



BMP Newsletter

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

Summer 2017

Volume 3, Issue 3

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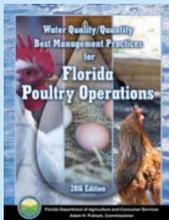
What Are Agricultural Best Management Practices?

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.

How to Enroll in BMPs

1. Schedule a meeting with an FDACS BMP coordinator, who will provide a free FDACS BMP manual and other BMP-related information.
2. Participate with the coordinator in a free assessment of your operation to determine which BMPs apply to you.
3. Fill out a BMP checklist and sign the Notice of Intent to implement the BMPs.
4. Keep a copy of the checklist and signed Notice of Intent in your records.
5. Implement and maintain the applicable BMPs and keep adequate records to maintain a presumption of compliance with state water-quality standards.

Visit [FDACS website](#) to find an FDACS BMP coordinator near you



New and Revised BMP Manuals

FDACS revises BMPs about every 5 years. Two manuals currently under revision are for Poultry and Sod production. A new small farm BMP manual is under development. This manual will provide a wide range of information for small farmers that are not covered under current manuals.

The Florida Department of Agriculture and Consumer Services maintain updated version of the BMP Rules, Manuals, and other Documents. Electronic copies can be downloaded from the [FDACS website](#)

Contact Information



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Cost-Share Programs

FDACS works with multiple partners, including the U.S. Department of Agriculture's Natural Resources Conservation Service, FDEP, Florida's water management districts, and Florida's soil and water conservation districts, to provide funds that assist farmers in implementing BMPs.

For more information on currently available FDACS cost-share, please contact us at AgBMPHelp@FreshFromFlorida.com.



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SmartIrrigation apps by BMP Team

Fresh water supply shortages are increasingly common in the Southeast US. The growing population in this region has been suggested as a key component contributing to this water stress as well as climate variability and change.

Irrigation has been shown to be a substantial user of fresh water supplies in the Southeast – both for agriculture and urban applications. Thus, irrigation provides one source of potential water savings if irrigation practices can be improved.

With the growing price of fuel and potential restrictions on irrigation water, these apps are useful for increased sustainability by providing at-your-fingertips knowledge for improved irrigation (and water conservation) and potential financial savings through lower fuel costs (less pump time).

The apps require minimum input using real-time weather data to improve irrigation practices in multiple commodities like citrus, cotton, strawberry, avocado, vegetables, blueberry, soybean, and urban lawn environments. The apps include both real-time and forecasting components.

Source: <http://smartirrigationapps.org/>

Nutrient Management App

A 4R vegetable crop smartphone app has been developed to provide growers with fertilizer recommendations. Information provided by the app includes 4R concepts of fertilizer materials (source), recommended amounts (rates), crop demand (time), and application practices (place). The app is available for android and i-phones and can be found in your app store by searching 4R. This app is the first in a series of Smartphone apps on fertilizer recommendations and will be followed by other selected commodities.



Other UF/IFAS Mobile Downloads: <http://ifas.ufl.edu/mobile-apps/>



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Jones Potato Farm: Blending Tech with Tradition

by Yadira Lopez



Jones Potato Farm in Parrish has emerged as a leader in sustainable agriculture

MANATEE COUNTY — If you ate a potato chip in April, May or June, chances are high that you tasted one of the spuds grown on Jones Potato Farm in

Parrish. Jones potatoes are one of the first on the market. They're planted in December and are ready in the spring, just in time to take over for the dwindling reserves of stored potatoes from up north. In under 24 hours, Jones' potatoes are fried into chips. It's a point of pride for farm owner Alan Jones, but he's got other things to smile about. In April, the Department of Agriculture gave Jones Potato Farm an "Agricultural Environmental Leadership Award." The Parrish potato grower was recognized for farming practices that help preserve the environment. It's the farm's second award highlighting its commitment to sustainability. While Jones is a traditional farmer, growing the most traditional of crops, he has embraced technology. He is a proponent of precision farming, a concept that uses technology to optimize production while efficiently preserving resources such as water and fertilizer. "I chose to take the mentality of 'What can I do?' — not only to benefit my operation, but also to benefit the community and the environment," Jones said. "If you're not taking care of your land as a grower, it'll disintegrate. "We're trying to preserve it."

Roots

When Jones, 49, began farming with his father in 1986, he said nobody had heard of sustainability. The Joneses had started on a couple acres of rented land in Manatee County. In 1992, when everyone was buying internet stock during the dot-com craze, Jones was buying land. Jones Potato Farm now covers 4,000 acres in Manatee and Hardee counties. Although they produce 50 million pounds of potatoes each year, the family also farms green beans and citrus. At first the Joneses did everything the traditional way. But Alan Jones' curiosity grew, especially after he found himself one day plowing 500 acres of potatoes that had contracted the same disease that caused the Irish potato famine. "We had a real strong realization that we weren't using the right equipment," Jones said. Traditional methods of watering potato crops involve seepage irrigation, which waters crops from below ground. Many farmers prefer this method because it doesn't require extra equipment. Jones had a different idea: He decided to combine seepage irrigation with center pivots — equipment resembling above-ground sprinklers. He installed his first center pivot in 2010 — by himself. There was no data to prove that the system helped reduce water runoff or worked any better than the old way. In the first year, Jones saw 70 percent savings in water consumption.

