Venango Conservation District
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Mission Statement:
"The Venango Conservation District is a local agency, committed to serving the residents, businesses, and visitors of Venango County by providing educational, technical, and financial assistance for quality and sustainable natural resource management."

Financial and other support for this project is provided by the Pennsylvania Association of Conservation Districts through a grant from the Pennsylvania Department of Environmental Protection under Section 319 of the Clean Water Act, administered by the US Environmental Protection Agency.

Venango Conservation District

The Venango Conservationist

Summer/Fall 2008

EDUCATIONAL ACTIVITIES FOR KIDS

Many people are cutting down on driving because of rising gas prices. Here are some suggestions from our Environmental Educator, Danielle Hulse, for educational activities at home for your little ones.

- Make up a nature scavenger hunt; make it as easy or hard as you want. Using colors, numbers or concepts your kid can be kept busy for hours
- Buy your child an ID book, show them how to use it (there are "First Guides" designed for kids), and send your kid off for a backyard adventure. There are tree guides, bird guides, wildflower guides that will help your child identify a variety of subjects and learn about them in the process.
- This one takes a few weeks to complete. Have your child walk outside with old socks on, preferably cotton (so they collect seeds). Look at the socks with a magnifying glass and have him/her keep a journal of what they think is on the socks and what they think will grow over the next few weeks. Bury the socks in some soil in a pot and water the pot periodically. Keep an eye on the pot and have him/her keep observations in the journal. OR Make a garden from seeds he/she chose.
- Does your child ask a lot of questions? Tell them to come up with an answer by themselves by making an experiment. By using the scientific method (1. ask question 2. do background research 3. construct a hypothesis 4. test by experimenting 5. analyze outcome and draw a conclusion 6. write down the results) they can make a game of any question.
- Get your child to use his/her senses! In boxes put objects that feel different from each other. Have your child feel them and guess what they are. Or to use smell, put different smells in jars by soaking a cotton ball or putting black paper around the jar so your child can't see what's inside. Poke a hole in jars so they can smell and make sure you remember what's in each jar.
- Send your kids on a hunt through the newspaper to find certain words, phrases or pictures. Maybe pick out some new words they don't know yet and try to define it from the context it is written in. If they don't know what a word means, have them use a dictionary.
- Make your own paper by recycling other paper! Directions can be found at www.make-stuff.com/recycling/paper
- Great activities and games can be found at www.education.com/activity

EROSION CONTROL SEDIMENT BASINS & TRAPS

Often the erosion and sediment control plan for a construction site, particularly a large site, includes a sediment basin or trap (we'll go into the difference in a moment). This article will try to give an introduction to this commonly used Best Management Practice that minimizes sediment pollution.

You may be familiar with filter fabric fence, also called silt fence. That is the black fencing you see staked around small areas of earth disturbance. The use of sediment basins and traps is necessary when the area of disturbed soil is too great for silt fence alone, usually when sites are around one acre in size or larger.

The concept of sediment basins and traps is really quite simple. Construct an embankment or dam at the lowest elevation of the construction site where all the water will drain to, and 'trap' it. Then construct channels to direct all the site runoff into the basin. There, the sediment laden (muddy) water is held for a period of time so the eroded soil particles can either settle on the bottom or pass through a sediment removal structure and the filtered water can continue on its way.

The difference between a basin and a trap depends on the size of the project and drainage area that contributes to the device. Traps can handle drainage areas up to five acres and basins handle sites five acres and above.

While the concept of sediment basins is rather simple, their design is a little more complicated. *Cont. Page 2*

Sediment Basin with Perforated Riser

Sediment Basin with Skimmer

Inside this issue:

SEDIMENT BASINS CONTINUED

One of the main components to basins is the size necessary for each construction site. Design criteria are different for traps and basins, but both require storage capacity for both the dewatering zone (total area that drains to the structure) – and – sediment storage (the area of earth disturbance contributing sediment to the structure). This can be up to 6000 cubic feet of volume per acre draining into the basin.

