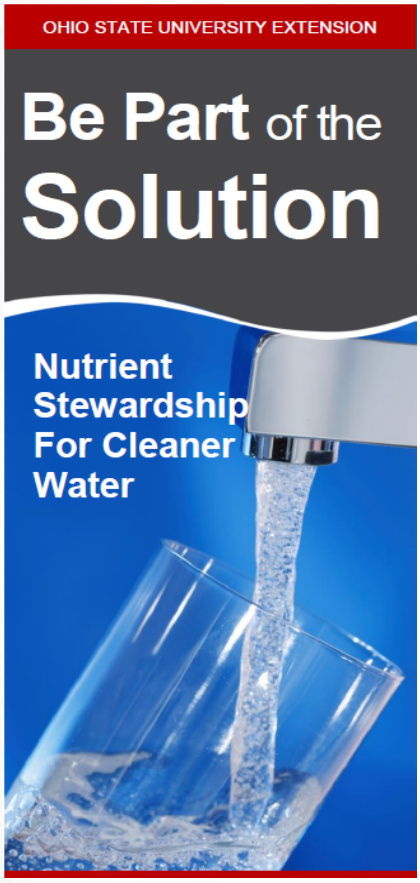
CFAES

OHIO STATE UNIVERSITY EXTENSION

Nutrient Stewardship for Cleaner Water

Final Report **March 2018**



The Nutrient Stewardship for Cleaner Water initiative is an Ohio State University Extension Signature Program designed to improve water quality by helping growers efficiently use nitrogen and phosphorus to keep more of it on the field resulting in increased crop yields and farm profits and cleaner water.

The Nutrient Stewardship for Cleaner Water initiative was created in 2014 as an Ohio State University (OSU) Extension Signature Program. The initiative was designed to improve water quality by helping growers reduce amounts of nitrogen and phosphorus used and keeping more of it on the field, while also increasing crop yields and boosting farm profits.

The program worked to address water quality problems that were occurring in recent years in Lake Erie, Grand Lake St. Marys, and other inland Ohio surface water resources. Within these aquatic ecosystems, harmful organisms in the form of algal blooms were threatening local environments and economies.

Growers continue to work with the program to reduce nutrient loss from farm fields that may contribute to these harmful algae blooms. While fertilizer is essential for Ohio crop production, nutrient applications can be managed to reduce nitrogen and phosphorus entering water resources by using the correct rates, timing, and placement.

Goals Accomplished through the Program

Goal 1

Conduct on-farm and field trials of best management practices involving application methods, timing and nutrient application rates.

More than 209 on-farm research sites were conducted to provide data to revise phosphorus and potassium fertilizer rate recommendations. In addition grain removal, tissue tests for sufficiency levels and target soil test levels were evaluated to provide a comprehensive review of Ohio fertilizer recommendation criteria. New recommendations will be provided to Ohio's agriculture industry in 2018.

More than 68 on-farm nitrogen research trials were conducted looking at nitrogen rates. An additional 16 trials looked at rate and timing of nitrogen fertilizers to meet corn requirements. Rate-related data is available to producers through cnrc.agron.iastate.edu.

In 2017, 50 field trials were conducted to support in-crop manure utilization, fully utilizing the nitrogen and providing balanced, rotational phosphorus application.

Goal 2

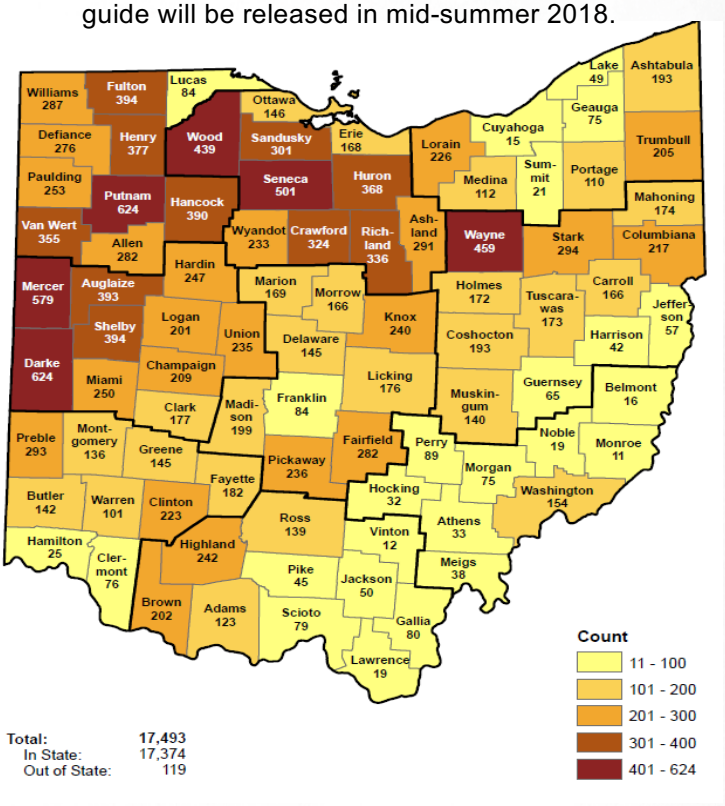
Promote use of organic and inorganic nutrient sources for optimal crop production.

Extensive research, demonstration, and educational work was done with farmers on Best Management Practices to utilize manure for in-crop application to corn and wheat. The application timing improved crop utilization of nitrogen by reducing losses and balanced phosphorus for a two year crop rotation. The system increased crop-profitability. The practice has been adopted on over 2000 acres in Ohio. An equipment lease program for farmers is being implemented to increase adoption of these practices

Goal 3

Develop a hands-on tool growers and producers can access to find recommendations for best management practices specific to their needs.

A new resource for Ohio farmers to identify critical resource concerns and best management practices to address those concerns was released in 2017 with the website agbmps.osu.edu. A print guide will be released in mid-summer 2018.



Goal 4

Promote adoption of soil tests and Tri-state fertilizer recommendations for agronomic and other crops and optimize the efficiency of fertilizer use with the 4R concept: the Right fertilizer source, at the Right rate, at the Right time and in the Right place.

Nearly 17,500 Ohio farmers have completed the Fertilizer Applicator Certification Training which includes water quality, soil testing, phosphorous management and nitrogen management instruction.