

IMPROVING AGRICULTURAL WATER USE AND WATER QUALITY USING ENHANCED IRRIGATION SCHEDULING METHODS

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Agricultural water and nutrient use continue to be a point of major concern regarding water quality and quantity in North Florida. This study takes place in Suwannee County, Florida where ground water withdrawals for agricultural irrigation have increased from 19 million gallons per day (MGD) to almost 30 MGD since 2000. The goal of this study was to compare the differences in irrigation use and crop yields between four irrigation scheduling methods and three fertilization levels. Corn and carrots were grown in rotation (2018/2019). Soil moisture sensor, soil water balance-based smart phone app, and conventional calendar-based scheduling methods plus a non-irrigated treatment were combined with 112, 224, and 336 kg N/ha treatments in a randomized complete block, split-plot design. A significant interaction between irrigation and fertilization was found in yield means for both crops. In corn, no significant gains were found by increasing N from 224 to 336 kg N/ha and a significant decrease occurred at the highest irrigation amount. Carrot yields showed no significant gains when increasing from 224 to 336 kg N/ha in any irrigated treatment and non-irrigated treatments showed no significant differences in any fertilization treatment.

PRESENTER BIO: Jason Merrick is a PhD student with the Agricultural and Biological Engineering Department at the University of Florida. His research interests are nutrient management in agriculture through efficient water use and application techniques.