



# BMP Update

A production of the University of Florida,  
Institute of Food and Agricultural Sciences,  
Agricultural Best Management Practices Program

Spring 2016

Volume 2, Issue 3



## Coming Events

### April

- April 20, 2016: On-Farm BMP Demonstrations
- April 20, 2016: AgriTech, GCREC
- April 21, 2016: The Scoop on Poop and Pastures
- April 26 & 27, 2016: Water School

### May

- May 3, 2016: North Central Florida extension Agent
- May 4, 2016: On-Farm BMP Demonstrations
- May 5, 2016: Spring Vegetable Field Day - SWFREC
- May 18, 2016: BMP Field Day

### June

- June 1, 2016: Interpreting Soil, Water, and Tissue Test Results
- June 1, 2016: On-Farm BMP Demonstrations
- June 12-14, 2016: Florida State Horticultural Society Annual Conference
- June 23, 2016: Cattle REC Youth Field Day

## Contact Information

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## What Are Agricultural Best Management Practices?

**Agricultural Best Management Practices (BMPs)** are practical measures that producers can take to reduce the amount of fertilizers, pesticides, animal waste, and other pollutants entering our water resources. They are designed to improve water quality while maintaining agricultural production. The Florida Department of Agriculture and Consumer Services (FDACS) has adopted BMPs for most commodities in the state. Each BMP manual covers key aspects of water quality and water conservation. Typical practices include:

**Nutrient Management** to determine nutrient needs and sources, and manage nutrient applications (including manure) to minimize impacts to water resources.

**Irrigation Management** to address the method and scheduling of irrigation to reduce water and nutrient losses to the environment.

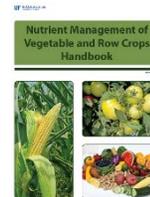
**Water Resource Protection** using buffers, setbacks, and swales to reduce or prevent the transport of sediments and nutrients from production areas to waterbodies.

## Inside this issue:

**Drip Irrigation Schools Improve Adoption of Irrigation and Nutrient Best Management Practices by Small Farmers in the Suwannee Valley Area**  
[Page 2](#)

**Forage production and cover crop variety selection demonstrations following nutrient management BMPs**  
[Page 3](#)

**Growers and crop advisors learn to use soil moisture sensors and sap measurement for leatherleaf fern and cut foliage production**  
[Page 4](#)



## SP500 - Nutrient Management of Vegetable and Agronomic Row Crops

The Florida Department of Agriculture and Consumer Services released an updated version of the Vegetable and Row Crops BMP manual in the spring of 2015. Copies of the new manual can be downloaded from the FDACS, Office of Agricultural Water Policy web site at <http://www.freshfromflorida.com/Divisions-Offices/Agricultural-Water-Policy/Enroll-in-BMPs/BMP-Rules-Manuals-and-Other-Documents>

The updated manual references nutrient management practices documented in a new EDIS document. The document was developed by compiling several existing EDIS documents on vegetable and row crop nutrition in cooperation with their authors. Electronic copies of SP500 are available at [https://edis.ifas.ufl.edu/topic\\_sp500](https://edis.ifas.ufl.edu/topic_sp500) and printed versions are available from the BMP Program by contacting Kelly Morgan ([conserv@ufl.edu](mailto:conserv@ufl.edu)).



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## Drip Irrigation Schools Improve Adoption of Irrigation and Nutrient Best Management Practices by Small Farmers in the Suwannee Valley Area

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Daniel Fenneman, Madison County Extension, Madison, FL

Lincoln Zotarelli, State Specialist, Horticulture Department, Gainesville, FL Mark Burgess, Irrigation Specialist, United Irrigation Supply, Quitman, GA

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Ninety-percent of the farms in Suwannee Valley are small farms and some of these farmers have little to no farming background and need to learn production skills that were once

taught by experience on farms. Florida's sandy soils have low water holding capacity and often farmers over irrigate to ensure adequate soil moisture levels to meet the crop water needs. Since fertilizers are highly water soluble the mismanagement of irrigation water application can lead to leaching of fertilizers. So a team of Extension agents assessed the opportunities and challenges related to drip irrigation systems based irrigation and nutrient management, and developed educational programs and activities to meet the growers' needs. 393 small farmers have attended different drip irrigation and nutrient management programs over the last 6-years. The average knowledge gain was 89%. As a result of the drip irrigation schools 91% (n=132) of the small farmers intend to adopt drip irrigation and nutrient BMPs on their farms. During the growing season, agents have provided weekly support to farmers by monitoring soil moisture levels within the plant root zone, plant nutrient levels at critical growth stages of vegetable crops, and by answering clientele questions through phone calls, emails, and farms visits. Some farmers have reported nitrogen fertilizer use reductions up to 50%,

but most have reported reductions in the range of 20-30%. In addition to resulting in production of correct amounts of irrigation water and fertilizers prevents the leaching of fertilizers into the Floridian Aquifer. Therefore, the adoption of BMPs resulted in improved nutrient uptake efficiency and reduced nutrient leaching. Education programs coupled with on-farm education and implementation resulted in behavior change among 35 farmers including; improved adoption of BMPs, and measurable economic (\$450,000 cost savings over 5,000 acres) and environmental impacts. Agents have utilized a multi-faceted approach to education that included traditional classroom instruction, peer-reviewed publications, and hands-on experiential learning through hands-on activities, demonstrations, and farm visits. The 1-2 day programs included lecture style PowerPoint presentations as well as in-field and hands-on demonstrations for drip irrigation system design, setup, and maintenance. Team members have also provided the program participants with educational support after the programs. Qualitative and quantitative data



collection methods were used to document program impacts. A variety of assessments such as surveys, pre-post tests, follow-up phone calls, personal interviews, and farm visits have been used to assess the implementation of production practices to improve the program. Attendee testimonials were also collected to estimate the economic impact of the workshops on drip irrigation and nutrient management in Florida.