The following year, he installed 16 center pivots. After Jones' success, researchers at the University of Florida have conducted studies confirming center pivots' effectiveness at conserving water.

Blending tech with tradition

Two years ago, Jones began using precision farming software that helps him tailor the amount of fertilizer he uses on his crops. The system uses a computer program and GPS technology that measure data specific to the region. The output is a series of color-coded maps that look like a paint-by-numbers coloring page. On any given acre of land, the soil can exhibit a range of qualities. The maps allow Jones to, as he says, "do more with less." By using only what he needs, he is conserving water and fertilizer and his plants are getting the exact amount of resources they need to thrive. "It's on the newer side," Jones said. "Some farmers are not willing to spend the extra money to fully understand this." It costs around \$15,000 per year to pull the soil samples necessary to create the maps. "The idea is that we're getting that back through production and by not overusing materials in areas where it's not needed," Jones said. The technology that Jones is using to help him grow potatoes can be applied to any other crop and even golf courses. It's already widely used in other states, particularly for corn and soybean crops, said Dennis Coleman, crop consultant for Crop Production Services. CPS, a supplier of agricultural products and services, works with Jones to pull the soil samples. While farmers have been sampling their soil for many years, the use of GPS technology and other tech advancements allows CPS and farmers like Jones to give a more detailed view of a large farm. "It allows you to more precisely apply your soil amendments and fertilizers," Coleman said. While there are plenty of growers using the technique across the country, some farmers shy away from it because of the cost and extra time and labor that it requires, Coleman said. "Currently, the companies offering these services in Florida and the personnel to implement them are limited, but I do see it expanding."

Farming for the future

Jones and his wife of 25 years, Leslie, are strong advocates of farming in the community. They support the Farm to School program by providing fresh produce to schools in Manatee and Sarasota counties. Gaggles of schoolchildren have descended on the farm on school field trips to learn where their food comes from. "We like working with the community and making sure people know about local agriculture because it's kind of a hidden gem," Leslie Jones said. Jones most recently acquired 800 acres on the Florida International Gateway, a large expanse of land adjacent to Port Manatee. The port, billed as one of Florida's largest and fastest-growing, is a beacon for the county and is expected to attract millions in investment. "We're trying to have developed land ready for new businesses," Alan Jones said. "We're building a lot of homes, but we really need to start taking a proactive role in the business community to start developing the infrastructure for those large employers to come to our region."



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Get on Board with Best Management Practices for annual nutrient and water quality testing! Horticultural crops on the Nature Coast (Sumter, Hernando, Citrus, and Pasco Counties)

by Cami Esmel McAvoy, Multi-County Commercial Horticulture Extension Agent, UF-IFAS Extension Sumter & Pasco Counties,

Get on Board with BMPs by testing soil, tissue, and water annually. Florida Nature Coast (Sumter, Hernando, Citrus, and Pasco Counties) growers of horticultural crops (blueberry, peach, nursery, and citrus) submitting soil, tissue and/or water samples as part of Best Management Practices (level 1 BMPs) in which the results are used to evaluate nutrient management decisions.



One educational day (Go Fund Me 'Ag Style') in which representatives of the Mobile Irrigation Lab, NRCS, FDACS Office of Ag Water Policy, and Southwest Florida Water Management District were invited to present information about their services that can help with BMP implementation. Fifteen commercial producers which have farms, nurseries, or groves in Pasco, Hernando and Sumter County attended the Go Fund Me 'Ag Style' program. Three attendees were interested in participating in the grant funded soil, tissue and water testing. Two attendees actually became involved by asking the agent to run field pH and EC measurements on acidified irrigation water in their groves.



Four growers in Sumter County participated in the soil and/or tissue testing. One grower was a beginner organic farmer who was interested in learning more about BMPs, GAPs, and water quality. Both this participant and

a grower converting from a tree nursery to a small mixed commodity fruit and vegetable operation expressed interest in

having the BMP extension agent and Office of Ag Water Policy representative come and discuss the process getting signed up for BMPs. The third grower was an established grower who already signed BMPs but has had nutrient management issues in the past including soil pH, and optimizing fertilization scheduling. The fourth was a nurseryman who was trying to assess the efficiency of his new employment.

