

# Florida's Bevy of BMPs:

## “Voluntary” programs to protect water resources.

Tom Obreza, Brian Boman, and Eric Simonne, UF-IFAS



### Regional manuals

Regional manuals include:

- Forage
- Vegetables
- Citrus
- Best Management Practices for Citrus Groves in the Peace River and Manatee Basins
- Gulf Citrus BMP Manual
- Water Quality/Quantity BMPs for Indian River Area Citrus Groves

### Statewide manuals

Statewide manuals include:

- Ag water use
- Cow/calf
- Vegetable/ Agronomic
- Landscape
- Ferns
- Container nurseries
- Sod
- Golf course
- Silviculture
- Aquaculture
- Chemicals/ Equipment
- Fertilizer facilities

# Definition of “BMP.” (It’s a mouthful!)

A practice...

...based on research, field-testing,  
and expert review...

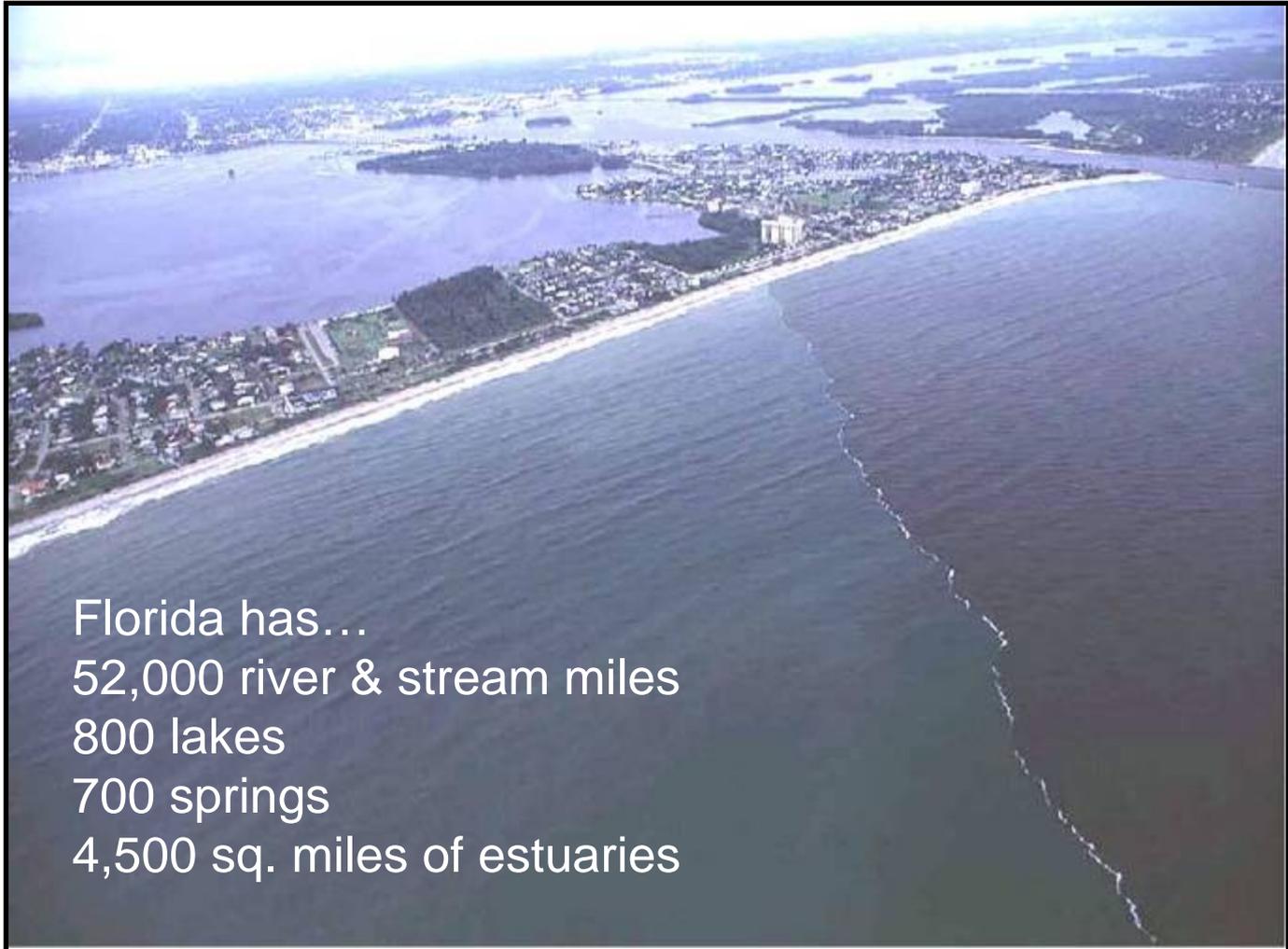
...determined to be the most effective  
and practicable on-location means...

