

OBSERVATIONS OF FREEZE INJURY IN SOUTH FLORIDA FOLIAGE NURSERIES

RICHARD L. BIAMONTE

*IFAS, Agricultural Research and Education Center,
University of Florida,
Homestead, FL 33031*

Abstract. A 27° F night temp was recorded at the Homestead Agricultural Research and Education Center on January 20, 1977. Foliage plants that were grown in unheated nursery structures exhibited damage. They were varying degrees of freeze injury to foliage plants even where overhead sprinkler irrigation was used. The most severe injury occurred without heat or overhead sprinkler irrigation.

January is the most likely time of year for the occurrence of a killing frost or freezing temp in South Florida and either occurs on the average of about once per year (3). However, some tropical foliage plants can be injured at temp above the freezing point, as evidenced by the report of chilling injury to *Sansevieria* at 46° F (7.7° C) (2). The severity of chilling injury in *Sansevieria* was influenced by the level of nitrogen (1).

Early as December 1976, there were night temp in the mid to low 40's and plants like *Dracaena fragrans* cv. *Messangeana* expressed brown necrotic, blotchy areas along and within the leaf margin. On January 19 and 20, a freeze occurred throughout the entire mainland of Florida severely damaging numerous types of foliage plants grown in South Florida under full sun, polypropylene shade or lath structures. Fiberglass, glass or polyethylene covered structures were generally heated, and foliage plants grown in these were protected against the coldest temp recorded during the winter of 1977. The official minimum temp recorded at the Homestead Agricultural Research and Education Center on January 20, was 27° F (ca. -3° C). This reading was at 5 ft above the ground. Within a few inches of the ground it was about 3° F colder. Two nights

Table 1. Foliage plants with severe damage to both leaves and stems. Plants were growing in either full sun or shade structures without overhead irrigation during the freeze.

Ananas comosus 'Variegatus'
Aralia elegantissima
Asplenium nidus
Beaucarnea recurvata
Brassaia actinophylla
Chlorophytum comosum 'Variegatum'
Chrysalidocarpus lutescens
Cordyline terminalis 'Baby Doll'
Dracaena deremensis 'Compacta'
Dracaena deremensis 'Janet Craig'
Dracaena deremensis 'Warnekei'
Dracaena fragrans 'Massangeana'
Dracaena marginata
Euphorbia splendens
Ficus benjamina
Ficus elastica 'Decora'
Ficus elastica 'Robusta'
Ficus lyrata
Nephrolepis sp.
Philodendron oxycardium
Philodendron sellowii
Sansevieria trifasciata
Spathiphyllum cannaefolium

of 35° F (ca 2° C) minimum occurred within the following week.

The proper application of overhead sprinkler irrigation throughout that cold night and continuing into the morning was the key factor in minimizing the freeze injury to nursery grown foliage plants. Foliage plants under this irrigation differed in response to the freeze and expressed varying degrees of injury. *Brassaia actinophylla*, *Brassaia arboricola* and *Yucca* sp. were unaffected, whereas,

Table 2. Foliage plants with slight to severe damage of both leaves and stems. Overhead irrigation during the freeze was applied to plants in full sun or in shade structures.

Cereus peruvianus
Chamaedorea erumpens
Dracaena deremensis 'Compacta'
Dracaena deremensis 'Janet Craig'
Dracaena deremensis 'Warnekei'
Dracaena fragrans 'Massangeana'
Dracaena marginata
Ficus elastica 'Abidjan's
Ficus elastica 'Decora'
Ficus elastica 'Honduras'
Ficus lyrata
Pleomele sp.
Sansevieria trifasciata

*Slight damage compared with other *Ficus*.

various species of *Ficus* and *Dracaena* were injured. Symptoms of freeze injury to foliage plants continued to develop for as much as five weeks after the freeze even though night temp were seldom below 50° F (10° C) except for three nights around 40° F (4.5° C) between February 17 and 21.

Foliage plants and the degree of injury sustained with and without irrigation are presented in Tables 1-3. They do not represent all the foliage plants grown in South

Table 3. Foliage plants without injury or with slight damage to leaves or stems. Overhead irrigation during the freeze was applied to plants growing in full sun or in shade structures.

Aralia elegantissima
Araucaria heterophylla
Brassaia actinophylla
Brassaia arboricola
Yucca sp.

Florida nurseries. However, they indicate that foliage plants need protection against a freeze but that overhead sprinkler irrigation may not suffice. Heated structures appear to be the only positive solution to the problem of cold and freezing temp for South Florida foliage producers.

Literature Cited.

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