Georgia Soil & Water Conservation Commission

Agricultural Programs, Best Management Practices & Current Trends

Carrie Fowler
Nonpoint Source Program Specialist
Athens, GA

Irrigation Scheduling Pilot Project

Irrigation Scheduling Pilot Project

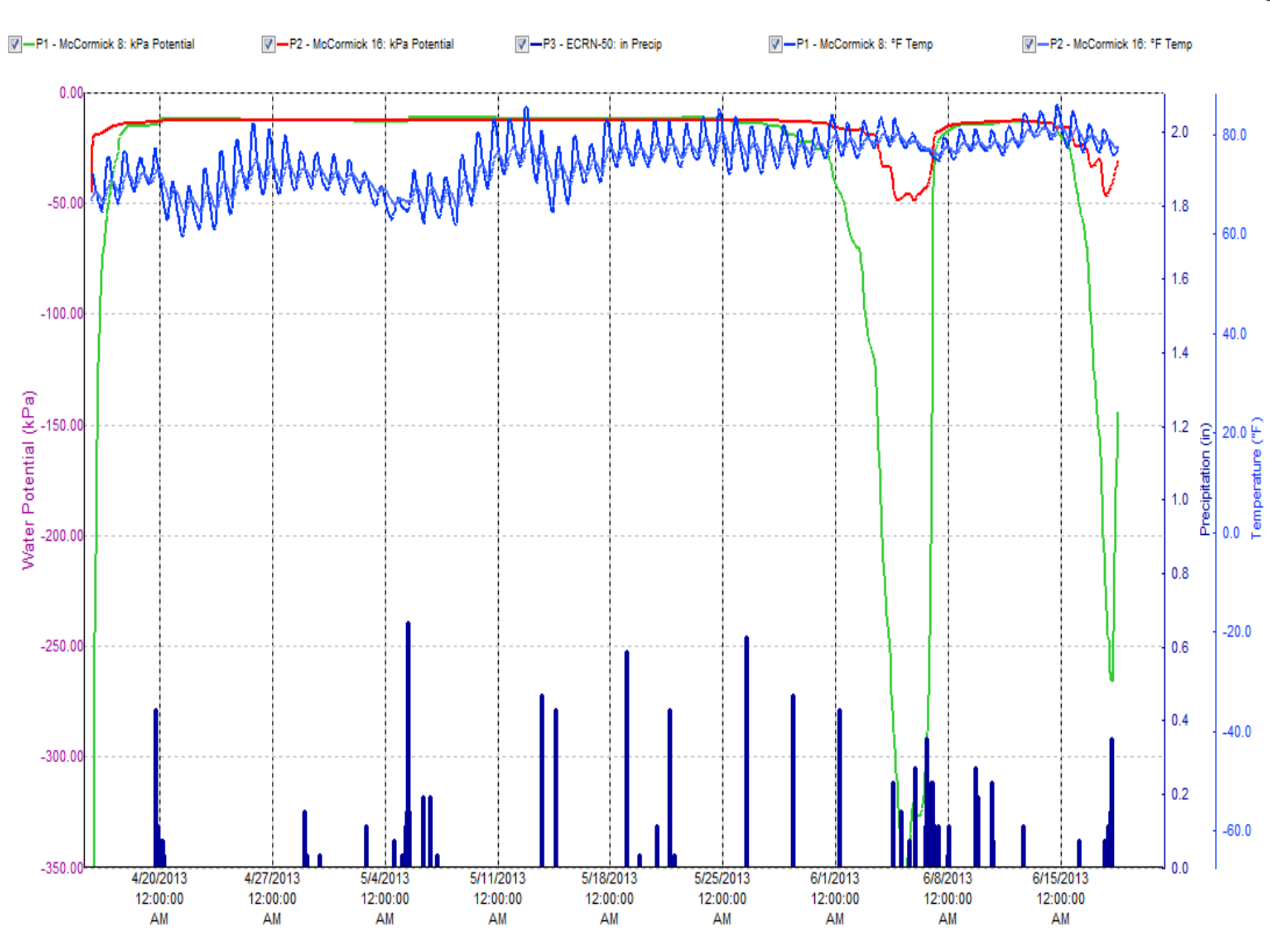
- Pilot project testing the use of Decagon EM50G data loggers to track soil moisture on fields and use data to determine water application
- Why?
  - Over application--deep percolation and runoff, possibly leaching nutrients
  - Under application (moisture deficiency)--crop yield loss (money lost)
- Irrigation is applied based on soil moisture results, which are reported online for producers to make irrigation decisions
  - There is a desired range of moisture for crop root zones that used as a basis for deciding how much to irrigate. Producer can see irrigation moisture, soil temperature and rainfall on the internet
- What's the benefit to producers?
  - Financial benefits each time they make an irrigation decision because it costs money to pump water; environmental benefits are water savings and water quality protection

