

**Arkansas Corn and Grain Sorghum Promotion Board**

**Project Progress Report - Arkansas Discovery Farm**

**January 27, 2013**

**Submitted by Mike Daniels**

**Summary:** The Arkansas Rice Research and Promotion Board granted the University of Arkansas' Division of Agriculture \$17,000 in 2012 to assist with the funding a Row-Crop Discovery Farm Technician. This dollar amount was matched by the Arkansas Soybean Board and the Arkansas Corn and Grain Sorghum Board granted \$5,000. The Arkansas Discovery Farm program is currently collecting water quantity and quality data from both inflow from rain and irrigation and in outflow as runoff from four row crop farms, one in Arkansas County near Stuttgart (Corn, rice and soybeans), one in Desha County near Dumas (Cotton and Corn), and two in Cross County near Cherry Valley (Rice and soybean). Data in 2012 was collected from one rice field, four soybean fields and four cotton fields. A fifth row crop farm has been instrumented near Atkins and monitoring will begin in the Spring of 2013.

**Discovery Farm Progress:**

Beginning in the Spring of 2013, we will be monitoring water quality and quantity of inflow/outflow from 14 row crop fields from several geographical-locations that represent prominent row crop production. At this time, it is unknown what will be planted in each field. Beyond water quality monitoring of runoff, we also are monitoring irrigation inflow in all fields with turbine type flow meters equipped with data loggers so that irrigation flow is automatically recorded and is easily transferred to laptop computers in the field. We are also monitoring evapotranspiration with atmometers (ET simulation gages) to aid with irrigation scheduling. Two soybean fields were divided in half in 2012 so that we could compare irrigation scheduling using the computerized irrigation scheduler versus the ET simulation gage. In addition, in selected fields, watermark sensors that monitor soil water tension (an indicator of soil moisture) were installed at multiple depths at the top and bottom fields. These sensors were equipped with data loggers to automatically record data. Watermark sensors provide an indication of how effective irrigation and rainfall events are at replenishing water to the root zone on soils.

