

Cover Crops for Nutrient Management

Progress and Potential

Joel Gruver
School of Agriculture
Western Illinois University


Direct effects of cover crops on nutrient cycling

- Uptake of nutrients that would otherwise be lost:
  - Leaching below crop root zone
  - losses in eroded soil or runoff
  - losses in gaseous form e.g., denitrification

- Translocate nutrients from below crop root zone e.g., from subsoil to near surface

- Fix N (legumes)

- Release nutrients later—<u>potentially</u> at the time needed by the next crop

Indirect effects of cover crops on nutrient cycling

- Increase overall soil biological activity accelerating cycling of nutrients contained in soil organic matter and soil minerals

- Increase populations of specific root symbionts (e.g. mycorrhiza)

- Create biopores enhancing air and water movement and root growth and function in subsequent crops

- Build soil organic matter at soil surface and throughout soil profile

How many of you attended this conference?

Cover crops for clean water

W. L. Hargrove, Editor

The proceedings of an international conference
West Tennessee Experiment Station
April 9-11, 1991
Jackson, Tennessee

SOIL AND WATER CONSERVATION SOCIETY

Published by the
Soil and Water Conservation Society

> 60 articles

SURFACE WATER IMPACTS

> 20 related to nutrient management

Effect of cover crops on surface water quality
A. N. Sharpley and S. J. Smith

Effect of cereal grain winter cover crops on surface water pollutant transport from Coastal Plain corn production systems
K. W. Staver and R. B. Brinsfield

Water quality impacts of winter rye cover with selected best management practices in Pennsylvania
J. M. Hamlett and K. Brannan

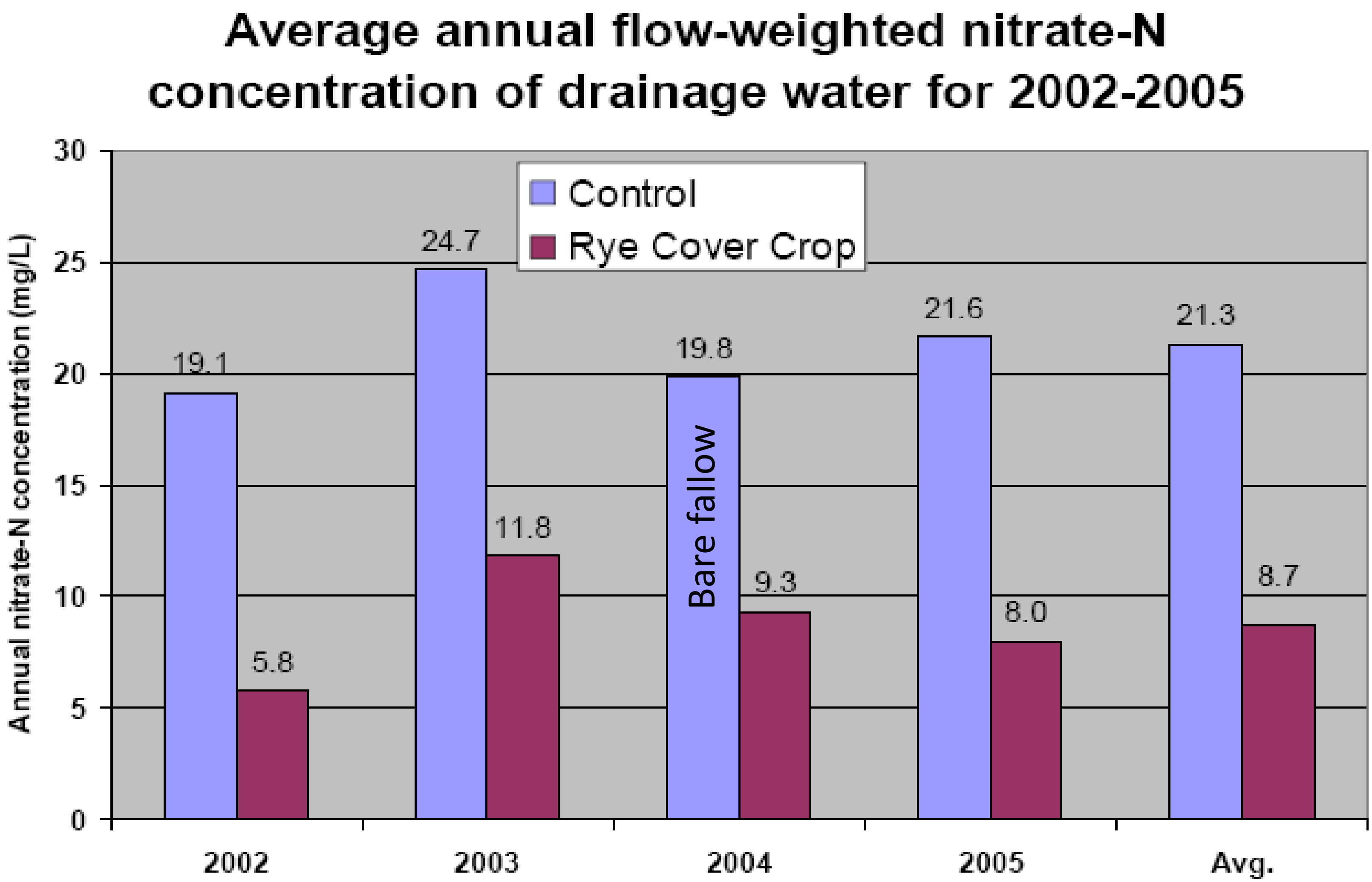
Soybean tillage and cover crop effects on water runoff and soil erosion
Monroe Rasnake

GROUNDWATER IMPACTS

NITROGEN CYCLING


It concerns me that many of the questions we ask about cover crops today were asked 20 years ago, but not pursued aggressively. Was it due to a lack of funding, a lack of grower interest, or was it part of a great conspiracy of some sort?
Terry Taylor - Geff, IL

Lots more evidence that **cover crops can reduce nitrate leaching**



Kaspar et al. J. Environ. Qual. 36:1503-1511

PNW 636 • November 2012 http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/34720/pnw636.pdf

ESTIMATING PLANT-AVAILABLE NITROGEN RELEASE FROM COVER CROPS

D.M. Sullivan and N.D. Andrews

HIGHLIGHTS

- Legume cover crops provide up to 100 lb PAN/a. To maximize PAN contribution from legumes, kill the cover crop at bud stage (early May).
- Cereal cover crops immobilize up to 50 lb PAN/a. To minimize PAN immobilization from cereals, kill the cover crop during the early stem elongation (jointing) growth stage (early April).
- Legume/cereal cover crop mixtures provide a wide range of PAN contributions, depending on legume content. When cover crop dry matter is 75 percent from cereals + 25 percent from legumes, PAN is usually near zero.
- A laboratory analysis for cover crop total N as a percentage in dry matter (DM) is a good predictor of a cover crop's capacity to release PAN for the summer crop.

Interesting new CC research at Illinois State University

Can Cover Crops Improve the Efficiency of Fall Applied Nitrogen within Conventional Midwestern Cropping Systems?