Pilot Project Field Set-Up

- EM50G Logger
  - Reads data hourly; logs to internet 6 times/day (adjustable)
- Cellular
  - First year is free ($140/year after)
- Data
  - Access is unlimited
  - Available anywhere on company website or through downloadable program*

Pilot Project Field Set-Up

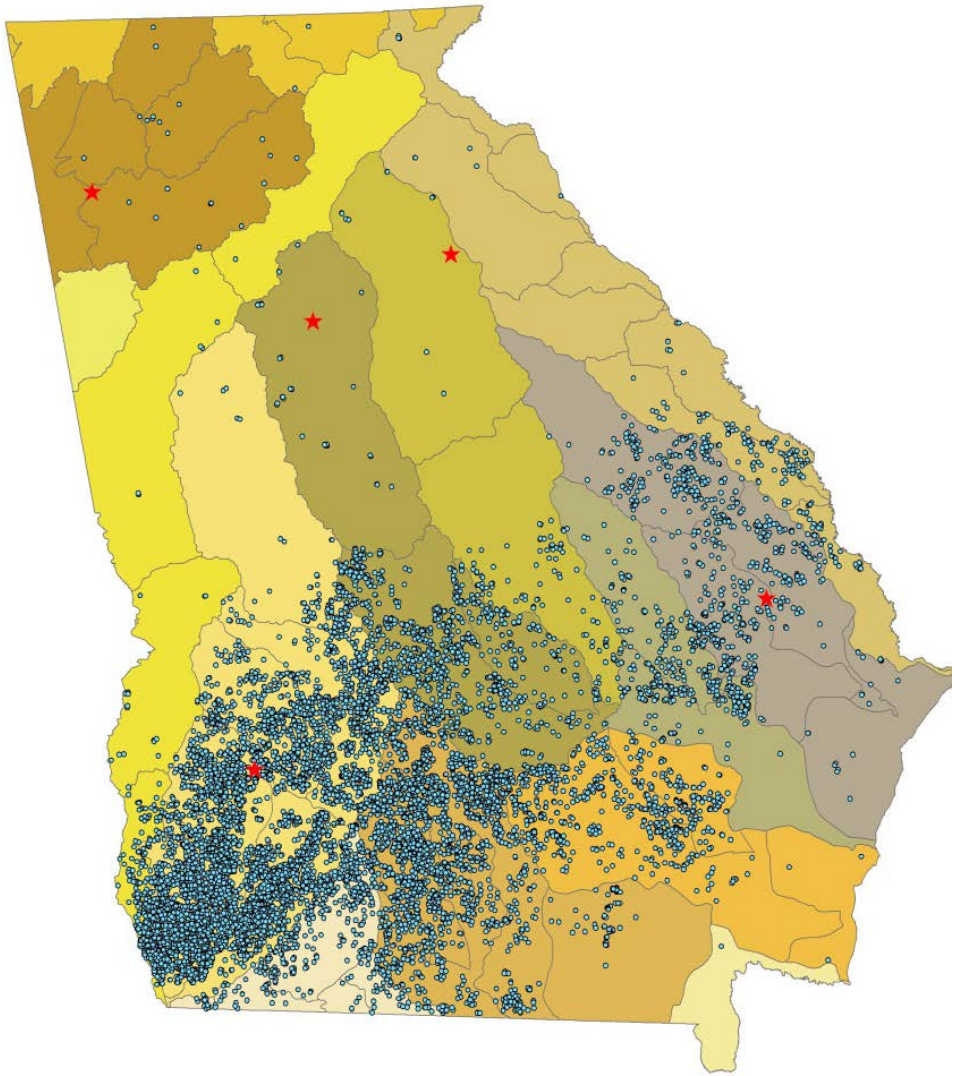
- ECRN-50 Rain Gauge
  - Self dumping
  - Logs quantity and uploads to internet
- MPS Soil Moisture Sensors
  - 2 installed per system
  - Measures water potential
  - Soil temperature
    - 8” and 16”


