@FLOLOfarms

Loran & Brenda Steinlage

2017

Adaptation not Adoption


Using covercrops to some,is about as natural
AIRBAG
As Two IOWA farmers Driving around…..IRELAND
Driving around,with just DEAD RECKONING


6 days…… later,we got this mastered

PUTTING CARBON IN SOIL

IS ABOUT LIKE PUTTING GENIE BACK IN

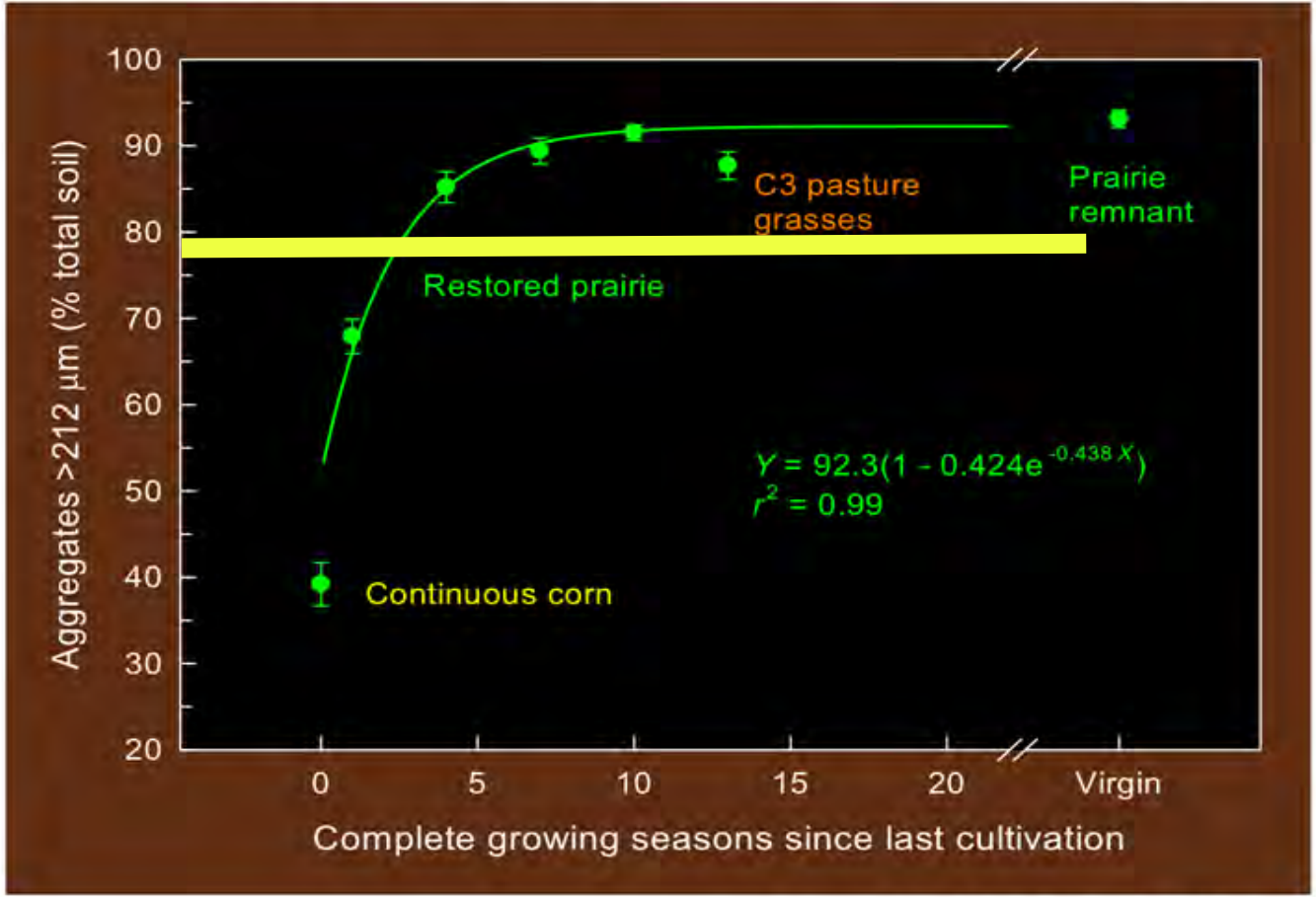
Carbon Streaks

We Found

From 2006

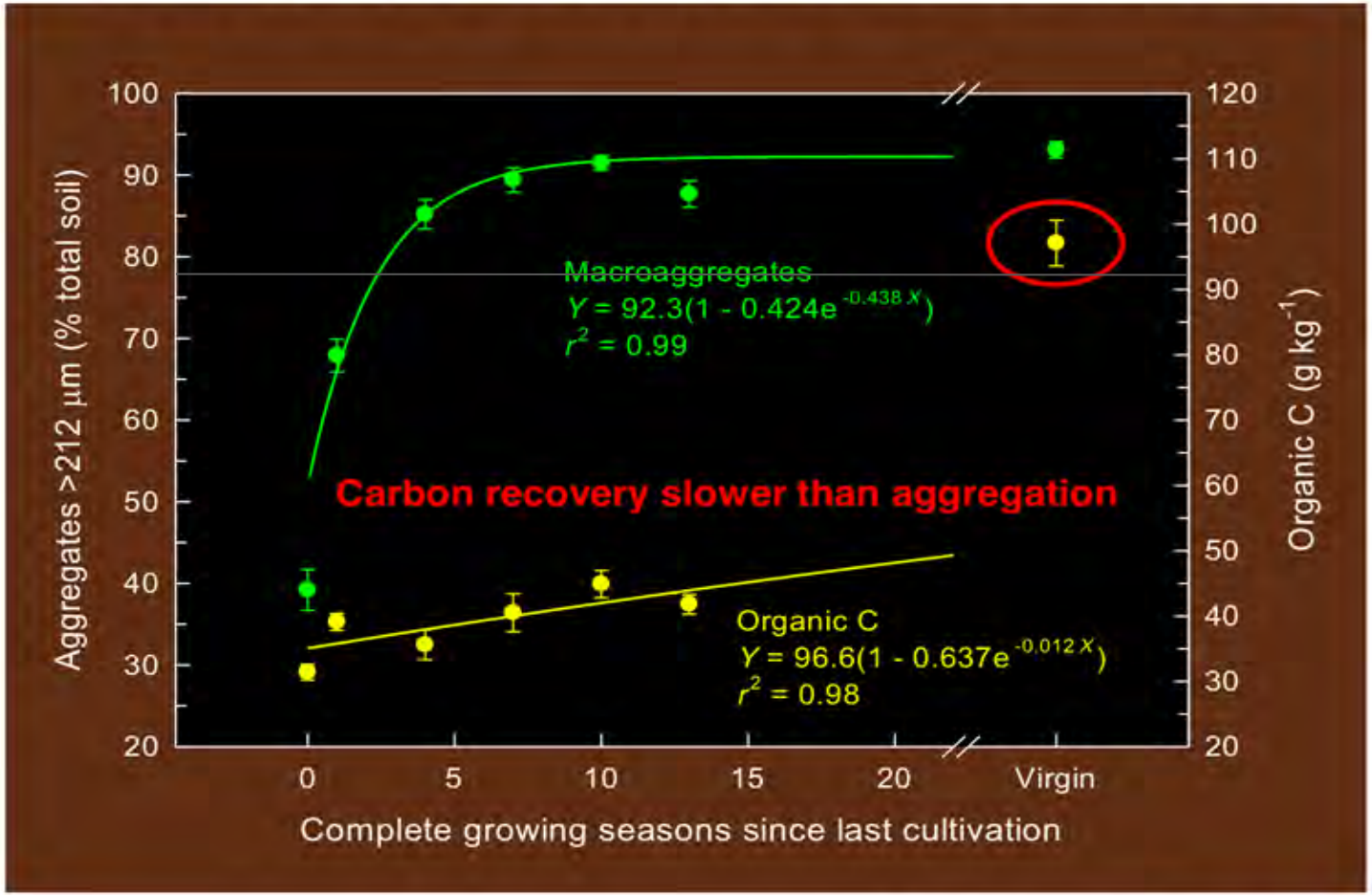
FFWD to 2016

Rapid recovery of water-stable macroaggregates



Jastrow 1987. Am. J. Bot. 74:1656-1664


