

Designing Conservation Auctions for Aquatic Ecosystem Services in Agricultural Watersheds



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Agricultural landscapes & water quality

Percent of Land Area in Crop Production, 2014

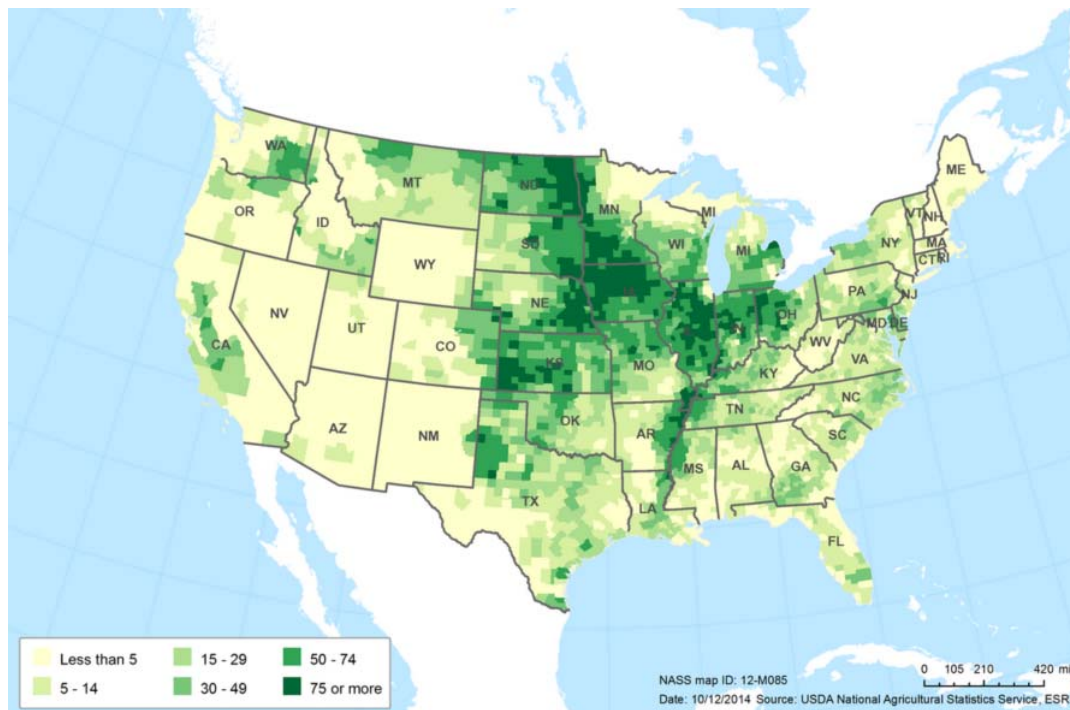
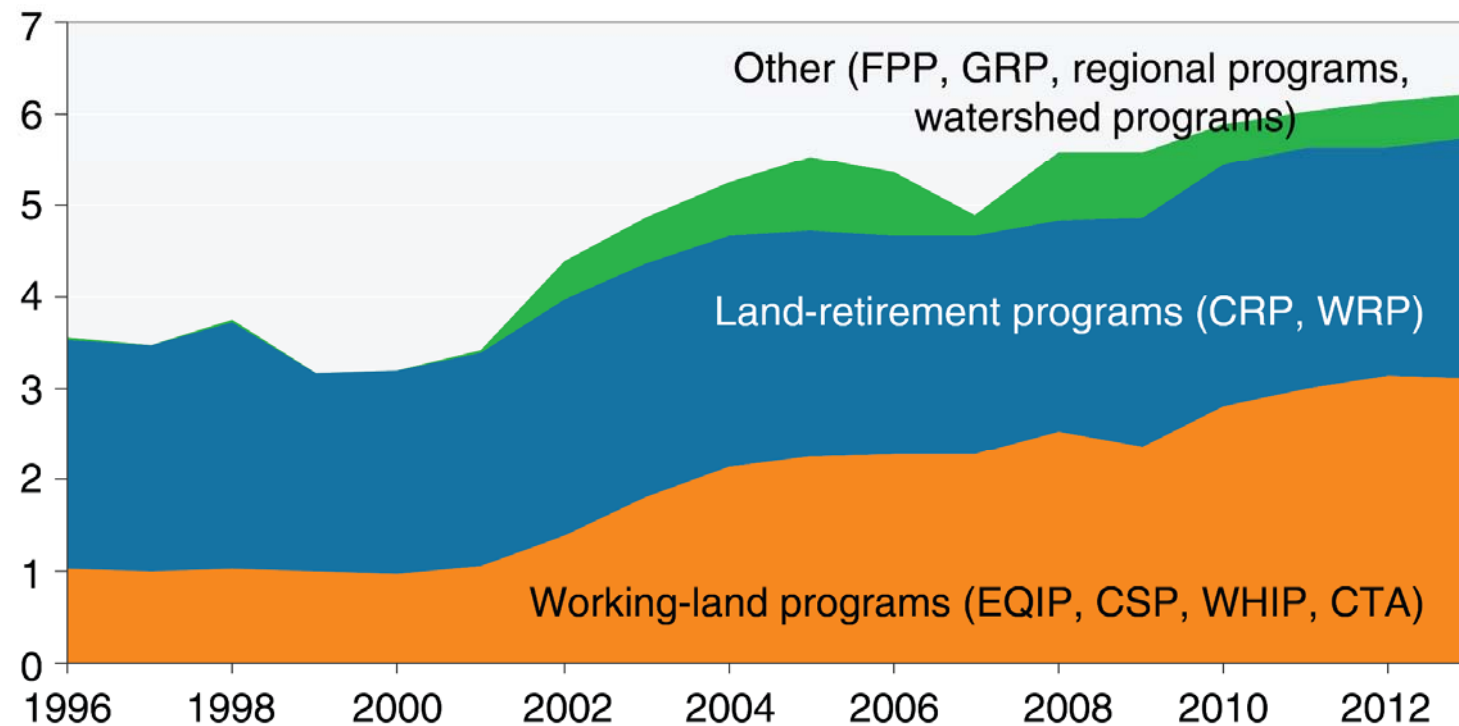