P1 - McCormick 8: kPa Potential
P2 - McCormick 16: kPa Potential
P3 - ECRN-50: in Precip
P1 - McCormick 8: °F Temp
P2 - McCormick 16: °F Temp
Water Potential (kPa)
0.00
-50.00
-100.00
-150.00
-200.00
-250.00
-300.00
-350.00
Precipitation (in)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Temperature (°F)
80.0
60.0
40.0
20.0
0.0
-20.0
-40.0
-60.0
4/20/2013 12:00:00 AM
4/27/2013 12:00:00 AM
5/4/2013 12:00:00 AM
5/11/2013 12:00:00 AM
5/18/2013 12:00:00 AM
5/25/2013 12:00:00 AM
6/1/2013 12:00:00 AM
6/8/2013 12:00:00 AM
6/15/2013 12:00:00 AM

Irrigation Scheduling Pilot Project

- Limitations/Concerns with System
  - Height of crop vs rain gauge
  - Area
  - Location, Location, Location
  - Cellular Coverage
  - Farmer follow-through on accessing data

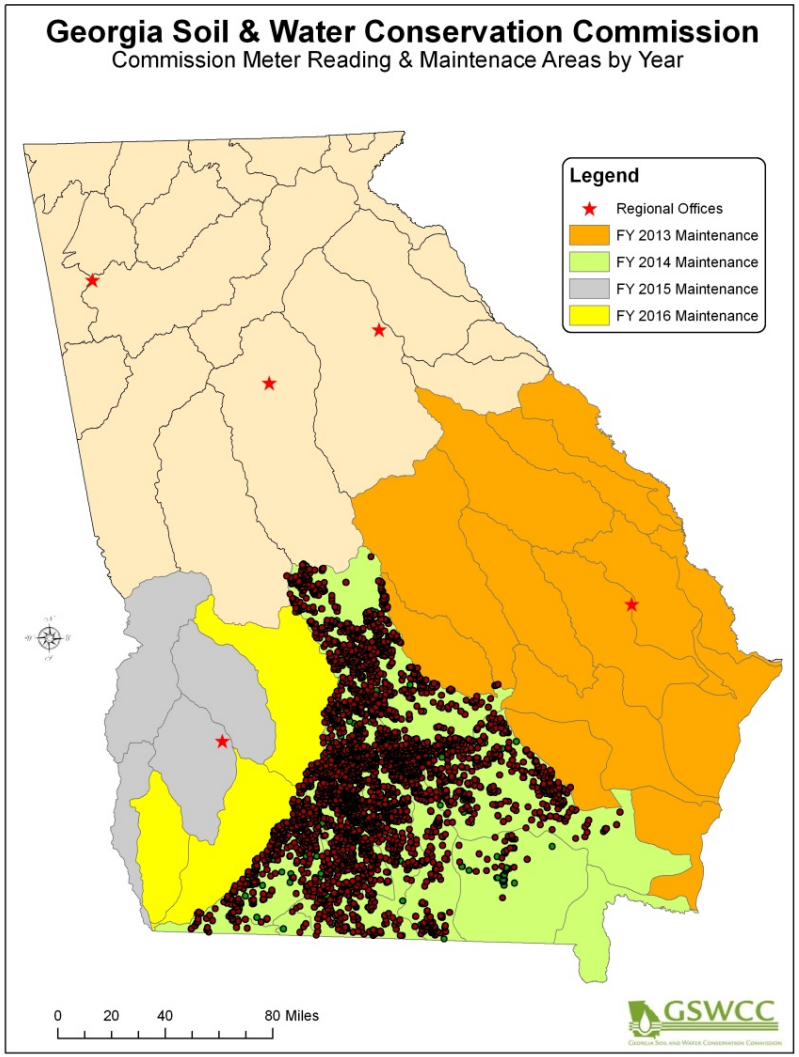
Agricultural Water Metering Program



Agricultural Water Metering Program

- Use meters to obtain accurate information on water use to improve management of water resources, and improve the efficiency and effectiveness of ag water users
- GSWCC is focused on meter maintenance and data collection
- FY15-12th year of funding through OneGeorgia