Corey Lacey
M.S. Candidate In Agriculture Sciences

Dr. Shalamar Armstrong
Assistant Professor of Soil Science and Agronomy

DEPARTMENT OF AGRICULTURE
Illinois State University

ELSEVIER

Agriculture, Ecosystems & Environment

Volume 134, Issues 1–2, November 2009, Pages 29–35

Cover crop effects on nitrous oxide emission from a manure-treated Mollisol

Marek K. Jarecki[a], Timothy B. Parkin[b], , Alvarus S.K. Chan[a], Thomas C. Kaspar[b], Thomas B. Moorman[b], Jeremy W. Singer[b], Brian J. Kerr[b], Jerry L. Hatfield[b], Raymond Jones[a]

Abstract

Agriculture contributes 40–60% of the total annual N_2O emissions to the atmosphere. Development of management practices to reduce these emissions would have a significant impact on greenhouse gas levels. Non-leguminous cover crops are efficient scavengers of
residual so ... ss cover crop
on N_2O em ... ed. This study
investigate ... vine manure
slurry in a ... ed the
potential of a rye (*Secale cereale* L.) cover crop to decrease N_2O emissions under these conditions; and (iii) quantified field N_2O emissions in response to either spring applied urea ammonium nitrate (UAN) or different rates of fall-applied liquid swine manure, in the presence or absence of a rye/oat winter cover crop.

These results indicate that while cover crops have the potential to reduce N_2O emissions,
N application rate may be the overriding factor.

doi:10.2134/agronj2010.0433

Spatial Modeling of Critical Planting Date for Winter Rye Cover Crop to Enhance Nutrient Recovery

Ali Farsad [*a], Timothy O. Randhir [b], Stephen J. Herbert [c] and Masoud Hashemi [d]

Author Affiliations

Abstract

Time of planting plays a critical role in nutrient recovery from soils by a winter rye (*Secale cereale* L.) cover crop. A delay in planting can significantly decrease cover crop performance. This study evaluated cover crop planting dates for different areas of Massachusetts using a spatial model based on growing degree days. Field studies were
conducted during … utrient recovery
of rye under vari… spatial model
identified the critic… based on field
studies combine… er stations. In
eastern areas of … tember. In this
region, there is ac… .) is harvested.
Critical planting d… rom the first to
second weeks o… ider alternative
management stra… ds to meet the
suggested cover … es (third–fourth
week of August) for northwest regions of Massachusetts (Zones 1 and 2) may not be practical because corn silage is usually not ready for harvest until mid-September. The model can be a powerful decision-making tool for researchers and farmers, not only for winter rye in Massachusetts, but it also can be adapted for use with other cover crop species and for use in other regions where cover crops are grown.

A spatial model identified the critical planting dates for all locations in MA based on field studies combined with long-term weather data collected from 14 weather stations.

Nitrogen Reduction Scenarios

	Practice/Scenario	Nitrate-N Reduction	Cost of N Reduction	Total Equal Annualized Cost
		% (from baseline)	($/lb)	(million $/yr)
Nitrogen Management	Baseline			
	Cover crops (rye) on ALL CS and CC acres	28	5.96	1,025
	Reducing nitrogen application rate from background to the MRTN 133 lb N/ac on CB and to 190 lb N/ac on CC (in MLRAs where rates are higher than this)	9	-0.58	-32
	Sidedress all spring applied N	4	0.00	0
	Using a nitrification inhibitor with all fall applied fertilizer	1	-1.53	-6
	Moving fall anhydrous fertilizer application to spring preplant	0.1	-74.36	-149

Target Load Reduction from NPS for Hypoxia Goal ~41%

Nitrogen Reduction Scenarios

	Practice/Scenario	Nitrate-N Reduction % (from baseline)	Cost of N Reduction ($/lb)	Total Equal Annualized Cost (million $/yr)
Edge-of-Field	Baseline			
	Installing wetlands to treat 45% of the ag acres	22	1.38	191
	Installing denitrification bioreactors on all tile drained acres	18	0.92	101
	Installing Buffers on all applicable lands	7	1.91	88
	Installing Controlled Drainage on all applicable acres	2	1.29	18

Target Load Reduction from NPS for Hypoxia Goal ~41%

MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK • EASTERN SHORE

Fact Sheet

Forage Radish:

New Multi-Purpose Cover Crop for the Mid-Atlantic

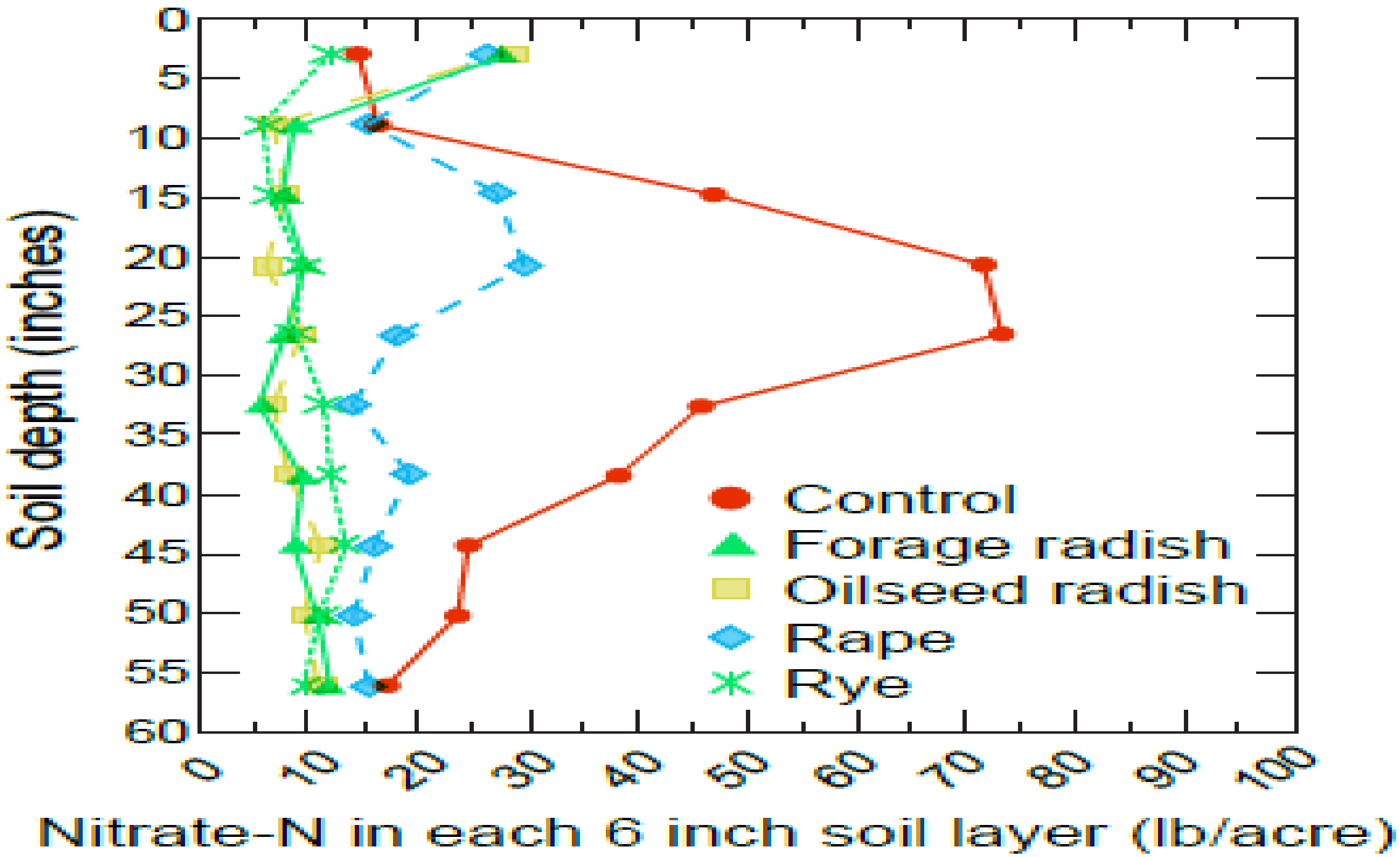
Forage radish (*Raphanus sativus* var. *niger*) is a unique fall/winter cover crop that is relatively new to the Mid-Atlantic region. It is a member of the *Brassica* family that also includes rapeseed, canola, mustard, cabbage, and the like. Forage radish is also known as 'Daikon' (sometimes spelled 'Dichon') radish or 'Japanese' radish and is used as a vegetable in many types of Asian cuisine. When planted by early September in the Mid-Atlantic region, forage radish exhibits a number of unique and desirable characteristics that distinguish it from other types of cover crops more commonly grown in the region.