Changes in aggregation and organic carbon in prairie soil

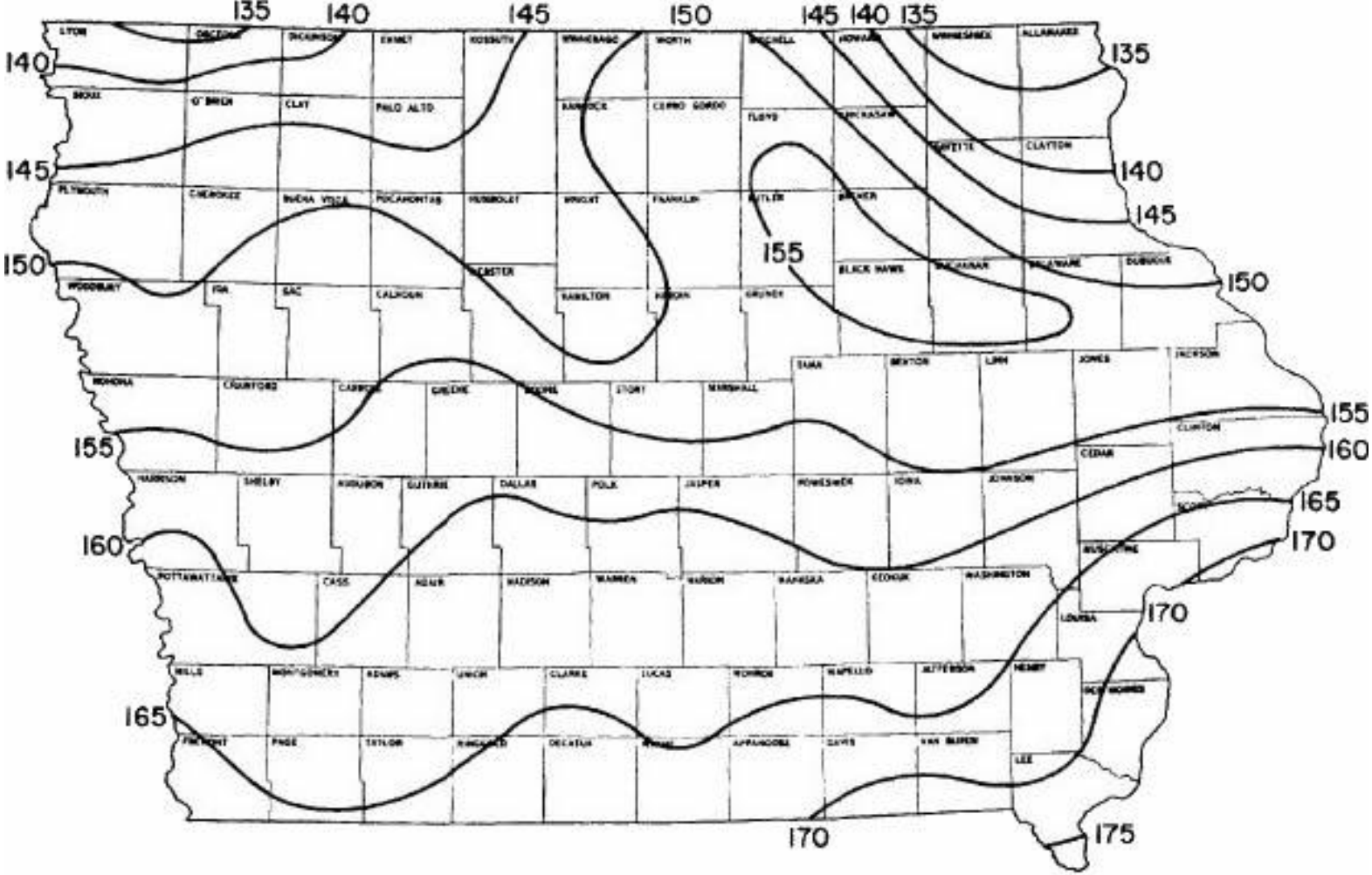


Jastrow 1996, Soil Biol. Biochem. 28:665-676

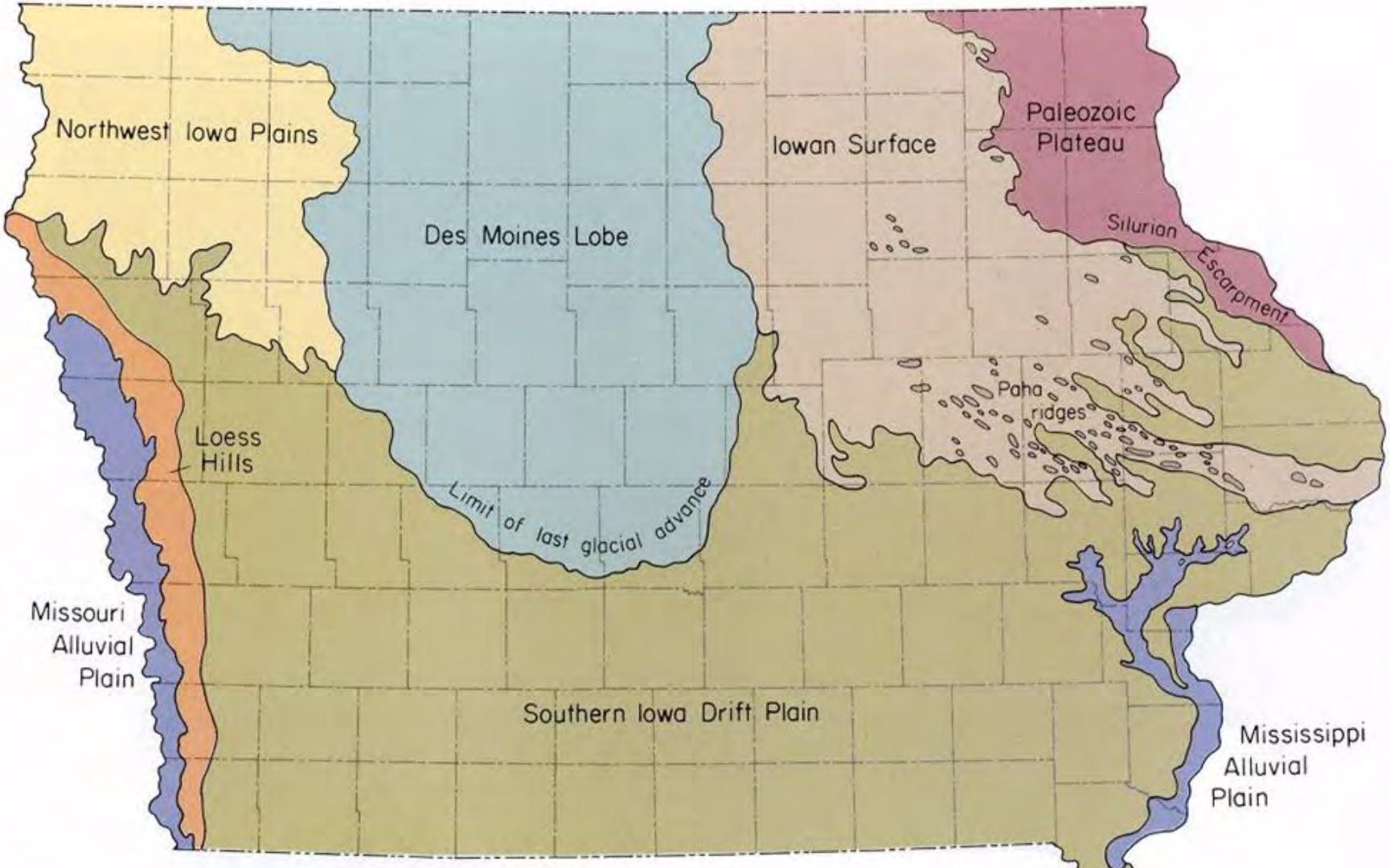

We monitored
For Nitrates
Well-- 6.2ppm
Spring in woods --19ppm
Tile outlet 50/50 blend--25ppm
Tile Outlet isolated COB covers 13ppm

As The journey of our evolution continues we strive to keep improving


The pieces of the puzzle coming together
RoBands,InnerSeed,permaculture
Beyond sustainable to Restorative



Map 2. Length of the growing season (in days).


