

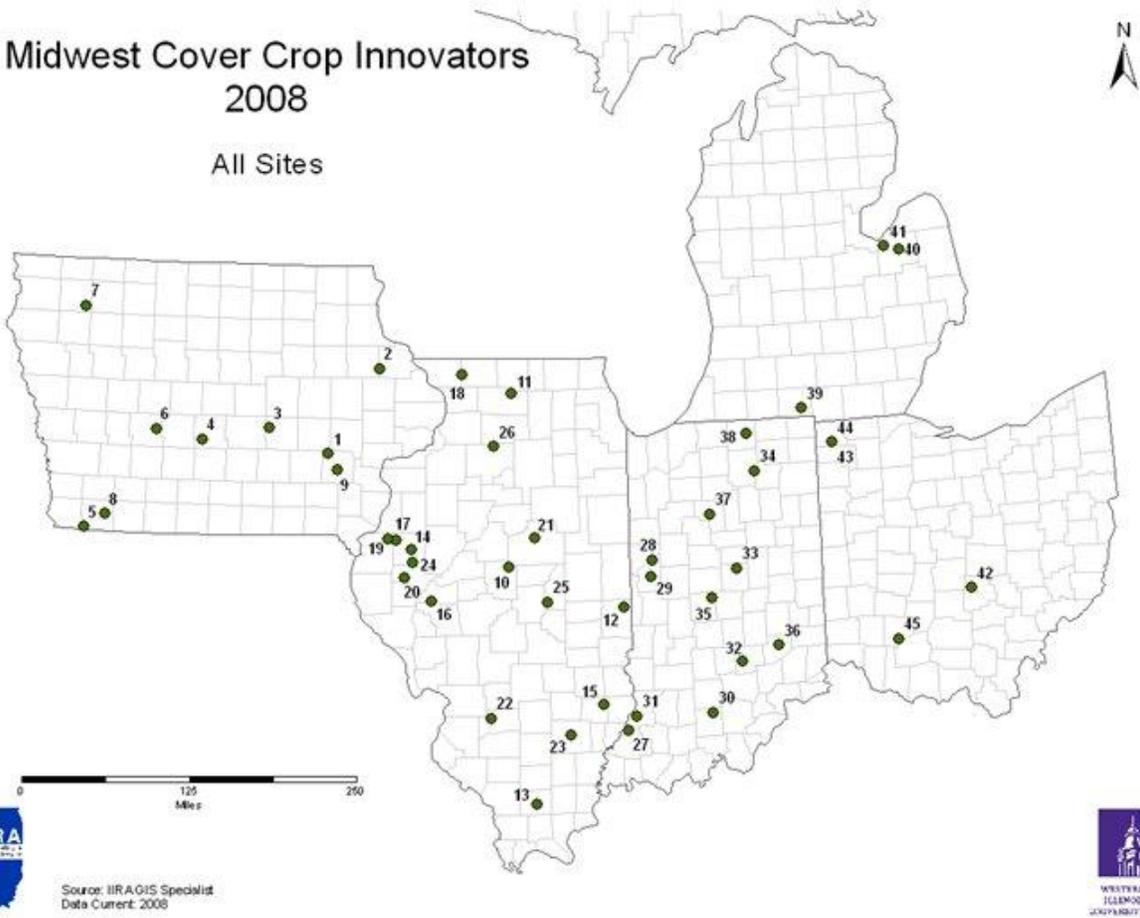
2008 Cover Crop Innovator Project

Western Illinois University

Department of Agriculture

AGRN 378 (Soil Fertility and Plant Nutrition)

Dr. Joel Gruver



Project overview

During the Fall of 2008, students in AGRN 378 (Soil Fertility and Plant Nutrition) interviewed over 40 farmers with experience using cover crops in agronomic cropping systems across the Midwest region. Contact information for potential interview candidates was obtained through 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 2-4 page cover crop innovator profiles. Dr. Joel Gruver edited the profiles and assembled them into this compilation.

Through this project, students gained insight into cover cropping directly from innovative farmers maximizing the credibility of the information and student recognition that integration of cover crops within agronomic systems can be very beneficial but requires on-farm innovation. Collaborating farmers gained access to information about and contact information for other cover crop innovators. The cover crop innovator profiles generated by this project have been well received by farmers, extension educators, ag industry professionals and have been used as readings in subsequent classes.

Please contact Dr. Joel Gruver (j-gruver@wiu.edu, (309) 298 – 1215) if you would like contact information for any of the cover crop innovators or have any other questions about the project.

Acknowledgements

First and foremost, this project would not have been possible without the hardworking students of AGRN 378 and the accommodating farmers that shared their experiences with cover crops, mostly right in the middle of a very busy harvest season. 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 USDA/university cover crop enthusiasts that contributed to the adoption of cover crops by many of the collaborating farmers.

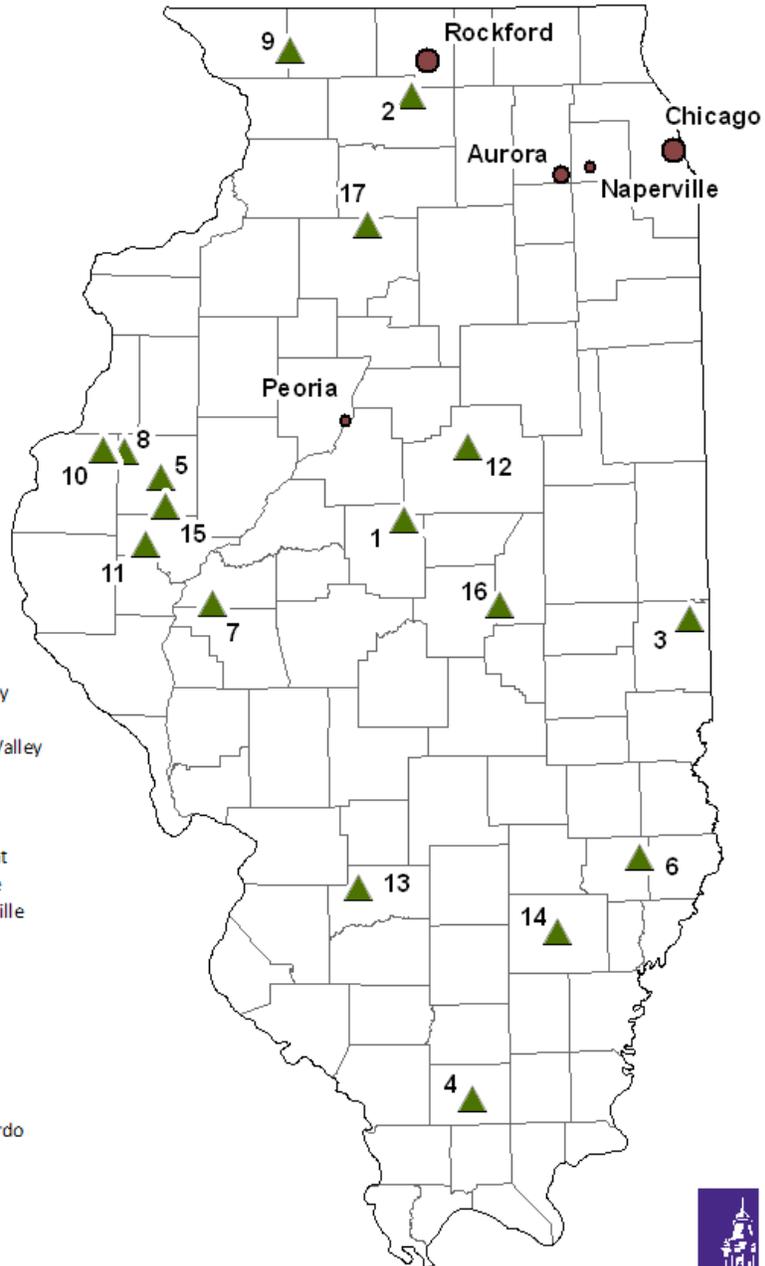
Thank you to GIS specialist extraordinaire Amelia Fox for creating several sets of maps of the farm locations.

Thank you to everyone else that contributed to this project.

Illinois Cover Crop Innovators



Farm Locations



Location	Name	City
1	Dave Bishop	Atlanta
2	Cade Bushnell	Stillman Valley
3	Kelly Cheesewright	Chrisman
4	Terry Dahmer	Marion
5	Ken Dallefeld	Macomb
6	Ron Gray	Claremont
7	Roger Hendricker	Arenzville
8	Brad Hunt	Blandinsville
9	Karl Lawfer	Kent
10	James Mohr	La Harpe
11	Ron Peters	Camden
12	Brad Ramp	Towanda
13	Cliff Schuette	Breese
14	Terry Taylor	Geff
15	Erik Terstriep	Industry
16	Allen Williams	Cerro Gordo
17	Tom Yucus	Ohio



Source: GIS Specialist
Data Current: 2008



Profiles of Karl Lawfer and James Mohr have not yet been completed.

**Dave Bishop
Prairierth Farm
Atlanta, IL**

Summary of operation

300 acres of organic row crops, forages and vegetables

100 acres of conventional crops

Beef, broilers and layers

Background

Dave Bishop grew up on a dairy farm and has a Bachelor's degree from Illinois State University. He has been farming for 30 years and began using cover crops in 1984. He currently raises corn, soybeans, wheat, oats, alfalfa, beef, broilers, eggs, and vegetables. His general four year rotation is corn with a light disking followed by beans with several light tillage passes for weed control followed by no-till wheat and alfalfa. The alfalfa is moldboard plowed after 1 year of production before planting corn. The alfalfa is used for four main reasons: cattle feed, compaction alleviation, N for subsequent crops and erosion control. He feels the legume roots and occasional deep tillage have helped to reduce the plow pan. All land over 2% slope is in permanent pasture. Mr. Bishop also works as a writer, operates a small business that combines high tech computer services with native landscape restoration, and is a Resource Conservationist for the McLean County Soil and Water Conservation District.

Cover crop management

Mr. Bishop's cover crops are either frost seeded in February or drilled after wheat harvest. He has tried sweet clover and buckwheat as cover crops preceding corn. He still mostly uses alfalfa, including an annual alfalfa, for cattle feed. He is contemplating hairy vetch with organic no-till. He is interested in the research on organic no-till that is taking place at the Rodale Institute.

Cover crop challenges

Mr. Bishop has had to deal with disasters like this year when the wheat flooded 3 times also killing most of the cover crop. He is experimenting with weeds as a cover crop on parts of the wheat ground but not by design.

Cover crop roadblocks

Mr. Bishop thinks the biggest roadblock to greater use of cover crops in the Midwest is "mindset and farming too much ground to do a good job" (with cover crops). He also commented that "recommendations and new research from universities will help" (to increase the use of cover crops) and that it would be nice to have a cover crop that 'fixes 200 lbs of N/acre, produces 10 tons of good forage annually, organically of course, and then kills itself'.

Economics and profitability

Mr. Bishop has been running the numbers on '09 corn production and has identified some interesting things. One set of input/price assumptions suggests that a 50 bu/ac organic corn crop trumps 200 bu/ac of conventional corn. That's probably a bit unrealistic, but a 100 bu/ac organic corn crop will normally beat a 200 bu/ac conventional corn crop, and cover crops are key to the organic fertility program. The price of alfalfa seed is relatively stable compared to fossil fuel based inputs and cows produce about the same amount of compostable fertility every year. This makes organic farm planning a bit easier than trying to out-guess Wall St and the Chicago Board of Trade.

Information about cover crops and organic farming

Mr. Bishop says the best sources of information are farm visits, attending conferences or workshops, and reading everything you can get your hands on.

Sources

<http://www.new-ag.msu.edu/about2006.htm>

Personal communication with Dave Bishop by e-mail (10/14 and 10/21/08)

Profile written by Cody Harpole

Cade Bushnell
Stillman Valley, Illinois

Summary of operation

1,200 acres of no-till corn and soybeans
Cereal rye and annual ryegrass as cover crops.

Background

Cade Bushnell began farming in 1982. The family farm "Walnut Creek Farms" has expanded in both size and knowledge of successful farming practices over several generations.

Focus on no-till and cover crops

Walnut Creek Farms was one of the first farms in its area to adopt no-till practices. The farm was truly ahead of its time when it began to implement and experiment with no-till farming in 1970. Since their start with no-till practices, the Bushnells have never looked back - according to Mr. Bushnell, "we aren't only committed to no-till practices - we are committed to never till practices".

When considering that Walnut Creek Farms is comprised of more than 60 percent highly erodible land, no-till farming practices are almost a requirement. The preservation and sustainability of their farmland is crucial to the Bushnells and no-till practices are one of the ways they have found to minimize soil erosion and preserve their farmland.

Another practice that Mr. Bushnell has experimented with recently is the use of cover crops. He started first working with cover crops in 2004. The use of cover crops on Walnut Creek Farms has up to this point served a very specific purpose. The farm currently implements cover crop practices mostly on land recently converted to no-till. When the farm acquires new land that does not have a no-till practice in place, Mr. Bushnell implements a no-till practice and commits the land to no-till. According to Mr. Bushnell, “it typically it takes about four crops to fully convert land from conventional tilling to no-till” and during the conversion period there is some yield drag. Mr. Bushnell feels that the main reason for the yield drag in these conversion years is due to the switch from a bacterial soil to a more fungal soil. No-till practices are much more likely to promote fungal growth because the tilling and disturbing of the land decreases and interrupts fungal activity. Mr. Bushnell has found that using cover crops during these conversion years decreases the amount of time the land is in this conversion period. By using cover crops, he is able to grow two separate crops on the ground in the same year therefore cutting his conversion time down to only a two-year period. In previous practices, this conversion period was still four crops in length but these four crops were spread out one every year stretching his conversion period out to four years in length.

Cover cropping practices

Mr. Bushnell has tried both cereal and annual ryegrass as cover crops. Annual ryegrass has proven to be the better choice however; he has experienced some problems with winter kill during harsh winters. Years when the ryegrass winter killed, he felt that it provided little to no benefit. A very large majority of cover crop growth at Walnut Creek Farms occurs in the spring of the year. This is because of the growing conditions and early onset of winter in the northern portion of Illinois.

Due mostly to time constraints during the harvest season, Mr. Bushnell has only had a small focus on cover crops over the past four years; however, he has learned a great deal through his experimentation. He usually plants ~ 17 lbs/acre of annual ryegrass and 60 lbs/acre of cereal rye as soon after harvest as possible. With it being a very busy time of the year for him, this is the most difficult part of using cover crops. He then kills his cover crops by using glyphosate at the labeled rate in the spring, using only water as a carrier for the herbicide. He has very rarely had any problems with getting the kill he wants to allow for planting.

Recommendations

Mr. Bushnell's recommendation to any grower who wishes to begin using cover crops is to start out small and determine the benefit to them on an individual farm-by-farm basis. It is important to experiment before using cover crops on a large scale. This experimentation and trial period allows individuals to develop their cover crop practices. He also recommends that individuals wishing to begin using cover crops read the No-Till Farmer publication to help gather information about cover cropping and no-till practices.

He would also recommend that before using cover crops one should own their own sprayer. This is because when killing cover crops, glyphosate has worked best using only water as a carrier as opposed to including UAN (Urea Ammonium Nitrate) 28% or 32%. The problem that exists with not owning a sprayer is that many custom applicators are busy applying UAN and may not be able to make a timely switch to only a water carrier and this may delay your ability to plant your crop. Without reliance on a custom applicator, a grower can control every aspect of the timing of cover crop planting and kill.

The future of cover crops at Walnut Creek Farms

Mr. Bushnell hopes to be able to expand his use of cover crops. He plans to find a way to use aerial seeding to allow for more timely planting. He also hopes to be able to experiment with other types of cover crops such as turnips and radishes. While Mr. Bushnell is still developing many of his cover crop practices, and continues to experiment with new practices, he has learned much from his use of cover crops to date. He hopes to continue learning as he successfully utilizes and experiments with cover crops in the future.

Sources

Personal communication with Cade Bushnell by phone (11/3 and 12/9/2008) and an on-farm interview (11/15/08)

Profile written by Brock Gittleson

Kelly Cheesewright
Chrisman, Illinois

Summary of operation

1800 acres of continuous non-till corn

200 acres of annual ryegrass

50 acres of Australian winter peas

Background

Kelly Cheesewright is the owner and operator of Cheesewright Farms in Chrisman, Illinois. He farms about 1800 acres of continuous corn and is also a local Pioneer Dealer. He attended Purdue University for one year, and then attended a 8 week short course at Purdue. He then began farming with his father. He has now taken over management of the farm. Most of his farm has been in continuous corn for 24 years.

Use of cover crops and manure

The first time Mr. Cheesewright tried cover crops was back in the middle to late 1980's. In 1983, the USDA had a program called PIK or Paid in Kind, which paid farmers to take productive farm ground out of production. At the time, Mr. Cheesewright was a seed dealer, and he convinced his dad to plant red clover, sweet clover, and alfalfa on the 500 acres they enrolled in the program. The program prohibited them from harvesting the crop, so they mowed it down, and incorporated back into the soil. He recalls spending all summer mowing 500 acres with a 9 foot sickle bar mower. This led them to experiment more with cover crops, and led them into their current no-till system. After some experimentation, and a few mishaps and close calls, they quit using cover crops.

In the last 3 to 4 years, Mr. Cheesewright has been drawn back to cover crops. He currently has about 200 acres of annual ryegrass and 50 acres of Australian winter peas. The first couple of years, Mr. Cheesewright used an Air-Flow system to apply the seed along with fertilizer. He would then use a Great Plains Turbo-Till to incorporate the seed in soybean stubble. He has now moved to drilling the annual ryegrass because of the better stand achieved. It has been a real challenge to carry the ryegrass from the fall into the spring. He normally sees around 40 to 50 percent winter kill. He plants his annual ryegrass at a rate of 12 to 15 pounds per acre and the Australian winter peas at a rate of 50 to 60 pounds per acre. Mr. Cheesewright works with Mike Plumer, with U of I Carbondale, who Mr. Cheesewright says is the annual ryegrass "guru".

