



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



Soil Health
and Biological Primers Make
Farming Profitable

09.16.2012

Conventional Tillage Erosion



Erosion after planting



Wind Erosion



A photograph of a field of cereal rye. The plants are tall and green, with some yellow wildflowers scattered throughout. The field is in the foreground, and a line of trees and a building are visible in the background under a cloudy sky.

15" cereal rye

05.25.2011



05.12.2009





No till planted into covers with no nitrogen,
corn yield was 200 bu

08.30.2008



Austrian Winter Peas @ 30 lbs/acre





Tap Root 9" deep





**White planter 15" rows
planting living diverse covers**

07.28.2008

Radish Roots



11.08.2008



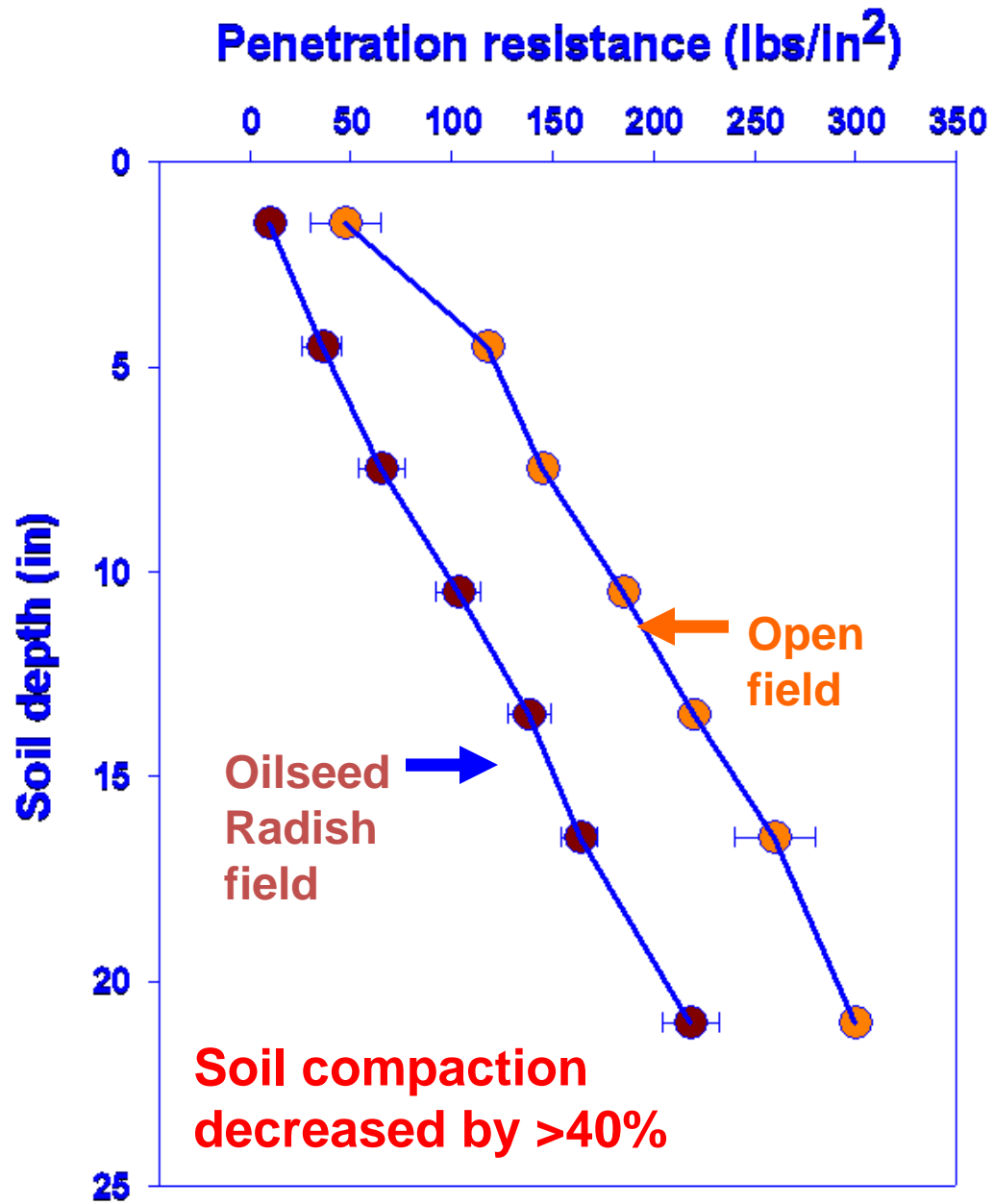


Recycling of nutrients by Oilseed radish

Nutrient	Concentration (%)	Content (lbs/a)
Nitrogen	1.89	250
Phosphorus	0.97	23
Potassium	3.27	230
Sulfur	0.81	60
Calcium	2.17	150
Magnesium	0.26	20

Nutrients







229 bu. Corn with 50# N

10.02.2011



08.21.2009

Blend 1
no fert.





