

## Increasing Irrigation Efficiency in North Florida

North Florida's Lower Suwannee River Basin (SRB) is a major field crop production area, particularly for corn and peanuts. Supplemental watering is required to achieve maximum economic production due to sandy, porous soils. More than 100,000 acres of agricultural land in the basin have been fitted with overhead irrigation systems to meet water demand and achieve economic optimum production. The Suwannee River Water Management District reports that on average, production agriculture withdraws 180 million gallons of water per day. More than 2,000 center pivot irrigation systems in the SRB account for most of the consumption by agriculture.

Continuously measuring soil moisture and climate data using current, affordable technology is an excellent method to optimize irrigation management, increasing economic and environmental sustainability. Measuring systems are automated and relatively maintenance free. However, gaps exist in both technical and agronomic knowledge which reduces on-farm implementation of the technology.

IFAS extension agent, Mace Bauer developed a project that assembled equipment into a package that could be readily adopted by farmers. Field sensor kits were put together using commercially available components including a fiberglass enclosure mounted on a pole, datalogger, cell phone modem and antenna, 12v battery, solar panel, tipping bucket rain gauge, and a soil moisture sensor.

Fifteen sites spread over several counties and multiple farmers were equipped with the package at their own expense. The extension agent familiarized the users with the user interface and irrigation management basics including soil water holding capacity, evapotranspiration, and allowable water depletion.

Farmers willingly adopted and utilized the technology. One farmer reported eliminating four 1" irrigation events on 180 acres. This resulted in water savings of 19 million gallons and reduced pumping costs by about \$5,000.