Using the Farm Bill in Targeted Areas for the Greatest Return on Investment

IN THE CASS RIVER WATERSHED
Cass River Watershed Project

• The Sanilac and Tuscola Conservation Districts are working under a two year grant with The Nature Conservancy.

• $120,000 C.S Mott Foundation for two years of work in the Cass River Watershed.

• Goal of the grant is to focus technicians time in the priority areas of the Cass River Watershed in order to positively impact the local fish communities.

• Technicians will work closely with producers and landowners to encourage the use of farm bill programs and funding to implement Best Management Practices (BMPs).

• Technicians from both districts have worked to increase interest among landowners through...
  • Public Contact - Talking with them about possible Environmental Quality Incentive Program (EQIP), or Conservation Stewardship Programs (CStP) through NRCS cost share.
  • Education - Annual Cover Crop Field Days
  • Promoting Fish and Wildlife services.
Cass River Watershed Target Areas

The darker green the area the more the fish health improved. This is how target areas of focus were decided.
116,034 Row Crop Acres Total

- 25% = 29,000 acres
- 50% = 58,000 acres
Implementation

• Several of the landowners and ag producers had been working with in the Cass River Watershed were funded for EQIP contracts last summer and will begin to implement the conservation practices included in their contracts.

• Many of the Agricultural Producers are trying some type of conservation tillage this spring. There are contracts that include no-till and reduced tillage.

• We are really excited to have so many acres in the Cass River Watershed that will be using conservation tillage, and hope that producers will see not only the environmental benefits but they will see a financial benefit as well.

• The table to the right is a list of Best Management Practices that have been contracted/installed over the last year and half.

<table>
<thead>
<tr>
<th>BMP</th>
<th>Acerage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Cropping</td>
<td>1191</td>
</tr>
<tr>
<td>Residue Management/Reduced Tillage</td>
<td>1506</td>
</tr>
<tr>
<td>Nutrient Management</td>
<td>8687</td>
</tr>
<tr>
<td>Integrated Pest Management</td>
<td>3632</td>
</tr>
<tr>
<td>Windbreak</td>
<td>1720 FT</td>
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<tr>
<td>Cover Crop</td>
<td>881</td>
</tr>
<tr>
<td>CNMP</td>
<td>1110</td>
</tr>
<tr>
<td>Wetland Creation/restoration</td>
<td>13</td>
</tr>
<tr>
<td>No-Till Plantings (with districts drills)</td>
<td>3150</td>
</tr>
<tr>
<td>Grassed Waterway</td>
<td>1490 FT</td>
</tr>
<tr>
<td>Grade Stabilization Structure</td>
<td>240 FT</td>
</tr>
<tr>
<td>Filter Strip</td>
<td>7.3</td>
</tr>
<tr>
<td>Conservation Cover</td>
<td>5</td>
</tr>
</tbody>
</table>
Comparing Tillage Methods

• Technicians have worked with several producers in the Cass River Watershed to gather financial information on tillage types used on their operations.

• The goal was to compare producer who use conventional tillage to a producer who uses conservation tillage. With the end result hopefully demonstrating a financial gain from conservation tillage.

• Technicians were able to gather some financial data from a producer who uses tillage and a producer who has practiced no-till for over 20 years.

• The information gathered wasn’t as in depth as we had planned on, and we are working on developing a different strategy to gather more complete information by the end of this harvest this fall.
Conventional Vs. Conservation Tillage

The type of tillage a producer uses on their farm usually will differ slightly from the farming operation 5 miles down the road. There are usually many factors that go into deciding what type of tillage to use on a farm...

- Type of soil, Drainage, How much help, How much time, and also what has been used in the past.

