

Nutrition and Fertilization of Landscape Palms

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1. Common nutritional deficiencies on landscape palms

- a. Nitrogen—reduced growth rate; uniform chlorosis of older or all leaves
- b. Potassium—translucent yellow-orange or necrotic spotting, marginal necrosis, and frizzling on oldest leaves; more severe on leaf tips than bases; can be fatal; treat with sulfur-coated potassium sulfate
- c. Magnesium—marginal chlorosis on the oldest leaves; treat with coated magnesium sulfate or prilled kieserite
- d. Iron—interveinal or general chlorosis (sharply delimited green veins) on newest leaves; treat alkaline soils with soil application of chelated iron FeEDDHA (138) or Hampshire iron; treat acid soils with FeDTPA (330)
- e. Manganese—diffuse interveinal chlorosis accompanied by interveinal necrotic streaking on newest leaves; also causes reduced new leaf size and frizzling; more severe at leaf base than tip; often fatal on palms; treat with $MnSO_4$ (TechMangam)
- f. Boron—small, crumpled new leaves; may cause a sharp bend in the trunk and horizontal growth; can kill the bud

2. Causes of nutritional deficiencies

- a. Insufficient nutrients in the soil, usually due to leaching (*e.g.*, N, K, Mg, B)
- b. High soil pH (*e.g.*, Fe, Mn); can usually be decreased with elemental sulfur, $FeSO_4$, or ammonium or urea fertilizers
- c. Complexation with organic matter (*e.g.*, Cu; also Mn by composted sewage sludges)
- d. Nutrient imbalance—too much of one element can induce a deficiency of another element (*e.g.*, N vs. K, K vs. Mg, etc.)
- e. Poor soil aeration (usually Fe)
- f. Excessive planting depth (essentially a poor soil aeration problem)
- g. Root rot diseases (reduce root surface area available for micronutrient uptake; usually expressed as Fe deficiency)
- h. Removal of K-deficient older palm leaves accelerates rate of decline from K deficiency

3. Importance of proper fertilization rates

- a. Too little results in deficiencies
- b. Excessive macronutrients can cause soluble salt injury
- c. Excessive micronutrients can cause nutrient toxicities

4. Prevention of deficiencies is much easier than correcting them after the fact

5. Treatment of deficiencies

- a. Identify and correct any cultural causes first
- b. Treat with appropriate fertilizers

6. Landscape fertilization

- a. Use 2N-1 P-3K-1 Mg ratio fertilizers (*e.g.*, 8- 4-12-4) that include all micronutrients
- b. 100% of N, K, and Mg should be in controlled release form
- c. Broadcast using a rotary spreader under the canopy of isolated palms or entire beds or landscapes
- d. Apply 1.5 lbs. of actual fertilizer (not N) per 100 sq. ft. every 3 months or 1 lb. per 100 sq. ft. every 2 months
- e. DO NOT USE TURF FERTILIZERS or landscape fertilizers with water soluble K within 30 ft. of any palm.
- f. USE CONTROLLED RELEASE LANDSCAPE FERTILIZERS described above for ALL plants in the landscape, including turf in mixed landscapes

For more details, see EDIS DL#EP-052: Palm Nutrition Guide
<http://edis.ifas.ufl.edu/EP052>