

A photograph of a tractor pulling a cover crop planter in a field. The tractor is in the center, moving away from the viewer, leaving a trail of dark soil and green cover crop rows. The field is vast and green, with a clear blue sky and a utility pole in the distance.

**Alternative technologies
for timely cover crop
establishment**

**Joel Gruver
WIU Agriculture
J-gruver@wiu.edu**

04/22/2018

What is innovation??



VS.

Farm Show
magazine

Nitrogen use down, yields up

By Tim Hoskins, Iowa Farmer Today

Wednesday, March 23, 2005 11:51 AM CST



STOCKTON — Keith Schlapkohl concedes he doesn't know everything about farming.

That hasn't stopped him from trying new things on his Scott County farm. "It seems for every one question I get answered, 10 more are raised," he says.

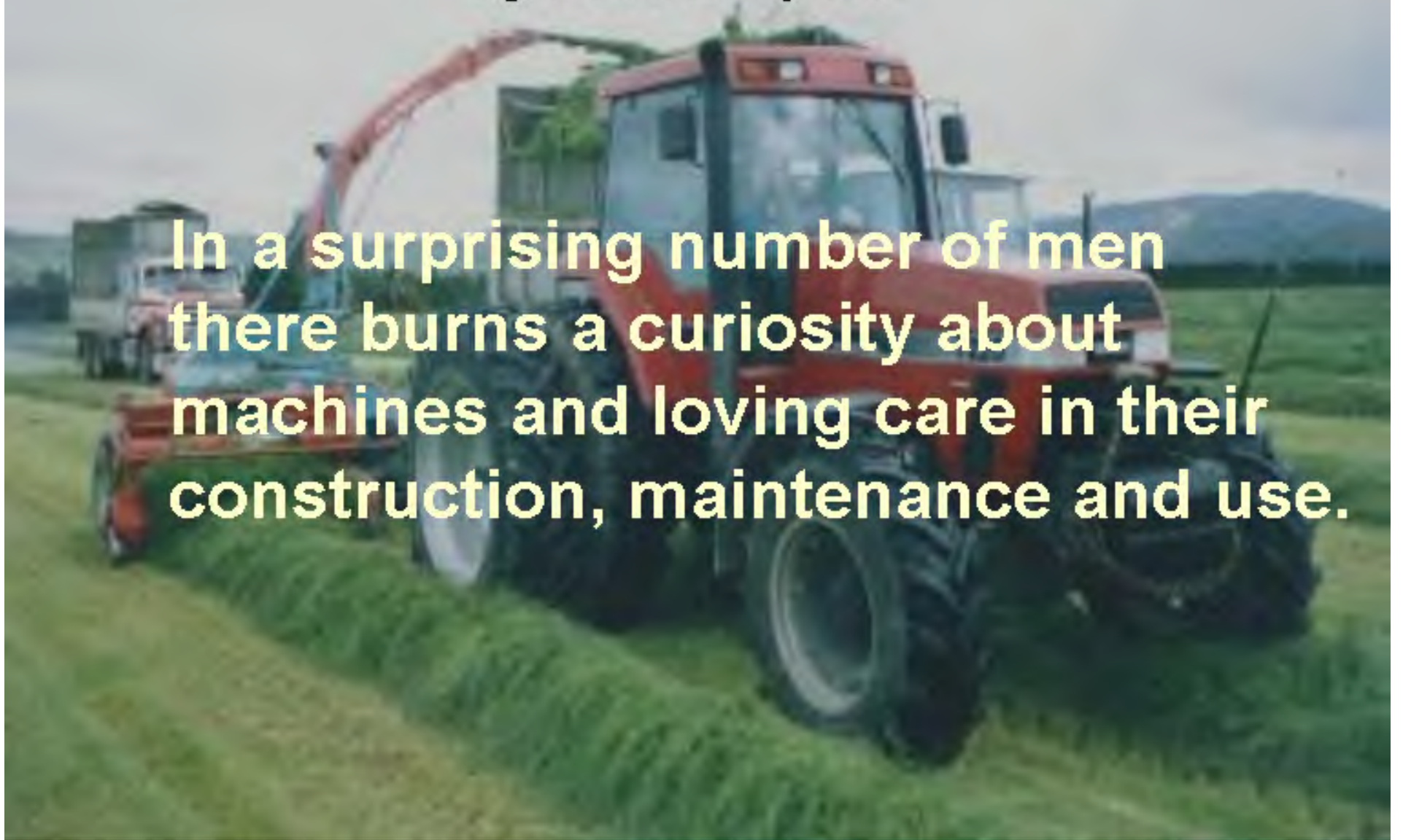


For North Dakota no-tiller Gabe Brown, failure isn't an option - it's a requirement. That's because Brown believes that constant change drives an ever improving system.

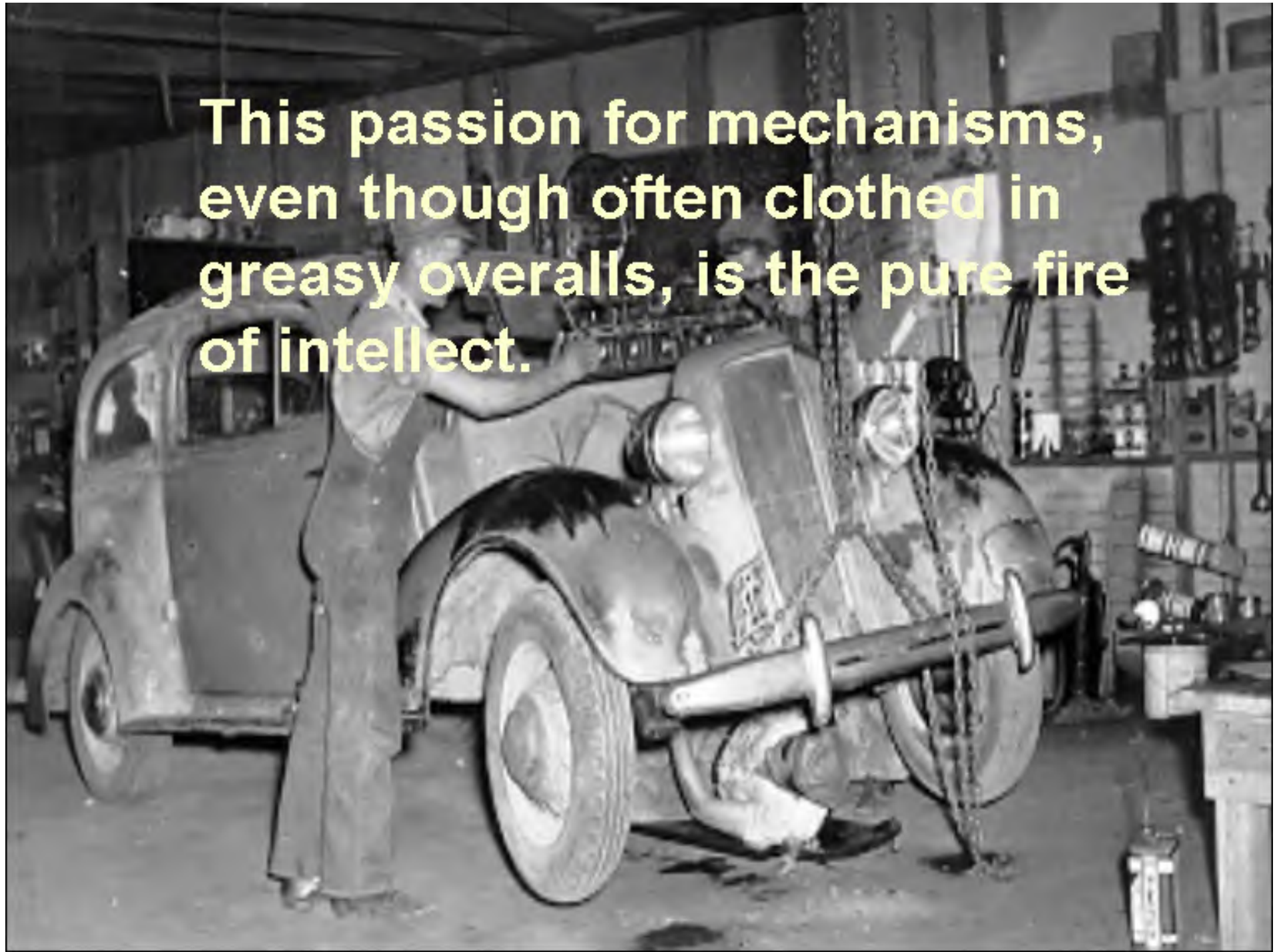
"We want to fail at something on this farm every year" says the Bismarck area producer who crops ~ 1500 acres and grazes ~ 2000 acres. "If I don't fail at something, I'm not trying enough things."

