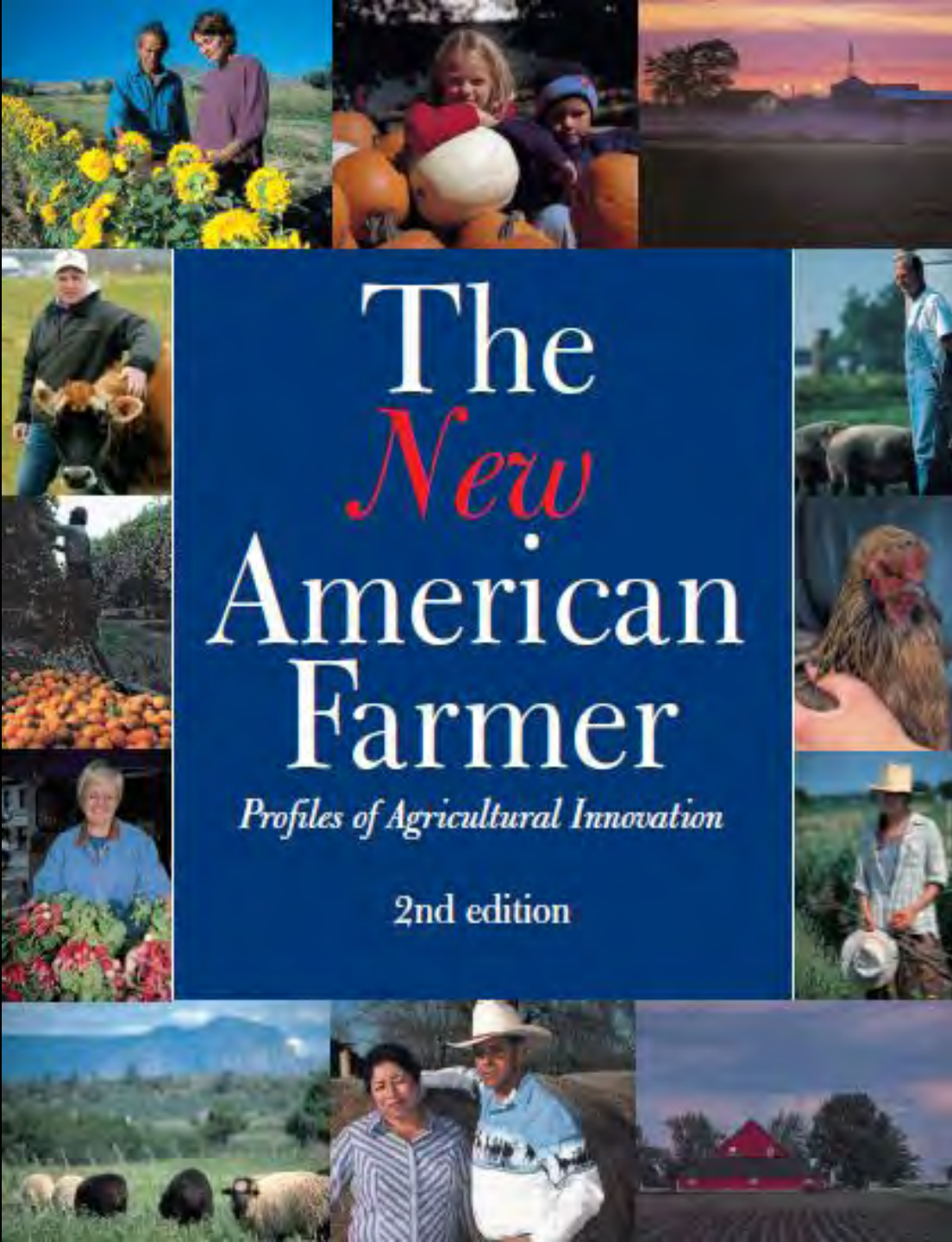




WIU Cover Crop Innovator Project

Dr. Joel Gruver, Western Illinois University
J-Gruver@wiu.edu, 309-298-1215



Hailing from small vegetable farms, large grain and livestock farms and even larger ranches, the 60 producers profiled in *The New American Farmer*, have embraced new approaches to agriculture.

They are renewing profits, enhancing environmental stewardship and improving the lives of their families as well as their communities.

Ralph "Junior" Upton
Springerton, Illinois

New in 2005

Assignment for Soil and Water Conservation class Spring 2007

Read and comment on *one* of the following articles depending on your interests:

Profile of Ralph Upton in "The New American Farmer"
<http://www.sare.org/publications/naf2/upton.htm>

Describe in a paragraph your reaction to this profile.
Include answers to the following:

Which ideas did you find most interesting ? Comment on the relationship between Upton and Extension Agent Mike Plumer. Comment on how the practices used by Upton compare with the practices used on your family's farm or other farms with which you are familiar.