('Daikon'). The precise classification of these and other types of radishes is not well established because they can easily cross-pollinate and therefore distinctions among subspecies are often blurred. Most of the traits and management recommendations described here for forage radish should also apply to oilseed radish.

Forage Radish Traits:

- **Rapid germination and growth.**
- **Large deeply penetrating tap root.**
- **Winter-kills.**
- **Quick to decompose residues.**
- **High nutrient (N, P, S, Ca, B) content.**
- **Bio-active plant chemicals (glucosinolates).**

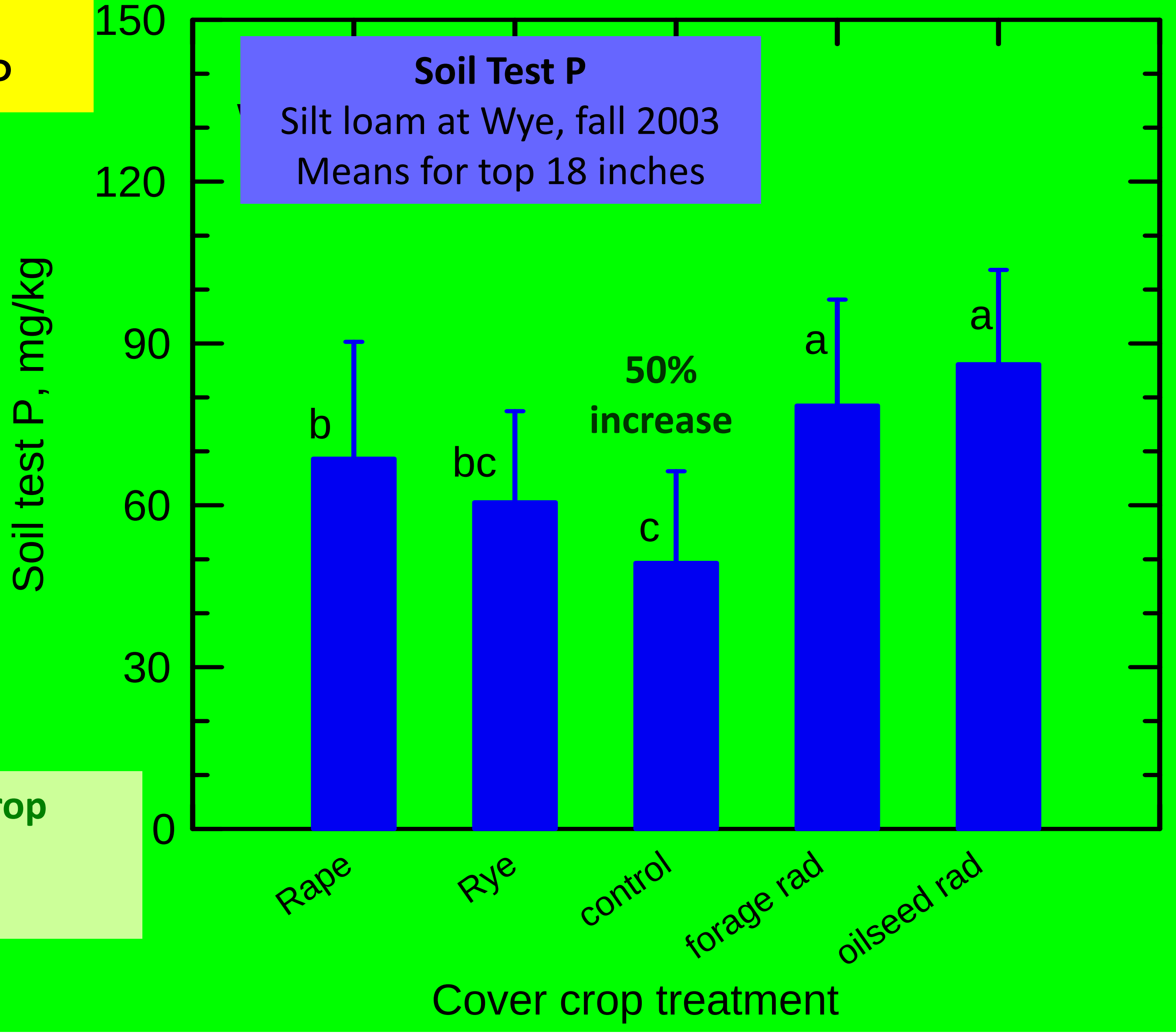
Radishes are excellent N scavengers but what happens to this N?



Forage radish and other cover crops clean up nitrate from a sandy soil profile by mid-November. Control soil had no cover crop, only winter weeds. (Data from Dean and Weil, 2009)

Nutrient cycling: Phosphorus

Brassicas appear to be particularly adept at solubilizing P



Biological pumping + organic acid root exudates

Third year of cover crop treatments in a corn-soybean rotation

Midwest Cover Crops Council

Illinois | Indiana | Iowa | Michigan | Minnesota | North Dakota | Ohio | Wisconsin | Ontario

Home

About Us

History

Mission and vision

Supporters

MCCC meetings

Cover Crop Resources

Cover crop species

Cover crop selector tools

Innovator profiles

WHAT ARE COVER CROPS?

Cover crops are plants seeded into agricultural fields, either within or outside of the regular growing season, with the primary purpose of improving or maintaining ecosystem quality.

The goal of the *Midwest Cover Crops Council* (MCCC) is to facilitate widespread adoption of cover crops throughout the Midwest, to improve ecological, economic, and social sustainability.

WHAT DO COVER CROPS DO FOR THE ENVIRONMENT?

