



# Nutrient Stewardship for Cleaner Water

Fertilizer is essential to Ohio crop production when applied using the correct rates, timing and placement. But, if nutrient applications are not managed, farm field nitrogen and phosphorus can be lost into water resources and promote hazardous algal blooms.

Major water quality problems have occurred in Lake Erie, Grand Lake St. Marys and other Ohio water resources in recent years. Within these aquatic ecosystems, harmful organisms in the form of algal blooms have also been present.

2014

Signature Program  
Annual Report

**Be Part of the  
Solution**

**Agriculture and Natural Resources**

[www.go.osu.edu/nutrientstewardshipforcleanerwater](http://www.go.osu.edu/nutrientstewardshipforcleanerwater)



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The Nutrient Stewardship for Cleaner Water initiative is an Ohio State University Extension Signature Program designed to improve water quality by helping growers lessen the use of nitrogen and phosphorus and keep more of it on the field, while increasing crop yields and boosting farm profits.

To accomplish that, the Nutrient Stewardship for Cleaner Water program focuses on:

- Verifying and developing best management practices for farm field nitrogen and phosphorus application and timing to limit soluble nutrient loss from farm fields.
- Verifying and adjusting the Tri-State Fertility Guide rates for crop production and environmental impacts.
- Educating growers and producers on best management practices and water quality impacts.
- Developing a voluntary Nutrient Management Plan for growers and producers.
- Evaluating of the impact of the program on the improvement of the quality of Ohio waters.

Goals for the first two years of the Signature Program include:

1. Conducting on-farm and field trials of best management practices of application method, timing and nutrient rates.
2. Adopting soil tests and Tri-state fertilizer recommendations for agronomic and other crops.
3. Promoting the use of organic or inorganic nutrient sources for optimal crop production.
4. Developing a hands-on tool growers and producers can access to find recommendations for the best management practices specific to their needs.
5. Optimize the efficiency of fertilizer use by incorporating the 4R concept: the Right fertilizer source, at the Right rate, at the Right time and in the Right place.
6. Development of voluntary Nutrient Management Plans by program participants that includes crop recommendations and site environmental risk assessments.
7. Identify fields with high nutrient loss risk and implement appropriate cost effective Best Management Practices on these fields.

Long-term goals of the Signature Program include:

1. Reducing the incidence of Microcystis, a cyanobacterium—more commonly called blue-green alga – blooms in Lake Erie.
2. Reducing phosphorus loading in waterways.
3. Using adaptive management to improve water quality by helping growers lessen the use of phosphorus and keep more of it on the field, while increasing crop yields and boosting farm profits.
4. Offering training for producers and commercial fertilizer applicators on: the current state of Ohio waters, soils and soil testing, best management practices for phosphorous and nitrogen use.



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## **IMPLEMENTATION**

Nutrient Stewardship for Cleaner Water is a new Signature Program which was implemented in 2014.

Implementation has been timely; due to the heightened attention on water quality and nutrient effects in Grand Lake St. Mary's, Lake Erie and Ohio River Watersheds, farmer awareness is at an all-time high. Those who are economic/conservation minded are looking for Best Management Practices (BMPs) that will keep their nutrients in their fields. Concerns about mandatory programs in the future, if voluntary programs are not implemented, are a driver as well. Private and government sectors have been supportive.

Education is a key component of the signature program. 3,085 producers and agri-business persons across Ohio have received water quality education from 50 OSU Extension Educators; 2,807 of those participants received nutrient stewardship for cleaner water as reported by 39 OSU Extension employees.

More than 100 meetings have already been planned and advertised for 2015 throughout the state. Each county will host a minimum of one meeting.

## **Program Achievements**

33% of OSU Extension Agriculture and Natural Resources Educators have conducted on-farm and field trials of best management practices of application method, timing and nutrient rates. Another 12% will be conducting on-farm research in 2015. Research completed will be used to educate producers on the reduction of run-off of nutrients

Educators report that 82% of OSU Extension clientele have adopted soil testing and 49% follow Tri-state fertilizer recommendations for agronomic and other crops and are using organic and inorganic nutrient sources for optimal crop production.

Fertilizer recommendation calculators can be found on the Ag Crops web site at [www.agcrops.osu.edu](http://www.agcrops.osu.edu). Best management practices have been developed and are being vetted.

Fertilizer Applicator Certification Training by Extension Educators is emphasizing the optimization of the efficiency of fertilizer use by incorporating the 4R concept: the Right fertilizer source (91%), at the Right rate (89%), at the Right time (81%) and in the Right place (73%).

Fertilizer Training curriculum was developed by more than 20 OSU Extension faculty, using the latest research and findings to address the current environmental, agronomic and economic issues.

Agriculture and Natural Resources Educators and Program Coordinators from across the state participated in an intense educational inservice to provide training and consultation to their clientele.



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## **Program Achievements cont.**

OSU Extension responded quickly to the August 2, 2014, City of Toledo “Do not Drink” order. Three Fertilizer Applicator Certification Training meetings were held in Northwest Ohio in September and October with nearly 800 farmers and commercial applicators in attendance. We found the following from participants of those meetings:

- 80% agreed or strongly agreed that farm field phosphorous is a significant problem to our water resources (streams, rivers, lakes).
- 50% agreed or strongly agreed that they would change their nutrient management practices as a result of the meeting.
- 38% responded that they were neutral indicating a willingness to listen.

Since the roll out more than 3000 famers and commercial applicators have been trained

Over 130,000 persons had the opportunity to visit and discuss nutrient management at the demonstration plots at the 2014 Farm Science Review.

Grants have been secured to hire persons to assist in developing voluntary Nutrient Management Plans that include crop recommendations and site environmental risk assessments developed by producers

Fields with high nutrient loss risk are being identified. The implementation of appropriate cost effective Best Management Practices on these fields will be studied for effectiveness of reduction of nutrient loss.

## **Public Knowledge of Ohio State University Extension**

OSU Extension is quickly becoming known as the source for water quality and soil and nutrient management research and education. Within the legislative process Educators around the state have been consulted by their legislators regarding on farm research and nutrient management.

It is projected that nearly 15,000 persons will complete the Fertilizer Applicator Certificate Training program. The participants will complete re-certification training every three years to maintain the certificate. This exposure to researched based, quality education will demonstrate the value of Ohio State University Extension.

Intentional branding of all Fertilizer Applicator Certificate Training curriculum and materials including powerpoints have been branded with the appropriate university, college and Extension logo to focus the training on unbiased, research based information.



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**Marketing, Communication and Evaluation**

The communications team for the College of Food, Agricultural and Environmental Sciences has been developing marketing tools to promote the Nutrient Stewardship for Cleaner Water Program.

Currently there are branded templates for flyers, brochures and PowerPoints available. Be Part of the Solution window clings have been distributed to Fertilizer Applicator Certification Training completers and to others to further promote the program, college and university.

Evaluations are being completed for each meeting being held and the information tabulated within a spreadsheet environment.



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