By adding cover crops and switching to no till, Junior Upton drastically improved his habitually compacted soil.
Photo by Dan Anderson.

in low areas.

ink he could actually improve the

ty of moisture in the soil about
on of why, during dry years, the

f the claims might help his soil. He
n caused by the plow pan.

out cover crops, non-cash crops

During the Fall of 2008, students in AGRN 378 (Soil Fertility and Plant Nutrition) at Western Illinois University interviewed 45 farmers in 5 states in the Midwest region who regularly use cover crops in agronomic cropping systems.

Contact information for potential interview candidates was obtained through the internet and extensive networking with farmers, USDA/university specialists, cover crop seed vendors and other ag professionals.

Interviews were conducted primarily by email and phone and information gathered through the interviews was presented in 1-3 page cover crop innovator profiles.

Illinois Cover Crop Innovators



Farm Locations



Location	Name	City
1	Dave DeLong	Arlington
2	Greg Butkewich	Streator
3	Kelly Cheesewright	Orion
4	Terry Dahmer	Marion
5	Ken Deibel	Macomb
6	Ken Gray	Clarendon
7	Roger Hendricks	Arundel
8	Brad Hunt	Streator
9	Karl Lawler	Rock
10	James Mohr	La Harpe
11	Ken Peters	Carbondale
12	Brad Rump	Towanda
13	Cliff Schwartz	Shelton
14	Terry Taylor	East
15	Ed Thornton	East
16	Alice Williams	East
17	Tom Waples	East



Source: O.C. Specialist
Data Collected 2008



200 – 8000+ ac
(avg. = 1630)

4 livestock producers
(cattle and hogs)

7 wheat producers

5 long-term no-tillers

4 mixed
organic/conventional

Profile of Karl Lawler and James Mohr have not yet been completed.

Indiana Cover Crop Innovators



Farm Locations

Location	Name	City
1	Ray Chaffin	Decker
2	Dan Desutter	Attica
3	Randy Hathaway	Veederburg
4	Aaron Johnson	Orleans
5	Ray McCormick	Vincennes
6	Shane Meier	Columbus
7	Rodney Rulon	Arcadia
8	Jim Scott	Pierceton
9	Mike Starkey	Brownsburg
10	Roger Wenning	Greensburg
11	Ben Yantis	Logansport
12	Mike Yoder	Goshen



Source: IFAAG Special
Data Current: 2019



250 – 4000 ac
(avg. = 2230)

All no-tillers with most
committed to long term
100% no-till

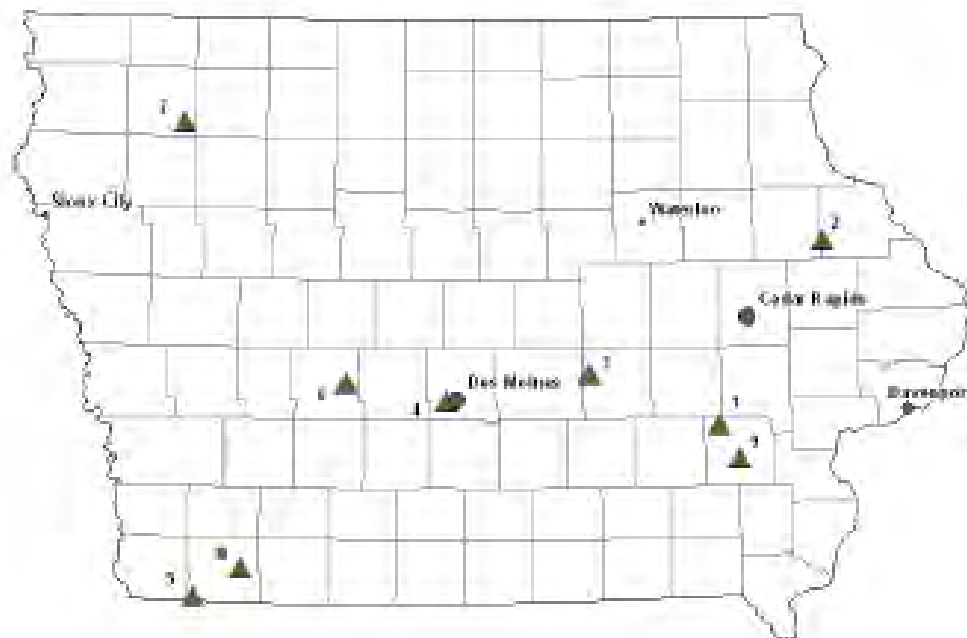
3 livestock producers
(hogs, turkeys, chickens
and cattle)



The profile of Rodney Rulon has not yet been completed.

