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Initiative**  
*soil health...the root of everything*





# A new vision for a new day

As it has been since its inception in 2012, the Land Stewardship Initiative (LSI) continues to be a project built as a partnership between the Soil and Water Conservation District (SWCD) and Vincennes University Jasper Campus (VUJC). However, 2016 brought about several changes to the scope of the project as the goal for the initiative was re-envisioned. It was decided that going forward the focus would be for LSI to continue with the agricultural crop fields as they have in the past several years and to return the management of the prairie and the woodlands to the care of the University, but offer support as requested.

The LSI's continued goal is to be a demonstration site for No-till farming practices with the use of cover crops and to educate the community about soil conservation practices. LSI will continue to collect data both in the field and in the waterways to measure our impact on the environment and to allow us to make the best most informed choices we can in the management of the property. This past fall the SWCD hired Melissa Ruschau to coordinate the program bringing new energy to the project.



# News of note from the field

In the spring of 2016, a diversion was created in field 7. This fall we completed the last of the earth work projects slated for the LSI project. Repairs were made to the waterway in field 2 and a diversion was created in this field as well. Diversion structures are channels that are constructed across slopes that cause water to flow to a desired outlet preventing erosion over the field.



Field 7 diversion construction spring 2016

# Looking to the future

In 2017 will host a workshop lead by Jim Hoorman, NRCS Soil Health Specialist, covering: Soil Ecology and Nutrient Recycling, the Biology of Soil Compaction and Cover Crop Economics. We will plant corn and treat our fields with a prescription application of nutrients. We will continue to monitor water quality and take samples from our plants and soils creating a database of information.



2014—erosion in field 2

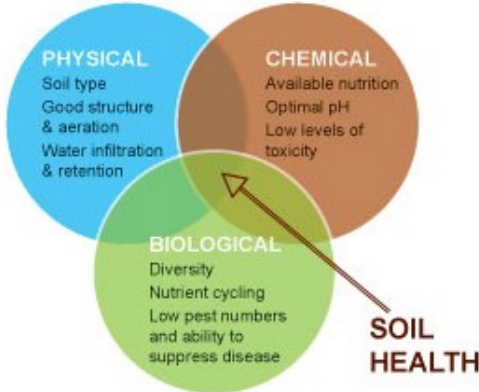


2016—grassed waterway

As we begin our sixth year of the LSI project we can look back at first five years of our organization and see the results of repair work to stabilize erosion issues and look forward to focus on operation of the property in 2017. With the major repair work behind us, we can now focus on education and management of the land. As the outreach arm of the SWCD for soil health we look forward to demonstrating the benefits of no till cover crop systems in our workshop and demonstration days.

Soils consist of a mixture chemical, physical and biological components, so we seek to create balance and health in the soil because... *soil health... it's the root of everything.* Please join us on our journey to see what the next five years and beyond holds for the future of agriculture.

Contact 812-1171 ext 3 or Melissa Ruschau [Melissa.ruschau@in.nacdn.net](mailto:Melissa.ruschau@in.nacdn.net) for information on programs or to sign up for the quarterly eNewsletter.





# Looking at the past– a birdseye view

2011- VUJC property prior to building of CTIM building and LSI initiative .

Fields are numbered differently at that time by FSA



2013- construction of the CTIM building

Note the disturbance of soil in field 7

Note the tilled strip in field 2 that we use to do side by side comparisons to tilled soil versus no tilled cover crop soils.

2016— current state of the LSI property

Note the grassed waterway in field 7 as well as the borrow area where cover crops are growing close to the CTIM building.

There are now two grassed water ways in field 2 as well as a functional WASCOB system (Water And Sediment Control Basin) in the north end of the field.

All fields are now surrounded by field borders to prevent erosion and nutrient run



In Field 6, a crimper eliminated the need for one herbicide application. Growers who use cover crops are increasingly turning to a tool that can flatten out their actively growing fields, usually in a single pass. Known as a “roller/crimper,” the technology can help reduce and sometimes eliminate the need for herbicides. Cover crops can improve soil quality and they play a major role in keeping weeds in check. Crimpers boost these benefits.



Above: Bart Pitstick (*NRCS*) rolling the standing rye down after planting soy beans on June 13th.

This spring a cover crop mixture of: Soil Buster Radish, Sunn Hemp, Buckwheat, Peredovic Sunflower, Pearl Millet, Sweet Bites and Hairy Vetch was planted in the field 7 “borrow area” a heavily disturbed soil left over from the construction of the CTIM Building. This approximately 1.5 acre area is being monitored closely as we try to amend the soil and return it to a state of health. The cover crops help in a variety of ways: the most obvious is preventing soil loss from erosion but providing organic matter is a more long-term and equally important goal.



