IOWA Learning Farm Newsletter

Mission Statement

The Iowa Learning Farm promotes efficient agriculture production systems that result in agronomic, economic, and environmental improvements through increased awareness and adoption of conservation systems and ethics.

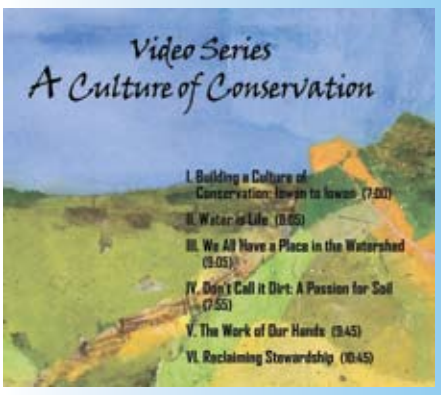
ILF 01 Volume 5 Issue 2 Spring 2009

Building a Culture of Conservation

Video project making an impact

The recent creation and distribution of the video series "A Culture of Conservation" is meeting positive reaction. Iowans, farmers and non-farmers, are showing the videos to their neighbors, civic organizations and church discussion groups to help advance the message that Iowa's soil and water quality is everyone's concern.

Since December, over 800 DVDs have been given to Soil and Water Conservation District (SWCD) commissioners, ISU Extension county offices, county conservation boards, educators and individuals to use in programming and educational forums.



Sheila O'Riley heads up the Backyard Conservation Conference for gardening enthusiasts, held March 28 in Lenox. There were approximately 150 attendees from both rural and urban settings. "We opened with the video so people would go through the rest of the conference with the message that we are for gardeners, and to get gardeners to consider conservation issues," said O'Riley.

On the same day, the videos were being shown on the opposite side of the state at the Quad Cities Environmental Film Festival in Rock Island. ILF Project Manager Jerry DeWitt led the audience in discussions after viewing two of the water-themed films. "The audience – primarily urban – possessed strong environmental and agricultural interests in general," said DeWitt.

Norm Lust, a Clarke SWCD commissioner and ILF Conservationist, has shown the video to numerous audiences including the Osceola Rotary club, students in the Murray School District and other small groups.

"Some of the best audiences are fifth graders," said Lust, a New Virginia retired farmer. "These kids are at an age where they want to become involved and are engaged with the subject matter."

Lust also uses the videos as part of training for new SWCD commissioners. Lust is one of the original members of the SWCD commissioner development committee. He encourages commissioners to find venues to show the video to help educate all Iowans.

To request a copy of the DVD, email: ilf@iastate.edu, and please include a mailing address. For more information about the video series, visit the Iowa Learning Farm web site: www.extension.iastate.edu/ilf.

IOWA STATE UNIVERSITY
University Extension

LEOPOLD CENTER

Doug Campbell

Producer Profile

Born and raised on a farm, Doug Campbell started farming in 1977 on rented land. He is now back home on the farm that has been in his family for generations. Located in rural Shannon City, Ringgold County, he runs a diverse operation with row crops, CRP land, hay and pasture for his cow/calf operation.

He notes that Ringgold County is a little different from other areas in Iowa, as many acres are pasture or in CRP. Because of the topography of the land, there are a lot of good conservation structures in place. He believes that the farms in his area are doing well with conservation methods.

Campbell has been practicing no-till for many years. He was inspired to change while going to college. "In 1978, I went to ISU and one of my professors held up a book on ridge tillage," said Campbell. "I bought that book and read it from cover to cover. I came home and told Dad that I was going to do no-till. My dad thought I was crazy."

He started with 10 acres and admits that he made some mistakes, but it worked. When his father saw his results, he began no-tilling some acres as well. Campbell says that their farm has changed a lot since then. They used to see erosion spots and washed out waterways, but with no-tilling

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Iowa has lower-quality topsoil than 50 years ago

by Dan Kuester, Iowa State University News Service

In the past half century, topsoil in Iowa has lost much of what made it special, says a researcher at Iowa State University.

Topsoil depth, referred to by researchers as A Horizon soil, has remained the same over 50 years, but the quality of the A Horizon soil has decreased. That's according to Jessica Veenstra, a researcher in ISU's Agronomy Department, who looked at soil studies from 50 years ago and compared them to her current readings.

Veenstra says some of the topsoil has moved from hilltops and higher elevations to lower areas due to runoff. Her findings show that hilltops have lost soils while valleys have gained soil. The averages between the losses and the gains point to A Horizon soil remaining about the same.

photo by USDA NRCS

"All the plowing, mixing and tilling and all the activity on the landscape is making the topsoil thicker is some places and thinner in others, and overall the soil quality has decreased," she said.

The soil has lost quality because of how tightly it is packed. Veenstra examined how the soil particles are arranged. When Iowa was primarily prairie, the soils had a more granular structure that was like a sponge. Air and water could move easily through the soil because density was very low, according to Veenstra.

Due to years of tillage, the soil is now much denser and water and roots don't move through it as easily, her research shows.

"Imagine you've got a cup of marbles," she said. "The marbles have many air pockets and space between them. That is how the soil was. Roots, water and air could move easily through it. Now imagine a cup full of dice, with the dice stacked tightly together. That is how the soil is now with very high density. The topsoil might be the same depth, but the quality is not as good."

Veenstra looked at 89 different locations from all around the state that were described in soil studies done by National Resource Conservation Service in the 1950s and 1960s. She located the same sites and took the same readings using the same protocols as the earlier studies.

"We are doing the exact same thing the NRCS did initially," she said. "The same procedures, the same conventions – everything the same way to see how these soils have changed."