Maintenance of the basin is also very important. Since the nature of the structure is to trap sediments, they have to be cleaned out regularly during construction to maintain the proper sediment storage capacity.

So how do these structures remove the sediment? This is handled by an 'outlet structure'. Sediment traps typically use a rock filter faced with filter fabric constructed in the embankment that holds the sediment back and let the cleaner water pass through. Sediment basins typically use either a perforated riser or a skimmer. A riser is basically a vertical pipe with holes drilled in it that slowly lets water drain as the sediment settles on the bottom.

A skimmer is a floating device connected to the outlet that drains water from the top. This type of device is more desirable. After a rain storm, the water in a basin is cleaner at the surface, because the sediment settles out sooner. Draining the water through a skimmer releases the cleanest water first. Imagine a glass of water with soil in it. Shake it up and set it down for a half hour. Where is the cleanest water?

MANURE MANAGEMENT BY MARK MUIR, AGRICULTURAL RESOURCE TECHNICIAN

As the Ag Tech for the Venango Conservation District, I have the good fortune in most cases of saving farmers both time and money. This year, with input costs of fertilizer and fuel being higher than anyone would have ever thought, a little time planning could save some significant money. I would like to address the application of manure and look at manure as a source of nutrients.

In the past, spreading manure was something we did 'cause we had to and, more times than not, the fields closest to the barn got the most (especially in the winter when the weather was just too miserable to go any further with that open cab tractor). Who would have thought that "stuff" was worth much? Well it is, especially nowadays with fertilizer over $900 a ton. Figuring out how much a crop can utilize the nitrogen, phosphorus, potassium and other nutrients in manure can greatly reduce the money paid to the fertilizer dealer.

According to the Penn State Agronomy Guide, "Approximately three-fourths of the nutrients harvested in crops grown on a farm, and in the purchased feed and supplements fed to the livestock, may be recycled back to crop fields in manure." The availability of the nutrients to the crop depends on how the manure is applied and how long until it's incorporated into the soil. There are differences in the nutrient value of manure based upon the type and age of animals, so it's recommended to have it tested yearly.

> Here's a quick quiz: list the type of animal with the highest to lowest nutrient value of their manure:
>
> A) lactating dairy cow
> B) veal
> C) beef cow and calf
> D) nursery swine
> E) sheep
> F) horse
>
> Well, how did you do?
> Answer high to low:
> D, B, E, A, F, C

One of the resources available to a livestock operation is a Nutrient Management Plan (NMP) which takes in information from all over your operation and sets up a game plan for the next three years. During the initial farm visit, the nutrient management specialist who will write your nutrient management plan will ask several questions while noting the location of water sources and erosion, etc.

When the Nutrient Management Plan is complete, it will be an agreement between the writer and the farm operator (manager) as to what Best Management Practices (BMPs) may need to be implemented to correct runoff of water and/or manure. There will be a manure application chart identifying the fields where and when manure will be applied. The plan writer will prioritize the fields in order of those which will see the greatest return with the application of manure due to their testing the lowest for N, P, and K. This chart will also identify fields where there is too much phosphorus or are too close to water and therefore manure can not be spread there at all. This manure application chart will be the final result of taking in the information of soil test results, nutrient needs of the crop, crop yield, residual nitrogen from legumes and of past manure applications, the decomposition of organic matter, calibration of the manure applicator, and nutrient analysis of manure. This chart will show the needs of the crop, subtracting the nutrient value of the manure, and provide the nutrients needed from a fertilizer source.

If you would like to learn more about a Nutrient Management Plan contact Mark Muir at 814-676-2832.

2008 WEST NILE VIRUS PROGRAM UPDATE BY MIKE SWATZLER, PROGRAM COORDINATOR

The Venango Conservation District's West Nile Virus (WNV) Program has acquired a new piece of pesticide application equipment. For some time now the program has only had one piece of equipment with which it could do Ultra Low Volume (ULV) treatments. This was a truck mounted sprayer, so the ability to get to places to spray was dictated by the maneuverability of the truck. Now we will be a little more maneuverable, maybe a lot more maneuverable.

