



Shiawassee Conservation District

Your Land, Your Water ~ Your Michigan

1900 S. Morrice Road • Owosso, MI 48867 • (989) 723-8263, Ext. 3

Fall 2013

2013 AGRICULTURAL TOUR SHIAWASSEE COUNTY

Shiawassee County Fairgrounds
Black Pavillion, 2900 E. Hibbard Road, Corunna

Monday, September 9, 2013

8:30 AM to 1:30 PM

Busses leave promptly at 9:00 AM

This event is free and includes lunch

RUP, CCA/CEU and MAEAP Phase 1 Credits Pending

RSVP by August 30, 2013

Shiawassee Conservation District (989) 723-8263 x3

Join us on our annual tour of Shiawassee County farms that have implemented conservation practices/management systems designed to improve their production while protecting our environment.

Learn details about the District's new Best Management Practice (BMP) Auction!

**Cover Crop • MAEAP • Well Decommissioning Demo • Fueling Facility
Rainfall Simulator/Benefits of Gypsum • Farm Bill Conservation Programs**

Pictured: Grassed Waterway, Bennington Township, Shiawassee County



If you need an accommodation to participate in this activity or event, please contact Melissa Higbee at 989-723-8263 x3 or by email at melissa.higbee@mi.nacdn.net by August 30, 2013.

Chipman Road State Drain Project - Returning the Channel to a Natural State of Hydraulic Stability

During the fall of 2012, the Shiawassee Conservation District started construction to stabilize the severely eroded outlet of the State Road Drain at the Chipman Road Buzz Howe Bridge, using tried and true techniques and engineering that has been used in other states for many years. The Drain empties directly into the Shiawassee River and has been suffering from severe stream bank erosion and downcutting since it was dug in the late 1800's. In 2010, the Conservation District received a grant from the Great Lakes Commission to stabilize this erosion. The goal was to put into practice measures to address erosion and help the long-term stability of the drain in the most innovative and cost-effective approach.

As an alternative to traditional drain cleanup and armoring, the Conservation District worked with Fitchbeck, Thomson, Huber and Carr (FTC&H) to come up with a design using concepts of natural stream restoration techniques. In the State Road Drain, cross and rock vane structures were put in to redirect and centralize water flow, provide grade control, and stabilize eroding stream banks. Cross vane structures restore the flow line to a higher elevation, collecting sediment and lifting the streambed. Vanes were put in to direct the water flow around bends and eliminate the need to rock armor the stream banks. Vane arms are angled upstream to direct energy from the water current

away from stream banks and toward the center of the stream. Over time, sediment will settle upstream of the vane arms on the sides of the drain creating a two-stage channel.

Riffles and pools were also constructed to control extremely high water velocities, establish grade, and reduce bed and bank erosion. Riffles are areas of fast moving water found throughout natural stream systems. Riffles are associated with pools, which are areas of slower moving water upstream and downstream of a riffle. By adopting these natural techniques at the State Road Drain, erosion has become stable and water quality has been improved by reducing sediment and phosphorus loads.

The State Road Drain Stream Rehabilitation Project is an example of adapting natural channel techniques to stabilize a long-standing erosion issue in a cost-effective manner. Implementing measures to control this erosion will save an estimated 414.5 tons of sediment, or about 26 dump trucks full, from entering the Shiawassee River every year! This project was part of the Shiawassee River Sediment Reduction Project funded through a grant from the Great Lakes Commission. For more information on the project, natural stream restoration techniques, or ways to address erosion, contact the Conservation District.



Pictured above are examples of cross vane structures. The left picture was taken just after the vanes were installed, the right is after the sediment has settled along the van arms, creating a two-stage channel.

Extended Benefits of Gypsum on Cropland Soils

The benefits of applying gypsum to cropland are longer lasting than once thought. Research conducted by the University of Georgia found the effects of gypsum still clearly visible 16 years after application. The reason for this is that gypsum is retained deep in the subsoil for long periods of time. This retention helps lessen acidity typical of subsoils allowing for improved water infiltration and root absorption of deep nutrients and water.

Subsoil acidity is one of the major limiting factors in crop yields because it restricts root growth. Surface applying lime is a popular method to reduce topsoil acidity, but it has short-term benefits and is generally slow to neutralize subsoil acidity. Gypsum is more soluble than lime, but it does not affect soil pH. When applied to the soil surface, gypsum moves down the soil profile during drainage, supplying soluble calcium to the subsoil, which stimulates root growth and uptake of other nutrients and reduces toxic levels of aluminum. This opens up the subsoil for roots to access nutrients and water that were previously out of their reach. These effects are longer lasting than previously thought. Research conducted in South Africa found increases in calcium deep in the subsoil some 10 years after the application of gypsum.