Photo Credit: U.S. Geological Survey, 2004

Spending on US Conservation Programs

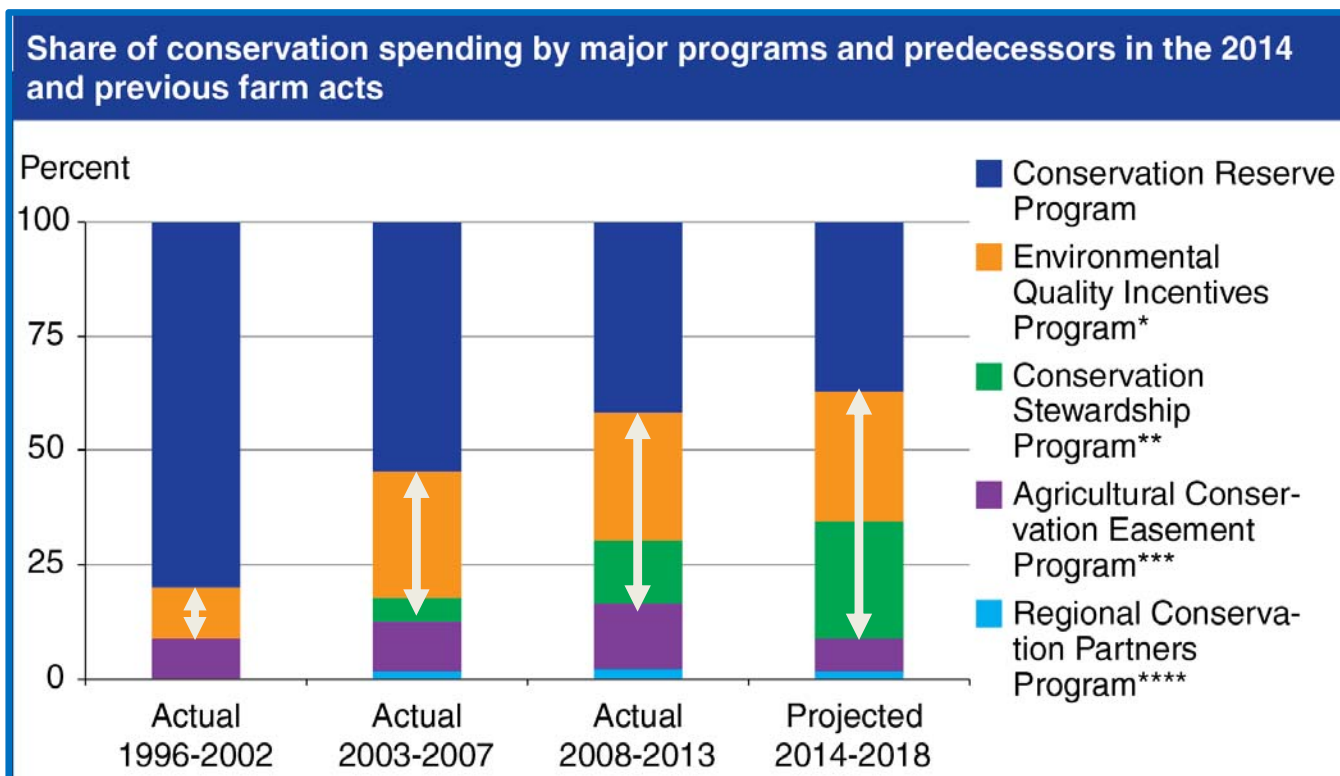
Trends in major USDA conservation program expenditures, 1996–2013