...including economic and  
technological considerations...

...for improving water quality in  
agricultural and urban discharges.



# Why BMPs?



Florida has...  
52,000 river & stream miles  
800 lakes  
700 springs  
4,500 sq. miles of estuaries

# 1999 Florida Watershed Restoration Act

- Outlined process for Florida's Dept. of Environmental Protection (DEP) to implement TMDLs.
- Coordinated pollution control efforts.
- Developed standards to address future water quality issues.



Lead Agency: **Department of Environmental Protection**  
coordinates efforts with



**Department of Agriculture**  
**Office of Ag Water Policy**  
(Leadership role for agriculture)



**Water Management Districts**



**Plus...** Soil and Water Conservation Districts, Environmental groups, Local govt., etc.

# 2005 Legislative action

In basins where TMDLs have been established, ag landowners must either:

- Enroll in available BMP programs; or
- Conduct water quality monitoring necessary to prove that discharges do not exceed loadings specified by the TMDL.

# Agricultural BMPs...

- ...have statutory standing.
- ...are self-implementing using on-farm assessment checklists.
- ...are quasi-regulatory and incentive-based.
- ...are recognized as the best available technology to minimize non-point source pollution.

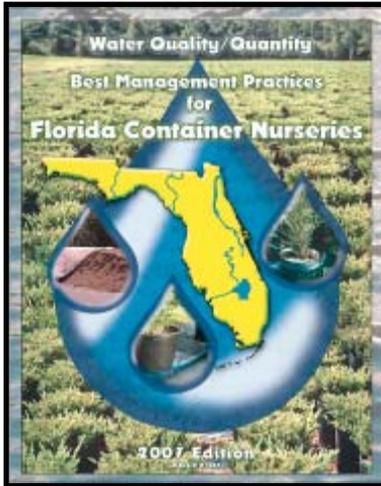
# What's the incentive?

## Producers implementing BMPs...

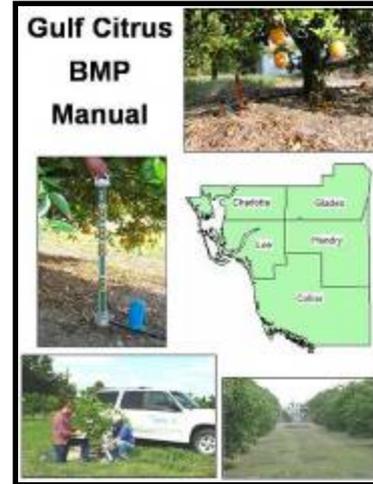
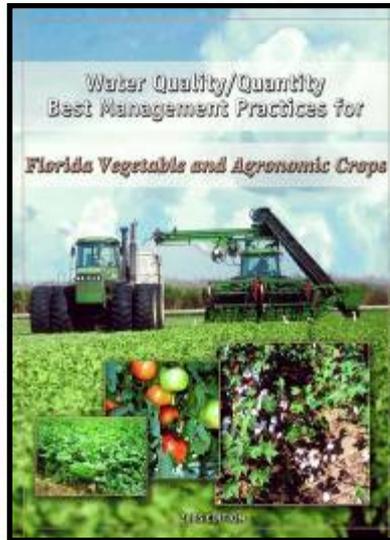
- ...receive a “**presumption of compliance with state water quality standards.**”
- ...are eligible for **cost-share** funds.
- ...can receive **permit exemptions** to improve drainage structures.