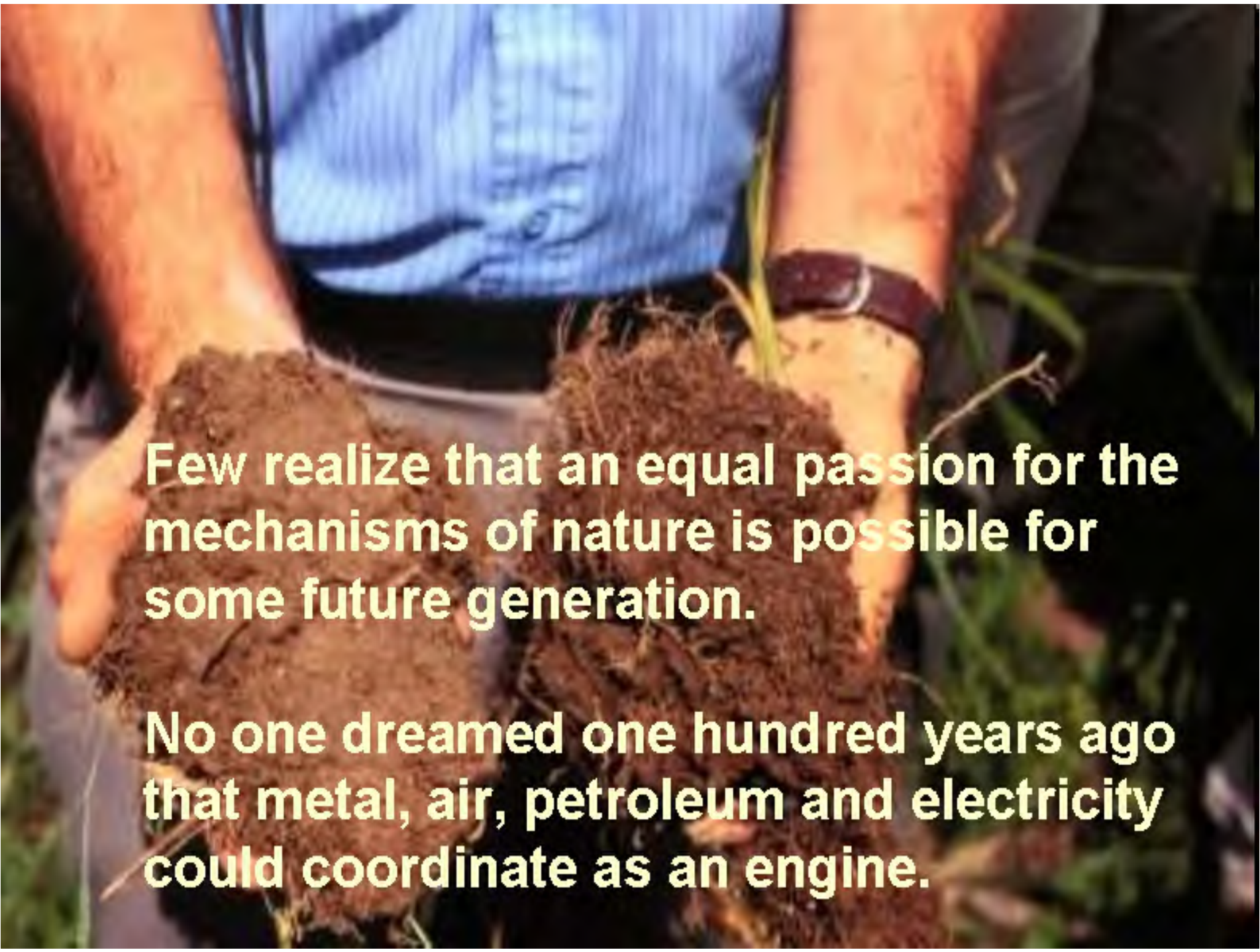
*Paraphrased from
“The Farmer as a Conservationist”
by Aldo Leopold*

In a surprising number of men
there burns a curiosity about
machines and loving care in their
construction, maintenance and use.




**This passion for mechanisms,
even though often clothed in
greasy overalls, is the pure fire
of intellect.**



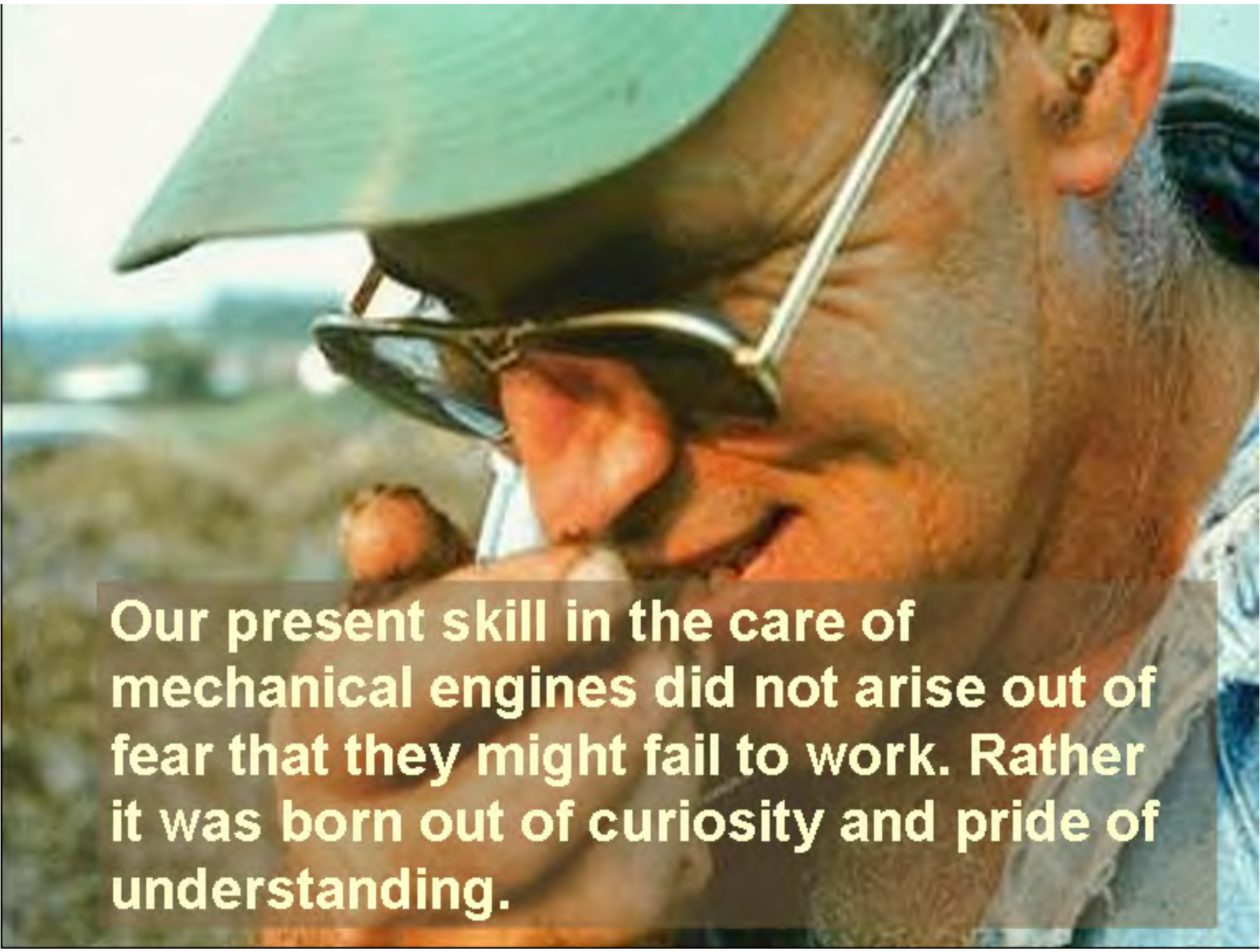
A close-up photograph of a person's hands holding a large clump of dark brown soil. A small green plant with a single stem is growing from the soil. The person is wearing a blue and white striped shirt and a dark wristband. The background is blurred, showing green foliage.

