COVER CROPS AND NO TILL

Steve Groff

Holtwood, PA

November 2008

France
No hats

JC Quillet

F R A N C E

French trainee- Bertrand Saignant

We put him to work!

Merci France!

Cedar Meadow Farm

United States of America
State Boundary
Road
River
National Capital
State Capital
City or Town
0 300 KM
0 300 Miles
© 2007 Geology.com
CANADA
MEXICO
U.S.A.
Pacific Ocean
Atlantic Ocean
Gulf of Mexico
Washington, D.C.
Ottawa
Nassau
Honolulu
Anchorage
Juneau
Hermosillo
Chihuahua
Saltillo
Monterrey
Laredo
Corpus Christi
Galveston
Houston
Dallas
Austin
San Antonio
Denver
Salt Lake City
Cheyenne
Boise
Helena
Bismarck
Pierre
Lincoln
Topeka
Oklahoma City
Santa Fe
Phoenix
Carson City
Sacramento
Salem
Olympia
Victoria
Vancouver
Regina
Winnipeg
Saskatoon
Calgary
Quebec
Montreal
Toronto
Boston
Providence
Hartford
Albany
Concord
Augusta
Fredericton
Atlanta
Tallahassee
Jacksonville
Orlando
Miami
Tampa
Nashville
Memphis
Little Rock
Jackson
Baton Rouge
New Orleans
Montgomery
Birmingham
Columbia
Raleigh
Richmond
Columbus
Indianapolis
Springfield
Jefferson City
Madison
Lansing
Pierre
Des Moines
Lincoln
Omaha
Cheyenne
Denver
Salt Lake City
Boise
Helena
Bismarck
Pierre

La famille Groff

1.25m in 6 days!

2009- Mouille

seul

NO TILL AND COVER CROPS

KEYS TO SUCCESS

The reason why one farmer can make cover crops and no till work and his neighbors can't is complex. Attention to details and timing!

Management!

Taken from ANTARCTICA - Exploring a Fragile Eden by Jonathan and Angela Scott, published by Collins

COVER CROP MIXTURES

- Diversity
  - Biomass
  - Root growth
- Guard against failure of one species
- Complementary
- Seed cost per acre

We need to focus more on

Biological solutions

than

Chemical, Fertilizer, and Iron solutions

The cocktail mix

Cocktail mix in the field

Beautiful!

THE SUNFLOWER QUEEN!

600 Euros!
NO TILL
CHEVROLET

Last week

COVER CROP COCKTAIL

$30- 40.00 per acre

YVH-3131

30 species

3 planting dates

manure applied
on part of each plot
over 75 plots in all!

