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

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## Water Use in the SWFWMD

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