



Volume 13, Issue 2
Summer 2013

CLARK COUNTY SOIL AND WATER CONSERVATION DISTRICT

Conservation Quarterly

Come to the Fair!

The annual Clark County 4-H Fair will be held July 12-20, and the Clark County SWCD staff has been busy making preparations. The SWCD would like to invite you to stop by their Natural Resources Conservation Facility (located at the rear of the Fairgrounds), and enjoy the activities, view the demonstrations and displays, and visit with the guests scheduled to appear. The Natural Resources area will be open Monday through Friday evenings, July 15-19, from 6-9 p.m.

Monday, July 15

Urban Conservation Night

County municipalities' Stormwater Department staff

Clark County Solid Waste District recycling program

Learn how to green your yard with rain barrels, composting, beneficial insects, greenscaping, plus much more!

Tuesday, July 16

Agriculture Night

Natural Resources Conservation Service, soil health demonstrations

Farm Service Agency

Southern Indiana Beekeepers

Sunnyside Master Gardeners

Aquatic Control, Seymour, IN—bring your pond management questions!

Wednesday, July 18

Chris Trotter, chainsaw carver, will demonstrate his carving skills. Carvings will be available for purchase.

Thursday, July 18

Forestry and Wildlife Night

Hardy Lake Raptor Rehabilitation Center will have their rehabilitated birds on exhibit and will answer any questions on the raptors and their program

Never seen the original animated movie "The Lorax"? You can see it here! It will be playing throughout the night

Rocky Brown, Deam Lake Naturalist, Shannon Winks, District Wildlife Biologist, and Allie Cline, Acting District Forester, will be on hand to answer your forestry and wildlife questions

Friday, July 20

No activities, SWCD exhibit building open

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Dates to Note

- 7/4/13—4th of July Holiday, SWCD office closed
- 7/13-7/20/13—Clark County 4H Fair
- 8/1/13—SWCD Monthly Board Meeting, 7:30 p.m.
- 9/2/13—Labor Day Holiday, SWCD office closed
- 9/5/13—SWCD Monthly Board Meeting, 7:30 p.m.

Hay Storage Fires

Barn fires destroy property, stored crops, livestock, as well as cause a loss of revenue. Thousands of dollars can be lost as a result of barn fires. Investigations pinpoint many causes of these fires: “spontaneous combustion,” electrical malfunctions, poor housekeeping, and careless work habits.

Plant material (hay and straw) continues to respire (produce oxygen) for a short time after it is stored. Plant respiration and bacterial action creates heat as the plant oxygen is used up. Too much heat generated causes combustion.



The Chemistry of Hay Fires

Fresh cut forage crop cells continue to respire until the crop material dries or is cured. This chain of events occurring within the forage depends upon many factors. Moisture content is the most critical and is the only influence discussed from a fire safety standpoint. Hay placed in storage should have a moisture content under 25%. Higher levels of moisture require an oxygen limiting storage system. The heat generated by the crop plus the presence of oxygen increases the risk of a fire. Drying or curing of the forage takes several weeks, but the risk of fire in stored hay usually occurs within two to six weeks of storage. Stored hay of normal moisture levels undergoes some heating, but the heat is normally less than 125 degrees F.

Critical temperatures, conditions, and actions to take with hot hay

| Temperature | Condition and Action |
|----------------|---|
| 125°F | No action needed. |
| 150°F | Temperature will most likely continue to rise. Check temperature twice daily. Move hay to allow air circulation to cool the hay. |
| 160°F | Check temperature every few hours. Move hay to allow air circulation to cool the hay. |
| 175-190°F | Hot spots or fire pockets are likely. Alert fire service of a possible hay fire incident. Stop all air movement around the hay. Remove hot hay with assistance of fire service personnel. |
| 200°F or above | Fire is present at or near the temperature probe. Inject water to cool hotspots before moving the hay. Fire service should be prepared for hay to burst into flame when contacting the air. |

Some hay growers apply chemical or biological additives and preservatives to the hay at harvest time to increase the rate of field drying or to bale and store the hay at higher moisture levels. The hay may still heat in storage.

