

## Trees and Turf

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**INTRODUCTION** ~ Trees and ornamentals don't always fare well in areas where heavily managed turf is present, such as sports fields, golf courses, and institutional environments. This is generally a result of our man-made landscapes. In nature, grasses and trees do not generally grow in the same areas. Trees block grass from sunlight; turf and tree roots compete for moisture and nutrients. In urban environments, the plant that was established first generally fares better. It should be a goal to keep both turf and trees healthy, as stressed plants are more prone to the feeding of sucking insects, such as aphids and whiteflies, and pathogen development, such as trunk and root rots.

**CAUSE of PROBLEMS** ~ This article will focus on fertilizer and irrigation in areas where turf and trees share space. In places where turf is a priority, irrigation schedules are generally established to suit the needs of the turf. This could mean watering several times per week. Yet, most established trees and many established ornamentals don't need supplemental irrigation. As a rule of thumb, trees need 3 - 4 months per every inch of trunk caliper to establish. In other words, the typical 3-4" caliper newly planted landscape tree



**Figure 1.** Trees and turf share space in the landscape, but have very different needs in terms of water and fertilizer. Photo: UF Laura Sanagorski.



**Figure 2.** Potassium deficiency may be induced by high nitrogen fertilizers applied to nearby turf. Photo: UF Laura Sanagorski.

doesn't need additional irrigation after approximately 9 – 12 months. Smaller trees and shrubs require supplemental irrigation for much shorter periods of time. Trees and ornamentals can be adversely affected by applications of excess water that is intended for turf areas. Overwatering can lead to root and stem rots, other fungal disorders, general decline related to soggy root systems, and poor root system development.

Turf fertilizers have high levels of nitrogen. Since turf and ornamental roots share the same space, the high nitrogen turf fertilizers reach the all plants in a landscaped area. Nitrogen is associated with forced rapid growth which may encourage feeding of sucking insects and increase of disease pathogens. Further, if potassium and magnesium (or other

elements) are limited in the soil (as always in FL soils), existing reserves spread out over larger number of leaves. This results in a fertilizer-induced deficiency which is sometimes called the "dilution effect". These deficiencies can be severe in all ornamentals and trees, but may be most noticeable in palms, which are very sensitive to nutritional deficiencies. In fact, high nitrogen fertilizers applied to turfgrass over 30' away from a palm on one side only have been known to kill palms from induced potassium deficiency (Broschat, 2005).



**Figure 3. Apply a palm fertilizer to the entire landscape, including turf. Use deflector shields to keep high nitrogen fertilizers 50'**Photo: UF Laura Sanagorski.

**RECOMMENDATIONS** ~ To reduce the amount of water applied to ornamentals and trees in turf areas, evaluate irrigation systems and methods. Use zones where possible to reduce overwatering. If possible, establish separate zones for ornamentals and trees so they receive irrigation only as needed. Adjust turf spray heads to reduce spray directly to foliage and irrigation timing so majority of watering takes place in the early morning.

Keep any fertilizer except the 8-2-12-4Mg palm fertilizer a minimum of 50 ft from ornamentals (especially palms). A deflector shield can help to control where fertilizer is applied. In an ideal situation, we recommend applying a palm fertilizer (8N-2P2O5-12K2O+4Mg with micronutrients) to the entire landscape, turf included. \*\*However, not all fertilizers having

an analysis of 8N-2P2O5-12K2O+4Mg with micronutrients are effective, and if improperly formulated, may be worse for tree and palm health than no fertilizer at all. 100% of the N, K, and Mg must be in controlled release form.\*\* Turf has been shown to perform equally when this is applied to the entire landscape as compared with high nitrogen turf fertilizers. Alternatively, when a palm fertilizer cannot be applied to the entire landscape, we recommend fertilizing the area under palm and tree canopies with 0-0-16-6Mg palm fertilizer to offset higher nitrogen applied to turf in root zone. This will mitigate some of the problems caused by the turf fertilizer but won't address forced new growth that can encourage pest feeding and disease development.

Consider the different needs of ornamental plants and trees; by reducing stress in the landscape, occurrences of disease and pest disorders will be reduced, aesthetics of the landscape will be preserved, and costs associated with managing the landscape will be minimized.

### ~ References and Further Reading ~

Broschat, T.K. (2005). Fertilization of Field-grown and Landscape Palms in Florida:

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