Benefits from using cover crops

Mr. Cheesewright thinks that cover crops help bring nutrients up closer to the crop for easier up take. They also help break up plow pans, and help with the development of root channels. Some of his customers who plant corn and soybeans have seen a major benefit with using cover crops preceding soybeans. He says the use of the cover crops helps trigger nematodes to hatch early, starving them and killing them. He says there has been a major decrease in the amount of soybean cyst nematode pressure following annual ryegrass.

Cover crop mishaps

Mr. Cheesewright has had one mishap with cover crops. In 1987, an abnormally dry year, corn planted into cereal rye appeared to be severely N deficient. Luckily in July of that year, they received a large amount of rain that helped salvage the crop.

Future of cover crops on the Cheesewright farm

Mr. Cheesewright is always looking for something new to try. Like many producers, he would like to find a cover crop that could be planted late and produce nitrogen. He likes hairy vetch, but because of his continuous corn operation, it is nearly impossible to use hairy vetch. He is currently trying Austrian winter peas.

Sources

Personal communication with Kelly Cheesewright by email on 10/24/08

Personal communication with Kelly Cheesewright by phone on 12/9/2008

Profile written by Adam Dexter

Terry Dahmer
Marion, Illinois

Summary of operation

1100 acres of 100% no-till corn and soybeans

Hairy vetch, wheat and cereal rye as cover crops

Cereal rye almost exclusively for the last 20-25 years.

Background

Terry Dahmer is a 51 year old resident of Marion, IL. After finishing high school, he started farming alongside his father before taking over the operation. Now he farms with his sons and does carpentry on the side. The Dahmers produce 1100 acres of corn and soybeans and have been 100% no-till for over 20 years. His average corn and soybean yields in 2007 were 50 bu/ac and 149 bu/ac - more than twice the county average last year. They previously raised livestock, but sold out 10 years ago, due to other commitments. Terry Dahmer was featured in the October 2008 issue of "NO TILL FARMER"

The main goal

“To build organic matter”, he states “building organic matter in my part of the world is nearly impossible; we have made progress, but very slowly; from ½-¾% to 1½-2% today, but yet still far from the ideal 3 or 4%.” “In our area, water is usually the most limiting factor, with this setup; the dead/ decaying cereal rye basically covers the soil, and creates a blanket effect both the first year with soybeans, and even into the next year for my corn. This allows me to grow 50 bushel beans, where across the road, my neighbors aren’t coming close.”

Why?

Mr. Dahmer utilizes a completely, 100% no-till farming system, and has done so for the last 20-25 years. His reason, “We were looking into expanding at the time, and like most people, we weren’t the most financially independent people in the world. Quite simply, we didn’t have the money to buy more equipment, so the decision to start no-tilling was made because we didn’t have to own as much equipment.” Even today, Mr. Dahmer does not have the biggest, or fanciest equipment available. His largest tractor only has 110 horsepower.

The method

In the beginning, Mr. Dahmer raised rye for seed, harvesting it, and then selling it. He would plant corn the following year, “Sure the fields would be muddy, but the corn yields would always exceed my others,” he said. Also, Mr. Dahmer would think back to when he was a prodigy farming in the 70’s alongside his father taking pasture and hay ground out and farming it. “The beans,” he says “were ridiculous compared to everyone else’s; we were getting 35-40 bushels per acre, whereas everyone else was about half that.

Cover crop benefits

From that point on, Mr. Dahmer, decided cereal rye had to be beneficial. Then one year, he decided to plant everything in cereal rye. He stated, “The typical farmer has about 40 years in him. If it takes him the first 20 years to decide if an experiment is worth pursuing, then he only has 20 years to benefit from it... However, if you jump in with both feet the first year, and do everything, you have one year to determine if it’s a failure, then you have 39 years to reap benefits.” In his time of using cereal rye, Mr. Dahmer has yet to experience a failure. However, over the years he has learned that cereal rye is a bit toxic towards corn, thus he only puts cereal rye in after corn in his corn/beans rotation. Also trying to put anhydrous in the rye stubble creates a serious mess, thus re-enforcing his method of production.

Due to Mr. Dahmer’s operation being completely no-till he can get into the fields earlier in the spring, and typically leaves less/ smaller ruts during harvest. He says, “Once the soil has good structure it will hold up under almost any weight. Our neighbors will be cutting ruts 10 inches to a foot deep across the road, where we will just be leaving tread marks on the ground.--- However, in super wet years, once we break the soil structure, we sink, (and fast); as the plow

plan used to create a bottom isn't present." He adds, "Once that happens, we are seriously stuck!"

Fertilization

In addition, Mr. Dahmer brings up the fact of only using side-dress fertilizers. To reduce soil disturbance Terry has found an "old school" slender knife for application... Unless the conditions are far from ideal, minimal soil disturbance is created, and Terry says, "These slender knives are the only way to go."

Sources

Personal communication with Terry Dahmer by phone

Profile written by Jody Kabat

Ken Dallefield
Macomb, Illinois

Summary of operation

420 acres of corn and beans with 100 custom acres

Cereal rye, oats and turnips as cover crops

Background

Ken Dallefield is 52 years old and has been farming for thirty four years, partnering with his father. He has been a mechanic for fifteen years and also worked as a consultant for Yetter Manufacturing.

The cover crop attraction

The main draw for Mr. Dallefield to use cover crops was to find a source of late fall and early spring feed for his cattle operation. His brother Karl works for Midwest Bio-Ag and has a good knowledge of cover crops. Through conversations with him, Dr. Joel Gruver of Western Illinois University, and reading material, he has been able to gather useful information about cover crops. With the recent increases in grain and input prices, Ken still believes that the benefits that you receive from using cover crops outweigh the cost of growing them. While talking to his brother and Dr. Gruver, he has decided to start giving credit to the nutrients that the cover crops are providing him.

What works

Mr. Dallefield has had good success establishing cereal rye in the fall by broadcasting and then lightly disking. He uses this rye as spring pasture for his stocker calves. He also likes to fly on turnips and oats, which he uses to feed his cow/calf pairs in the fall. As far as spring management goes, Mr. Dallefield uses a burn down on both the oats and rye which remains in the spring, but he also uses a one-pass tool to manage the residue. He feels that light tillage seems to enhance the benefits of the cover crops, but also likes to use no-till practices due to the fact that he has some highly erodible land.

Cover crop roadblocks

The biggest roadblock to the expansion of cover crop use in the Midwest is the amount of time and effort that is required to effectively manage them. The two factors affecting use is the size of the farm and the sheer unpredictability of the weather.

Sources

Personal communication with Ken Dallefeld during an on-farm visit

Profile written by Matt Howe

Ron Gray
Claremont, IL

Summary of operation

1550 acres of no-till
Corporation with his brother
Experimenting with ridge-till

Background

Ron Gray is 56 years old and has a college education. He currently grows 1550 acres of corn and soybeans in south-eastern Illinois in a partnership with his brother. He is a former director of the Illinois Corn Growers Association.

Cover crop management

Mr. Gray uses annual ryegrass as a cover crop after corn and soybeans. He became interested in using ryegrass because he likes to have winter ground cover and he has read and observed the work of Mike Plumer. The method that works best for him is broadcasting the ryegrass seed with

his fertilizer in the fall. He then incorporates it using a rotary hoe. When using ryegrass as a cover crop, he benefits from reduced spring compaction and subsoil clay-pan penetration.

Challenges of using cover crops

The biggest challenge to farmers using cover crops in the Midwest is getting a good stand established and having good winter survival. When there is plenty of moisture in the ground in the fall, he gets a good, early stand and has excellent results. If there isn't much moisture in the ground and a good stand isn't established, the results aren't as good. Although Mr. Gray likes using ryegrass as a cover crop, he has observed that ryegrass can be very competitive with crops and reduce yields significantly when your burn-down isn't effective.

Future of cover crops

To increase the use of cover crops, Mr. Gray thinks there should be a breeding program to develop better varieties of cover crops, possibly even GMO varieties that would be more winter hardy and have better nitrogen production. With nitrogen prices as high as they are, improved N management is something farmers should really look at when thinking about the benefits of cover crops. This is why Mr. Gray likes using cover crops; it helps to offset his nitrogen prices.

Sources of cover crop information and a question

Mr. Gray has learned about cover crops from books, magazines, conferences, extension specialists, websites, and farm visits. When asked about current questions on his mind, he replied that he has been wondering if he can grow his own cover crop seed and how to go about this.

Sources

Personal communication with Ron Gray by email (11/17/08)

Profile written by Tim Brown

Roger Hendricker
Arenzville, IL

Summary of operation

310 acres corn, soybeans, and wheat

200 acres certified organic, 110 acres in transition

Red clover, cereal rye, cowpea, Austrian winter peas, oats and hairy vetch have been used as cover crops

Background

Roger Hendricker grew up in Arenzville, Illinois and still lives in the area. He is 57 years old and is the manager of Clarkson Grain Elevator in Beardstown, Illinois. He works with specialty grains, organic grains, and the barge site. He graduated from Western Illinois University with a Bachelor's degree in Agricultural Economics. He became interested in organic farming around 1995 by visiting with farmers that came into Clarkson grain.

Cover cropping practices

In 2008, Mr. Hendricker produced 200 acres of certified organic crops and another 110 acres of transitional crops. His crop rotations include many cover crops. Soybeans are followed by winter wheat which is frost seeded to red clover in March. The next crop will be organic corn. Corn is followed by cereal rye which is disked in preceding soybeans. He also uses cowpea, winter rye, Austrian winter peas, oats, and hairy vetch sometimes. Most of these are terminated using a moldboard plow. The legumes are used for their ability to fix nitrogen which is one of the biggest reasons for planting cover crops. Cover crops also control erosion and put a network of pores in the soil which helps subsequent crops to have good rooting depth.

Information on cover crops

Mr. Hendricker gets cover crop information by visiting with other organic farmers at the Clarkson Grain elevator but he also gets information from many other sources. He reads many Ag magazines. He also attends the Illinois organic conference and the upper Midwest organic conference. He gets to talk to many people at these conferences and get ideas on what they are doing. This way he knows what is working and what isn't.

Questions

Some things that Roger is wondering about are whether his Austrian winter peas will survive the winter and fix nitrogen like they are supposed to. Another thing is at what stage should he till up his red clover to get the largest benefit for his corn crop the next year?

Sources

Personal communication with Roger Hendricker by phone

Profile written by Shawn Beck

Brad Hunt
Blandinsville, Illinois

Summary of operation

>5000 acres of no-till corn and soybeans

Cereal rye, annual ryegrass, forage radishes, and wheat as cover crops

Background

Brad Hunt is 52 years old and graduated from Western Illinois University with a bachelor's degree in Agricultural Science. Mr. Hunt is a principal operator in a large family farm made up of six families that all farm together. Mr. Hunt is from Blandinsville, Illinois, but his farms stretch for many miles.

Cover crop management

The cover crops that Mr. Hunt has tried include annual ryegrass, cereal rye, forage radishes, and wheat. He uses the cover crops on roughly 200 acres each year, and they are usually preceded by soybeans. His seeding rates vary depending on where they are located, but a rough average is about 25 lbs/acre with cereal rye and wheat, 15 lbs/acre with the annual ryegrass, and about 10 lbs/acre with the radishes. When Mr. Hunt or anyone else involved in the operation is seeking out information on cover crops, they usually turn to the internet or magazine articles, but also try to attend farm tours and discuss the use of cover crops with other farmers and specialists who have used them. When asked if the recent fluctuations in prices of grain and fertilizers have influenced his use of cover crops, he replied, "It hasn't affected me at all. I plant the same amount every year, which is mostly on the ground that is highly erodible and compacted; that is about as much as I can get planted in the fall." He also said that the cover crops that he uses are mostly just meant to prevent the ground from eroding and to increase the amount of organic material in the soil, he never factors them in when figuring out his fertilizer/ nutrient management.

Cover crop challenges

Mr. Hunt feels that the biggest problem that is stopping the use of cover crops from expanding is the high cost of using them, and the amount of extra time it takes to use them. He said that they use cover crops on so few acres because of the difficult time strain they cause. When they are trying to get all their crops harvested, they are also trying to get cover crops planted. This means that they have to have another tractor running, and another person running it when all their help and equipment is tied up in the harvest. When asked about cover crop disasters, the worst thing that he could think of was back in 1988 when there was a terrible drought. They let the cover crops grow too long and with the limited moisture and the cover crops already being established, they caused too much competition with the grain crop that was planted.

Cover crop incentives

When asked about cover crop incentives, Mr. Hunt replied that one time he heard Dr. Joel Gruver ask the question, “If IL farmers were guaranteed seventy-five dollars an acre on the land they planted into cover crops (e.g., the Cover Crop program in Maryland), how much would it increase the use of cover crops?” Mr. Hunt commented that he would definitely try as hard as he could to get every acre of his ground planted into cover crops if that kind of subsidy was available. Until something like this comes around, the only incentives IL farmers have to use cover crops are potential increases in yields and nitrogen fixation, or the prevention of soil erosion.

Sources

Personal communication with Brad Hunt by phone and e-mail.

Profile written by John Glascock

Brad Ramp Bloomington, Illinois

Summary of operation

Corn and soybeans

2000 acres – annual ryegrass

Background

Brad Ramp currently resides and farms in McLain County near Bloomington, Illinois. Since graduating from Illinois State University in 2006, Mr. Ramp has returned home to join the family farming operation. Along with farming he is also involved in selling Midwest and Stine seeds. Furthermore, he is involved with promoting Conklin Agriculture products. They specialize in the use of micro nutrients.

Cover crop management

Mr. Ramp, along with many other farmers these days has begun to see the benefit of a continuous no-tillage system. No-till provides many benefits including reducing soil erosion, and increasing microbial activity in the soil. On the other hand it can also be saddled with setbacks such as increased compaction. Breaking compaction was the major reason Mr. Ramp began the use of a cover crop on around 2000 acres. For several years, Mr. Ramp has planted annual ryegrass in the fall. He noted that for best root growth it is necessary for the annual ryegrass to be seeded before October 14th as a general rule of thumb. This is sometimes a difficult challenge especially in wet years like 2008 when everything is delayed. There are many different ways that

annual ryegrass can be planted. Some of these include a spinner truck, an air flow method, or drilling in 15 inch rows. The annual ryegrass will grow to a height of approximately four inches tall in the fall. Then in early spring it will resume its growth to reach a height of eight to ten inches tall. Over the years, Mr. Ramp has experienced much greater growth beneath the soil surface. The root system in the first year may reach depths of around thirty six inches. However, Mr. Ramp has found that in the second year of seeding annual ryegrass the root depth may reach up to an amazing seventy two inches. Mr. Ramp attributes this to the root system using the same root channels the second year as the plants did in the first year. In the spring of the year, once the annual ryegrass reaches a height of eight to ten inches and a couple weeks before planting, a burn down herbicide can be applied to kill the ryegrass. It has been found that a mixture of atrazine and glyphosate works particularly well. Be advised that if the ryegrass is sprayed too late in the season it could potentially be a problem in getting tangled up with equipment. However, if it is sprayed early enough it is almost never a problem.

Why use cover crops?

Although Mr. Ramp first became interested in using cover crops to break compaction he has found several other benefits that are correlated to the practice. For instance, since using cover crops he has noted increased nitrogen levels in the soil. It is thought that the roots actually penetrate deep enough into the soil to bring back the nitrogen that has leached down through the soil and out of reach of the active corn roots. As far as nitrogen goes, Mr. Ramp is currently using UAN 32%. Anhydrous ammonia has been used in the past but Mr. Ramp is concerned that it is harmful to the soil microbes that can be beneficial to the plant roots. On the other hand, annual ryegrass promotes microbial activity in the soil. Implementing the use of cover crops has definitely been beneficial to Mr. Ramps farming operation. He would strongly encourage other farmers to begin experimenting with cover crops as well. Although cover crops are a relatively new venture for many farmers, they are not an insurmountable task. It will take time and practice to perfect the process. Mr. Ramp was one of the first in his area to begin using cover crops. As he has continued using cover crops, he has seen that others have become more interested as well. Overall, the use of cover crops has brought on many advantages to the farming operation including increased yields. To this day there have been very little negative side effects with the use of cover crops. It would seem that implementing such a system will become more widespread in the future.

Sources

Personal communication with Brad Ramp by phone.

Profile written by Tyler Burke

Cliff Schuette
Breese, Illinois

Summary of operation

200 acres of corn, soybeans and wheat

Turnips, cereal rye, oats, and red clover as cover/forage crops

230 acres of pasture

Angus and Simmental cattle herd

Background

Cliff Schuette currently resides with his wife and two boys on their family farm in Breese, Illinois. In 1996, Cliff and his wife took over the family farm consisting of about 200 acres of cropland and 230 acres of pasture. At the same time, he began to startup his commercial cattle herd of Angus and Simmental genetics.

Cover crop management

Mr. Schuette primarily uses cover crops to provide his cattle with year-long grazing as opposed to being fed in a dry-lot all winter. He follows a strict rotational grazing and crop rotation schedule. In late August, he aerial seeds turnips, 3lbs/acre, cereal rye 2 bu/acre, and spring oats 1 bu/acre into standing corn. After his corn is harvested, he grazes his cattle on these fields throughout the winter. The next year, he plants soybeans, and the following year is winter wheat. In February or March, Mr. Schuette frost seeds his wheat fields with red clover. After the wheat is harvested, cows graze upon the wheat stubble and clover until the fall. During the second season, the red clover is harvested as first cutting hay. When there is enough re-growth, cows are turned out into the clover pasture until about late August. At this time turnips, rye, and spring oats are aerial seeded into the pasture at the same rates used for standing corn. The cows are once again turned out into this pasture in late fall and graze throughout the winter. The following year corn is planted and the rotation begins again.

