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Cultural Guidelines for Commercial Production of Interiorscape *Dracaena*¹

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Dracaena, a genus in the family Agavaceae, is composed of about 40 species. Unlike most monocots, *Dracaenas* are evergreen shrubs or trees most frequently characterized by long linear leaves often on unbranched stems or trunks. Mature heights reach from two to over 50 feet. One species, *D. americana*, is indigenous from Mexico to Costa Rica; all other species are native to Africa, India, Madagascar, or islands in the South Pacific. Cultivated species, excluding *D. draco* that may be grown for its red resin, are grown for their ornamental value. This article describes common species and cultivars in the foliage plant industry (See Table 1), provides guidelines on their culture and interior use, and lists physiological problems that may be encountered in both production and interiorscape use (See Table 3).

Cultural Guidelines

1. Propagation

Rooting of tip cuttings, air layering, and cane cuttings are the primary methods of *Dracaena* propagation. Air layering or cane cuttings are mainly

used for large specimens, and tip cuttings are used for producing the smaller *Dracaena* species.

2. Production

Sphagnum peat, pine bark, vermiculate, or perlite (leach before using) can be volumetrically combined to formulate media for plants in smaller containers while media for larger plants may contain 10-20% coarse sand to keep plants from wind tipping. Media should have good moisture capacity and aeration, soluble salts of 1-2 dS/m, and pH of 6.0 to 6.5. A pH lower than 6.0 may cause leaf chlorosis while a media pH above 6.5 will cause iron deficiency.

Dracaena sp. should be grown in a shadehouse with a temperature of 70 to 90°F and a relative humidity of 60 to 100%. Temperatures above 90°F cause foliar chlorosis of 'Janet Craig' and notching of 'Warneckii'. Controlled-released or water-soluble fertilizers with micronutrients or a combination of both can be used for *Dracaena* production. Fertilizers with low boron and fluoride levels and an N:P:K ratio of 3:1:2 or 3:1:3 are best. The suggested application rate is 3 lb N per 1,000 sq. ft per month. Table 2 provides a guide for determining if *Dracaenas* are

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appropriately fertilized based on leaf analysis. Fertilization should be reduced by 50% or stopped one month before shipment.

Dracaenas for interior use should be grown under shade. *D. arborea*, *fragans*, and *marginata* can be grown under 63 to 73% shade (3250 to 4000 fc) and the other species under 73 to 80% shade (2500 to 3250 fc). Although the yellow color of 'Massangeana' and the red tones in *D. marginata* cultivars increase with higher light, the variegation percentage in other *Dracaena* will decrease if grown under shade levels lower than 80%.

Shipping and Interior care

Dracaena should be shipped at temperatures between 55 and 65°F. Once plants are placed indoors, it is advisable not to re-pot or fertilize for about four weeks because plants do not need additional stress. Plants should not be fertilized if soluble salts are 1.0 dS/m or more. If soluble salts levels are higher than 3.0 dS/m, percolation of the media with water may help reduce potential leaf burning problems. Media should be kept moist. Temperatures of 70 to 80°F are most appropriate, and drafts should be avoided. (See Table 3)

Table 1. A listing of *Dracaena* cultivars and species available in Florida as of 2002.

Species	Cultivar or Common Name	Characteristics
<i>D. arborea</i>	'Tree <i>Dracaena</i> '	Mature plants may grow to 30-40 feet tall, usually multi-branched with 3-foot-long linear leaves.
<i>D. deremensis</i>	'Gold Star', 'Janet Craig', 'Janet Craig Compacta', 'Lemon Lime', 'Lisa', 'Michiko', 'Warneckii', 'Warneckii Jumbo'	Although this plant can grow to heights of 15 feet, most interiorscape specimens are less than 10 feet. Typically plants have long narrow leaves clustered on an unbranched stem. Leaves of most common cultivars have longitudinal stripes of various shades of green, cream, white, or yellow.
<i>D. fragrans</i>	'Green Corn Plant', 'Massangeana', 'Character', 'Santa Rosa'	Usually grown and sold in containers with multiple woody canes of different lengths up to 15 feet tall. A single cluster of long linear leaves tops each cane. The leaves are mostly solid green while 'Massangeana' has as a broad, bright yellow central stripe. 'Character' plants are branched.
<i>D. marginata</i> or <i>D. concinna</i>	'Madagascar Dragon Tree', 'Bicolor', 'Character', 'Colorama', 'Exotic', 'Madagascar', 'Magenta', 'Tricolor'	Young plants are single stemmed but can be induced to branch and are sometimes trained to have bent or character stems. The narrow, linear, deep green leaves have red, narrow margins. The various cultivars have additional maroon or magenta colors in the leaves.
<i>D. reflexa</i>	'Malaysian <i>Dracaena</i> ', 'Song of India', 'Song of Jamaica'	Short linear leaves on single stems when young, these plants usually branch when reach three feet high. The species has deep green leaves but the cultivars have attractive variegated foliage.
<i>D. sanderiana</i>	'Ribbon Plant', 'Gold', 'Lucky Bamboo'	Typically single stemmed, but the stems never become strong enough to remain upright beyond 2-3 feet in height. The short, linear, green leaves have light yellow margins that are more intense in the cultivar 'Gold'. 'Lucky Bamboo' plants are typically leafless stems of 'Ribbon Plant' sold individually or in clusters.
<i>D. surculosa</i>	'Junita'	Mature specimens of this native of tropical Africa may attain heights of five feet, but interiorscape specimens of this shrubby, multi-branched <i>Dracaena</i> are typically 2-3 feet tall. The ovate leaves are dark green and thickly mottled with creamy white blotches.
<i>Dracaena</i> Ricki	'Ricki'	This cultivar is of uncertain parentage but it resembles a cross between <i>D. deremensis</i> and <i>D. marginata</i> . Some growers believe it is a sport of <i>D. deremensis</i> .

