

**Project Title:** Validation/Revision of the Ohio Phosphorus Risk Index Using Field-Scale, Edge-of-Field Monitoring Data

**Budget Requested:** \$2.4 million

**Project Duration:** 3 years

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### **Project Overview:**

In Ohio, the risk of agricultural phosphorus P transport to surface water is assessed by the Ohio USDA-NRCS Phosphorus Index Assessment Procedure (Ohio P Index) within the Nitrogen and Phosphorus Risk Assessment Procedures.

[http://efotg.nrcs.usda.gov/references/public/OH/Nitrogen\\_and\\_Phosphorous\\_Risk\\_Assessment\\_Procedures.pdf](http://efotg.nrcs.usda.gov/references/public/OH/Nitrogen_and_Phosphorous_Risk_Assessment_Procedures.pdf)

**Why focus on improving the Ohio P Risk Index?** The answer is implementation. The Ohio P Index is used for every comprehensive nutrient management plan (CNMP) or manure management plan (MMP) issued in Ohio. These plans are required if a farmer wants to participate in any USDA conservation program and for concentrated animal feeding operations (CAFOs). The recently released revision of the NRCS 590 Nutrient Management Standard places a greatly increased emphasis on using P indices. A precedent has already been set in the Grand Lake St Marys watershed for imposing additional rules on farmers once a watershed is deemed “distressed”, including requirement for CNMPs. Including the western basin of Lake Erie in the distressed category is a looming possibility. Further, in the current Ohio P Risk Index, farmers are given credit, as reflected by reduction in their P Index scores, for only a very few best management practices (BMPs). Increased BMP options in the Ohio P Index will allow credit for conservation efforts and allow farmers to make management decisions that will be reflected in lower P Index scores as well as actual lower P transport risk. Requested for this project are up to 32 Ohio farm fields, with a special emphasis on the **Grand Lake St. Marys**, and the **Maumee watershed**, which impacts the western basin of **Lake Erie**. However any Ohio farm field could be considered.

### **Project Objectives**

The objective of this work is to validate and as necessary revise/update the Ohio P Index by establishing field-scale, edge-of-field (EOF) monitoring facilities around Ohio. To provide information to build quantitative models, long-term (3yr) **EOF** sampling instrumentation to monitor both surface runoff and tile drainage water will be installed on representative fields (5 to 15acres). This will provide EOF, long-term, monitoring data, at the field-scale, for each site across the year. Included will be all storm events, “first flush” after fertilizer/manure applications, effects of tillage, planting, harvesting, dormant times (winter) and effects of current and additional BMPs. **In-field management** will be evaluated as related to EOF water samples and be used to update the Ohio P Index. Data from these facilities will be used to **1)** validate and as necessary revise the Ohio P Risk Index **2)** Quantitatively, integrate additional BMPs into the Ohio P Index and **3)** Develop an easy to use, online, web-based, interactive GIS tool to make it easy for farmers to calculate their Ohio P Index score and to consider alternative management choices (BMP options) to reduce their scores and therefore risk of P transport. This work will increase the utility and implementation of the Ohio P Index beyond a tool used merely to assess risk of P transport, into a tool farmers can use to make management decisions to reduce their risk of P transport and thus, their Ohio P Index score.