

# 15 Years of Water Conservation FARMS – A Public / Private Partnership to Reduce Agricultural Groundwater Use

Southwest Florida  
Water Management District



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# Water Use in the SWFWMD

	Number of Permits	Permitted Quantities (MGD)	% Water Use
<b>Public Supply</b>	405	985.86	42.3%
<b>Agriculture</b>	5,607	829.06	35.6%
<b>Industrial / Commercial</b>	401	297.84	12.8%
<b>Landscape / Recreation</b>	1,132	205.21	8.8%
<b>Environmental Restoration</b>	10	12.49	0.5%
<b>Totals</b>	7,555	2,330.46	



## SWFWMD Projects

- 60% of the District budget goes to Projects
- Address 4 Areas of Responsibility
  - Water Quantity
  - Water Quality
  - Flood Control
  - Natural Systems
- Local Government Infrastructure
  - Reclaimed water lines
  - Reservoirs
  - Aquifer Storage and Recovery
- Natural System Restoration
  - Seagrass
  - Wetlands
  - Springs



## **Conservation and Restoration Funded by SWFWMD**

- \$119.8 million = Budget for All District Projects
  - Public Supply
  - Environmental Restoration
  - Springs
  - Scientific Investigations and Modelling
- \$6 million = Budget for Agricultural Conservation through FARMS



# Agricultural Water Use within SWFWMD

- 830 mgd = Permitted Agricultural water use in District
- Crops
  - Citrus
  - Tomatoes
  - Strawberries
  - Blueberries
  - Sod
  - Cucumbers
  - Potatoes
  - Peaches
  - Landscape Nurseries
- Water Use Permit based on estimated need for supplemental irrigation
- Irrigation need based on location, crop, root zone, soil type, irrigation methodology
- AgMOD



# Agriculture Conservation and Sustainability

- Farmers are the original conservationists, and no one knows the soil that sustains us better than the farmers who work it.
- Water – Every time they turn on a pump it costs a grower money.
- Every pound of nutrients they put on their crop costs them money.
- Already have a financial incentive to reduce water use and reduce nutrient inputs.
- They need to maintain the water resources and soil health or they are out of business.



# FARMS

## A Public / Private Partnership

- Facilitating
- Agricultural
- Resource
- Management
- Systems



# FARMS Program

## Best Management Practice (BMP) cost-share reimbursement program for agricultural projects

- Created in 2003 in partnership with FDACS
- Goals
  - Reduce Groundwater Use
  - Improve Water Quality impacted by mineralized groundwater withdrawals
  - Improve Natural System functions within wetlands and watersheds
  - **New: Nutrient Management Improvements**
- Types of Projects
  - Alternative Water Supply
  - Conservation
  - **New: Reduce / Retain Nutrients**



## **FARMS Program Features**

- **Grower Defined Projects**
- **Must reduce permittable groundwater use**
- **Cost efficient – must meet cost per 1000 gallons saved target (range \$1 to \$3 per 1000 gallons saved over a 5-year term.)**
- **Contract between Grower and District**
- **5 to 10-year commitment to BMP**
- **Grower must pay at least 25% of project**
- **All projects approved by District Governing Board**



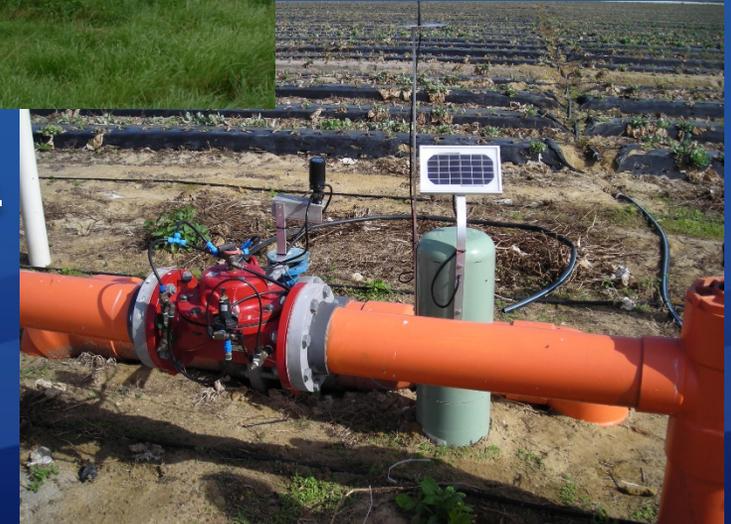
# Alternative Water Supply

- Replacing groundwater use with surface water use
  - Existing reservoir
  - Reclaimed water
  - Excavated reservoir
- Higher costs but greater groundwater reductions
- Lower pumping costs
- Sometimes better water quality
  - Lower salt content
  - Lower pH
- Average 30% reduction in groundwater Use



