Watershed Projects and Agriculture

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Challenges with Trading

- The producers who are looking to get engaged with trading are probably the ones with the lowest levels of loss.
  - Can they make changes that reduce losses to a level that is measurable in water quality?

- Farmers want to protect water quality – they need to be involved throughout the process.
Water Quality Trading

- Will changes in management show up in water quality
  - Annual variation
  - Lack of control in ag
P – Index (Management Tool)

- Excellent tool to evaluate the relative risk of fields or management practices against other fields or practices on the same farm
Today the P-Index is a regulatory tool:

- Croplands, pastures, and winter grazing areas shall average a phosphorus index of 6 or less over the accounting period and may not exceed a phosphorus index of 12 in any individual year within the accounting period.
Example Watershed

- Target watershed with a TMDL

- Adaptive management program:
  - Need to reduce P loss by 0.25 lbs / acre
  - Producers were asked to decrease their P-index by 0.25 lbs and told that the watershed would then achieve its TMDL!
Example Watershed

- 95% of all land (16,600 acres) had a soil test level below 50 ppm
- 11,000 acres (63% of all acres) had a PI of 1 or 2,
- 4,500 acres (25%) had a PI of 3 or 4
- Area identified by PI is incorrect based on data
### Nutrient and Soil Conservation Assessment (SNAP):

<table>
<thead>
<tr>
<th>Rot. Ave Soil Loss</th>
<th>Phosphorus Index</th>
<th>Soil Test Phosphorus (ppm)</th>
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</thead>
<tbody>
<tr>
<td>Ave</td>
<td>Ave</td>
<td>Ave</td>
</tr>
<tr>
<td>Min</td>
<td>Min</td>
<td>Min</td>
</tr>
<tr>
<td>Max</td>
<td>Max</td>
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</table>

<table>
<thead>
<tr>
<th>Loss</th>
<th># fields</th>
<th># Acres</th>
<th>Field PI</th>
<th># fields</th>
<th># Acres</th>
<th>Soil Test</th>
<th># fields</th>
<th># Acres</th>
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<td>27</td>
<td>316.6</td>
<td>0</td>
<td>20</td>
<td>266.2</td>
<td>&lt; 20</td>
<td>23</td>
<td>290.2</td>
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<td>0.6 - 2.0</td>
<td>62</td>
<td>586.7</td>
<td>1</td>
<td>46</td>
<td>384.0</td>
<td>21 - 50</td>
<td>38</td>
<td>330.5</td>
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<tr>
<td>2.1 - 4.0</td>
<td>20</td>
<td>238.0</td>
<td>2</td>
<td>26</td>
<td>303.8</td>
<td>51 - 90</td>
<td>23</td>
<td>236.5</td>
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<td>7.9</td>
<td>3</td>
<td>11</td>
<td>150.5</td>
<td>91 - 150</td>
<td>21</td>
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<tr>
<td>&gt; 5.1</td>
<td>0</td>
<td>0.0</td>
<td>4</td>
<td>4</td>
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<td>6</td>
<td>1</td>
<td>7.9</td>
<td>Total</td>
<td>109</td>
<td>1149.2</td>
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</table>
The P-Index versus actual loss

- 2006 P Index: 6.4
- 2007 P Index: 1.3
- 2008 P Index: 5.6
- 2006 Actual Loss: 1.6
- 2007 Actual Loss: 0.34
- 2008 Actual Loss: 6.3

4.4 lbs delivered in 7.5” rain
New Challenge

- Data confidentiality
- Agencies having a larger regulatory role
- Where do farmers go for advice, evaluation and information?
The major lesson learned from Discovery Farms is that producers have to be a major part of:

• Identifying the issues
• Designing solutions
• Developing the implementation plans
• Evaluating results

Questions???