosphorus–Potassium (NPK) fertilizer, such as 10–10–10 or 14–14–14. A second application approximately 4–6 months after planting is also

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Figure 1A. Branches and plants of *Eucalyptus cinerea*.



Figure 1B. Branches and plants of *Eucalyptus gunnii*.



Figure 1C. Branches and plants of *Eucalyptus polyanthemus*.



Figure 1D. Branches and plants of *Eucalyptus pulverulenta*.

recommended, and then as-needed determined by soil or foliage testing. Fertilizer applications post planting should focus on N, with P, K, and micronutrients being applied only when soil or foliage tests indicate low levels, or deficiency symptoms are observed.

There is some evidence that interplantings of eucalyptus and nitrogen-fixing trees or groundcovers (such as perennial peanut) can improve growth and yields, but more research is needed. Similarly, there have been suggestions that a higher proportion of K in the initial fertilizer and the addition of sulfur may enhance development or may be beneficial, but these have not yet been evaluated locally and require further research. Boron deficiency (Figure 2) has been observed to cause chlorosis and necrosis in new shoots, with subsequent development of epiphytic fungi.

To avoid weed competition and fertilizer loss via run-of fertilizer should be mixed with soil and applied in holes near the drip line of the seedling's canopy (the ground area corresponding to the outermost perimeter of the



Figure 2. New growth showing symptoms of boron deficiency, observed by Alberto Ricordi.



branch tips), incorporated into the soil at the time of planting, and/or at the bottom of the planting hole. To prevent fertilizer burn, the fertilizer should not be applied directly in contact with roots or stems.

Pests and Diseases

Although they are not as fragile as some other ornamental species, locally grown eucalyptus can be impacted by a limited number of pests and diseases. For more details, including some strategies for treatment, please see Lutgen et al. (2024b).

Harvesting

Eucalyptus stems can be hardened off by decreasing or stopping irrigation for two weeks before harvest. This will help reduce wilting of stem tips and increase vase life. Natural rainfall will interrupt this strategy. Tarping around the base of the trees may help reduce the effects of rainfall, and is used as a practice in some production areas, but has not been investigated locally.

Based on trial harvest data, these eucalyptus varieties can be harvested every 3–5 months after an initial growing period of at least 6 months. Eucalyptus branches between 12–24 inches in length, with stems about the diameter of a pencil (roughly ¼ inch), should be selected and cut with bypass hand pruners. Early morning harvest is best. Stems should be kept in water in a cool place out of the sun while harvesting. Refrigeration is not required for post-harvest treatment but can increase vase life. Holding the stems in 2% (weight/vol) sucrose solution can prolong the vase life, but varies by species (Wirthensohn et al. 1996). Eucalyptus stems can be dry packed for shipping. Branches also dry well for long-term dry arrangements.

Pruning

For some species of eucalyptus, the round foliage is only present on the juvenile branches, although the species evaluated in our research did not change leaf shape with age. To retain this foliage, as well as manageably sized trees, pruning is recommended as a part of the planting maintenance process. After two initial rounds of harvests, or a minimum of two years of growth, trees may be pruned to a height of 3–4 ft, with an open-centered rosette of ~3 branches at the top of the prune—a process

known as pollarding. Pruning back to this arrangement every year has also been shown to increase the number of harvestable branches produced (Murphy et al. 1999).

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