Cover crop benefits

Mr. Schuette loves his cover crops because they save him a lot of money. The main reason he plants cover crops is to benefit his cows. The cows graze the cover crops all year round instead of being in a dry lot eating expensive, low protein hay. Winter feeding dropped from over 5000 lbs. to under 1000 lbs when Mr. Schuette switched from winter confinement feeding to his grazing system. His new yearly feed cost per cow has dramatically decreased to \$100-\$150 per head, compared to an Illinois average of almost \$350 per head. Not only does this benefit his cattle herd, but it also helps the land. "Using cover crops has dramatically helped our environment," stated Mr. Schuette. He says that not only has he seen a benefit from the turnips breaking up the ground and the soil becoming less compacted, he has also been using less fertilizer then before than when he was just a farmer using absolutely no cover crops. He believes that his soils are beginning to stock pile nitrogen resources because of the N-fixation by

legume cover crops and the manure deposited by the grazing cattle. The cover crops also help the environment because with less nitrogen fertilizer applied to the fields, there is less nitrogen that can escape from the field into field tiles which will eventually enter our streams and rivers.

Conclusion

Mr. Schuette's use of cover crops has led him to where he is today - a small farmer making a big name for himself creating high quality beef by winter grazing his cattle on winter annuals.

Sources

Personal communication by phone on 11/17/08.

<http://www.grazeonline.com/articles/cornbelt.html>

http://hayandforage.com/silage/other-silage/optimizing_acres_schuette_1108/

<http://ilift.traill.uiuc.edu/pasture/schuette/intro.cfm>

Profile written by Mick Schaefer

Terry Taylor
Geff, IL

Summary of operation

300 acres of continuous no-till corn with cover crops

1500 acres of continuous no-till corn/corn/soybeans with cover crops whenever possible

600 acres of bottom ground no-till on ridges

320 acres of CRP and filter strips

Background information

Terry Taylor is from Geff, IL and has operated his several thousand acre farm as a single unit since his father's retirement. He attended the University of Illinois and is currently 55 years old. He has spoken at many conferences such as the Tri State Conservation Tillage Conference and has been interviewed for various magazines such as Prairie Grains. He became interested in cover crops by growing up on a livestock farm with legumes, small grains, and hay as a vital components.

Cover crop management

Mr. Taylor uses hairy vetch on his continuous corn acres as much as possible. Any other acres harvested before September 20th get annual ryegrass seeded into them. Cereal rye gets seeded on any other acres that get a cover crop after that date. Mr. Taylor plants hairy vetch before Sept.

20 with a JD 1560 drill @20#/A. He expects that it can produce up to 60# of N. He plants his corn into standing hairy vetch and kills it with 2-4 D. He plants annual ryegrass before Oct. 1 with a JD 1560 Drill @ 20#/A. Available N is necessary for early establishment which is either carried over from the previous crop, or added as a fall application for the next crop. He kills it in the spring with an application of glyphosate at or before first joint. Mr. Taylor has observed that “air temps are often cool at this time and glyphosate does not work well in these conditions”. The addition of a partner herbicide also weakens its ability to kill annual ryegrass. He also plants cereal rye when it is too late to plant the other two crops. The only special care for cereal rye is to be sure to kill it early in the spring to avoid allelopathy to corn. He does not base his nutrient decisions off of his cover crop programs. He says that cover crops are good agronomy, but are not a replacement for fertilizer inputs. He still applies DAP pre-plant, 28% at planting, and side dresses ammonia afterwards.

Cover crop benefits

Mr. Taylor says, “All cover crops add to the organic component of the soil, which increases water holding capacity. Annual ryegrass has a very aggressive root system that penetrates the fragipan in our soils making pathways for corn roots to follow. It is also an excellent scavenger for available N that is stored and released for the next crop. Hairy vetch fixes considerable N as well as provides a mulch that conserves moisture and provides food for the various life forms at the soil surface.”

Cover cropping challenges

Mr. Taylor has had several disasters, mainly from killing the cover crop too late in the spring. Ryegrass and cereal rye should be killed at or near first joint if the following crop is corn. Rye can be killed later if the following crop is soybeans. Hairy vetch, if planted with rye or wheat will trellis on the grass and will wrap on all rotating planter parts. Cover crops are a long term investment that returns to the ground and landowner, not the tenant on a regular three year lease in the volatile cash rent world. A good start to increase the use of cover crops would be to incorporate them into USDA incentive programs.

Sources of information

Mr. Taylor gains his information about cover crops from many various sources, but usually pays closest attention to what regular cover crop users have experienced. He also learns from on-farm trials and is currently involved with Mike Plumer in a three year trial of annual ryegrass.

Sources

Personal communication with Terry Taylor by email

Profile written by Clint Dambacher

Erik Terstriep Industry, IL

Summary of operation

1500 acres of corn and soybeans

300 head cow/calf operation

400 head hogs

Cereal rye as a cover crop

Background

Erik Terstriep is currently 23 years old, and has been farming for 7 years on his family farm. The Terstriep farm produces 1500 acres of corn and soybeans as well as ~ 300 calves (cow calf operation) and 400 fat hogs each year. Mr. Terstriep got his Bachelor of Science from Western Illinois University in Animal Science.

Cover cropping practices

Depending on the availability and price of cereal rye seed and the availability of alternatives, the Terstrieps normally have cereal rye seed flown on about 160 acres of standing corn and soybeans each year. The cereal rye is flown on before grain harvest so that there is some growth before winter weather sets in. In the spring the cereal rye is normally terminated with a disk or deep ripper.

The Terstrieps started using cover crops when they had trouble with their cows calving in the mud. They also wanted a way to eliminate bare ground and make the land more usable.

Previously, some of the areas where they would put their cows in the winter developed bare spots that would erode away. They also decided to try using cover crops to prevent erosion on the hillsides they were farming.

Roadblocks to cover crops

Mr. Terstriep feels that one of the biggest roadblocks to expanded use of cover crops is the cost, because sometimes the benefits are not seen immediately and farmers may not be able to justify the money and effort spent to plant cover crops. If the practices and benefits were made more well known, more farmers might be persuaded to try planting cover crops, even if only on a small scale.

Impact of high input costs

Recent increases in input costs have caused the Terstrieps to cut back on the amount of rye they fly on due to the cost of the rye seed and the cost of the airplane. They have gone to no-till drilling some of the seed but the results have been varied.

Sources

Personal communication with Erik Terstriep by email

Profile written by Scott Bickerman

Allen Williams Cerro Gordo, Illinois

Summary of operations

Williams Farms

1000 acres of corn and soybeans

Ridgeline Farm, Inc

580 acres of certified organic corn, soybeans and wheat

Background

Allen Williams is a 54 year old retired accountant. He is the sole proprietor of Williams Farms and a shareholder and manager of Ridgeline Farm, Inc in Cerro Gordo, Illinois. Williams Farms is a conventional corn/soybean operation. Ridgeline Farm, Inc is an organic row-crop operation. Mr. Williams has been farming since 1972 and is constantly looking for ways to increase profitability and sustainability of his farming operations, including the intensive use of cover crops.

Williams Farms includes approximately 1000 acres of corn and soybeans which has varied over the years from conservation tillage in the 70's-80's to no-till from the mid 80's to the early 90's after which he switched back to various forms of conservation tillage. Food grade corn and seed beans as well as GMO corn and GMO seed beans are produced.

At the Ridgeline Farm Inc. location, Mr. Williams manages approximately 580 acres of a three crop system of wheat, corn and soybeans. The corn produced has included popcorn, blue corn, white corn and yellow dent corn. Soybeans are always food grade for tofu and soymilk.

Cover crop management

Mr. Williams has used a wide variety of cover crops at both locations: cereal rye (following corn), wheat (following corn and soybeans), oats (used for fast spring cover as a last resort), hairy vetch/ rye mix (following organic wheat), red clover, buckwheat (doesn't work with his current rotation), alfalfa, timothy, sudan grass and white Dutch clover (didn't have good results).

Cover crop disasters

One spring, wet weather delayed incorporation of the rye in his organic system. The rye went beyond the boot stage and started forming heads. The weather then turned dry and the rye quickly wicked moisture out of the soil. Mr. Williams flail mowed the rye and then worked the field several times to form a seed bed. No moisture was left for the corn to germinate and the crop was a near failure.

Best methods

Cereal rye after corn and preceding soybeans has worked well for Mr. Williams. The rye establishes a good root structure and prevents erosion in the spring. He controls the rye with one tandem disking and two passes with a soil finisher prior to planting soybeans. He flail mows the rye if it gets excessively tall. The rye is broadcast at 90-110 #/acre with a fertilizer buggy and then lightly incorporated with a tillage tool.

Hairy vetch following wheat and preceding corn has been Mr. Williams's most efficient method of providing organic nitrogen, while preventing soil erosion. He controls the vetch with a single tandem disking prior to planting. Hairy vetch was seeded with cereal rye (20 lbs/ac of each) this fall. Mr. Williams is planning to experiment with a Case IH vertical tillage machine to control the covers in the spring. Cereal rye following corn and hairy vetch preceding corn are routine practices at Ridgeline Farm (Mr. William's organic operation). Cover crops such as wheat or rye are used at Williams Farms (Mr, William's conventional operation) when seed cost and accessibility and time will allow in the fall.

University cooperation

Approximately 12 years ago, Mr. Williams collaborated with the University of Illinois and the Illinois Stewardship Alliance. The collaboration looked at approximately 16 different cover crops in replicated plots. Growth observations and cover crop biomass and crop yields were recorded throughout the two year project.

Questions for other farmers

Mr. Williams would like to know the benefits of establishing buckwheat as an understory in growing corn. He would also like to know if the organic no-till system promoted by the Rodale Institute works consistently.

Sources

Personal communication with Allen Williams by e-mail – (11-20-2008)

University publication (accessed 11-18-2008)

http://web.extension.uiuc.edu/smallfarm/pdf/aenp_v12n2.pdf

Profile written by Aaron Davidsmeier

**Tom Yucus
Ohio, Illinois**

Summary of operation

360 acres of crops

80 acres certified organic

140 acres in final stages of transition to organic

140 acres in the last year of conventional going into transition.

Hunt club focused on game birds

Background

Tom Yucus is 50 years old and has been living in the Ohio area since the 60's. He graduated from Western Illinois University with a degree in Agriculture in 1979. He has been farming full time for 28 years. He hopes to have his farm 100% certified organic within 3 years. Along with farming he also operates a game bird hunting club. This started out of his enjoyment of hunting and his prime location for bird hunting.

Cover crop management

Mr. Yucus' first exposure to cover crops was when his dad used them in the 1960s. Since then, Mr. Yucus has tried a variety of cover crops and cover crop management practices. He thinks cover crops have contributed to his marginal sandy soil becoming much more mellow and biologically active. At this time, he is using annual ryegrass before soybeans, hairy vetch or oats after wheat and red clover or oats as a green manure before corn. He also uses compost as a source of nitrogen but has also used soybeans for this purpose. One of his main goals is to keep something growing in the fields at all times. He is 100% no-till on his conventional ground. On his transitional and certified organic ground, he uses conventional tillage in the spring to incorporate cover crops and for weed control. He usually uses two passes with a disk and a field cultivator. As with any farm operation, some of Tom's major challenges are getting cover crops in on time and keeping cost in line along the way.

Cover crop advice

One of the major things Mr. Yucus has found not to do is let the rye grow too long and work it under late for him this is very bad for his critical soil moisture. Finally he says it is all a learning curve it all takes some time and trial and error to see what will work in your operation.

Sources

Personal communication with Tom Yucus on 10/18/08

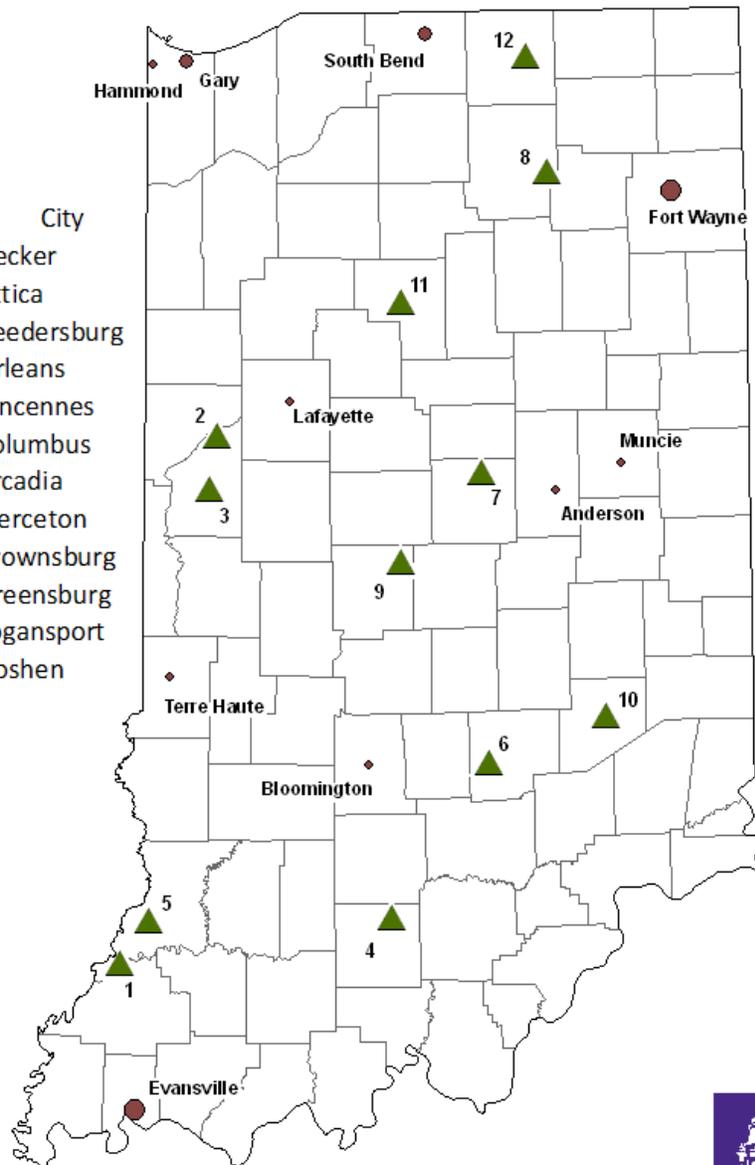
Profile written by Brett Bowen

Indiana Cover Crop Innovators



Farm Locations

Location	Name	City
1	Ray Chattin	Decker
2	Dan Desutter	Attica
3	Randy Hathaway	Veedersburg
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: IIRAGIS Specialist
Data Current: 2008



The profile of Rodney Rulon has not yet been completed.

Ray Chattin
Decker, Indiana

Summary of operation

355 acres which is split evenly between a corn and soybeans
Cereal rye and annual ryegrass as cover crops

Background

Ray Chattin is 57 years old and recently retired from active farming. He is college educated but not in agriculture. He decided to return to farming after the military. He rents all of his land to his older brother. His land is in the CSP which is the Conservation Stewardship Program. His brother continues to use the cover crop practices that he had been using. He has been associated with the Knox County SWCD for over 20 years. He was the 2006 Indiana Master Farm Conservationist. He finds most of his information at the Conservation



Technology Information Center and from Barry Fischer a State Agronomist. He also attends field days regularly.

Cover crop practices

Mr. Chattin has used cereal rye and annual ryegrass as cover crops. Normally, he followed corn with annual ryegrass due to the fact that escapes could be controlled more readily in Roundup Ready soybeans. He usually followed soybeans with cereal rye. This fall he went to 100% cereal rye due to the fact that his annual rye grass got away from him last spring because it was too wet to spray at the right time. He says that drilling always gives him the best stand, but recently he has been satisfied with aerial seeding. They always use glyphosate to kill the cover crop.

Cover crop benefits

Benefits include erosion control, improvement of soil tilth and nutrient capture. He is going back to annual rye grass because of its root penetration and he hears it effectively controls cyst nematode. He thinks cover crops help capture nutrients, especially nitrogen which would otherwise volatilize or leach out. He also thinks fertility levels will gradually increase requiring less fertilizer the longer he uses cover crops.

Cover crop roadblocks

He says the biggest roadblocks are the expense of seed, time involved and the fact that it ramps up management requirements. He thinks there should be greater incentives built into conservation programs to encourage cover crop use. More research is also needed to establish long-term benefits. His CSP payment for using cover crops doesn't cover the cost of using them,

but he does it anyway. He cares too much for the land to not use cover crops. His worst cover crop experience was trying to knife anhydrous into fully mature rye that had been burned down with a herbicide. He also had an armyworm problem that he caught in time.

Sources

Personal communication by email with Ray Chattin (10/24/08)

www.iaswcd.org

Profile written by John Johnston

Dan DeSutter
Attica, Indiana

Summary of operation

3800 acres of mostly corn (85%), soybeans and wheat
grass fed beef

Background

Dan DeSutter is a 41 year old farmer who raises crops and cattle in western Indiana. He has a Bachelor's and some graduate studies in Finance from Indiana University. He worked for several years as a financial analyst and commodity broker before returning to the farm in 1991. Mr. DeSutter currently has no other jobs besides farming. His grass fed beef are hormone-free and are rotationally grazed on pasture before sale to local stores and individuals.

Bio-till cover crops

Mr. DeSutter mainly plants annual ryegrass, wheat and cereal rye, but also has tried oats, hairy vetch and Austrian winter peas. He plants 2000 to 2500 acres of cover crops each year, mainly where he has applied manure. Corn is the primary crop planted following cover crops because 85% of his ground is in corn each year. High grain prices this past summer prompted him to increase his cover crop planting in 2008. In total, he planted about 35,000 dollars worth of cover crops this year. His main goal is promote soil biology which is why he prefers the term bio-till rather than no-till to describe his approach to soil management.