Few realize that an equal passion for the mechanisms of nature is possible for some future generation.

No one dreamed one hundred years ago that metal, air, petroleum and electricity could coordinate as an engine.



Few realize today that soil, water, plants and animals are parts of an ecological engine, subject like any other to malfunction if improperly assembled or maintained.



Our present skill in the care of mechanical engines did not arise out of fear that they might fail to work. Rather it was born out of curiosity and pride of understanding.

adopt \neq adapt

Managing Cover Crops Profitably

THIRD EDITION



Best single reference on cover crops available.

The entire book is available on-line for free.

<http://www.mccc.msu.edu/documents/ManagingCCProfitably.pdf>

SELECTING THE BEST COVER CROPS FOR YOUR FARM

by Marianne Sarrautoio

Cover crops provide many benefits, but they're not just-all-wonder crops. To find a suitable cover crop or mix of covers:

- Clarify your primary needs.
- Identify the best time and place for a cover crop in your system.
- Test a few options.

This book makes selection of cover crops a little easier by focusing on some proven ones. Thousands of species and varieties exist, however. The steps that follow can help you find crops that will work best with a minimum of risk and expense.

1. Identify Your Problem or Use

Review *Benefits of Cover Crops* (p. 9) to decide what you want most from a cover crop. Narrowing your goals to one or two primary and perhaps a few secondary goals will greatly simplify your search for the best cover species. Some common goals for cover crops are to:

- Provide nitrogen
- Add organic matter
- Improve soil structure
- Reduce soil erosion
- Provide weed control
- Manage nutrients
- Furnish moisture-conserving mulch

You might also want the cover crops to provide habitat for beneficial organisms, better traction during harvest, faster drainage or another benefit.

2. Identify the Best Place and Time

Sometimes it's obvious where and when to use a cover crop. You might want some nitrogen before a corn crop, or a perennial ground cover in a vineyard or orchard to reduce erosion or improve weed control. For some goals, such as building soil, it may be hard to decide where and when to schedule cover crops.

To plan how and where to use cover crops, try the following exercise:

Look at your rotation. Make a timeline of 18 to 36 monthly increments across a piece of paper for each field, pencil in current or probable rotations, showing when you typically seed crops and when you harvest them.

If possible, add other key information, such as rainfall, frost-free periods and times of heavy labor or equipment demand.

Look for open periods in each field that correspond to good conditions for cover crop establishment, underutilized spaces on your farm, as well as opportunities in your seasonal work schedule. Also consider ways to extend or overlap cropping windows.

Here are examples of common niches in some systems, and some tips:

Winter fallow niche. In many regions, seed winter covers at least six weeks before a hard frost. Winter cereals, especially rye, are an exception and can be planted a little later. If ground cover and N recycling needs are minimal, rye can be planted as late as the frost period for successful overwintering.

You might seed a cover right after harvesting a summer crop, when the weather is still mild. In cooler climates, consider extending the window by **overseeding** (some call this **underseeding**) a shade-tolerant cover before cash crop harvest. White clover, annual ryegrass, rye, hairy vetch, crimson clover, red clover and sweetclover tolerate some shading.

If overseeding, irrigate afterwards if possible, or seed just before a soaking rain is forecast. Species with small seeds, such as clovers, don't need a lot of moisture to germinate and can work their way through tiny gaps in residue, but larger-seeded species need several days of moist conditions to germinate.

Chart 3A CULTURAL TRAITS

Species	Aliases	Type ^a	Hardy through Zone ^b	Tolerances					Habit ^c	pH (Pref.)	Best Established ^d	Min. Germin. Temp.	
MONILEGUMES	Annual ryegrass <i>p. 74</i>	Italian ryegrass	WA	6						U	6.0-7.0	ESp, LSu, EE F	40F
	Barley <i>p. 77</i>		WA	7						U	6.0-8.5	EW, Sp	38F
	Oats <i>p. 93</i>	spring oats	CSA	8						U	4.5-7.5	LSu, ESp W in 8F+	38F
	Rye <i>p. 98</i>	winter, cereal, or grain rye	CSA	5						U	5.0-7.0	LSu, F	34F
	Wheat <i>p. 111</i>		WA	4						U	6.0-7.5	LSu, F	38F
	Blackwheat <i>p. 90</i>		SA	NFT						U/SU SU	5.0-7.0	Sp to LSu	50F
BRASSICAE	Sorghum-sudans <i>p. 106</i>	Sudans	SA	NFT						U	6.0-7.0	LSp, ES	65F
	Mustards <i>p. 81</i>	brown, oriental white, yellow	WA, CSA	7						U	5.5-7.5	Sp, LSu	40F
	Radish <i>p. 81</i>	oilseed, Daikon, forage radish	CSA	6						U	6.0-7.5	Sp, LSu, EF	45F
	Rapeseed <i>p. 81</i>	rape, canola	WA	7						U	5.5-8	ESp	41F
	Berseem clover <i>p. 148</i>	Burma, multicut	SA, WA	7						U/SU SU	6.2-7.0	ESp, EF	62F
	Cowpeas <i>p. 125</i>	crowder peas, southern peas	SA	NFT						SU/C	5.5-6.5	ESu	58F
	Crimson clover <i>p. 130</i>		WA, SA	7						U/SU	5.5-7.0	LSu/ESu	
	Field peas <i>p. 135</i>	winter peas, black peas	WA	7						C	6.0-7.0	EE ESp	41F
	Hairy vetch <i>p. 142</i>	winter vetch	WA, CSA	4						C	5.5-7.5	EE ESp	60F
	Medics <i>p. 152</i>		SR/SA	4/7						P/Su	6.0-7.0	EE ESp, ES	45F
	Red Clover <i>p. 159</i>		SR/B	4						U	6.2-7.0	LSu, ESp	41F
	Siberian clover <i>cl. p. 164</i>	soft clover	CSA	7						P/SP	5.5-7.0	LSu, EF	38F
LEGUMES	Sweetclovers <i>p. 171</i>		B, SA	4						U	6.5-7.5	Sp/S	62F
	White Clover <i>p. 179</i>	white dutch <i>calitho</i>	LP/WA	4						P/SU	6.0-7.0	LW, E to LSp, EF	40F
	Woollypod vetch <i>p. 185</i>	Taba	CSA	7						SP/C	6.0-8.0	F	



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North Dakota

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WELCOME TO THE MIDWEST COVER CROPS COUNCIL WEBSITE

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.