Iowa Cover Crop Innovators

Farm Locations



130 – 2500 ac
(avg. = 1140)

All but 2 raise livestock
(cattle, hogs and sheep)

3 long-term no-tillers

Location	Name	City
1	Steve Berger	Wellman
2	Karl Dallefeld	Worthington
3	Bryan Davis	Grinnell
4	Wade Dooley	Des Moines
5	Kevin Green	Northboro
6	Earl Hafner	Panora
7	Paul Mudge	Sutherland
8	Austin Nothwehr	Clarinda
9	Greg Wiley	Washington



Source: IPR/CIS Special
Data Current: 2000





Michigan Cover Crop Innovators

Farm Sites



300 – 1800 ac
(avg. = 830)

3 wheat producers

2 no-tillers

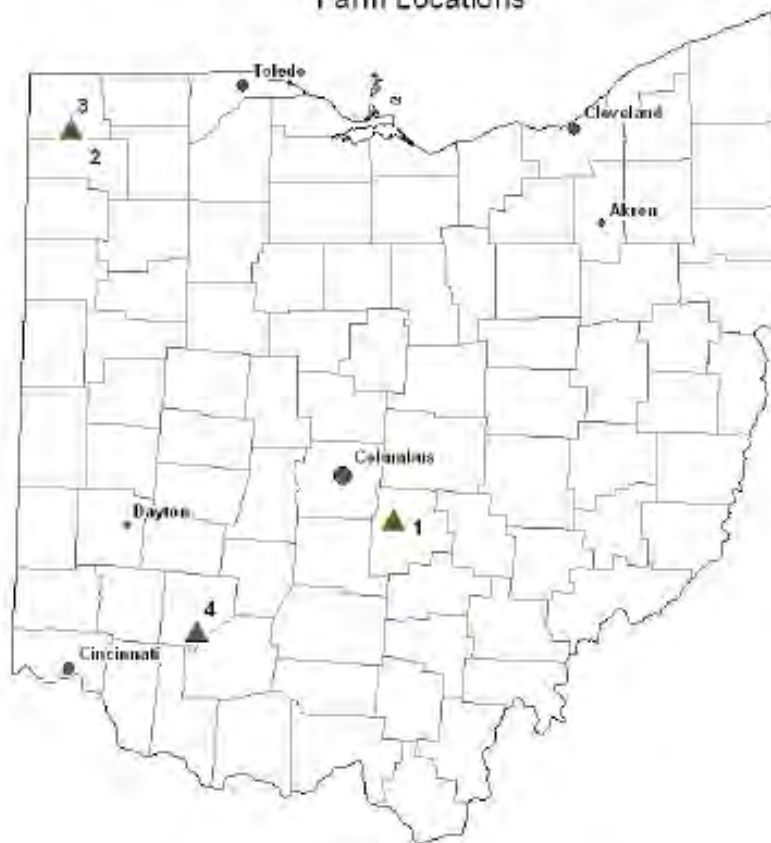
Location	Name	City
1	Joe Draper	Angola
2	Jim Kratz	Caro
3	Pat Sheridan	Fairgrove

Source: IIR & GIS Specialist
Data Current: 2000



Ohio Cover Crop Innovators

Farm Locations



900 – 3200 ac
(avg. = 2130)

+

300,000 ac
Farm management
company

All long-term no-tillers

Location	Name	City
1	David Brandt	Carroll
2	Allen Dean	Bryan
3	Joe Nester	Bryan
4	Ed Winkle	Martinsville

Source: IIRA GIS Specialist
Data Current: 2008



adopt \neq adapt



vs.



The WIU Cover Crop Innovator project provided students with insights about cover cropping directly from innovative farmers maximizing 1) the credibility of the information and 2) student awareness that integration of cover crops within cropping systems can be beneficial but nearly always involves on-farm innovation.

Collaborating farmers shared information in a comfortable context (“talking shop” with young men and women who mostly grew up on farms) and gained access to information about and contact information for other cover crop innovators



Drilling annual ryegrass into double crop soybean stubble – Winkle Farm



Phillips harrow equipped with a Valmar air seeder on DeSutter Farm

Preparing for aerial seeding annual ryegrass in OH




Aerial Seeding Turnips, Oats and Rye on Cliff Schuete's farm in S. Illinois





Custom-built row cleaner – Hathaway farm in Veedersburg, IN

A top-down view of a silver CD-ROM disc. The disc is centered in the frame against a white background. Overlaid on the disc is black text. The text is arranged in three parts: a top section, a middle section, and a bottom section.

**Students received CDs
containing all of the
CC Innovator profiles**

and

quite a bit more!!!

By TOM J. BECHMAN

TIM Chatten pulled back corn residue so that green sprouts were easier to see. It was mid-fall, and annual ryegrass was emerging. Was it thick enough? Would it grow enough before winter, then thrive next spring? Those are questions the Chattins can better answer this spring. However, based on what they saw on 40 acres a year ago, they planted more than 300 acres after harvest in 2005.

Tim and his brother, Ray, farm near Vincennes, Ind., in Knox County. They became intrigued with annual ryegrass when they saw how much cover it provided in plots on other innovators' farms. The U.S. Department of Agriculture's National Conservation

Key Points

- An annual ryegrass cover reduces nitrogen loss due to leaching.
- Utilizing a ryegrass cover takes strong farm management.
- Selecting proper herbicides for burndown is critical.

What impresses the Chattins most is how it might impact crop nutrients. "We're told that it takes up nutrients such as nitrogen, that could otherwise be lost," Ray says. "It could release..."

"We seeded with a John Deere 750 drill last year, but we needed to cover acres more quickly," Ray says.