Clover: There are differences

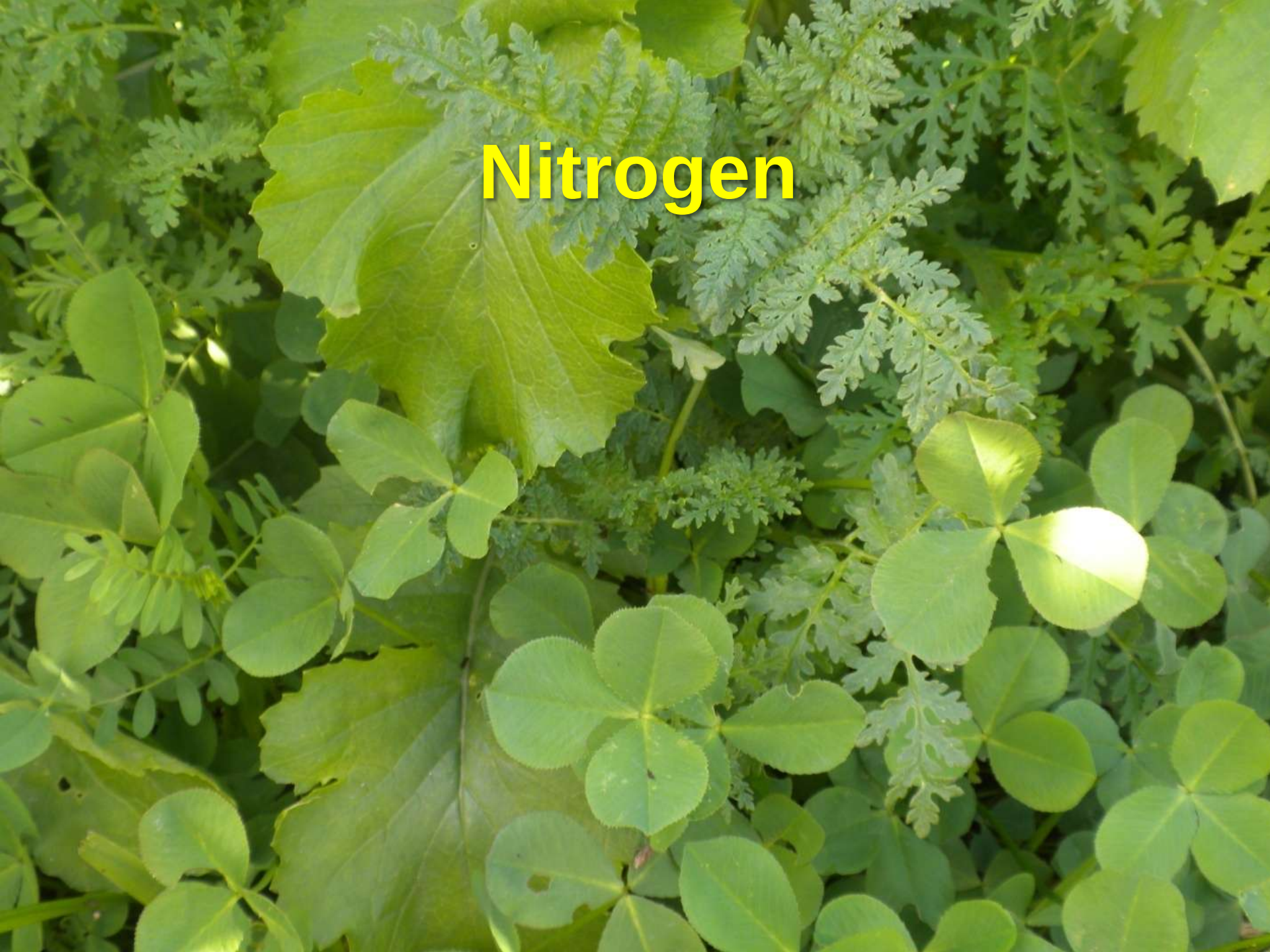
“Soil is meant to Be covered”

COVER CROP COCKTAILS

- Above ground diversity is a mirror of below ground diversity
- Microorganisms are like cattle- they need a balanced diet

Learn to manage the "micro-herd"