# Ag BMP program examples

Nursery

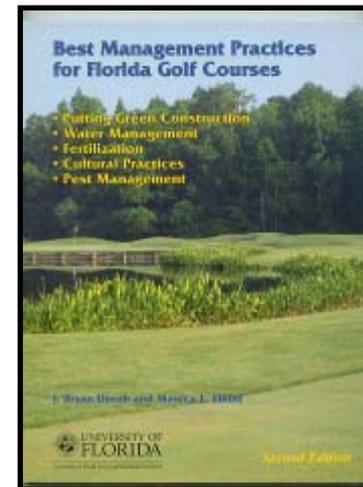
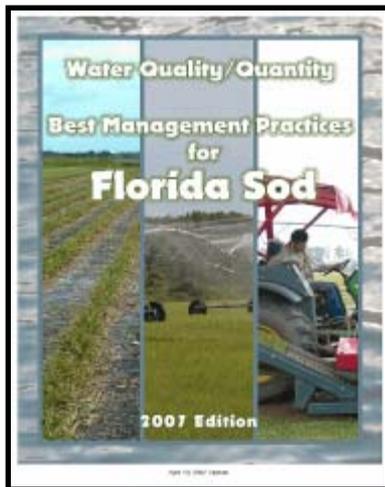


Vegetable/  
Agronomic



Citrus

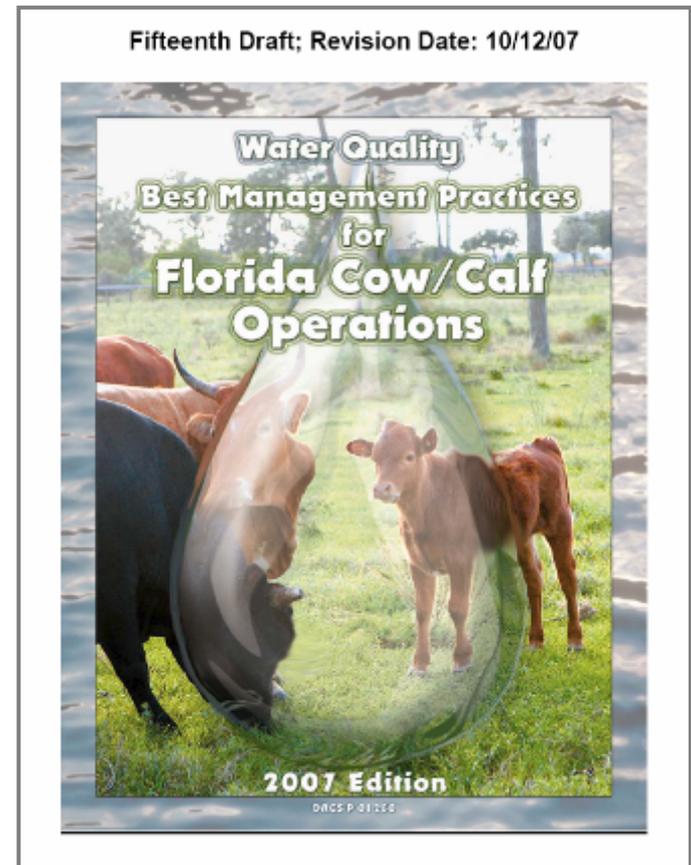
Sod



Golf course

# How do we develop a BMP manual?

- Identify the need.
- Form steering committee and technical work groups.
  - State agencies.
  - Grower associations.
  - Producers.
  - Environmental groups.
  - Allied industry.
- Produce a draft manual.
- Peer-review and revise.
- Hold public workshops.
- Adopt manual in code.
- Distribute manual to clients.



# What do BMPs look like?

Common themes across commodities:

- Nutrient management
- Irrigation
- Erosion control / Sediment mgt
- Pesticide management
- Stormwater management

