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Irrigation and nutrient BMPs resulting in economic and environmental benefits

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Abstract Text:

A field study on the Florida royal palm (*Roystonea elata*) in Homestead, FL, was conducted comparing different irrigation and nutrient practices. Water use, plant parameter, and nutrient data were collected for 1.5 years. The objective of this study was to determine the economic and environmental benefits of soil moisture based irrigation, reduced nitrogen and phosphorus fertilizers, and combinations of the two as compared to typical grower irrigation and fertilizer regimes. Results suggested that no significant differences were observed in palm height and diameter among the treatments. However, soil moisture based irrigation used 90% less water per tree annual as compared typical grower practices. Annual water savings for a 1-acre planting would be approximately 240,265 gallons considering similar conditions. Nutrient composition of soil water indicated little differences among treatments suggesting that reduced N and P had little influence on the availability of these nutrients to the plants. An economic analysis was conducted to validate the implementation of the irrigation and nutrient practices by producers. Results suggest that irrigation and nutrient practices results in reduced water use, reduced N-P applied, and economic savings to the producer.

Impact Statement:

This project has improved water resource management by providing an in-the-grower-field demonstration of irrigation and nutrient BMPs that resulted in environmental and economic benefits. The on-site implementation provides producers with a rare opportunity to see exactly how the practices are implemented and their comparable results. It also provides a unique and continual dialogue between the researcher and the producer for improved coordination and implementation of new technologies that are beneficial to the environment and the producer. Results from this project have been transferred during extension workshops and trainings that were designed to increase the implementation of such BMPs.