

ASSESSMENT OF SOIL AMENDMENT TYPES AND RATES FOR REDUCED TURFGRASS IRRIGATION

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A growing population in Florida is expected to increase the freshwater demand by 1.0 billion liters per day (15%) between 2020 and 2040. This increase in demand poses a challenge to planning efforts that seek to ensure an adequate public water supply while also maintaining the health of freshwater-dependent ecosystems. In some regions of Florida, more than half of the water supplied to residential communities is used for turfgrass irrigation. Previous studies have shown that amending soil with compost before turfgrass establishment can improve soil and turfgrass quality, and it is hypothesized that irrigation may be reduced given the improved conditions. However, the rate at which compost should be incorporated, as well as the extent to which irrigation may be reduced has not been widely studied. To address these questions, we established a 120-plot study in Citra, Florida to test the effect of various amendment types, amendment rates, and reduced irrigation rates on St. Augustine (*Stenotaphrum secundatum* (Walt.) Kuntze) turfgrass quality, soil organic matter, bulk density, and available water capacity. Turfgrass quality was evaluated every 1-2 weeks, and soil samples were collected four times over the course of two growing seasons (March 2020 - November 2021). Soil properties were improved at amendment incorporation rates at or above 2 yd³ 1,000 ft⁻² compared to unamended control plots. Results also suggest that irrigation may be reduced by up to 50% when soil is amended at a rate of 4 yd³ 1,000 ft⁻², while maintaining improved turf quality compared to unamended control plots.

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