Note: Stored cured hay can become damp due to a leaky barn roof, from ground moisture, or from high humidity and can still burn due to spontaneous combustion.

Preventing hay fires

To prevent hay fires in storage areas, follow these approved practices to reduce the potential for forage crops to heat in storage.

Harvest Practices:

To reduce crop moisture levels rapidly, mow the forage early in the morning to allow one or

more full days of drying time before baling. Storing dry hay reduces the risk of overheating.

Conditioning Practices:

Although it is difficult to achieve, the best weather conditions for hay curing is less than 50% relative humidity with some wind movement. Monitor the weather conditions and predictions to help schedule haymaking operations. Hay mower conditioners, or crimpers, crush the forage stem and speeds the drying time of the crop. Windrow inverters, tedders, and hay rakes also speed the drying process. Each haying operation can shatter leaves from the stem and reduce the quality of the hay. Chemical drying agents and preservatives may help to condition the forage crop. These materials can be used to speed up field drying rates. Most additives and preservatives increase the moisture level at which the forage can be safely preserved. Inoculant and acid-based preservatives increase the safe hay baling moisture levels to 25-30%. Spontaneous combustion ignition temperatures may be avoided when using these materials, but internal heating of the forage may cause heat-damaged protein. Heat-damaged protein reduces the nutritional value of the feed.

Baling Practices:

Bale the hay at 18-20% moisture to reduce the risk of conditions that support spontaneous combustion.

Storage Practices:

Store hay under cover to prevent rain damage and potential for heating. Leaky roofs and plumbing leaks can increase moisture levels of the stored forage to a point of reheating, which may lead to spontaneous combustion.

Adapted from Pennsylvania State University HOSTA Task Sheet 3.7.2

(Mis) Conceptions about Soil Health

Unless you are involved in agriculture in Indiana, you may not have heard the term “soil health.” We are fortunate to live in a state where so many farmers are focusing on the improvement of our soils, and are adopting the concept that healthy soils mean good things for their crops, their wallets and the natural resources which sustain both.

Still, not every farmer sees the benefits of building soil health. There are some misconceptions about soil health as a goal which may give the impression that it does not apply to them. For instance, some growers still ask, “if I put nutrients in my soil, then isn’t my soil healthy?”

While putting nutrients on the ground does allow for greater nutrient availability to plants, it does not improve the soil’s *inherent ability to function*. Soil health is not just about how much Nitrogen, Phosphorus or Potassium is available to a crop, but how well the soil **as an ecosystem** exchanges those nutrients, how well it allows water (and nutrients and air) to infiltrate below the surface of the ground, and how much water holding capacity lies within the soil’s structure.

An excellent gauge of all these abilities is the *organic matter* in the soil. This is ultimately a measure of carbon in the soil. Some soils have more and some have less, but there’s a lot more to it than that. When carbon levels in the soil rise, it means things are living and metabolizing there. Bacteria, insects, earthworms and fungi all play specific roles in helping nutrient exchange and availability for plant roots to tap into, and the more, the better!

Building organic matter also allows pores (or holes) in the soil to hold their structure, which means more water can flow through the soil, and more water fills those pores. Another way to say all this is “better infiltration and greater water-holding capacity leads to better wa-

ter availability to the crop.” The improved infiltration also results in less runoff, less soil loss and reduced flooding.



If all this is true, then why isn’t everyone doing it? There’s no quick answer to this. First and foremost, there is little formal research on soil health. A search of academic journals quickly shows the term “soil health” is just that — a term. However, the important role of organic matter in a soil’s capacity to sustain crops is well known by ag researchers.

While this lack of research data on soil health may seem like a small hurdle to those who see the readily visible and practical benefits from building soil health, it’s a flag to individuals who want to “see the numbers” before exploring the issue. So as conservationists, we should be asking the question differently. For example, “If given the choice between soil with low organic matter and soil with high organic matter, which one would you choose?” I don’t think a single person would pick the first choice. This same argument can be made for other issues that compromise soil health and long term sustainability (such as soil compaction and soil erosion).