# Nutrient management

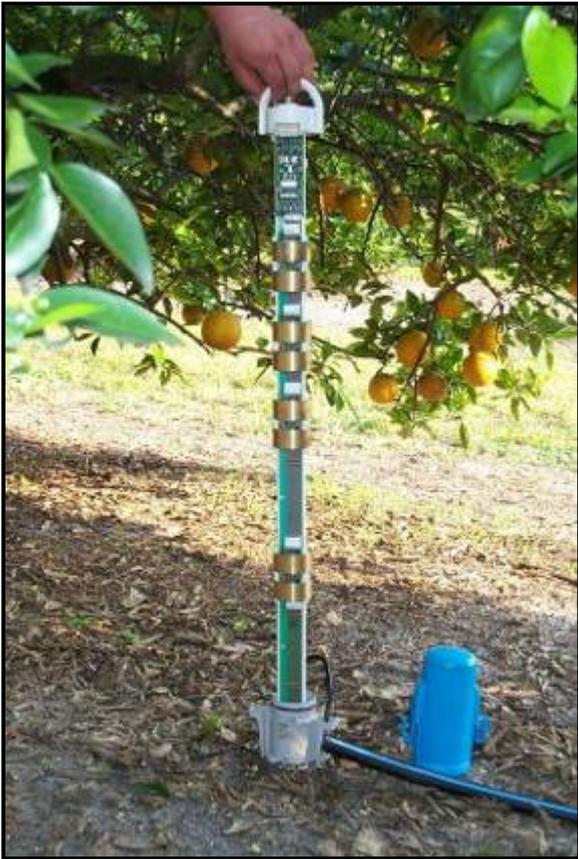
Precision  
application



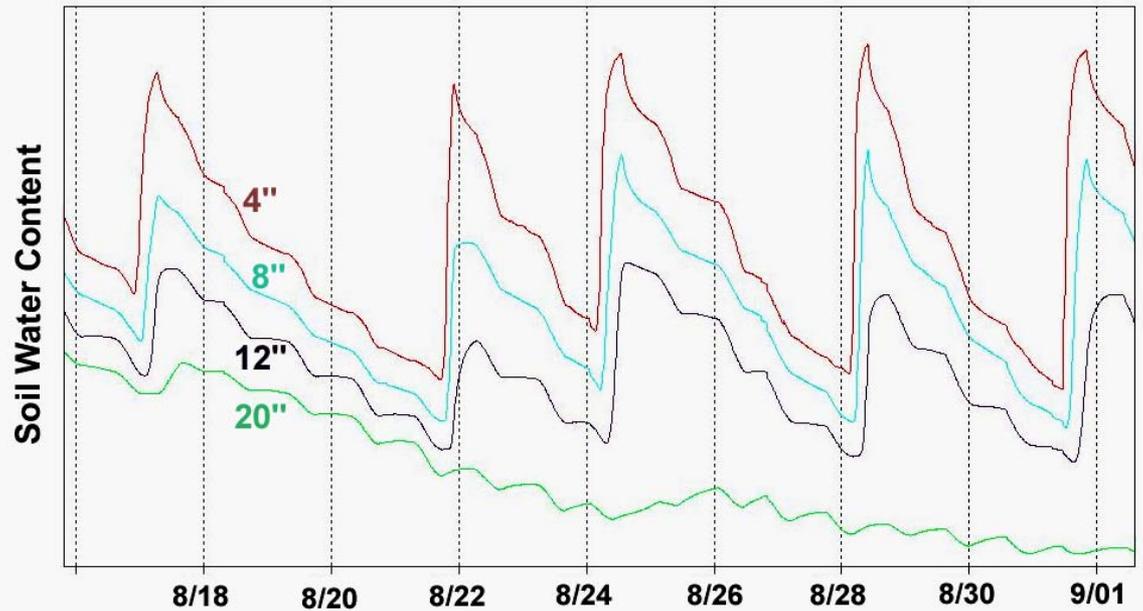
Good  
house-  
keeping



# Irrigation



## Irrigation scheduling



# Erosion control / Sediment mgt



Screw gate - NO



Riser board - YES

## Ditchbank vegetation maintenance



# Pesticide management

Permanent mix/load facilities



Sprayer calibration