Conventional Tillage- A term for working the ground that would leave the ground bare by turning the soil and crop residue under. Examples: Disking, Chisel and Moldboard Plow

Conservation Tillage – Tillage practices that leave the soil covered at least 30% year round. Examples: Strip Till, Mulch Till, Ridge Till, and No-Till.
Financial Differences

Conventional Tillage Operation

Fall
- Chisel Plow 15ft @ 5mph = 13ac/hr.
  * 80 acre field would take just over 6hrs to work @ $15.00/ac = $90.00

Spring
- 2X Field Cultivator w/ cultipacker - 23ft @ 6.5 mph = 16ac/hr
  * 80 acre field would take just under 5hrs to work @ $15.00/ac = $75.00 x 2 = $150.00
- Planting 30ft @ 4.5 mph = 13 ac/hr
  * 80 acre field would take just under 6hrs to work @ $15.00/ac = $90.00
- 2X Spraying 120ft @ 11 mph = 35ac/hr (custom hire)
  * 80 acre field would take just over 2 hours to be sprayed @ $8.00/ac = $640 x 2 = $1280 without product

Other Factors to consider – Wear and tear on the tractor and implements are much more extensive with this type of tillage operation increases maintenance cost and fuel cost. Usually a second tractor is needed because of time constraints in the spring.
Conservation Tillage – No-Till

Fall
- Spraying @ $15.00/AC
  * 80 ac field would take just over 2 hours. $15.00/ac = $1200.00 with product

Spring
- Planting 20ft drill @ 5mph = 7 ac/hr
  * 80/AC field would take 11 hrs to plant @ $15.00/hr = $165
- Spraying @ $15.00/AC
  * 80/AC field would take just over 2 hrs. $15.00/ac = $1200.00 with product

Other Factors to consider- Fewer implements to repair. Chemicals can be more expensive in a no-till system. Cover crops are often used and over time they help raise organic matter and can help suppress weeds which then can take away some of the chemical cost involved. Long term no-till users see impacts on water, soil quality and compaction.
Using Great Lakes Watershed Management System

The Great Lakes Watershed Management System (GLWMS) was created and funded by several different organizations. The Nature Conservancy, The U.S. Army Corps of Engineers Chicago District, The Institute of Water Research at Michigan State University, and the Department of Agriculture and Biological Engineering at Purdue University.

- This tool can has many helpful when considering changing the tillage practices on a farming operation. It allows the producer to compare different tillage scenarios and best management practices on their land.
- It looks at erosion and sediment issues with the current tillage methods and what practices could reduce the erosion loss and sediment loading.

The next few slides are an example of using the GLWMS on a producers farm that is currently enrolled in an EQIP contract that has them using No-Till and Cover Crops. It shows the reduction in erosion and sediment loss from their previously preferred method of conventional tillage to conservation tillage.
Using Great Lakes Watershed Management System.
HIT and L-THIA

(High Impact Targeting)
A tool for optimizing sedimentation reduction efforts in the Great Lakes Basin

HIT combines an Annex model (HIU = High Impact Unit; I1 = Impaired Goal; L = Low Risk) with a nonlinear delivery model (SEDTRM - Spatially Transition delivery Model) to calculate annual erosion and sediment loading to streams for areas of the Great Lakes Basin. This combination relies on two outputs: field-scale maps identifying areas at risk for erosion and sediment loading, and tonnage estimates for erosion and sediment loading at watershed scales. This online tool allows users to interact with these data spatially, and evaluate the potential impacts of land management practices (LMP) on selected watersheds.

HIT's modeling design was piloted and implemented over a multi-year partnership between the Institute of Water Resources (IWR) and the U.S. Army Corps of Engineers. This model was released in a pilot version in late 2015 as part of a pilot project, supported by a USDA-ARS Conservation Innovation Grant and the Michigan Department of Agriculture.

View information about the HIT pilot project:

Using HIT and L-THIA
Running a baseline calculation
Comparing Tillage Scenarios
Comparison Results
Summary

- After working with several producers in the area it was apparent that the tillage type being used on their farm usually has been used for several years and many have thought about changing tillage methods, but it is a major commitment.

- Changing tillage methods usually does not happen overnight and can be frustrating and difficult for the producers so it is helpful to have tools and at times funding opportunities that can make the transition easier.

- Trying to get financial numbers from producers proved to be harder than expected. I have been working with a few different producers this spring in hopes to get numbers during each season and hope to have a more complete and detailed set of comparisons between tillage types by harvest.

- The Great Lakes Watershed Management System is a great tool that can be used by the public to compare and contrast tillage types. [http://35.8.121.111/glwms/Map.aspx](http://35.8.121.111/glwms/Map.aspx)