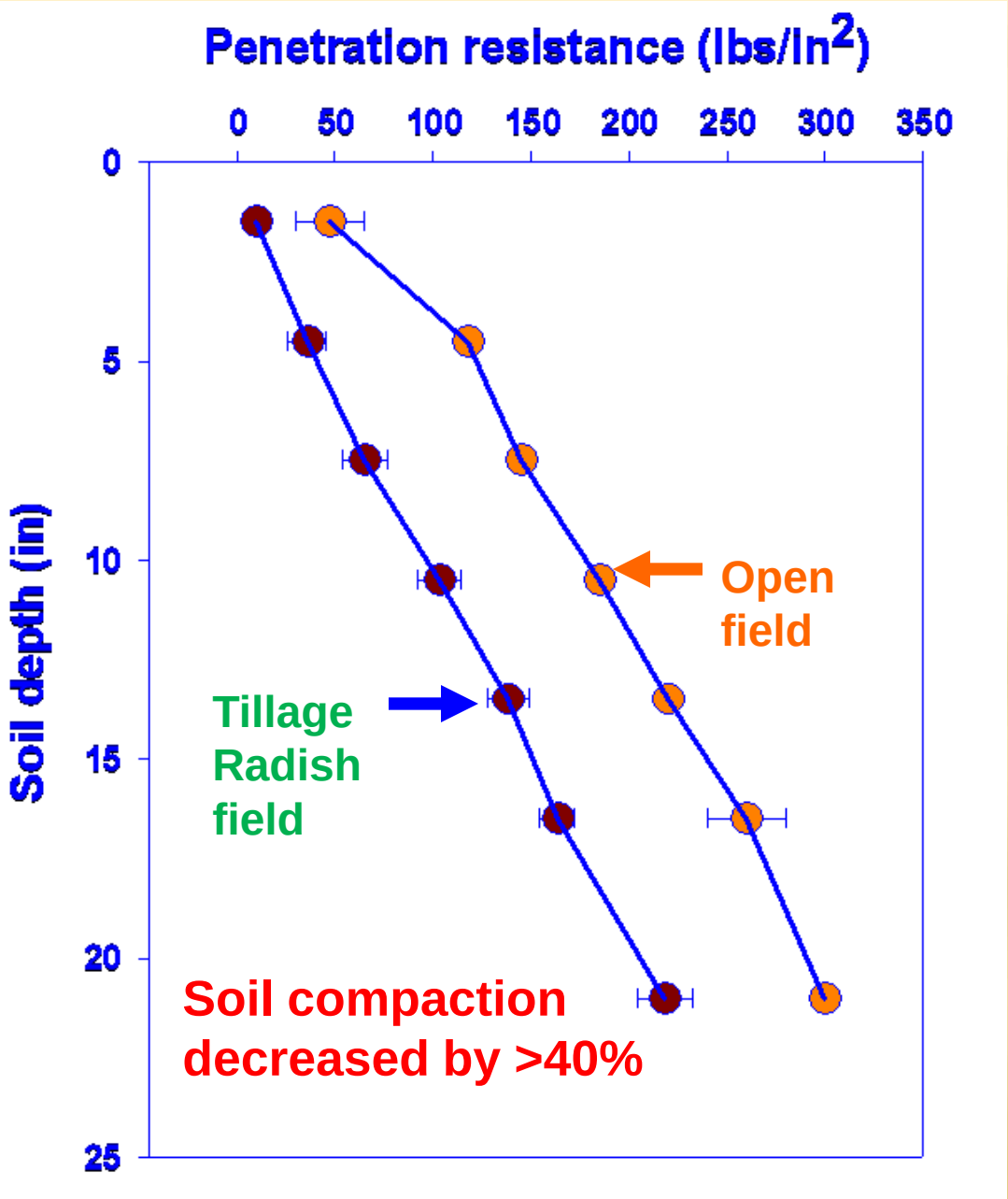
PHACELIA


Nitrogen

Tillage Radish: Structuator Radis

TILLAGE RADISHES

- Break up compaction
- Control winter annuals
- Capture N in the Fall- release in the spring
- Increase yields!


Penetration resistance (lbs/in2)
0
50
100
150
200
250
300
350
Soil depth (in)
0
5
10
15
20
25
Open field
Tillage Radish field
Soil compaction decreased by >40%

75cm radis/3-17cm rows barley in between

Precision Planting

Radis-2kg/h and Austrian Winter Peas-20kg/h

Precision Planting

- 2kg/h radis 35cm rows
- 20kg/h Peas

Tillage Radish And Austrian Winter Pea

Look
At
Those
Nodules!

Nitrogen Storage Tanks

The Big one!

Floating down the mighty Mississippi

Groundwater Regulations

Denmark: 37% of acreage in cover crops by 2012?

Manure on Tillage Radish

- Apply before seeding
- Or after 10cm growth
- Avoid heavy applications

Manure Management

Field on BASE website

TILLAGE RADISH EFFECT ON YIELDS

University of Maryland:

12 bushel corn yield increase and

8 bushel soybean yield increase after planting Tillage Radishes the previous fall. Never had a yield decrease.

TILLAGE RADISH EFFECT ON YIELDS

- No-Till corn after radishes- 193 bu.
- after ryegrass- 179 bu.
- bare ground- 165 bu.