Agricultural Water Metering Program



- GSWCC maintains meters on a 4 year rotation
  - FY13: 1255 meters maintained
  - FY14: 4331 meters maintained
- Meter maintenance is only performed south of the Fall Line

Agricultural Water Metering Program

- Meters can be used as a management tool by ag producers to increase water conservation, provide accurate accounting of water use and save money by improving application uniformity
- Meter information can tell producer that system is losing efficiency with age
  - GSWCC MIL can also be used to test system uniformity
- Meters can also show producers when well is not pumping to same capacity as previous years so adjustments can be made


Mobile
Irrigation Lab

Mobile Irrigation Lab

- Perform irrigation system audits to identify weaknesses in current systems
- Promotes the installation of water saving tools such as end-gun shut off valves and low flow sprinklers
- Install meters on pumps to quantify amount of water actually being used for irrigation
- GSWCC staff is completing pre and post tests for NRCS retrofit pivots


GSWCC
319 Program

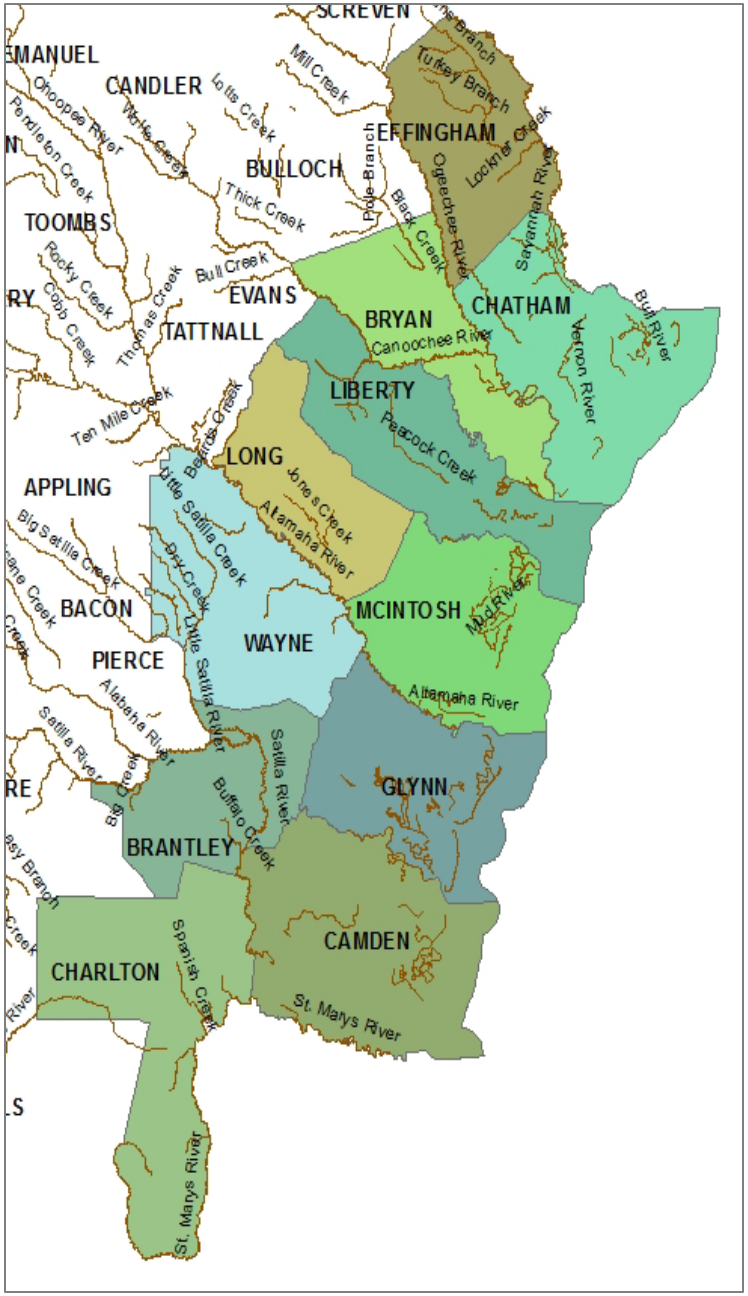
Current Clean Water Act Section 319 Projects

