

Dubois County Soil & Water Conservation District

1486 Executive Blvd. Suite A • Jasper, IN 47546
812-482-1171 x3 • www.duboisswcd.org

Summer, 2013

The Conservation Conversation

2013 Cover Crop Program

The Supervisors of the Dubois County Soil and Water Conservation District are accepting applications for their cover crop cost share program. The incentive payments available through the cost share program are for crop ground in Dubois County. Applications are being accepted until July 30th, 2013.

Cover crops, such as, cereal grains, radishes, and clover, are typically sown before the end of September. Cover crops protect the ground from erosion during the winter months. They also hold valuable nutrients, such as, nitrogen, and keep it from washing into our waterways. Finally, cover crop roots assist in breaking up compaction in the soil, creating more favorable planting conditions in the spring.

The SWCD is offering two different payment rates: for experienced cover crop growers and those who have not used cover crops in the past three years. Payments will only be made for diverse cover crop mixes, including at least one broadleaf and one legume species. No payment will be made for individual species. Payments of \$15.00 per acre will be made to growers who have used cover crops in the past. The payment rate for new cover crop growers will be \$25.00 per acre. All payments will be made for a maximum of 50 acres.

In order to qualify for the program, landowners must either aerially apply the seed or broadcast or drill the seed into the land using no-till or vertical tillage practices. Conventional tillage is not allowed in this program. Additionally, applicants must agree to no-till their spring 2014 cash crops into these same fields. Harvesting the cover crops for forage is not allowed.

The cost share program is being offered thank to a Clean Water Indiana (CWI) grant received by the SWCD from the State of Indiana. This is the fourth CWI grant the SWCD has received for cover crop cost share. The current grant received by the SWCD is valid for three years and will guarantee cost share will be available for cover crops for the Dubois County Landowners through 2014. For complete details on the program, call the SWCD office at 812-482-1171, extension 3. Complete details of the program and the application are also on our website at www.duboisswcd.org.

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Reduce Reuse Recycle

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VUJC Land Stewardship Initiative Update

The VUJC Land Stewardship Initiative is well into its second year and several of its efforts are beginning to take shape.

The Initiative has continued to follow its recommended conservation cropping system. Following last fall's cover crops, the fields have been planted with corn. Continued no-till practices have already led to the accumulation of some residue at the soil's surface. This will help the soil retain moisture and reduce soil temperature throughout the hot summer months. Soil Health evaluations and other tests are still being taken in the no-tilled fields and a conventionally tilled strip. The results of these tests will be compared to illustrate how the combination of no-tilling and planting cover crops improve the soil's health and ultimately crop yields. Buffer strips of cool season grasses have been planted around each field. These strips will reduce runoff into the surrounding watercourses and provide easy access to the fields for future demonstrations.

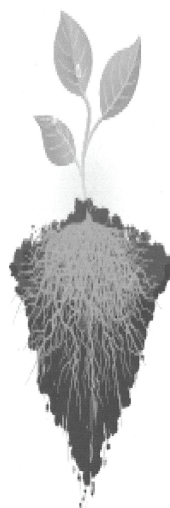
Progress is being made in the forested areas of the property as well. A forest inventory has been completed and a management plan is in place. Income will not be the primary goal of any timber harvesting. Rather, management will focus on the promotion of a healthy growing forest that benefits wildlife, recreation, and water quality while providing timber products for the local economy.

With this in mind, one of the first projects will be invasive species removal. The campus' forests currently host a variety of invasive species including multiflora rose, Japanese honeysuckle, bush honeysuckle, callery pear, burning bush, and Japanese barberry. These species will be removed before other forest management is begun to ensure that they do not continue to spread.

Both the water and habitat quality of the watercourses around the campus are being monitored. This will help determine whether the Initiative's conservation cropping system is improving the quality of water leaving the property.

An Open House planned for July 23rd will introduce the Initiative to the community. The event will feature stations demonstrating the Initiative's goals and practices, and provide visitors information on the ways they can help achieve similar conservation at their own homes. Other events designed for audiences ranging from students, farmers, and the community as a whole are also being planned.

Even the internal structure of the Land Stewardship Initiative is changing. Individual planning committees have been developed and the Initiative is welcoming community members into them. Opening committee membership to the public makes the project a true community effort and helps ensure the Initiative generates research and recommendations that the community can use.