WHO WE ARE?

The MCCC is a diverse group from academia, production agriculture, non-governmental organizations, commodity interests, private sector, and representatives from federal and state agencies collaborating to address soil, water, air, and agricultural quality concerns in the Great Lakes and Mississippi river basins (including Indiana, Michigan, Ohio, Manitoba, Ontario, Illinois, Wisconsin, Minnesota, Iowa, and North Dakota).

WHY COVER CROPS?

NEWS

Three new fact sheets are available from OSU Extension

- [Using Cover Crops to Convert to No-Till](#)
- [Sustainable Crop Rotations with Cover Crops](#)
- [The Biology of Soil Compaction](#)

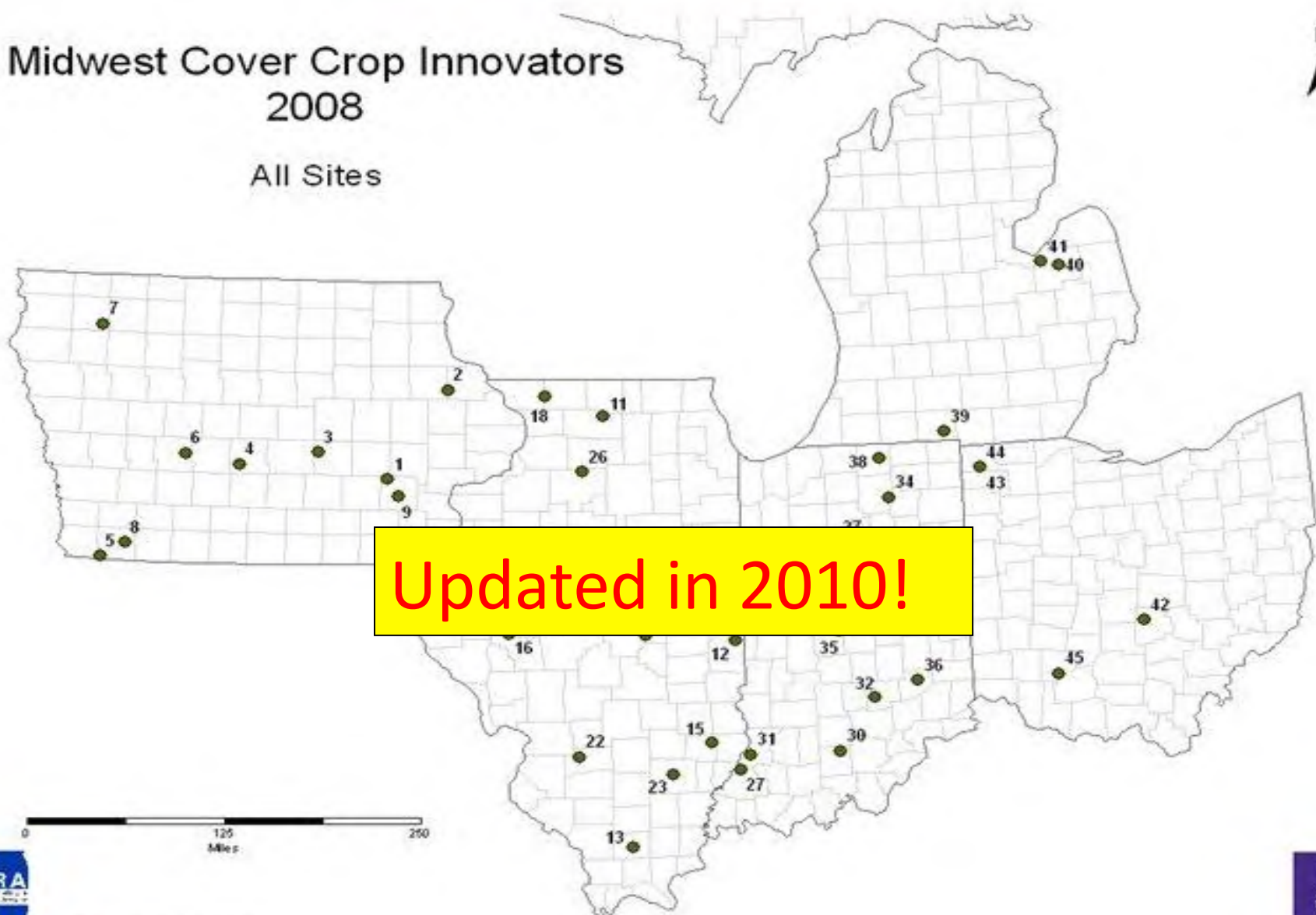
2010 MCCC
Meeting/Workshop
March 3-4
Ames, IA

[Click here for the brochure](#)

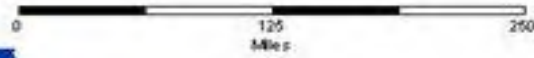
INNOVATOR PROFILES

Midwest Cover Crop Innovators
2008

All Sites



Updated in 2010!



Source: IIRAGIS Specialist
Data Current: 2008



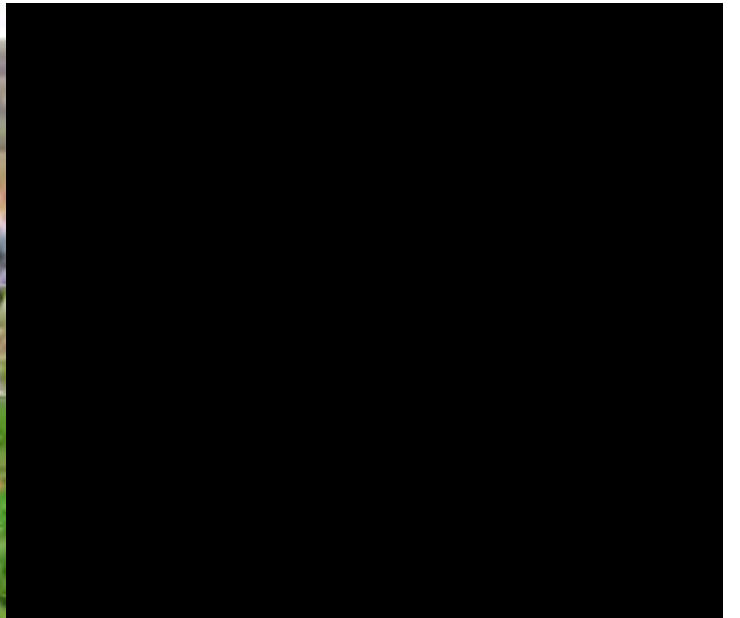
Crop Rotation on Organic Farms

A PLANNING MANUAL

Charles L. Mohler & Sue Ellen Johnson, editors



Sustainable Agriculture Research and Education (SARE)
Natural Resource, Agriculture, and Engineering Service (NRAES)



ryegrass, radishes and ridging (pics)

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[jbgruver](#)

Posted 3/19/2009 22:15 (#285193)
Subject: ryegrass, radishes and ridging (pics)

I took a bunch of photos at the WIU Organic research farm today.