The second educational program had to be scrapped. Therefore, follow ups to soil and tissue testing were done in person as a site, office visit or over the phone. Most field grown crops required soil pH adjustment to optimize fertilizer applications. This included the organic farm whose P levels were elevated due to the use of dairy cow manure as the sole source of plant nutrients. During the follow up office visit with the organic grower, they posed the question "how much is too much manure?." The agent did not have an adequate answer to this question and researched nutrient management budgeting from the University of Georgia. The farm in conversion from nursery crops to mixed commodity had fertilizer efficiency issues in addition to soil pH levels rising. When questioned about the comparison between two fields; one had optimal yield the other did not. The grower confessed after seeing the soil and tissue results that he probably should have gone back with another split application for the field that did not reach yield potential.



As stated above these two growers have expressed interest in meeting with the BMP implementation team and potentially signing up for BMPs. The established grower would be an excellent candidate for BMP quality assurance. Many growers (citrus nursery, citrus growers, peach growers, and watermelon growers) were excited and interested in the grant funded soil and tissue testing, but only a few really made it a priority.



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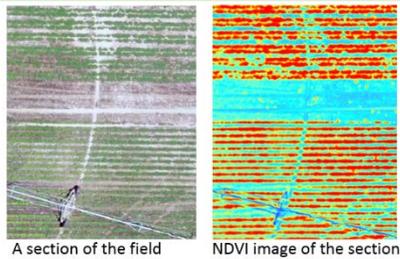
Precision Agriculture Applications and their Impacts in Florida Watersheds

by Mace Bauer, UF/IFAS Extension Columbia County, and Ian Small, NFREC-Quincy

Irrigated corn and peanut production is a major land use in Florida's Suwannee and Santa Fe basins. Row crop farmers have a suite of advanced management and precision agriculture practices available for their use. This project will overlay advanced practices on production farmland in Columbia County's Ichetucknee River Basin. Practices will include Grid soils sampling, Veris (electrical conductivity/soil texture) mapping, elevation/topography mapping, and remote sensing (drone) imagery. Plant nutrient status and biomass will be sampled and the data correlated with these data layers.



Aerial images of the corn field taken from a UAV at 400 feet



A section of the field NDVI image of the section

Local application and suitability of these advanced technologies included fact sheets, web pages, handouts, etc. The objective is to assess the suitability of precision agriculture

practices for typical north Florida cropping systems and conditions, and to explore the relationships to plant growth and yield. Demonstrations and data collection took place at Bar D Ranch-47 Tract in Columbia County Florida. Data collection and demonstrations occurred on two 135 acre farm fields, one planted to peanuts and one to corn in 2017. The following is a summary of data collection and demonstration. All Data will be tested for correlations to examine relationships.

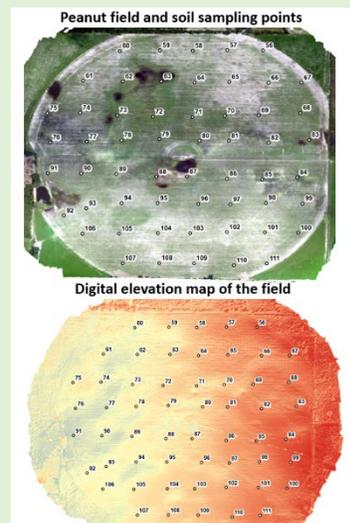
- Grid soil sampling on 2.5 acre grids (Mehlich 3. Helena and Water Lab)
- Electrical conductivity sensing (Veris. Helena)
- RTK-GPS elevation survey (Deere Greenstar. Farm)

- UAV Flights on 2 dates for corn and 5 dates for peanuts (Quadcopter with multispectral and color imagery. Agribugs)
- Satellite flights on 5 dates for corn and peanuts (Hughes satellite. Highland)
- Plant stand counts on 2.5 acre grid (peanuts)
- Leaf nitrogen and whole plant biomass on 2.5 acre grid (corn)
- Plant pathology on 2.5 acre grid (peanuts)

This work was shared with the land owner and crop farmer tenant during the season. Farmers and Ag Industry are invited to a Precision Agriculture Field Day to be held on this site on June 29th, 2017 at 10:30 AM. Speakers and their topics are included below.

- Joe Dunn, Helena. Electrical Conductivity Sampling and Grid Soil Sampling
- Darren Raj, Agribugs. UAVs and imagery
- Christopher Crockett, Highland Precision Ag. Satellite imagery and plant growth analysis
- Dr. Ian Small, NFREC-Quincy. Micro-climate variability and plant diseases.
- Mace Bauer, UF/IFAS Extension Columbia County. Project overview and potential for variable rate irrigation based on the measured parameters.

This work was impactful to bring together UF/IFAS, precision agriculture service providers, and farmers to examine opportunities in precision agriculture. Farmers indicated with more assistance these were all practices that could be easily integrated into their operations. This robust dataset offers the opportunity to address many additional issues including a review of UF/IFAS recommendations for variable rate nutrient applications, and examining the potential for variable rate irrigation and the soil and crop factors which would influence the adoption of this technology.



Peanut field and soil sampling points

Digital elevation map of the field