Cover crop establishment

Mr. DeSutter now plants most of his cover crops with a with a Salford tool equipped with a Valmar air-seeder. He also uses a drill when possible. He has observed that best stands from early planting dates and commented "the earlier you get it in the better".



Cover crop disasters

He has had plenty of cover crop disasters. He said that one year he had 90% winter kill. Other years he's had problems with bugs. Sometimes just getting a stand is hard enough then trying to keep it alive is even harder.

On-farm research

Mr. DeSutter has also done quite a bit of on-farm research. He did most of his research with a professor from Purdue University. Their main focus was on the cover crop annual ryegrass. Mr. DeSutter became really interested when he discovered that ryegrass roots were extending more than four feet deep. He is also interested in studying the positive effects of manure on soil biology.



Cover crop information

Mr. DeSutter gets most of his information about cover crops from the internet and from other farmers. Mr. DeSutter believes that the main road block to more planting of cover crops is ignorance about soil biology and length of growing season.

The Holy Grail Question

Mr. Desutter would really like to find a legume that will grow after corn and produce 100 lbs of nitrogen for the next year's corn crop. He has not yet found a legume cover crop that he can use.

Sources

Personal communication with Dan DeSutter by phone.

Profile written by Grant Huber

Randy Hathaway Veedersburg, Indiana

Summary of operation

2300 acres of corn, 1000 acres of soybeans and 200 acres of wheat in 2008

1500 acres of annual ryegrass cover crop following corn, soybeans and wheat

60 acres of Austrian winter peas this fall (2008) following corn

Background

Randy Hathaway is 45 years old and received his BS from Purdue University in 1985. He was an Agricultural Loan officer from 1985-87 before he began farming on his own. He produces ~ 3500 acres of crops in west-central Indiana and has used continuous no-till for 20 years.

Cover crop management

Mr. Hathaway decided to add cover crops to his existing no-till operation to gain deep rooting action and improve retention of nutrients from his manure applications. He has tried numerous types of cover crops, but has had the most success with annual ryegrass. Mr. Hathaway sows his ryegrass in the fall after grain harvest with a Valmar seeder followed by a Phillips rotary harrow. The seeder has a hopper with a blower that broadcasts the seeds out in front of the harrow, but good soil-seed contact is not always achieved. Mr. Hathaway admits that he has obtained the best stand using a no-till drill, but with the time crunch he has in the fall, he needs to get his cover crops in as quickly as possible and he can do this with the Valmar seeder/harrow. The ryegrass comes up in the fall, goes dormant and then begins growing again in the spring.

Mr. Hathaway confesses that using annual ryegrass has one serious drawback and that is spraying it in the spring when it is 3-8" tall. Ryegrass is very hardy and takes at least two applications of glyphosate to kill it off. Despite relatively little top growth, annual ryegrass has deep roots which can alleviate compaction. When the ryegrass roots decay, they leaves pores in the soil profile for water and the next crop's root migration. The ryegrass also acts a sink, or sponge for the nutrients in manure, keeping them from leaching.

Mr. Hathaway applies chicken manure, which he gets from a local poultry farmer, containing 60 lb. to 70 lb. of N per acre as soon as possible after harvest. When he plants corn, he knifes in UAN 28% N at 56 lbs/acre, approximately 3" beside the row and 2" deep. Mr. Hathaway doesn't like to use anhydrous ammonia because it just isn't practical in his operation. He also doesn't like the dangers involved with anhydrous and the high horsepower and fuel required to pull an applicator through the field. Mr. Hathaway uses a John Deere planter with Martin row cleaners, Case IH depth gauge wheels, Keeton seed firmers and Martin spading wheels. With this setup Mr. Hathaway can plant through high residue with ease. He has also designed and built 2 nitrogen applicators with row-cleaners which he runs in continuous corn fields two to three weeks prior to planting, allowing him to plant into a residue-free strip using RTK guidance.



On-farm research and experimentation

Mr. Hathaway has been involved with formal and informal research on his farm to answer questions about cover crops. He participated in a 3 year study organized by the Oregon Ryegrass Commission to evaluate the winter hardiness of annual ryegrass varieties at northern latitudes. This is a very serious issue at the latitude where Mr. Hathaway's farm is located (~ 40°). After harvesting wheat in 2008, Mr. Hathaway drilled ryegrass into the wheat stubble and then baled it and sold the bales. He says the ryegrass has very good protein content, almost more than alfalfa. With the high price of nitrogen, Mr. Hathaway has also been experimenting with Austrian winter peas because of their ability as a legume to fix nitrogen. In the fall of 2008, he planted 60 acres of the peas and hopes to see a favorable response in the following corn crop.

Roadblocks to cover crop use

Mr. Hathaway would like to see more cropping practices that allow for the early removal of primary crops so that cover crops can get established early, such as early maturing corn and soybean varieties. Mr. Hathaway says "The earlier you can get the cover crops planted the better, this gives them more time to get established and to make it through the hard winter."

Sources

Personal Communication by phone (11/18/08) and e-mail (11/20/08) with Randy Hathaway
July 2006 Farm Journal Magazine article, p 1-4,
<http://www.agweb.com/farmjournal/Article.aspx?id=129309>

Profile written by Dustin Specht

Aaron Johnson
Orleans, Indiana

Summary of operation

2000 acres of corn
800 acres of soybeans
500 acres of wheat double cropped with 500 acres of Milo
200,000 laying hens
1.1 million pullets and 200,000 turkeys per year
2500 sows (farrow-to-finish)

Background

Aaron Johnson is the crop manager for Riverview Farms, Inc., a family corporation owned and operated by Aaron, his brother, father, cousin, and an uncle who is currently 85% retired. Like all of the other family members involved with day-to-day operations, Mr. Johnson graduated from Purdue (1996) and returned home to farm full time. Their current cash crop rotation consists of conventional-till corn, followed by no-till corn, followed by no-till soybeans, followed by no-till red winter wheat double cropped with milo. The milo is planted immediately after wheat harvest in late June/early July. Prior to the addition of cover crops to this rotation, soybeans were planted no-till but all of the corn acres were tilled. Currently, only the acres (~800) that receive manure are tilled.

Use of cover crops and manure

Mr. Johnson decided to start using cover crops because he was concerned about erosion and wanted to improve soil structure and organic matter. Wheat, cereal rye, and most recently annual ryegrass have been used as cover crops at Riverview Farms. A local coop broadcasts the annual ryegrass with an airflow fertilizer spreader while also applying phosphorus and potassium to locations that GPS soil tests show are low. Annual ryegrass seeding rates vary with respect to planting date - 15 lbs/A in September, 15 to 20 lbs/A in October and ~ 30 lbs/A in early November. Winterkill is uncommon. A quart of glyphosate mixed with ammonium sulfate and water is applied to the ryegrass after the 1st of March when temperatures are above 45 degrees. An herbicide with residual activity such as RUP or Gramoxone is applied at planting.

With 4 animal enterprises, manure management is major part of operations at Riverview Farms. Each year the poultry houses produce about 1400 tons of manure and the hogs (sows and finishers) produce about 4.5 million gallons of manure. The turkey and pullet manure has some advantages over hog manure because of its high nutrient content and low density. Turkey and pullet manure applied at ~ 6 tons/acre supplies 100 percent of nitrogen needed for the first corn crop, 50 percent of the nitrogen for the second crop and all the phosphorus and potassium for the next two years of crops. This manure is usually applied after the milo has been harvested. Wheat straw and milo are used as carbon sources mixed with the manure. This helps to maintain soil organic matter levels between 2 and 2.5 percent. Tillage is often used to incorporate the manure, reducing the smell for his neighbors and keeping the nitrogen tied up in residue and soil. Manure from the farrow-to-finish operation is applied at agronomic rates according to its nutrient analysis. It is direct injected allowing no-till planting of the next crop.

Benefits from using cover crops

A wide range of beneficial effects from cover crops have been observed at Riverview Farms. Cover crop residues are helping keep erosion at bay. Crop rooting depth and mass and water infiltration rates are increasing. Tillage tools are easier to pull across the field. Earthworm population and activity are returning to fields. Weed populations are dropping due to different chemistries and times of chemical application along with the mulching effect of cover crop

residues. Spring planting can start sooner than on neighboring farms because cover crops are helping to remove excess moisture. Soil test data shows that soil nutrient levels have increased or are holding the same. Tissue analysis shows that annual ryegrass is capturing approximately 100 lbs of nitrogen prior to burndown. Lastly, Mr. Johnson is looking forward to a dry year to see if his crops out perform his neighbors' when moisture is limited. During recent wet years "yields have gone up on all our crops but not as much as our neighbors have seen".

Cover crop mishaps

Riverview Farms has only had one cover crop disaster. "We had major problems the first year I planted the annual ryegrass. The re-growth used up the nitrogen that was applied with the planter and the corn suffered to a yield loss of 70 bu per acre. Getting the ryegrass killed early is key."

Using cover crops is an art

Mr. Johnson has found that constant adaptation is needed to manage cover crops effectively. "No two years have been the same for me in what has worked and not worked so well. I keep finding new information on new cover crops to try... the benefits list keeps growing as people experiment and document the changes that take place." "This gets to the art of making things work in different situations...learning what I need to accomplish with different soil types... as the ground changes from its first cover crop to 15 years of no-till and cover cropping. I have both extremes today and the fields have very different soil structure."

Future of cover crops at Riverview Farms, Inc.

Mr. Johnson is currently considering oilseed radish "Cyst nematode population reduction with oilseed radish sounds really appealing but can I get it planted early enough to get the root growth to break up compaction before a killing freeze or will it need a warm winter without any snow and few nights below 28 degrees all winter." He is also looking at winter canola because of its planting date in the fall and then the spring kill date has some important ramifications to consider as well.

Sources

Personal Communication on 10/25, 11/7, 11/9, 11/13, 11/19 and 11/23/2008.

Profile written by Caleb Bean

Ray McCormick
Vincennes, Indiana

Summary of operation

4000 acres of corn, soybeans, wheat and milo
Annual rye grass and cereal rye as cover crops

Background

Ray McCormick is a former graduate of Colorado State University with a bachelor's degree in Agriculture Science. He is the owner and operator of a 4,000 acre grain farm that is located in both Knox County, Indiana and Lawrence County, Illinois. Mr. McCormick is a strong advocate of no-till and extensively uses continuous no-till on a majority of his farm land. He currently resides in Vincennes, IN.

As well as being an innovative farmer, Mr. McCormick also works with wetlands consulting, design and construction and operates a waterfowl hunting business. He has received several awards related to conservation and improving wildlife habitat. Some of the many awards and recognitions that he has received include: IDNR Conservationist of the year in 1988, National top award winner in 1990 for the "Farming the Flyways Contest," a National Wetlands Conservation award from the US Fish and Wildlife Service in 1999, 1996 Man of the Year from *Progressive Farm Magazine*, and IASWCD (Indiana Association of Soil & Water Conservation Districts) Conservation Farmer of the Year in 2006.

Cover crop information

Mr. McCormick became interested in cover cropping practices through sources such as; The Energy Bundle Program, No-till Farmer Magazine, and also speakers at the National No-till conferences. Most of the information that he has gathered about cover crops has come from the numerous conferences that he has attended.

Cover crop roadblocks and incentives

When asked about some of the road blocks he has experienced in cover cropping, Mr. McCormick answered "Added work load, added cost, and also some difficulty with burn-down". He feels some ways to get more people involved with cover cropping would be to offer things such as incentive payments, better education about the crops and how to use them, and field days.

Cover crops used

This year is the first large year of cover crop planting that Mr. McCormick has done since his work with them in the 80s. This fall, McCormick flew 2.5lbs of radish, 2.5lbs of turnip, and 5lbs of rape seed onto 175 acres of standing milo, corn, and soybeans. This combination was applied to late planted crops that are located in a flood plain that was flooded in June; so much of it is yet

to be harvested. He explained that one of the reasons he chose this mixture was to retain whitetail deer in the area and to winter kill where spring turndown will be difficult if partial flooding were to occur. He stated that some of this ground is intentionally flooded for use in his waterfowl hunting operation. He chose to fly on the seed to meet the requirements for the NRCS Energy Bundle Program which state the cover crops must be seeded by 9/30. McCormick also planted cereal rye on about 500 acres. He chose cereal rye because the NRCS allowed a later planting date of 11/10. The cereal rye was drilled in after milo, corn and soybean harvest with a 1980 CCS John Deere drill.

Advantages

Over the years, Mr. McCormick has observed a variety of benefits of cover cropping including; reduced soil erosion, improved soil quality, increased plant growth, reduced weed pressure and better walking when quail hunting. Mr. McCormick is beginning to use more cover crops now with the increase in input costs to gain fertility without spending money on commercial fertilizers. It is more economical for him to use cover crops than to use only commercial methods of fertilization. With the use of cover crops, he is able to apply less nitrogen and phosphate, and it also allows more soil to be sequestered in flood plains.

Questions

Mr. McCormick would like to know; which cover crops do whitetail deer prefer the most? How much general fertility gain should be expected with using cover crops? Which cover crops are the most effective in supplying nitrogen?

Sources

Personal communication via email on November 14, 2008.

<http://www.iaswcd.org/whatsnew/01-28-08nrofficers.html>

Profile written by Garrett Helregel

Shane Meier
Columbus, Indiana

Summary of operation

2,500 acres of no-till corn, soybeans, and winter wheat

Annual rye grass, cereal rye, and winter wheat as cover crops

Background

Shane Meier Farms, Inc is located in southern Indiana and was started by Shane Meier's father Charles. Mr. Shane Meier started farming in 1985 by renting about 210 acres. He graduated from Indiana University in 1990 and returned to farming. He slowly started to take over the farm from Charles. He now manages over 2,500 acres. Charles still helps Mr. Meier with the farming. Mr. Meier's wife Trish and his mother also help with bookkeeping and feeding the hungry crew. The Meiers do not hire any full time employees. They only hire part time labor during busy times.

Minimizing costs

Mr. Meier's main goal is to minimize cost per bushel. In agriculture, the most common way to cut costs per bushel is to increase production. Mr. Meier knew that finding more land was difficult, so he started focusing on ways to improve crop yields while keeping costs down. Improving soil productivity with cover crops, no-till and tiling and cost-efficient drying systems are some of the ways that Mr. Meier has minimized his cost per bushel. One other way the Meiers have cut costs is by building their own equipment. Mr. Meier and his father have converted an old cultivator into a strip-till unit. Clearing residue out of the row helps with warming up the soil in the spring. This can only be done with the help of RTK guidance.

Nutrient management on the Meier Farm

The Meiers apply chicken manure, lime and potash every 3 to 5 years. If they used chicken manure every year, Mr. Meier is afraid that too much phosphorus would build up in their soils. This is why they rotate manure with lime and potash.

Cover crop management

Despite converting to one hundred percent no-till, Mr. Meier continued to observe unacceptable levels of erosion. In the fall of 2003, he started using cover crops to help cut down on erosion. He only planted a few acres at first but planted the whole farm to cover crops in 2007. He has used winter wheat, cereal rye and annual ryegrass as cover crops. He plants all his cover crops with a John Deere drill and gets a good kill in the early spring using glyphosate.

Cover crop benefits

The Meier family has not seen a huge increase in their yields, but they have noticed that soil holds together when using cover crops. They hope that their soil will hold nitrogen better and build more organic matter if they continue using cover crops.

Future plans

The Meier family will continue to combine no-till and cover crops as long as these practices work for their farm. Mr. Meier says "if anyone has issues with erosion, cover crops are a good

solution, especially on hilly or loose light soil. They will slow the water down and hopefully keep all the soil in place.”

Sources

Personal communication with Shane Meier by phone (11/17/2008)

2008 Indiana Farm Management Profiles.

http://www.agecon.purdue.edu/extension/programs/FT_files/Farm_Mgmt_Profiles_2008.pdf

Profile written by Evan Matlock

**Jim Scott
J.A. Scott Farms Inc.
Pierceton, Indiana**



Jim, Cathy and Jamie Scott

Summary of operation

~2,000 acres of corn, soybeans and hay
wheat, cereal rye and annual rye grass as cover crops

Background

Jim Scott, his wife Cathy and son Jamie grow ~ 2000 acres of corn and soybeans in northern Indiana. “Conservation of soil, water and air is considered in everything we do on the farm,” says Mr. Scott. “We strive to improve the natural resources while maintaining a profitable farming operation.” Not surprisingly, their farm is a showcase of conservation practices. Most of their cropland is continuous no-till (1,650 acres in 2007), some for more than 25 years.

The most erodible parts of the farm have been converted to grassed buffer strips (~ 50 acres) and hay fields. Trees have been planted on 35 acres for wind and shelter breaks. Two ponds have been built to capture excess rainfall and provide water for wildlife. Nitrogen is sidedressed and foliar applications of nutrients are applied three to four times during the growing season to improve uptake efficiency. Sidedress and foliar fertilizer rates are adjusted based on chlorophyll meter readings. In 2008, Jim Scott, his wife Cathy and son Jamie were recognized by the American Soybean Association as Conservationists of the Year.

Cover cropping practices

The Scotts have been planting annual ryegrass as a winter cover crop for 3 years (~ 1200 acres in 2007). Most of their ryegrass has been flown on to standing corn and soybeans at 25 lbs/acre by plane or helicopter 2-4 weeks before harvest. They are very pleased with how well the ryegrass has established in standing corn and are perplexed about why it has not established as well in standing soybeans. If they are not able to get it flown on in time or have not achieved a good stand by aerial seeding, they drill 15 to 17/lbs to the acre right after harvest. Mr. Scott feels that controlling ryegrass in the spring before it becomes reproductive is very important. Usually they spray their ryegrass during the first ten days in April when the ryegrass is still in its vegetative stage but temperatures are warm enough for glyphosate to work properly.

Cover crop benefits

Through annual pit digs, the Scotts have seen ryegrass roots extending down to fifty inches in the first year and down to seventy inches after 3 years. They feel annual ryegrass has reduced both compaction and erosion. Using a shovel, they have seen more earthworms at work under annual ryegrass.

