WESTERN LAKE ERIE BASIN INITIATIVE

3 Year Investment

$77 Million in Financial & Technical Assistance to Farmers

- Apply conservation plans on about 870,000 acres
- Reduce edge-of-field total phosphorus losses by 640,000 lbs. annually, 174,000 lbs. of which is DRP.
PRINCIPLES OF WLEB INITIATIVE

• **SCIENCE/RESEARCH BASED & TARGETED**

• **STAKEHOLDER AND PARTNERSHIP DRIVEN**

• **MULTI-STATE**

• **MULTI-FACETED**

• **ACCOUNTABLE**

• **COMPLIMENTARY TO OTHER PARTNER EFFORTS**
SCIENCE BASED PRINCIPLE
EDGE OF FIELD/P INDEX WORK

Natural Resources Conservation Service and Agricultural Research Service
**SCIENCE BASED PRINCIPLE - CEAP STUDY**

FIELD SCALE APEX MODEL USED TO DETERMINE BMP’S AND PROJECT BENEFITS:

<table>
<thead>
<tr>
<th>Model Integrates Effects of Applying Conservation Practices:</th>
<th>Model Predicts Changes For:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Nutrient and 4R Fertilizer Management</td>
<td>• Sediment</td>
</tr>
<tr>
<td>• Cover Crops</td>
<td>• Phosphorus (TP &amp; DRP)</td>
</tr>
<tr>
<td>• Conservation Tillage</td>
<td>• Nitrogen</td>
</tr>
<tr>
<td>• Filter Strips</td>
<td>• Soil Carbon</td>
</tr>
<tr>
<td>• Drainage Water Management</td>
<td></td>
</tr>
<tr>
<td>• Others</td>
<td></td>
</tr>
</tbody>
</table>
*Inherent soil runoff potential is shown for the dominant mapping unit condition independent of local climate conditions.

WLEB - Inherent Soil Runoff Potential on Cultivated Agricultural Land

* Cultivated agricultural lands are based on the 2014 NASS Cultivated Layer and categories 37 – Other Hay/Non Alalfa, 59 – Sod/Grass Seed, and 60 – Switchgrass from the 2014 NASS Cropland Data Layer. It also includes areas where CRP lands intersect with 2011 NLCD categories 81 – Hay/Pasture and 82 – Cultivated Crops.
Managed soil leaching incorporates areas where artificial drainage is predicted which increases the inherent soil leaching potential.

Managed soil leaching potential is shown for the dominant mapping unit condition independent of local climate conditions.

Cultivated agricultural lands are based on the 2014 NASS Cultivated Layer and categories 37 – Other Hay/Non Alfalfa, 59 – Sod/Grass Seed, and 60 – Switchgrass from the 2014 NASS Cropland Data Layer. It also includes areas where CRP lands intersect with 2011 NLCD categories 81 – Hay/Pasture and 82 – Cultivated Crops.
Soil Erosion Vulnerability:

Focus on fields with **high vulnerability to erosion and excessive rates of soil loss** that contribute to sediment P losses.

Surface Runoff Vulnerability:

Focus on fields with **high vulnerability to surface runoff**, that transport particulate and soluble P, to the streams and Lake Erie.
Soil Leaching Vulnerability:

Focus on fields and soils with *high vulnerability to subsurface leaching*. Tile drainage transports soluble P losses (DRP).

High Soil P Tests & Direct Discharges:

Focus on High P Soil Test Fields, Tile Risers, Catch Basins, and lack of filter strips
APEX Simulations of Seasonal Total P losses under various potential conservation strategies

Approximate 30% Reduction

Combined System Erosion Control, Nutrient Management, Cover Crops

Month 2012  ENM  ENC  CC  SEC
## CEAP Calculation of Alternate Scenarios

### Leaching Loss Analysis

<table>
<thead>
<tr>
<th>Scenario</th>
<th>% Systems</th>
<th>$ By Systems</th>
<th>System Cost per Acre</th>
<th>System Acres</th>
<th>Lbs/ac Total P Saved</th>
<th>Lbs. Total P Saved</th>
<th>Lbs. DRP Saved</th>
<th>Lbs. Total DRP</th>
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</thead>
<tbody>
<tr>
<td>Cover Crop Only</td>
<td>CC</td>
<td>10.0%</td>
<td>4601328</td>
<td>182.79</td>
<td>25173</td>
<td>0.4</td>
<td>10069</td>
<td>0.3</td>
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<tr>
<td>Erosion Control Only</td>
<td>EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrient Mgt Only</td>
<td>NM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.3</td>
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<tr>
<td>Erosion Control + Nutrient Mgt</td>
<td>EC + NM</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>0.2</td>
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<tr>
<td>Erosion Control + Nutrient Mgt + Cover Crops</td>
<td>EC+NM+C</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.5</td>
</tr>
<tr>
<td>Drain Water Management</td>
<td>DWM</td>
<td>10.0%</td>
<td>4601328</td>
<td>27.60</td>
<td>166715</td>
<td>0.6</td>
<td>100029</td>
<td>0.5</td>
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<tr>
<td>Drain Water Mgt + ENW</td>
<td>DWM+EC +NM</td>
<td>5.0%</td>
<td>2300664</td>
<td>122.26</td>
<td>18817</td>
<td>0.6</td>
<td>11290</td>
<td>0.5</td>
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<tr>
<td>Waste Structure + Nutrient Mgt</td>
<td>WS+NM</td>
<td>10.0%</td>
<td>4601328</td>
<td>539.00</td>
<td>8537</td>
<td>0.7</td>
<td>5976</td>
<td>0.8</td>
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<tr>
<td>Totals</td>
<td></td>
<td>100%</td>
<td>46,013,280</td>
<td>581,566</td>
<td>261,597</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Spreadsheet Calculation of benefits of various scenarios!**
Targeting of High Risk Field Areas