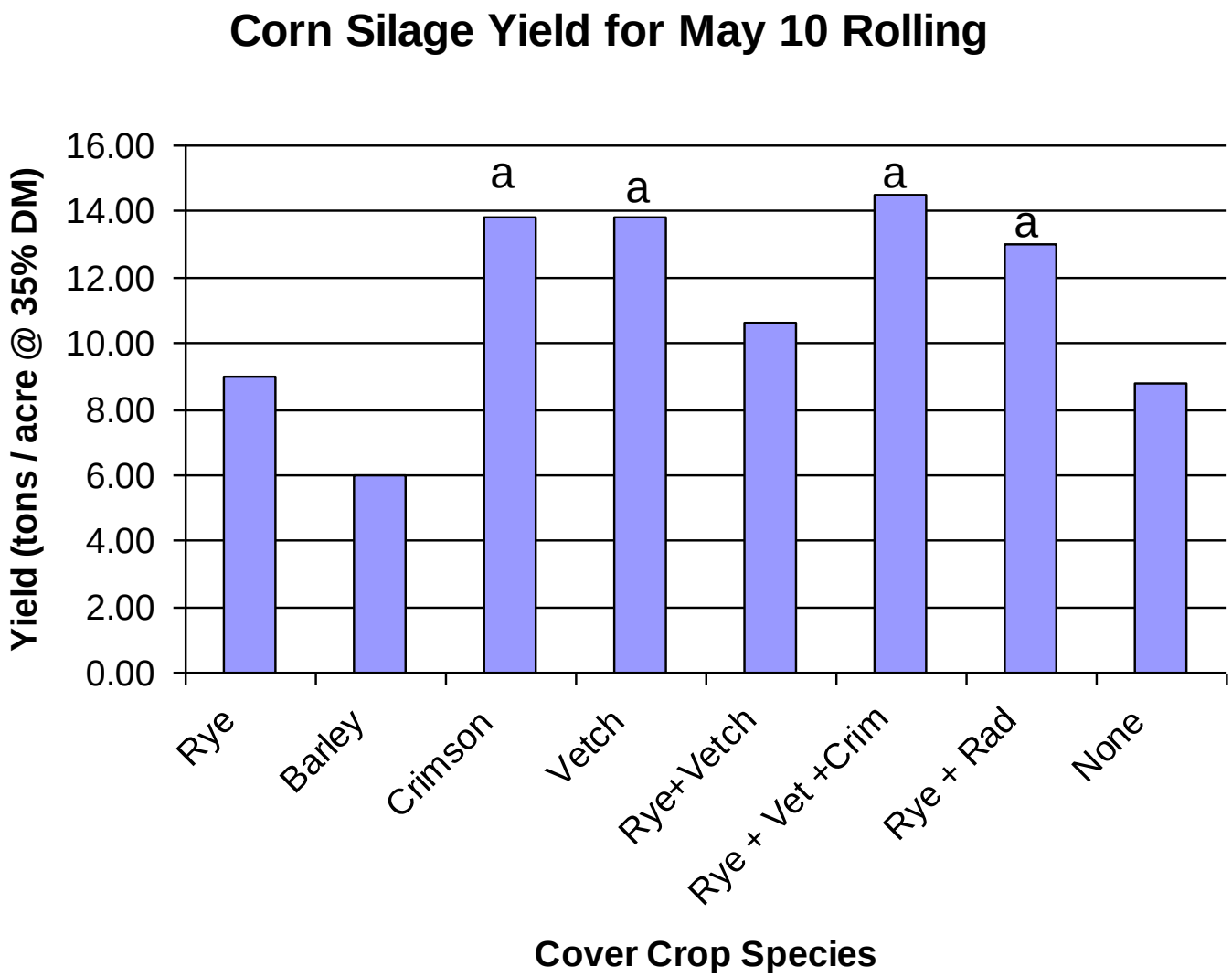
28 bu. Increase!

-Ed Winkle- Southern Ohio; 2008

Tillage Radishes: Subsoil without bringing up the rocks!

Tillage Radish
Winter-kill
when temperatures
drop to the mid-teens
on successive nights

2007 Corn Silage Yield (very dry year)
Brian Jones-VA Tech Extension
No N Added!



Tillage Radish Cannon
New Years Eve

We had a Blast!

PLANT COVERS ON TIME!!

- As soon after harvest as possible
- Priority
- Plan
- Hire an additional person to plant covers on time