Precision application



# Stormwater management

Artificial retention area



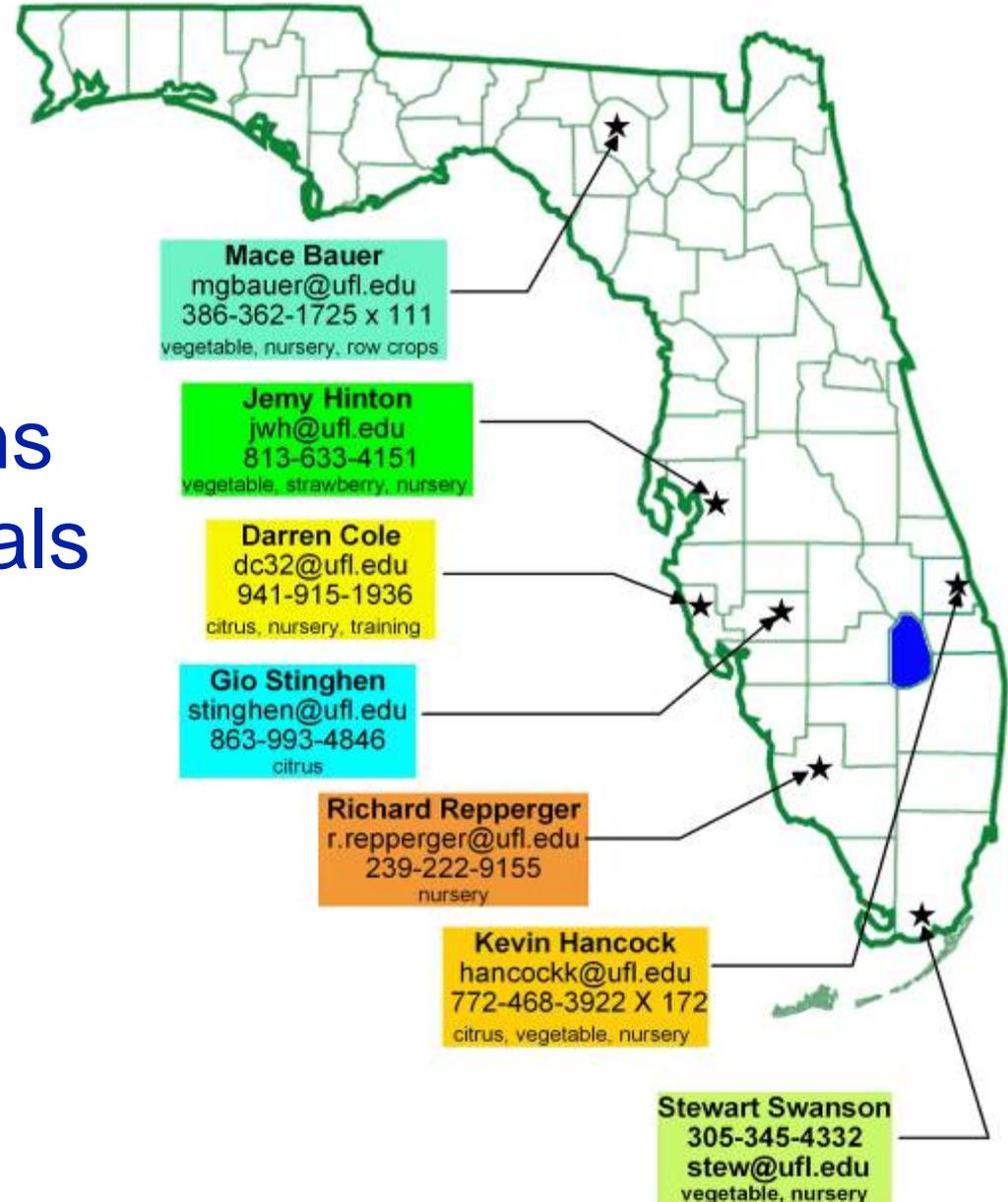
Wetland detention area





How BMP programs  
get from the manuals  
to the end users.

## UF/IFAS BMP Implementation Teams





# BMP checklist

Numbers listed next to the answer box refer to specific BMPs referenced in "Best Management Practices for Gulf Citrus".