Crop yield increases are the main goal of applying any soil amendment. Gypsum has been proven to increase crop yields, especially when applied to corn. In one study, it was found that gypsum applied to no-till fields in Brazil significantly increased corn grain yields by 8% some 8 years after application. This is due in part to the calcium that is available in these deep subsoils. Not only are the roots able to reach deep to obtain water, but they can more efficiently uptake nutrients as a result of gypsum and these effects are seen for years.

Long-term effects of gypsum are more pronounced on heavier-textured soils. Gypsum improves soil structure by aggregating clay and inhibiting dispersion. The soluble calcium added by gypsum enhances soil aggregation and porosity to improve water infiltration. Drainage is improved in heavier-textured soils to ward off flooding and increased water-use efficiency is important for crops to withstand a drought. The application of gypsum to

heavier-textured soils is a win for crops for many years.

The Shiawassee Conservation District is wrapping up a trial Gypsum Incentive Program. Results will be discussed at the 2013 Shiawassee County Agricultural Tour. The Gypsum Incentive Program was a part of the Shiawassee River Sediment Reduction Project funded through a grant from the Great Lakes Commission. For more information on the use of gypsum on agricultural soils or the 2013 Agricultural Tour, contact the Conservation District.

Shiawassee Ag Council

The Shiawassee County Ag Council is an organization striving to learn about unique aspects of agriculture in order to educate others on the most up-to-date innovative technologies in modern agriculture. The Ag Council was established over 40 years ago and has included agri-science teachers, Conservation District, NRCS, MSU Extension personnel and agri-business professionals. Over the course of the year, the Ag Council visits several sites in Shiawassee County to see what is happening in local agriculture. Additionally, each summer the group goes on an out-of-county trip to tour multiple sites and learn about up-coming innovations in Michigan's agriculture. This year's tour included a stop at Countryside Quality Meats, Mayer's Great Lakes Glads, Curt Albright Farms, and the Branch Area Careers Center. Pictured here are Shiawassee County Agri-Science teachers observing hydroponically grown lettuce at Mayer's Great Lakes Glads.



Threats to Your Water

The presence of *Escherichia coli* (*E. coli*) in water is a strong indication of recent sewage or animal waste contamination. *E. coli* is a type of fecal coliform bacteria commonly found in the intestines of animals and humans. Water for drinking and recreation is often tested for fecal coliform to indicate whether *E. coli* and other bacteria are present. *E. coli* contamination can come from many sources, including illicit connection discharge pipes, failing or failed septic systems, municipal water treatment plant overflows, or runoff containing pet waste or manure.

E. coli is hazardous because it can produce a powerful toxin that can cause serious illness. Symptoms are variable and include severe bloody diarrhea, abdominal cramping, vomiting, and skin, ear, respiratory, eye, neurologic and wound infections. Children under the age of 5, the elderly, and people whose health is immune-compromised are especially at risk.

When *E. coli* exceeds the allowable level in recreational waters, beaches, lakes, rivers, and swimming and fishing areas are often closed. The thresholds of bacterial levels for public water systems set by the Safe Water Drinking Act are more stringent to keep drinking water safe. However, much of the U.S. population uses groundwater that is not regulated. It is the homeowner's responsibility to have their well water routinely tested to ensure that well water is safe for drinking.

Unlock THE BASICS

Healthy, fully functioning soil provides an environment that sustains and nourishes plants, soil microbes and beneficial insects. Managing for soil health is one of the easiest and most effective ways for farmers to increase crop productivity and profitability while improving the environment. Positive results are often realized immediately and last well into the future.

Soil is made up of air, water, decayed plant residue, organic matter from living and dead organisms, and mineral matter such as sand, silt, and clay. Increasing soil organic matter typically improves soil health, since organic matter affects several critical soil

There are many ways to prevent water from becoming contaminated by *E. coli* bacteria. Maintaining your home septic system is the most critical way to make sure that you are not contributing harmful bacteria to drinking water. Routinely pumping your septic tank will extend the life of the system and ensure your drainfield properly functions to remove bacteria from water. On the farm, producers should make sure manure is being managed so that there is little chance of contamination to ground and surface water. Pet owners should collect and properly dispose of pet waste. "If everyone does their part, *E. coli* contamination and the illnesses that come along with it can be avoided," said Shiawassee Conservation District Watershed Technician, Andrea Wendt.