Northwest Iowa Plains
Des Moines Lobe
Iowan Surface
Paleozoic Plateau
Silurian Escarpment
Paha ridges
Loess Hills
Limit of last glacial advance
Missouri Alluvial Plain
Southern Iowa Drift Plain
Mississippi Alluvial Plain

Corn into diverse N producing mix


September 08,2016


May 24,2016

Somewhere along the line…..it hit me
I was trying to reinvent the wheel







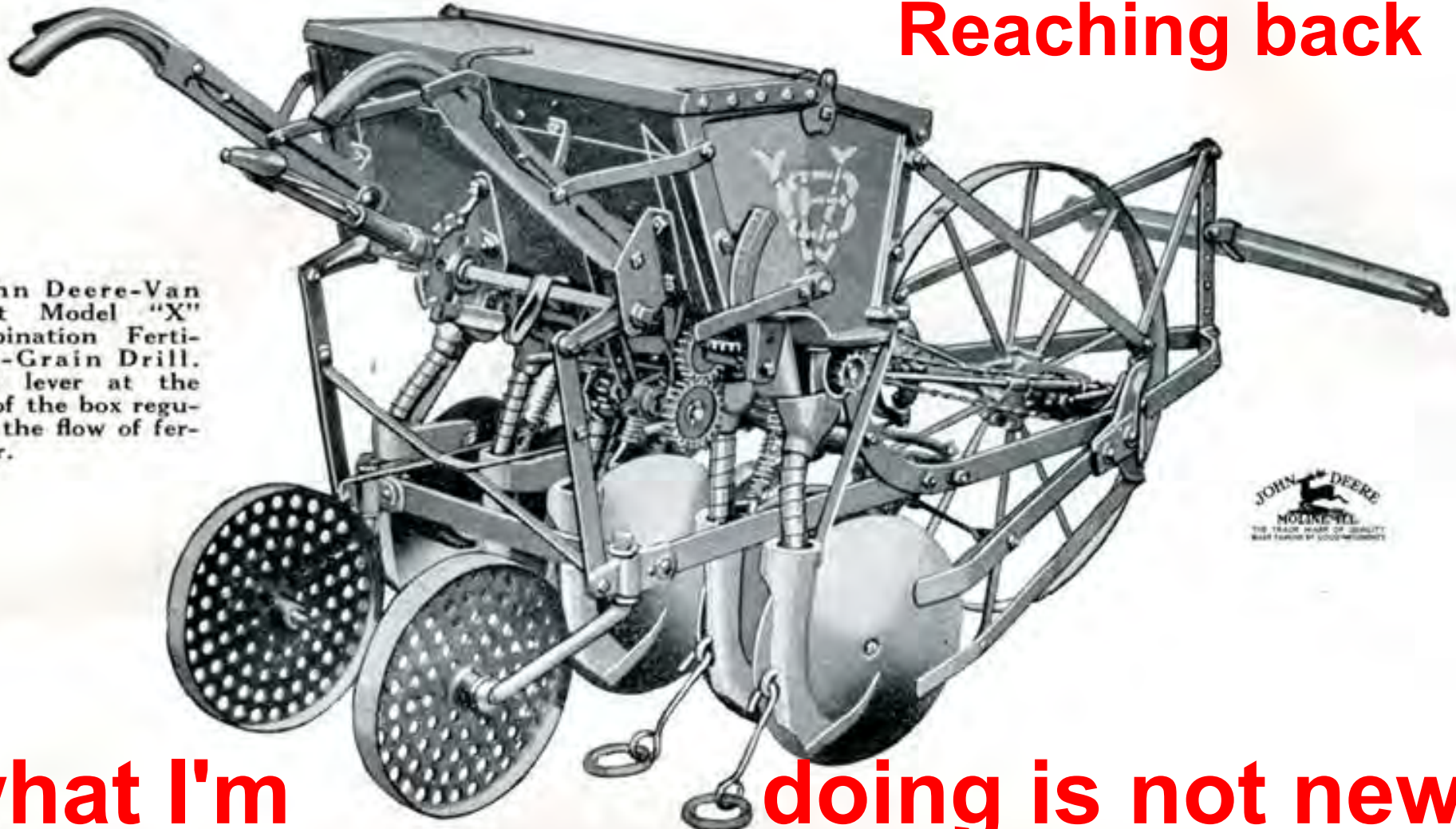






IF YOU BUILD IT, THEY WILL COME
OR THEY WON'T. HARD TO SAY.
imgflip.com

Reaching back



John Deere-Van Brunt Model "X" Combination Fertilizer-Grain Drill. Hand lever at the side of the box regulates the flow of fertilizer.

what I'm doing is not new


September 2015


November2015


December 2015


March 2016


April 17,2016


April 22,2016


April 28,2015

May 09,2015


May 12,2015


May 15,2016

May22,2016


May 30,2016


June 03,2016

June 10,2016


June 17,2016


June 29,2016


July 08,2016


Aug 08,2016
Sep 13,2016


$15 an acre in seed =15bu

October 10,2016….


Nov 04 ,2016

Corn going to Corn

Focus on cool Legumes and Brassicas

Corn going to beans

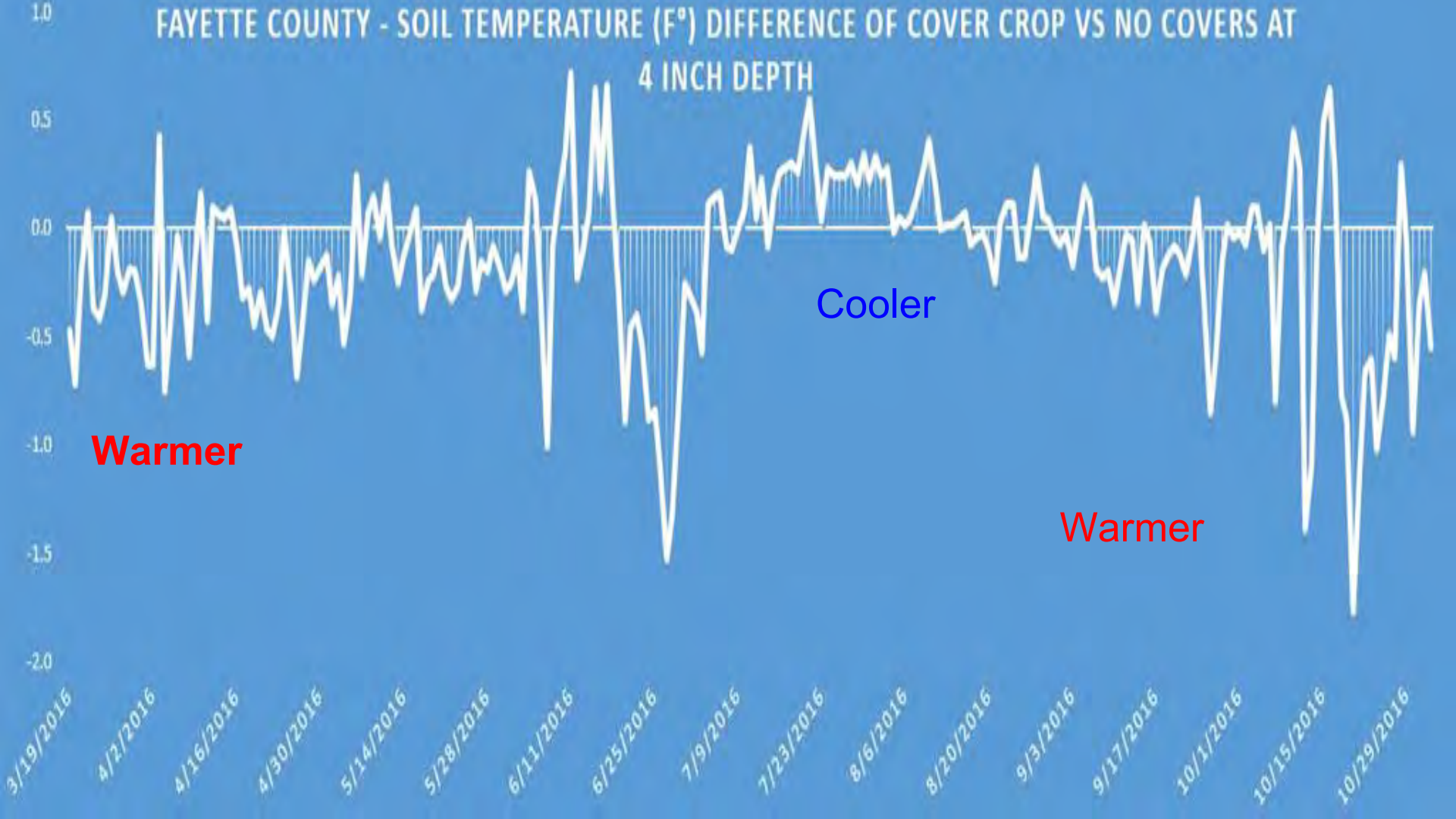
Focus on cool grasses, control burn Legumes and Brassicas

