Agriculture’s Use of Water Resources in Southwest Florida

Ken Herd
Water Resources Bureau Chief

Southwest Florida Water Management District
Florida Agriculture

- Peanuts
- Strawberries
- Tomatoes under plastic mulch
- Sod
- Nursery
- Ridge Citrus
- Vegetable row crops
- Blueberries
- Dairy
- Citrus

Southwest Florida Water Management District
• 20 gallons of water per pint of beer
• 31 gallons of water per glass of wine
• 35 gallons of water per cup of coffee
• 45 gallons per glass of orange juice
• 132 gallons of water to make a 2-liter bottle of soda

sources: wsj.com, huffingtonpost.com

1957 — Florida Water Resources Act of 1957 allowed “water regulatory districts”.
1959/60 — Flooding led to establishment of Southwest Florida Water Management District in 1961.

1972 — The Florida Water Resources Act is established, requiring the Water Management Districts to develop a coordinated plan for the use of the water resources of the State.
Florida Water Management Districts

373.069, Florida Statutes
The District Today:

- All or part of 16 counties
- 10,000 square miles
- Rich in water resources
  - About 1,800 lakes
  - 13 major rivers
  - Three estuaries of national recognition
  - Thousands of acres of productive wetlands
- Population: about 4.7 million
Southwest Florida Water Management District Goals

- Water Supply
- Water Quality
- Natural Systems
- Flood Protection

Maintain the balance between the water needs of current and future users while protecting and maintaining water and related natural resources...
Percent Total Withdrawal of Water by Use Category, 2010

Total Water Use = 1,090 mgd

- Agriculture: 467 mgd (43%)
- Public Supply: 44%
- Industrial/Commercial: 5%
- Recreation/Aesthetic: 6%
- Mining/Dewatering: 2%

Agriculture Water Use = 467 mgd

- Irrigation
- Public Supply

Rainfall

Annual Rainfall

Inches/Year

Rainfall

Annual Rainfall

mgd
Example Rainfall Fluctuations in the SWFWMD

October 2008 through May 2009
October 2009 through May 2010
October 2010 through May 2011
October 2011 through May 2012

Legend:
- Very dry
- Drier than normal
- Normal
- Wetter than Normal
- Very wet
Agricultural and Urban Land Use in the SWFWMD in 1974

- Red: Agriculture
- Yellow: Urban / Residential

Southwest Florida Water Management District
Agricultural and Urban Land Use in the SWFWMD in 2010

- **Agriculture**
- **Urban / Residential**
Predominant Agricultural Land Use in the SWFWMD in 1974

- Cropland & Pasture
- Orchards, Groves, Vineyards & Nurseries
Predominant Agricultural Land Use in the SWFWMD in 2010

- Cropland & Pasture
- Orchards, Groves, Vineyards & Nurseries
Percent Agriculture Use by County, 2010

- Desoto: 15%
- Hardee: 10%
- Highlands: 11%
- Hillsborough: 13%
- Manatee: 17%
- Polk: 22%
- Pasco: 3%
- Others: 9%
- Total Use = 467 mgd
Change in Citrus Acreage by County

Citrus Acreage

- 1966
- 1976
- 1986
- 1996
- 2006

POLK
PINELLAS
PASCO
MARION
MANATEE
LAKE
HILLSBOROUGH
HIGHLANDS
HERNANDO
HARDEE
DESOLO
CITRUS
CHARLOTTE
Areas of Resource Concern

Saltwater Intrusion
Kissengen Springs
Water Use Caution Areas

- 1989 – Highlands Ridge, Eastern Tampa Bay (including the Most Impacted Area) and Northern Tampa Bay Water Use Caution Areas were established
- 1992 – The SWUCA was established by Board Order
- 2011 – Establishment of the Dover/Plant City WUCA
Inter-District Area of Water Resource Concern

- 2008 SWFWMD was included in the Central Florida Coordination

- Area of overlap with the SWUCA is subject to SWUCA rules as well as CFCA rules

- Currently being replaced by the Central Florida Water Initiative study
In order to obtain a permit the applicant must provide reasonable assurances that the proposed water use

- Is a reasonable-beneficial use
- Is consistent with the public interest
- Does not interfere with an existing legal water use

Chapter 373.223(1), Florida Statutes
Rule 40D-2.301, Florida Administrative Code
Permitting Criteria for Irrigation Quantities

Solar Radiation and Rainfall → Crop Type → Soil Type → Irrigation Method → AGMOD → Permitted Irrigation Quantities

Crop Establishment + Supplemental Irrigation + Related Water Uses
Optional Cold Protection and Miscellaneous Ag Water Uses
Alternative Water Supplies
27 primary agriculture reuse customers. Majority are associated with the MARS system that the District co-funded.

Supplied with 9 mgd reclaimed water

Equal to 7 mgd in offsets
Reclaimed Water Use in Agriculture

- 6,000 acres of citrus
- 800 acres of tomatoes
- 1,300 other crop type
- Florida regulations limit reclaimed water use to only crops that will be “peeled, cooked or thermally processed” unless drip, bubble or tile irrigation used.
Domestic Wastewater Reused in SWFWMD

- WWTP Flow
- Reclaimed Water Used
- Offset
- Percent Used

Note: Amounts of reuse do not include filter and sprayfields.
Facilitating Agricultural Resource Management Systems (FARMS) Program
FARMS is a Best Management Practice (BMP) cost-share reimbursement program for agricultural projects.

- Created in 2003 as a cooperative program with FDACS
- Coordination with District Regulation Agricultural Teams
- Five program goals
- Address three District AORs:
  - Water Supply
  - Water Quality
  - Natural Systems
FARMS Program Status

- 151 Board-approved projects
- 23.7 mgd predicted groundwater offset
- 97 complete and operational projects
- 13.8 mgd groundwater offset
Goal – As a part of the Southern Water Use Caution Area (SWUCA) Recovery Strategy to reduce groundwater use by 40 mgd by 2025.

- 114 Board-approved projects
  - ~22.1 mgd projected offset
- 73 operational
  - ~16.2 mgd projected offset
- ~55% progress towards FARMS goal based on Board-approved projections
**FARMS Program — DPCWUCA**

**Goal** – Reduce cold protection groundwater quantities in the DPCWUCA by 20% by 2020

- Provides funding for implementation of BMPs that reduce frost/freeze protection withdrawals
- 21 Frost-freeze protection projects Board-approved since January 2010
  - ~36.5 MGD per freeze event offset projected (~30.4% of 180 MGD target)
FARMS Program Projects per FY

Thru 11 Months

- SPJC
- UMRW
- SWUCA
- Northern District
- DPCWUCA
FARMS Projects and Citrus

- 58 citrus projects approved
- 163,000 acres
- Greater than 11.3 mgd of groundwater offset