

Farmers Seeking Solutions Forum

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Conservation Action Project (CAP)

Established in 1988 as a Non-Profit Organization (501c3) Focus on Agricultural Producer Outreach and Education Board of Trustees – 3 from each county and 6 at Large

- 1. Farmer
- 2. Agency
- 3. Ag Retailer / Ag-Business

Area of Influence

Seven NW Ohio Counties •Defiance •Fulton •Henry •Lucas •Paulding

- •Williams
- •Wood



Typical NW Ohio Soil

Lakebed soil
Shallow Topsoil 8"
12"
Glacial Till
Inherently Poorly
Drained



Poorly Drained

Issues caused by poor drainage Soils have need for artificial drainage Subsurface and Surface Drainage Soil moisture can effect nutrients Nitrogen is susceptible to leaching, denitrification, and volatilization Phosphorus not very mobile (we thought???) Erosion can be an issue if not managed **Conservation Practices** Buffers and Filter Strips

Nitrogen - The Super Nutrient Mobile and Dynamic

Nitrogen Projects

Soil Doctor Grant – 1991 or so

Evaluated effectiveness of Equipment Technology
Poor Tool for Nitrogen Management in NW Ohio
Yield Monitor – Cost Share
Nitrogen Plots – Replicated Plots
Cover Crops and Control Structures
Campbell Soup Company Funding

Nitrogen - The Super Nutrient Mobile and Dynamic

Nitrogen Projects

Soil Doctor Grant – 1991 or so
Good soil type indicator – similar to Veris
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Yield Monitor Project

- 1996 Yield Monitors were an emerging Technology
- 80 Yield Monitors put into the hands of Producers
- Field Scale Adaptive Management



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Nitrogen Plots

- Yield Monitors made Plot Evaluation Easier
- Electronic Rate Controllers help Replication is much easier
- GPS is a must

Guidance or Automated steering better yet

Nitrogen Rate Plots Estimated Volume (Dry) (bu/ac) 187.76 - 225.00 172.31 - 187.76 159.80 - 172.31148.23 - 159.80 **80 Yield Monitors** 135.47 - 148.23 118.92 - 135.47 31.11 - 118.92 Cost share program •Farm Scale Plots Adaptive Management Tool -100-Rec -1000 34ft

Nitrogen – The Super Nutrient

There is NO One Rate Fits All – Lessons Learned

Nitrogen Rates should be tailored for each operation - BMP

- •Weather
- •Timing
- •Soil OM
- •Split Applications
- •Tillage Practices
- Conservation Practices
- •Cover Crops



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Campbell Soup Company Grant

\$500,000 Grant over 10 years, initiated in 2008
Approved three practices –
Wetland establishment,
Cover crops,
Controlled agriculture drainage.

Wetland Establishment

Landowners participating - 2
Acres established - 20
Cost-share expended - \$20,000



Controlled Drainage

- Landowners participating 40
- Acres established 2162
- Cost-share expended \$151,000



Nitrogen Reduction

69.25 tons of nitrogen prevented from entering the Maumee River Watershed

Phosphorus Issues

Harmful Algal
Blooms (HAB)
400,000
RESIDENTS WITHOUT
SAFE DRINKING

WATER



Phosphorus in Lake Erie will likely mean changes for ag

By MATT REES Ohio is unbelievably fortunate to have Lake Krie, the richest, most productive and most biologically diverse of the Great Lakes.

"Lake Erie is one of the most important lakes in the world," said Jeff Reutier, director of Ohio Sea Grant and Stone Laboratory on Lake Erie. "Lake Erie produces more faish for human consumption than the other four Great Lakes combined."

Lake Superior has around 50% of the water and 2% of the fish of all the Great Lakes, while Lake Eric has 2% of the water and 50% of the fish. Reutter also pointed out that Lake Eric supplies drinking water for 11 million people, has more than 20 power plants and a \$1 billion sport fishery. In addition, Lake Eric is the shallowest and warments of the Great Lakes, and the watershed is dominated by cities and agriculture, so it gets more schment, more fertilizer and sewage, and more pescides.

"Inere are muge sectment to als coming into the Western Basin of Lake Erle from the Maumee and Sandusky rivers," he said.

continued on page 17



This bird's-aye view of the Western Basis of Laka Eris shows the sodiment and harmful algal blooms that burt water quality and will likely require some changes from agriculture. Photo provided by Jaef Renther.



Harmful Algal Bloom Lake Erie Basin - 2011



Western Lake Erie Basin

- 2% of the Great Lakes water but Supplies 50% of
 - the fish
- Drinking water for 11 million People
 - Lake Erie is the shallowest and warmest
 - The Maumee river brings more sediment into Lake
 - Erie than all the tributaries that drain into lake

superior

Sediment from the Maumee has been found beyond Niagara Falls.















WLEB Project Area

3 States
4.9 Million Acres
Parts of 30
Counties
Eight 8-Digit

HUC Units

Western Lake Erie Rapid Assessment Subbasins Branch Lenawee Monroe Ottawa Michigan Michigan 04100001 Lake Erie Indiana Ohio Milam Fiffi Lucas Steuben Ottawa IOSEP 04100006 Cedar Portage Noble Allen Hancock Auglaize Blanchard 410000 10000 Wells Wyandot Augialze Hardin ndiana Ohio Shelby Legend Mercer State Boundaries 5 20 10 County Boundaries Miles Note: Only a portion of subbasin 04100001 is shown and included in this plan (Ottawa River).