The first photo shows a 10' wide strip of "Bounty" annual ryegrass that was drilled about 2 weeks ago... I also overseeded ryegrass into the adjacent soybeans so it will be interesting to observe the stands after the beans come off.

The next photo shows some forage brassicas (Egyptian cabbage, Hunter and Winfred) that were drilled about 2 weeks ago... you can't really distinguish the different brassicas in this photo. None are growing quite as fast as the Tillage radishes in an adjacent field.

The
The
The ridges will be planted to soybeans in 2010 as part of an experiment comparing organic no-till vs. organic ridge-till.

The last photo shows an ear of our purple and gold popcorn. We've been selling it on campus in 1/2 bags but decided to try some microwave bags this year.

1200 microwave bags will be getting filled this week with the 2008 crop and ~ 4000 more bags will get filled later in the fall with the 2009 crop.

The weather is looking pretty wild for our Twilight tour on Thursday (10/1) but we'll be out there rain or shine.

here is a link to the press release which includes directions:

http://www.wiu.edu/newsrelease.sphp?release_id=7557

We will have another tour in about 2 weeks.

How many of you are "Ag Talkers"?



Key considerations

How will I plant the cover crop?

What will soil temperature and moisture conditions be like?

What weather extremes and field traffic must it tolerate?

Will it winterkill in my area?

Should it winterkill, to meet my goals?

What kind of regrowth can I expect?

How will I kill it and plant into it?

Will I have the time to make this work?

What's my contingency plan—and risks—if the cover crop doesn't establish or doesn't die on schedule?

Do I have the needed equipment and labor?



Crops

Huge news in radishes

By TIM WHITE

JUST when you think David Brandt has done about everything there is to do with cover crops, he comes up with something — well, something different. Maybe that's why Randall Reeder, Ohio State University agronomist, took Bob Stewart, a colleague visiting from the Dryland Institute in Canyon, Texas, to visit Brandt's farm near Carroll.

"If there is a way to break compaction or add some nitrogen, Dave is going to give it a try," says Reeder.

"I learned a lot from my

Key Points

- Oilseed radishes offer new cover crop potential.
- Planted radishes grow bigger than drilled ones.
- Adding Austrian winter peas provides nitrogen.

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

Brandt showed the researchers a variety of test plots, including his latest take on cover crops: dicom oilseed radishes.

"I'd messed around planting



BIG CROP: Dave Brandt (left) and Kevin Shaeffer hoist the huge oilseed radishes that grew following Brandt's wheat crop. Much of the radish growth is above the soil.

them with a drill, but really wasn't satisfied with what I was getting, so we put them in the planter this year," Brandt says. Using a new White planter with plates specially designed to handle the tiny radish seeds, Brandt planted about 4 or 5 inches apart in 24-inch rows following wheat harvest. The result was huge radishes that

TINY SEED: Brandt's White planter uses special plates to plant wheat and radishes.

are up to 30 inches long.

Brandt says leaving the radishes to rot will produce a compaction-buster that leaves the soil richer with organic matter, as well. "As far as compaction goes, it's like taking a 3-inch posthole digger and removing about 2½ feet of soil every 4 or 5 inches," Reeder says. "It should be very helpful."

Brandt especially likes the trial where he planted the radishes in rows alternating with Austrian winter peas. As le-

gumes, the peas return about 75 units of nitrogen to the soil a year. "That's about one third of what we use," he says. With the planter, he is only putting about 1 pound per acre of radishes in the soil. "That's about \$2.25 an acre in seed, compared to about \$19 per acre to drill it in with the drill." The peas add another \$10 per acre to his costs.

Brandt plans to be able to use GPS to place the corn right alongside the radish plants. That way it will have a moist





I made two passes in opposite directions with a JD 1700 MaxEmerge 38 in row planter with the hitch offset 4 in to one side. I also moved the drive gauge wheels on the planter over 4 in so that they would run in the row middles to help hold the planter straight.





Frost seeded clover

*the most tried and true
cover cropping system*





Bonjour Brian,


I spread the ryegrass with my air-cart fertiliser with a 60 foot boom. The ryegrass was mixed with urea at my coop. I applied 180 kg/ha of urea with 12 kg/ha. The application was done on the 26th of May. Spring wheat was seeded april 16.

Jocelyn

British Farming Forum

“Thinking of broadcasting the rape with a stocks fan jet amidst the standing wheat and letting the rain do the work. Problem is fan jet is 12m, tramlines are 24m. Maybe could dash out with combine between tramlines on (dry) Sunday to clear a path for sprayer and fanjet. Home saved seed so maybe worth a shot.”

“You wouldn't be the first. Near neighbour used to sow 400 acres a day into his standing wheat. Through a Fan Jet mounted on top of his Bateman sprayer to get the extra height needed for the spread. Combine a few days later chopping the straw. Job done.”



Hairy vetch can be successfully planted after wheat harvest. On the two occasions (out of 18 site-years of the WICST trial) when the red clover failed to establish well, the vetch produced an average of 115 lbs./a of nitrogen, providing an excellent “back-up plan” that reduces one of the potential risks of relying on a companion-seeded cover crop for nitrogen.

July/August plantings of vetch or other cover crops are riskier than frost seeding clover.

