

IFAS BMP Implementation Team “Success Stories”

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To date, nearly 4,700 farms, groves, and nurseries that encompass over 1.8 million acres have been enrolled in FDACS BMP programs throughout the state (not including about 460,000 enrolled in the Lake Okeechobee Protection Plan BMP program). Even though the adoption and implementation of BMPs for agricultural producers is a slow, long-term process, many successes have been documented already.

Commodity	Acres	Number
Citrus	487,462	3,407
Sugar Cane	626,740	144
Container Nursery	13,390	601
Vegetable & Row Crops	156,482	292
Total	1,833,239	4,680

The following are short descriptions of some of the results that we’ve documented as part of our on-going BMP Implementation education programs coupled with FDACS cost share programs.

- Peanut growers are adopting more sophisticated soil moisture equipment to guide their irrigation scheduling. Eliminating one unnecessary irrigation event per crop will conserve about 1.5 million gallons of water. (Assuming irrigation of 0.4” on a 140 acre field).
- A BMP Demonstration watermelon farm marketed a farm-record yield using BMP irrigation and nutrient management tools. Nitrogen used to grow the crop was 25% less than IFAS recommended rates.
- A BMP Demonstration strawberry farm was using three times the IFAS recommended fertilizer rates (about 1.5 lb /acre/day) in order to fertilize plants because his irrigation practices were leaching much of the applied nutrients. The methods he used were similar to those of his peers. After implementing an ET based irrigation schedule and using BMP irrigation tools, fertilizer use is below that recommended by IFAS rates (less than 0.5 lb/acre/day).
- In a study conducted in a flatwoods citrus grove, there was a 55-80% reduction in direct deposition of pesticides into surface water in ditches surrounding a citrus grove when all or outside nozzles shut off at row ends
- In a Treasure Coast region water quality monitoring study, it was found that stormwater retention/detention systems work well. The lowest P levels were found at sites that used retention/detention ponds. Higher P loadings were in areas in areas that use seepage irrigation and areas with heavy soil (e.g. Winder series). High P was found in areas where sludge was being spread.

- Sediment traps in water furrows in citrus groves were shown to be effective in reducing sediment and Cu loadings to drainage canals:
 - Sandy soil (Wabasso) 1050 g/ac of sediment collected, with 287 mg/ac/yr of P and 42 mg/ac/yr of Cu in sediment
 - Heavy soil (Winder) 1152 g/ac/yr of sediment collected, with 330 mg/ac/yr of P and 29 mg/ac/yr of Cu in sediment
- A demonstration polishing/attenuation basin in a citrus grove was effective in removing 40-50% of P in drainage water pumped through polishing/attenuation basin, but there was little effect on N loading.
- In a specific grove case study, improving the irrigation supply and drainage infrastructure resulted in an estimated reduction in off-site drainage volume about 0.75 ac-in/ac during summer months with weekly rainfall of 4 inches.
- A corn grower reduced Nitrogen inputs by 30 lbs/acre on 70 acres using BMP tools. This was a reduction of 2100 lbs of Nitrogen with no yield loss. More importantly, he plans to apply this experience to reduce rates on all his fields next season.
- A large citrus grove conducted a test on 222 acres of grove using a traditional fertilizer spreader versus a variable rate fertilizer spreader with eyes. The traditional method required 48 tons per application (3 applications per year). Using the VRT spreader, they reduced the amount applied to 37 tons, a savings of 11 tons per application. On an annual basis, it would result in a reduction of 33 tons applied to the 222 acres (23%). Extrapolating from this 222 acres to the approximately 12,000 acres that is owned by the company would result in an annual reduction of nearly 1800 tons of fertilizer going out - over 80 transport loads (22-ton each)! This company has received cost sharing for 10 VRT spreaders and hope to get funding this year for four more.
- A Peace River citrus grower with 1000 acres (with 11,000 resets in the last 2 years) received \$7,000 (60% cost share) to install sensors on a speed sprayer and reported a reduction of 25% in pesticides applied to the grove during each application.
- Most large farms in the Suwannee Valley region are now using GPS equipment for spreading fertilizers. This equipment eliminates overlapping when spreading, resulting in less fertilizer used to cover fields.
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- The following table documents the fertilizer reductions for a Peace River grower who received \$10,200 in cost share funds for a variable rate fertilizer spreader. The results are only for the first of three applications that will be made this year. Therefore, the 66 tons of fertilizer saved in this one application would result in a reduction of nearly 200 tons applied over the course of a year (about 0.42 tons/acre).