Try covers again
One reason cover crops fell out of favor before was limited choice. Rye protected soil, but could be out of control almost overnight.

ry Fisher, executive
Indiana Conserva-
tive, has tried in-
cluding ryegrass
in County, Ind. 1
(radish fami-
ly) turnips,
these wir-
ft once
The br

PRODUCTION

BY KAY SHERMAN
For/Week

Almost anyone is aware of the attention, especially in the financial arena, that is being given to the concept of employee stock ownership plans (ESOPs). These plans are designed to give employees an ownership stake in the company, which can increase their loyalty and productivity. However, the concept of ESOPs is not new. It has been around for decades, and it is still a popular way for companies to reward their employees.

ESOPs are one of several ways that companies can reward their employees. Other ways include bonuses, profit sharing, and stock options. Each of these methods has its own advantages and disadvantages. ESOPs, however, offer a unique way for employees to share in the success of the company.

There are several reasons why companies might choose to implement an ESOP. First, it can be a way to attract and retain top talent. Employees who own a stake in the company are more likely to stay with the company for the long term. Second, ESOPs can be a way to pass the company on to the next generation. If the owner of the company is planning to retire, an ESOP can be a way to transfer ownership to the employees. Third, ESOPs can be a way to improve the financial health of the company. By giving employees a stake in the company, they are more likely to work hard to increase the company's profitability.

However, there are also some risks associated with ESOPs. One risk is that the company's value might be overvalued, leading to a loss for the employees. Another risk is that the company might not be able to afford to buy back the shares if the employees want to sell. Finally, ESOPs can be a complex and expensive way to reward employees.

Despite these risks, ESOPs remain a popular way for companies to reward their employees. If you are considering an ESOP for your company, it is important to consult with a professional to make sure you are doing it right.

[illegible]

fields with two years of experience. On most fields with grass a cover crop is used, but only to stabilize top area. I rotate 10 years ago.

Annual ryegrass is used in the fall and in mid-April with herbicide in mid-April. By that time, the ryegrass plants have established, plants are ready for the rest of corn or soybeans.

GROWING In the past, not much increased interest in using Illinois farmers, according to Randy Palmer, forage and feed sales manager for the company.

"I've found more ryegrass than I have a use for," says Palmer. "We have two national markets, while two national markets exist in the United States. One is for improving the productivity of corn and soybeans in the Midwest. The other is for additional research in conditions, such as the use of ryegrass in no-till systems to measure the potential to increase the soil."

Last year, annual ryegrass was used to help reduce the risk of certain crops, such as soybeans, which are not as hardy as corn. The ryegrass was planted in the fall and harvested in the spring. It was used as a cover crop for the corn and soybeans. The ryegrass was also used as a forage crop for the cattle and horses. The ryegrass was also used as a seed crop for the cattle and horses.

various cover crops since 1976, annual ryegrass for the past 8 years, and a lot of peas in no-till fields to check the design and soil conditions. "Even more than in Africa, but," he says, "you were going to design a plant to be the ultimate cover crop, annual ryegrass would be it," says Dan DeStutter.

Seeding Is Believing. "In my farm this past spring, annual ryegrass in the first week of April laid 6 to 9 inches of top growth, and when we dug into the field, we found roots at the bottom of the 52-inch pass — and that's the first year of cover crop," he adds. "Even more than no-till field," he adds. "Even more impressive was the sheer mass of roots in the top 18 to 24 inches. I don't think any piece

Seeing Is Believing. "On my farm this past spring, annual ryegrass in the first week of April had 6 to 9 inches of top growth, and when we dug into the field, we found roots at the bottom of the 52-inch plot — and the first year of cover crop — and the no-till field," he says.

"I don't think any piece of steel is ever going to be able to do as well as what Mother Nature did right there..."

Nutrient Elevators. "For the most part, we're seeing the cover crops pulling the nutrients up," he says. "Our phosphate maximum is 7 inches and also at 14 inches in those layers."

Our phosphorus test is pulling the nutrition, and so is our potassium test. In fact, we haven't applied phosphorus or potassium in 15 years, but the soil test readings come up. It's been in different forms for 10 years, and the last 4 years in ryegrass. We're raising our soil test readings at the same time we're raising our soil test readings at 35%.

ANNUAL RYEGRASS works in
crop. It sends roots down
till beds, breaking
reach down

ANNUAL REYEGRASS works hard as a cover crop. It sends roots down as far as 6 feet in no-till fields, breaking through compacted layers to reach deep water and nutrients, and it leaves improved soil structure and higher organic content in its path, according to Mike Plumer, Plumer, an agronomist with M&E, a division of Illinois Extension Service, has been working with no-till since 1976, with annual ryegrass for the past 8 years, with a lot of pines in no-till fields to check root growth and soil conditions. He says that annual ryegrass also excites *Drepanoglyphus* in Attila, Ind., "and it's a good thing to have."

of steel is ever going to be able to do as well as what Mother Nature did right there." Plumer and DeSuter both praise the field day sponsored by the two vehicles companies.

Better Beans. Similar benefits are seen with soybeans no-tilled after the rye cover crop. "It's not unusual to see roots down 30 to 32 inches in supposedly impervious soil," says Aylward.

