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Care and Maintenance of Landscape Palms in South Florida[1]

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Figure 1. *Dypsis intescens* used as a hedge.

Palms make an important, unique contribution to the south Florida landscape. They are used as hedges, specimen plants, and clusters to provide beauty and architectural stature in landscapes (Figures 1-3). This publication provides an outline of essential care and maintainance techniques for palms in south Florida landscapes. Key problems of palms in south Florida landscapes are identified, and recommendations are provided for avoiding or overcoming these problems.

Figure 2. *Cocos nucifera* used as a specimen plant.

Pruning

Several palm species retain their leaves (fronds), after they have turned brown. Other species look bedraggled when certain nutrient deficiencies appear in the older leaves. These older leaves often are removed by landscapers for aesthetic concerns (Figure 4). However, palms naturally translocate

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Figure 3. *Wodyetia bifurcata* and *Ptychosperma macarthurii* used in a cluster.

nutrients to younger foliage from the browning fronds, and frond removal can deprive the tree of needed nutrients.

Repeated hurricane pruning produces a phenomenon known as "pencil top," a narrowed trunk just below the fronds and is illegal in Broward County, Miami-Dade County and a growing number of municipalities (Figure 7). This practice weakens the palm and may cause premature death of the tree. To avoid problems associated with overpruning, remove only dead leaves, and do not remove fronds that are held above the horizontal.

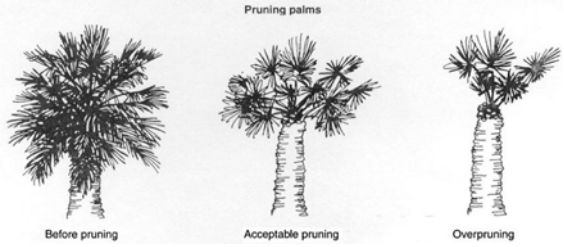

Figure 4. Pruning palms.

Nutritional Concerns

Potassium Deficiency

Potassium (K) deficiency of palms grown in south Florida is a widespread and serious problem. South Florida soils are naturally deficient in K, and the element is quickly leached when applied. Potassium deficiency can be fatal to affected palms. Symptoms of K deficiency (Figures 8-10) are translucent yellow-orange or necrotic (dead tissue) leaf spotting, marginal necrosis, and frizzling on oldest leaves. Oldest leaves are affected first because K is mobile within the plant. These symptoms are

Figure 5. Overpruned palm: *Sabal palmetto.*

Figure 6. Overpruned palms: *Syragrus romanzoffiana.*

Figure 7. Overpruning of *Sabal palmetto*.

worse at leaf tips and margins, and less severe at the base of the leaves. Advanced K deficiency is characterized by a burnt and withered appearance in the entire leaf. K deficiency can be prevented and/or treated with applications of sulfur-coated potassium sulfate, but Mg should also be applied to prevent a K-Mg imbalance.

Figure 8. Potassium (K) deficiency symptoms: *Dypsis lutescens.*

Figure 9. Potassium (K) deficiency symptoms: *Phoenix roebelenii* early stage.

Manganese Deficiency

Manganese (Mn) deficiency can be fatal to affected palms. It is common in palms grown in alkaline soils because Mn is insoluble at high pH levels. Certain species commonly used in south

Figure 10. Potassium (K) deficiency symptoms: *Phoenix roebelenii* late stage.

Florida landscapes are highly sensitive to Mn deficiencies, including Queen (*Syagrus romanzoffiana*), Paurotis (*Acoelorrhaphe wrightii*), and Pygmy date palm (*Phoenix roebelinii*). Early symptoms of Mn deficiency (Figures 11-13) are diffuse interveinal chlorosis (yellowing) accompanied by interveinal necrotic streaking on newest leaves. In its advanced stage, Mn deficiency manifests in leaves that emerge completely frizzled, withered or scorched, and reduced in size ("frizzletop"). This serious nutritional problem can be avoided or remedied with the use of manganese sulfate, such as TechMangam.®

Figure 11. Manganese (Mn) deficiency symptoms: *Syragrus romanzoffiana.*

Iron Deficiency

Iron deficiency is primarily a cosmetic problem. Affected palms usually will survive but will exhibit interveinal or general cholrosis on the newest leaves. Interveinal chlorosis is characterized by a restriction of green coloration to the veins of the new leaves. The veins are surrounded by yellow tissue (Figures 14-15). In stages of advanced Fe deficiency, new

Figure 12. Manganese (Mn) deficiency symptoms: *Rhaphis excelsa*

Figure 13. Manganese (Mn) deficiency symptoms: *Acoelorrhaphe wrightii*.

leaves show dead tissue at the tips, and the overall leaf size is reduced. Iron deficiency is more common in container-grown palms than in landscape palms. In the landscape, it usually appears on palms growing in poorly aerated soils, or palms planted too deeply. In alkaline soils, Fe-deficient palms can be treated with FeEDDHA sequestrene 138 or Hampshire chelated fertilizers. In acidic soils, FeDTPA sequestrene 330 fertilizer can be applied.

Figure 14. Iron deficiency in *Syagrus romanzoffiana*.

Figure 15. Iron deficiency in *Syagrus romanzoffiana*.