\$ billion (2012 dollars)




Source: ERS analysis of USDA Office of Budget and Policy Analysis (OBPA) data

Funding for working lands is increasing



Sources: ERS analysis of Office of Budget and Policy Analysis data on actual expenditures for 1996-2013; spending levels provided in the 2014 Farm Act and Congressional Budget Office estimates for 2014-2018.

Objectives of our research

- ❖ Identify ways to design cost-effective agri-environmental programs that will result in getting the right practices, used on the right places, at the right time, implemented the right way.
 - ❖ How can we accomplish this?
 - Understand the science
 - Understand the costs and benefits of adopting various conservation practices
 - Understand farmer preferences for different types of conservation incentives and contracts (E.g., payments, green insurance, tax credits, price premiums for stewardship certification).
- 

Why Conservation Auctions?

Conservation (reverse) auction

Allows multiple landowners (sellers of environmental services) to compete for BMP contracts from a conservation organization (buyer of environmental services).

- ❑ More environmental benefits from limited conservation budgets →

More environmental bang for our conservation buck!

- ❑ Farmers can propose flexible BMP scenarios



Year 1 Pilot Auctions: Testing conservation incentives



❖ Direct payments: Gov't or NGO funded (e.g. EQIP, CRP)

- » One-time cost-share
- » Annual stewardship payments

❖ Market incentives

- » Market access
- » Price premiums

❖ Other incentives

- » Best Management Practice (BMP) insurance
- » Subsidized taxes or fees (e.g., tax credits).

Year 1 Pilot Auctions: Testing conservation incentives




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 - » Market access
 - » Price premiums
- ❖ Other incentives
 - » Best Management Practice (BMP) insurance
 - » Subsidized taxes or fees (e.g., tax credits).

Real conservation auctions in the Lake Erie Basin

<http://www.defiancetiffinbmpauction.org/>

Defiance-Tiffin Watershed BMP Auction

- Defiance-Tiffin BMP Auction
- Frequently Asked Questions
- Environmental Benefits on Your Land
- Bidding Instructions
- Conservation Practice Standards
- Contact