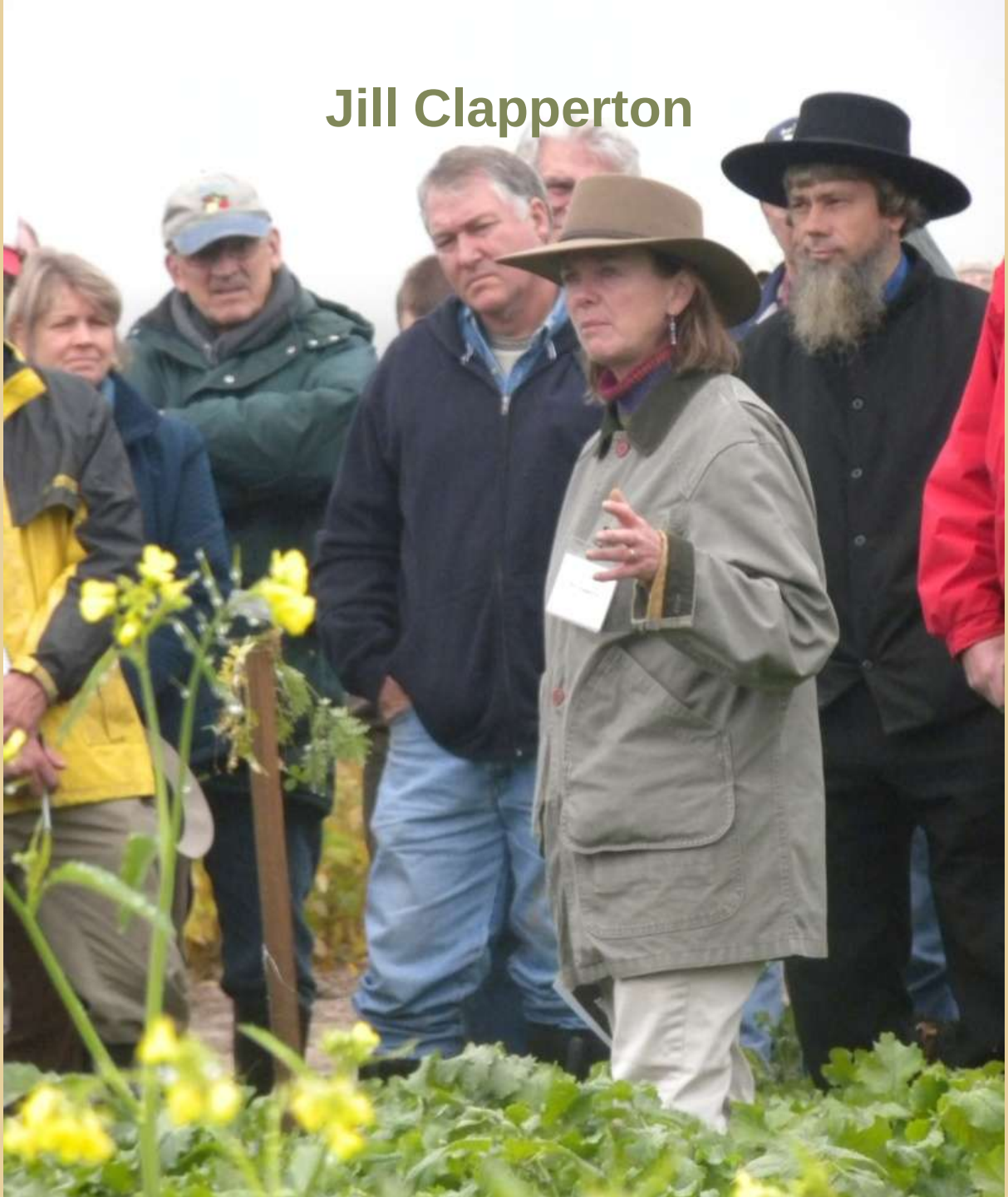
BOUNTY
09/21/2008

Hi-Boy Cover Crop Seeder

What will Grow?

Rye spun on DC beans

Jill Clapperton



m Tomatoes
13
22
9
8
16
7

350 farmers attend field day

Austrian Winter Peas
Frostmaster Peas

“No piece of steel
can benefit
the soil like roots
from a good cover crop”
-Steve Groff

Still Hunting For a better Cover Crop!

Marigolds??

Fenugreek

Field Day
March 31st
-Observe how
75 plots of
Covers came
Through the
winter

Field day
Oct. 28th, 2010
With Jill Clapperton

What's your view on cover crops?

