The Numbers Don't Lie: Cover Crops Could Be the Answer to Our Problems

By: Woody Woodruff

We as a society base a lot of our decisions on the numbers that support whether to adopt or reject our choices in life. When it comes to using cover crops in our cropping systems the numbers are growing. The largest number to support the adoption of cover crops is 5,840 square miles. That number is the area in the Gulf of Mexico where shrimp and fish can't live because the oxygen level is less than 2 parts per million. But why is the oxygen level so low? What's happening is that excess nutrients in the form of nitrogen and phosphorus wash off of fields and enter the Gulf via the Mississippi River, which leads to hypoxia. Hypoxia occurs as a result of nutrient overload in the waters stimulating the excess growth of algae and phytoplankton. So much phytoplankton is produced that it can't all be consumed, and it sinks to the bottom where bacteria decompose the remains and deplete the oxygen. This imbalance in the aquatic ecosystem now forms a "Dead Zone." If you need oxygen to live and it's no longer there, you suffocate and die, hence the name. The solution to the Dead Zone flows right back up the Mississippi River.
Hypoxia in the Gulf

How can we reduce the runoff of excess nutrients and still produce enough food? The numbers that support cover crops might play a significant role in that reduction.

- Many fall planted cover crops reduce nitrogen loss by up to 60%.
- A late summer drilled radish with a grass cover crop can take up 120 pounds of nitrogen, preventing it from leaching, and hold on to it until spring.
- A well-established annual rye grass can recapture up to 100 pounds of nitrogen after a corn harvest.
- Not only will crimson clover produce somewhere between 70 and 140 units of nitrogen, (with approximately ½ of that being available for the next crop), the rest is being used to build new organic matter.
- A 1% increase in soil organic matter can increase the water holding capacity by over 26,000 gallons per acre.
- Phosphorus loss is closely related to soil erosion moving off the field. Using cover crops with no-till will cut soil erosion by 90% compared to conventional tillage without cover crops.
- Fall cover crop establishment alone will reduce phosphorus loss by up to 60%.
- To put that reduction of phosphorus run-off into perspective, 1 pound of phosphorus can create 500 pounds of algae.
- Cover crops increase nutrient uptake 10% over conventional cropping systems alone.
There are many other benefits of cover crops as well, such as weed suppression and being a livestock feed source. You don’t have to start cover crops with a high management cover crop mix. Oats and radish broadcasted into standing corn or soybeans just before harvest or planted similar to a wheat crop would be a great start with no termination needed in the spring. However, more advanced cover crop mixes will add more conservation cropping benefits in your long-term farming operation. Adding wheat to your crop rotation opens another window of cover crop benefits. To maximize these benefits you need to think no-till or strip-till to reap all the potential that good soil health has to offer. The numbers that support the adaptation of cover crops might just be the best chance for the resurrection of the Gulf of Mexico’s Dead Zone, and in preserving our own soils close to home.

**Happy Hour!**

Illinois Stewardship Alliance is celebrating the kickoff of the Old Capitol Farmers' Market in Springfield and our Annual Membership Drive in the best way we know how, with good food, good friends, and good times. Come join us!
Summer Shindig: Save the Date

Illinois Stewardship Alliance is throwing you a party. Yep, just for you! As a thank you to all of our current members for your dedicated support throughout the year, ISA will be hosting a Summer Shindig at Danenberger Family Vineyards. With free food, music, local libations, and of course, excellent company, what's not to love? Mark your calendars because this will be one event you won't want to miss. Not an ISA member, but you don't want to miss out on the fun? Membership starts at just $15. Join Today!
I was recently at a cover crop workshop at Palestine hosted by the Crawford County Soil & Water District. After attending eighteen previous cover crop workshops, I went into this one thinking it would be something like the ones I had already attended. It started off like a lot of other workshops. Most had a Soil Scientist explaining the importance of how soil health leads to crop health which equals higher yields. After this speaker, we had Mike Plumer from the Council on Best Management Practices speaking on cover crops. I had seen Mike present on cover crops before as a lot of farmers have. If you don't know Mike Plumer, he has been working with cover crops for about 30 years. Most of Mike's career, he worked for the University of Illinois Extension Service. But due to the popularity of cover crops with conservation conscious farmers; he is busier now than he has ever been. I myself have seen Mike speak some seven or eight times before. Every time I see him though, he always has a different area of cover crops to expand on. This time was different. After speaking for almost an hour and forty minutes he didn't even get to the topic of cover crops.
The Crawford Mandate

You could tell from the tone in his voice that something had him rattled. He started by asking the crowd if they had a topic they wanted to hear about. The person sitting next to me raised his hand and said that he had heard that Mike had just returned from Washington DC and visited the Maryland Department of Agriculture along with a small group of Illinois corn growers. He asked Mike to explain what he had learned from the trip. The answer went on for the next hour and forty minutes. And if lunch hadn't smelled so good and the clock hadn't been approaching 1:00 p.m., people would have continued asking questions. You see, the purpose of the trip to Maryland was to show Illinois farmers what it is like to farm under a nutrient management mandate for crop and livestock production.