Defiance-Tiffin Watershed BMP Auction

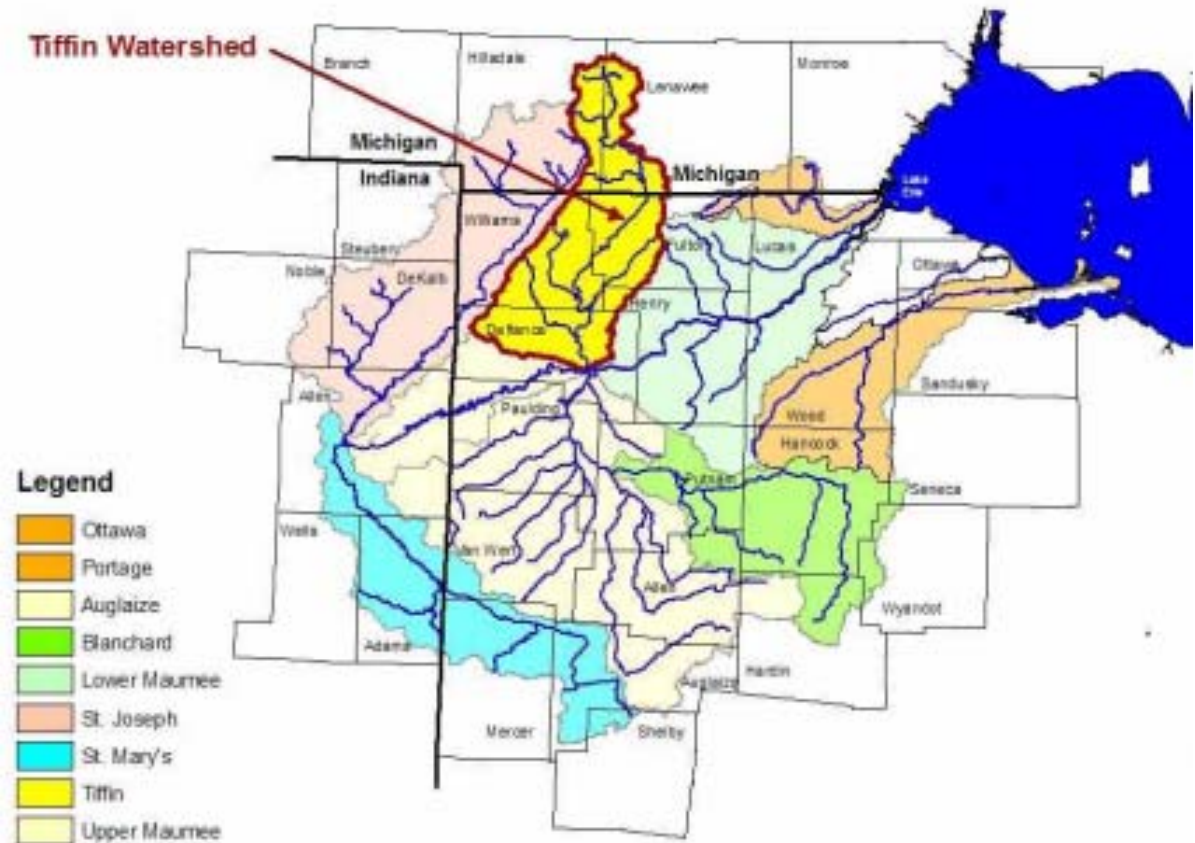
Our Goal

The goal of the Defiance-Tiffin Watershed BMP Auction is to pay farmers to adopt BMPs that improve water quality in the Tiffin River and Lake Erie.

Tiffin Watershed BMP Auctions

Two Auctions:

- 1) Fulton County, OH
- 2) Defiance County, OH

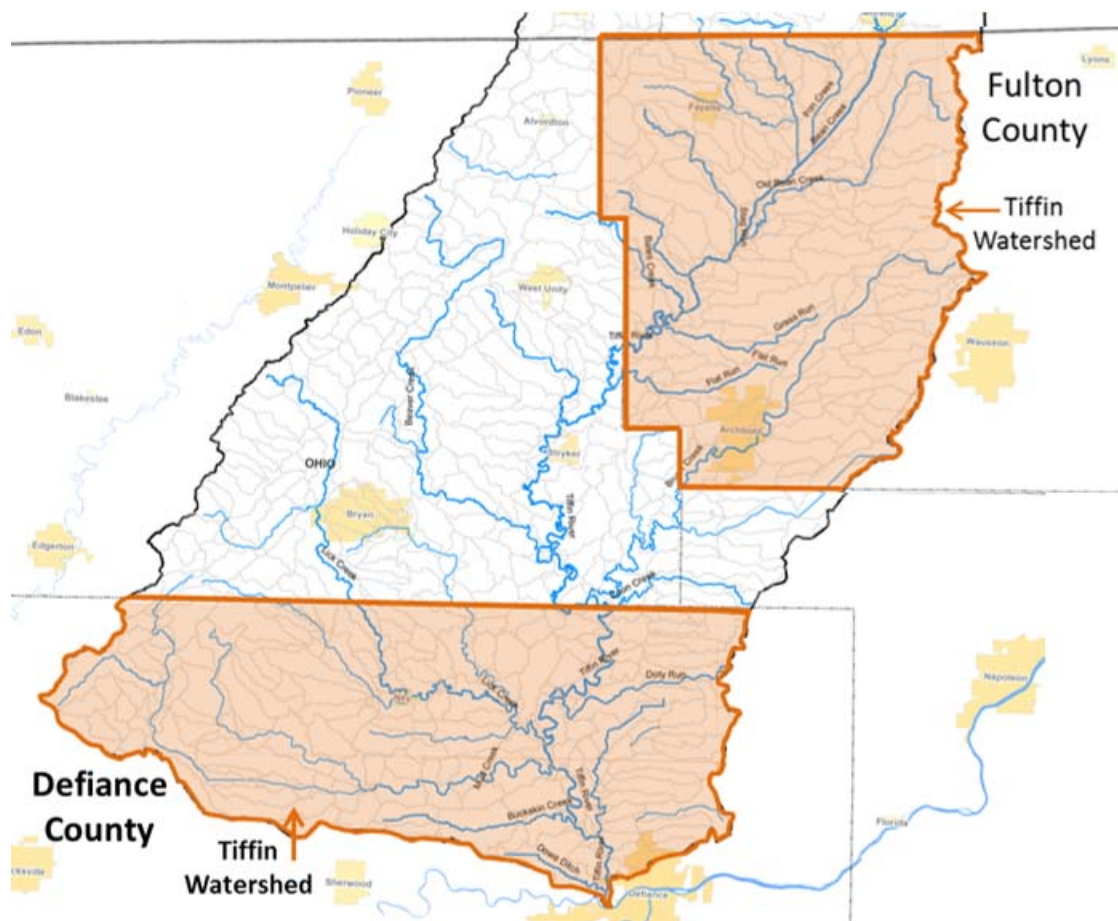


Three Eligible BMPs:

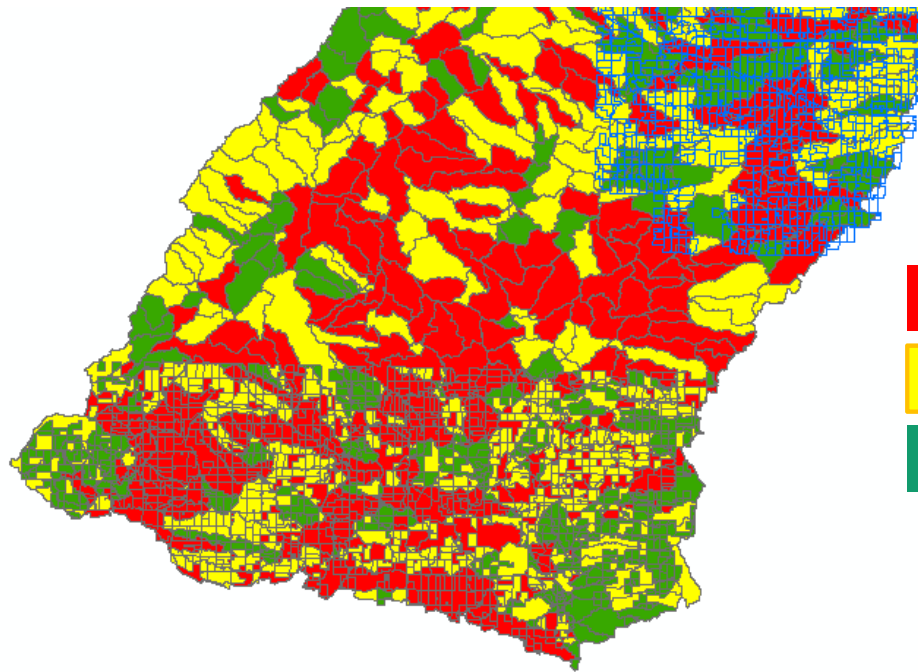
1. Cover Crop
2. Filter strip
3. Subsurface Drainage Control Structure