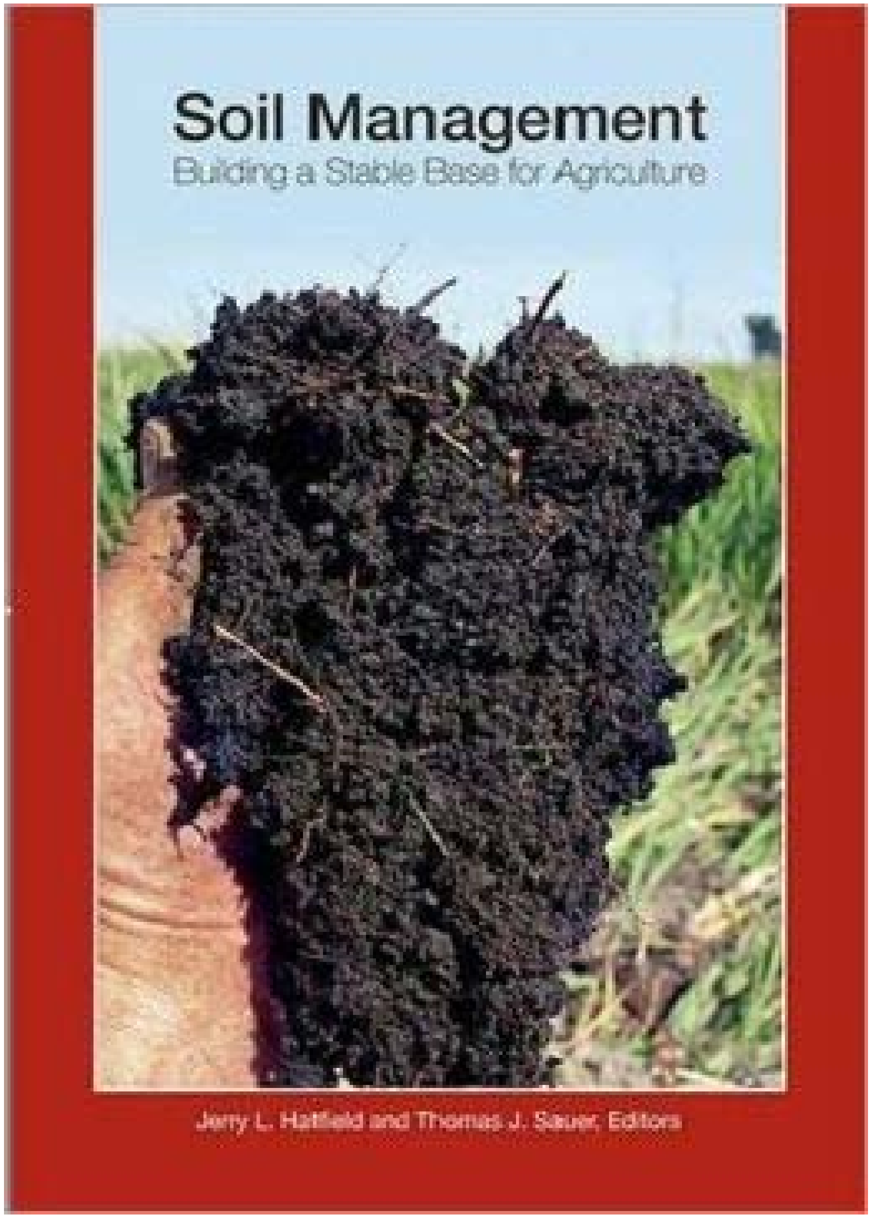
- Enhance biodiversity
- Increase soil infiltration, leading to less flooding, leaching, and runoff
- Create wildlife habitat
- Attract honey bees and beneficial insects

NEWS

Soybean Farmers and CCAs/Agronomists: The MCCC is conducting a survey on cover crop use in soybean systems, please take <10 minutes to help us gather information. Links to the surveys are available here.

MCCC working meeting scheduled for April 8-9, 2014 in Warsaw, IN...details to come

Northwest Indiana Cover Crop Report Winter 2014- Jasper Co. SWCD



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The Use of Cover Crops to Manage Soil

T.C. Kaspar and J.W. Singer

Cover crops are used to manage soils for many different reasons and are known by many different names. Cover crops are literally "crops that cover the soil" and one of their first uses was to reduce soil erosion during fallow periods in annual cropping systems. Cover crops are also known as "green manures," "catch crops," or "living mulch." Green manure cover crops are usually legumes that fix N and are grown to provide N to the following cash crop. Catch crops are cover crops that are grown during fallow periods in cropping systems to take up nutrients, especially N, that would be lost if plants are not present. Lastly, living mulches are cover crops that are grown both during and after the cash crop growing season and are suppressed or managed to reduce their competition with the cash crop when it is growing. After the cash crop has matured and before it begins growing again, the living mulch is allowed to grow unhindered. One way to manage living mulches is to restrict them to the "fallow" spaces between crop rows. Orchards or vineyards are sometimes managed with living mulches, but it is also possible to incorporate living mulches into annual cropping systems. Thus, as can be seen from their many names and descriptions, cover crops can fulfill many soil management functions.

In terms of soil management, the basic premise for using cover crops is to reduce fallow periods and spaces in cropping systems. Natural ecosystems typically have some plants growing, covering the soil, transpiring water, taking up nutrients, fixing carbon, and supporting soil fauna for most of the time that the ground is not frozen. Agricultural cropping systems producing grain, oilseed, and fiber crops in temperate regions typically only have living plants for four to six months of the year and are fallow for the remaining six to eight months. Current planting and tilling practices often leave soil bare and exposed during fall, winter, and early spring. Some perennial cropping systems for nut or fruit crops (e.g., almonds and grapes) keep the spaces between rows fallow and tilled for extended periods. As a result of these fallow periods and fallow spaces in annual and perennial cropping systems, soil is left unprotected from erosive forces, nutrients and organic matter are lost or not replenished, runoff increases, soil fauna are stressed, and soil productivity diminishes. Thus, inserting cover crops into fallow periods or fallow spaces in cropping systems can accomplish multiple soil management goals. This discussion is not intended to be a comprehensive review and will focus on the general principles and evidence for using cover crops to manage soil erosion, runoff, soil nutrients, soil physical properties, soil water, soil organic carbon, soil chemical properties, and soil biology.

> 15,000 CCAs have received science-based info about CC

Crops & Soils

agronomy for practicing professionals

Volume 42 ■ Issue 6
November–December 2009

Focus Cover Crops

IPNI INSIGHTS
INTERNATIONAL PLANT NUTRITION INSTITUTE

September 2012

Capturing Residual Soil Nitrogen with Winter Cereal Cover Crops

The enduring and widespread drought this summer has resulted in reduced crop growth, poor yields, crop failures, and anticipated increases in residual nitrate-nitrogen (RSN) in the soil profile. When no nitrogen (N) is applied to productive Midwestern soils that have subsurface or tile-drains, nitrate-N losses commonly range from 8 to 20 lbs/A with nitrate-N concentrations in the drainage of 3 to 10 mg/L or ppm. Corresponding nitrate-N losses from recommended fertilization rates are often between 25 to 50 lbs N/A and 10 to 30 ppm (Sawyer and Randall, 2008). Many are asking if winter cereal cover crops (cereal rye, wheat, oats, or annual ryegrass) could help capture the RSN this fall and early winter, help prevent leaching and subsurface/tile drainage losses, and return some of that recovered N during the growing season of the crop planted next spring.