For the states that flow into the Chesapeake Bay, all farming operations have to write a nutrient management plan on their operations and cannot vary from the amounts specified in that plan. When one state chose not to comply, the EPA ended up mandating all the rules of compliance and made farm operators change fertilizer, and even had some livestock operations moved. As the Mississippi River faces a similar nutrient pollution problem, with little to no signs of decrease in recent years, Washington sent Mike and the other corn grower delegates to Maryland to witness the changes that were being made in nutrient management. According to Mike, the federal government expects Illinois and surrounding farmers to reduce nitrogen and phosphorous run-off by 45% within the next couple of years or EPA will mandate the same regulations that are in the Chesapeake Bay in Maryland. Mike said that the Council on Best Management Practices and other organizations are working hard to find ways to control the flow of nutrients to the Mississippi.

What should we do from this day forward? It is not going to be easy, and farmers must do their part to prevent nutrient run-off. Try not to over apply sources of nutrients in a hope that enough stays on site. The time of year that you apply your nutrients is going to have the biggest impact. For many of you, fall applying most of your nutrients is important for getting the crop planted in the spring. Know that in Maryland, these fall applications of nutrients are being restricted. If you feel you can't eliminate fall application, try to split the application, and apply most of it in the spring, or as the corn takes off. There is less of a chance of loss if something is there to take up the nutrients. And that is why cover crops are a great solution as well. Cover crops can hold and carry over those fall applied nutrients. A good cover crop mix applied early enough in the fall can easily reduce 50% of the phosphorous loss and 60% of the nitrogen loss. Those in the fertilizer application business have a big role in this as well. I suggest you call a fertilizer company in Maryland and see what effect a mandated nutrient management system has had on them. I see these next few years as a critical in...
the effort to stop this mandate from happening in Illinois. We need to reduce the flow of nitrogen and phosphorous from leaving our fields as soon as possible. But the only way we can ever succeed is if we all succeed together.

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Life on Woody’s Stewardship Farm: Prairie Burn

*By: Woody Woodruff*

A prairie fire is key to the cleansing of a prairie ecosystem. It chokes out the unwanted weeds, shrubs and trees that if not managed can, over time, snuff out a prairie. In a prairie restoration project you will end up with a bunch of unwanted weeds, such as ragweed or jimsonweed, unless you burn it each year for several years in a row. In fact, the first few years of a new prairie restoration project usually look like chaos has invaded the field.

*Prairie Fire*

My experience in prairie restoration started on this farm about 25 years ago. I had signed up some 50 acres in the Conservation Reserve Program (CRP) provided by the Natural Resource Conservation Service (NRCS). Farming most of those 50 acres was like trying to farm a jig saw puzzle as the field followed the timber line in a roller coaster like pattern. The whole field also drained into my favorite fishing pond. Because this field was marginal ground to farm and I wanted to protect the pond, I decided that finding a conservation program would be the best bet, and the CRP program seemed like the perfect fit. NRCS helped me to establish this cropland into an endangered prairie ecosystem practice.

While researching how to restore an Illinois prairie, I found out the location of this prairie had been listed in Illinois Historic Prairies as Mud Prairie. Now my project had a name. In the first two years of the project, the field was extremely weedy. I am sure my neighbors were wondering what I was thinking. And there were times that I would have agreed with them. I had a total of five different...
types of warm season grasses and some 30 different types of flowering prairie forbs planted in Mud Prairie. I was determined to do whatever I needed to change this chaos of weedy landscape around. The most important management tool in the restoration of a prairie ecosystem is an annual prescribed burn, or "Prairie Fire." You might think that lighting a match and watching the dry grass burn should be easy. Trust me when I say that this kind of thinking will only get you into trouble.

The first few years of my prescribe burns seem to make my neighbor very nervous. I was always fighting fires that tried to escape the boundaries of the prairie fields. A match is the last thing you will need for the burn. The first tool you use is a mower. I mow around the prairie fields in the fall as low as I can go to get the dead grass off the boundary. A year or two of doing this will turn the grass boarder into the kind of grass you have in your yard, short and green early in the spring. You need to mow this strip from time to time to maintain it. This boarder became a great hiking and cross-country skiing trail for me. In the spring when it grows green to about two to three inches it helps to hold the fire inside its boarders.