VUJC
Land Stewardship
Initiative

soil health...the root of everything

Volunteers are needed to help with projects that range from the technical; such as, developing a plan for stream restoration, to the simple; such as, maintaining a vegetable garden. If you would like to encourage conservation in your community by becoming part of the Land Stewardship Initiative, please contact us at Dubois County SWCD, 482-1171, ext.3

Agricultural Books and Documentaries

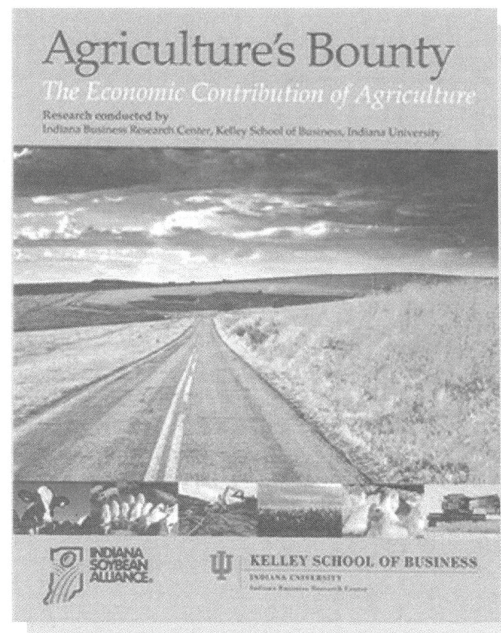
Agriculture's Bounty: The Economic Contribution of Agriculture produced by the Indiana Business Research Center, said that the state's agricultural output supports nearly 190,000 Hoosier jobs. Of those jobs, 103,000 are directly involved in crop production and processing. Approximately 83% of Indiana's geography (19.4 millions acres) is devoted to farming or forests.

Agricultural activities alone; such as, the production of crops or livestock and the manufacturing of processed goods, accounted for \$25.4 billion in economic output. Ripple effects accounted for another \$12.5 billion as it included the purchase of supplies from Indiana-based companies (\$7.6 billion) and paychecks linked to households of agriculture-related employees (\$4.9 billion).

"From creating jobs to contributing to the state's GDP, agriculture is an important industry in our state," said Jane Ade Stevens, chief executive officer of the Indiana Soybean Alliance, which provided funding for the study. "This study helps draw attention to how big of an impact agriculture has on our economy."

The commodity with the greatest amount of output was eggs (about 6.5 billion were produced in 2011) followed by 3.5 billions pounds of milk, or 353.9 million gallons. However, the commodities with the highest total production value were grains; such as, non-silage corn, oats and wheat, with a total value of \$13.9 billion; and soybeans (also known as oilseeds), valued at \$2.8 billion. Farming of these crops accounted for more than half of all workers in Indiana agriculture (more than 54,000 jobs) and ripple effects supported another 29,800 jobs around the state. Hog and other animal production had the next largest total employment impact with 16,930 jobs.

Indiana is known for quality hardwoods, and sawmills and furniture production establishments employ more than 35,500 workers. According to Indiana Department of Natural Resources statistics cited in the report, nearly 88% of logs processed in Indiana in 2010 came from within the state.



"Despite increasing population and development, the quantity of forest land has increased over the years, allowing Indiana to continue its timber harvesting without sacrificing forest land growth," said co-author Tanya Hall, who is also a family farmer.

A key conclusion of the report is that the value of Indiana's agricultural production has grown over the past decade and should continue to do so in coming years. *George Vlahakis*



Visit ag.purdue.edu/agricultures to listen to Purdue author R. Douglas Hurt discuss the history of American agriculture

R. Douglas Hurt, professor and head of the Purdue University Department of History, was a program advisor for the Ken Burns documentary, *The Dust Bowl*, which premiered on PBS last fall.

Hurt, who specializes in American agricultural history and is author of **The Dust Bowl: An Agricultural and Social History**, was interviewed about the causes and consequences of the Dust Bowl in the 1930's which ruined farmland and left many people destitute. Hurt also discussed how people in the region and the federal government responded to the drought and the worst wind-erosion problem in American history.