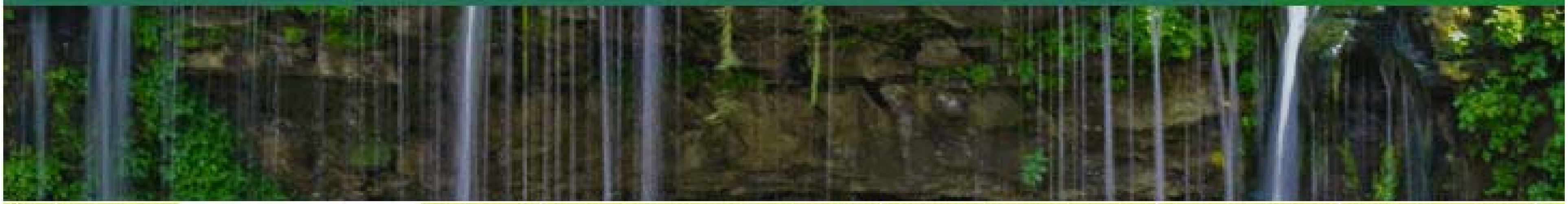
To help answer some of these cover crop N retention questions, we have referred to several important publications in preparing the information presented in this brief. Those review papers and book chapters (e.g. Kaspar et al., 2008; Dabney et al., 2010) and other cover crop management resources are shown in the reference list at the end of this brief. We will only use selected highlights, because the effects of cover crops on N in cropping system productivity and on environmental impacts have been reviewed by others.

We will consider two general approaches for managing RSN after a drought. The first is to use a cover crop and the second is to monitor RSN and adjust N addition.

has been reported from southwestern Minnesota by Randall et al. (1997).

Like much of the rest of the nation in the 1988 drought, Maryland's corn suffered, achieving only 50% of normal yields as a result of rainfall which was 48% below normal from the late-vegetative through early-grain fill period. Fortunately, an existing long-term study was underway in small watersheds in the Atlantic Coastal Plain (Brinsfield and Staver, 1991; Staver and Brinsfield, 1998), which provided data to compare the ability of a cereal rye cover crop versus no winter cover crop to capture RSN. The study used a continuous corn system receiving 140 lbs of fertilizer UAN-N/yr, with the cereal rye planted on October 1 of 1988, about two weeks before the average frost date. Soil samples were collected in 6-inch increments to a depth of five feet on November 1 and again on December 1, 1988, and analyzed for nitrate-N. Total above-ground rye samples were also collected and analyzed for total N. **Figure 1** summarizes these data and shows that the soil contained 191 lbs of RSN/A in the no cover crop treatment, while the soil under the rye cover crop contained 34 lbs/A less on November 1, 1988, which is consistent with the measured rye N uptake of 39 lbs of N/A on November 1. Most of this N came from the surface six inches of soil. A month later (December 1), the soil without a cereal rye cover crop had not lost any RSN (although the nitrate-N had moved deeper in the soil profile), but the rye cover crop had taken up 75 lbs of N/A, with most of that N absorbed from


HIGH-YIELD
CONSERVATION
Volume 2, Number 1
Mark Anson
Plots Cover
Crop Coverage



Future Friendly Farming

Report highlights cost-effective strategies to protect wildlife habitat and save taxpayers, farmers and consumers money

10-05-2011 // Mékell Mikell

American farmers provide food, fuel and fiber for a growing nation. In the face of challenges including tight budgets, increasing threats to natural systems, climate change and extreme weather, farmers can implement strategies that assure yields and farm income while helping to address these challenges.

A new report from the National Wildlife Federation, *Future Friendly Farming: Seven Agricultural Practices to Sustain People and the Environment*, offers techniques that farmers and ranchers can use to increase profits, reduce greenhouse gas emissions, and protect soil, water and wildlife habitat.


Future Friendly Farming
Seven Agricultural Practices to Sustain People and the Environment
Ryan Stockwell
and
Eliav Bitan
August 2011
NATIONAL WILDLIFE FEDERATION

Future Friendly Practice	Definition	Effect on Greenhouse Gases	Environmental Benefits	Wildlife Benefits	Landowner/ Farmer Benefits	Potential Trade-Offs or Problems
1 Cover Crops	Crops planted for the purpose of protecting and improving soil and nutrients rather than for harvest as a commodity, particularly during a period in which the land would have otherwise been barren	Sequesters carbon in plants and soil. In some regions, adding a cover crop to a conservation tillage system can nearly double the rate of carbon sequestration	Decreased soil erosion, improved nutrient retention, increased soil organic matter, improved water quality	Increased nesting areas for species such as ducks, high quality food sources for many grassland bird and game bird species	Increased profit through reduced fertilizer needs, improved soil fertility, and easier control of weeds	Requires extra time and knowledge to manage; and some new techniques for growing commodity crops
2 Conservation Tillage	A system in which 30% or more of the crop residue remains on soil after planting. No-till avoids tilling altogether	By disturbing the soil less, soil carbon storage is increased through enhanced soil sequestration, reduced CO_2 emissions from farm equipment	Reduced erosion, reduced water pollution	Increased bird nest density and nest success; increased bird use and aquatic biodiversity	Increased profits through reduced fuel, equipment, and labor costs	Potential increase in herbicide use; increased pest threats in repetitive single commodity production
3 Organic Agriculture	Uses crop rotation, compost, and biological pest control to maintain soil productivity and control pests without synthetic pesticides and fertilizers	Organic agriculture averages 60% less direct energy use compared to conventional production practices; organic soils have been found to sequester more carbon than conventional	Improved nutrient retention in soil, reduced soil erosion, reduced nutrient runoff	Increased biodiversity; eliminating the use of pesticides helps promote beneficial insects, birds, nearby aquatic organisms	Increased profit through premium prices and stronger long-term soil fertility through natural systems	Requires considerable knowledge, transition period can be difficult

Letter to the editor: These farm changes have reduced nitrates

Jun. 9, 2013 | 3 Comments

FILED UNDER

Opinion
Letters To The Editor

My farm has belonged to my family since 1881. We grow corn and soybeans near Eagle Grove. I believe that every responsible farmer can and should make decisions on their farm to help reduce nitrates in Iowa's waterways.

We have started using cereal rye as a cover crop. We also apply nitrogen in the late spring, instead of fall, which is closer to when the corn needs it. Finally, we installed a bioreactor to help further reduce nitrogen leaving the farm through subsurface tile drainage.

Initially, I wasn't sure what real benefits to water quality these practices would bring. This spring, data showed that the nitrate concentrations in water flowing out of my tile were consistently more than 50 percent less than the water in Eagle Creek. As I continue to monitor the water coming off of my farm, I see now that there are solutions to our water pollution problem that I can implement today while still growing corn and soybeans successfully.

— Tim Smith, Eagle Grove

ACWA MISSION

To reduce the nutrient loss - specifically nitrates from farm fields - and keep the nutrients from entering the Des Moines and Raccoon Rivers and their tributaries.

Welcome

ACWA (Agriculture's Clean Water Alliance) is a group of leading ag retailers in west-central Iowa. The issue that brought ACWA together was water quality in the Raccoon River watershed. Similar concerns in the adjacent Des Moines River watershed led to our including it in our network.

The Public looks to agriculture to feed a growing world population from a static land resource base. But it's also become clear that people expect environmental performance from the business of agriculture.

ACWA is about finding the balance as we move forward.

Our primary mission as ag suppliers has historically been to help farmers improve agronomic performance by creating ACWA, we have made an agreement across the industry to internalize and implement a dual mission: blending optimal crop yield and profitability with the best environmental performance possible.

We can do this.

Farmers trust us as suppliers and consultants — we have strong relationships with them and can help inform their decision-making process.

And we know that many of the answers to our environmental challenges rest in science. The best way to start working is to collect of water quality data and find out what is really going on in the water.

The data will point to both challenges and solutions.

The data will point to both challenges and solutions. After several years of gathering and analyzing water monitoring data from our local streams, rivers and lakes, we began working with partners to implement, evaluate and demonstrate solutions.