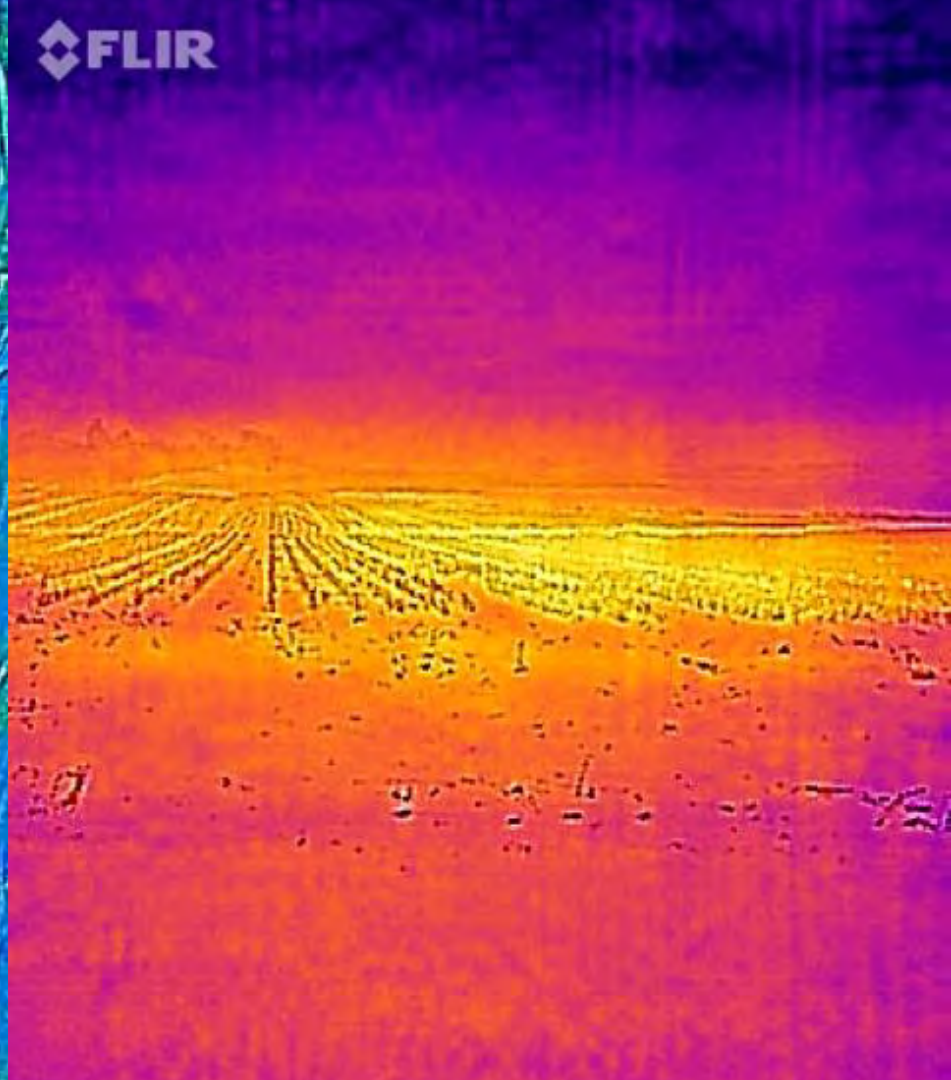
Bean going to Corn

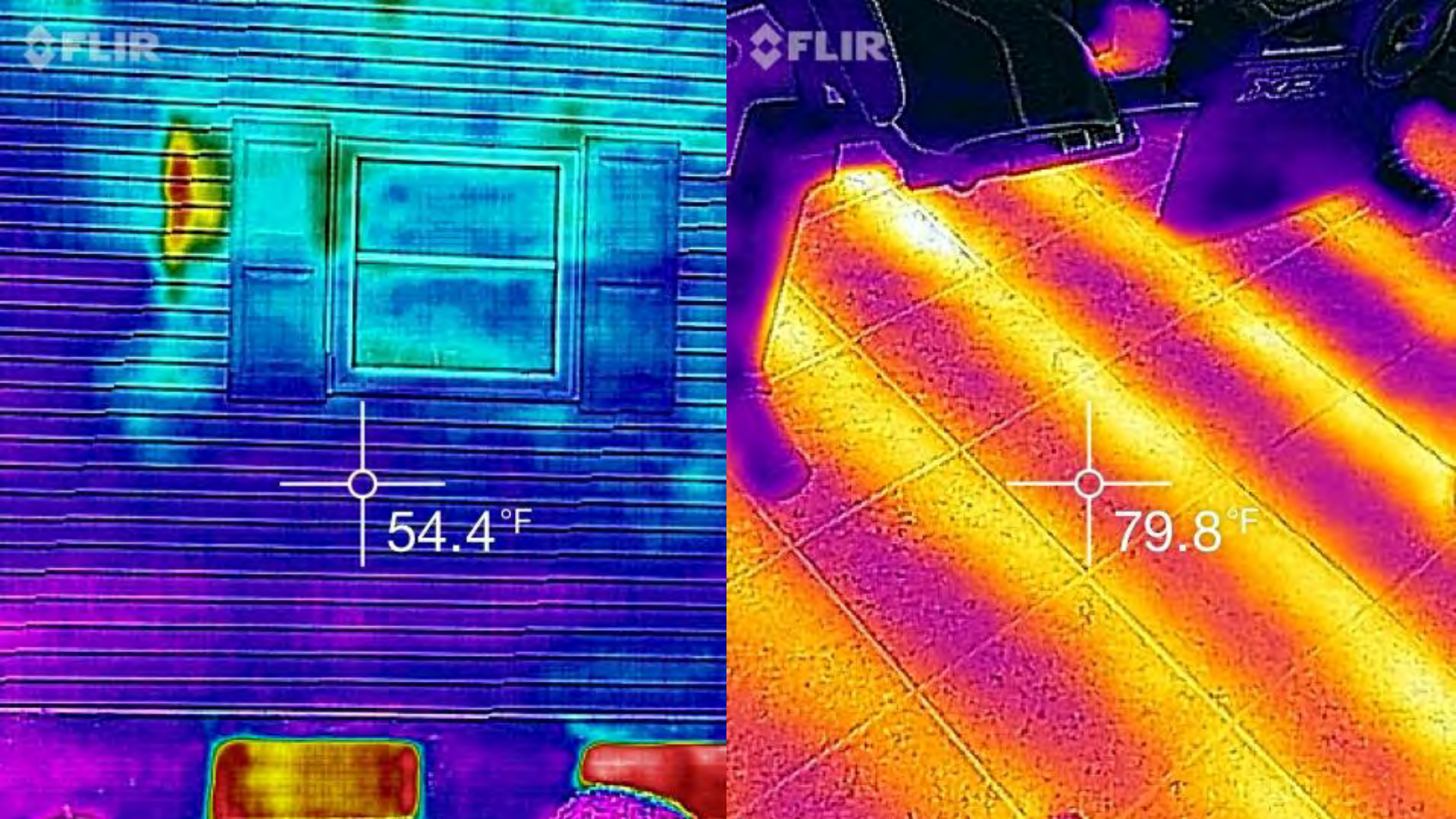
Drill TwinRow CerealRye drill chasing combine

But


This was 78% stable soil aggregates
Atleast 5yr COC permaculture


FAYETTE COUNTY - SOIL TEMPERATURE (F°) DIFFERENCE OF COVER CROP VS NO COVERS AT 4 INCH DEPTH
1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
Warmer
Cooler
Warmer
3/19/2016
4/2/2016
4/16/2016
4/30/2016
5/14/2016
5/28/2016
6/11/2016
6/25/2016
7/9/2016
7/23/2016
8/6/2016
8/20/2016
9/3/2016
9/17/2016
10/1/2016
10/15/2016
10/29/2016


FLIR

FLIR


FLIR
54.4 °F
FLIR
79.8 °F

Relay cropping &the start of Companion cropping

Relay/Companion Crop pluses

Window for double crop
Better Cash Flow
Time management
Labor management
Utilize Water availability
Weed Control

Keeping a living roots and Biology active

Relay/Companion Crop minuses

Window for CoverCrop
The Abys/unknown
Time management
Labor management
Water availability
Weed Control

Paying attention to Detail

MotherNature’s sense of humor


WHEN IT COMES TO READING YOUR PLAN
MOTHER NATURE IS ILLITERATE

Some things can make you see RED

GOing with cheaper herbicide options

Seeding rates

Relative Maturity and timing

Somebody not adhering to strict CTF

DISEASE issues

Apparently 120* can throw relay crop into stroke

Hail and wind…..can make for interesting harvest or lack of

Insurance Options are limited

USDA United States Department of Agriculture

A Risk Management Agency Fact Sheet 2016 Crop Year

St. Paul Regional Office — St. Paul, MN

Revised April 2016

Cover Crops

Iowa, Minnesota, and Wisconsin

What is a cover crop?