# Conservation

- Automated pump control
- Automated valves
- Soil moisture sensors
- Some irrigation conversions
- Weather stations
- Grower convenience
- Lower Cost, but lower reductions in groundwater use
- 5 to 10 % reductions in use



# Project Performance

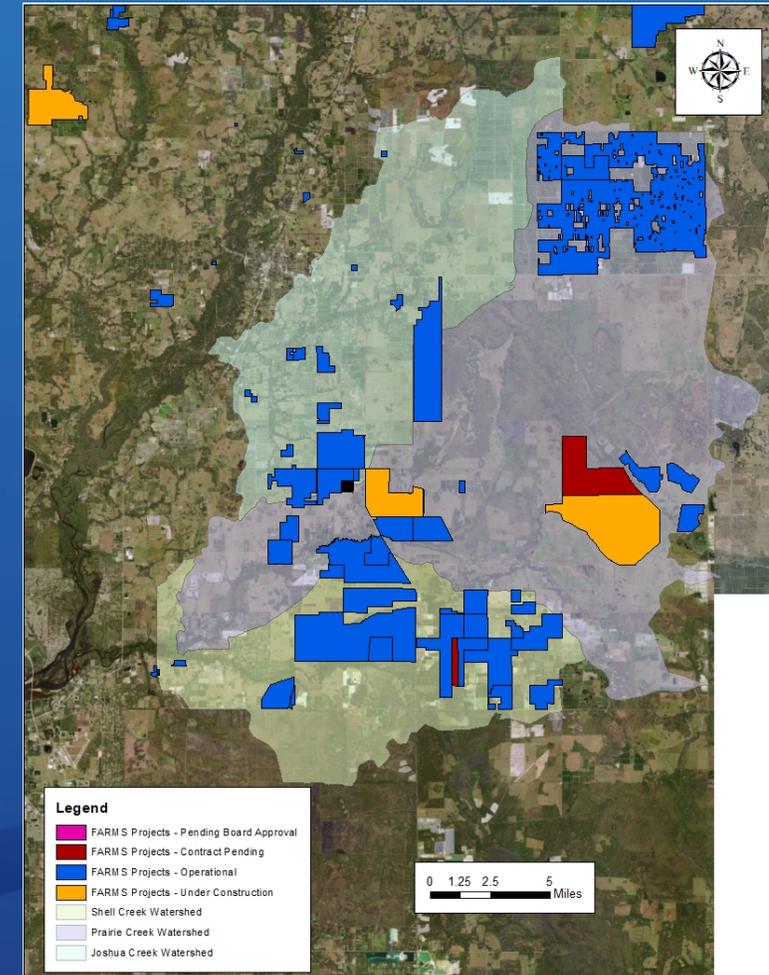
- Every project must meter groundwater and surface water use
- Each project is tracked monthly to check estimated groundwater quantities offset
- 191 operational project
- Actual offset = 24.3 mgd



# FARMS PROJECTS TO IMPROVE WATER QUALITY

Shell, Prairie , and Joshua Creek Priority area

- Early 2000 - Shell Creek drinking water reservoir had an increase in conductivity
- Suspected source was deep groundwater, used for irrigation, running off fields and seeping into creeks and reservoirs.
- SPJC Reasonable Assurance Plan written to address excess conductivity in these watersheds.
- FARMS was one of the management actions detailed in that plan.
- Within 10 years, there was a reduction in the average Total Dissolved Solids as well as the Chloride (conductivity) in the area, primarily as a result of FARMS AWS reservoirs.



## FARMS PROJECTS TO IMPROVE WATER QUALITY

- In Springs Area
  - Dairy
    - Sand lane to reduce solids and increase aeration
    - Screw press to remove wastewater and enhance composting of remaining solids
    - Settling Basins to separate solids for reuse as fertilizer off-site.
  - Blueberry Farm
    - Fertigation System to reduce nutrient application
  - Equine Manure Compost Facility Pilot Project in Marion County



## **FARMS AWS Ponds and Nutrient Reduction**

- Stormwater ponds carry an assumption of nutrient reduction.
- FARMS AWS ponds have similarities to stormwater ponds.
- FARMS has funded 152 reservoirs across the District.
- FARMS is investigating the practicality of calculating the potential nutrient reduction of FARMS AWS reservoirs.
- Large number of our projects have been operational for more than 10 years.
- Results expected in FY 2021.



# FARMS Accomplishments

- 209 Board-approved projects
- 29.1 MGD projected groundwater offset
- Total invested: ~\$72.8 M since 2003
  - District Costs \$41.2 M
  - District 56%/Farmer 44%
  - \$1.50/1,000 gallons saved
- \$6 M budgeted each year for FARMS projects.



# Questions?