Contact the Shiawassee Conservation District for more ways to prevent *E. coli* contamination and how to have your well water tested, or for more information on programs available to help with water quality.



functions including nutrient cycling and water-holding capacity. Healthy soils are porous and allow air and water to move freely through them.

Here's how to improve soil health:

- ✓ Disturb the soil as little as possible.
- ✓ Grow many different species of plants through rotations and a diverse mixture of cover crops.
- ✓ Plant cover crops around harvest to keep living roots growing in the soil for as much of the year as possible.
- ✓ Keep the soil surface covered with residue year round.

Continued ►



◀ *continued* Implementing Soil Health Management Systems can lead to increased organic matter and soil organisms, reduced soil compaction, and improved nutrient storage and cycling. As an added bonus, fully

functioning, healthy soils absorb and retain more water, making them less susceptible to runoff and erosion. This means more water will be available for crops when they need it. Soil Health Management Systems allow farmers to enjoy profits because they spend less on fuel and energy and they produce higher crop yields from improved soil conditions.

Soil is a living system, and it should look, smell, and feel alive. Dig in to discover what your soil can tell you about its health and production potential. Healthy soil looks dark, crumbly, and porous and is home to worms and other organisms that squirm, creep, hop, or crawl. Healthy soil smells sweet and earthy. It feels soft, moist, and crumbles easily



and allows plant roots to grow unimpeded.

The soil's natural biological cycles and structure can be disrupted through tillage, improper chemical disturbance, or excessive livestock grazing. By managing, reducing, or eliminating these activities, farmers will benefit from better plant growth, reduced soil erosion and increased profit margins.

Biodiversity, which means growing more plants in rotation, increases the success of most agricultural systems. Diversity above ground improves diversity below ground. Using cover crops and increasing crop rotation diversity help restore soil health, protect against erosion and groundwater leaching, and provide livestock feed and wildlife habitat.

Contact the Natural Resources Conservation Service or the Shiawassee Conservation District office to learn more about Soil Health Management systems and the technical and financial assistance available to help “unlock the Secrets in the Soil.”

Shiawassee BMP Auction

The adoption of best management practices (BMPs) is the most effective and practical means of preventing or minimizing pollution on the farm. Currently there are many cost-share and incentive programs in place through various government agencies to assist with implementation of BMPs. To present a different option for adopting BMPs, the Shiawassee Conservation District recently received a grant from the Great Lakes Commission in the amount of \$160,000 to conduct a BMP Auction.

A BMP Auction is a new and innovative method of getting BMPs on the ground with flexible and simplified enrollment options and straightforward, uncomplicated procedures. The BMP Auction is a market-based approach for supporting BMPs to improve water quality. Through this program, landowners can submit bids on a price per acre to adopt Cover Crops, a Residue Management System, Filter Strips, or Grassed Waterways.

A BMP Auction is conducted through a four stage process:

1. Farmers submit bids for desired practices that include amount of area covered and expected cost to implement the BMP.
2. Bids are ranked by amount of water quality improvement generated per dollar.
3. The producers who offer water quality improvements at lowest price are contracted first.
4. The process is repeated until a water quality improvement goal is reached or funds are exhausted.

Essentially, a BMP Auction identifies and purchases the most cost-effective water quality improvement for a specified budget. The Shiawassee BMP Auction encourages a streamlined process for implementing Best Management Systems that will help reduce sedimentation and improve the Shiawassee River Watershed.

The first round for the Shiawassee BMP Auction will kick-off on September 9, 2013, at the Shiawassee County Agricultural Field Day. For more information contact the Shiawassee Conservation District office.

Conservation District Plants Vegetable Gardens with the YMCA Campers



The Shiawassee Conservation District continued their partnership with the Shiawassee Family YMCA this summer by planting vegetable gardens with the kids at Camp Shiawassee. Each week, District staff brought to the camp education connecting soil conservation with how healthy food is grown. Vegetables have been harvested all season for the campers to use in their camp meals. This project was made possible by a grant received by the Shiawassee Conservation District by the USDA National Institute of Agriculture Sustainable Agriculture and Education (SARE) Program. Follow the progress of the garden on the District's Flickr page!