Risk 5 – *Catch Basin* – Edge of field Surface Inlet at County Road Ditch

Risk 1 – *High Soil Test Levels* - Two small areas - livestock lots and disposal fields next to old barn long removed.

Risk 2 – *Tile drained soils* subject to leaching.

Risk 4 – *Open drainage ditch/stream* receiving unfiltered cropland runoff

Risk 3 – *Steep slopes* and area subject to erosion
EXAMPLE EQIP RANKING QUESTIONS
Based on Science and Targeting

• Percentage of acres High or Moderately High for leaching? Percent for surface runoff?

• What are the soil test phosphorus levels?

• Will contract improve water quality on land adjoining a designated “impaired water body”? (TMDL, 303d listed waterbody, or other State designation)
### Ranking Form consists of 116 lines of questions!
STAKEHOLDER DRIVEN PRINCIPLE

In Response to Toledo Water Crisis NRCS Leadership Held 12 Small Group Farmer Input Meetings in Different Locations Across The Basin
INITIATIVE SOLICITED PARTNERSHIP INPUT

• Outside Facilitator

• Input From More Than 70 Individuals Representing 46 Different Organizations

• Multiple Meetings and Individual Phone Interviews.
MULTI-STATE BASIN BASED PRINCIPLE

- Alignment of EQIP Program Ranking Sheets
- Alignment of Program Sign-up Dates
- When possible, alignment of Standards & Specs
MULTI-FACETED PRINCIPLE

1. TECHNICAL ASSISTANCE
2. FINANCIAL ASSISTANCE
3. INFORMATION AND OUTREACH

“THERE IS NO SILVER BULLET”
COMPONENT 1 - TECHNICAL ASSISTANCE

- Additional Technical & Information Staff
- Field Office Staff and Joint Funding Agreements with SWCD’s
- Approximately 15 Total Additional NRCS &/Or SWCD Staff Positions In Three States
### COMPONENT 2 - Cost Share $

#### 2016 - EQIP SIGNUP SUMMARY TODEATE

<table>
<thead>
<tr>
<th></th>
<th>WLEB Initiative</th>
<th>Tri-State WLEB RCPP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State</strong></td>
<td><strong>Contracts</strong></td>
<td><strong>Acres</strong></td>
</tr>
<tr>
<td>Indiana</td>
<td>32</td>
<td>7,700</td>
</tr>
<tr>
<td>Michigan</td>
<td>16</td>
<td>4,400</td>
</tr>
<tr>
<td>Ohio</td>
<td>88</td>
<td>45,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>136</td>
<td>57,100</td>
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</tbody>
</table>
COMPONENT 3 - PUBLIC INFORMATION

Filmed Ohio WLEB Farmers and Conservation Partners for Promotional Video
COMPONENT 3 - PUBLIC INFORMATION

Outreach To Amish Farmers In Indiana
COMPONENT 3 - PUBLIC INFORMATION

Farmer Lake Erie Sails - Michigan MAEAP Program
ACCOUNTABILITY PRINCIPLE

CEAP STEPS

1. Landowner Survey
2. Cropland Assessment
3. Wildlife Assessment
4. Loading Report (SWAT)
5. Economic Assessment
6. Annual Reporting of Savings
PRINCIPLE OF SUPPORTING OTHER PARTNERS WORK

• 3 Demonstration Farms In Partnership with Ohio Farm Bureau Federation

• $1 Million Investment (75% NRCS & 25% OFBF)

• NRCS Funding ARS $250,000 Edge-of-Field Research at Demo Farms
Numerous Interagency Field Days Held at Demo Farms & Other Locations

196 People Attended First Field Day at Kurt Demonstration Farm
INITIATIVE LEVERAGES & COMPLIMENTS OTHER PARTNERS WORK

In Two Years Time...

- Right Time, Right Rate, Right Place
- 5650 Farms
- 2.3 Million Acres
- Third Party Verified
Working Together
The Key to Solving the Lake Erie Issues
THANK YOU AND QUESTIONS?

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