Table 2. Nutrient concentrations in leaves considered low, medium, and high for *Dracaena* growth.

Nutrient	Low	Medium	High
Nitrogen (%)	<2	2.0-3.5	>3.5
Phosphorus (%)	<0.15	0.15-0.4	>0.4
Potassium (%)	<2.0	2.0-3.5	>3.5
Calcium (%)	<1.0	1.0-2.5	>2.5
Magnesium (%)	<0.2	0.2-1.0	>1.0
Sulfur (%)	<0.2	0.2-0.75	>0.8
Iron (ppm)	<40	50-300	>300
Manganese (ppm)	<35	50-300	<300
Zinc (ppm)	<15	20-200	>200
Copper (ppm)	<7	8-50	>50
Boron (ppm)	<19	20-50	>50

Table 3. Causes and effects of various physiological problems.

Symptoms	Cause	Treatment
Chlorotic banding of <i>D. marginata</i> leaves.	Exposure to 32 - 37°F for several hours.	Avoid low temperatures.
Leaf tips or margins become chlorotic or necrotic.	High boron, fluoride, or soluble salts. Media pH may be too low.	Damaged leaves will not recover. Leach media to lower high soluble salts. Adjust media pH to 6.5 and use fertilizers and water low in boron and fluoride.
Yellowing of leaves with green veins creating a netted appearance.	Temperatures above 90°F and low available iron.	Lower media pH to 6.0; increase shade levels if in a production area. Drench with iron chelate.
Slimy, necrotic spots on leaves, mass leaf drop.	Chilling injury.	Plants should be kept in areas above 60°F at all times, including shipping and showcasing.
Spear becomes hard and may not open, notably in <i>D. marginata</i> particularly in winter.	Copper deficiency.	Spray with copper-based fungicide.
Severe leaf distortion, particularly in highly variegated <i>D. marginata</i> . Notching in 'Warneckii'. Poor head development in 'Massangeana'.	Boron deficiency.	Spray with borax. Leaves will not recover.

Table 3. Causes and effects of various physiological problems.

Symptoms	Cause	Treatment
New leaves on <i>D. marginata</i> are pale with green transverse veins.	Manganese deficiency.	Spray with manganese chelate.
Loss of yellow stripe in 'Massangeana'. Narrower than normal leaves.	Nitrogen deficiency.	Be wary of the root system. Spray with calcium nitrate or urea.
Older leaves will turn purple.	Phosphorus deficiency.	Common in soils high in aluminum. Increase phosphorus in fertilizer.
Tipburn in older leaves.	Sodium toxicity.	Increase potassium and top dress with gypsum. Usually a result of high salinity in irrigation waters.
Reduced leaf size.	Zinc deficiency.	Spray with chelated zinc. Affected leaves will not recover.
Flowering.	Abnormal flowering.	Usually caused by cooler, wet weather. An increase in nitrogen helps keep it at bay.
Abnormally narrow leaves.	Strap-leaf.	Root disease or poorly aerated soil. Repot into fresh media.
Leaves curl.	Leaf curl.	A temporary condition brought on by high light and/or temperature. As light or temperature is reduced, the leaves will return to normal.
Sunken, rust-colored areas appear on leaves usually near the tips.	Sunburn.	Remove the plant from the affecting light and gently trim the damaged areas.