Property Owner Name: \_\_\_\_\_ Evaluator's Name: \_\_\_\_\_

Grove Name: \_\_\_\_\_ Evaluation Date: \_\_\_\_\_

## A. WATER RESOURCE MANAGEMENT

YES NO N/A BMP

### Irrigation Practices

- |    |  |                          |                          |                          |             |
|----|--|--------------------------|--------------------------|--------------------------|-------------|
| 1. | Are irrigation events scheduled based on evapotranspiration, rainfall events, water table wells, or other scientific data? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A1, A2, D15 |
| 2. | Have all irrigation sources been analyzed for water quality?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A2          |
| 3. | Have high salinity irrigation sources been offset by lower salinity irrigation sources to the greatest extent practicable? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A2          |

### Infrastructure

- |    |  |                          |                          |                          |            |
|----|--|--------------------------|--------------------------|--------------------------|------------|
| 4. | Can on-site detention or storage be provided using the present system of canals, ponds and/or ditches?                               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A6, A7, A9 |
| 5. | Are the grove off-site drainage outlets (pumps or discharge structures) adequately maintained to allow safe and efficient operation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A8         |

### Drainage Management

- |    |  |                          |                          |                          |                 |
|----|--|--------------------------|--------------------------|--------------------------|-----------------|
| 6. | Are pumps and/or discharge structures set up to achieve uniform drainage throughout the grove?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A2, A3, A8, B15 |
| 7. | Following intense rainfall events are drainage rates and volumes considered when releasing water minimizing off-site impact?                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A3, A6          |
| 8. | Is the irrigation system periodically evaluated to determine efficiency and uniformity? If deficiencies are noted, are the problems corrected? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A2              |
| 9. | Are bottom slope on furrows maintained between beds to achieve uniform drainage?   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A4, B15, B16    |

### Water Table Management

- |     |  |                          |                          |                          |            |
|-----|--|--------------------------|--------------------------|--------------------------|------------|
| 10. | Are water table wells and/or soil moisture sensors (i.e. tensiometers) used to avoid excess water depletion?         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A1, A2, A5 |
| 11. | Do you follow a well-written drainage management plan that provides specific directions based on levels of rainfall? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A2, A6     |
| 12. | Are groundwater levels monitored to meet tree water demands and prevent root pruning?                                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A1, A2     |



# Notice of Intent to Implement BMPs



CHARLES H. BRONSON  
COMMISSIONER

Florida Department of Agriculture and Consumer Services  
Office of Agricultural Water Policy

FDACS - OAWP  
1203 Governor's Sq. Blvd.  
Suite 200  
Tallahassee, FL 32301

## NOTICE OF INTENT TO IMPLEMENT BEST MANAGEMENT PRACTICES FOR GULF CITRUS

Section 403.067(7)(c)2, Florida Statutes and Rule 5M-7.004 FAC

Phone (850) 617-1700; Fax (850) 617-1701

In accordance with Florida Statute 403.067(7)(c)2 and Rule 5M-7.004 FAC, the following information is hereby submitted as proof of my intent to implement **Best Management Practices for Gulf Citrus**. Contact the BMP Implementation Team at 772-468-3922 ext. 171 or 863-993-4846 if you have questions or would like assistance completing the Gulf Citrus BMP Checklist or this form. Multiple parcels and associated tax identification numbers may be listed on one NOI. If parcels are owned in more than one county, then one NOI should be submitted for each county with the list of associated tax identification numbers on each NOI. Use an additional sheet if necessary.

Land Owner \_\_\_\_\_ Leaseholder \_\_\_\_\_

Authorized Local Contact Person \_\_\_\_\_ Local Contact Telephone \_\_\_\_\_

Local Contact Address \_\_\_\_\_

\_\_\_\_\_

Grove Name \_\_\_\_\_

Total Number of Enrolled Acres \_\_\_\_\_ County \_\_\_\_\_

Property Tax ID Number/s (from Property Appraiser) \_\_\_\_\_

Complete the Gulf Citrus BMP Checklist and use the results to fill out the *Notice of Intent to Implement*. Submit the completed *Notice of Intent to Implement* to the Department of Agriculture and Consumer Services at the address below. **Keep the completed Gulf Citrus BMP Checklist in your files along with a copy of your completed *Notice of Intent to Implement*.** You must complete the Gulf Citrus BMP Checklist and submit the *Notice of Intent to Implement* and maintain these on file and have them available for inspection by the Department, if you wish to receive a presumption of compliance with state water quality standards. A submitted *Notice of Intent to Implement* is also a requirement to be eligible for some sources of BMP cost share funding.