REALITY CHECK

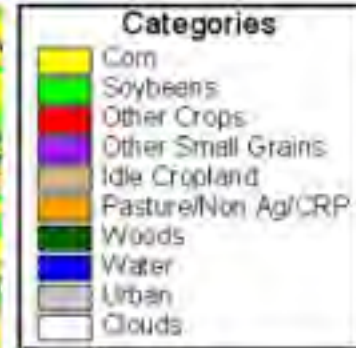
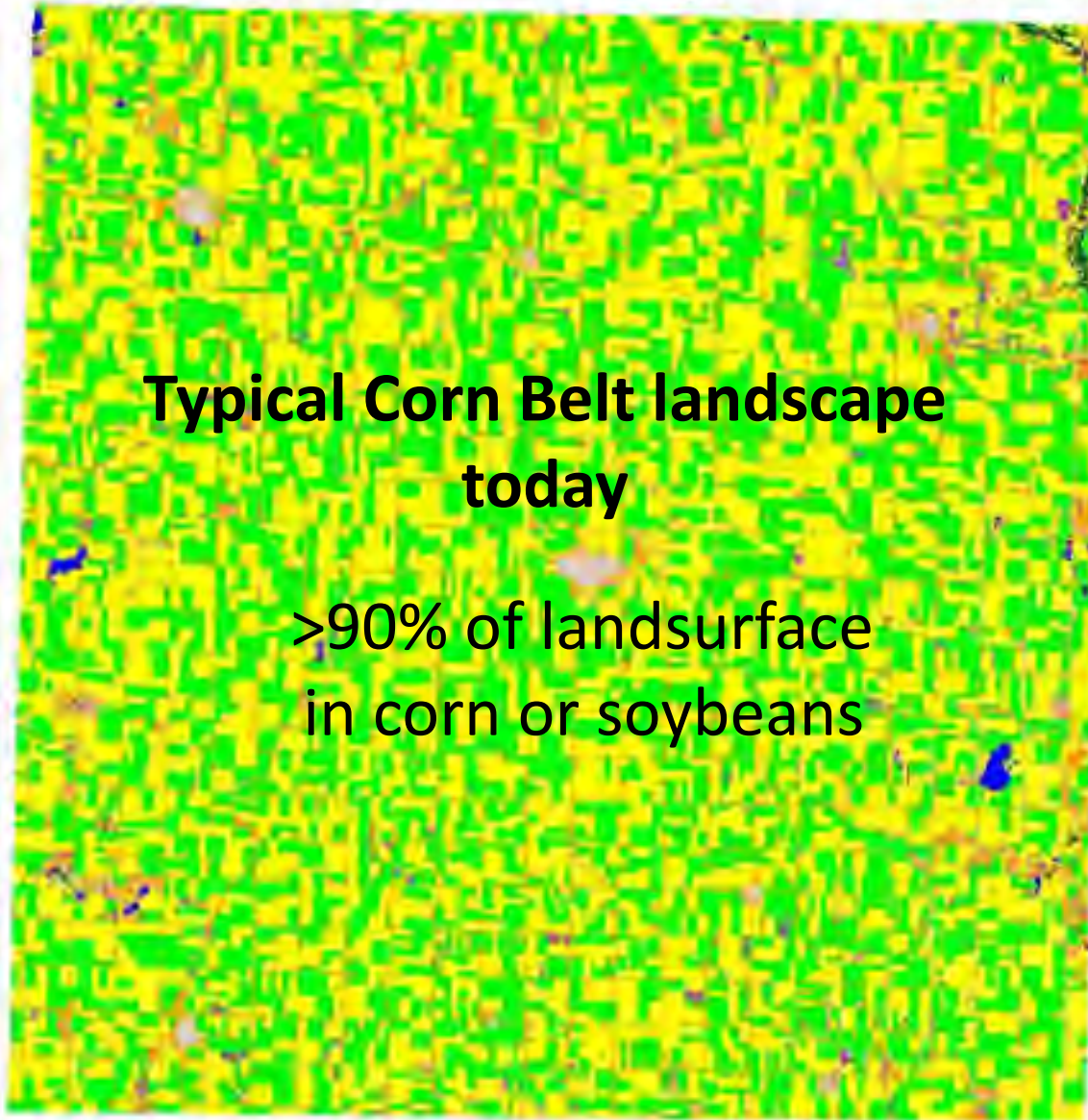
PLANTED ACREAGE - PRINCIPAL CROPS

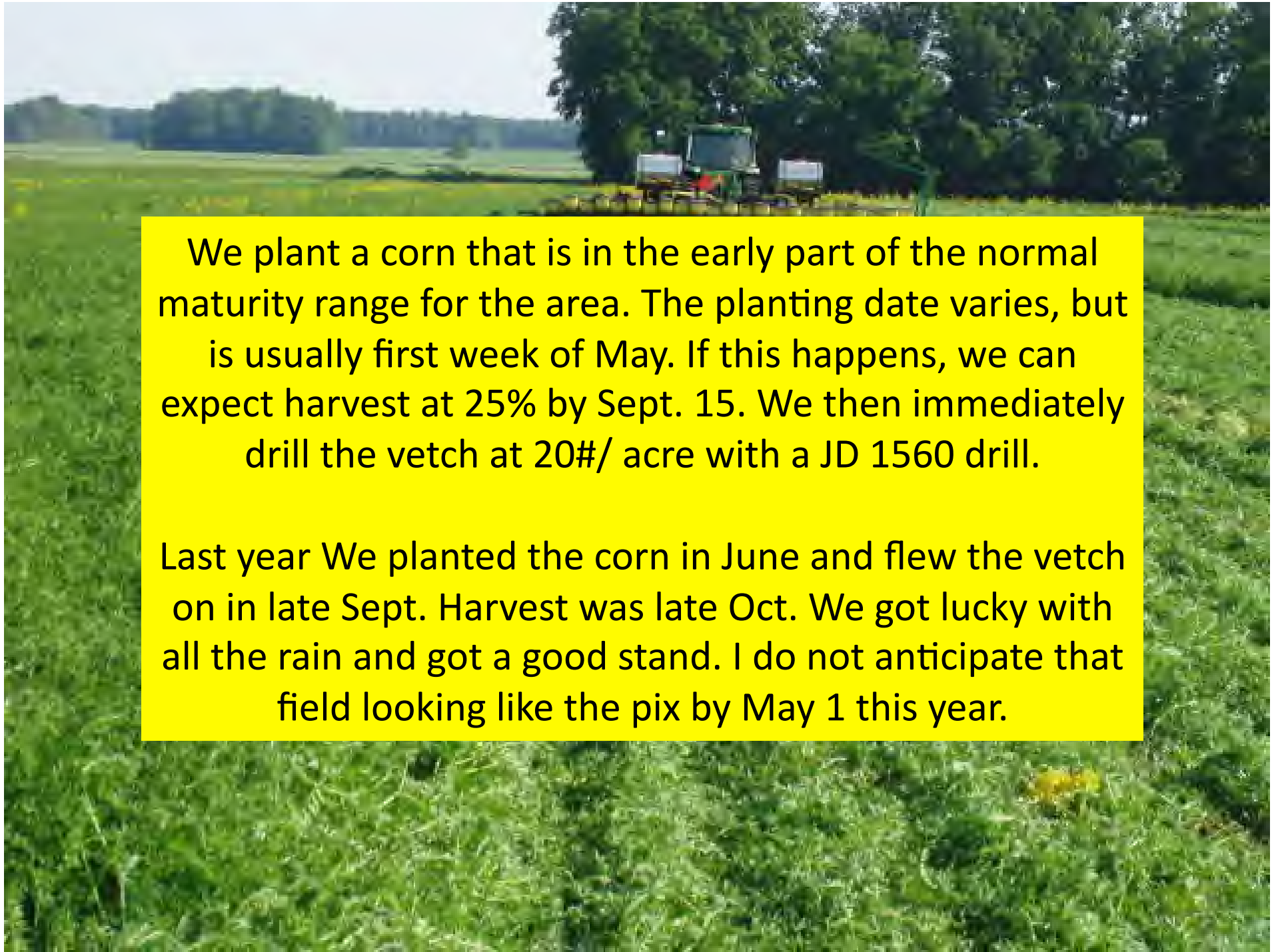
Crop	Illinois		United States	
	2009	Indicated 2010	2009	Indicated 2010
	Thousand acres			
Corn - All purposes	12,000	12,600	86,482	88,798
Soybeans	9,400	9,500	77,451	78,098
Winter Wheat ^{1/}	850	350	43,311	37,698
Sorghum - All purposes	40	40	6,633	6,360
Oats	40	40	3,404	3,364
All Hay ^{2/}	610	610	59,755	60,460

^{1/} Includes acreage sown preceding fall.

^{2/} Hay acres for harvest.

2004 Pocahontas County, Iowa Cropland Data Layer



A green tractor is pulling a JD 1560 drill in a field. The field is lush green, and there are trees in the background. The sky is overcast.

We plant a corn that is in the early part of the normal maturity range for the area. The planting date varies, but is usually first week of May. If this happens, we can expect harvest at 25% by Sept. 15. We then immediately drill the vetch at 20#/ acre with a JD 1560 drill.

Last year We planted the corn in June and flew the vetch on in late Sept. Harvest was late Oct. We got lucky with all the rain and got a good stand. I do not anticipate that field looking like the pix by May 1 this year.

Drilling annual ryegrass into the stubble from 90 bu wheat, 50 bu double crop soybeans



Broadcasting cover crop seed with
pellet lime and low rate fertilizer



Dan DeSutter 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.