Our water monitoring work continues, informing the selection and placement of solutions, evaluating and documenting their effectiveness, and making the case for applying public and private resources to implement water quality solutions.

It has taken a long time to recognize and understand these problems, but we do. It's also going to take us a long time to address them, but we can — and we will.

KIC 2025

Keep It for the Crop by 2025

Home | Partners | 4R's | Research | Press Release | Program | Watershed Maps

GET YOUR TILING DONE NOW

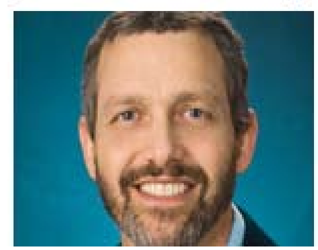
while you still can
...before it's regulated*

Northern Illinois Drainage LLC

109 W 6th St, Dixon, IL 61021

815-973-6576

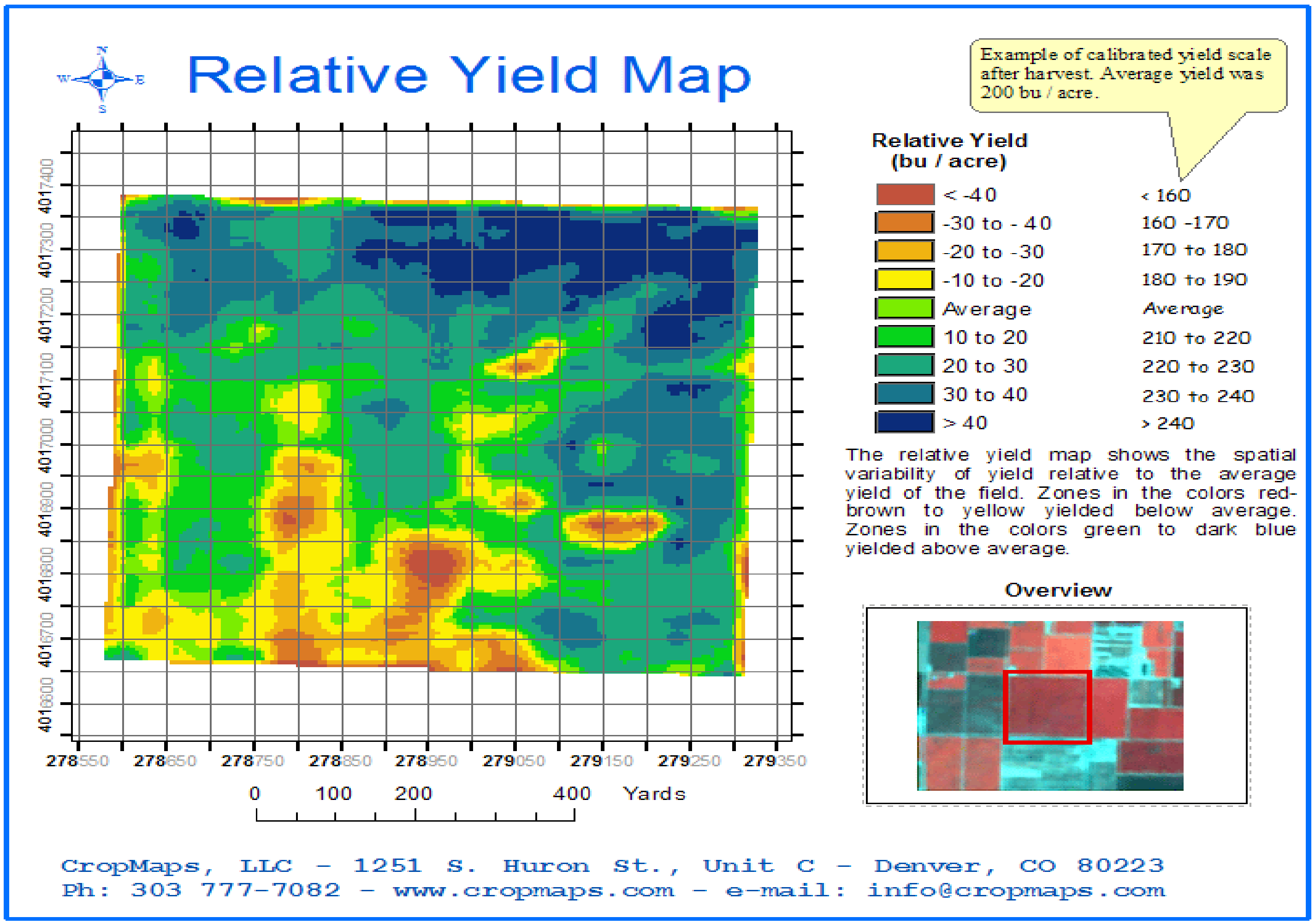
*Row crops, field tiles causing water quality problems, studies say



CHAMPAIGN, Ill. — In addition to causing widespread flooding, the rains drenching the Midwest this spring may exacerbate another environmental problem – phosphorus and nitrate pollution in the water supply that is causing a growing hypoxic zone in the Gulf of Mexico, presenting a danger to marine life and wildlife habitats, according to recent studies by a team of scientists from the University of Illinois and Cornell University.

The hypoxic zone, which forms every spring or summer in the Gulf, covered 7,000 square miles last summer. With high flow in the Mississippi this spring, the zone may be large again this summer.

Yield monitors have shown farmers more clearly than ever before that improved drainage improves yields



Joel,

I have a question and I would like to know the best direction to go. I live in the Lake Erie water shed. Over the last two years I have installed 11 water control structures through a local conservation endowment. I have been asking my local Soil and Water conservation office who overseas the endowment, if they will be taking water samples to track the leaching of nutrients through my tile. They said they would not. I also asked my local extension agent, he said to check with the soil and water office. I would like to know if these structures are helping reduce runoff into Lake Erie. **Who can I send water samples into to help track the nutrients in the water? I guess I don't really want to get a lot of expense wrapped up into it, but it frustrates me that some one is willing to pay me to install them but are not willing to track to see if it is worth there time.**

Thanks

Do you know any early adopters?

adopt ≠ adapt

Do you know any master ad<u>a</u>pters?

Farmers that make cover crops work tend to be master ad<u>a</u>pters!

Ralph "Junior" Upton
Springerton, Illinois

1,800 acres of no-till corn, beans and wheat &
annual ryegrass, cereal rye and hairy vetch cover crops

Problem Addressed
Difficult soil characteristics. Ralph "Junior" Upton farms poorly drained land characterized by an impenetrable layer, or "plow pan," six to eight inches deep that crop roots typically can't grow through.

One day, in the mid-1980s, Upton got a magnified view of his soil's limitations. While tearing out a fence, Upton noticed plenty of moisture in the soil about three feet down. Above it sat a compacted layer of soil through which no roots were growing. Upton had a visible confirmation of why, during dry years, the shallow-rooted crops dried up even though there was plenty of water stored in the soil below.

"I began looking for a way to break up that plow pan so my crops could get to the moisture they needed"

Posted 1/7/2014 12:12 (#3583109 - in reply to #3583081)
Subject: RE: cover crop effect on profitability in corn/soybean rotation?

Quote | Reply | Alert

WI

Joel,

I would love to be in contact with them! I want this to work, but need some sort of quatification to maintain these practices in the short run to capture the long term benefits. Also I have found some info on an illinois study (i think you were a part of?) with rape/mustards/rye covers and disease reduction in soybeans, but they seem to lack the details behinds the study ie seeding rates of the different species etc and wonder if could elaborate on those?