A cover crop is a crop generally recognized by agricultural experts as agronomically sound for the area for erosion control or other purposes related to conservation or soil improvement.

Cover Crop Special Provisions

Insurance coverage begins on a crop following a cover crop when:

- The cover crop meets the definition provided in the Basic Provisions;
- Planted within the last 12 months; and
- Managed and terminated according to the Natural Resources Conservation Service (NRCS) guidelines.

If the growing conditions warrant a deviation from the guidelines, producers should contact either Extension or local NRCS for management guidance. For information on cover crop management and termination guidelines, refer to the Cover Crop Termination Guidelines published at: www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/crops/.

Can I insure a spring crop following a cover crop?

Yes, a spring crop following a cover crop can be insured; however, the cover crop must be terminated per the NRCS's Cover Crop Termination Guidelines and Cover Crop Termination Zones Map.

Can grazing be used as a form of terminating the crop?

Yes, cover crops may be grazed or harvested as hay or silage, unless prohibited by Risk Management Agency (RMA) crop insurance policy provisions. Cover crops cannot be otherwise harvested, such as for grain or seed, etc.

Can I harvest a cover crop before the insured crop is planted?

Yes, the cover crop can be grazed or harvested as hay or silage; however, if it is harvested as grain or seed in the same year, the conservation cover crop will be considered a "crop" and double crop rules will apply.

What are my options for planting and harvesting a cover crop on acres prevented from being planted to an insured crop?

- Plant a cover crop and receive a full prevented planting payment (but do not harvest or graze this cover crop before November 1 or otherwise harvest at any time).
- Plant a cover crop after the late planting period or after the final planting date, if no late planting period is available. You may also harvest or graze the cover crop at any time, and receive a prevented planting payment equal to 35 percent of the prevented planting guarantee.

Will over-seeding or interseeding a conservation cover crop into an insured grain crop affect insurability?

No, as long as the cover crop is seeded at a time that will not impact the yield or harvest of the insured crop. If there was any damage caused by over-seeding the cover crop, uninsured cause of loss appraisals would be applied to the insured crop.

Will interplanting a conservation cover crop into an insured grain crop affect insurability?

No, unless prohibited by your crop insurance policy or crop provision. If the cover crop and a cash crop are planted in a way that permits separate agronomic maintenance or management, then the cash crop may be insurable. However, the cash crop is not insurable if the cover crop that is interplanted into a cash crop interferes with the agronomic management and the harvest of the cash crop.

This fact sheet gives only a general overview of the crop insurance program and is not a complete policy. For further information and an evaluation of your risk management needs, contact a crop insurance agent.

Definitions

Overseeding and Interseeding - With respect to cover crops, overseeding and interseeding is planting one or more cover crop species into an existing or established crop.

According to NRCS Termination Guidelines, common uses that involve over-seeding or interseeding include over-seeding a grass and/or legume cover crop into an existing stand of small grain at an appropriate time for the cover and germination, or seeding a cover crop into an existing crop (e.g., corn or soybeans) at a time that will not impact the yield or harvest of the insured crop.

Interplanting - Multiple crop species grown together, with no distinct row pattern and does not permit separate agronomic maintenance or management.

If a cover crop and cash crop are planted in a way that does not permit separate agronomic maintenance or management, then the cash crop will not be insured. This would also apply to cover crops if interplanted into the main crop and the cover crop interfered with the agronomic management and harvest of the main crop.

Double Cropping - Harvesting at least two crops from the same land in the same year. This does not include cover crops.

Prevented Planting - Failure to plant the insured crop by the final planting date, or within any applicable late planting period, due to an insured cause of loss that is general to the surrounding area and that prevents other producers from planting acreage with similar characteristics.

More Information

You can find more information about cover crops and commercial crop insurability in your county special provisions at http://webapp.rma.usda.gov/apps/actuarialinformationbrowser/. Once you reach the site, click on the drop down menus to choose the year, your crop, your state, and your county. All relevant information for your crop, including information on cover crops, is available. For answers to more frequently asked questions, go to www.rma.usda.gov/help/faq/covercrops2016.html.

Where to Buy Crop Insurance

All multi-peril crop insurance, including Catastrophic Risk Protection policies, are available from private insurance agents. A list of crop insurance agents is available at all USDA service centers and on the RMA website at: www.rma.usda.gov/tools/agent.

Contact Us

USDA/RMA
St. Paul Regional Office
30 7th Street East, Suite 1890
St. Paul, MN 55101
Phone: (651) 290-3304
Fax: (651) 290-4139
E-mail: rsomn@rma.usda.gov

Download Copies from the Web
Visit our online publications/fact sheets page at:
www.rma.usda.gov/aboutrma/fields/mn_rso/






Places to test and fail….Learned Callisto and other residuals cause issues season long


November 2015

Spring 2015


May 15,2016 drilling beans


May 29,2016
June 05,2016


$20 seed cost……2 crops
June 15,2016


July 06,2016


July 14,2016


FLO-LO
FARMS

August 16,2016

August 22,2016


Sept 08,2016


September 18,2016


September 26,2016


There comes a time when you have to build
The tools & the toolbox
SURVIVAL TIPS S5 E5
WHAT'S IN
YOUR TOOLBOX?