Cover crop information

The Scotts attend the National No-till conference every year that rotates between Indianapolis, St. Louis, Des Moines, and Cincinnati and have picked up valuable information about cover crops at this meeting. They have liked what they have heard about cover crops from guys like Mike Plumer (U of I extension). They host a field day in April each year that allows them to share knowledge with others about their practices (including cover crops). Over the years the event has grown to around 100 people. Getting down into a soil pit to investigate biological activity in the soil is a key part of their field day.

Sources

Personal communication with Jim Scott by phone on (11/10/08) and (12/9/08)
<http://www.soygrowers.com/clap/default.htm>

Profile written by Luke Simmons

Mike Starkey
Brownsburg, Indiana

Summary of operation

3400 acres of no-till corn and soybeans

Annual Ryegrass as a cover crop on approximately 250 acres

Background

Mike Starkey has been farming for 25 years near the town of Brownsburg, Indiana which is located about 20 miles northwest of Indianapolis. He attended college at the University of Indianapolis where he received his Bachelor's degree in Accounting and Business

Administration. Mr. Starkey's farm has been 100% no-till since 2001, which is helping to improve soil structure, especially by eliminating so many extra trips across the field.

Annual ryegrass has been used on his farm as a cover crop for about 10 years. Mr. Starkey found out about using cover crops and the specific type of annual ryegrass that he is currently using at a farm workshop. Representatives from the Oregon Department of Agriculture were at the workshop and told Mr. Starkey about annual ryegrass. He ordered some from them and started using it. He really likes this particular type of ryegrass because it doesn't go dormant in the winter and it is a very good scavenger for nitrogen. This has helped him to establish and make very good progress in his no-till operation.

Focal points of operation – no-till and cover crops

Mr. Starkey uses annual ryegrass as his main cover crop for many reasons that are mainly associated with improving soil structure. He thinks its very dense root mass is great, because he has seen it grow all the way down into the glacial till line which helps with compaction and water infiltration. These are major problems in his soils when not addressed and taken care of properly.

This year Mr. Starkey had 25 lbs/ac of ryegrass flown onto standing beans (preceding corn) in early August to give the ryegrass some time to get established before the temperature dropped. He said "definitely the earlier, the better" because stand establishment can be a very big issue in using cover crops. He thinks drilling at 12-15/lbs per acre is okay, but flying it on seems to work better, mainly because you can put it on so much earlier. When he harvested his soybeans this year, the ryegrass was 4-6 inches tall. Some of the grass was cut down when the combine was run through, but that doesn't seem to effect the growth after that. Once the soybeans are harvested, its time for some fertilizer. Mr. Starkey spreads 300lbs/ acre of 9-23-30 which is another way to help promote a strong stand. He has found that this early application of fertilizer gives the ryegrass a good growing start to establish it for the winter. The ryegrass then grows throughout the winter and spring until its time to plant. Prior to planting he sprays the ryegrass with glyphosate to kill it and then no-tills corn into the cover crop residue. Once the ryegrass is killed it can release nitrogen into the soil which is a source of nutrients for the corn. This can be

a great way to capture free nitrogen, which could possibly allow Mr. Starkey to use less other nitrogen sources. He hasn't reduced his nitrogen rates yet, but hopes the cover crops and other research can eventually lead to reduced rates.

Environmental benefits and profitability

Simply using 100% no-till and cover crops can be a great way to help benefit the environment, but Mr. Starkey is taking that another step farther. We all know that the price of fertilizers has been high lately, especially nitrogen. So wouldn't it be a major benefit to know exactly how much you needed to put on your fields? Well for the past few years, Mr. Starkey has been trying to do just that. He has been working with a few students from Indiana University and Purdue University-Indianapolis for the last couple of years monitoring field tile drainage. There is a creek that runs through some of Mr. Starkey's property which happens to supply water for a few nearby towns. That means the towns benefit from the water being as clean as possible. Over a four year period, the students will take samples of the water coming out of the tiles that drain near the creek and test them in a lab to see how much fertilizer is running out through them. This year to get some additional information in the testing, Mr. Starkey took two 40 acre fields that were on opposite sides of the creek, which were both bean stubble and had ryegrass flown onto one of them and left the other alone. His reasoning for this is that he believes nitrogen can be lost from bean residues when there are heavy rains or extended periods of moisture. He believes that the ryegrass can help to trap that nitrogen so it doesn't run out of the soil and the testing may prove that.

If the tests can become accurate enough to see exactly how much nitrogen is being run through the tiles it could be a huge breakthrough. Mr. Starkey said if he knew exactly how much nitrogen he was losing, it may give him a very accurate reading on how much he would then need to add. That would be great information to know especially considering the cost of fertilizer these days. These tests could end up being a great thing for Mr. Starkey's farm and may save him some extra money in the long run. If they prove to be very informative, it may be something for other farmers in Mr. Starkey's situation to think about. Not only could it end up saving money, but it may also help keep the water more environmentally friendly.

Suggestions

Mr. Starkey said if you're looking to improve your soil structure then cover crops could be a great way for you to do that, especially in a no-till situation. If you are already using no-till practices but no cover crops, it may be a good thing to look into for better long-term effects.

Sources

Personal communication with Mike Starkey by phone in October 2008

Profile written by Ben Brown

**Roger Wenning
Greensburg, Indiana**

Summary of operation

470 tillable acres owned with sister. 210 acres of corn and 210 acres of soybeans.

Annual ryegrass, cereal rye, oats, rapeseed, peas, clover, triticale, and hairy vetch as cover crops

Background

Roger Wenning is 50 years old. He spent one year at Purdue University and has been farming ever since. His farm consists of 470 acres of corn and soybeans in rotation. He has planted his soybeans no-till for 15 years and his corn no-till for 5 years. Approximately 50 acres of his farm are in conservation practices. He is the current chairman of local soil and water conservation board. He is a former Decatur County Conservation Farmer of the year and Indiana River Friend Farmer. He owns and operates a small excavating business and lays drainage tile.

Cover cropping practices

Mr. Wenning's use of cover crops began with the planting of wheat to control erosion on hills and swags. In 2006, approximately fifty acres of wheat and fifty acres of annual ryegrass were planted into soybean stubble in the fall. During harvest in the fall of 2007, Mr. Wenning noticed a six-bushel yield improvement on crops grown after ryegrass compared to those grown after wheat. Fall of 2007 brought the use of more cover crops. All of Mr. Wenning's soybean stubble that fall was planted to annual ryegrass (80%) and wheat (20%). This fall (2008) Mr. Wenning planted all 470 acres of cropland with annual ryegrass. Aerial seeding was used in mid-September to seed 250 acres at a cost of twelve dollars and fifty cents per acre + seed cost. For the rest of the planting, Mr. Wenning utilizes an old CIH twelve-inch conventional drill with press wheels. Cost for this operation is eight dollars per acre + seed cost.

Cover crop experimentation

Experimentation with cover crops has given Mr. Wenning the knowledge to choose which cover crop is best suited for his ground. During the fall of 2008, Mr. Wenning seeded small plots containing ryegrass (marshal, king, bounty, royal), cereal rye, wheat, triticale, oats, rapeseed, oil seed radish, winter peas, hairy vetch, Persian clover, and subteranean clover. This plot was seeded in early September. Mr. Wenning said, "This started as personal research, but has grown and evolved as others found out what I was doing. I now have people associated with SWCDs, NRCS, universities, seed companies, and magazines looking and asking questions."

Cover crop field day

In March 2008, a field day was hosted by Mr. Wenning on his Greensburg, Indiana farm. The event was led by Barry Fisher (NRCS agronomist) and Eileen Kladvico (Professor at Purdue University). A soil profile pit was dug on the farm for attendees to view. Eighty-five people from thirteen counties came to the event to learn about cover crop usage. Mr. Wenning says, "An improved field day is being planned for March 2009."

Staying informed and increasing use

Magazines, field days, conferences, NRCS, and any one you can talk to who is trying something that could work for your operation are all ways to gain information on the uses and benefits of planting cover crops. Mr. Wenning points out, “the biggest roadblocks are misinformation, lack of information, fear of unknown, cost, and time to plant.” These issues are keeping most farmers away from using cover crops. Once these issues are addressed more farmers may realize the benefits of adding cover crops to their operation. I think cover crops are a long term investment with increased benefits over time because of their soil building properties.”

Sources

Personal communication by email with Roger Wenning (11/17/08) and (12/5/08).

Profile written by Ryan Fornoff

Ben Yantis Logansport, Indiana

Summary of operation

1000 acres of no-till corn and soybeans
Cereal rye as a cover crop

Background

Ben Yantis went to high school in Metea, Indiana. It was a very small town with only 10 students in his class. Right out of high school, he started farming his home place and has farmed there all his life. From 1962 through 1993, Mr. Yantis owned and operated a farm equipment business that specialized in New Idea Farm Equipment. He bought and sold farm equipment from Florida to California and all the way up to Canada. During that time, he farmed on the side during evenings and on Saturdays. Presently, he and his wife own 1000 acres and hire their daughter and son-in-law to farm 550 acres. They rent them the balance. The soils are mostly sandy loams. Mr. Yantis oversees the use of cover crops and helps when needed on the farm.

Farm operation

The Yantis farm has been using a corn-soybean rotation but starting this year (2008) they will be putting a field with an irrigator into continuous corn. In 2008, soybean yields were mostly in the low 50s and corn yields were mostly between 190 and 195 (bushels per acre). Mr. Yantis and his son-in-law used a Rawson 3 coultter system on their planter for several years but switched to a strip-till machine with pneumatic dry fertilizer placement 3 years ago. They use the machine in the spring and they put the fertilizer 6 to 7 inches deep under where the seed will be planted. This has cut their use of fertilizer in half. He figures out how much fertilizer to apply by doing

soil tests every year and uses only half of what is recommended to be put back into the soil. Mr. Yantis sidedresses most of the nitrogen for corn when the corn is 6 to 12 inches tall.



Pictures of the DMI nP9000 Nutri Plac'r strip-till machine.

Cover crop management

Mr. Yantis decided to start using cover crops 3 years ago when he was at a farm field day and a farmer shared how cover crops helped his yield in a drought year. The first cover crops that Mr. Yantis tried were annual ryegrass and cereal rye. Mr. Yantis was not pleased with the annual ryegrass because it did not consistently over winter and was much harder to kill in the spring than cereal rye. Mr. Yantis said “When it freezes out, it does not grow at all and does not help the soil because it is not putting its roots down into the soil the help with compaction. It is also not putting any organic matter into the soil which is very important when using cover crops”. Their standard method of seeding cereal rye is with a fertilizer spreader but this year they tried flying on 125 acres of cereal rye. They normally put on the cereal rye as quickly as they can after corn and soybean harvest to get a good stand before winter hits. The rye looks good so far, according to Mr. Yantis. They also seeded 650 acres of cereal rye using a fertilizer spreader. They incorporated the seed with a disc aerator that they built themselves. The disc aerator helps the cereal rye to come up much quicker and develop into a better stand. Mr. Yantis plants 1 bushel of cereal rye per acre or 60 pounds per acre. He says cereal rye is getting much harder to find. This is one reason why Mr. Yantis thinks that it will be hard for cover crops to expand in the Midwest. He gets some of his cereal rye from a neighbor and for the rest he puts ads in farm papers stating he wants to purchase cereal rye. To kill the cereal rye, he uses glyphosate with ammonium sulfate. Mr. Yantis normally sprays the cereal rye one week before they put on their fertilizer and plant. He has planted soybeans right into the green cereal rye and then used a row crop cultivator to get rid of the cereal rye. He said “It does not hurt the soybeans at all if you plant into living cereal rye”.

Cover crop benefits

Since he has started using cover crops on his fields, he has noticed that the soil is much looser but thinks it will take up to 5 to 10 years of using cover crops to build up the organic matter. He

also thinks that cereal rye's deep root system is helping greatly with his no-till system because it gets rid of compaction layers and helps the soybean roots grow deep into the soil.

Sources

Personal communication by phone on 11/17/08
and email on 10/24/08, 11/5/08, and 11/14/08.

Profile written by Josh Hawk

Mike Yoder Goshen, Indiana

Summary of operation

Udder Guys, LLC and Crystal Valley Dairy Farms
~500 milking cows
~ 250 acres of crops (no till and conventional)
Triticale, winter wheat, and rye as cover crops

Background

Mike Yoder spent 2 years at Michigan State in their Ag program. He has owned and operated a dairy farm since 1979. Currently he has sole proprietorship of the farm, but will be forming a Limited Liability Company January 1 with the current farm manager to provide him with an opportunity to buy the operation. Mr. Yoder currently manages 250 acres, 150 of which are used for annual crops and 115 of which are irrigated. His primary crop is corn silage. The irrigated acres are continuous corn. The non-irrigated acres are rotated with soybeans. The continuous corn acres are seeded with a grass cover crop after silage harvest. This crop is harvested in the spring prior to corn planting. He uses a combination seed mix of triticale and MO-1 annual ryegrass. Tillage is either no-till or conventional. The corn-soy rotation acreage is no-till. The other acres are conventional. This is because they incorporate dairy manure every other year. In addition, Mr. Yoder says, "We have less army worm problems in the corn by tilling the cover crop residue." Their dairy operation consists of 500 cows. All young cattle are contract raised at neighboring farm operations. His interest in no-till farming is a result of their sandy soils and through reading farm magazines. He gets most of his information about new practices from seed dealers and his chemical dealer/applicator

Cover cropping practices

He has used winter wheat, triticale and annual ryegrass as cover crops. These are always following corn and preceding soybeans or corn. Sometimes the rye is simply as an over winter cover and then burned down prior to no-till planting in the spring. In this case the rye is flown on the corn crop in late August. The other cover crops have been used as spring forage crops. This provides him not only with winter cover but additional forage that is needed for the dairy operation. It also better utilizes the manure nutrients and is part of our manure nutrient management plan.

Flying on rye has worked okay for them as just a cover crop application. However, rye can be a challenge to kill in the spring prior to planting. Usually a herbicide combination will normally take care of the burn-down. They have not had perfect luck with burn-downs. They have used 2,4-D to get a quick burn-down and then relied on a pre-emergent herbicide mix that includes Atrazine to kill the re-growth. Then an application of glyphosate on the soybeans will take care of anything that was missed. When they have used the rye cover crop they have occasionally experienced better weed control in the following soybean crop. There was usually less competition from perennial spring weeds like Henbit. The rye competition appeared to suppress these spring weeds.

Cover crop benefits

He was hoping for improved soil tilth, but he cannot say they actually achieved that goal. It is difficult for him to measure in a farm setting. "There is no doubt we reduced soil erosion (wind and water) on our sandy, sandy/loam soils with the cover crop," says Mr. Yoder. When the cover crop is to be used for spring forage, they have in the past, no-till drilled the cover crop into corn silage stubble. This resulted in a very good stand. However, if they inject dairy manure, then some secondary tillage is needed to provide a good seedbed for seeding the cover crop. All their manure is injected sub-surface, because they have lots of neighbors! This harvested cover crop appears to provide some benefits to the following corn silage crop. The root structure from the harvested cover crop appears to improve water-holding capacity of the soil for the corn crop. He suspects this is the result of the increased organic matter that is the result of the cover crop. It has also appeared to him that they have less nitrogen leaching with the cover crop. While the triticale/ryegrass mixture definitely uses N, it seems to help prevent the manure N from leaching. Between the manure applied and left over N, they applied only 90 units of N on a corn silage crop that yielded 27 tons per acre; a substantial savings in fertilizer costs. This next year (the second year they are using this mix of ryegrass and triticale) they will not be applying manure. They will only be tilling the cover crop. "It might better tell us the N benefits we are deriving from the cover crop," says Mr. Yoder. By tilling the cover crop they avoid the need for a burn down herbicide treatment.

Cover cropping roadblocks

Mr. Yoder explained some of the setbacks they had with their practices when they first implemented them. On occasion when they had far more acres (they were farming 1,000 at one point), they did have some stand establishment problems with seed that was blown on. This was because of dry conditions. It did not rain and when they did get rain the seed did not germinate as well as they would have liked. The first year, they used a rye cover after corn silage. Then, they harvested in the spring, burned down the stubble and no till planted corn. Again, they had several problems. First, planting corn in rye stubble made it very difficult to see the planter marker, so they had variable row spacing. Second, rye will dry out the soil and if you do not have irrigation, their sandy soil will become very dry in the spring after rye. Early corn stand establishment can be a problem unless you have timely rains. The last problem is armyworms. The first year they planted corn into rye stubble they did not scout the fields, as they should have. They almost lost a corn crop because they were not paying attention. "When it became so bad I could see something was wrong from the road when I drove by. I got my fanny out of the truck and looked closer. Another day and we might have been replanting," says Mr. Yoder. Mr. Yoder feels that there are two things right now that are the biggest roadblocks to the expansion of cover crop use in the mid-west. One of these is the cost/benefit analysis. The other is communication. He feels that the best thing we can do to increase cover crop use is to promote the current research that shows the financial benefits.