Magnesium Deficiency

Magnesium (Mg) deficiency is rarely fatal, and, like Fe deficiency, is primarily a cosmetic problem in landscape palms. It is a common deficiency especially for Canary Island date palms, *Phoenix canariensis.* Classic symptoms of Mg deficiency are marginal chlorosis on oldest leaves, which progresses upward to younger foliage (Figure 16). In contrast to K deficiency symptoms of yellow-orange tissue in older leaves, Mg deficiency is distinguished by the typically broad, lemon yellow band along the margin of older leaves, with a green center and a distinct boundary between the yellow and green portions. When advanced, Mg deficiency also causes leaf tips to become necrotic. Symptomatic leaves will not recover if Mg deficiency is treated, and chlorotic leaves must be replaced with new healthy leaves. Coated or uncoated prilled kieserite can be applied to prevent or correct Mg deficiency.

Figure 16. Mg deficiency in *Phoenix canariensis*.

Nitrogen Deficiency

Nitrogen (N) deficiency is less of a problem in landscape palms than it is in container-grown palms, however, it does occur in some nitrogen-poor landscape soils. Palms with N deficiency exhibit symptomatic uniform chlorosis of older or all leaves and reduced growth rate (Figure 17). Treatment with any fertilizer containing N will quickly improve leaf color.

Figure 17. Nitrogen deficiency in *Ptychosperma elegans*.

Boron Deficiency

Boron deficiency in palms can cause leaves to appear small and crumpled. It may cause a sharp bend in the trunk and horizontal growth and can kill the bud (Figure 18). Prevention and treatment is by application of sodium borates or boric acid, however, excess B is toxic to palms.

General Palm Fertilizer Recommendations

Of the 17 nutrients that are essential for plant growth, only the 6 nutrients discussed above typically cause deficiency problems for south Florida landscape palms. Fertilizers for palms should be chosen carefully, with attention to the content of K, Mn, Fe, Mg, N, and B. In addition to the fertilizer analysis, check the fertilizer label for the form and

Figure 18. Boron deficiency in *Adonidia merillii*.

solubility of nutrients. "Palm Special" fertilizers are available with chelated micronutrients that contain a ratio of N:P:K:Mg of 2:1:3:1 for sandy, nutrient-poor soils.

To ensure a steady supply of nutrients, multiple applications are recommended at a rate of 1.5 pounds per 100 square feet of canopy 4 times per year, or alternatively at 1 pound per 100 square feet of canopy 6 times per year. N, K, and Mg should be in controlled- release form to provide nutrients over a 3-month period. When possible, dry, granular fertilizers should be broadcast under the palm canopy, not up against the trunk and not in bands around the trunk. For more information on palm nutrition, refer to IFAS publication EP-052.

Pests

Like most plants, palms can be affected by innummerable pests. There are, however, 3 key pest problems in south Florida that produce significant symptoms on mature landscape palms: Royal Palm Bug, Lethal Yellowing, and Ganoderma Butt Rot.

Royal Palm Bug

Royal Palm Bug, *Xylastodoris luteolus*, feeds on young leaves of *Roystonea* palm species. This tiny insect feeds in between folds on emerging leaves. New leaves will emerge chlorotic, assuming a scorched appearance as they mature (Figure 19). In south Florida, infestations of Royal Palm Bug increase in spring following particularly mild winters, and the problem usually abates after June. Control of this pest has been achieved through drench treatment with imidacloprid. When using this chemical, several

weeks must be allowed for it to translocate to the crown.

Figure 19. Damage from royal palm bug, *Xylastodoris luteolus*.

Lethal Yellowing

Lethal Yellowing (LY) is a major disease of several palm species in south Florida. The causal agent of LY is a phytoplasma, a micro-organism that lacks a true cell wall. LY is spead by *Myndus crudus*, a small planthopper. Symptoms of LY are fruit drop, blackened inflorescences, leaf yellowing or wilt, and spear leaf collapse (Figure 20). The disease can be prevented by oxytetracycline injections, however, planting less susceptible varieties is the only long-term practical solution. Palm species that are native to south Florida appear resistant to LY. Table 1 contains a partial listing of exotic palms that are not known to contract LY.

Figure 20. Damage from Lethal Yellowing disease.

Ganoderma Butt Rot

Ganoderma Butt Rot is caused by the fungus, *Ganoderma zonatum*. The fungus causes the palm trunk to rot outward from the inner core, ultimately killing the tree. The primary visible symptom of Ganoderma is the emergence of conks, the fruiting bodies (basidocarp) of the fungus, growing outward through the wood on the lower 4-5 feet of the trunk (Figure 21). There is little known about the organism, and there are currently no control measures for infected trees. *G. zonatum* is known to only affect palms, not other plant families. All palms that have wood trunks are considered hosts of this fungus. To avoid this pathogen, do not introduce any landscape mulch material that might contain parts of infected palms. The fungal spores can remain viable in the soil, so do not plant another palm in a spot where one has died from Ganoderma Butt Rot. For more information on Ganoderma Butt Rot, refer to IFAS Bulletin PP 100.

Figure 21. Damage from Ganoderma Butt Rot.

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Table 1. Exotic palms common in South Florida that are not known to contract Lethal Yellowing.

Scientific Name	Common Name	Region of Origin
Archontophoenix alexandrae	Alexander palm	Australia
Carpentaria acuminata	Carpentaria palm	Australia
Dypsis lutescens	Areca palm	Madagascar
Phoenix roebelenii	Pygmy date palm	Southeast Asia
Ptychosperma macarthurii	MacArthur palm	New Guinea
Ptychosperma elegans	Solitaire palm	Australia
Syagrus romanzoffiana	Queen palm	South America
Washingtonia robusta	Washington palm	Northern Mexico
Wodyetia bifurcata	Foxtail palm	Australia