

## Water Conservation Education in St. Francis County: Dealing with Critical Groundwater Decline

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L'Anguille River

### INTRODUCTION

St. Francis County lies in the middle of the Mississippi Delta region of Eastern Arkansas. Agriculture is the backbone of the local economy and includes cotton, rice, soybean, and wheat production. Agricultural producers are faced with two water resources issues: critical groundwater decline and Sediment-Based

Eleven Counties in Arkansas have been declared a "Critical Decline Area" where the Alluvial aquifer is declining at more than 1ft/yr. The Saturated thickness of the aquifer has been reduced to less than 10ft. This Critical Decline study area and will likely be declared a Critical Decline study area and will likely be declared a Critical Decline study area. This designation has important implications for agricultural producers using groundwater as an irrigation source.



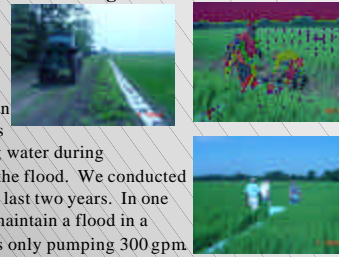
The L' Anguille River is listed as the top priority water resource for the State of Arkansas. The State has estimated that sedimentation in agriculture will have to be reduced by 38-40% to achieve TMDL goals. The Extension Service in St. Francis County is working with producers to promote soil conservation practices such as conservation tillage, buffer strips, and BMPs. We also have worked with partners such as conservation districts, NRCS, the Arkansas Soil and Water Conservation Commission, Farm Bureau, and others to form a watershed steering committee to ensure local involvement in TMDL



### DEMONSTRATION OF EFFICIENT IRRIGATION METHODS

#### Multiple Inlet Irrigation for Rice

One alternative to traditional levee and flood irrigation is the use of poly tubing to simultaneously flood rice paddies. This is known as multiple inlet irrigation. It has proven to be a method for saving water during initial flooding and maintaining the flood. We conducted several demonstrations during the last two years. In one demonstration, we were able to maintain a flood in a 45 acre field with a well that was only pumping 300 gpm.



#### Drip Irrigation for Cotton

Furrow irrigation or the use of center-pivot irrigation systems have been the major methods of watering cotton in Eastern Arkansas. With potential restrictions placed on groundwater use for irrigation, farmers are looking for more efficient systems. We demonstrated the use of drip irrigation and fertigation with one farmer last year.



#### Computerized Irrigation Scheduling

The Extension Service's computerized irrigation scheduler utilizes information such as air temperature and local precipitation to predict irrigation dates. This Tool has proven to guide more timely irrigation. In fact, one producer increased corn yields by 24 bushels/acre using the same quantity of water but in a more timely fashion.



### Round Up Ready Technology for Conservation Tillage



New Round Up Ready technology offers cotton producers an efficient weed control system for conservation tillage production. One of the traditional Extension activities has been cotton variety trials to demonstrate the performance of new varieties locally. We now routinely incorporate Round Up Ready varieties into our County Variety trials and stress their use in conservation tillage systems. The adoption of this technology has been rapid as almost all County acreage in soybeans and cotton are now Round Up Ready. The popularity of these varieties make for an easier transition to conservation tillage.

### The Arkansas Agricultural Expo

Each year, the University of Arkansas Cooperative Extension Service sponsors a Five-County educational event in Eastern Arkansas (Including St. Francis County) known as the Agricultural Expo. Traditionally, the event has focused only on agricultural production practices. However in 2003, the Expo focused on water resource concerns related to Agriculture. Topics such as The New Farm Bill Conservation programs, water management and Conservation, BMPs for soil erosion, riparian water rights, and wildlife management issues were covered. The event was well received by producers and crop consultants.