"The Dust Bowl and drought of the 1930's attracted a great deal of attention during this past summer's drought," Hurt said. "People often ask if the Dust Bowl could happen again. Drought is a natural phenomenon of the Great Plains. It will come again, but we have a better understanding of wind erosion and the methods and technologies; as well as, precedent for government support, to prevent its worst effects on agriculture."

Hurt is also the author of several other books on American agriculture. *Amy Patterson Neubert*

Keep the Soil Covered as Much as Possible

Soil cover conserves moisture, intercepts raindrops to reduce their destructive impact, suppresses weed growth, and provides habitat for member for the soil food web that spend at least some of their time above the ground. This is true regardless of land use (cropland, hayland, pasture, or range.) If improving soil health is your goal, you should not see the soil very often.

Soil should always be covered by growing plants and/or their residues and, it should rarely be visible from above. Soil cover cannot be taken for granted. Even in a no-till system, there are times when soil cover may be lacking because of crop harvest methods, amounts of residue produced, and low carbon:nitrogen ratios of some crop residues that make them decompose quickly.

Soil cover protects soil aggregates from ‘taking a beating’ from the force of falling raindrops. Even a healthy soil with water-stable aggregates (held together by biological glues) that can withstand wetting by the rain may not be able to withstand a ‘pounding’ from the raindrops. When water-stable soil aggregates are covered by crop residues or living plants, they are protected from disintegration by the hammering energy of raindrops. When soil aggregates remain intact at the soil surface, water infiltrates the soil and is available to plant roots.

A mulch of crop residues on the soil surface suppresses weeds early in the growing season giving the intended crop an advantage. This is particularly the case with a rolled cover crop that may cover the entire soil surface at once. They also keep the soil cool and moist which provides favorable habitat for many organism that begin residue decomposition by shredding residues into smaller pieces. IF these ‘shredders’ have good residue habitat they can increase residue decomposition, and therefore nutrient cycling, by up to 25%.

Keeping the soil covered while allowing crop residues to decompose (so their nutrients can be cycled back into the soil) can be a bit of a balancing act. Producers must give a careful consideration to their crop rotation (including any cover crops) and residue management if they are to keep the soil covered and fed at the same time.



Soil should be covered with living plants (hairy vetch pictured above) or residue (rolled rye pictured below) at all times, realizing that high quality residue from legumes decomposes relatively quickly.



Turnips (above) and forage radish (below) cover crops provide a lot of above and below ground biomass. Their ‘bio-drilling’ action penetrates compacted layers to improve soil health.



Grow Living Roots Throughout the Year . . . To Feed Soil Organisms

The soil food web is a complex association of organism responsible for breaking down crop residues and cycling plant available nutrients in the soil. Every organism has something that it eats . . . Something that eats it. There are many sources of food in the soil that feed the soil food web, but there is no better food than the sugars exuded by living roots.

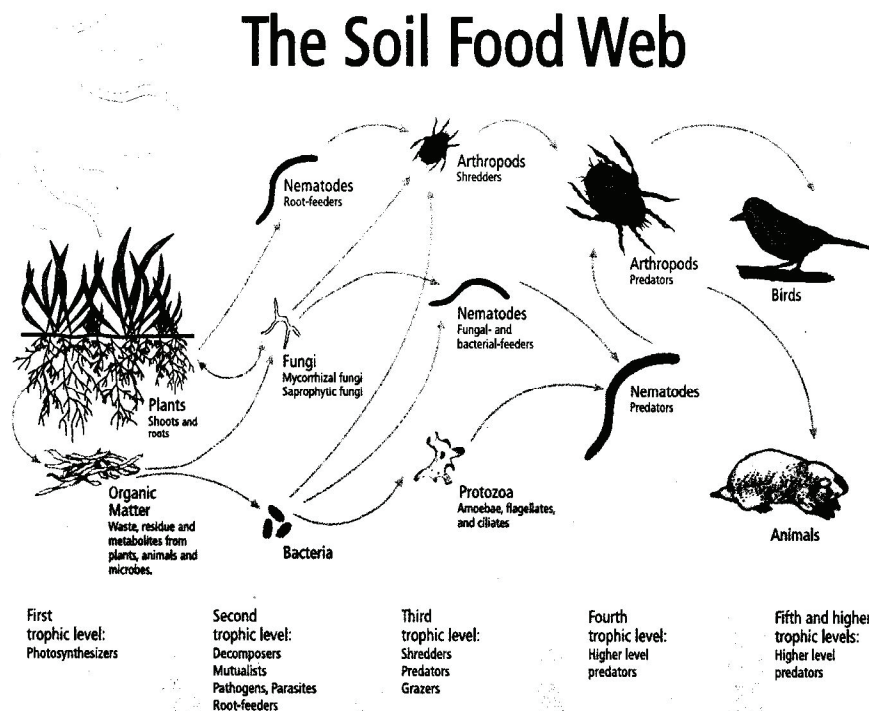
Living plants maintain a rhizosphere, an area of concentrated microbial activity close to the root. The rhizosphere is the most active part of the soil factory because it is where the most easy-to-eat food is available, and it is where peak nutrient and water cycling occurs. Microbial food is exuded by plant roots to attract and feed microbes that provide nutrients (and other compounds) at the root-soil interface where the plant can take them up. Since living roots provide the easiest source of food for soil microbes, growing long season crops or a cover crop following a short season crop, feeds the foundation species of the soil food web as much as possible during the growing season.