Profile | E-Mail | My Site / Pics | Top | Bottom

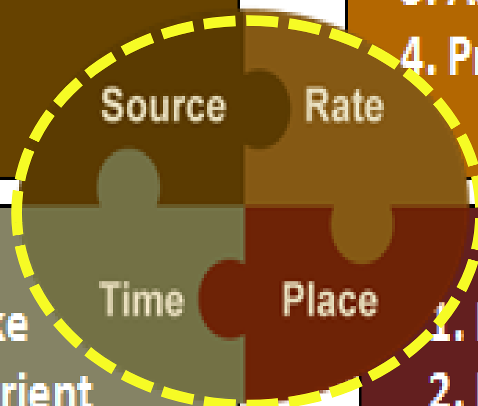

Hedgerow vs. field

How many of you are familiar with the 4R concept?

1. Supply in plant available forms
2. Suit soil properties
3. Recognize synergisms among elements
4. Blend compatibility

Source matters

1. Appropriately assess soil nutrient supply
2. Assess all available indigenous nutrient sources
3. Assess plant demand
4. Predict fertilizer use efficiency



1. Assess timing of crop uptake
2. Assess dynamics of soil nutrient supply
3. Recognize timing of weather factors
4. Evaluate logistics of operations

1. Recognize root-soil dynamics
2. Manage spatial variability
3. Fit needs of tillage system
4. Limit potential off-field transport

Great concept for improving nutrient use efficiency but where do cover crops fit in?


Have you ever estimated the N contribution from cover crops?

Measuring, monitoring and managing

JANUARY 1, 2008 GRAZING MANAGEMENT

Charles Fletcher uses pasture probe to improve bottom line

Purdy, Missouri — Especially when you're feeding the stuff, most of you closely monitor the bunker, silo, bin, mow, bag, baleage line or whatever else holds the stored feed. Probably you aren't quite as intense in keeping track of your inventory of growing pasture. With any experience you just know what's out there, and do fine without making things more complicated.

Charles Fletcher isn't out to convince you that you're wrong, but he's sure that what he's doing these days is right for him. Thousands of dollars in extra annual profit right.

A couple of years ago, Charles spent $475 on a New Zealand-made electronic plate meter that estimates pasture forage dry matter. His wife, Melissa, allocates three hours each week during the grazing season for taking dry matter readings on 46 paddocks at his 240-acre dairy here, one of two operated by the KBC Dairy partnership.

Putting the right amount in the right place at the right time

Search: Go

WeedSeeker®
Automatic Spot Spray System

Cut weed-control costs up to **80%!**

[Automatic Spot Spray System]

GreenSeeker®
Variable Rate Application and Mapping Systems

Increase profits by optimizing your input dollars!

[Multi-Sensor Systems]

GreenSeeker®
Data Collection and Mapping Systems

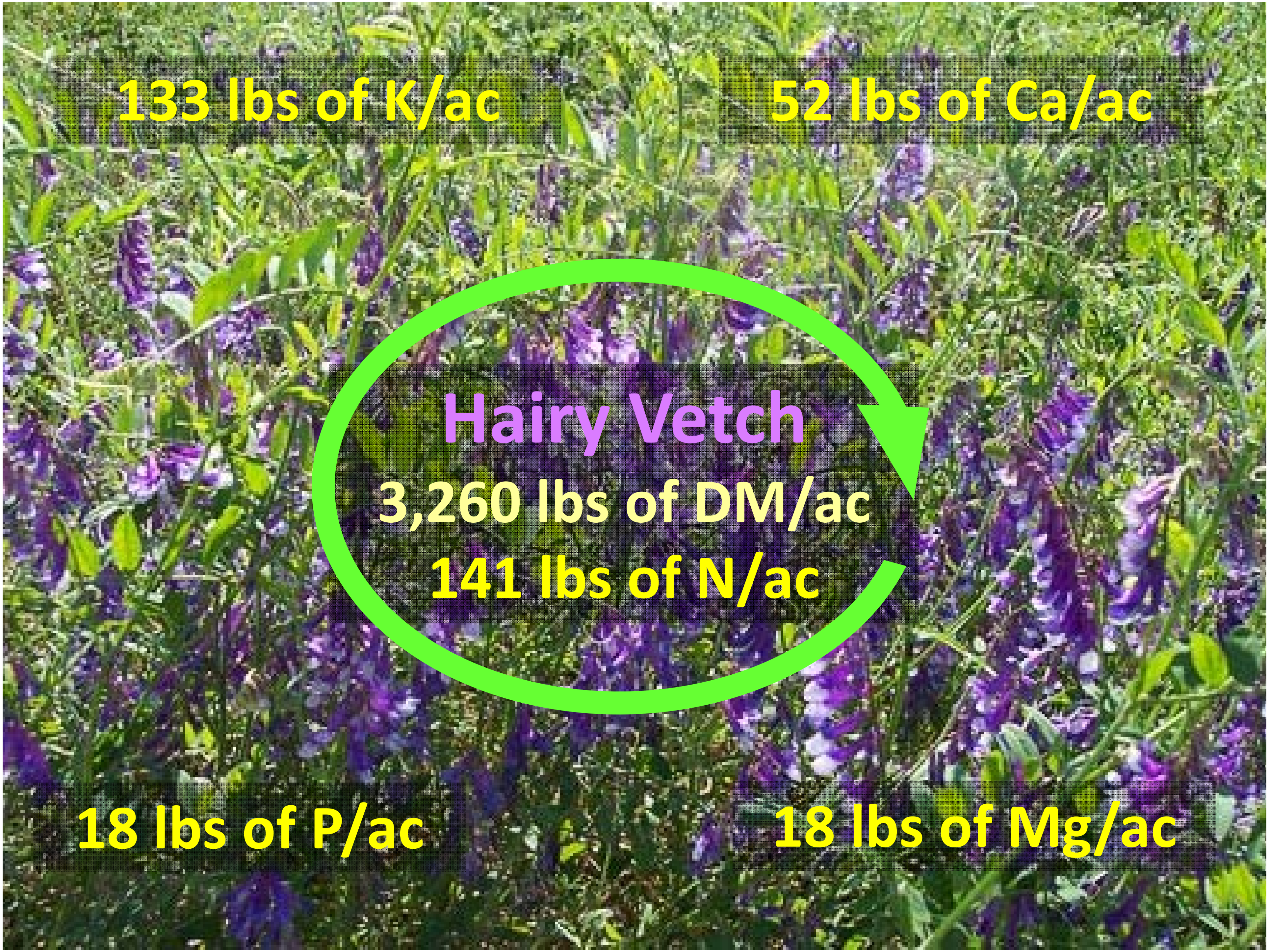
A quick and easy research and consulting tool!

[Single-Sensor Systems]

Trimble

GreenSeeker and WeedSeeker products are part of Trimble agriculture's flow and application control solution. To learn more about Trimble, visit: www.trimble.com/agriculture.


+20 lbs N/a


133 lbs of K/ac
52 lbs of Ca/ac
Hairy Vetch
3,260 lbs of DM/ac
141 lbs of N/ac
18 lbs of P/ac
18 lbs of Mg/ac


Multi-inch rain fall events are increasingly common
Most nutrient losses occur during these events

Impact of the 2008 floods on IA soils

20 tons per acre average soil loss across 2,284,000 ac!