\$25,000 budget for each county

Group bidding allowed in both counties



Environmental information treatment



Defiance County landowners got additional information about the potential environmental benefits from adopting BMPs on their land.

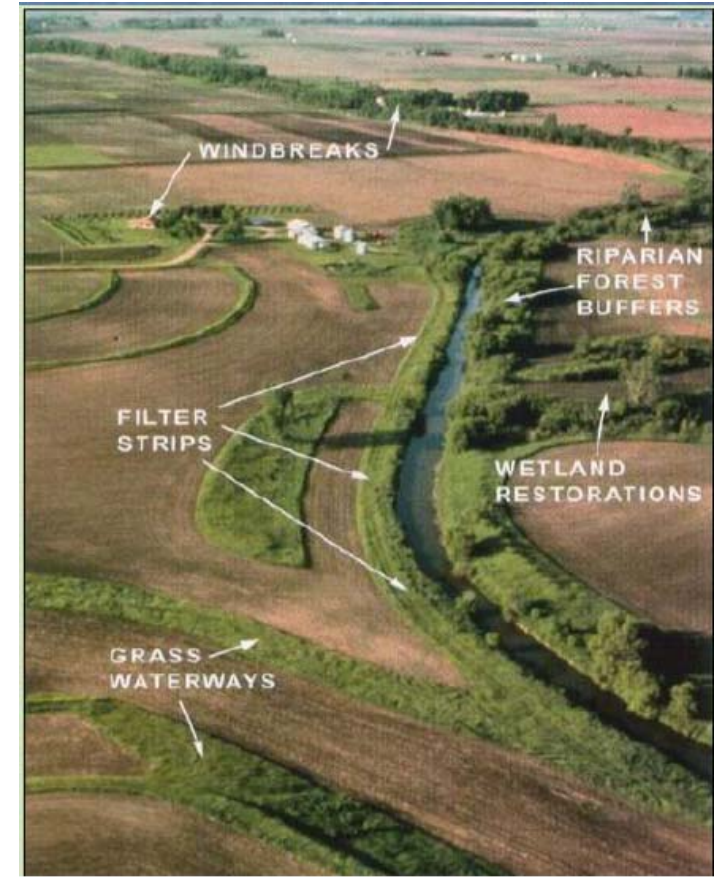
Announcing a new conservation auction

- ❖ Mailed invitations to ~ 507 landowners in Defiance and ~ 534 landowners in Fulton (June 28th).
 - » 24 requested that paper bid packets be mailed directly to them
- ❖ Websites:
 - » www.FultonTiffinBMPAuction.org & www.DefianceTiffinBMPAuction.org
- ❖ Press releases in the newspaper, newsletters, radio
- ❖ Reminder postcards mailed to all landowners September 2nd, 2014.
- ❖ Bids due September 30th, 2014 for 2015 BMPs.



Bids funded in Fulton Co. & Defiance Co.

- ❖ 36 bids submitted → \$62,550 and 1,500 acres
 - 75% of bids for cover crops (\$30 - \$50 / acre)
 - 14% for drain control structures (\$1,200 - \$2,000 ea.)
 - 11% for filter strips
- ❖ Bids ranked on the cost per pound of bioavailable phosphorus reduction
- ❖ 29 bids accepted → \$50,575 and 1,200 acres
 - Filter strips were the most cost-effective



Lessons learned

❖ Farmers want information about:

- How much to bid → guidelines requested.
- Environmental impacts → which BMPs are best?
- How BMPs affect their bottom line.
 - » Technical support is needed

❖ Bid evaluation is time intensive → simplify?