The next thing you will need is some meteorological skills. I pay close attention to the forecasted wind speed, wind direction and moisture. It is harder to burn when there is no wind or too much wind. It’s best to burn into a slow steady one direction wind. Too wet and it does not burn well and to dry and it can burn too well, sometime even through the green boarders. Patience to wait for the right conditions can be hard to do sometimes. To me, the best time to burn is in the month of April. It gives a chance for the boarder protection strip to green up and a little ahead of nesting for the prairie birds. This year April has been cool and dry so conditions were not perfect but manageable.

The next thing you need is water. I do not want to have to put the fire out when it
gets to the prairie boarder but some conditions will require me to have to do so. This year's dry conditions required it to be necessary. A prairie can create its own weather during the burn. The tall grass in the prairie has the fuel to make extreme heat which creates extreme changes in the wind during the burn.

I carry water sprayers to spray out any escapes that make their way into the boarder or timber. Trust me when I tell you that a tanker plane would even have a hard time putting out a fire burning in a prairie.

My advice before lighting that first match is to first determine which way the wind is blowing. I start at the end of the prairie than makes the fire burn into the wind and not with the wind. This slows the fire down and makes it safer. Once that end of the field is burned out all the way across, you turn your attention to making sure the fire is dying at the green boarders along the sides of the prairie. Once the fire gets closer to the opposite end of the field, I start a fire at that end so I can slowly move across it making sure to put the fire out behind me as I go. Since the extreme heat of the prairie fire can create its own weather and change wind directions, you need to pay attention to these changes. I have a greenhouse and machine shed that boarder this prairie field. The best conditions would be for the wind to be heading away from these buildings. I plan on Murphy’s Law, whatever can go wrong will, so I keep a lot of water on hand to put out any beak-outs in the prairie boarders. More hands on deck is always a good thing, but additional helpers need to know what they are doing because it is extremely dangerous.

The fact is, you need to be a certified prescribed burn operator. Call your local NRCS/SWCD of DNR office if you are interested in finding a prescribed burn expert for your new prairie. Finally, know that once you light that first match there is no turning back.

Top 5 Reasons You Should "Root" For Soil Health

Here are the top five reasons NRCS says you should "root" for soil health:
5. A lot of people are coming to dinner. We all rely on the soil for our food and fiber. By the year 2050, an estimated 9 billion people will join us at Earth's dinner table, meaning we'll have to grow as much food in the next 40 years as we have in the past 500.

**The Soil Health Solution:** Improving soil health increases the productivity and function of our soil (including nutrient uptake to plants), which offers increased food security in a growing world.

4. There are fewer acres of land to grow the food we need. Globally, millions of acres of cropland are lost to development or resource degradation.

**The Soil Health Solution:** Improving soil health naturally can protect our working lands from erosion and desertification and ensure that our food-producing acres stay fertile and productive.

3. Weather extremes like drought and climate change pose increasing food production challenges.

**The Soil Health Solution:** Healthy soil is more resilient soil, with greater infiltration and water-holding capacity, which make farms more resistant to periods of drought. And since it holds more water, healthy soil helps reduce flooding during periods of intense rainfall.

2. There is growing competition for water and other food production resources - and many resources are limited (or in some cases finite) in their supply.

**The Soil Health Solution:** Healthy soils help optimize those inputs and maximize nutrient use efficiency. In addition, healthy soil keeps production inputs like fertilizers and pesticides on the land and out of our streams, lakes and oceans.

1. We can repair and rebuild it. For years, it was believed that a certain amount of cropland soil erosion was inevitable.

**The Soil Health Solution:** By using conservation techniques like cover crops, no-till and diverse crop rotations, an increasing number of farmers are proving that we can actually build our soils - and, in some instances, increase soil organic matter by as much as 3-4 percent. In the process, farmers are actually using less energy, maintaining or increasing production and improving their bottom lines. [Meet some of those farmers.](https://www.usda.gov)

Read more at the [USDA Blog](https://www.usda.gov).

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**Upcoming Events!**

**5/3 Prairie Fruits Farm and Creamery Brunch**
Brunch will be from 10:30 to 12:00. The main dish will be Eggs in Purgatory: eggs poached in organic, heirloom, Prairie Fruits Farm tomato sauce served with polenta cakes. Other menu items include: Pain Perdu, Virgin Bloody Marys, mushroom tart, locally-made breakfast sausage and a selection of breakfast pastries. [Learn More](https://www.prariefruitsfarm.org)

**5/2-5/4 Restoration Agriculture Workshop: Paw Paw**
Mark Shepard, author of Restoration Agriculture: Real-World Permaculture
forFarmers, will lead a Restoration Agriculture workshop at the Paw Paw Community Building in Paw Paw, IL, May 2nd-4th. He will introduce Restoration Agriculture, which is the practice of imitating natural ecosystems and growing our staple food crops within those systems. The entire workshop is free and open to the public. 
Learn More