WLEB Land Use

4,939,508 Acres





Ohio EPA Phosphorus Task Force

Ohio Lake Erie Phosphorus Task Force II Report

Acknowledgements

The Ohio Lake Erie Phosphorus Task Force was comprised of the following members:

- Conservation Action Project and Henry County SWCD Todd Hesterman
- Heidelberg University, National Center for Water Quality Research Dave Baker and R. Peter Richards
- Lake Erie Improvement Association Ron Wyss
- Ohio Academy of Science/Ohio Fractured Flow Work Group Julie Weatherington-Rice
- Ohio Certified Crop Advisors Tina Lust (retired), Tim Berning
- Ohio Department of Agriculture Kevin Elder (Co-Chair)
- Ohio Department of Natural Resources, Soil and Water Karl Gebhardt (Co-Chair)
- Ohio Department of Natural Resources, Wildlife Roger Knight (retired) and Jeff Tyson
- Ohio Environmental Council Joe Logan
- Ohio Environmental Protection Agency, Surface Water Amy Jo Klei and Rick Wilson
- Ohio Farm Bureau Federation Larry Antosch
- Ohio Lake Erie Commission Gail Hesse (Co-Chair)
- Ohio Soybean Council Terry McClure
- Ohio State University, Environment and Natural Resources Libby Dayton
- Ohio State University, Sea Grant Jeff Reutter
- Ohio State University, Extension Greg LaBarge
- The Andersons Inc./Ohio Agribusiness Association Doug Busdeker
- The Scotts Miracle-Gro Company Chris Wible
- USDA, Agricultural Research Service Kevin King
- USDA, Natural Resources Conservation Service Mark Scarpitti and Steve Davis
- U.S. EPA, Great Lakes National Program Office Kevin O'Donnell
- U.S. Geological Survey Dan Button

Phosphorus Task Force I 2007 -2010

Conclusions from TaskforceLack of Research and Education

RecommendationsFund ResearchEducation and Outreach

Final report-Taskforce I

http://www.epa.ohio.gov/portals/35/documents/point source workgroup report.pdf

Phosphorus Task Force II 2011 -2013

Conclusions from TaskforceDevelop Recommendations to Weatherproof Lake Erie

RecommendationsDevelop Phosphorus Reduction TargetsDevelop Policy and Management Recommendations

Final report-Taskforce II

http://www.epa.state.oh.us/dsw/lakeerie/index.aspx

Variable Rate Technology Grant
 7 Fertilizer Dealerships Participated
 Focused on Services <u>NOT</u> Tons Sold
 Establish or Improve VRT Programs

- Technical support (Precision Ag Equipment, Technical Service Providers, Software)
- Education of Staff
- Outreach to Customers (farmers)



 Varied Stages of Adoption
 Existing VRT Programs
 Focus on Customer Adoption and Education
 Services Rebate – Limit Customers Perceived Risk Funding Used to Cover more Acres under VRT

Creative Ideas for Customer Participation (sign up 100 acres and get 100 acres for free)

Varied Stages of Adoption
 Developing VRT Programs

- Focus on Dealership Adoption and Education Equipment Improvements
 - Software
 - Hardware (Twin Bin Spreaders, Controllers, etc.)
 - Technical Support
 - Educate Staff
 - Contract Services of Service Provider (CCA's)
 Proposed Services to Customer Base

Conservation Action Project - Phosphorus Reduction Using Variable Rate Technology Great Lakes Restoration Initiative Grant Project Number: CAP-FDVRT10					
Total Acres Enrolled 8,652.68	Acres of Decreased Usage 5,310.38	Acres of Unchanged Usage 1,533.50	Acres of Increased Usage 1,808.80		
(total lbs.)	4,526.28	784.1	0		
181,510.28 Average Reduction	Corn Crop Decreased Acres	Soybean Crop Decreased Acres	Wheat Crop Decreased Acres		
(lbs $P_2O_5/acre)$	4 955 99	525	105		
20.98	1,255.30	535	18.5		
1 - Dealership Increased Overall Usage	Corn Crop Increased Acres	Soybean Crop Increased Acres	Wheat Crop Increased Acres		
2 - Dealers had No Increased Usage					
	462	1,071.50	0		
4 - Dealers had some Increased and some Decreased Usage	Corn Crop Unchanged Acres	Soybean Crop Unchanged Acres	Wheat Crop Unchanged Acres		
	6,243.58	2,390.60	18.50		
	Total Corn	Total Soybean	Total Wheat		
	Acres	Acres	Acres		
	253,602.58	72,092.30			
	Decreased Pounds	Increased Pounds			

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	Decreased	12,032.30			
	Pounds	Pounds			



Ongoing Projects

4R's Dealer Certification ProgramOn the Steering Committee

Cover Crop Grants for Specific Watersheds

Participating in Edge of Field Monitoring (My Farm)

Tools in a Toolbox



Best Tool in our Arsenal



Farmers Seeking Solutions Forum

Thank You

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Changes on My Farm

Edge of Field Drainage Monitoring USDA / ARS



Changes on My Farm

Drainage Control Structures
 4 Installed so far
 Banding Fertilizer with Strip-Till



Changes on My Farm

Soil Sample more intensively
 Geo-referenced zones
 More often every two years
 Concentrate on Soil Health
 Cover crops (limited experience)