The start of CoverCrops and Evolution to permaculture

Started figuring out the need for InnerSeed

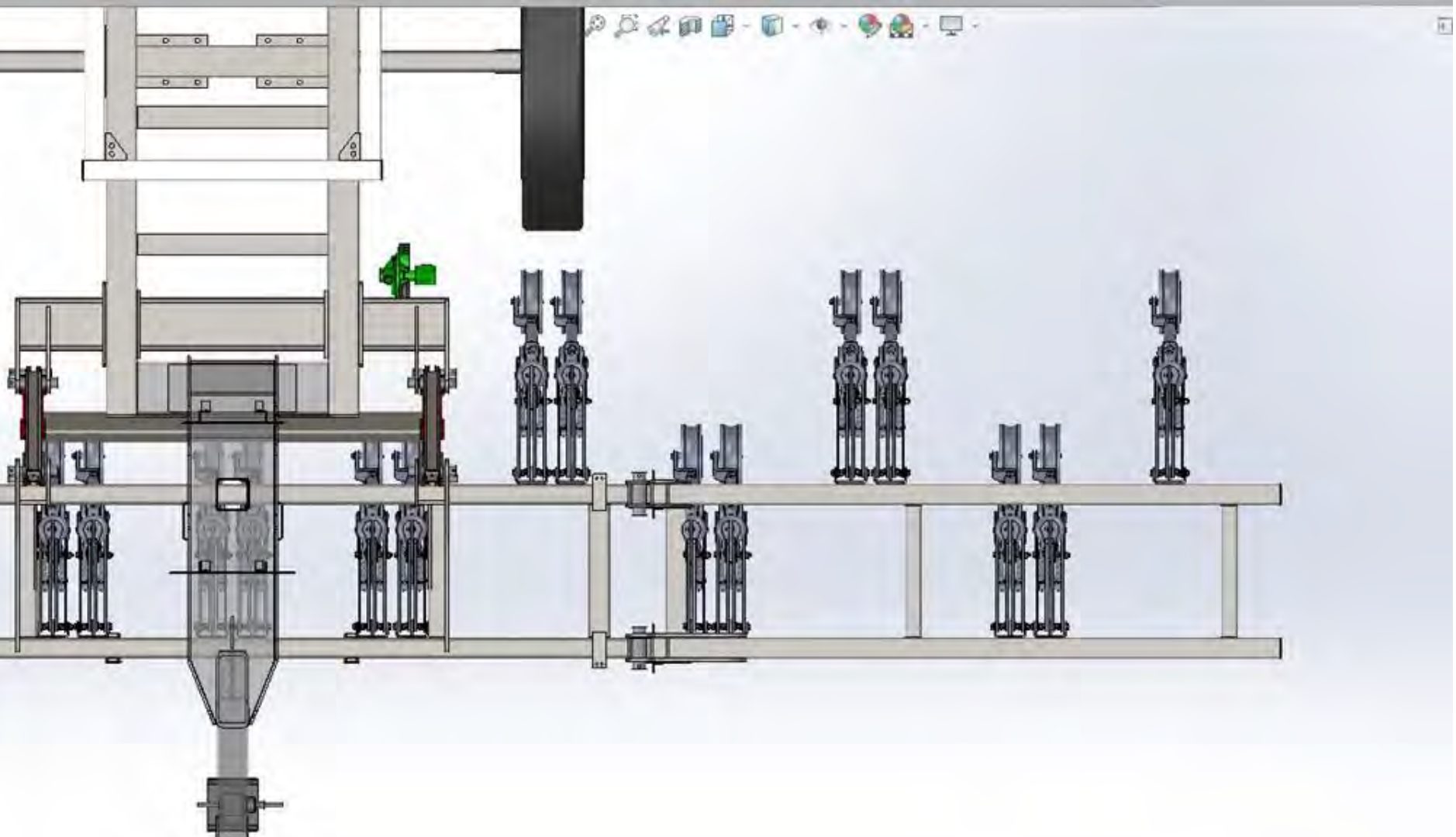

HINIKER

HINIKER Resurection

Drilled Soybeans,AirDrop InnerSeed
Drilled MultiSpecies CoverCrop mix

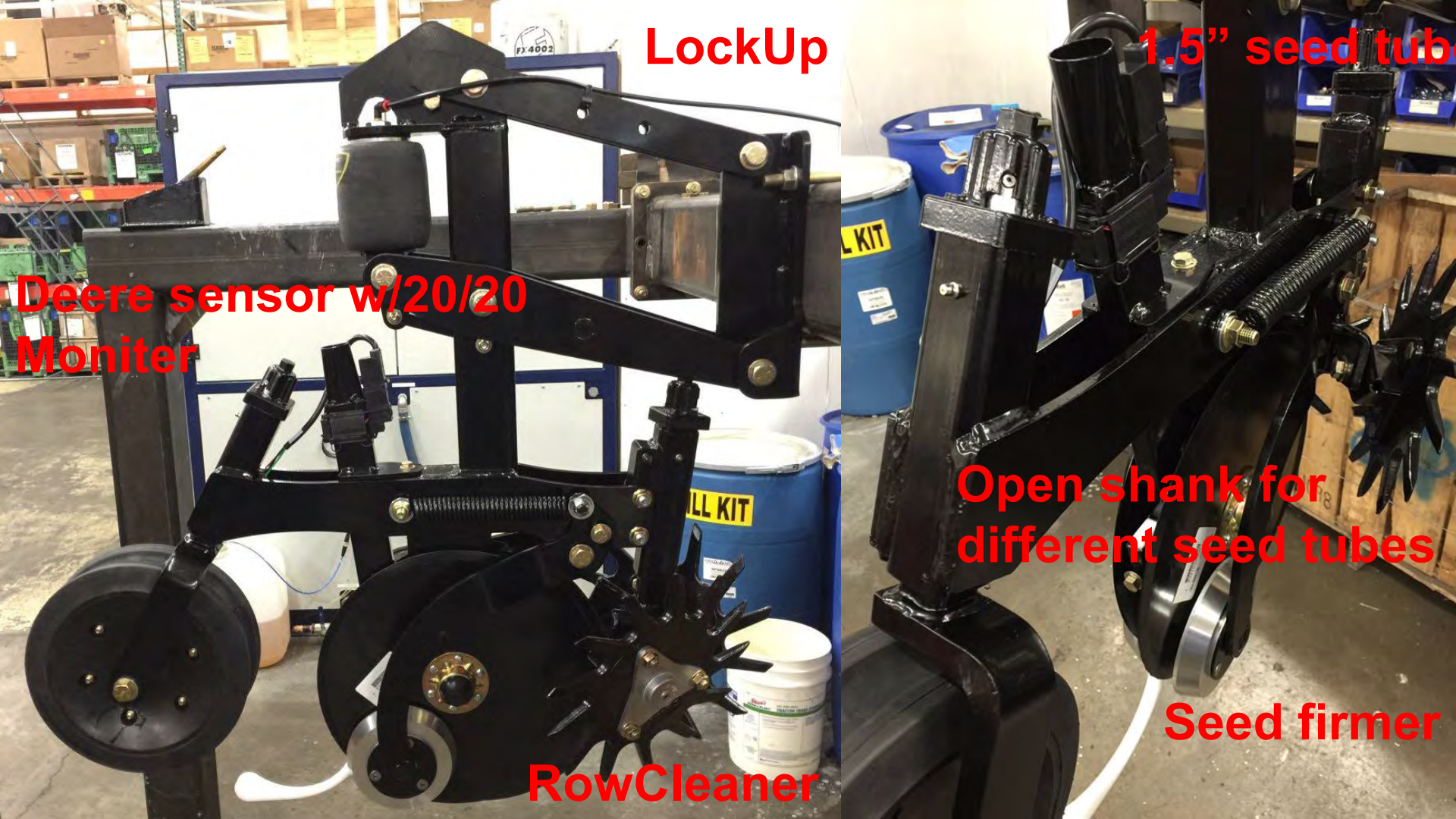
TwinRows & InnerSeeding & Relay/companion

The Future



DALTON TOOLBAR


DAWN DuoSeed RowUnits


LockUp
1.5” seed tub
Deere sensor w/20/20
Moniter
Open shank for
different seed tubes
Seed firmer
RowCleaner

HINIKER box on for Soybeans


MonTag

Roll/Crimp +sidedress\InnerSeed pass

25# bin run cereal rye

40# WinterWheat


15# cereal rye


Goal for 2017 Roll/Crimp Termination
In standing corn...Stay Tuned

Advantage will be less herbicides&increased biomass

Part of the reasoning for the ContolledBurn

On fields Rotating to Beans(learned by accident)


GREEN COVER COMEDY TOUR
FEATURING MADE'R SALAD

Loran Steinlage or **@FLOLOfarms**

YouTube

(563)380-1149

THE FOOD MISSION

SUSTAINABLE FOOD PRODUCTION

A Manual of Sustainable Methods of Plant Production
Helpful in Meeting Food Needs Everywhere

by Don and Lois Sobkoviak

PRODUCED BY SAND INSTITUTES INTERNATIONAL

ASPARAGUS - *Likes* tomatoes. *Dislikes* rue. Repels
BASIL - *Likes* tomatoes. *Dislikes* rue. Repels mosquitoes.
BEANS - *Likes* most vegetables, flowers and herbs. *Dislikes* onions, garlic, gladiolus.
BUSH BEANS - *Likes* potatoes, cucumbers, corn, strawberries, celery, summer savory. *Dislikes* onions.
POLE BEANS - *Likes* corn, summer savory. *Dislikes* onions, beets, kohlrabi, sunflowers.
BEE BALM - *Improves* growth and flavor of tomatoes
BEETS - *Likes* onions, kohlrabi. *Dislikes* pole beans.
BORAGE - *Helps* tomatoes, squash, strawberries. *Deters* tomato worms.
CABBAGE FAMILY (broccoli, cauliflower, kale, kohlrabi, etc.) *Likes* potatoes, celery, dill, chamomile, sage, thyme, mint, rosemary, lavender, beets, onions. *Dislikes* strawberries, tomatoes, pole beans.
CARROT - *Likes* peas, lettuce, chives, onions, leeks, rosemary, sage, tomatoes. *Dislikes* dill.
CATNIP - *Deters* flea beetles (plant in borders)
CELERY - *Likes* leeks, tomatoes, bush beans, cauliflower, cabbage.
CHAMOMILE - *Improves* cabbage, onions.
CHIVE - *Improves* carrots. *Deters* insects from fruit trees and berries. *Dislikes* peas, beans.
CORN - *Likes* potatoes, peas, beans, cucumbers, pumpkin, squash.
CUCUMBERS - *Likes* beans, corn, peas, radishes, sunflowers. *Dislikes* potatoes, aromatic herbs.
DILL - *Improves* cabbage. *Dislikes* carrots
EGGPLANT - *Likes* beans (protects from beetles).
FLAX - *Likes and improves* carrots, potatoes.
GARLIC - *Likes* roses, raspberries. *Deters* mosquitoes, flies, and other insects.
HORSERADISH - *Likes* potatoes. *Deters* beetles.
HYSSOP - *Improves* grapes, cabbage. *Antagonizes* radishes
LEEKS - *Likes* onions, celery, carrots.
LETTUCE - *Likes* carrots, radishes, strawberries, cucumbers.
MARIGOLD - *Deters* nematodes and most insects. Plant