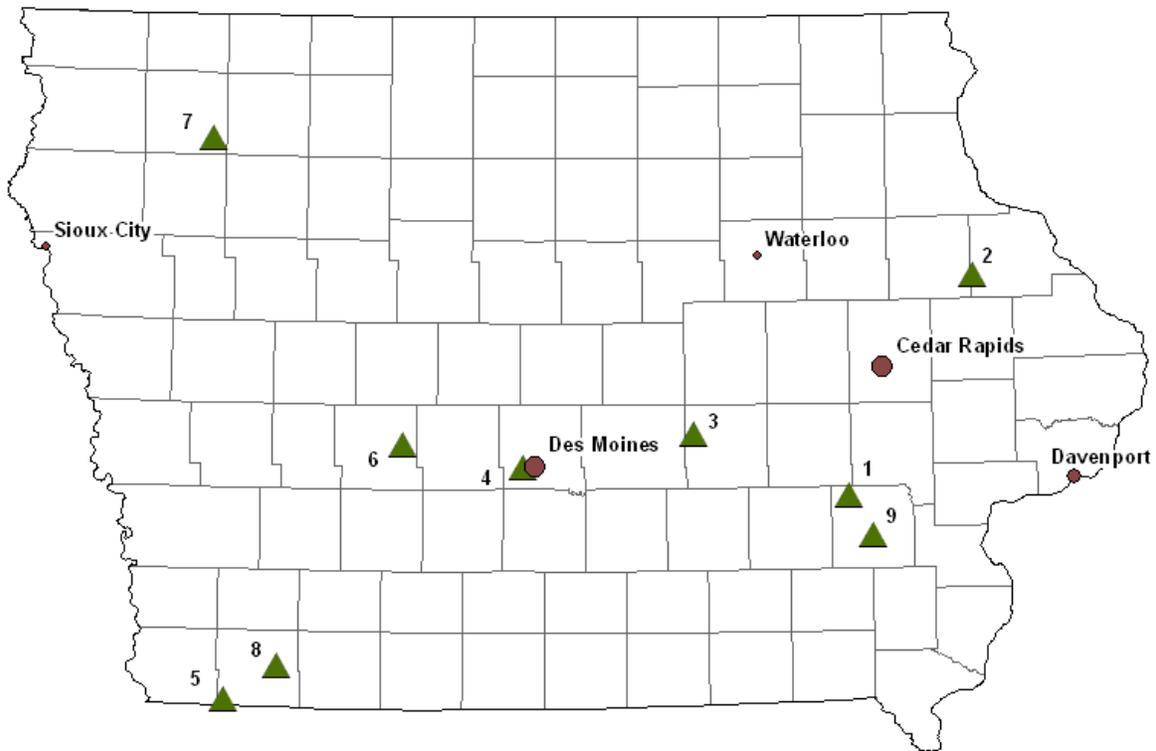
Sources

Personal communication with Mike Yoder on November 11th -December 2nd, 2008

Profile written by Liz Alloway

Iowa Cover Crop Innovators

Farm Locations



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 Mugge	Sutherland
8	Austin Nothwehr	Clarinda
9	Greg Wiley	Washington



Source: IIRAGIS Specialist
Data Current: 2008



Steve Berger
Dennis D. Berger & Son Inc.
Wellman, Iowa

Summary of operation

2200 acres of corn and soybeans
15,000 feeder pigs annually

Background

Steve Berger completed a BS in Agricultural Business at Iowa State University in 1986. He farms in a partnership with his dad named Dennis D. Berger and Son Inc. located in Wellman, Iowa (Washington County). They produce 2200 acres of corn and soybeans in a 50% rotation, 100% no till. They also finish 15,000 head of feeder pigs a year.

Cover crop of choice

Mr. Berger primarily uses cereal rye because it is hardy. It can take the harsh freezing winters and the cool fall and spring temperatures. Rye also has an excellent root system. Mr. Berger uses rye mainly for the erosion control, but also likes the rooting depth.

Cover crop establishment

Mr. Berger usually drills cereal rye right behind the combine (September to about October 20th) into soybean stubble and corn stalks at about 50 lbs/acre. This year (2008) they aerial seeded the cereal rye due to the delayed harvest. The cereal rye was aerial seeded into soybeans around the third week in September.



The above picture shows a field that Mr. Berger aerial seeded in September into standing soybeans. The rate was 50-52 lbs/acre at 40 foot intervals. Since the cereal rye was aerial seeded

in September it has received over 9 inches of rainfall. Previous to seeding this field rainfall was at 4 inches, so the ground was plenty wet. This helped the germination.

Mr. Berger will also inject swine manure in November when the soil temperatures get colder. He will use a Yetter Avenger disc opener to apply manure at 2600 gal/A. The balance of nitrogen will be applied as 32% UAN with the corn planter in a 3x2 band. The application of the manure will not have much disturbance on the cereal rye. The cereal rye will then be sprayed in April with a quart of glyphosate. This field has also been in continuous no-till for more than 20 years.

Mr. Berger's very first no-till experiment was in the late 1970s and they used rye as a cover crop to no-till into. This was prior to roundup, so they used paraquat to kill the rye in the spring. Rye is a very hardy cover crop and it works very well here in the Midwest. It is also one of the cheapest cover crops .

Cover crop disasters

Mr. Berger said he has not had any disasters while using cover crops. They have had some close calls with some late kills in April - or even sometimes they might forget to spray a small field. Other than that they have not had any real disasters. Mr. Berger believes that to successfully plant corn into cereal rye, the rye must be completely brown or dead before planting into it.

Sources

Personal communication with Steve Berger by email (10/5 and 10/14)

Profile written by Drew Stamerjohn

Bryan Davis
Grinnell, Iowa

Summary of operation

65 acres of corn

65 acres of soybeans

65 acres of small grain

35 acres alfalfa/grass hay (all certified organic)

Spring seeded oats, cereal rye and red clover as cover crops

Background

Bryan Davis and his wife have been farming for 32 years. They started farming with his father-in-law in 1976, but in 1986 his father-in-law passed-away of Non-Hodgkin's Lymphoma. They use to farm over 1000 acres but cut back in 2004 when they decided to transition the home farm to organic. Mr. Davis is 53 and has a college degree in tool and die manufacturing.

Cover crop management

The Davises have used spring seeded oats, fall seeded rye and red clover as cover crops. They used to use a soil finisher for cover crop incorporation but since converting to organic have used a Kuhn power tiller and get a better seed bed which is necessary since they cannot spray for weed control. They also use the Kuhn power tiller to terminate hay stands.

In the fall, they chop cornstalks and disc them down to start the process of decomposition. They also like to get some rye seeded so it can be worked down as a green manure crop before soybeans. They have also used spring seeded oats before both corn and soybeans. They use a fertilizer spreader cart to seed rye and oats.

Cover crop challenges

Mr. Davis thinks “timing is a big issue for farmers who have thousands of acres to get across.”

“Most large farmers just do not want to take the time to do cover crops. They want to go to the field; Plant, Spray, Harvest, PERIOD! They do not accept that there is value in soil biology, which is only one of the benefits of cover crop. As organic farmers, we need to grow our own nitrogen and to increase the availability of all other nutrients to the growing crop through feeding the soil biology”

Mr. Davis does not recommend using fall seeded rye before corn. He said “Rye has an allelopathic effect on the corn, and ties up nutrients for a longer period of time than spring seeded oats. It results in stunted corn plants taking longer to get started.”

Sources of information about cover crops

Bryan and his wife went to the Midwest Bio-Ag meeting in Kalona, IA in 2000. They listened to Gary Zimmer talk about the benefits of cover crops and decided that they needed to give it a try. Although they have never been involved with any on-farm research evaluating cover crops, they have other ways of getting useful information. They have attended the ACRES conferences several times since 2000, and Mr. Davis was asked to be a speaker one of those years. He gave a talk about large-scale biological farming; at the time they were farming a lot of acres and had not started organic yet. The couple reads as much as possible and talks to other organic farmers. Mr. Davis said “although surprisingly enough, not all them do cover cropping.”

Increasing cover crop use in the mid-west

Mr. Davis commented “I do not want the government to impose any more rules, but if the farm program included some kind of incentive for cover crops or if there were limits put on applied synthetic inputs, that would probably get some people's attention.”

Other management practices

Mr. Davis built a flamer that he uses to blind burn corn and beans over the top of the row before they come up. Then he uses the flamer and a cultivator two more times until the corn or beans are too tall to get through. They also use a tine weeder before planting and/or shortly after planting to kill newly germinating weeds. They have put buffer strips around all their fields that border the neighbors to avoid potential contamination.

Sources

Personal communication by phone with Bryan Davis

Profile written by Derek Park

Karl Dallefeld Worthington, Iowa



Summary of operation

130 acres of minimum till and no-till forages on highly erodible soils
120 head of stocker cattle per year

Background

Karl Dallefeld is from the small town of Worthington in eastern Iowa. He is a 46 year old cowboy who works as a forage division manager for Midwestern Bio-Ag, a biologically-based agri-consulting and input company based in Blue Mounds, Wisconsin. After earning an associate's degree, he started out working in local sales and moved up to his current position. He is also the owner and operator of his own cattle farm. Mr. Dallefeld is currently the sole proprietor of his operation but his college-age son is working his way up to be a partner in the business. The Dallefelds rotationally graze approximately 120 head of beef cattle each year on 130 acres of forages/cover crops. They purchase their cattle at 500 lbs. and sell them at ~ 1200 lbs.

Discovery of cover crops

Mr. Dallefeld first became interested in cover crops when he was working for Barenbrug, a grass seed company based in Holland. He was their territory manager for the Midwest and part of the transition zone. He began to notice while he was driving through the Midwest in the winter that all the bare fields were just letting the soil blow. He recalled that a New Zealander once commented on how they always have something growing while we (Midwest farmers) only utilize our land for half the year. At Midwestern Bio-Ag, he came to understand the full value and importance cover crops and how they rebuild and improve overall soil health.

Cover crop management

Mr. Dallefeld plants cover crops on roughly 25 acres per year to either be grazed or harvested. His varieties and experiments have consisted of winter wheat (spring planted), fall rye, oats/rape, sorghum-sudangrass, sudangrass, teff, corn, and a blend of annual ryegrass, red clover, hairy vetch, and oilseed radish. "In the spring the oats and rape mix has worked great and in the summer the sorghum-sudangrass and sudangrass have worked the best." Grass and legume mixes are grazed at the proper maturity or harvested into bales.

Cover crop challenges

Using cover crops hasn't always been a smooth ride for Mr. Dallefeld. He once tried to no-till sorghum-sudangrass into rye stubble. He said that sorghum-sudangrass requires loose soils with adequate air supply for biology to be successful. His sorghum-sudangrass varied from six inches to three feet tall in the field and was extremely yellow in color.

Cover crop resources

Mr. Dallefeld picks up new ideas about cover crops and no-till systems in a number of ways. He attends conferences at universities and the annual Acres, USA conference, reads and refers to a book called "Managing Cover Crops Profitably", and visits farms.

Over-coming cover crop roadblocks

While there are many reasons why cover crops haven't expanded as fast as they should in the Midwest, Mr. Dallefeld feels the prime reason is lack of understanding of soils and their biology. To increase the use of cover crops in the Midwest, Mr. Dallefeld strongly believes that money should be invested in education about cover crops. He also recommends a shift in agriculture subsidies towards conservational practices including cover crops.

Sources

Personal communication with Karl Dallefeld

Profile written by David Looman

Wade Dooley Des Moines, Iowa

Summary of operation

900 acres of corn and soybeans and 300 acres of pasture
20 acres of oats and rye as cover crops

Background information

Wade Dooley is from Des Moines, Iowa. He farms with his dad. They have a 120 cow-calf operation. Wade is thinking about expanding their operation into horticultural crops, because he wants to learn more about them, and also he wants to spread their cost out for the farm. They farm about 900 acres of corn and soybean on a 50/50 rotation with 20 acres of cover crops. Wade and his dad read many magazines, and this is where they get most of their information about new practices. Wade is a member of Practical Farmers of Iowa.

Cover crop management

The Dooleys have used oats in their alfalfa as a nurse crop for decades. They started using cereal rye because they needed feed for their cattle. Mr. Dooley read about using cereal rye as a forage in a magazine and decided to give it a try. Now they regularly seed about 20 acres of cereal rye after cutting corn silage. This year they had to reseed about 40 acres of pasture due to all of the flooding. They used a pasture mix along with some cereal rye for their pastures. When they plant their cereal, they try to get a seed bed without clods. Then they broadcast rye and follow with a drag which covers up the seed a little bit. They do not get the best germination but he says it is the cheapest method for them, and it seems to work well enough. When it comes to terminating

the rye, he said the best way for them is to mow it close to the ground followed by tillage. They do not acquire any benefits on fertilizer. They mainly just use the ground to spread the cattle manure on.

Cover crop challenges

Mr. Dooley considers rising fuel costs to be one of the biggest challenges to greater user of cover crops. He was going to order some rye seed that did not have the allelopathic properties but did not because of the high fuel cost. The delivery cost would have been more than the seed. One year they planted rye in the fall and then let it go all spring, and then they planted corn into it and then they found out that the rye inhibited the growth of the corn. Corn yield was reduced by 10-15 percent. He said if they would have killed the rye about 30 days prior to planting the corn, they would have been alright. Mr. Dooley thinks that lack of knowledge, and the cost of seed and management are the biggest roadblocks to greater user of cover crops.

Sources

Personal communication with Wade Dooley by email on November 5, 2008.

Profile written by Scott Lake

Kevin Green
Northboro, Iowa

Summary of Operation

2500 acres of corn and soybeans

Cover crops used in the fields close to home

Beef feedlot

Background

Kevin Green uses a corn and soybean rotation on 2500 acres in southwest Iowa where the hilly ground makes soil erosion a huge problem. It so hilly that he has to use a side hill combine. He plants cover crops to control erosion and water runoff and provide roughage for his feedlot. Intense rains (e.g., 10" over two days) have occurred in recent years increasing the need for cover crops. He used to use wheat and rye as cover crops but now is using triticale. He mainly plants cover crops close to home due to the cost of hauling harvested forage.

Types of cover crops

Mr. Green has worked with a variety of crops including wheat, rye, and turnips before he settled on triticale, a wheat/ rye hybrid. In the summer of '08, he harvested 7 tons of dry matter per acre. The harvested triticale is used primarily as roughage for cattle in his feedlot.

Process of planting cover crops

The local fertilizer company plants Kevin's triticale with an air-flow fertilizer spreader. Because this cover crop isn't very popular, Kevin did a lot of the research himself and had to take the idea of blowing on the crop to his fertilizer company. Although the price of triticale has gone up 50% in the last year the cost of putting it on has not changed and he feels this is the best way to put the seed on.

Cover crop disasters

The year that Mr. Green used turnips he had some problems. "It was a wet spring and they did nothing to hold the soil. The cows never really acquired a taste for them either. The cows did eat them better after the bulbs were broken up and the anhydrous was put on. One advantage was you don't have to kill turnips like you do with triticale".

Sources

Personal communication with Kevin Green by phone

Profile written by Kelly Kretzer

Earl Hafner West Panora, Iowa

Summary of operation

2,000 acres of all organic crops

1,000 acres are currently planted to a mix cereal rye and vetch

250 cow/calf operation

7800 fat hogs per year

Background

Earl Hafner is from West Panora, Iowa which is west of Des Moines, Iowa. The Hafners farming operation has been successful in the organic field for over nine years. Mr. Hafner attended Iowa

State University where he received 4 minors before deciding on the major of Agricultural Education. After college, Mr. Hafner served his country for 28 years in the military reserves, while farming. Mr. Hafner and his sons operate several large livestock enterprises which supply manure for their organic crops. A herd of 250 cows calve once a year. They also finish 7800 hogs each year. The hogs produce over 1 million gallons of manure which is transported by tanks to nearby fields and applied. Mr. Hafner and his sons use all of the same equipment as conventional row crop farmers, except for an implement called a weeder, used in the place of a sprayer.

On-farm research

The Hafner Farm is currently participating in 2 on-farm research projects. One is a test plot for Practical Farmers of Iowa. The other is for Illinois State University and in this plot open pollinated corn is being researched. Corn from Cuba is being crossed with hybrid corn to produce open pollinated corn.

Cover crop management

After soybean harvest, the Hafners normally incorporate lime and rock phosphate with a disk before broadcasting a mix of hairy vetch and cereal rye (50 lbs of seed/ac) using an eight ton spreader. This fall enough rain has fallen to push the seed to the soil. Manure is applied on top of just established cover crops. Mr. Hafner says "the cover crops hold the nitrogen". Mr. Hafner also says "manure can be a challenge" but is a "good source of nitrogen and is cheaper than ammonia". Tillage and chemicals (organic?) will be used to terminate the cover crops before planting.

Cover crop roadblocks

Mr. Hafner says that most farmers don't use cover crops because "they are ill informed about them. They are not willing to learn or be innovative enough to try new things like cover crops. They just go with the flow and do what has always worked".

Sources

Personal communication in late October 2008 by phone.

Profile written by Brian Six

**Austin Nothwehr
Clarinda, Iowa**

Summary of Operation

1000 acres of corn and soybeans
Cereal rye and forage wheat as cover/forage crops
Cow-calf operation
250 head of ewes

Background

Austin Nothwehr and his father farm 1000 acres of corn and soybeans. Most is continuous no-till but a few acres are minimum-till. The Nothwehrs also manage a cow-calf operation selling feeder cattle and a 250 head of ewes that is a lambing-to-finish operation. Austin received an agricultural business degree from Northwest Missouri State University. He is 32 years old, married and has a daughter.

Cover crop management

The Nothwehrs started using cover crops after a summer terracing project 4 years ago. They seeded rye on Labor Day after the terraces were finished. The next spring Clarinda experienced some large rainfall events of 5 to 7 inches. Many terraces in the area failed and some developed large holes. The terraces on the Nothwehr farm held up and had very little erosion. Near the end of May they harvested an excellent crop of hay from the field with the terraces. From 20 acres, they got 75 big round bales of hay. Soybeans planted after the cutting did very well.

Cereal rye has been the primary cover crop used on the Nothwehr farm but this year they switched to forage wheat. They have used cover crops to protect their vulnerable land but also as a double crop. This year they burned down two alfalfa fields to seed forage wheat to get a hay crop followed by double crop soybeans.

The forage wheat planted this fall was seeded at 100 pounds per acre with a no-till drill because it barely disturbs the soil. They will cut the wheat for hay to terminate growth and use glyphosate to prevent re-growth.

Their fertilizer application rates have not changed since they started using cover crops, except sometimes they might apply extra nitrogen to cover crops used for hay to gain extra tonnage.