"I don't think steel is even de-

He takes soil samples at the normal plowing depth of 6 to 7 inches and also at 14 and 35 inches to monitor how nutrients are changing in those layers.

the winter, the roots usually have enough warmth and moisture to penetrate the hard layers beneath them.

of annual ryegrass, the roots stretch an impenetrable layer at 30 inches and another at 30 inches, so we have a problem with root development."

Crops
**Huge news
in radishes**
By TIM WHITE

By TIM WHITE

JUST when you think David Braddell has done about everything there is to do with cover crops, he comes up with something — well, something children. Maybe that's why Braddell, Norcross, Chris Staley and Stewart, a colleague, look down from the Dryland Institute in Canyon, Texas, to visit the farm near Central.

There is a way to break the cycle of soil erosion and drought — it's called a cover crop. Dave is going to give it away. Braddell is going to give it

Key Points

- Limited nitrogen after new cover crop planted.
- Flaked millets grow better than drilled ones.
- Adding Azotrex winter break provides nitrogen.

Stewart says, "When farmers speak, scientists should listen."

Brandt showed the researchers a variety of tropical crops, including his latest: banana. New crops often offered

BIG CROP: Dave Board (left) and Kevin Shaffer host the huge cabbage patchers from Shuck's wheat crop. Much of the patch growth is above the soil.

[illegible]

By Ravi Perremani, Managing Editor

...as far as 6 feet in no-
rough compaction layers
...ments, and it leaves
...and higher organic
...ing to Mike Plumer
...t with the Univer-
...Service, has been
...ce 1976, with
...1980 and with
...8 years. He's
...o check root

of steel is ever going to be able to do as well as what Mother Nature did right there."

Plumer and DeSuter both praise the field day sponsored by the National Livestock Conservation Board.

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Small Grain Cover Crops for Corn and Soybean



IOWA STATE UNIVERSITY
Extension



THE
OHIO
STATE
UNIVERSITY
EXTENSION

FACT SHEET

Agriculture and Natural Resources

SAG-5-08

Oilseed Radish Cover Crop

Alan Sundermeier, Ohio State University Extension, Wood County, Ohio

Overview

Oilseed radish is a unique cover crop that farmers are planting to improve their soil quality for economic crop production. It has the ability to recycle soil nutrients, suppress weeds and pathogens, break up compaction, reduce soil erosion, and produce large amounts of biomass. Freezing temperatures of 20 to 25 degrees will kill oilseed radish which allows for successful no-till spring planting of subsequent crops. As a fast growing, cool season cover crop, oilseed radish is best utilized when planted after small grain (e.g. wheat) or corn silage harvest. Excess nutrients in manure amended soil are rapidly absorbed by this cover crop, thus preventing leaching or runoff of nutrients into water systems.



Fig. 1. Oilseed radish taproot compared to one foot ruler.

Description

Oilseed radish (*Raphanus sativus* [L.] var. *oleiferus*), belongs in the Brassicaceae plant family, commonly called mustards. The Daikon type of oilseed radish has a large, fleshy taproot that can grow 2 to 3 inches in diameter and one foot or more in length (Fig. 1), not including the fine root hairs that spread from the main taproot. Above ground growth consists of wide leaves that are soft, moist, and fast growing. The foliage reaches one to

two feet in height in a semi-erect stature. Leaf stems easily break from the main root, therefore traffic or grazing will destroy plant growth (Fig. 2).



Fig. 2. Succulent broad leaves on oilseed radish grow rapidly by utilizing excess nutrients in soil.

Planting Recommendations

As a cool season cover crop, oilseed radish is best suited for early fall growth. When given 60 days or more of plant development, maximum return on seed investment can be realized. Opportunities for planting oilseed radish in a cropping system would include:

- After small grain harvest (e.g. wheat)
- After vegetable or sweet corn harvest
- After corn silage harvest
- After early maturity soybean harvest

Seed is planted to a depth of one-half inch. Seed size is similar to alfalfa; therefore, when using a drill, a small seeder attachment is necessary. Broadcast seeding of oilseed radish can be done successfully if followed by light tillage incorporation. Leaving the soil level after cover crop

Cover Crop Choices for Michigan

Extension Bulletin E 2884 • New • April 2003
Dale R. Mutch, W.K. Kellogg Biological Station
Department of Biology

Michigan State University
Litchfield Corners, Mich. and Sieglinde Snapp,
Department of Horticulture,
Michigan State University

potential for nitrogen leaching to ground-water and gaseous losses. Nitrogen from an organic source such as cover crop residues to crop demand for nitrogen, particularly in and vegetative. Residue from a cereal cover crop that is incorporated release nitrogen until late in the season.

control
can be used to reduce wind and
maintaining ground cover
water and early spring drastically

oil quality
ice soil structure while
activity. They reduce soil
increasing water percolation
crops enhance soil
They also improve soil
and bulk density.

role in managing weeds
ing with weed germina-
cereal rye produces
produced compounds
is weeds. Cover
crops and must be
at this from

