



PALM PROGRAM

There are many needs to consider when fertilizing palm trees, since many of the species are not native palms and are therefore, more apt to develop nutrient deficiencies and diseases. In general, native palms are more tolerant to stress. A good fertility program should incorporate a reliable slow release nitrogen source, manganese, magnesium and iron which are common nutritional disorders in palms. In addition, soils are often lacking in organic matter and lack beneficial soil bacteria. In many urban situations, paved areas often make it difficult to apply large volumes of water. In these instances, a low water volume palm program is recommended. All of the products recommended by Growth Products for this type of application have been formulated and tested to ensure low salt indices (i.e. plant materials will not be injured by chemical salts). The following program utilizes five times less water than a standard program. It is imperative to carefully follow all mixing instructions.

Transplant Fertilization:

Drench both the root ball and soil where the palm will be planted with a blend of Growth Products Palm Pro 12-4-12 with 60% slow release nitrogen. Palms do not like heavy muck or clay soils and will very quickly become water logged. If it is not possible to supplement soil mixes of this consistency with a sand/peat mix, be sure to add Essential® Plus along with Companion® Microbial Inoculant at the time of transplant. This will help loosen the clay structure and allow more drainage. For a granular supplement program add 8 oz. Landscapers Companion® or Growers Companion® for two 15 gal. palms. Mix thoroughly into soil before planting.

Established Palms:

The vast majority of palms planted in the US are non-native species and are planted in sandy soils, which have an extremely low cation capacity and a tendency to leach nutrients quickly. Established palms must be fertilized a minimum of twice per year, and 4 fertilizations per year are ideal. Growth Products' 12-4-12 contains an ideal ratio of nitrogen to potassium (crucial for healthy palms). And since Palm Pro contains 60% slow release nitrogen, the palms will receive an even, continuous feed of nitrogen.

Soil Injection:

Begin root injection approximately two to four feet away from the trunk and out to the drip line of the tree. Check the flow rate by timing gallons per minute into a bucket. At 2 gallons per minute, it will take 15 seconds to inject ½ gallon per injection hole. Inject to a depth of 6 to 8 inches for trees. Inject at a rate of ½ gal of tank mix per injection site. Check "Palm Program" and "Low Water Palm Program" for dilution rates.

Foliar Fertilization:

Foliar fertilization with high quality liquids can be used as a supplemental program for normal soil fertilization. While foliar applications will correct many nutrient deficiencies, soil fertilization will provide longer lasting results. Both Mg and Mn chelate foliar sprays are also effective against deficiencies.

Nutrient disorders:

N- Nitrogen deficiency is common in many areas of the county where non-native species are planted. Palm trees manifest this deficiency with a light green color and decreased vigor. - K - Potassium deficiency is more widespread and most common in Florida palms. Symptoms - which appear as a translucent yellow or orange color in the leaflets - occur first on the oldest leaves and then in newer leaves. If not corrected, new growth will be affected and if left untreated, the palm will die. Potassium deficiencies are common in most palm species found in Florida. - Mg - The signs of a magnesium deficiency first occur in the palm's oldest leaves and then spreads up through the canopy with a light yellow band along the margin of the oldest leaves, while the center remains green. While Mg deficiencies affect most species of palms, Date Palms are the most susceptible. - Mn - Manganese deficiencies affect most palms. If the deficiency is severe, the palm will take on a "frizzled" look.

Palm Pro 12-4-12 with 60% SRN- the smart Nitrogen™

Application Method	Tank Mix Rate	Comments
Drench	1 gal. Palm Pro per 100 gallon water. Smaller palms - 4 oz in 2 - 5 gal water	Significantly saturate soil and root area around each palm. Apply 2 - 4 times per year.
Soil Injection	1 gal per 100 gal water	Inject 1 qt. mix per injection hole under canopy. Start 2 - 4 ft from trunk. Apply 2 - 4 times per year.
Foliar Spray	1 oz per gal water. For larger sprays, mix 1/2 to 3/4 gal in 100 gal water	Spray to run off. Apply as a supplemental program with soil program. Apply as needed.

Companion® - 100% Natural Organic Liquid Soil Microbial Amendment

Application Method	Tank Mix Rate	Comments
Drench or Soil Injection	16 oz. Companion® per 100 gal water	Can be mixed and applied with Palm Pro. Will help restore beneficial bacteria in poor soils, promote new root growth and protect roots from stress.

For Severe Stress & Chlorosis these Products can be Added to Your Program

ESSENTIAL® Plus - 100% Natural Organic Liquid Soil Amendment

Drench or Soil Injection	32 oz. per 100 gallon water	Added for stress recovery or soil compaction. Significantly saturate soil and root area around each palm
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MAGNESIUM CHELATE- 3% Liquid Organic Chelate

Drench or Soil Injection	32 oz. per 100 gallon water	Can be applied to correct severe chlorosis. Significantly saturate soil and root area around each palm
Foliar Spray	32 oz. per 100 gallon water	Thoroughly spray to point of run-off. Apply every 2- 4 weeks.

MANGANESE CHELATE 5% - With 2% Sulfur

Drench or Soil Injection	32 oz. per 100 gallon water	Can be applied to correct severe chlorosis. Significantly saturate soil and root area around each palm
Foliar Spray	32 oz. per 100 gallon water	Thoroughly spray to point of run-off. Apply every 2- 4 weeks.

Low Water volume Program Palm Pro 12-4-12 with 60% SRN

Application Method	Tank Mix Rate	Comments
Soil Injection	1/2 gal. Palm Pro per 40 gallon water	Small Palms: 5 gallons mix per palm. This program allows you to do a greater number of trees with less water.

Supplemental Granular Program Landscaper's BioNutrition

Application Method	Rate	Comments
Soil application	4 oz per 15 gal palm (see label for additional rates)	Use as a supplement to a regular fertilizer program. Apply at time of transplant. Mix thoroughly into soil prior to transplant.