Mounted ULV Sprayer

The program has purchased a ULV sprayer that will fit on the cargo bed of the District's four-wheeler. When presented with the option of another backpack type sprayer or the four-wheeler mountable ULV machine there was no contest. "When you get to be a feeble old man like myself, you always choose riding over walking, especially if it's walking with a backpack on," said Mike Swatzler of the District's WNV Program.

The purchase of the equipment will not only make the work easier for staff members but provide a more productive and efficient program for the public.

MEET OUR NEW STAFF

MARK MUIR

AGRICULTURAL RESOURCE TECHNICIAN

Good day! I have twenty years of retail experience in the Agricultural Market managing farm center cooperatives. I graduated with a Bachelor of Science in Animal Husbandry from Del Val College.

As an employee of the Venango Conservation District, it is a pleasure to assist people in raising a crop and/or livestock by showing them that conserving our water and soil will actually save them time and money.

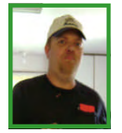
I encourage farmers to set up a Nutrient Management Plan for their operation. After management data is collected: soil tests, manure samples, crop ratios, etc., a three year plan is created which can save the farmer money and improve yields. As the price of diesel fuel climbs above $5.00/gallon and fertilizer continues to climb over $900/ton, utilizing Best Management Practices and Nutrient Management Plans will enhance farm production and protect natural resources.

DANIELLE HULSE

SEASONAL ENVIRONMENTAL EDUCATOR

I started as the environmental educator with the Venango Conservation District in late May 2008. I graduated from Clarion University of Pennsylvania with a degree in biology and a concentration in ecology and evolutionary biology.

The summer environmental education program here at the VCD kicked off in June. I have reached out to groups like daycares, elementary schools, and local festivals. I've presented many programs that were available to the public including Pollution, Stream Ecology, Being Green, and Wetlands and Lakes, even a weekly nature hike. In addition, programs were created to suit a group's needs and wants, such as a program about insects. This year's programs have, so far, reached 782 people from ages 2 to adult. The fall season is starting and that means one thing - it's back to school time. I hope to reach local classrooms in the next few months with the great programs we offer.



JIM MCCLINTOCK

WEST NILE VIRUS TECHNICIAN

2008 is actually the second season I have been with the Venango Conservation District as the West Nile Virus Technician. My job is to assist the program coordinator with West Nile Virus Program needs. We monitor and control mosquito populations.

Cooperatively, we visit various areas of Venango County to set mosquito traps. We collect them the next day and ship the trapped mosquitoes to the State Lab in Harrisburg where they are tested for West Nile Virus. If large numbers are found in an area, we treat with spray applied pesticide.

We also visit various areas that may be pooling water, the perfect habitat for mosquito reproduction. We dip at waste water treatment plants, tire piles, abandoned swimming pools, anyplace we can find that might be harboring mosquito larva. We dip a sample and treat with pesticide if necessary. We identify the samples and enter the data in the State Database.

SCIENTIFIC FUN FACT: SHINE ON HARVEST MOON!

The Harvest Moon is the full moon nearest the Autumnal Equinox (around September 23rd). The Harvest Moon should not be mistaken with the Hunters Moon which is the first full moon after the Harvest Moon. The Harvest Moon's name can be traced back to Native American's who kept track of the seasons by giving distinctive names to each full moon. Some studies indicate that birds rely on the Harvest Moon for migration. Here's what happens: The moon usually rises about 50 minutes later each night, but near the Autumnal Equinox, the moon rises only about 30 minutes later each night. This earlier moon rise means a shorter time period between sunset and moonrise. The light from the moon at Harvest Moon, helps farmers see late into the night to bring in their harvests. Two out of three years, the Harvest Moon occurs in September, otherwise it occurs in October. In 2008, it is expected September 15th.

SPECIAL SECTION

NONPOINT SOURCE POLLUTION BEST MANAGEMENT PRACTICES

WATER POLLUTION

Some sources of water pollution are easy to find. These sources, or *point* sources, are single outlets of pollution like improperly working wastewater treatment plants, factories, or storm drains releasing contaminates through outlet pipes or ditches. If pollution is reported in a waterway, a water quality expert can follow the trail upstream and find the *point* source.