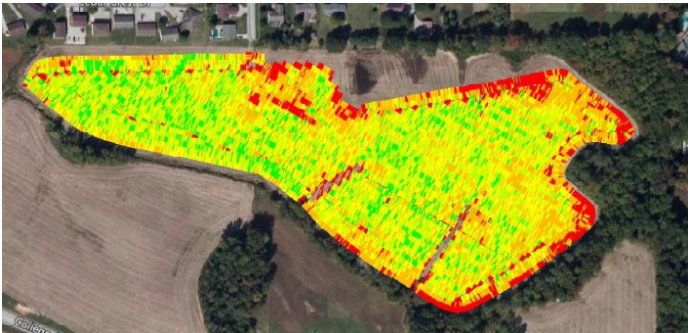
Right: Hans Kok (*PhD, agronomist*) in field 7 at the Fall Field Day Event

Japanese stilt grass was found on the property near field 5 in the field border near the steam. This invasive species has been sprayed and will continue to be monitored. As with all invasive species there is no single fix for the problem. Catching outbreaks early and dealing with them before they become pervasive is the best you can do.

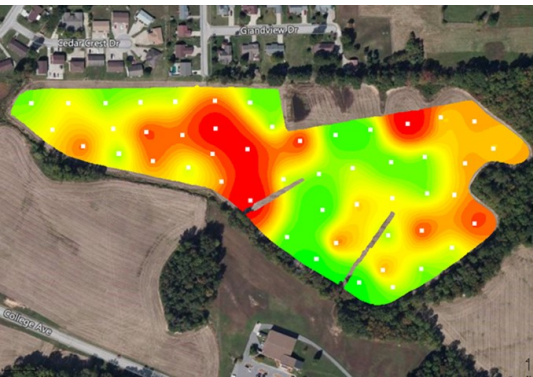




The fall harvest of soybeans went very well. Overall, the property averaged 57 bushels per acre. Using harvesting yield monitor data and GPS data we have been able to get a good look at the bushel/acre yield variation within a given field. The red data points that you see in the picture show lower yielding areas and the green showing highest yield. For example, our crop in field 2 show red areas where we measured lower yields near field edges by woodlands where lack of sunlight and moisture due to the trees reduces growing capability which reduced yield. Graphics provided by Rick Applegate



Above: GPS Harvest data 2016 field 2



Right: Soil sampling (0.5 acre grids from Precision Farming Solutions and Integrated Ag Services, showing sample points and map of pH: field 2)

In 2016 the LSI project experimented with using finer grid soil testing to determine the fertility and nutrient needs of the property. The Ag committee will evaluate this information in the spring of 2017 to create a prescription application of nutrients for the crop lands. The goal is to place the nutrients in the fields as they are needed with greater amounts being applied in areas where the soil tests indicate needs, instead of applying them equally across the field.

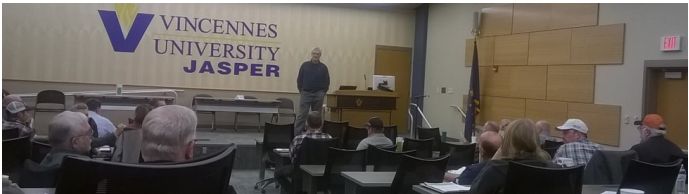
This fall for the first time in the history of the LSI project cover crops were drilled in instead of being aerially seeded or broadcasted. A mix of Cereal Rye, Cow Peas, and Crimson Clover are growing well. There was a fair amount of moisture in the soil allowing the seeds to germinate as the fall turned into a dry season with burn bans issued locally.



No-till drill in action

## Demonstration and education activity

In February, LSI and the Dubois County Soil and Water District conducted an interactive Workshop Session to discuss the use of Gypsum and also the termination and selection of cover crops. The Gypsum session was lead by Ron Chamberlain (*Gypsoil*), Ashley Hammac (*CCSI agronomist*) and Barry Fisher (*NRCS*). Key benefits from appropriate application of gypsum is combating excessive Sodium, increasing Magnesium levels and improving Phosphorus dispersion in the soil nutrient structure. Where appropriately applied, as determined by soil testing, gypsum helps improve aggregation, permeability and water retention capability in the soil and reduces runoff.



This September, LSI and the Dubois County Soil and Water Conservation District hosted an educational event at VUJC. Participants learned about soil health and the microbiology that exists in our soil. Slides were projected by Dan Luczynski (*NRCS*) on an overhead screen to view the living bacteria, protozoa and other biotic organisms present in LSI's soil. Participants then toured the field with Hans Kok (*PhD agronomist from the Netherlands*) to get a firsthand look at the root systems that were able to establish themselves in healthy soil and the challenges that plants may face in poor soil with less biotic diversity. Jesse Uebelhor (*Superior Ag*) and Betsy Bower (*Ceres Solutions*) co-presented an informational session on cover crop termination and herbicide carry over. Ken Eck (*Purdue ext. edu.*) rounded out the night with PARP credits on Drift Control.



Hans Kok and Gary Siebert examining plant roots at the Fall Field Day

Water Quality testing - we are continuing to collect data on: pH, turbidity, flow rate, and dissolved nutrients from our field tile outlets after rain events. Plans are in place to expand data collection in 2017 to include stream samples before and after our property to measure the Jahn Creek watershed more completely.