\_\_\_\_\_  
Signature of Land Owner, Leaseholder, or Authorized Agent

\_\_\_\_\_  
Date

Mail the completed form to: FDACS – OAWP  
1203 Governor's Square Boulevard, Suite 200  
Tallahassee, Florida 32301  
Phone (850) 617-1700; Fax (850) 617-1701

# EDUCATION is the key to success for voluntary BMP implementation

## Landowners and production managers

- BMP demonstrations
- Real-life experiences



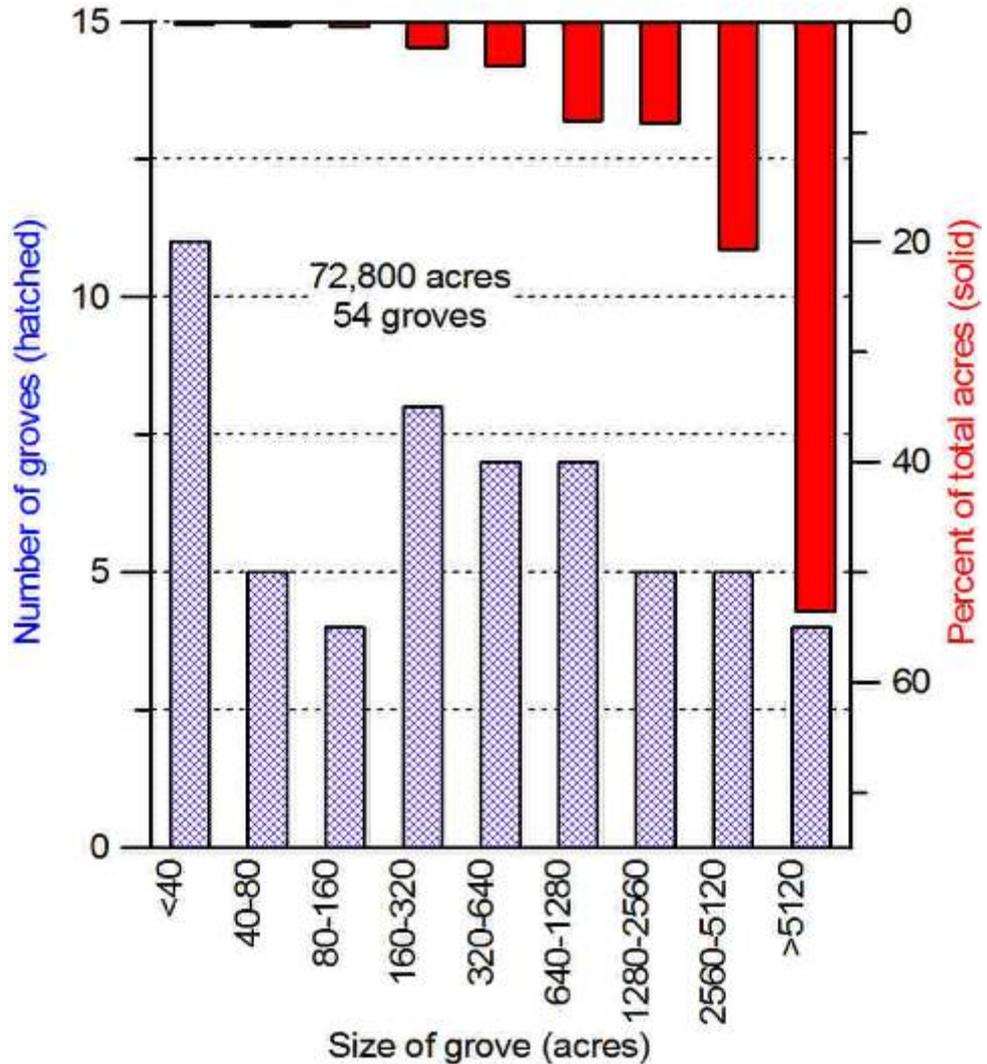
## Field workers

- Taught on-site
- English and Spanish
- Importance of BMPs, WPS, safety



# How about some success stories?

Example of BMP program enrollment for Gulf citrus groves.



