



2011 ANNUAL REPORT:

**ASSESSING THE IMPACT OF THE MRBI PROGRAM IN THE POINT
REMOVE AND L'ANGUILLE WATERSHEDS**



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Agreement No. 68-7103-10-393

PROJECT PURPOSE:

The purposes of this agreement is to provide funding to the University for completion of a 3-year assessment project involving edge-of-field monitoring designed to determine the impacts of implementation of the Mississippi River Basin Initiative (MRBI) Program on representative program-enrolled farms in the Point Remove and L' Anguille watersheds.

PROJECT BENEFITS:

The MRBI program offers a new, innovative voluntary approach to addressing regional water quality issues related to agricultural nonpoint source pollution. However, previous funding has not provided for monitoring to assess the actual impact of the program. Quantifying impact is a critical component to demonstrating the effectiveness of voluntary conservation efforts in terms of justifying continued expenditures and implementing future programs.

THE UNIVERSITY WILL:

1. Establish one (1) "Discovery Farm" in the Point Remove Watershed and two (2) "Discovery Farms" in the L' Anguille watershed.
2. Install and maintain, on the Discovery Farms, all sampling equipment necessary to monitor edge-of-field water quality and water use.
3. Insure that all necessary samples are collected and monitored according to established scientific protocols.
4. Collaborate with the U.S. Geological Survey to conduct stream flow, nutrient, and sediment discharge at the 12-digit HUC scale that encompasses edge-of-field monitoring sites.
5. Utilize the previously-developed, calibrated SWAT model for the Point Remove and L' Anguille Watersheds.
6. Insure that the project will achieve the following:
 - Measured of reduction efficiencies at edge-of-field of selected MRBI-approved practices under real-world conditions,
 - Quantified cause and effect relationships between selected practices and receiving water quality parameters,
 - SWAT estimates of BMP implementation scenarios on nutrient loss reductions.

PROGRESS:

L'Anguille Watershed

04-01-2011 to 06-30-2011:

Installation of monitoring sites was completed at both the Woods and Clements Farms. This included installation of culvert gauges, flumes, and weirs to measure runoff water volumes, construction of stands to house the automatic water samplers, and bringing everything on-line. See photos below.

07-01-2011 to 09-30-2011:

A total of 24 water runoff samples were collected from 9 storm flow events and have been analyzed for nutrient and sediment content.

10-01-2011 to 12-31-2011:

A total of 6 water runoff samples were collected from 2 storm flow events and have been analyzed for nutrient and sediment content. Concentrations will not be reported until a sufficient number of events have been collected to ensure reliability of the results.

Point Remove Watershed

04-01-2011 to 06-30-2011:

- a. Construction of a second cattle crossing was completed, which was then used as the point of water flow monitoring into the wetland area.
- b. Installation of monitoring sites was completed at the Willow Bend Farm. See photos below.

07-01-2011 to 09-30-2011:

- a. A total of 7 water runoff samples were collected during 7 storm flow events and have been analyzed for nutrient and sediment content.
- b. A grid soil sampling protocol was established for Willow Bend Farm. This soil sampling will be conducted in October, 2011.

10-01-2011 to 12-31-2011:

- a. A total of 2 water runoff samples were collected from 2 storm flow events and have been analyzed for nutrient and sediment content. Concentrations will not be reported until a sufficient number of events have been collected to ensure reliability of the results.
- b. Grid soil sampling of the Willow Bend Farm was completed in conjunction with Ron Day, NRCS, Conway County, the MRBI, and EQIP. Soils are being analyzed for nutrients by the U of A Soil Testing Laboratory.

- c. Flow at both sites in the Point Remove Watershed is flowing into the wetland area. Thus, the second site will be moved to a new location in the Watershed to evaluate another pasture management BMP. This will be completed in the next quarter, in order that runoff samples can be collected during the wet spring period.
- d. On October 27th, 2011 we sponsored an open meeting at the Willow Bend Farm to discuss MRBI-related progress followed by a Discovery Farm Committee meeting to discuss site selection, equipment installation and future plans. The meeting was attended by about 100 farmers, NRCS, ANRC, AACD, and Legislative Staff personnel.

The L'Anguille Site, Cherry Valley



The Point Remove Site, Morrilton