Other sources of water pollution are not so easy to find. Pollution may be occurring in a waterway, but it may be coming from many different sources and is difficult to pinpoint to make corrections. These are called *nonpoint* sources of pollution.

According to the EPA, non point source pollution makes up more than one half of US water impairment.

The Venango Conservation District strives to reduce nonpoint source pollution in Venango County through providing education, technical assistance and funding sources to implement Best Management Practices or BMPs.

NONPOINT SOURCE POLLUTION: WHERE CAN IT COME FROM?

Nonpoint sources of pollution can be divided into six different categories:

1. **NUTRIENTS** are nitrogen and phosphorus. These chemicals make up fertilizers that people use to grow plants. Other sources of these chemicals include sewage, animal waste, automotive exhaust, and industrial wastes. Excess nutrients in water can promote algae growth which can cause foul water, and use up oxygen needed by aquatic life. 80% of nitrates and 75% of phosphates that are added to lakes and streams in the US are the result of human activities.
2. **PATHOGENS** are disease-causing microorganisms like bacteria and viruses. Pathogens come from fecal waste. Pathogens can cause serious health problems and impair recreational water use.
3. **TRASH** often starts as street litter that is carried by wind or water runoff to waterways. Plastic bags, fast food wrappers, even shopping carts, find their way into our local streams and ditches. This type of pollution can be a health hazard to aquatic organisms and animals found in wetland habitats.
4. **TOXIC CHEMICALS** include heavy metals and pesticides, petroleum products, and other chemicals. Because many of these toxic chemicals are resistant to breakdown, they tend to be passed along the food chain.
5. **SEDIMENT** is particles of sand, dirt and gravel that are eroded by water runoff. When rain water picks up these particles, they travel to local waterways where they are deposited. Sediment in water can block sunlight from getting to aquatic plants, it can clog fish gills and smother fish larva. It can alter stream flow and damage aquatic habitat.
6. **INCREASED TEMPERATURES**, or Thermal Pollution, is a category of pollution that is a result of a transfer of heat to the waterway. Streamside vegetation provides shade to waterways. When this vegetation is removed, the sun's heat warms the water. Impervious surfaces like roof tops and roadways are heated by the sun. When rain water hits these surfaces it is warmed and runs off to local waterways. Cold water aquatic species can be killed off by these warming temperatures. Warmer temperatures can also decrease oxygen concentrations and create a more favorable environment for pathogens.

BMPS IN AGRICULTURE

The 2002 Census reported over 28 million of Pennsylvania's acres as farmland. Pennsylvania's farmlands serve many important purposes such as growing crops, grazing use, pasturing use, and timber land. Improperly managed farmland activities can affect water quality.

Nonpoint source pollution from agricultural areas can be reduced by using Best Management Practices (BMPs). The practices are designed to reduce nonpoint source pollution, increase productivity and save farmers money in the long run.

Sedimentation Pollution can be a result of loosened or poorly vegetated dirt areas. When farmers plow their fields it loosens soil that is easily washed away with rain water. Heavily grazed fields may not have enough vegetation or have trampled vegetation that is not able to hold the soil in place. These are just some examples of ways that sediment can reach local waterways.

The Venango Conservation District can help Venango County farmers learn about nonpoint source pollution and what BMPs could be incorporated on their farm to reduce pollution. We can even provide some funding to install BMPs like installation of buffer strips, or education about no-till farming practices or rotational grazing.

Nutrient Pollution can be a result of mismanaged application of fertilizers or mismanagement of manure storage on a farm. If a farmer applies more fertilizer than his crops can handle, or if the farmer applies just before rain, the excess nutrients can wash away and find their way to waterways. If a farmer has inefficient management of his animal waste, the excess can also find its way to waterways with rainwater runoff.

The Venango Conservation District can help farmers learn about nonpoint source pollution and what BMPs could be incorporated to reduce this pollution. The District may also be able to provide some funding to install practices like the development of a Nutrient Management Plan and construction of agriculture best management practices.