# How about some success stories?

- 250 acre tangerine grove.
- 7,150 missing tree spaces.
- “Tree-see” sensors put on two sprayers.
- **Reduced pesticide application resulted in \$2,118 savings.**

*“Since we saved 20% of our chemical costs, I paid for 70% of one unit the first year on only 250 acres. We easily paid for these machines over our acreage in less than a year.”*



# How about some success stories?

- 222 acre test citrus grove.
- Conventional fertilizer spreader vs. variable-rate unit with “eyes.”
- Conventional: 48 tons/appl.
- VRT: 37 tons/appl.
- **23% savings in applied fertilizer.**

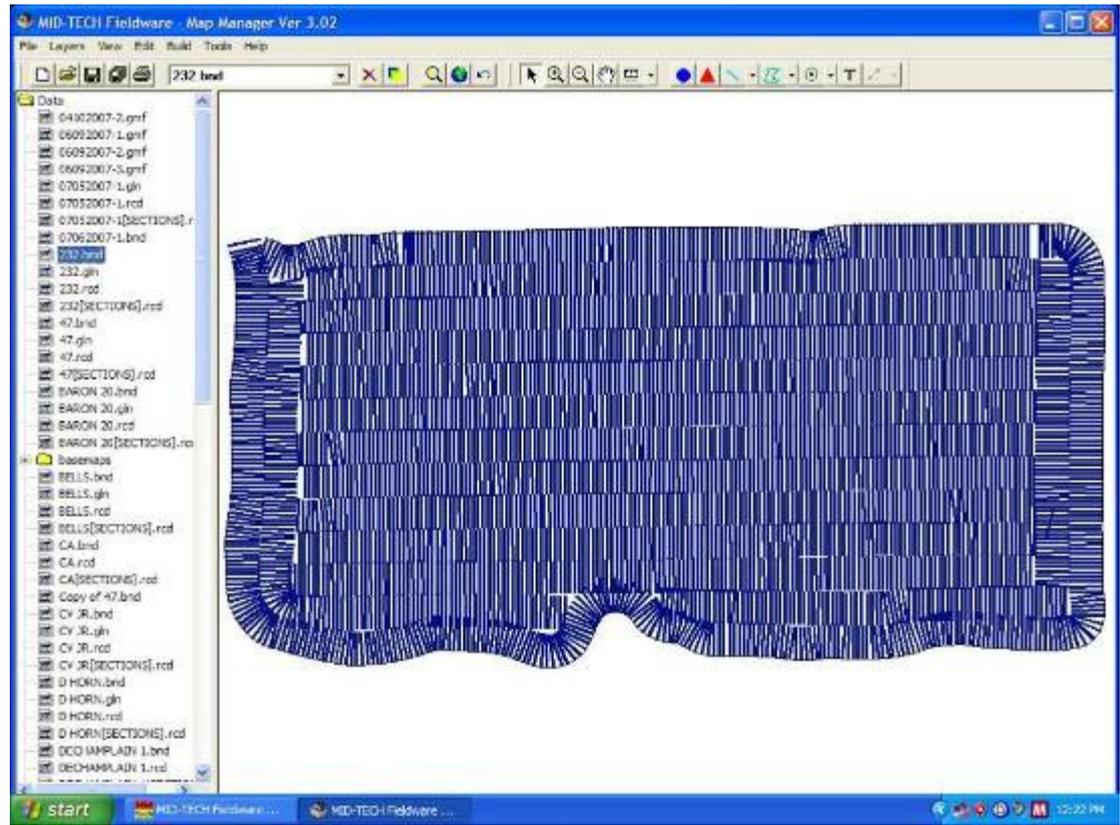


One fertilizer load saved every 150 acres fertilized!

# How about some success stories?

- Grower used cost-share dollars to upgrade to more accurate N calibration equipment and a GPS system.
- Application overlap eliminated.
- N fertilizer application reduced by 5,000 lbs on 80 acres.

“As-applied” map of N fertilizer applied to forage.



How about some success stories?

## Peanut irrigation demonstration



Treatment	Yield (lbs/acre)	*Economic value (\$)	Total irrigation (in)	**Gain from input (\$/acre)
Non-irrigated	2770	623	1.7	
Reduced irrigation	3980	895	5.0	250
Full irrigation	4600	1035	7.7	101