Student: Which cover crops have you tried? how many acres? following/preceding which crops?


Joe Nester replied:

We just inter-seeded 14,000 acres of corn and soybeans with annual rye. We used a helicopter service out of Minnesota to seed it. We have used annual rye a year ago, seeding with drills after wheat and soybeans, but the planting date was too late to wait after beans. Excellent where seeded after wheat about Sept. 1. Our experience is limited, but the idea is really taking off, to hold the soil in place over the winter, keep nutrients within the field, and help with timely no-till planting in the spring.



Aerial seeding forages into standing crops





**Barkant Turnips-3 lbs
Rye 2 Bu
Airplane \$8/Acre
Corn 183 Bu/acre
Atrazine 1 lb
Partner April 28**



An

This photo was taken in Ohio on Oct 29, about 6 weeks after aerial seeding and 4 weeks after corn harvest.

















06-23-05 12:23:04



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EDGE

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DECR TO ZOOM IN

JUN 23 2005



08.07.2009



Recommended Rates

- **Annual Rye 1.5 – 2.0 bu / acre**
- **Turnips 3.0 lb / acre**
- **Millet 1.5 lb / acre**
- **Wheat 1.0 – 2.0 bu / acre**
- **Soybeans 2 bu / acre**

Aerial Seeding Dates

- **Small Grains**
 - Late August into standing soybeans
 - Mid-to-Late September into standing corn
- **Seeding Legumes**
 - Early August into standing soybeans
 - Early September into standing corn



“Mr. Wiley said that he has used a number of cover crops in the past. He used an old de-tasseling machine and added a seeder to it to spread rye into standing corn in late summer.”





I have been working to build this seeder to seed cover crops into corn & beans. Got the idea last year from posts on here. Thought I would share my version. I'm using a Hagie STS 12 with a Gandy Orbit Air seed box. I can cover 90 feet / 36 rows and the hopper holds 65 bu.

Andy Ambriole's
Highboy air
seeder



This is the last and greenest field I did. Still has a little time to go yet, but it should make some corn. Most other fields are brown with grain moisture, I'm guessing, in the low 20's. The ground is getting more light, so we'll see if that makes a difference.



It's kinda hard to tell the seed from the corn pollen. The big lighter pieces are pollen. The smaller darker ones are ryegrass and the little orange balls are crimson clover. The seed mix was 80/20 ryegrass/clover



Don Birky's
seeder in
Central IL





Don and Matt Birky's unique highboy with 10 feet and six inches of clearance could attract a crowd for its high-rising maneuvers, but the father-son team created the special equipment for a tough job.

The highboy, dubbed High Roller, was developed to air seed legumes and other cover crops into standing corn in August. The Birkys, who operate On Track Farming Inc. in rural Gibson City, put the highboy through its paces last week.



Bio-strip till

Attempt #2



Tillage radish on 30" rows with oats on 7.5" rows



November 2010






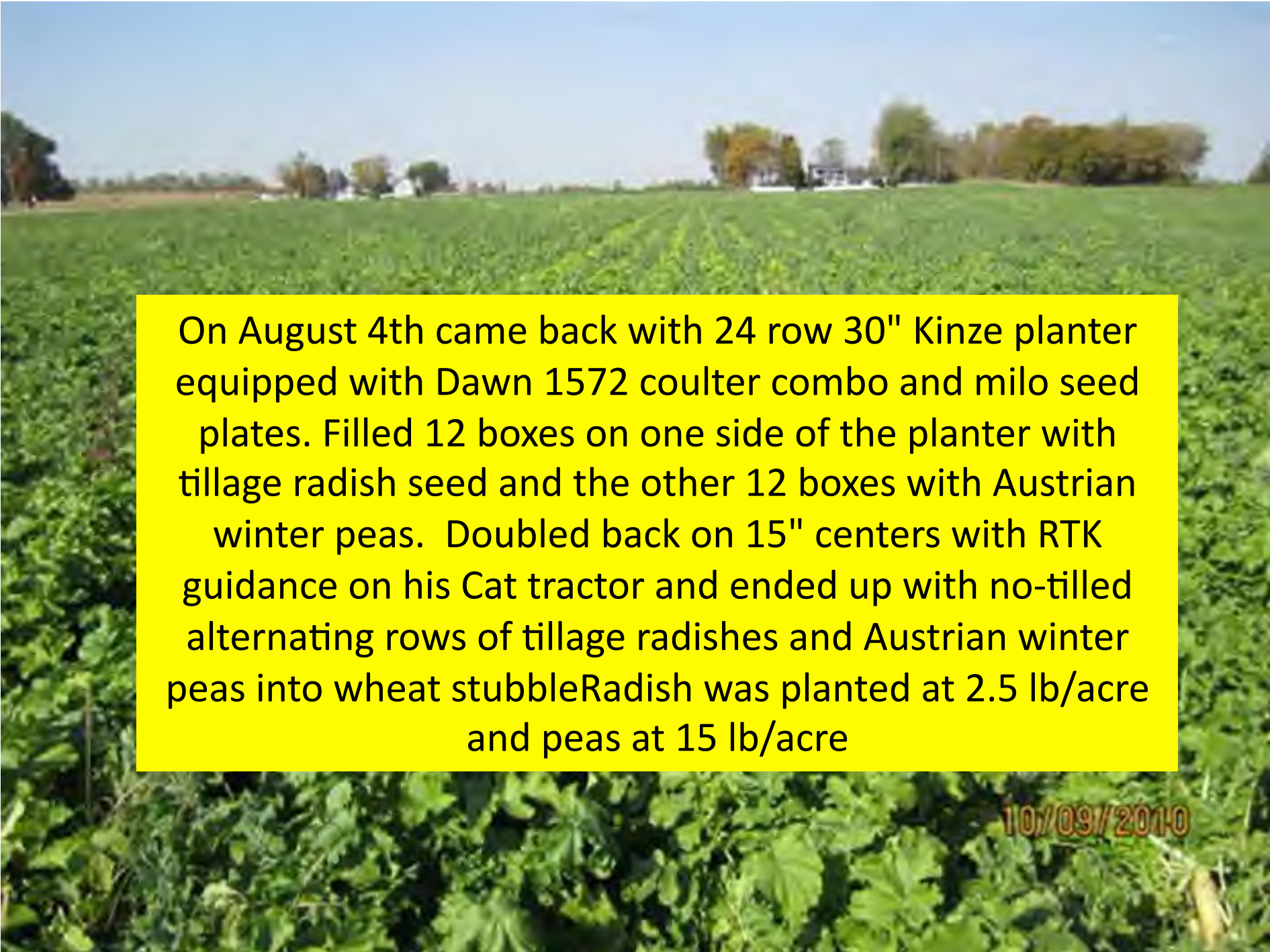
**Radish planted in volunteer
cereal rye**







Planted 9-20 using a Kinze w/pusher units. Had backing plates on the brush meters w/bean plates. Worked very well for the rye but I couldn't get the meters to turn slow enough for the radish. I was using spocket combinations that the book never mentions! I ended up w/ 6 lb of radish seed, was shooting for 2. Goal is to plant corn on radish row next spring, hopefully letting the rye/barley live until the corn is planted.