The future

The Nothwehrs have been very pleased with the way their cover crops have protected soil in a vulnerable state (like the terracing project). They are considering using turnips when they they decide it is time to try something new. They want to do more research before making any

changes to the current cover cropping system. According to Austin Nothwehr, “the biggest road blocks to cover crops are the extra time, expense, and equipment to deal with them.”

Sources

Personal communication with Austin Nothwehr by email on (10/2/08, 10/22/08, and 11/12/08).

Profile written by Emilee Wedekind

Greg Wiley Washington, Iowa

Overview of operation

320 acres of organic crops

180 acres of conventional crops

Cereal rye, buckwheat, hairy vetch, oats and red clover as cover crops

Background

Greg Wiley is forty seven years old and lives and farms in Washington, Iowa. He earned his Bachelor of Science degree from Iowa State University and has spent most of his time in the field of agriculture. “Most of my professional life I have been involved in agriculture and by that I mean directly farming”.

Mr. Wiley says that he uses standard tillage practices on the organic acres. Taking weed control into consideration, he says that “I do cover the ground multiple times both pre-plant and once the crop is up.” For the 180 acres that are farmed conventionally, Mr. Wiley hauls liquid manure onto some of the land and he uses no-till practices on the land not receiving liquid manure.

Conservation practices

Apart from using cover crops, Mr. Wiley has also installed other conservation practices on his land. “You have to keep in mind that out of 500 acres, I have some highly erodible land”. He makes use of waterways and grass strips in areas where erosion would be a severe factor.

On the land that is conventionally farmed, his no-till practices act as a conservation tool, creating a network of biological activity and stability within the soil.

Cover cropping practices

When it comes to the use of cover crops, Greg Wiley is no stranger to the practice. “I have used a wide range,” he says. “I used to spread rye into standing corn in late summer. For this I purchased an old de-tasseling machine and added a seeder to it. I have used hairy vetch, buckwheat, oats, clover ,and even some left over soybeans one year.”

Last year, Mr. Wiley said that he experimented with buckwheat as a cover crop and was extremely pleased with the results. Apart from the great weed suppression that buckwheat offers as a cover crop, Greg noticed some other results. The soil was much looser, and with all the precipitation in the past year, the soil was drier than he thought it was going to be. He even noticed the results of the buckwheat through the height of his corn crop that was planted after the buckwheat. “I can see to the row where it ended with the height of the corn dropping a bit where ... [the buckwheat] stopped.” He says that improved soil tilth is a real benefit from cover crops.

Cover crop challenges

Mr. Wiley used to seed his rye into standing corn, which he said normally worked very well. He would let the rye grow to about ten inches tall during the following spring and would then turn the rye in to the soil. He was really pleased with using the rye, as he liked the natural weed suppression as well something a little less tangible - “I guess the best way to explain it is that the soil just smells fantastic once you turn it in.”

One year because of a “particularly wet spring”, he wasn’t able to turn the rye in when he had planned to do so. When he finally was able to get out to the field, the rye was taller than the hood of his four-wheel drive pickup. “I ended up mowing, baling and removing the rye before I could begin preparing this field for planting. After that, I lost my enthusiasm for rye and have used it sparingly since then”.

Cover crops and soil fertility

It’s no coincidence that Mr. Wiley’s corn rows that had also been planted to buckwheat were taller than the corn without buckwheat. Along with other cover crops such as hairy vetch, buckwheat releases an abundance of nutrients into the soil as it decays. It’s reasons like this that Mr. Wiley uses cover crops.

“I often will seed my ground to a cover crop following a small grain, because I usually apply liquid manure to the ground for the following year's fertility and I want the nutrients to be absorbed by some plant material to hold it in the soil for the following year's crop. This is what I did this year. I had oats on 71 acres and following harvest, I hauled manure onto the ground and then re-seeded oats to take up the nutrients that will be turned in to the soil in the spring.”

“I use a cover crop often to hold fertility, rather than simply [to hold] soil which many people do with cover crops,” he said. This is a very beneficial way of looking at cover crops, and using his cover crops in this manner has allowed him to increase the fertility of his soil.

Sources

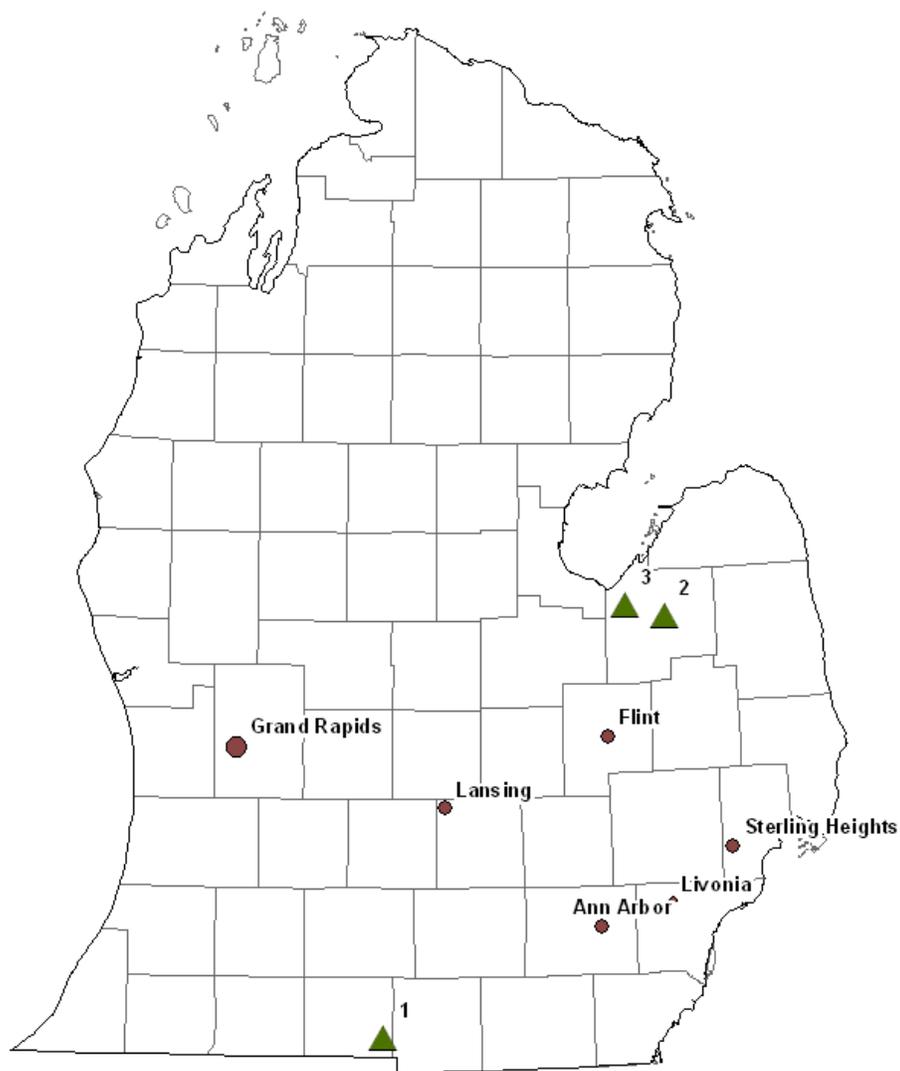
Personal communication by email (10/30/2008).

Profile written by Rob Larson



Michigan Cover Crop Innovators

Farm Sites



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



Source: IIRAGIS Specialist
Data Current: 2008



Joe Draper Angola, Michigan

Summary of operation

400 acres of no-till corn, soybeans, wheat and alfalfa

20 cow/calf herd

Background

Joe Draper manages his grandparent's third generation farm in Angola, Michigan. He is a Michigan State University graduate with a Bachelor's degree in Crop and Soils with an Ag Business Specialization. He produces corn, soybeans, wheat, and alfalfa on 400 acres of tillable land and also has a mixed beef herd of twenty cows. Every one of the 400 tillable acres on Mr. Draper's farm are no-till, even the alfalfa stands. The soils on this farm are quite variable and productivity from year to year is inconsistent. The soil, which developed under forest vegetation, has an organic matter range between one and two percent. Anything higher than this Mr. Draper refers to as a "high yield environment." When Mr. Draper started looking into cover crops, his intent was to increase organic matter and tilth in his forest soils above what his crop rotation and manure from his dairy herd were providing. After he sold his dairy cows, he set his focus on improving consistency among his fields and decided cover crops were the answer.

Cover crop management

The cover crops used on Mr. Draper's farm include red ryegrass and annual ryegrass, alsike clover, cereal rye, forage peas, oats, spelts, triticale and wheat. In December, he broadcasts wheat, rye, or ryegrass onto his corn stubble to provide a snow seeding to get some extra spring growth before soybeans are planted. The reason for broadcasting is that his harvests have been later in the year and it is difficult to get much growth before dormancy. In 2009, Mr. Draper wants to try an aerial application of cover crop seed while the beans are still standing which will allow earlier establishment and therefore a better stand of cover crops. He hopes that getting his cover crops in earlier will help provide a more substantial amount of nitrogen for his corn the following year. After grain harvest, Mr. Draper runs a six row Buffalo chopper; which is similar to a roller crimper and is used to speed up residue decomposition. In the future, Mr. Draper would like to incorporate some sort of spreader on the front of his tractor to get his cover crop seed planted all in one pass while he is running the chopper.

Individuality and innovation

Joe Draper loves what he does and the individuality of everyone in the agricultural profession. He believes that every farmer must find and do what is best for their own operation. It is important for farmers to be open to new suggestions and practices that will help their farms to become more efficient and help guarantee a bright future for agriculture in America. Mr. Draper hopes that working for The Nature Conservancy helps his operation to remain more open to new ideas and practices than most other farms. Mr. Draper admits that he does not run the biggest

farm but it is his personal goal to "maximize the efficiency and production for ourselves and our tenants and strive for excellence in leading the farm community."

Sources

Personal communication with Joe Draper by email

Profile written by Justin Jones

Jim Kratz
Caro, Michigan



Summary of operation

300 acres of corn, soybeans, wheat and hay

Oilseed radish, crimson clover, cereal rye, Austrian winter peas and soybeans have been used as cover crops

Background

After a brief stint at West Point military academy, Jim Kratz moved back to his hometown of Caro, Michigan, where he has lived nearly all of his forty-six years. He gained experience assisting a cash crop farmer fifteen miles away. Soon after he began his own farming operation acquiring forty acres and some small equipment from his father-in-law. Taking advantage of the inexpensive land prices in the early eighties, Mr. Kratz put together about three hundred acres of owned and rented property in the "thumb" of Michigan. Cash crops raised on his farm include corn, soybeans, wheat, and hay. Three hundred acres is not enough to keep him busy full time, "but enough to build a little equity and make a few bucks in a good year".

Mr. Kratz has worked for the Tuscola County Conservation District for twenty years. He is currently the administrator. A few of his responsibilities include overseeing the district drill program and the Conservation Reserve Enhancement program. He notes major changes within the District over the years, “When I started working at the District we had one fifteen foot John Deere no-till drill. Currently we rent out one fifteen foot drill for smaller customers and three thirty foot no-till air seeders with 8130 MFWD tractors to pull them along. Economics have forced some of the change, plus equipment has gotten a lot better and guys are more comfortable handling residue than they used to be.” The conservation district is where Mr. Kratz’s interest in no-till and cover cropping practices originated.

Mr. Kratz has been implementing ideas and new perspectives cultured at the National No-till convention, which he attends each year. “The moldboard plow pretty much ruled the area up until about ten years ago or so,” said Kratz. His northern clay soils have been “one hundred percent no-till” for the past ten to fifteen years.

Experiences With Cover Crops

Mr. Kratz has planted a wide variety of cover crops including oilseed radish, crimson clover, cereal rye, Austrian winter peas, soybeans, and hairy vetch. Currently he spreads cereal rye at the rate of a bushel to the acre on corn stubble, along with 150 to 200 pounds of potash. Last August the rye was applied via airplane with reasonable success. He then plants into the standing rye depending on the spring and then sprays the field with glyphosate to kill off the cereal rye. He has had good luck spraying with Extreme (Roundup & Pursuit) right after planting conventional beans, which was his total herbicide program for last year. This spring he plans on spraying the field early with 2 4-D, to reduce perennial broadleaves before planting dry beans later that spring.

After wheat and preceding corn he generally plants peas, clover, vetch, or soybeans. These crops provide natural nitrogen fixation. Mr. Kratz has measured anywhere from 50 to 150 pounds of nitrogen at corn side dress. Mr. Kratz said, “the problem that we’ve had is the more biomass we produce the more difficulty we have with slugs and disease in the spring.” He thinks biomass may not be as significant of a problem in other parts of the country. “The cold clay soils of Michigan take a while to warm up.” Mr. Kratz believes efficiently maintaining and improving soil quality is linked to increased microbial activity, which is a direct result of cover crops usage and effective conservation tillage practices.

Sources

Personal communication with Jim Kratz by e mail (12/01/08)

Profile written by Dustin Kurfman

Pat M. Sheridan
Fairgrove, Michigan

Summary of operation

1800 acres of corn, soybeans, wheat, sugar beets

Aroostock rye and Colonel oilseed radish as cover crops.

100% no-till since 1990

Background

Pat M. Sheridan started driving a tractor at the age of 8. He was farming full time by the age of 22. Mr. Sheridan went to Michigan State and completed a two year Ag Tech degree in Soil and Chemical technology. Mr. Sheridan and his father now run Sheridan Farms LTD. They have 3 part time employees that help them depending on the time of year. Mr. Sheridan is mainly in charge of marketing, input purchases, chemical and fertilizer needs, and he also operates the planter. He is currently the president of the corporation. His goal is to increase the net worth of the corporation. Mr. Sheridan uses a 3 coulter system only. He has 3 coulters on a cart, and the planter is hooked up behind the cart, which makes it a one pass system. The farm has 12 different soil types, 80% being clay loam. The farm is pretty level with poorly drained lakebed soils that are systematically tilled, 30 ft. to 60 ft. spacings.

Cover cropping practices

When Mr. Sheridan came back to the farm from college the OM on a lot of the property was under 1%. He says that he looks for a cover crop to do multiple things for the farm. He uses cover crops to enhance erosion control, especially wind erosion. Cover crops also increase residue levels; they enhance weed control, reduce compaction and crusting, aid in moisture management, and capture and produce nutrients. Mr. Sheridan says cover crops can also serve as a rotational aid. He says that if he wants to plant a broadleaf cash crop after a broadleaf cash crop he tries to fool Mother Nature by putting in a grass cover in between broadleaf cash crops. He has found that this does not work for corn. Mr. Sheridan says that “planting corn into grass has been a train wreck for us, especially after wheat”. Another good reason for planting cover crops is that it “creates a positive environment for good bugs and micro bugs, leaving the bad bugs out.”

Cover crop management

Mr. Sheridan says that the easiest way to plant a cover crop is by air. The rotations (planting a grass cover crop between two broadleaf cash crops) are short and that just seems to be the easiest and most cost effective. Another reason for seeding by air is that you do not have to wait for the crops to come out to plant your cover crop. If fertilizer is needed, then a cover crop may be mixed in while applying the fertilizer. Pat says that this works very well with potash and cereal rye. Broadleaf cash crops are almost always planted into living cover crops that are sprayed with glyphosate after planting. Grass cash crops are NEVER planted into anything that is green or

living. Cover crop choice is often decided by the weather. If it is a wet year, they will plant a cover crop that takes up a lot of moisture to dry out the soil such as cereal rye. If it becomes dry before planting season, the cereal rye will be killed off earlier so the ground moisture is saved. Cereal rye also helps alleviate topsoil compaction because of the large amounts of fibrous roots. It also helps control weeds such as redroot pigweed and lambs quarter, but it is not consistent in controlling foxtail. Another reason for planting Aroostock cereal rye is that it is much easier to kill than wheat and annual ryegrass.

Oilseed radish is also commonly used on the Sheridan farm. The advantage of oilseed radish is that it has a great ability to alleviate deep compaction. It is also a very good nitrogen scavenger. Two varieties of oilseed radish control sugar beet cyst nematodes as well. Oilseed radish kills off in the winter and does not have to be controlled by spraying. The only downside to radish is that the seed costs \$30/ acre to plant.

25 years and still making improvements

Over the years, Mr. Sheridan has found many advantages of cover cropping. He is becoming more successful with more experience. Mr. Sheridan has seen less white-mold in his soybeans. Even on years when his neighboring farmers are having huge problems with white mold, Mr. Sheridan's beans often show no signs of the disease. Mr. Sheridan has been able to grow more corn with less nitrogen, lower his disease problems, and raise his organic matter with cover crops.