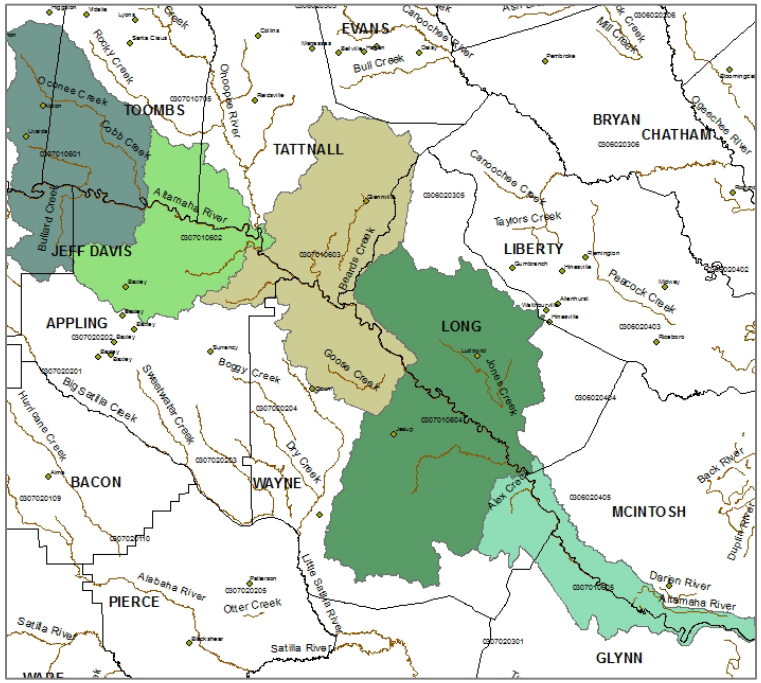
- **Cedar and Folsom Creeks Watershed Management Plan Project**– Project Area is in Wilcox County