On August 4th came back with 24 row 30" Kinze planter equipped with Dawn 1572 coulter combo and milo seed plates. Filled 12 boxes on one side of the planter with tillage radish seed and the other 12 boxes with Austrian winter peas. Doubled back on 15" centers with RTK guidance on his Cat tractor and ended up with no-tilled alternating rows of tillage radishes and Austrian winter peas into wheat stubble. Radish was planted at 2.5 lb/acre and peas at 15 lb/acre

10/09/2010



Terry Taylor - radishes in hairy vetch,
crimson clover and Aus winter peas





Biostriptill in VA



I planted the radish with the front units and the rye with the back units on a 3500 Kinze. I had to cobble together a second transmission for the front units so I could set the the front and rear units separately. I can't recall specifics right now of what sprockets I used.



Brian Harnish

Lancaster County, Pa.

Seeding cover crops with
liquid manure





Techneat Engineering builds innovative, exciting and cost-effective engineering solutions

Late flowering rape benefits early Autocast

New later flowering and low biomass oilseed rape varieties are especially well suited to the very low cost Autocast establishment technique, particularly for crops sown early when combining wheat at the beginning of August, according to Cambridgeshire farmer and Autocast inventor, Michael Godfrey.

"Growers should be looking for variety attributes of short straw length, stiff stems and later flowering for the earliest sown crops to avoid problems of excessive early growth, which can still be vigorous in a mild autumn," he advises. "Frost damage during flowering leads to a high proportion blind pod sights affecting yield and even seed maturity; later flowering gives a better pod and seed set."

In the South and Eastern Counties he advocates that Expert would appear a good choice, combining high yield with later flowering; slightly later maturity will have little impact for growers. In the north NKBravour has even better yield and





AUTOCAST V2









Interseeding Small-seeded Forages into Sod with Conventional Corn/Soybean Planters

Since the advent of the 15th Conservation Reserve Program (CRP) sign-up that ended in May 1997 and the 16th CRP sign-up that ended in November 1997, farmers have been looking for ways to interseed legumes and native grasses into established CRP sod. Approximately 523,000 and 341,000 acres, respectively, were accepted in the 15th and 16th CRP sign-ups in Iowa.

Corn/Soybean Planters Are an Option

Small-seeded legumes and several of the small-seeded grasses can be interseeded through the insecticide boxes of most corn/soybean planters. Just like granular insecticides, many of the small-seeded forages can be accurately metered directly infurrow or banded just in front of the press wheel. Setting the double disk openers about 1/2" to 3/4" deep and running the seed infurrow will give the best seed-to-soil contact and probably the best chance of success.

One advantage of placing the seed infurrow and closing with the press wheels is that herbicides can be sprayed over the row for sod suppression at the same time the seed is planted. Roundup Ultra (Monsanto), Touchdown (Zeneca), and Gramoxone Extra (Zeneca) are burndown herbicides that can be used this way. For switchgrass and some of the other warm-season grasses, Atrazine can be combined with the burndown herbicides or sprayed alone over the row with the planter.

Table 1. Ounces to pounds per acre calibration conversion for a time period equal to 3 and 4 mph.

	—400 ft of row length equals—	
	Acres	Each oz collected equals lb/acre
15" row width =	0.011	5.44
20" row width =	0.015	4.08
30" row width =	0.023	2.72
36" row width =	0.028	2.26
38" row width =	0.029	2.15
40" row width =	0.030	2.04

3 mph = 91 seconds per 400 ft

4 mph = 68 seconds per 400 ft



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Actual planter calibrated: 1987 Kinze, 6-row, 30"
 Representative of: Kinze planters

Seed type	#s/acre on 30" rows box setting at 3 mph					
	5	10	15	20	25	30
Alfalfa	2.1	6.2	10.3	14.4	—	—
Alsike clover	3.1	8.9	12.7	19.5	—	—
Birdsfoot trefoil	4.4	10.9	16.7	23.4	—	—
Medium red clover	2.9	7.6	11.5	16.3	—	—
Switchgrass	1.7	3.9	5.1	6.6	10.2	15.6
Sweetclover	2.6	6.7	10.5	14.1	—	—

Brand new bulletin from Penn State



Agronomy Facts 67

Management of Red Clover as a Cover Crop

BENEFITS

Red clover is a short-lived perennial that is winter hardy throughout Pennsylvania. Red clover can be used as a cover crop that provides many benefits such as fixing nitrogen (N) to meet needs of the following crop, protecting soil from erosion, improving soil tilth, competing with weeds, as well as supplying forage.

Red clover is adapted to a wide range of soil conditions and is winter hardy in Pennsylvania. Red clover survives best on well-drained soil. It produces two types of seed: mammoth and medium. Mammoth seed is larger and more difficult to handle than medium seed.

Broadcasting red clover seed into soybeans just before leaf fall (when soybean leaves start to turn yellow) has been proven a successful method. The leaves that fall after the red clover seed has been broadcast help increase humidity around the seeds.

NITROGEN FIXATION

In a study in Wisconsin, red clover fixed enough nitrogen to supply the equivalent of 160 pounds per acre of nitrogen fertilizer. A lower nitrogen contribution is more common, however. A study in Pennsylvania showed that a one-year-old red clover stand (without harvest) contributed 70 pounds of nitrogen per acre to the first corn crop following it, while there was a benefit of 50 pounds of nitrogen per acre for the

approximately 75 percent of that supplied in the first year (in our example this would be $40 \times 0.75 = 30$ pounds of N in the second year). If the red clover is established in late summer or early fall, it might not fix as much nitrogen as calculated here. Several studies have shown that the nitrogen benefit from the legume is similar whether it is incorporated or left on the surface. Broadcasting the mulch at the time of planting will lead to

more than 0.5 inch. deeper. So, check the depth of the mulch when using a no-till system. Depending on field conditions, the amount of mulch that has been inoculated with nitrogen should be sufficient to guarantee establishment. The preferred time of establishment is in early spring or early summer, although establishing it after small grain crops come off is possible. The earlier the red clover is established, the more benefits it can be expected to produce the following year.

An easy method of establishment is to frost-seed red clover into standing winter wheat or barley from February to April. With this method, the red clover seed is simply broadcast

est le réservoir de pulvérisation et la rampe d'épandage. On retrouve 21 sorties d'un côté et 20 de l'autre pour couvrir la longueur totale de la rampe.

... connaissance de la culture intercalaire du ray-grass lors d'une conférence donnée par Dan Towery, d'Ag Conservation Solutions. Il a été si convaincu des bienfaits du ray-grass annuel qu'il a investi temps et argent au développement d'une méthode de semis. Il a aussi ensemencé les entre-rangs de ses 150 hectares de maïs avec cette graminée.

Pour ne pas faire de compétition au maïs, le ray-grass

Anatomie de l'appareil

À l'avant de l'arroseuse automotrice, branché sur une rampe hydraulique, on retrouve un réservoir à grains. « Pour une autonomie au champ, c'était important d'inclure une réserve, mais à l'arrière, son poids causait un problème », explique Patrick Audette, président chez Aulari. Cette boîte de réserve correspond au distributeur d'engrais pneumatique (ARL1500P) de la compagnie et sert aussi à l'application de chaux granulaire; chez les Tétrault. « Le réservoir est multifonctionnel, il peut appliquer de la



Distributeur avec les tubes acheminant la semence aux pendillards

Tubes amenant la semence au distributeur

Réserve de grains (distributeur d'engrais pneumatique ARL1500P)



Pendillards





November 2010

Plot yields ranged from 42-52 bu/ac

Black Medic as a Self-Seeding Cover Crop

This slide shows black medic, a self-seeding legume, regenerating under a flax crop. As the flax continues to grow, black medic forms a low-growing living mulch under the crop canopy. After the flax is harvested, the black medic continues to grow and set seed until the first killing frost.











Zone Tillage?