Many locations were difficult to find as the Iowa landscape has changed dramatically in the past half century.

"The original locations were measured off fence lines that are now mostly gone," said Veenstra. "Bigger and bigger fields, bigger and bigger equipment are used now and old fences are gone. I had to use aerial photos from 1950 and measure off the photos to find exact locations," she said.

Veenstra was able to pinpoint most samples within six feet of the original location and used global positioning system equipment to mark exact locations for future reference, she said.

No-till is the better choice for soybeans after corn

by Mahdi Al-Kaisi, ISU Department of Agronomy and
Mark Hanna, ISU Department of Agricultural and Biosystems Engineering

The wet weather last fall put tillage operations on hold for many farmers, providing time to consider using a no-tillage system for soybeans after corn. Conventional tillage, whether for corn or soybeans, generally has shown limited advantages in yield and economic returns, with the exception of a few cases with corn that involve lack of drainage and wet, cold soil conditions.

As spring field operations get underway, producers need to stop and think about their tillage system choices, especially given the costs associated with conventional tillage operations such as labor, fuel and equipment. Primary tillage, such as chisel plow or deep-ripping, often requires 1 to 1.5 gallons of fuel per acre or more, than a no-till system. A secondary pass through the field with a field cultivator or disk may use 0.5 to 0.7 gallon of fuel per acre.

These additional fuel costs, in addition to other input costs, make no-tillage a far better choice, given the insignificant soybean yield differences across all tillage systems. Also demands on farm labor this spring may be greater than normal due to the late 2008 harvest.

Advantages to changing tillage practices

Are tillage operations really needed for soybeans following corn? If the response to this question is based on yield improvement, the answer is no.

A long-term tillage study, begun in 2002 at eight Iowa research farms, evaluated the effect of five tillage systems–no-till, strip-tillage, chisel plow, deep-rip, and moldboard plow–with corn-soybean and corn-corn-soybean rotations.

Soybean yield with different tillage systems in Iowa for 2002-2008

Tillage System - - - - - - - - - - - - - - - - bu/acre - - - - - - - - - - - - - - - -						
Research Farm	NW	NC	NE	SW	SC	SE
No-till	54.2	51.8	51.4	50.5	56.6	57.6
Strip-till	54.0	50.0	52.5	50.7	55.5	57.6
Deep Rip	54.7	51.4	52.7	52.2	55.2	58.3
Chisel Plow	54.7	51.0	52.3	50.6	54.8	57.4
Moldboard Plow	55.3	51.4	52.8	49.8	57.9	59.5
LSD(0.05)	6.58	5.1	3.1	4.3	5.7	3.5
5-tillage Average	54.6	51.7	52.3	50.7	56.0	58.1

Soybean yields are average of six years for each site.
Yield differences are significant when greater than the least significant difference (LSD) value.

The results show soybean yields are not significantly different for all tillage systems at all locations. The input cost of conventional tillage for soybean production is approximately $18 to $25 per acre more than no-till. The increase in soybean yield for conventional tillage systems in most cases does not exceed one bushel per acre over no-till. In addition to the economic and yield advantages for soybean production with no-till, there are also significant environmental benefits including improved soil organic matter, soil quality and water quality.

The argument for tilling corn residue to improve organic matter is unsupported by research. Studies have shown that incorporating residue with intensive tillage will do more damage. This practice accelerates the loss of soil organic matter by mineralizing organic matter and altering microbial activities. The damages caused by degrading the soil's organic matter are far greater than the benefits to the soil when incorporating residue via tillage. There also is a greater potential loss of organic matter associated with conventional tillage due to the risk of soil erosion. In a no-tillage system, residue can decompose slowly and release nutrients more efficiently into the soil system for crop use.

Tilling corn residue for the soybean crop year does not improve soybean yield. There may be some challenges in managing corn residue, but simple modifications of the planter to include residue cleaners, heavier down-pressure springs, or other residue management attachments, are far more cost-effective than the expense associated with conventional tillage.

... **CAMPBELL continued from page 2**

and added terraces, it has all come together. He noted that now most of his neighbors have followed suit.

"If I leave soil on my farm, it means I leave fertility, which means my production stays good. That is my bottom line."

For the Iowa Learning Farm, Campbell demonstrations compare warm season native grasses as an improved CRP option; and conversion of CRP land to no-till corn and soybean food plots.

Doug and his wife, Dayna, are the parents of two grown children. He has been active with the Ringgold County Fire Department and Rescue Dive Team, Soil and Water Conservation Districts, County Fair Board and in his church.

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www.extension.iastate.edu/ilf

News and Notes

Stout a Master Farmer

ILF Cooperator Rob Stout was one of four recipients of the Iowa Master Farmer Award for 2009. The award is presented by *Wallaces Farmer,* which has bestowed the honor to 400 Iowans since 1926. Farmers are selected by nomination and criteria are based on outstanding farm management, leadership in local, state and national organizations. According to *WF,* "those who are good stewards of the land and give proper care to livestock receive high marks."

Juchems elected to SARE

ILF Cooperator Rick Juchems was elected to serve a four year term as the Iowa farmer representative to the Sustainable Agriculture Research and Education (SARE) North Central Administrative Council, which administers this USDA regional program. The North Central region covers 12 states.

Reserve the Rainfall Simulator

The ILF Rainfall Simulator will be demonstrated this summer at county fairs, outdoor educational events, and field days. Contact us if you would like the rainfall simulator as part of your event programming. Hurry, dates are filling up fast! To see if the rainfall simulator will be in your area, visit the ILF web site's rainfall simulator page for a current schedule: www.extension.iastate.edu/ilf