2013 Poster Contest

The Shiawassee Conservation District is once again sponsoring a poster contest for grades K through 12. This year's theme is ***Where Does Your Watershed?***

It is important to understand where the fresh water goes after a rain, after you empty the bathtub or use it to water your plants. We have to take care of our fresh water as it gets used over and over again. A watershed is an area of land that drains to a particular body of water such as a river or a lake. Rain or any type of precipitation that falls anywhere in that watershed eventually flows to a body of water. The water may travel over land as surface water or flow underground as groundwater. Look around your community or as you travel to see water traveling within a watershed.



Posters are due in the District office by the end of September. Contact the District office for contest rules and details.

What MAEAP Can Do For You

- MAEAP is a confidential, helpful process of working with the Conservation District and the Michigan Department of Agriculture and Rural Development to meet environmental laws.
- Boost your access to cost-share funds in EQIP Farm Bill program ranking tool.
- Complete a Risk Assessment (Farmstead and Cropping) and receive 4 RUP Credits for each system, (2 RUP Credits for repeat assessments).
- Become MAEAP verified and receive 8 RUP Credits each for Farmstead and Cropping systems.
- Become re-verified and receive 4 RUP Credits for Farmstead and Cropping systems.
- Save up to 20% on your Basic Liability Premium (Section II) of your Farm Bureau Insurance Farmowners Policy.
- Avoid civil fines and penalties if your farm is faced with an unintentional, accidental discharge into a water or an “Act of God Weather Event.”
- Confidence that you are in conformance with applicable Right to Farm Generally Accepted Agricultural and Management Practices.
- If a farm is MAEAP verified in all applicable “systems” and is in a Total Maximum Daily Load (TMDL) Watershed, the farm will be considered as implementing the practices needed to meet a TMDL.

If you would like more information on how to become involved with the MAEAP program, call the Conservation District Office or just stop in.

MAEAP

Shiawassee County currently has 24 MAEAP verified farms for a total of 46 system verifications, with countless more producers working toward verification on their own farms and cropland. MAEAP was created in an effort to assist farmers in addressing their resource concerns in order to achieve an environmentally sound agriculture industry by voluntary participation.



Through MAEAP’s confidential educational process, farm managers are refreshed on the environmental laws and regulations pertinent to their business. If improvements are needed, managers are given

technical assistance by the local Conservation District and Natural Resources Conservation Service office. There is no deadline for finishing practices or making structural improvements.

Once farm managers have made necessary changes (if needed), they begin the verification process. This phase is conducted by the Michigan Department of Agricultural and Rural Development.

Conservation Districts and the Natural Resources Conservation Service are available to assist farms of all sizes and commodity types to review rules and regulations affecting their business in a confidential setting. Through the increased awareness and knowledge of these regulations, environmental risks, which are also financial risks, will be limited in Michigan’s farm communities.

The Shiawassee Conservation District Welcomes Katelyn Salowitz

Katelyn Salowitz, NRCS Soil Conservationist, joined the Shiawassee Conservation District office this past June. She spent the last summer working in Sanilac Conservation District as an Earth Team volunteer and a student trainee. “I love the land and conservation; it makes perfect sense to me,” said Katelyn. “It is an honor to be working with such a great agency for the wonderful cause of conservation!”

Katelyn graduated from the University of Michigan in Ann Arbor last May with a Bachelor of Science degree in Environmental Science with High Distinction Honors in the top 10% of her class. She grew up in Sanilac County with an agricultural background. She enjoys being outdoors and spending time with family and friends. Please stop by and welcome Katelyn to the Conservation District team.





Shiawassee Conservation District
 1900 S. Morrice Road
 Owosso, MI 48867

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2013 SHIAWASSEE COUNTY AGRICULTURAL TOUR DETAILS INSIDE!   

SHIAWASSEE CONSERVATION DISTRICT

www.shiawasseeccd.org

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- Duane Leach, Vice Chairperson
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- Donna Kanan, Conservation Specialist
- Thomas Wert, Agricultural Technician
- Andrea Wendt, Watershed Technician
- Jay Korson, Agricultural Technician
- Danielle Santana, Farm Bill Program Assistant
- Tina Tuller, District Conservationist, NRCS
- Greg Lienau, Soil Conservation Technician, NRCS
- Katelyn Salowitz, Soil Conservationist, NRCS

YOUR LAND, YOUR WATER

YOUR MICHIGAN

MAKE A LONG-LASTING,
 POSITIVE IMPACT ON
 MICHIGAN'S NATURAL RESOURCES.
 NO RESOURCE IS TOO SMALL
 OR TOO LARGE.

conserve

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