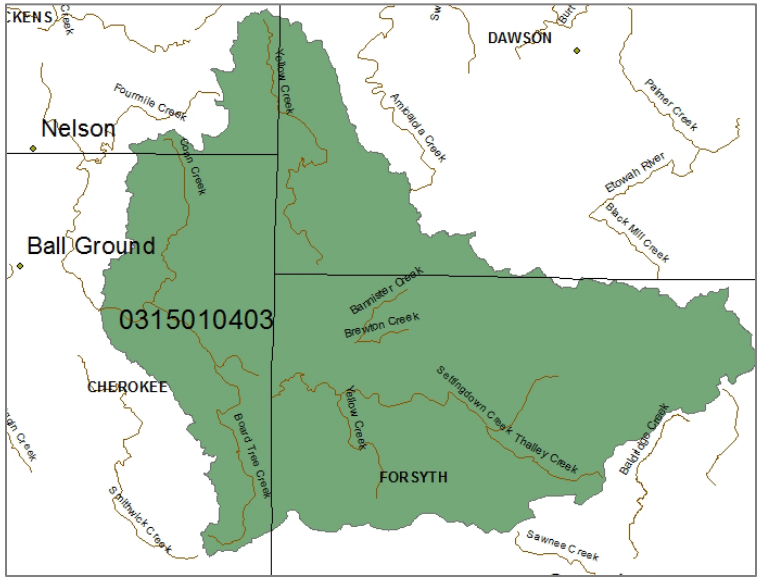
- **Nutrient Management Planning Initiative**– 2 focus areas in project
  - Settingdown Creek-Cherokee, Dawson, Forsyth and Pickens counties
  - Altamaha River Basin-portions of Appling, Glynn, Jeff Davis, Johnson, Long, McIntosh, Montgomery, Tattnall, Toombs, and Wayne counties along with coastal counties focus

Commission personnel work with each contracted landowner to complete a farm assessment and nutrient management plan for their farming operation.