5/5 Farm Dreams Workshop: Kankakee Public Library
Have you ever dreamed of starting your own farm business? Farm Dreams is an interactive workshop designed to help you learn what it takes to do just that. Participants meet experienced sustainable farmers, learn about different successful farm enterprises, and ask questions about the genesis and development of local sustainable farm businesses.
Learn More

5/10 Farmland Access Field Day: Heyworth
The Land Connection is partnering with the Central Illinois Sustainable Farming Network and Eric Marshall of Homestead Harvests to present a comprehensive Farmland Access Field Day on Saturday. Come learn about all aspects of farmland access from experts including a soil specialist, attorney, loan officer, and farm appraiser.
Learn More

5/10 Prairie Fruits Farm and Creamery Brunch
Brunch will be from 10:30 to 12:00. The menu will feature oat waffles with poached farm eggs and creole hollandaise sauce, maple glazed bacon, breakfast strata, carrot cardamom "pop tarts", virgin bloody marys and a selection of baked goodies.
Learn More

5/10 Illiac Music Festival: Champaign
What's it all about? It's real easy: this is a FREE, outdoor event that is designed to get people out on a Saturday to enjoy Downtown Urbana and all of its offerings. We'll supply the entertainment, the refreshments, and the sunshine, and you provide us with company. ISA will be tabling at this event, so stop by and see us!
Learn More

5/13 Farmland Transitions Roundtable: Champaign
The Land Connection's Roundtables are an easy way to start the important conversation about your farm's future. You will meet others in similar situations, and have a facilitated discussion about what you'd like to see happen with your farmland. We will do some goals clarification, succession self-assessment, and you will have the opportunity to get information and feedback about your farmland situation, and offer feedback to others.
Learn More

5/13 and 5/14 Water Quality 2014: Food and Water for the Future: Champaign
Water Quality 2014 is the third conference in the Water Quality series. With a focus on water use in agriculture, the conference will provide a forum for
academics, industry, policymakers and other stakeholders to discuss the key concerns and big challenges in future food and water security.

Learn More

5/14 JP Kelly's ISA Happy Hour: Springfield
ISA is celebrating the kickoff of the Old Capitol Farmers' Market and our Annual Membership Drive with Happy Hour at J.P. Kelly's. Come join us for live music, free local appetizers and treats, seasonal drinks specials, and a celebrity farmer bartender. Happy hour lasts from 4-7:00 p.m. and a portion of the proceeds will be donated to ISA. You won't want to miss it!

5/24-25 Introduction to Permaculture Workshop: Southern Illinois
This Introduction to Permaculture workshop highlights horticultural solutions to critical issues that farmers and landowners face, including soil improvement, maximizing landscape productivity and designing for healthy water management. Led by Wayne Weiseman, local author and international Permaculture consultant, the workshop blends hands-on learning with discussion, design projects, group exercises, games, and presentations

Learn More

6/2-6/23 Good Agricultural Practices Webinar Series
The U of I Extension will be hosting a Good Agricultural Practices Webinar Series every Monday from June 2- June 23, 2014 from 6:00 p.m. to 8:00 p.m. The webinar is designed to provide information to growers on how to keep produce safe from production to the market. Pre-registration along with $15 pre-payment is required by May 26, 2014.

Learn More

6/2 Farm Dreams Workshop: Danville
Have you ever dreamed of starting your own farm business? Farm Dreams is an interactive workshop designed to help you learn what it takes to do just that. Participants meet experienced sustainable farmers, learn about different successful farm enterprises, and ask questions about the genesis and development of local sustainable farm businesses.

Learn More

6/5 Foodie/Wine Trip: Springfield area
Join us on a guided tour to Sangamon Valley Cattle Company; Jubilee Farm, sponsored by the Dominican Sisters of Springfield; and Danenberger Family Vineyards. Following lunch, enjoy a short wine-blending experience and prepare a bottle to take home. Lunch included. Hosted by: Lindsay Record, Illinois Stewardship Alliance; Marnie Record, LLCC Workforce Development. Fee: $74. Register by 5/1/14. Course Code CEW 120-58A

Learn More

For a complete listing of upcoming events, please checkout our Events Calendar on the ISA website.

Have an event that should be included in our line-up? Email Molly at molly@ilstewards.org
Get Involved

Donate
ISA is a non-profit organization. Your donations help us to continue our work in promoting local foods, fair policies, and conservation agriculture.
Donate Now

Become a Member
Be part of an Alliance of consumers, farmers and other local food system stakeholders working to increase production and consumption of local foods in Illinois
Learn More

Spread the word!
When you send this email to a friend, like us on Facebook, follow us on Twitter, or connect with us on LinkedIn, you are helping to increase awareness about local food causes in your community. Be a part of the movement and spread the word!

Forward to a Friend

Illinois Stewardship Alliance | 217-528-1563 | woody@ilstewards.org | http://www.ilstewards.org
230 Broadway
Suite 200
Springfield, IL 62701

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