Abstract

The Louisiana Department of Environmental Quality (LDEQ) worked with the University of Louisiana at Monroe (ULM) on a project to evaluate the effectiveness of cotton best management practices (BMPs) on reducing nonpoint source pollutants to Bennett's Bayou. Bennett's Bayou drains to Bayou Lafourche, which has a TMDL and a watershed plan developed for it. The TMDL indicated that nonpoint source pollutants would need to be reduced by 80% in order to meet the water quality standard for dissolved oxygen. Since agricultural land is the primary type of land-use that exists in the watershed, agricultural BMPs will need to be implemented for cotton and soybeans if the nonpoint source pollution reduction goal is to be met.

The objective of this project is to examine the effectiveness of four types of BMPs on reducing sediments, nutrients and pesticides entering the water body. The four BMPs included:

- Conventional tillage practices (including nutrient and pesticide management);
- Conventional tillage plus a winter wheat cover crop;
- Conservation tillage with nutrient and pesticide management;
- Conservation tillage plus a cover crop and a transgenic variety of cotton.

Edge of field samplers and flow meters were installed to measure the loading from each of the various types of BMPs. The results indicated that conservation tillage plus a cover crop and a transgenic variety of cotton produced the lowest loads in TSS, VS, TKN, PO4, and pesticides. There was no significant difference between options in regards to ammonium ion or nitrate-N concentration in runoff waters.