❖ Model assumptions matter & impact bid ranking



1% bidding rate... why?

- ❖ Other conservation programs in the Tiffin Watershed – sponsored by NRCS, DNR, and others.

cleveland.com
COVERING NORTHEAST OHIO

Agriculture Department gives Ohio emergency money to fight algae blooms



USDA Invests New Conservation Funds to Improve Lake Erie Water Quality

USDA Office of Communications sent this bulletin at 08/19/2014 10:10 AM EDT

You are subscribed to USDA Office of Communications.

1% bidding rate... why?

- ❖ Other conservation programs in the Tiffin Watershed – sponsored by NRCS, DNR, and others.
- ❖ Time and effort involved to submit a bid
- ❖ Uncertainty about how much to bid and if the bid would be accepted.
 - » Belief that bid would be rejected, based on prior cost-share programs that did not model ecological impact.
- ❖ Unfamiliar with the program



Using a follow-up survey, we want to learn..

- ❖ How to improve the design of performance-based conservation programs
- ❖ At what point did we “lose” folks?
Did they read the invitation, visit the website, request bid packet, etc.?
- ❖ Why individuals chose not to bid?
- ❖ Could the auction process be simplified and still lead to the same result?



Many thanks to our project partners & supporters

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Great Lakes
Protection Fund

The Nature
Conservancy



LimnoTech



Ohio Soil & Water Conservation Districts
Ohio Corn and Soybean Farmers

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What questions do you have?

36 bids were submitted by Sept. 30th

	Fulton	Defiance	Total
# of producers bidding	6	4	10
# of total bids submitted	24*	12	36

* One bid was ineligible because it is located east of the Tiffin watershed.

Note: No group bids were submitted



36 bids were submitted by Sept. 30th

	Fulton	Defiance	Total
# of producers bidding	6	4	10
# of total bids submitted	24*	12	36
# of bids for cover crops	19	8	27
# of bids for drainage control structures	1	4	5
# of bids for filter strips	4	0	4

* One bid was ineligible because it is located east of the Tiffin watershed.

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# of total bids submitted	24*	12	36
# of bids for cover crops	19	8	27
# of bids for drainage control structures	1	4	5
# of bids for filter strips	4	0	4
Approx. acres treated	998	510	1,508
Total funding requested	\$35,926	\$26,620	\$62,546

* One bid was ineligible because it is located east of the Tiffin watershed.

Note: No group bids were submitted



29 bids ACCEPTED

	Fulton	Defiance	Total
# of total bids ACCEPTED	20	9	29



29 bids ACCEPTED

	Fulton	Defiance	Total
# of total bids ACCEPTED	20	9	29
# of bids for cover crops	15	5	20
# of bids for drainage control structures	1	4	5
# of bids for filter strips	4	0	4



29 bids ACCEPTED

	Fulton	Defiance	Total
# of total bids ACCEPTED	20	9	29
# of bids for cover crops	15	5	20
# of bids for drainage control structures	1	4	5
# of bids for filter strips	4	0	4
Approx. acres treated	755	459	1,214
Total funding requested	\$24,924	\$25,651	\$50,575

Excess Nutrients Threaten Water Quality

The Detroit News

Metro and State Michigan

FEBRUARY 27, 2014 AT 11:48 PM

Report: Lake Erie's health threatened, needs nutrient diet

JIM LYNCH THE DETROIT NEWS 16 COMMENTS



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© www.sanduskyregister.com

- ❖ Classic “externality” problem
- ❖ Farmers have property rights.
- ❖ Payments for environmental services (PES)
 - » How much should we pay?
 - » What form of payment?
 - » How should contracts be structured?

Targeted and straightforward programs are needed

Cost-effectiveness of accepted contracts for in-field practices

