

EVALUATION OF WATER USE, QUANTITY, AND QUALITY EFFECTS OF AMENDING COMPACTED RESIDENTIAL SOILS WITH COMPOST

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Currently, nearly 1,000 people move to Florida every day and based on 2035 demands, the Central Florida Water Initiative estimates that the resulting regional deficit will be 250 million gallons per day. New residential landscapes are often installed on compacted (bulk densities $> 1.60 \text{ g/cm}^3$), low-quality fill material that has limited water holding capacity and nutrients, but incorporating amendments can improve soil quality. The goal of this study is to reduce the irrigation necessary to maintain new residential lawns and assess any water quality impacts of amending soils. This study is located in central Florida (Ocala) at 24 homes within an active adult (55+) community. Data collection began during summer 2018 and will run through the end of 2020. Before landscape installation, one of three treatments (compacted [null], tilled, tilled with compost amendment) were applied and zoysia grass was installed. Soil moisture sensors were installed in 12 of the 24 homes to record volumetric water content within the top six inches, and lysimeters were installed in the backyards of all the homes to collect leachate to evaluate potential nutrient exports to groundwater. Storm drains were instrumented with weir boxes, water level loggers, and autosamplers to measure and sample runoff. Water quality samples were analyzed for nitrogen and phosphorus species. Results from this study will be used to inform local government development and water resource policies.

PRESENTER BIO: Jovana Radovanovic is a master's student in the Agricultural and Biological Engineering department with a focus on Urban Land and Water Resources. Her research projects have to do with organic soil amendments and irrigation in residential lawns.