When carbon is not available from living roots, nutrient and water cycling occur at a much slower rate. The process is slower because the microbes involved have to do more work, often allocating parts of tasks to many other organisms and transporting the resources further.

Soil organisms feed on sugar from living plant roots first. Next, they feed on dead plant roots, followed by above ground crop residues, such as straw, chaff, husks, stalk, flowers, and leaves,. Lastly, they feed on the humic organic matter in the soil.

Dead plant roots and crop residues have to be shredded by soil microarthropods; such as mites, springtails, woodlice, earwigs, beetles, and ants. Crop residues have to be transported from the soil surface to living plant roots through long lines of multiple organisms. The humic organic matter has to be processed by a wide variety of organisms before the nutrients locked up in such material are available to the plant.

Healthy soil is dependent upon how well the soil food web is fed. Providing plenty of easily accessible food to soil microbes helps them cycle nutrients that plants need to grow. Sugars from living plant roots, recently dead plant roots, crop residues, and soil organic matter all feed the many and varied members of the soil food web. While the mission statement of the Natural Resources Conservation Service is *helping people help the land*, a farmer's mission statement might be *helping microbes help the plant* by providing soil microbes with the best soil habitat possible, including food.



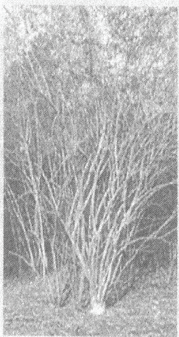
The soil food web is the community of organisms living all or part of their lives in the soil. The food web diagram shows a series of conversions of energy and nutrients as one organism eats another. The food web is fueled by plants and other organism that use the sun's light energy to fix carbon dioxide from the atmosphere. Most other soil organisms get energy and carbon by consuming the organic compounds found in plants, other organisms, and waste by-products. As organisms decompose complex material, or consume other organisms, nutrients are converted from one form to another, and are made available to plants and to other soil organisms.

From *Soil Biology Primer* [online]. Available: soils.usda.gov/sqi/concepts/soil_biology/biology.html [September 2010].

Invasive Species: Asian Bush Honeysuckle



ASIAN BUSH HONEYSUCKLE is a upright shrub with arching branches that are 6-15 feet tall. Each of these species has opposite leaves with paired berries and hollow branchlets. The berries are dispersed by birds. They stand out in the understory of forest as the first shrubs to leaf out in the spring and the last to loose their leaves in the fall.



Exotic bush honeysuckles can rapidly invade and overtake a site, forming a dense shrub layer that crowds and shades out native plant species. They alter habitats by decreasing light availability, by depleting soil moisture and nutrients, and possibly by releasing toxic chemicals that prevent other plant species from growing in the vicinity. The Asian Bush Honeysuckle are most often found in forest edge, abandoned fields, roadsides and open wetlands. However, they will move into forest understories and dominated wherever there has been a disturbance. The Asian bush honeysuckles originate in Eurasia (Japan, China, Korea, Manchuria, Turkey, and southern Russia). They were introduced as ornamentals, for wildlife cover and for soil erosion control. However, their aggressive domination of native communities make them a bad choice for these purposes.

Suggested Alternatives are: Dogwoods, Chokeberry, Winterberry, Northern Arrowwood, Blackhaw, and Serviceberry.