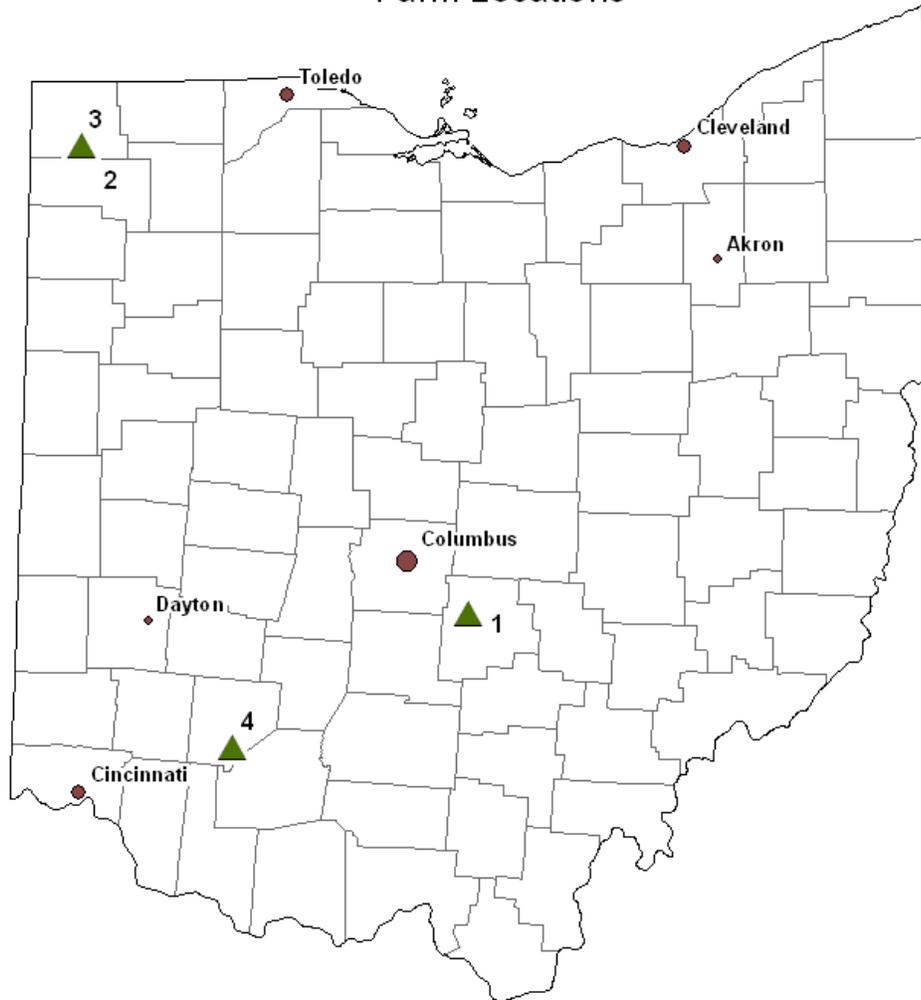
Sources:

Personal communication by email with Pat M. Sheridan
Managing Cover Crops Profitability book

Profile written by Dustin Roskamp

Ohio Cover Crop Innovators

Farm Locations



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



Source: IIRAGIS Specialist
Data Current: 2008



David Brandt
Carroll, Ohio

Summary of operation

900 acres of continuous no-till corn, soybeans and wheat

Hairy vetch, oilseed radish, cereal rye and Austrian winter peas as cover crops

Background

David Brandt studied agriculture in college for 2 years before joining the Marines. He returned to the farm in 1967 and adopted no-till in 1971. On his 900 acre farm he uses a corn / soybean / wheat rotation (300 acres each). He takes tissue samples of his corn plants when they reach between 18 and 24 inches tall and sends those samples to a lab to evaluate the amount of N that is needed by the plant. He usually sidedresses an extra 20 – 30 pounds of nitrogen. He applies the N directly into the rows of the corn so that it is readily available. He is currently the president of the Ohio No-till Council. The council consists of 14 farmers that meet 4-5 times annually and also holds a field day on different farms every August. They also hold a banquet in December which 200 people attended this year where they discuss new ideas and fertilizer usage.

Cover crop management

In the 1970's, Mr. Brandt planted cereal rye and sweet clover as cover crops. In 1978, he switched began planting Austrian winter peas, hairy vetch, and subterranean clovers to help loosen his soils. He is currently using hairy vetch on his upland slopes (some slopes reaching 20%) to prevent soil erosion. By using hairy vetch, he has been able to reduce soil loss to half a ton per acre as compared to the previous average rate of 20 tons per acre per year. The hairy vetch also helps to loosen the top 4-5 inches of the soil and supplies the top 3 inches with organic matter, which prevents crusting. He also uses Austrian winter peas and oilseed radishes. By using the oilseed radishes there is absolutely no need for tillage and or ripping. The radishes do the job on their own by growing to 18 – 22 inches deep and 2.5 – 3 inches in diameter. The radishes also help greatly with water percolation; this is a big benefit because water moves across no-till ground much faster. But that is not the only benefit he receives from using this combination of cover crops. With this combination, he is able to retain 250 pounds of nitrogen, 23 pounds of phosphorus and 29 pounds of potash. He uses cereal rye on poorly tiled areas to help with moisture problems which allows him to plant beans earlier. By using his cover cropping rotations, he has been able to reduce his fertilizer rates by ~20%. The cereal rye also helps to control problem weeds by suppressing winter annuals which equals clean fields come spring and planting time. His legumes also help to control weeds by suppressing broadleaf weeds. By using the rye and legumes he has been able to cut out all residual herbicides from his farming operation and has cut chemical costs by 50%.

Cover crops and earthworms

Mr. Brandt has observed that hairy vetch and winter peas are a great food source for earthworms and that earthworms multiply 4X faster with the use of these cover crops. The radishes also assist in providing earthworms with an ideal habitat by loosening the soil. Earthworms also assist in nutrient availability. Earthworms deposit casts above the soil to help prevent their holes from closing up when the ground freezes. Each cast is between 2-3 inches tall and contain both phosphorus and calcium from the subsoil. These casts also help to reduce compaction. David said that in areas this year there was not any tracks from the combine in the field, because the combine was riding on the earthworm casts.

Cover crop establishment

Mr. Brandt's standard seeding rates and costs per acre for cover crops are as follows:

Hairy vetch - 12 lbs (\$24) / acre

Austrian winter pea - 30 lbs (\$18) / acre

Cereal rye – 35-40 lbs / acre

All cover crops are drilled or planted (normally on 15" rows).

Transition to no-till and or cover crops

Mr. Brandt feels that the biggest reason most farmers are hesitant to convert to either a continuous no-till program and/or a cover crops is fairly simple. He says he thinks most farmers like big equipment that makes lots of noise, both in the field and the neighbors talking. Most would rather sit in a tractor tilling, spraying, or applying inputs rather than spending the time walking through their fields scouting and setting up a management plan for the crops each year. His biggest tractor is 150 hp that is only used to pull his two 650 bushel grain carts to the edge of the field to be unloaded into semis.

Cover crop challenges

When Mr. Brandt first began planting cereal rye as a cover crop, army worms would thrive on the rye and when he followed the rye with corn the army worms would cause considerable damage. That problem has been resolved and he currently has no problems with army worms. His other concern is an ongoing battle for him. In the spring, heavy rains sometimes create erosion rills on steeply sloping land (even with cover crops!). Mr. Brandt does not want to use tillage to level the ground. He has experimented with different ways of correcting this and is currently planting higher populations of both rye and wheat in these areas. He is looking for more suggestions and ideas.

Sources

Personal communication with David Brandt by phone (12/2008)

Profile written by Dillon Darbyshire

**Allen Dean
Bryan, OH**

Summary of operation

2300 acres of wheat and soybeans

Annual ryegrass, cereal rye and oilseed radish as cover crops

Background

Allen Dean did not grow up on a farm; however, he worked on farms all through high school and college. One farmer that he worked for didn't have any children. When this farmer decided it was time to retire, Mr. Dean took over the operation. He is now fifty-five.

Mr. Dean is the sole owner of the operation but his younger brother joined him in the spring of 2007. Together they farm about 2300 acres. Approximately a third of their ground is in wheat and the rest is in soybeans each year. Most of their ground (~80%) has living cover (wheat or a winter cover crop such as annual ryegrass, cereal rye, or oilseed radish) every winter.

The Deans' standard practices for fertilizing for wheat consist of a fall application of a granular fertilizer and spring applications of nitrogen which are split applied when the crop is in need. Spring nitrogen is applied with stream jet bars. Fertilizer for soybeans is a simple application just before spring planting. The Deans use variable rate fertilizing and base application rates on yield maps, soil types and soil tests. The Deans have also been using biosolids to supply nitrogen and phosphorus. The biosolids are a 98% dry pellet product from a waste water treatment plant. Using biosolids as a fertilizer has many advantages including low cost, especially with the rising cost of all fertilizers.

Cover crop interest and information

Mr. Dean has been interested in cover crops since the early 1980s, but has increased his interest and use of cover crops over the last six years. The Deans obtain information on cover crops from several sources - "we have learned a lot from attending the National No-till Conference, talking to other farmers with years of experience with cover crops, reading magazines, and searching the internet."

Why Cover Crops?

Mr. Dean started using cover crops for a variety of reasons. He is concerned about nutrients running off his fields into Lake Erie and the Gulf of Mexico. He is also concerned about soil erosion. The Deans plant a large amount of soybeans and hope that rotation into cover crops will increase soil organic matter and improve water and oxygen infiltration.

Cover crop establishment

The Deans drill annual ryegrass and the oilseed radish into some of their wheat stubble but use cover crops on all of their soybean ground. They have been using annual ryegrass for four years and are in their second year of using oil seed radish.

Annual rye grass is interseeded into standing soybeans around September first. The goal is to get it planted before leaf drop. They have been able to get better results from drilling than aerial seeding, so they are eager to develop a self-propelled air seeder that will allow them to interseed anytime they feel is appropriate.

Solving cover crop problems

The Deans have used aerial seeding by both helicopter and airplane. Both methods are very efficient; however, there are several problems. Effective aerial seeding requires good weather conditions - a good amount of moisture is needed to achieve a good stand. They have observed that drilling accomplishes a much fuller stand. One possible solution to this problem that Mr. Dean has begun to work on is a 90 foot air seeder. This seeder will travel along tramlines and can be used at any time when the soil conditions are right. This innovation takes out the variable of the helicopter/airplane. Mr. Dean has experimented with other cover crops, such as clover and hairy vetch, but has found that he prefers annual ryegrass because it provides cover all through the winter and into spring until planting. He also likes oil seed radish because of the fact that it grows roots 8-12 inches long. This is very important to Mr. Dean because the large roots bio-till the soil allowing for excellent water and air movement. Mr. Dean commented that ryegrass can be interseeded too early. If the stand of annual rye grass grows too much before soybean harvest, it can severely interfere with harvest. So, it is important to be able to make a good prediction of the rest of the season and plant the cover crop at the right time.

Effects on soil

The Deans have dug soil pits in the spring and found annual ryegrass roots as deep as 48 inches. Mr. Dean believes that the ryegrass roots that move deep into the soil create pathways for production crop roots. This helps the production crops reach moisture and nutrients that are deep in the soil. The Deans have had substantial plant growth in extreme drought conditions that they attribute to deep rooting. Mr. Dean believes "the key to yield is.....moisture and nutrients!" and the ability to reach deep for these resources is imperative. Annual rye grass also has a solid root mass within the first six to eight inches which prevents erosion.

Sources

Personal communication with Allen Dean

Profile written by Blake Flickinger

Joe Nester
Bryan, Ohio

Summary of operation

Nester Ag Management
300,000 acres

Background

Joe Nester may not look like an innovator, but that is exactly what he is. The 51 year old Bryan, OH resident is much more than your run-of-the-mill farmer. Mr. Nester owns and operates Nester Ag Management, a consulting company. He and three agronomists manage 300,000 acres. Mr. Nester has been involved in agricultural management for 31 years, managing a large fertilizer business until 1993 when he started Nester Ag. In addition to this, Mr. Nester is a past president of the Ohio Association of Independent Crop Consultants, past Board Chairman of the Ohio Certified Crop Advisers and a director of Brookside Laboratories, Inc. He has also received the National No-till Consultant Award from *No-Till Farmer* magazine, as well as the Ohio No-till Innovator Award from the Ohio No-Till Council.

Experience with cover crops

Despite all these achievements, Mr. Nester is very matter – a – fact about cover crops. When asked what led him to use cover crops, he stated, “I saw the erosion that takes place on bare soil, and am very interested in water quality and responsible nutrient management.” When asked about his experience with cover crops and what he prefers, Mr. Nester said, “we just inter-seeded 14,000 acres of corn and soybeans with annual ryegrass.” They used a helicopter service out of Minnesota to seed the acreage. The annual ryegrass cost them \$0.65 a pound and they put on twenty pounds per acre. The helicopter cost was \$10 an acre. Mr. Nester said that they also used annual ryegrass a year ago; seeding with drills after double crop wheat and soybeans, but the planting date was too late.

Mr. Nester also stated that their experience with cover crops is limited but he thinks the idea is really taking off. The idea is to use another crop to reduce erosion over the winter and keep soil from losing nutrients as well as helping with timely no-till planting in the spring. Mr. Nester particularly liked the results of drilling of annual rye grass after wheat is harvested. He said in the spring he has observed roots 36” deep in mid-April with ryegrass that was seeded around September 1. He also said they killed the ryegrass with glyphosate about April 15th. This allowed for a timely seeding of all summer crops.

Cover crop information

Mr. Nester keeps current with new information about cover crops by reading magazines, attending conferences, and of course talking with other consultants. He has also been involved

with on-farm research for their own information, however they are currently involved with a couple of nitrogen research projects. Mr. Nester says cover crops are not included in these projects as of right now, but in the future, they plan on incorporating them into that research.

Cover crop challenges

When asked about cover crop challenges in the Midwest, Mr. Nester stated that he thought that timely seeding was the biggest challenge that had to be overcome. In addition, he thinks we just needed a lot more experience with cover crops in order to be able to really answer the questions that farmers have. As of right now, Mr. Nester and his operation have not had a cover crop disaster, however he stated, “we have been very dry since the helicopter seeding three weeks ago, so we are off to a slow start this fall.”

Expanding the use of cover crops

Mr. Nester has a few ideas of how to increase the use of cover crops in the Midwest. He thinks that the creation of an in-crop high clearance air seeder would help to increase the use of cover crops. He says “this would allow ground seeding in-crop before the leaves drop.” He says a Hagie or Nitro would work well, or any farmer that owned a high clearance sprayer could retrofit an air seeder to their machine.

Mr. Nester thinks that cover crops are even more important for farmers now than they were before the run up in input costs. He explained that the reason he views them as important is because they keep your nutrients in place throughout the winter, making cover crops more economical than ever.

Sources

Personal communication by email on 10/14/08 and 12/3/08

Nester Ag Website www.nesterag.com

Profile written by Valerie St. Germain

Ed Winkle
Martinsville, Ohio

Summary of operation

1,500 acres of no-till corn

1,500 acres of no-till beans

200 acres of no-till wheat

Annual ryegrass, cereal rye, crimson clover, hairy vetch, wheat, oats and forage radish have been used as cover crops.

Background

Ed Winkle is 58 years old and lives in southwest Ohio with his wife Luann. He has a Bachelors of Science and Masters degree in Agriculture from The Ohio State University. He and his wife raise corn and soybeans as partners in Cochran Farms. This is a farm-consulting partnership that provides professional farm services to farm operations throughout the U.S. Mr. Winkle manages 3,000 acres in the partnership and 100,000 acres of consulting. He is a Certified Crop Advisor and is the owner of HyMark Consulting LLC, established in 1994. They recently completed a three-year contract to provide water quality education to farmers and landowners in the Upper Little Miami and Caesar Creek watersheds.

Mr. Winkle was named National No-Till Innovative Consultant at the 2000 National No-Till Conference. He has made many presentations at agricultural conferences including the National No-Till Conference (6 presentations!), the Innovative Farmers of Ontario, the Pennsylvania Corn Growers, and many other professional workshops. He spent 31 years as an agricultural educator at the high school level and with Ohio State University Extension.

Cover crop experience

Mr. Winkle became interested in cover crops because he wanted to find a way to keep soil covered in growing plants at all times. He believes this benefits soil biological activity including biological control of pests and pathogens. He has tried the following cover crops: annual ryegrass, cereal rye, wheat, oats, crimson clover and hairy vetch on thousands of acres and forage radishes on hundreds of acres. He has also observed that winter annual weeds sometimes grow much better crops than cover crops!

Mr. Winkle has found that both annual ryegrass and forage radish drilled at 10 pounds per acre have worked well for him. He uses aerial seeding when needed and sometimes doubles (or even more) the seeding rate.

Cover crop information

Mr. Winkle has obtained information about cover crop practices from farm visits, the internet, professors, and the National No-Till Conference. He received valuable information from all of these sources and is still learning more about cover crops and their practices. He did his homework before” jumping into the final exam”.

Cover crop collaboration

Mr. Winkle has been involved in some cover crop research. He has worked with many farmers as well as Ohio State, Wilmington College, Advanced Biological Management out of Van Wert, Ohio, Bird Hybrids in Tiffin, Ohio, Cedar Meadow Farm in Holtwood, Pennsylvania and others. These interactions have helped him to evaluate his own and others' cover cropping practices.

Mr. Winkle's biggest question regarding cover crops that he is still hoping to answer is, "Why does forage radish increase no-till corn yields so much?"

Cover crop benefits

Mr. Winkle has noted a variety of benefits of cover crops including fertilizer scavenging, reduced weed pressure and increased crop yields in addition to the increased biological activity and biological control discussed above. Overall, soybeans have increased ~ 10 bushels after a grass cover crop and corn yields have increased as much as 40 bushel after forage radishes.

Economic impact

Recent fluctuations in grain and input prices have affected farmers in many ways including cover cropping. Mr. Winkle says, "the increase in input prices makes me want to do more to cut herbicide and fertilizer and increase the impact of IPM." He has already begun cutting back. He keeps cutting back on fertilizer inputs as the soil improves with the use of cover crops. He is down to down to 125 N on corn (0.5 to .6 lb N per bushel produced). This has helped him greatly with costs.

Expansion of cover crops?

Cover crops are not a big part of the Midwest just yet. Mr. Winkle believes this is because farmers do not understand and do not want to take the time to understand them. There is a great deal of time in learning about and establishing cover crops. He also believes laziness is another roadblock. He believes that there are ways to increase the use of cover crops in the Midwest. Use of the internet and email lists are some of the simpler ways. He also believes field days could help as well as speaking with other farmers that use cover crops.

Ryegrass:



Radish:



Broadcasting radishes with pellet lime and low rate fertilizer:



90 bu wheat, 50 bu double crop soybeans, drilling annual ryegrass into the stubble:



Sources

Personal communication with Ed Winkle through email (11/10/2008 and 11/17/2008)

<http://www.agriculture.com/ag/story.jhtml?storyid=/templatedata/ag/story/data/1206383311276.xml>

Profile written by Drew Webel