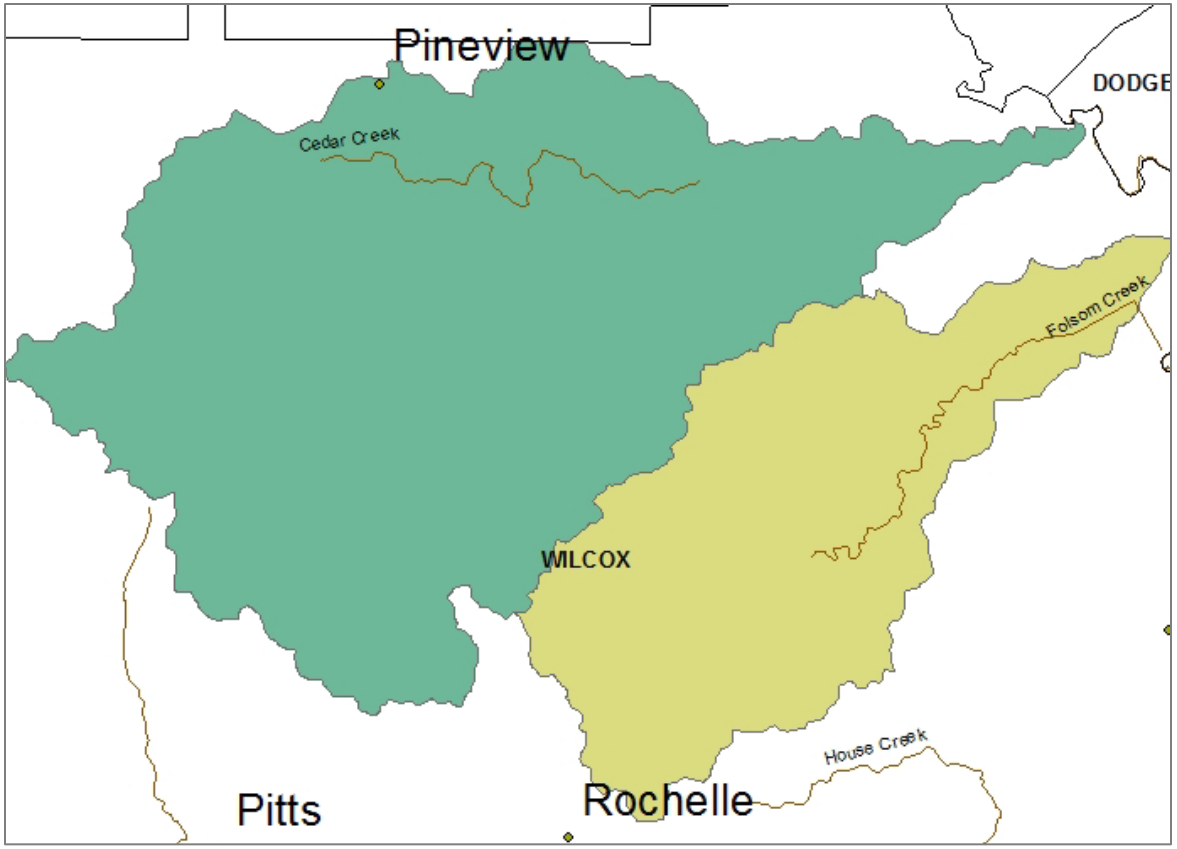
Nutrient Management Planning Initiative







Cedar Creek & Folsom Creek Watershed Management Plan Project

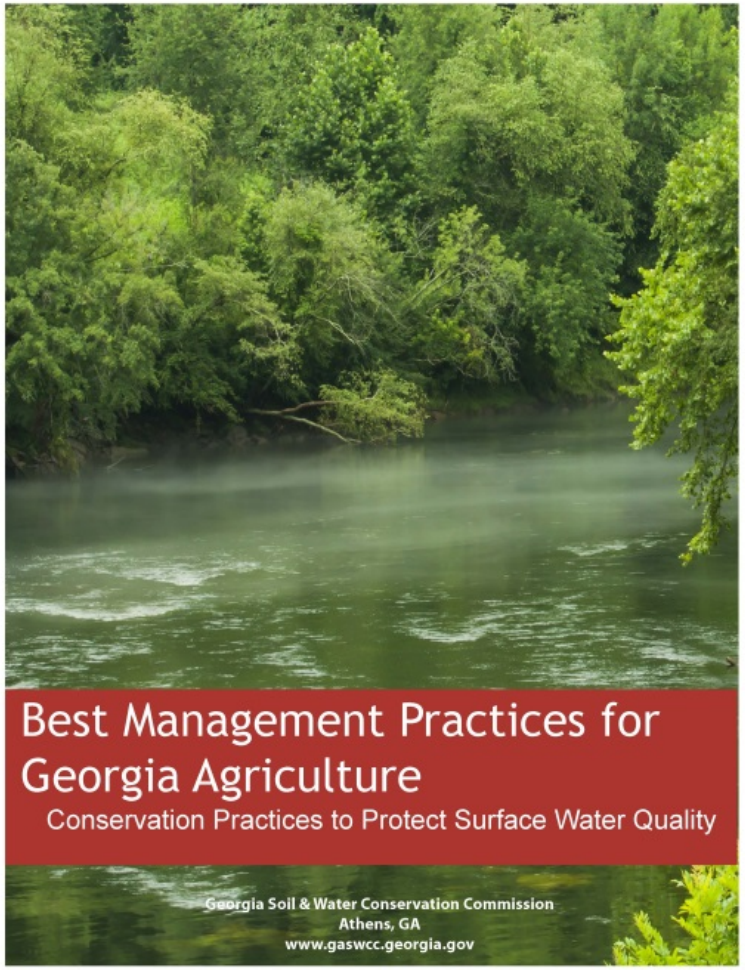


- Develop Watershed Management Plan to address sediment issues in two watersheds
- Implement BMPs based on recommendations in WMP