Control Methods: mechanical and chemical methods are the primary means of control of Asian bush honeysuckles. No biological control agents are currently available for these plants. Hand removal of seedlings or small plants may be useful for light infestations, but care should be taken not to disturb the soil any more than necessary.



For more information about
IPSAWG
and invasive species,
visit their website:

www.invasivespecies.IN.gov

Asian Bush Honeysuckle is a threat to:

- ⇒ Forests, woodlands, and wetlands
- ⇒ Native plants
- ⇒ Perennial gardens
- ⇒ Wildlife
- ⇒ Farmland
- ⇒ Floodplains, lakes and rivers
- ⇒ Savannas and riparian corridors
- ⇒ Human health

Upcoming Summer Events

2013 Dubois
County



4-H Fair
Schedule

Saturday, July 6—4-H Fair Queen Contest
Friday, July 12—Friday, July 19 Fairgrounds open
Saturday, July 20—Demolition Derby, Fire N Ice



Saturday, August 10th—Dubois County Truck
and Tractor Pull

Pike and Gibson SWCDs To Host **FREE** Hoosier Riverwatch Introductory Volunteer Training

Tuesday, July 16 at 9:00 a.m. EST to 4:30 p.m. EST
To be held at The Sugar Ridge Fish & Wildlife Area, Winslow, IN
Directions will be included with confirmation Letter or e-mail.
You will need to bring your lunch, drinks and snacks will be provide.

- ⇒ Morning session will be indoor Classroom
- ⇒ Afternoon will be outdoors, hands-on at wadable stream.
- ⇒ Dress comfortable for the weather and the outdoors.

Instructor will be: Ann Ice, Gibson Co. SWCD

*Hoosier Riverwatch Volunteer Instructor
Gibson County SWCD Education Coordinator*



Send reservations for the training
to:

The Gibson County SWCD
Ann Ice at 812-385-5033 ext. 110
Or e-mail: ann.ice@in.nacdnet.net

INDIANA STATE FAIR
FUN AT EVERY TURN!
AUGUST 2-18, 2013
20 PROGRAM 13
MAP LOCATED ON INSIDE BACK COVER
AUGUST 2-18
INDIANASTATEFAIR.COM

2013 CALENDAR OF EVENTS

- July 14-20 Dubois County 4-H Fair (Bretzville)
- July 23 VUJC Land Stewardship Initiative Open House (Jasper)
- August 2-18 Indiana State Fair (Indianapolis)
- August 14 Soil Health Expo (Vanderburgh Co. Fairgrounds)
- September, Tree Care Workshop (more information will be coming at a later date)
- October 26 UK-Purdue Small Farms Conference (Henderson, KY)



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The Conservation Conversation

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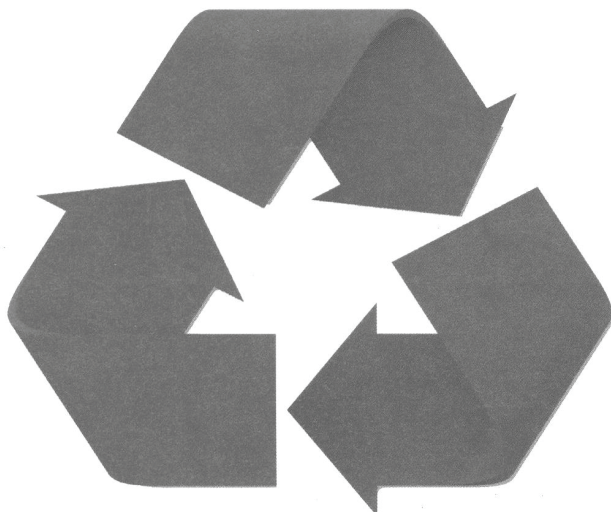
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REDUCE REUSE RECYCLE
REDUCE RECOVER RECYCLE



June 4th was **World Environment Day.**
The USDA, in collaboration with the U.S. Environmental Protection Agency (EPA), launched the U.S. Food Waste Challenge, inviting producer groups, processors, manufacturers, retailers, communities, and other governmental agencies to join in the effort to:

- ♦ **Reduce** food loss and waste
- ♦ **Recover** wholesome food for human consumption
- ♦ **Recycle** discards to other uses including animal feed, composting, and energy generation