PEAS - *Likes* most vegetables. *Dislikes* onions, garlic, gladiolus, potatoes, chives.
PETUNIAS - *Protects* beans. Helpful throughout garden.
PIGWEED - *Improves* potatoes, onions, corn. Keep weed thinned.
POTATOES - *Likes* beans, corn, cabbage, horseradish, eggplant. *Dislikes* pumpkins, squash, cucumbers, sunflowers, tomatoes, raspberries.
PUMPKIN - *Likes* corn. *Dislikes* potatoes.
RADISHES - *Likes* peas, nasturtiums, lettuce, cucumbers. *Dislikes* hyssop.
ROSEMARY - *Helps* carrots, beans, cabbage, sage. *Deters* cabbage moth, bean beetles and carrot fly
RUE - *Helps* roses, raspberries. *Deters* flies, fleas, Japanese beetles. *Antagonizes* sweet basil.
SAGE - *Improves* carrots, cabbage, peas, beans. *Deters* cabbage flies. *Antagonizes* cucumber.
SOW THISTLE - *Helps* tomatoes, onions, corn (use moderately)
SOYBEANS - Grows with anything, helps everything
SPINACH - *Likes and helps* strawberries.
SQUASH - *Likes* nasturtiums, corn, radishes.
STRAWBERRIES - *Likes* bush beans, spinach, borage, lettuce. *Dislikes* cabbage.
SUMMER SAVORY - *Improves* beans, onions. *Deters* bean beetles.
SUNFLOWERS - *Benefits* corn, cucumbers. *Antagonizes* potatoes.
TANSY - *Helps* roses, raspberry, blackberry, grapes *Repels* borers, Japanese beetles, squash bugs, flies, ants
THYME - Good throughout garden. *Deters* cabbage worm.
TOMATO - *Likes* chives, onions, parsley, asparagus, carrots, limas, marigolds, nasturtiums. *Dislikes* cabbage, kohlrabi, potatoes, fennel.
TURNIPS - *Likes* peas, radishes. *Dislikes* cabbage family.
VALERIAN - Good anywhere in the garden.


CoverCrop totes,a great learning tool most of these are leftover garden seeds from a local farm store and free


10

Termination Plan=anytime or anyplace


FARMHAND
CAT

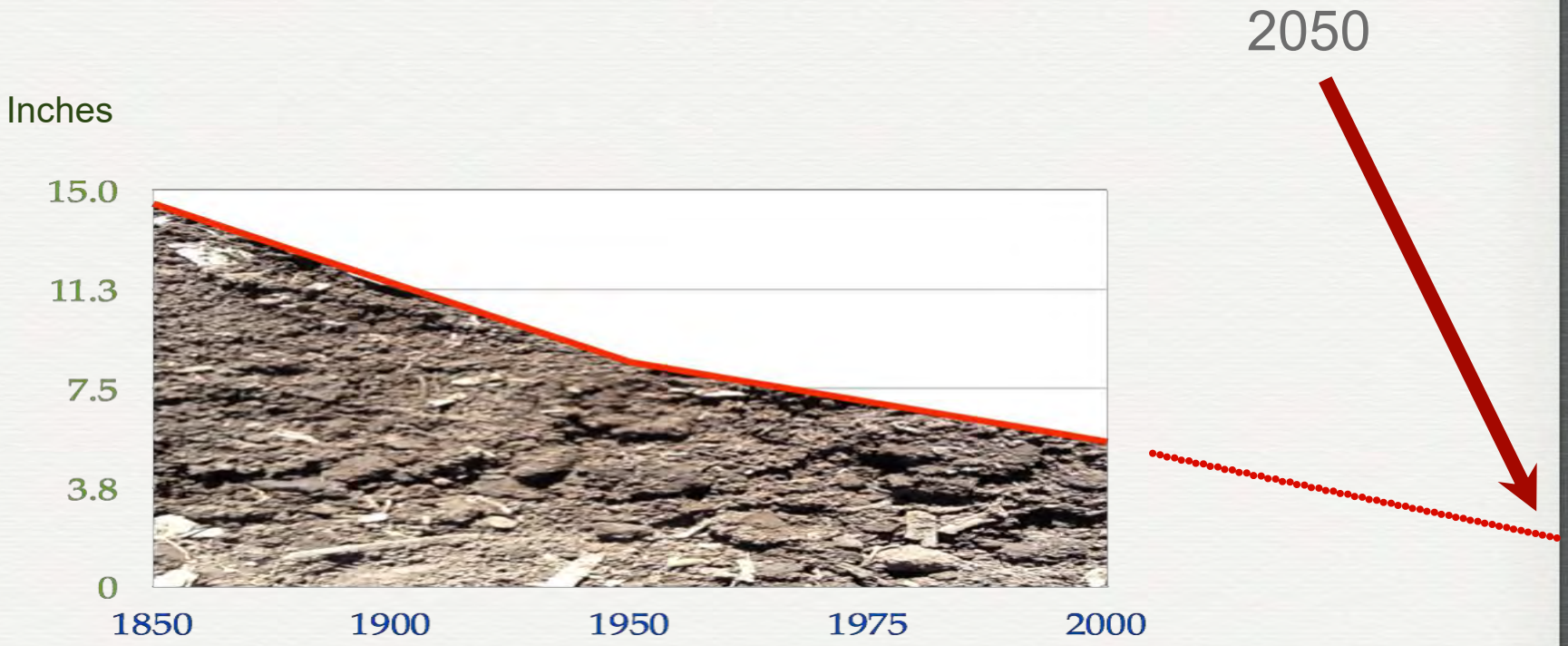

LENTILS


This is the kind of thing that drives me
Multiple passes throughout the yr,perfect
scouting,the change you see…..7bpa

Cover crops 201

Chris Teachout

Top Soil Lost over Time



Temperature below heavy rye

Temperature below no rye


Variety selection of
Covers


Mimic Nature

Seeding Rate: 45 lbs/acre

	%	Lot	Origin	Germ	Purity	Other	Inert	W
Chickling Vetch	6%	PF-CV-13	NE	96%	99.6%	0.0%	0.4%	
4010 Spring Peas	6%	LN-MT-13	MT	98%	99.2%	0.0%	0.8%	
Spring Forage Barley	33%	MSH5580	ND	96%	99.7%	0.0%	0.3%	
Rockford Oats	33%	MISC.RF-13.1	KS	96%	98.9%	0.3%	0.0%	
Brown Mustard	1%	110753-B	ID	97%	100%	0%	0%	
Broadleaf Mustard	1%	L9-12-MUS1	OR	90%	100%	0%	0%	
Defender Radish	1%	DE010-130481	GR	90%	100%	0%	0%	
Rapeseed "Buckbuster"	1%	RP-11	ID	95%	100%	0%	0%	
Flax-Shelby	7%	5367	MN	92%	98%	0%	1%	
Safflower	2%	8045	SD	90%	98%	1%	1%	
Buckwheat-Mancan	7%	8218	ND	85%	98%	1%	1%	
Phacelia-Balo	2%	BN 4120-1330	Ger.	70%	100%	0%	0%	

You control the Diversity

Spring Forage Barley	42%	MSH5580	ND	96%	99.7%	0.0
Rockford Oats	42%	MISC.RF-13.1	KS	96%	98.9%	0.1
Flax-Shelby	10%	5367	MN	92%	98%	
Safflower	5%	8045	SD	90%	98%	

And the Cost

Cover Crop Chart

AREA 4 SCD

GROWTH CYCLE	RELATIVE WATER USE	PLANT ARCHITECTURE
A = Annual	= Low	♈ = Upright
B = Biennial	= Medium	✱ = Upright-Spreading
P = Perennial	= High	≈ = Prostrate

---Cool Season---

---Warm Season---

---Grass---		---Broadleaf---						---Grass---
A Barley ♈								A Pearl millet ♈
A Oat ♈	A Phacelia ♈						A Amaranth ♈	A Foxtail millet ♈
A/P Ryegrass ♈	A Flax ♈						A Buckwheat ♈	A Proso millet ♈
		---Legumes---						
A Wheat ♈	A Spinach ✱	B Turnip ✱	A Field pea ♈	A Berseem clover ♈	A/P Medic ✱	A Chickpea ✱	A Sunflower ♈	A Sudan grass ♈
A Cereal rye ♈	A Kale ✱	A Radish ✱	A Lentil ✱	B/P Red clover ♈	P Birdsfoot trefoil ≈	A Cowpea ✱	A Safflower ♈	A Teff ♈
A Triticale ♈	A/B Canola ✱	B Beet ✱	A Lupin ♈	P White clover ♈	P Sainfoin ♈	A Soybean ✱	A Squash ≈	A Grain sorghum ♈
A Annual fescue ♈	A/P Mustard ✱	A/B Carrot ✱	A/B Vetch ≈	A/B Sweetclover ♈	P Alfalfa ♈	A Mung bean ✱	P Chicory ✱	A Corn ♈

Interplanting

We have done this

Beans And Corn Thrive in Sampson County

when nothing else would grow. Cowpeas not only increased the fertility but decreased blowing by adding to the humus in the soil. Farmers and editors recommended that they be planted at least every third year to arrest the declining fertility caused by successive crops of corn, wheat, or cotton. As a mixed crop, cowpeas were probably used more than any other crop. They were planted with corn in alternate rows or interplanted in the row after the second plowing or when the corn was laid by.