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## Forage production and cover crop variety selection demonstrations following nutrient management BMPs

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Dan Fenneman, Agriculture Agent, Madison County Extension

Dr. Ann Blount, Forage Breeder, NFREC, UF Agronomy Department Dr. Diane Rowland, Crop Physiologist, UF Agronomy Department



Despite the fact that there is an excellent array of cool season forages and small grains that adapt well to the Suwannee

Valley area, livestock producers often struggle managing these crops to get acceptable yields. A project funded by the Florida Department of Agriculture and Consumer Services through the UF/IF AS BMP program targeted livestock producers and row crop farmers to improve confidence in following BMPs and selecting adequate varieties and/or blends for their production systems. The project demonstrated how to establish and manage cool season forages and blends successfully for grazing, ensiling or haying. Farmers that are transitioning to conservation tillage systems and are starting to plant cover crops over the winter to improve overall soil health and conserve moisture prior to planting next year's cash crop. Livestock producers are able to select cool season forages, small grains and legumes that adapt well to grazing, ensiling or haying. Furthermore, producers are able to see the contrast between irrigated and dryland plots that have been fertilized according to IFAS BMP recommendations. Row crop farmers are able to select varieties that will serve as cool season cover crops in conservation tillage cropping systems.

Forages were planted into a clean till bed under irrigation or were over seeded with a no-till drill into a bahiagrass field at the Suwannee Valley Ag Extension Center in Live Oak, FL. These forages and small grains are commercially available and adapt well to this area. Ninety pounds per acre of N and P2O5 fertilizer was applied to the silage/hay portion of the irrigated plot. Two field days were conducted to show the plots, the first one was March 3rd for dairy producers and the second event was April 16th for the North Florida Cattlemen's Association meeting. A total of 22 producers attended the dairy producers field day and 50 beef cattle producers attended the second field day. 90% of the growers expressed that appropriate variety selection is critical for a highly productive cool season forage production and that making split fertilizer applications in cool season forages is critical for success of these crops. Understanding whether a variety will produce forage in early, mid or late part of the season will also influence nutrient management to reach maximum productivity. Beef Cattle Attendees found this demonstration to be extremely helpful to select forages for blends for next season and 65% of them reported that they will change their fertilizer program based on the information presented. 43% of those in attendance stated they use less N and K2O than what the BMP recommendations call for. The yield information collected from the different varieties will be presented at the Fall

workshops for beef and dairy cattle producers and will be posted on the Suwannee County Extension Office website:

<http://suwannee.ifas.ufl.edu/>





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## Growers and crop advisors learn to use soil moisture sensors and sap measurement for leatherleaf fern and cut foliage production.

Karen Stauderman, Volusia County Extension

A field day was held at Lars Hagstroms' fernery packing shed in Pierson, FL and was attended by 13 growers with nurseries ranging from 2 acres to 250 acres with an average of about 82.5 acres. Grant funds from the Florida Department of Agriculture and Consumer Services through the IFAS BMP program were used to increase central Florida fern and cut foliage grower's knowledge of irrigation and fertilizer management for better implementation of BMPs.

The goal of the program was to make the growers comfortable with the techniques so that they will implement them and reduce water and fertilizer use.



For ferneries, three BMPs are crucial to the success of the BMP program to safeguard water quality. These critical BMPs are irrigation efficiency, uniformity, and the monitoring of nutrient levels in the leaf. During the class Karen Stauderman (Volusia County Extension), Dr. Bob Stamps (UF/ IFAS), Matt Lollar (Jackson County Extension), Gary England (Multi-County Extension), and Juanita Popenoe (Lake County Extension) taught various subjects. Field day attendees saw how irrigation uniformity and efficiency is measured. Stauderman demonstrated the importance of rain gauges in BMP implementation, weather considerations and the importance of record keeping. Agent Matt Lollar demonstrated the measurement of Nitrogen and Potassium using a field sap testers measured with leatherleaf foliage. And how blue dye is used in observing fertilizer leaching fraction to determine if you are watering enough or excessively.

An exit survey indicated that those growers attending the field day increased their knowledge of irrigation and fertilizer management, as well as intentions to use their new knowledge to improve their production practices. The response to the exit survey for the BMP field day was surprising. Of the 13 growers attending, 77% reported already being enrolled in the BMP program; leaving 23% were not yet enrolled. Only 7.6% of the growers were practicing an important irrigation check yet 100% of the commercial growers were monitoring fertilizer levels. Participants reported a 15% increase in knowledge of irrigation monitoring and 23% fertilizer monitoring practices respectively. None of the growers irrigate every day by schedule, 77% monitor the rain gauge or field wetness to determine if the plants need water, and 7.6% observe the soil moisture sensor to assist in the decision. Sixty-five percent of ferneries in Volusia County, including all the largest ones, have signed a NOI, but there is still plenty of work to be done. On May 5th, An educational program held earlier this year in at the Horticultural Inspection Society



Southern Chapter in Brooksville, FL, to introduced the field instrumentation (sap testers, soil moisture meters, mobile field pH tester). These instruments aid with scouting ornamental nurseries as a tool to rule out abiotic factors as potential pests. Thirty seven people attended and observed an exhibit of the tools by agent Karen Stauderman.