

EXOTIC PLANTS IN HAWAII

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This paper will consider some of the exotic plants that make up Hawaii's nursery industry. The State of Hawaii is made up of 7 inhabited islands and is located 2,500 miles off the coast of California. Each island is just the tip of an enormous volcano that started erupting eons of time ago, on the floor of the Pacific Ocean. Depending upon the height of the volcano remaining above sea level, there can be a dramatic difference between the wet side of the island, where trade winds drop their showers daily, and the dry side, in the rain shadow of the mountain, that can receive less than 10 in. per year. In addition to influencing the amount of rain falling on the leeward side of the mountains, the height of the volcano also influences the temperature range. At 10,000 feet, Haleakala on Maui may register temperatures well below freezing in winter, and occasionally snows are encountered. At this elevation, strange forms of plant life have evolved, like the rare silversword, found only at the summits of Hawaii's volcanoes.

As one proceeds down the mountain, you pass through "temperate" zones, where camellias, azaleas, and cymbidium orchids thrive, and on down to the tropics, where ginger, and *Cordyline terminalis*, golden bamboo, and *Heliconia rostrata* grow luxuriantly. And finally, where the volcano slopes beneath the sea, one might find the black sand beaches or coral sands of Mauna Kea.

The Maui Agricultural Research Center, my home base, is located at the 3,000 ft elevation on the slopes of Haleakala, overlooking the Valley Isle.

In 1983, the category, "Flowers and Nursery Products" ranked #1 in Hawaii's diversified agriculture, with a wholesale value of over \$36 million. The largest single item identified by the State Department of Agriculture was potted foliage plants, primarily for indoor or patio use, at \$10.8 million. Unfinished stock for further growing-on at \$1.4 million and potted foliage plants, primarily for landscape, at \$850 thousand, represents a grand total of \$13 million in the foliage plant business.

Potted orchids at \$2.5 million, potted flowering plants at \$1.9 million, field grown ornamentals and trees at \$800 thousand and "other" nursery products, raises the nursery industry total sales to \$20.2 million dollars, wholesale value.

Cut flowers are led by anthurium at \$6.0 million, lei flowers at \$4.1 million, roses at \$1.8 million, orchids at \$1.1 million and "other" at \$2.3 million. Cut foliages were valued at \$700 thousand.

One of the impressive sights for the nurseryman's first visit to the tropics is to see plants he may have been accustomed to growing in pots developing into mature specimens in the landscape. *Ficus benjamina* reaches a spread of over 200 ft in the Mauna Loa Gardens in Honolulu, and *Cordyline terminalis* 'Tricolor' — popularly grown as a pot plant from 1 to 3 ft tall in the trade, can reach over 30 ft in Howard Cooper's Nursery in Hana. Tropical exotics, such as *Musa coccinea*, and *Heliconia bourgaeana* represent a new wave of interest for our nurseries, both as landscape and cut flower use.

Plants of the southern hemisphere, such as *Grevillea* 'Robyn Gordon', and hybrid kangaroo paws are undergoing evaluation at the Maui Agricultural Research Station.

TRICKLE IRRIGATION ON SHORT TERM CROPS

DAVID BYERS

Byers Nursery Co., Inc.
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Short term crops are a big part of our business. Situated in the center of North Alabama, Byers Nursery Company emphasizes lining out stock that has been grown in the field. More than 30 acres are devoted to *Lagerstroemia* cultivars and another 50 acres are used in growing *Cornus*, *Magnolia*, and other genera. These plants originate as seedlings, grafts, and hardwood or softwood cuttings.

Efficient production of these many small plants is our goal and adequate water is one of the elements of production that makes this scheme work. Normally, our area receives about 56 in. of rainfall, but this is not uniformly spread throughout our growing season. Therefore, we must have the ability to water our liners when needed.

Overhead irrigation with movable aluminum pipes was installed in 1954. This method served well until our production outgrew the covered area. In 1978 we began using trickle, or drip, systems to extend our water delivery capability. In 1981 a commitment was made to trickle irrigation and now we have approximately 250,000 feet at work.