Cowpeas produced abundant vine, almost covering the ground, and, if left uncut on the land during the winter, protected the soil admirably.

Leave a cover crop of peavines on the land through the winter and when spring comes you may have some of your neighbor's soil but he will have very little, if any, of yours (*70*).

Soil Health Testing

- Laboratory Testing
- Haney soil test
- Solvita Respiration test
- S Y U
- T B I

LAB CO2-BURST

FIELD TEST

Woods End® Laboratories INCORPORATED

Innovative Soil Biology and Nutrient Testing since 1975

290 Belgrade Road
P.O. Box 297
Mount Vernon, ME 04352
207 293 2457
for more information:
lab@woodsend.org
Lab Test Version: 3.1

Soil Nutrient & Health Premium Test

For:

Chris Teachout
Teachout Harvest
1653 400 Ave
Shenandoah, IA 51601

Lab ID: 9325.0 **Acct No:** 2890
Sample: **Soil: Home West**
Sample Received: 4/8/2015
Report Date: 4/29/2015
Crop Intended: Corn-200
QAQC: LeB

Measured Factors	Symbol	UNITS	Level Found	Rating
All Soluble N (Org-N + NO3-N + NH4-N)		ppm	41	MH
Nitrate Only	NO_3-N	ppm	39	MH
Soluble Exudate Carbon	C_{org}	C-ppm	471	M
SLAN *Humus Amino-N*	NH_2-N	N-ppm	198	M
Phosphorus (P)	P	ppm	34	M
Potassium (K)	K	ppm	194	MH
Calcium	Ca	ppm	600	L
Extr. Aluminum	Al	ppm	590	H

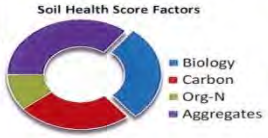
Soil Health Score (updated 10-15-2014)	17.9	MH
Soluble C:N Ratio	11.5	ML
Solvita CO_2-Burst	52.3	M
Microbially Active Carbon- "MAC"	11%	L
Soil Wettability & CO_2 Moisture g g^{-1}	Fast 0.48	H
Aggregate Stability	66%	H

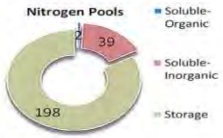
Calculated Availability

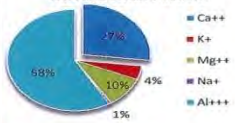
Nitrogen (N-min+Avail)	lb/a	143	H
likelihood of N-response?	*probability:*	Moderately unlikely	
Phosphorus P_2O_5	lb/a	155	M
Potassium K_2O	lb/a	466	MH

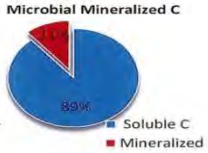
Indicators

Potential acidity (Fe+Al)	ppm	969	H
P-Acid-Saturation Index	P/(Al + Fe)	3.5	OK
Calcium Saturation	Ca/(Fe+Al)	62%	L









Nutrient Calculations, Value as $/acre available

$N + P_2O_5 + K_2O$ / acre $ 334

Nutrient Requirements		Nitrogen	Phosphate	Potash
Corn-200	lbs/acre	57	None	none
(assumed total nutrient requirement)		200	100	150
Limestone Requirement	lbs/acre	4327	Check Magnesium	

Cover Crop Recommendations

>Based on Soil Health Score of: **17.9**

Mix Recommended: 10% Legume 90% Grass/Non-Legume

Optional Tests (included with Premium Soil Test)

Soil Organic Matter	LOI %	5.6	MH
Basal CO_2-C	ppm	18	MH
Effective CEC**	cmol/kg	11.2	-

pH in Water	5.48	L
Magnesium (lb/a)	264	OK
Sodium lb/a	28	OK

USDA Climate Zone Used for this report: 5b

Ratings: VL=Very Low, L=Low, M=Moderate, MH=Medium High, H=High, VH=Very High

* **H3A ARS-Haney Extract** **Effective CEC = H3A extracted Al+Ca+Mg+K+Na; optional SOM by LOI @360° C*

Methods: Soil Health Tool, USDA-ARS Temple TX; *Soil Test Procedures for the NE USA Bulletin #493; VT Aluminum Index*

Can drinking tea help us understand climate change?

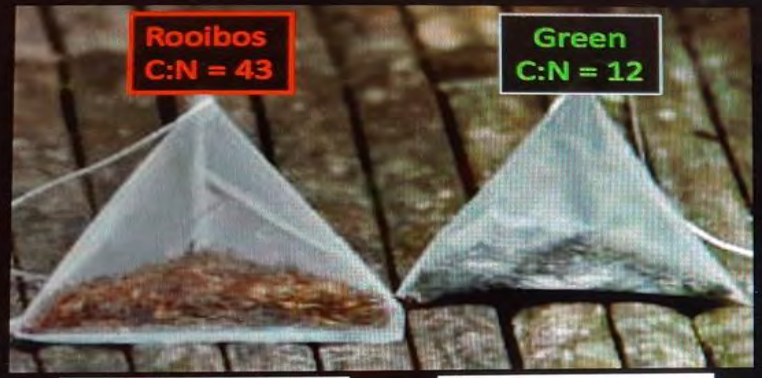
Yes. Teabags can provide vital information on the global carbon cycle. And consumers worldwide can improve climate modelling without much effort or equipment. That is why we want you, tea consumers, to become tea researchers and help us to plant tea.

The idea

We developed a simple and cheap method to measure decay rate of plant material by using tea. The method consists of burying tea bags with Green tea and Rooibos and digging them up ca. three months later. In this period, the tea will decay, and will therefore show what will happen with normal plant material in the soil. This method was developed and tested by a team of researchers from the University of Utrecht, Umeå University, The Netherlands Institute of Ecology and the Austrian Agency for Health and Food Safety Ltd.

The scientific value of this new method has already been acknowledged and experiments are currently running in countries all over the world. Many school children and other citizen scientists joined. The idea is to use this new method to collect data on decay rates from all over the world. With this data we will make a global soil map, and consequently improve global climate models that use these maps.

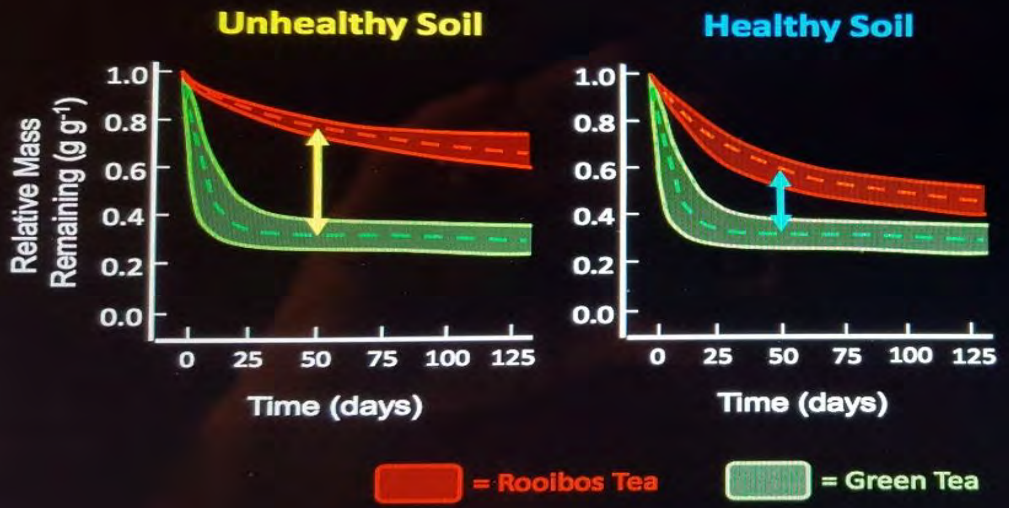
Use two types of tea bags as easy indicators



~$20 for 60 pyramids

adapted from Keuskamp et al. (201

The Tea Bag Index (or TBI) of Soil Health



$$TBI_{US} = \frac{(1.0 - 0.8)}{(1.0 - 0.35)} = 0.3$$

$$TBI_{HS} = \frac{(1.0 - 0.6)}{(1.0 - 0.35)} = 0.6$$

The closer to 1, the more healthy the soil is


Thank You
You never know what
You will find in your field
Get out and observe