ABSTRACT
Vegetable growers in the Suwannee Valley have adopted drip irrigation and plastic mulch over the past 25 years to produce vegetable crops. Soils in the area are sandy with low water holding capacity and low organic matter content. Consequently, vegetable production in the Suwannee Valley requires intensive irrigation and fertilization management. Extension agents have been working with vegetable growers to refine their management of the technology. The goal has been to improve efficiency of water and nutrient management by conducting on-farm weekly sap testing. Plant nutrient status can be determined in the field by squeezing plant sap onto meters that measure either nitrogen or potassium giving a grower an instant result to guide the weekly fertilizer program. In addition, updates on nutrient and irrigation management are offered to growers at annual meetings. The benefits of improved management have been multifold as reported by cooperating producers: reduction in fertilizer use, improved fruit quality, reduced environmental losses of nitrogen, fertilizer applications to match plant requirements, and improved economic returns to the farms. Area vegetable growers have adopted several best management practices (BMPs) including: irrigation sensors, petiole-sap testing meters for nitrogen and potassium, and refining fertilization rates; resulting in adoption of UF/IFAS nutrient management recommendations on nearly 100% of the area. This project impacted 31 operations that grow a combined 1,500 acres of mixed vegetables. These educational programs have made a great impact toward adopting BMPs voluntarily. Growers see and learn on their own farm and often serve as early adopters that help teach other growers.

BACKGROUND
Most vegetable growers in the Suwannee Valley region of North Florida are small growers who have adopted drip irrigation and plastic mulch over the past twenty-five years to produce vegetables such as tomato, bell pepper, eggplant, cucumber, strawberry, muskmelon, and watermelon. Soils in the area are sandy with low water holding capacity (<10%) and low organic matter content (<1.5%) and therefore pose an environmental risk of leaching nitrate into the groundwater. Consequently, vegetable production requires intensive irrigation and fertilization management. Florida County Extension Agents have been working with vegetable growers to refine their current practices.

OBJECTIVE
To improve the efficiency of water and nutrient management by conducting on-farm Best Management Practice (BMP) demonstrations and delivering research based information to vegetable growers in the Suwannee Valley of Florida during the period of 2007 to 2011.

MATERIALS & METHODS
Suwannee Valley area Extension agents identified cooperating vegetable farmers to implement BMP demonstrations. The Extension agent team conducted weekly follow-up visits with growers during the growing season. BMP demonstrations and tools used during the farm visits included: soil moisture sensors, petiole-sap testing meters for nitrate-nitrogen and potassium, and irrigation management techniques through the injection of blue dye into the drip tape. The data collected gave growers an instant result to guide their fertilizer program week to week. Educational outreach included classroom instruction, on-farm field days and drip irrigation schools. Examples of these events include the Suwannee Valley Watermelon Institute, Twilight Watermelon Grower Field Day and the Small Farms Working Group Irrigation Field day.

OUTCOMES & IMPACTS
As a result of this program, a total of 31 vegetable growers have adopted various BMPs including: irrigation sensors, petiole-sap testing, and refining fertilization rates; resulting in adoption of UF/IFAS nutrient recommendations on nearly 100% of the targeted 1,500 acres. The producer savings from reduced inputs, fertilizer and fuel, was approximately $65 an acre, nearly $100,000 total. In addition, the adoption of BMPs resulted in maximum nutrient uptake by the crops and reduced nutrient leaching. In summary, combining these educational programs in the Suwannee Valley area has made a great impact toward adopting BMPs voluntarily. Growers see and learn on their own farm and often serve as early adopters that help teach other growers.