Grove Name	Approx. resets	Grove size	Fertilizer applied		Savings	
			Traditional spreader (without eyes)	VRT spreader (with eyes)	(tons)	(%)
	(%)	(aces)	(tons)	(tons)	(tons)	(%)
1	70	188	56.4	28.7	27.7	51
2	85	129	38.7	17.8	20.9	46
3	25	160	48.0	30.4	17.6	63
1 app Avg/Total	60	477	143	76.9	66.2	54
Annual Total		477	429	231	199	54

- A tree see system was put on a Temik machine last year. The total cost to add the eyes was \$2,500, with \$1,500 supplied by the FDACS cost share program. The grower reduced his Temik (Aldicarb) application to a 249 acre grove from 6119 lbs to 4612 lbs, **a savings of 1,507 pounds!** The grower hopes to upgrade 3 more Temik machines this year with the cost share program.
- Data from a Gulf Citrus area grower comparing the first spray of Oil and Abound in March (Pre-Tree See installation) to our June spray after the tree see were installed. These numbers are for 250 acres of Sunburst Tangerines and Orlando Tangelo pollinators. Due to prior poor production and returns. Resets have not been set in years and the block averaged about 20% of tree spaces missing.

250 acres @ 145 trees/ac. = 36250 trees
Resets needed 7,150

Pre- Tree See performance

March Spray: 749 gals of oil used @ 3 gal/ac rate
3892 ozs of Abound used @ 15 ozs/ac rate

Post- Tree See performance

June Spray: 1000 gal of oil used @ 5 gal/ac rate
3012 ozs of Abound used @ 15ozs/ac rate

Savings:

250 gals of oil @ 3.25/gal = \$812.50 (\$3.25/ac)
880 ozs of Abound @ 1.48/oz = 1302.40 (5.20/ac)

The average fresh specialty fruit program last year was \$200.00/acre. Over the 250 acre block, the material cost would be \$50,000. Since they saved 20% of the chemical costs (\$10,000), they paid for 70% of one unit the first year on only 250 acres. They can easily pay for these machines over their acreage in less than a year.

- A BMP demonstration strawberry farm was using three times the IFAS recommended fertilizer rates (about 1.5 lb /acre/day) in order to fertilize plants because his irrigation practices were leaching much of the applied nutrients. After implementing an ET based irrigation schedule and using BMP irrigation tools, fertilizer use is below that recommended by IFAS rates (less than 0.5 lb/acre/day).

- Improved irrigation and nutrient management on 560 acres of quality bermudagrass and perennial peanut used for horse feed has resulted in more yield with less nitrogen inputs on both irrigated and non-irrigated land. The N application rate of 320 pounds per acre on irrigated hay resulted in yields of 375 square bales per acre that were exported out of the basin. The dry matter harvested contained about 290 pounds of nitrogen per acre (based on dry matter and protein content), representing a nitrogen removal efficiency of about 90%, much higher than the 50% typically associated with agricultural crops.
- Narrower herbicide bands in a citrus grove at low labeled rates resulted in 3-5 times less herbicide in runoff water than mid-rate with wider bands. Herbicide band width had little effect on N or P loading, but narrower bands reduced TSS loading in runoff water
- Demonstrations were conducted on two 120 acre center pivot irrigated fields which were planted to a corn silage-snapbean rotation. Nitrogen fertilizer for the corn crop was successfully reduced by 95 pounds per acre for 60 acres of land, 78 pounds per acre for another 60 acres, and by 50 pounds per acre on 120 acres. Additionally, applications of nitrogen fertilizer were reduced by 100 pounds per acre for the snapbean crop on 180 acres. Changes in management for this 240 acres of cropland resulted in the application of 33,800 pounds less nitrogen fertilizer for the season compared to previous seasons. The result was an economic savings of at least \$13,500 to the farmer with no production loss.
- A BMP demonstration farm grew 52,000 pounds of watermelons per acre with N fertilizer reduced significantly from typical applications to the IFAS recommended fertilizer rate.
- A North Florida grower adopted soil moisture equipment for irrigation management as part of a BMP demonstration. The grower reported learning very much about actual plant water use and modified irrigation practices for perennial peanut, saving about 840 acre-inches of water, or about 22.8 million gallons on one center pivot.
- A BMP demonstration on a corn field resulted in a 190 bushel per acre average corn yield while using only 200 pounds of nitrogen fertilizer per acre including poultry litter and inorganic fertilizer. This N rate is less than the IFAS recommended rate.
- A Suwannee Valley farmer adopted a computer record keeping system. As a result of carefully monitoring inputs, he had a 200 bushel per acre average corn yield while using only 200 pounds of nitrogen per acre, which is less than the IFAS recommended rate.
- A North Florida grower utilized cost share funds to upgrade to his application equipment with more accurate calibration and installed a GPS system that effectively eliminated overlap on liquid nitrogen applications to row crops. As a result, he reduced N application by 5,000 lbs on one 80 acre corn field where data was collected.