Ultimately, soil health is not about conservation program enrollment. It’s not about participation in cropping initiatives. Healthy soil is the result of a system of conservation cropping practices, such as no-till and a cover crop regimen. These are all tools (excellent ones, at that) which will help to reach the goal of building soil organic matter which is inherently good for production, the economy and the environment.

Bottom line—building soil health comes about through the *process* involved in building organic matter—keeping living plants in the soil as long as possible and keeping the soil surface covered with residue year round.

For more information on soil health, contact members of the Indiana Conservation Partnership. They can be found at the ICP website: <http://www.iaswcd.org/icp/index.html> and their cooperative program, the Conservation Cropping Systems Initiative at: <http://www.iaswcd.org/CCSI/ccsi.html>.

Scholarship Applications Available

Applications are currently available for the Marvin Wright Conservation Scholarship sponsored by the Clark County SWCD and funded through the Southern Indiana Community Foundation.



The \$1,000 scholarship is awarded each year to a current high school senior or current college student entering or enrolled in an environmental science course of study at a post-secondary institution (2 year or 4 year program). Examples include but are not limited to horticulture, landscape architecture, agriculture, environmental engineering, forestry, agronomy, environmental studies, geology and wildlife. Funds received by scholarship recipient will be paid directly to the school from the Community Foundation of Southern Indiana.

Questions or application requests should be directed to Tami Kruer, Clark County Soil & Water Conservation District Executive Director, by phone at 256-2330, Ext. 107 or by email at tami.kruer@in.nacdnet.net. Applications must be received by 4:00 p.m., Monday, July 1, 2013.

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Charlestown, IN 47111
812-256-2330, ext. 3
Fax: 812-256-0362

Return Service Requested



**CLARK COUNTY
SOIL AND WATER
CONSERVATION
DISTRICT**

**Bulk Rate
U.S. Postage PAID
Charlestown, IN
Permit No. 6**

SWCD Supporters....we thank you!

*Clark County Farm Bureau
Farm Credit Services
Huber Orchard & Winery
Kruer Grading-Seeding, Inc.
Sanders Farm Service—Pioneer Seed*

*Dan Cristiani Excavating
Memphis Meat Processing
New Washington State Bank
Ottis Wright—dba Wright Brothers*

Still Cleaning-Up After the Tornadoes of 2012?

With all the devastating film footage on television and social media regarding the spring 2013 tornadoes in Oklahoma, all one has to do is travel in Monroe, Oregon, Union, Wood and Silver Creek Townships in Clark County to be reminded of what we experienced local just a little over a year ago. While basic needs like shelter are being dealt with locally, many property owners still have considerable amounts of debris from downed trees that are cluttering the landscape. This debris is also an environmental hazard from multiple standpoints: 1) in dry conditions this debris could be a fire hazard, 2) the loss of actively growing cover exposes the soil which could lead to erosion concerns, and 3) decomposition of this debris can lead to water contamination conditions. Besides the environmental concerns, this debris also affects the usability of a property by blocking access and negatively impacts the aesthetics of our communities.

So you say, *"Yes I agree with everything you are saying and I do want to clean-up this debris, help the environment and restore my property's aesthetics but personal funds are limited"*. Well, perhaps the Silver Creek Watershed Improvement Project can provide you with some financial assistance. The Silver Creek Watershed Improvement Project includes a cost-share component that provides land-owners up to 60% of the cost of implementing practices aimed at improving the quality of waters in the Silver Creek area.

One of the practices that have been approved for these cost-share funds is **Critical Area Plantings**. This practice involves the establishment of permanent vegetation on sites that need stabilization after a natural disaster (tornadoes, hurricanes, floods and wildfires). Items that can be financially assisted in a Critical Area Planting include the following: Site Preparation and Clean-up, Weed Control, Site Fertility, and Re-Planting.

If you are interested in learning more about the Critical Area Plantings practice and the financial assistance through the Silver Creek Watershed Improvement Project, contact David Trotter, Watershed Technician, at the Clark County Soil and Water Conservation District, 812-256-2330, ext. 110, or at david.trotter@in.nacdnet.net



District activities and programs will be made available to all citizens, regardless of race, color, religion, gender, national origin, marital status or disability.