Managing Cover Crops Profitably

THIRD
EDITION



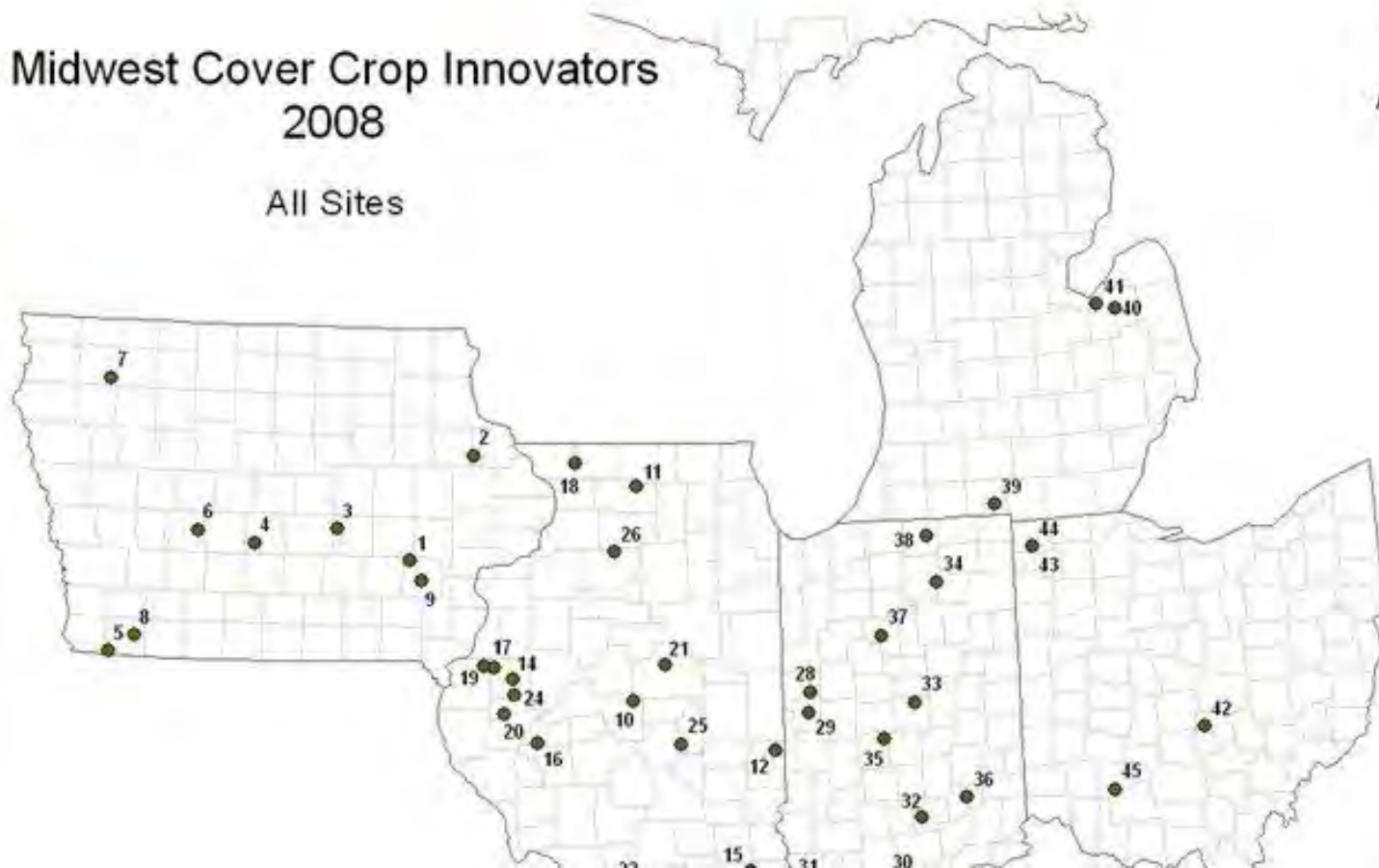