Conservation structures needing repair

12,157 Grassed Waterways

8,137 Terraces

3,375 Water and Sediment Control Basins

800 Grade Stabilization Structures

KEY FINDING

Fields with combinations of two or more conservation practices (e.g., no-till + cover crops) performed much better than fields with a single practice

Are you familiar with the term ***Precision Conservation***?

- "…set of spatial technologies and procedures to implement conservation management practices that integrates spatial and temporal variability across natural and agricultural systems."
  - Berry et al. 2003
- "Getting the right practices, in the right places, at the right time, and at the right scale is what makes conservation effective."
  - Cox 2005

Welcome to AgTalk

swne

Posted 2/15/2014 23:02 (#3692994 - in reply to #3692775)
Subject: Re: CSP Program

Quote | Reply | Alert

Cambridge, southwestern Nebraska

I'm on my 3rd year. I applied once and was denied so we added a few more enhancements the next year and got in. There is a fair amount of paperwork involved but if you have a good person at the NRCS office to guide you along it isn't too bad. A good and friendly person at the NRCS office is a must!
I'm running into a little problem now as I signed up to no-till about everything and now want graze some cornstalks to eliminate volunteer corn. Can't do it. I originally agreed not to graze because at that time I did not graze my stalks. Also would like to VT some ground. Can't do it as I agreed to no-till. Times and conditions change and it would be nice to have a little flexibility but so far no luck on changing the plan. The penalty is to pay back everything you received.
I'll probably sign up again but I will have to have a little more flexibility.

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- CSP Program - acwd45 : 2/15/2014 21:02
  - Re: CSP Program - greasegun : 2/15/2014 21:30
  - RE: CSP Program - shadetree : 2/15/2014 21:48
    - Re: CSP Program - dittfarms : 2/15/2014 22:08
  - **Re: CSP Program** - swne : 2/15/2014 23:02
    - Re: CSP Program - cobra : 2/15/2014 23:10
  - RE: CSP Program - 17821x : 2/16/2014 05:48
    - RE: CSP Program - mn2 : 2/16/2014 07:14
      - Re: CSP Program - D6Joe : 2/16/2014 08:54
        - Re: CSP Program - shadetree : 2/16/2014 09:21
          - Re: CSP Program - mn2 : 2/16/2014 09:39
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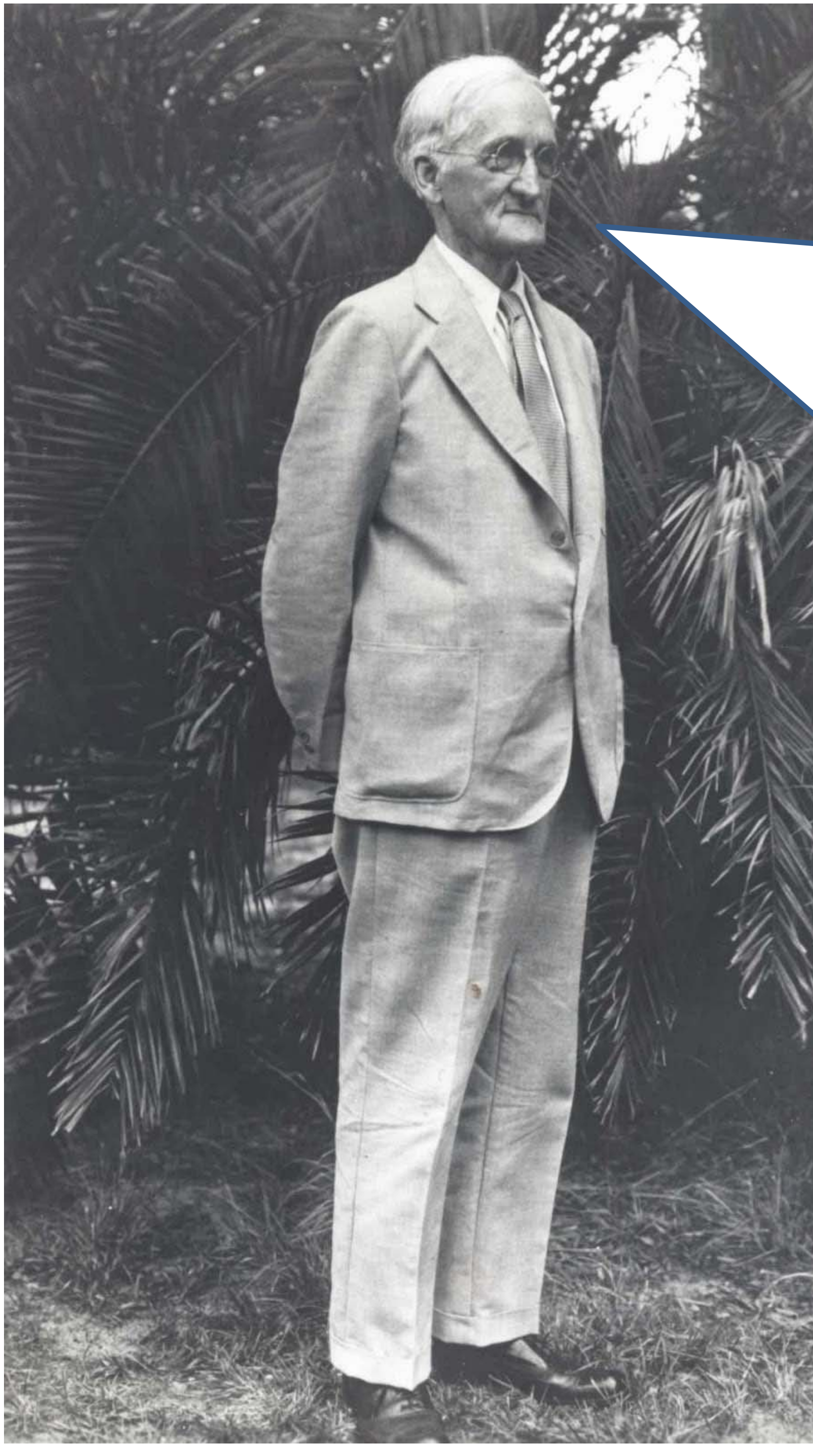
              - Re: CSP Program - 17821x : 2/16/2014 12:49
      - RE: CSP Program - nebfarmer : 2/16/2014 11:30
  - RE: CSP Program - BigNorsk : 2/16/2014 10:45
    - RE: CSP Program - 17821x : 2/16/2014 13:02
      - Re: CSP Program - Gerald J. : 2/16/2014 20:42
  - Re: CSP Program - AGB : 2/16/2014 14:58
  - Re: CSP Program - myron : 2/17/2014 08:34

"There is a fair amount of paperwork involved but if you have a good person at the NRCS office to guide you along it isn't too bad. A good and friendly person at the NRCS office is a must! "



"Tell them why and they will figure out how"

Liberty Hyde Bailey

NAFBAS National Association of Farm Business Analysis Specialists

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DO SOME FARMS CONSISTENTLY HAVE HIGHER PROFITS THAN OTHER FARMS?

Table 2. Number of Years in the High 1/3 Management Returns Group, Illinois FBFM, 1995 to 2000.

Year in the Top One-Third	Percent of Farms	Six-Year Average Management Return
0	26%	-$54
1	22%	-$3
2	16%	$18
3	14%	$33
4	11%	$54
5	6%	$64
6	5%	$94

$148!