Best Management Practices for Georgia Agriculture

- Manual is available free upon request
- Provides more information on various BMPs on NRCS cost list as well as how the practice works and costs and considerations prior to installation.
  - Print and CD copies available
  - Also available online at

    www.gaswcc.georgia.gov




Regulatory
Certainty

Regulatory Certainty

- **What is it?**
  - Voluntary approach to encouraging participation in BMP Implementation Programs
  - Provides agricultural community with "assurances" that they can continue to conduct business in a predictable regulatory setting in exchange for implementing BMPs to achieve improved environmental benefits

- **What's the Benefit for Producers?**
  - Compliance with existing laws/rules and assurance that as long as that compliance is maintained, any new laws/rules will not immediately apply to farming operation

Regulatory Certainty

- **Examples of Other States with Regulatory Certainty Programs**
  - Texas-operators with approved conservation plans are presumed in compliance with state water quality standards
  - Virginia/Maryland-producers choosing to participate in program with promise that those following approved conservation plans are not immediately subject to new State regulations involving Chesapeake Bay
  - Maine-Producers in compliance with approved conservation plans are considered in compliance with municipal laws and cannot be considered a public nuisance based on complaints

Regulatory Certainty

- **How Can We Establish a Regulatory Certainty Program in Georgia?**
  - Legislation to enable and support a program
  - Rules for how the program will be operated
  - Promotion of the program—use stakeholder group to identify the "what's in it for me" for all types of agricultural producers
  - Program needs to be cost-effective for producer

- **What's the Benefit for Producers?**
  - Compliance with existing laws/rules and assurance that as long as that compliance is maintained, any new laws/rules will not immediately apply to farming operation

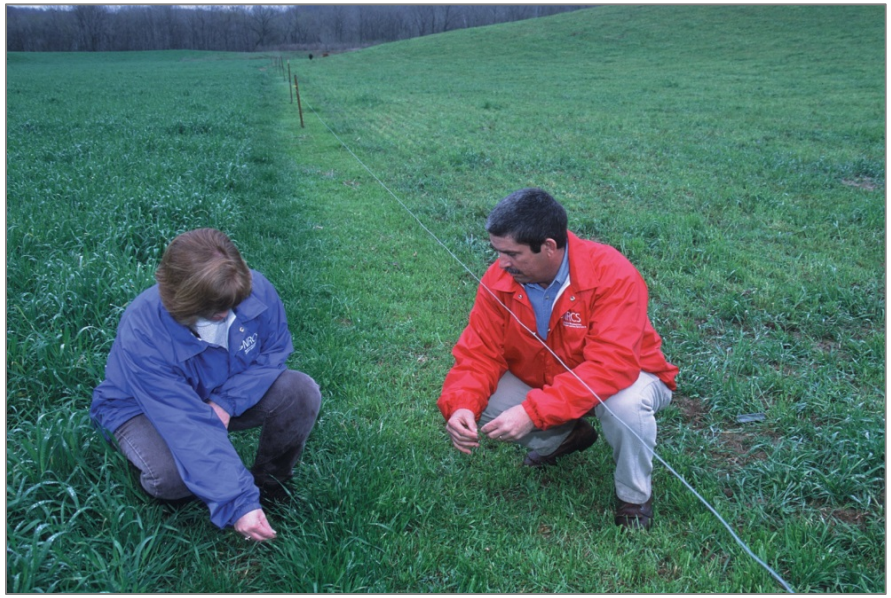
Red Hills Farm
Farm Tour

Red Hills Farm
Commerce, GA
Darrel Williamson, Owner

Red Hills Farm is a 450 acre farm that was established in 1925 in Jackson County. 50 brood cows graze permanent pasture and winter grazing. Soybeans, millet, wheat, and canola are used in a rotation for grain and hay. Two poultry houses are no longer in production.

Stackhouse

Alternative Watering Facilities



Rotational Grazing

Grassed Waterway

Cover Crops

Other Practices:

- Residue Management (no-till)
- Crop Rotation
- Herbaceous Weed Control
- Contour Farming
- Cross Fencing
- Rotational Grazing
- Integrated Pest Management
- Nutrient Management Planning