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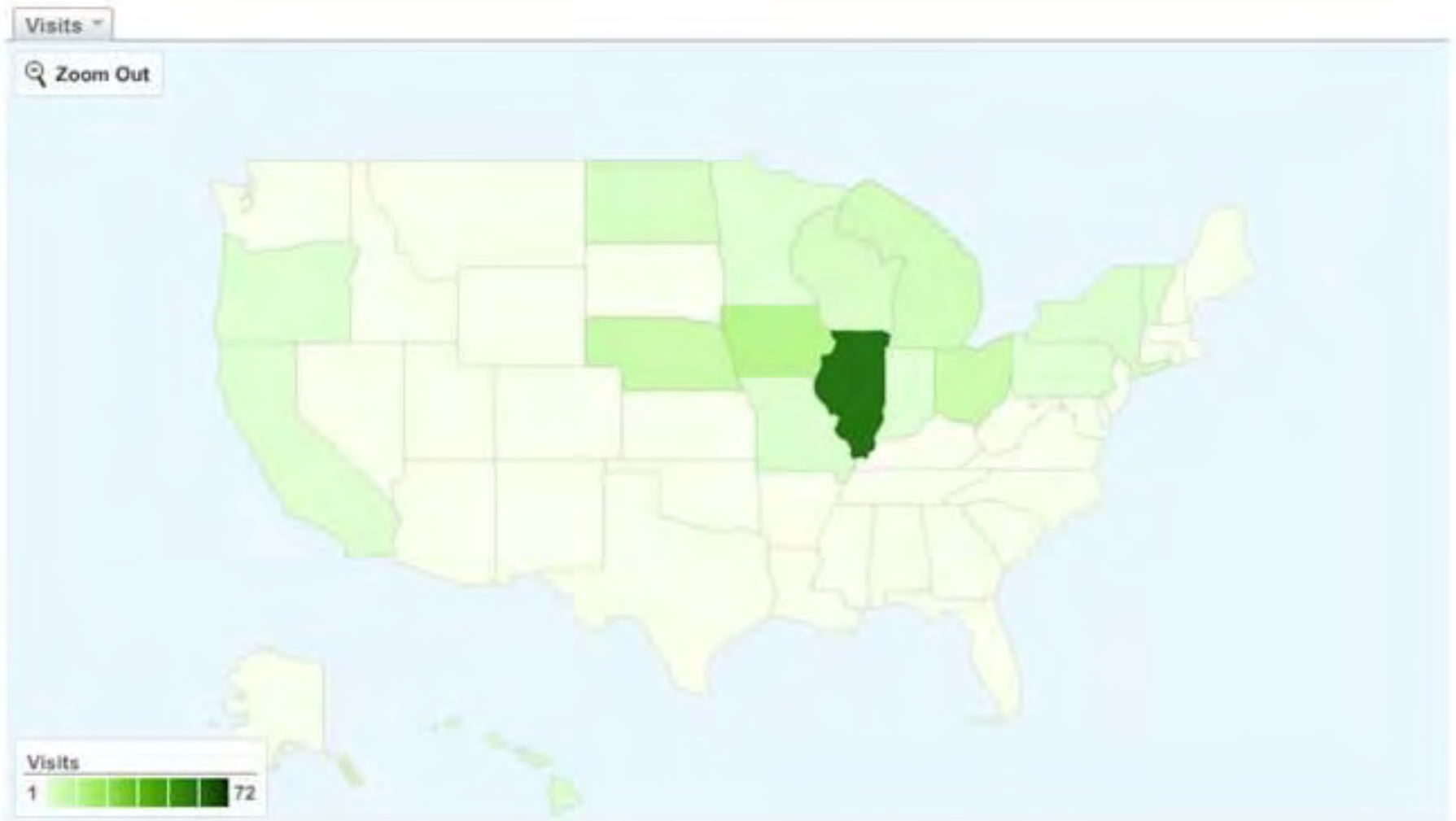
INNOVATOR PROFILES

