

## Case Study 14: Loss Creek Watershed in Crawford County, OH

**Location:** Loss Creek Watershed in Crawford County, OH. Watershed size = 15,520 acres, located in the Sandusky River Watershed

**Team Leader and key Team members:** Rick Wilson (Ohio EPA); Mike Hall (Crawford SWCD); OSU-Ext. Survey Member, Joe Bonnell; Jon Witter & Andy Ward (OSU)

**Focus:** Lake Erie Nutrient Reduction Demonstration Project: An innovative performance-based approach to nutrient reduction using an enhanced Ohio P-Index. The adoption of conservation practice adoption was realized through reimbursing producers for implementing new P-Risk reduction practices.

**Typical Farming Practices:** Conservation-tillage and no-till farming, mostly tile-drained landscape. Some livestock.

**Agricultural BMPs:** Cover Crops, Drainage Water Management, Grid Soil sampling, Variable rate fertilizer application, Residue and tillage management, Grassed Waterways.

**Watershed Scale Approaches:** Success and momentum created by this project (and concurrent NRCS National Water Quality Initiative) allowed for expansion of eligibility into an adjacent 12 digit HUC watershed (i.e., the Brandywine/Brokensword Creek watershed) in Crawford County.

**State and Federal Grants Program:** Great Lakes Restoration Fund with State of Ohio match.

**Grants to Support Case Study:** This is the final year of this grant funded work for conservation practice implementation. To complete this cases study project, Ohio EPA and OSU will develop estimates of pollutant load reductions accomplished to date and develop a projection of watershed-scale farm management systems capable of achieving one or more water quality targets.

**Outreach Education:** Sandusky River Watershed Coalition, the Crawford county SWCD, and Crawford Parks District all contributed to the outreach effort.

**Socio-Economic Factors:** OSU–Extension has done survey work regarding landowner behavior that would be pertinent to discussion. Pre-survey is complete. Post Survey will be conducted in Autumn 2014.

Power point presentation (about this project) from Nonpoint Source Monitoring Conference and Workshop, Oct. 28, 2013 in Cleveland, OH is available at link.:

[http://www.bae.ncsu.edu/programs/extension/wqg/nmp\\_conf/2013\\_cleveland/19wilson\\_2013nps.pdf](http://www.bae.ncsu.edu/programs/extension/wqg/nmp_conf/2013_cleveland/19wilson_2013nps.pdf)

## Presentation Abstract

### **Title:**

Performance based innovative nutrient reduction: Using an enhanced Ohio P-Index to increase conservation practice adoption by reimbursing producers for implementing new P-risk reduction practices.

### **Technical Abstract:**

Nutrient loss from land used for row crop agriculture and nutrient loading to our nation's surface waters occurs when water (nutrient-laden surface water runoff AND nutrient-laden subsurface drainage) is transported from the edge of the row-crop field and enters creeks, streams, rivers and lakes. There are numerous, unique land-specific and management-specific variables that ultimately factor into the risk of nutrient loss. To reduce the risk of nutrient loss to surface waters relative to row crop farming (e.g., land management, cropping and fertilization), we looked for an alternative, performance-based means to reward effective and efficient nutrient management performance and encourage sustained performance in following years. Reductions to the level of phosphorus loss risk were calculated when changes were made that focused on implementation of new structural installations (i.e., tile drainage controls) or changes in nutrient and land management (e.g., tillage or fertilization methods). Where the calculated risk was reduced to "low," producers were reimbursed for accomplishing risk reduction using practices that most comfortably fit in with unique land attributes and their management experiences.

The United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) in Ohio uses the Phosphorus Index tool (P-Index) which considers several variables to establish an understanding of the risk of phosphorus loss from individual farm tracts. In Ohio, *filter strip* is the only variable that can earn a deduction in the P-Index scoring system as a *risk-reduction* practice. This project enhances the existing P-Index. Beyond the *filter strip*, there are numerous additional management and structural conservation practices available to reduce risk of phosphorus loss. If one or more of these practices are implemented, further reduction of *P-loss risk* can be calculated. As part of a Great Lakes Restoration Initiative (GLRI) funded sub-grant for targeted nutrient reduction, the Crawford Soil and Water Conservation District (SWCD) and Ohio Environmental Protection Agency (Ohio EPA) enhanced the Ohio-NRCS P-Index to include unique phosphorus risk reduction values for a variety of other conservation management and structural practices in the Loss Creek watershed (a 12-digit HUC watershed within the Sandusky River watershed). If one or more of the specified practices are selected and implemented, then the P-Index is recalculated with the reduction (e.g., Cover Crop (-8 pts)). If the new tally results in a change from baseline score of P-Index risk from: Very High (>45pts) to Low (<15pts); High (31-45pts) to Low (<15pts); or Medium (16-30pts) to Low (<15pts), then rewards ranging from \$35 to \$15/acre are provided accordingly. This presentation will provide background on the development of this reimbursement agreement; specified practices and point reductions; how this method has changed conservation dialogue for the better, practice selection and implementation in the Loss Creek watershed; discussion and suggestions for improving this method; and to stimulate development of similar innovative conservation methods in watersheds around the nation.