Conventional tillage
(moldboard plow)
Reduced tillage
(chisel plow)
29-yr continuous no-till

Permanent Cover Cropping System

Greatest Challenge

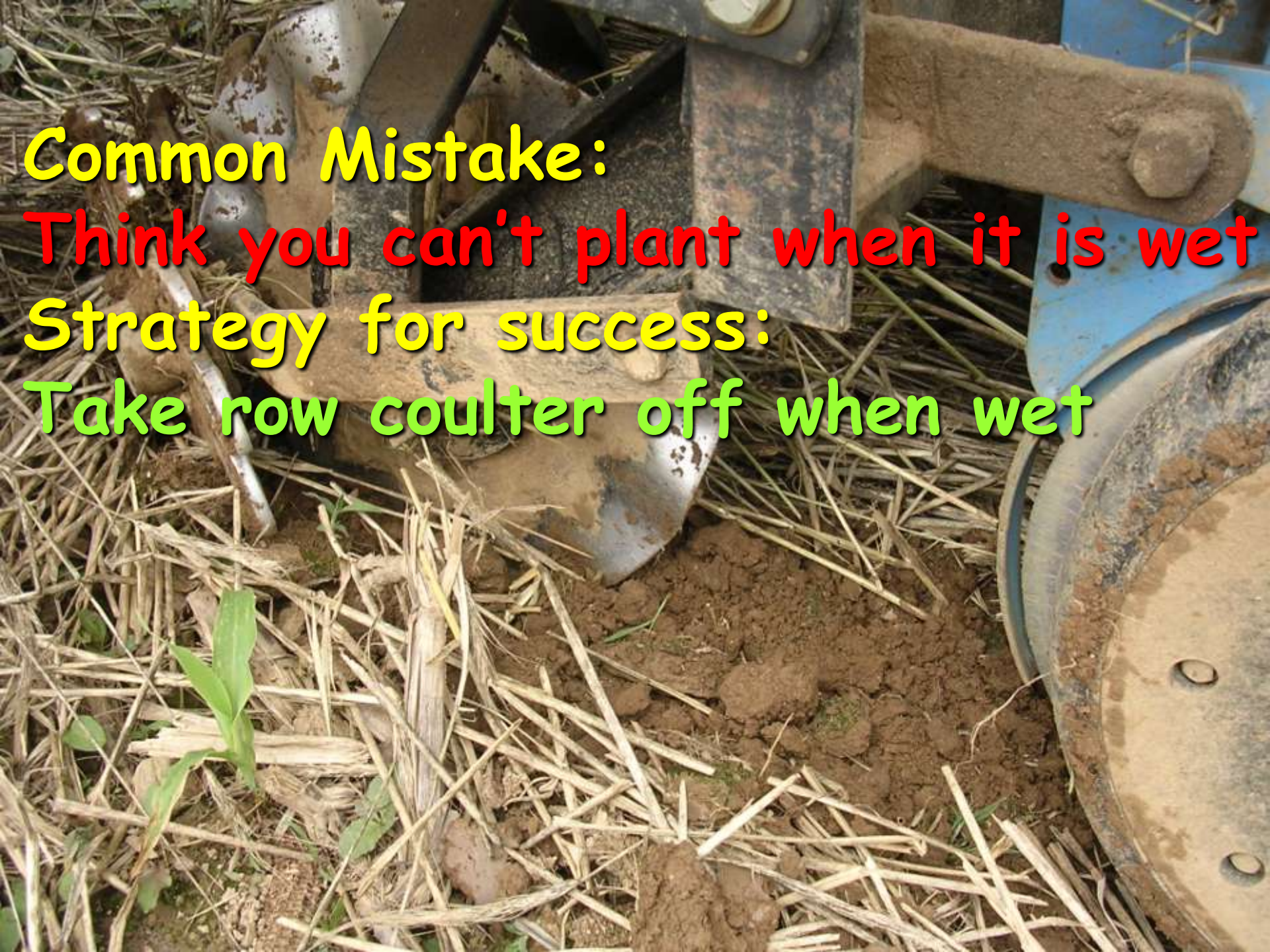
Cold

and

wet soils

Enhancing the Environment

NEW
IDEA


Common Mistake:
Think you can't plant when it is wet
Strategy for success:
Take row coulter off when wet

Ray Styer
Rockingham County
North Carolina

HARVEST AND FEED VALUE

Type of sample	Rays Silage	Desired Range
Crude Protein	7.78	6.6-8.0
Acid Detergent Fiber (ADF)	28.21	22-29
Total Digestible Nutrients (TDN)	68.09	65-68
Net Energy Lactation (NEL)	70.45	67-70

Rolling Cover Crops

There is a time to Kill

Organic No Tillage

Hairy Vetch before late corn

- Provides 100lbs of N per Acre
- Weed Suppression

No N Applied

Successful No Till

-begins with a carefully planned use of cover crops and crop rotation

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