Midwest Cover Crop Innovators 2008

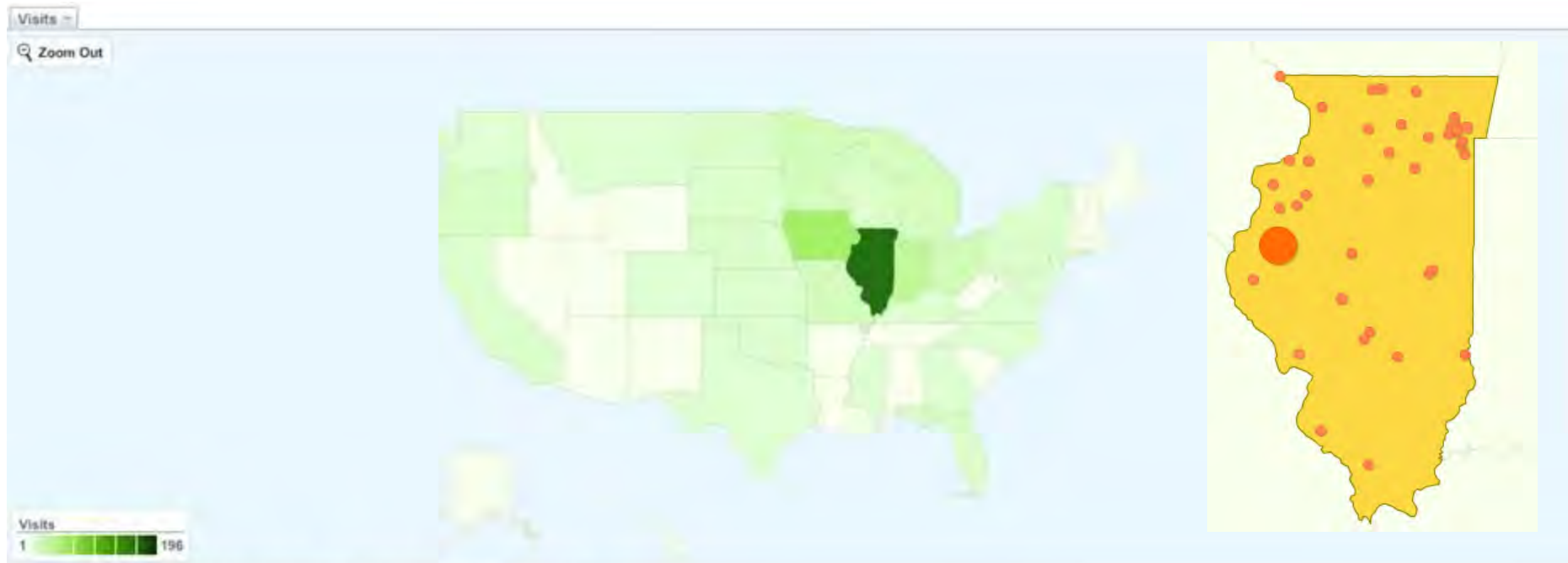
All Sites



The Innovators page on the MCCC website was accessed 137 times during the first 2 weeks after it was created!



16 visits from Canada, 6 from New Zealand, and one each from a handful of other countries within several months



This country/territory sent 431 visits via 31 regions

Detail Level: City | Region | Dimension: None

Site Usage

Goal Set 1

Views:    

<div>Visits</div> <div>431</div> <div>% of Site Total: 93.49%</div>	<div>Pages/Visit</div> <div>1.29</div> <div>Site Avg: 1.31 (-1.88%)</div>	<div>Avg. Time on Site</div> <div>00:01:30</div> <div>Site Avg: 00:01:35 (-5.03%)</div>	<div>% New Visits</div> <div>59.63%</div> <div>Site Avg: 59.00% (1.06%)</div>	<div>Bounce Rate</div> <div>77.03%</div> <div>Site Avg: 75.70% (1.75%)</div>	
<div>Detail Level: <div>Region</div></div>	<div>Visits</div>	<div>Pages/Visit</div>	<div>Avg. Time on Site</div>	<div>% New Visits</div>	<div>Bounce Rate</div>
1. <div>Illinois</div>	196	1.30	00:01:21	52.55%	75.51%
2. <div>Iowa</div>	63	1.11	00:01:07	73.02%	92.06%
3. <div>Indiana</div>	33	1.33	00:02:22	60.61%	78.79%
4. <div>Ohio</div>	16	1.19	00:01:26	56.25%	81.25%

Website traffic analysis using Google Analytics

Top Traffic Sources

Sources	Visits	% visits
(direct) ((none))	206	44.69%
talk.newagtalk.com (referral)	103	22.34%
google (organic)	93	20.17%
asap.sustainability.uiuc.edu (referral)	17	3.69%
bing (organic)	8	1.74%

2009 WIU/Allison Organic Farm Field Day

Friday August 7th from noon - 4 pm

The Organic Agriculture Research program at Western Illinois University will be hosting its annual field day on Friday August 7th at the WIU/Allison Organic Farm and the neighboring Kane Farm in south-western Warren County, IL. The theme this year is Cover Crop Innovation. **All attendees will receive a CD with profiles of over 40 organic and conventional grain farmers in the Midwest region that are cover crop innovators.** Certified organic and conventional cover crop seed will be available for pick up at the field day at discounted prices for farmers that place orders in advance. Contact Andy Clayton (217) 322 2639 for more information about ordering seed.

The field day will start with a free lunch featuring local farm products. After lunch, a cover crop seed industry rep, an aerial applicator and a cover crop researcher will give short presentations and a farmer panel (including organic and conventional farmers) will answer questions about their experiences with cover crops. The field day will conclude with a walking tour of the research and production fields (including lots of cover crops) at the Allison Farm.

> 100 attendees despite a 3 hour deluge



Summary of 2009 Cover Crop Innovators

States:

Illinois (13), Iowa (6), Indiana (4), Ohio (3), Michigan (4), Nebraska (6), Wisconsin (3) and Missouri

Organic Production Practices: >10

Number of Women: 5

**I now use interview projects in every class... for example,
~ 10 interviews were used to investigate each of the following topics:**

Nutrient Management – Spring 2009

Anhydrous Ammonia - the whole story

Biosolids - where do the nutrients go when you flush?

Crop/livestock disconnect - implications for nutrient management

Finite mineral reserves - implications for nutrient management

Super plants - how will new genetics change nutrient management?

Hypoxia - agricultural problems and solutions

Equipment for nutrient application

Integrating weather into nutrient management

Future of soil testing

Nutrient management for contest winning yields

Variable rate N

Nutrient management for residential and commercial landscapes

Acknowledgements

First and foremost, the CC Innovator project would not be possible without the hardworking students of AGRN 378 and the accommodating farmers who have been willing to communicate about their experiences with cover crops, mostly right in the middle of very busy harvest seasons. THANK YOU!

Thank you to everyone that helped track down contact information for potential interview candidates – with special thanks to Dan Towery who provided an extensive list of contacts.

Thank you to Mike Plumer, Barry Fisher and other cover crop specialists/enthusiasts who contributed to the adoption of cover crops by many of the collaborating farmers.

Thank you to GIS specialist extraordinaire Amelia Fox for creating several sets of maps of the farm locations.

Thank you to everyone else that contributed to the CC Innovator project.