BMPS IN EARTHMOVING

TIMBER HARVEST BMPS

Timber harvest activities are considered earth disturbance activities because they disturb the forest floor and expose soils to erosion, resulting in sediment pollution in local waterways. According to the Pennsylvania DEP, most soil erosion problems from timber harvest activities originate with improper layout or construction of skid trails, logging roads and landing areas.

The environmental impact from timber harvest activities can be minimized with a little planning. If the harvester utilizes the right machinery, plans an environmentally efficient job layout and uses Erosion & Sedimentation Control BMPs (E&S BMPs) a sustainable production is possible that could be less labor intensive resulting in a greater return for the harvester.

Erosion & Sedimentation BMPs can:

- limit wear & tear on machinery
- utilize better use of equipment and manpower
- minimize environmental impact
- maintain forest productivity

Examples of timber harvest Erosion and Sedimentation BMPs are:

- properly planned and permitted stream crossings
- properly constructed roads and trails
- use of silt fences and water bars and vegetative buffers trips
- use of cross drains and culverts at roads and trails
- proper trail, road and landing retirement

The Venango Conservation District is delegated by the PA Department of Environmental Protection to work with Erosion & Sedimentation (E&S) activities in Venango County.

The District reviews E&S plans and conducts site inspections to monitor compliance with the plan.

The District also provides education on E&S BMPs.

CONSTRUCTION AREA BMPS

Proper planning and development of communities and roadways is vital to Venango County. Poorly planned construction activities, however can be a major source of water quality impairment. Erosion from unprotected construction sites may approach 20,000 to 40,000 times the erosion rate of farms and woodlands. In an effort to combat sediment pollution in our waterways, DEP's Chapter 102 Erosion & Sediment Control regulations state that for all projects that disturb the earth over 5,000 square feet, an E&S Plan must be developed, implemented and be available on site.

Proper planning and use of E&S BMPs are key to a project's success in protection of local waterways. Some examples of construction area E&S BMPs are:

- development & implementation of a construction area E&S plan
- use of silt fencing or straw bale barriers
- installation of sedimentation basins
- seeding and mulching exposed soil
- minimizing areas of exposed soil

BMPS IN YOUR OWN BACKYARD

Rain water can pick up pollutants from your backyard and carry them off to your local waterways.

Nutrient Pollution, just like from farm fields, you could be adding fertilizers and pesticides to your lawn and garden, but are you applying the right amount. Too much can be washed away with rain water and can contribute to non point source pollution in your neighborhood.

Sedimentation Pollution, coming from loose or poorly vegetated soil areas or driveways on your property could be adding non point source pollution to your local waterways.

Heated water can be a pollutant. The roof of your property buildings and driveways can absorb heat from the sun everyday. When rain water then hits these surfaces, the water temperature rises, and runs off to your neighborhood streams and rivers.

Pathogen Pollution can originate from your backyard from improperly working septic systems or even pet waste.

Toxic Chemical Pollution from your backyard could include oil, household cleaners, excess pesticides, and other household chemicals that you may be disposing on your property.

There are a lot of ways that you can reduce non point source pollution in your own backyard.

Backyard BMPs include:

- use of pervious surfaces on your property
- allow thick vegetation or buffer strips to grow along waterways on your property
- reduce the amount of stormwater rushing across your property with the use of a rain barrel
- use natural alternatives to household chemicals
- plant vegetation to cover bare soil areas on your property
- utilize hazardous waste collections in your area

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Newsletter Survey

Please take a few minutes and give us some feedback on our newsletter. We greatly appreciate your time!

In order to better serve Venango County, we would like to know more about you:

Would you categorize yourself as someone who might use nonpoint source Best Management Practices for:

□ Earth Disturbance □ Agricultural Activities □ Backyard Activities

Would you be interested in working with the Venango Conservation District to learn more about installing Best Management Practices?

□ Yes □ No

In what ways has this newsletter better informed you about nonpoint source pollution and actions you can take to improve water quality?

Any additional comments?

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