

**Current Research by Dr. Amy Shober
Assistant Professor of Soil and Water Science
Univ. of Florida/IFAS
Gulf Coast Research and Education Center**

2008

In response to these threats to Florida's natural resources, the focus of my research program has been on developing strategies for soil, nutrient and water management in urban landscapes. Several field scale research projects have been established to help meet the goals of my research program. In addition, several research proposals have been submitted to obtain additional resources to allow program goals to be met. Research activities conducted as part of my research program directly benefit my extension program (see Extension section). In addition, research findings are published in top tier soils and horticulture journals, including the Journal of Environmental Quality, the Journal of Environmental Horticulture and HortTechnology (see Publications section).

Successes in my research program have been achieved through collaboration with faculty members in Soil and Water Science and other UF/IFAS academic units. Selected research accomplishments include:

Water Management

1. Protocol for the establishment of shrubs in the landscape. The growth and quality of three shrub species was evaluated using four irrigation frequencies (every 1-, 2-, 4-, and 8-days). Results indicated that these shrub species could be established in the landscape with as little as 3 L of water applied every 8 days in north and central FL and every 4 d in south FL. This irrigation strategy was validated using 12 additional shrub species (6 native, 6 non-native) that are commonly used in Florida landscapes. This project was part of a statewide evaluation of shrub irrigation requirements, with similar studies being conducted at the Plant Science Research Unit in Citra, FL and the Fort Lauderdale REC in Davie, FL. Results of this research will be used by the water management districts as the recommended protocol for irrigation of newly transplanted ornamental landscape plants.

Nutrient Management

2. Nitrogen fertilizer requirements of ornamental landscape plants growing in the landscape. Three species(each) of warm season annuals, cold season annuals, perennials, ground covers, vines and woody ornamental plants are being evaluated under 5 N fertilizer treatments (0, 2, 4, 6, and 12 lbs N·1000 ft⁻²). Plants are being evaluated for growth, quality and chlorophyll content to determine the N fertilizer requirements for acceptable aesthetic quality when grown in subsoil fill material (common in new residential landscapes). Results of this project will be used to update UF/IFAS Environmental Soil Testing Laboratory and FYN recommendations for N fertilization of ornamental landscape plants. In addition, results will be used to screen additional ornamental plants for categorization into N fertilizer categories (e.g., high, medium, low). This will allow for the zoning of landscape plants based on N fertilizer needs, allowing for targeted fertilizer application and reduced overall N load on mixed landscapes.

Soil Management and Water Quality

3. *Evaluating compost and tillage effects on new landscape establishment and nutrient losses.* Twenty-four mixed landscape plots were established in 4-in of non-compacted fill material that overlies compacted soil. Soil tillage, soil aeration, and/or compost additions were applied in a randomized complete block design to determine the effects of these treatments on soil quality, plant establishment and the potential for nutrient losses from urban landscapes. Preliminary results suggest that the addition of compost was most effective in improving the quality of the fill soil materials as well as helping to improve the establishment rate and quality of turfgrass and landscape plants. Leachate sampling suggests a small amount of nitrate may be lost following addition of compost, but that these nutrient losses are minimal and are outweighed by the benefits of adding the compost.