FNGA Endowed Research Fund Report

Irrigation System Controlled by Environmental Parameters

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Abstract: Current irrigation practices are based on applying water to meet crop demands. Irrigation is commonly based on time schedules or experience of knowing when plants need water. However, these schedules generally do not account for the amount of sunlight, temperature, wind, and humidity that govern the amount of potential evapotranspiration (PET). An alternative approach to irrigation management is to measure parameters for calculation of PET at the nursery site. PET is directly related to the amount of water needed by a crop if specific multipliers are used to account for differences in crop or container sizes, plant spacing, and differences in species. PET multiplied by a multiplier is the amount of water applied to the crop based on crop demand, not human judgment. Multipliers for some crops have been determined by IFAS.

Objective: The objective of this research is to evaluate and demonstrate the use of potential evapotranspiration (PET) as a means for making decisions when to irrigate and how much to apply.

Methods and Results: A weather station has been purchased, assembled, and functions checked (see photo). Initial tests will be structured to develop procedures of operation where measurements of environmental parameters are used to calculate PET and schedule irrigation timing and application amount. The amount of water applied will be determined for irrigation application schedules based on PET compared to timing and amount of water applied with irrigation schedules based on time clock activation. Conclusions and recommendations are not available at this time.

This information has not been peer reviewed nor incorporated in IFAS recommendations.