06.25.2009





Green Diverse Covers Build Soil Health



10.11.2009



Conventional Corn with less than 8 in of rain in 2012

07.11.2012



No till corn with 8 different cover species
and 8 in of rain in 2012

07.11.2012

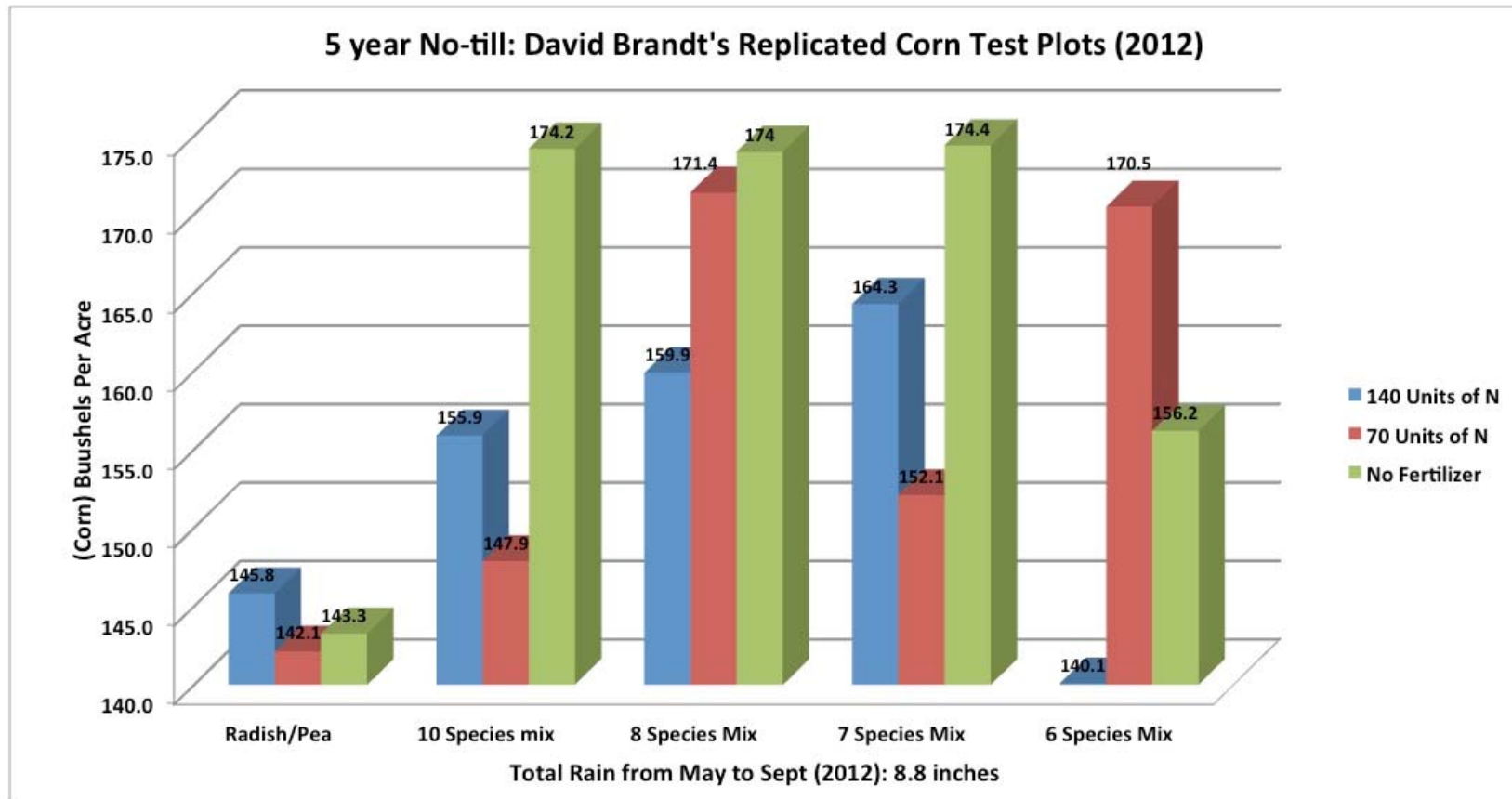






09.05.2012

1 Year of Data From



Nutrients After Harvest:

Sample ID all lbs. per acre	N lbs. per acre	P2O5 lbs. per acre	K2O lbs. per acre	Nutrient value per acre
Blend 1 No	54.07	137.94	87.23	\$191.03
Blend 2 No	47.53	177.38	243.10	\$273.88
Blend 3 No	82.28	127.54	202.80	\$245.21
Blend 4 N	73.21	130.19	170.30	\$228.84
PIR W	54.12	65.79	78.52	\$126.70

Corn Sample from Blends Protein Analysis

No Fertilize 9.1% Protein

Half Rate Fertilizer 8.6% protein

With Fertilizer 7.5% protein

**9.1 protein means increasing value
of grain by 27 cents= \$27/100 bu.
of corn...example..100,000 bu. X 0.27=
\$27,000 dollars....another pickup truck**

Cover Crop Impact on Chemical and Physical Properties of No-till Soil






Rafiq Islam*, Ekrem Aksakal and Dave Brandt
(islam.27@osu.edu)

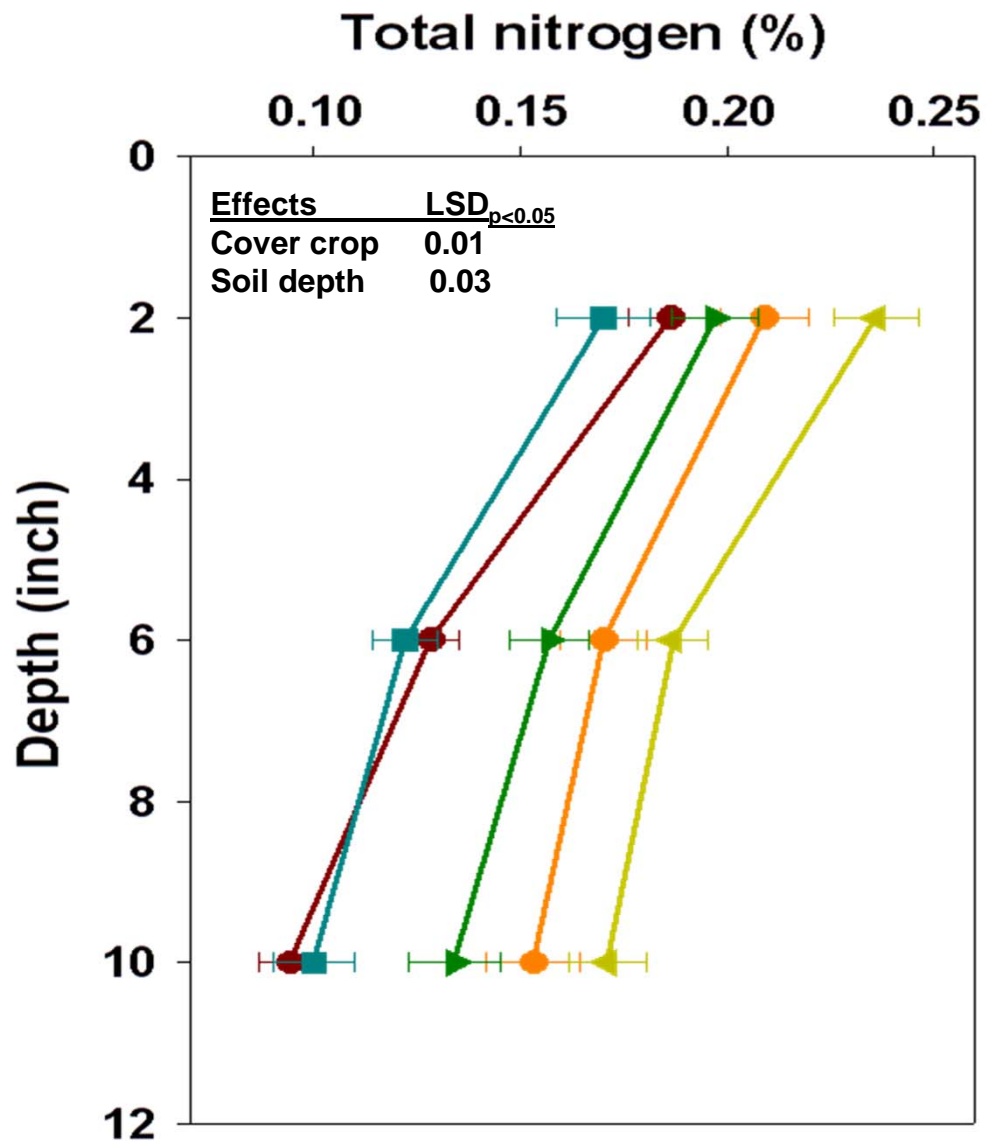


Presented at the Agriculture's Innovative Minds (AIM) Symposium, Salina, KS, January 31, 2013

Effects of mixed cover crops in continuous no-till on soil total nitrogen content under corn-soybean-wheat rotation








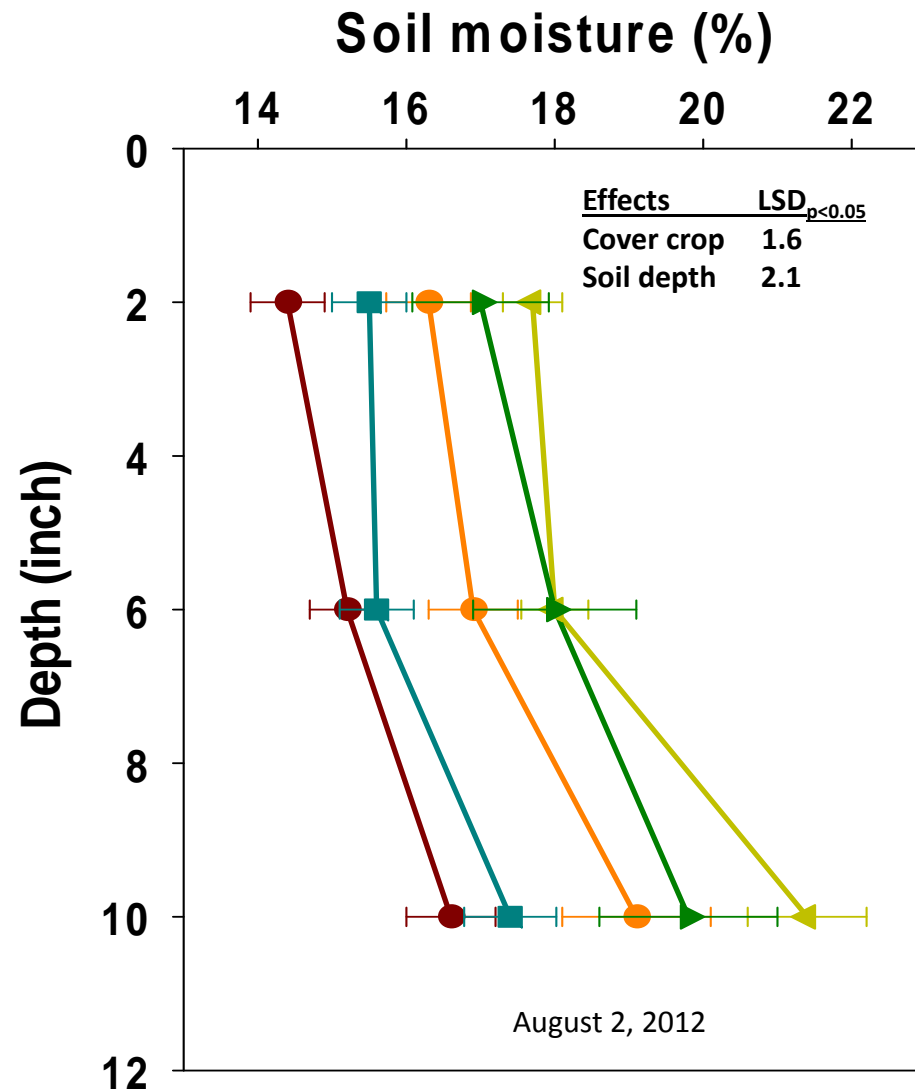
-  NT = No-till (control)
-  NTcc1 = No-till cover crop mix-1
-  NTcc2 = No-till cover crop mix-2
-  NTcc3 = No-till cover crop mix-3
-  NTcc4 = No-till cover crop mix-4



Effects of mixed cover crops in continuous no-till on soil moisture storage under corn-soybean-wheat rotation



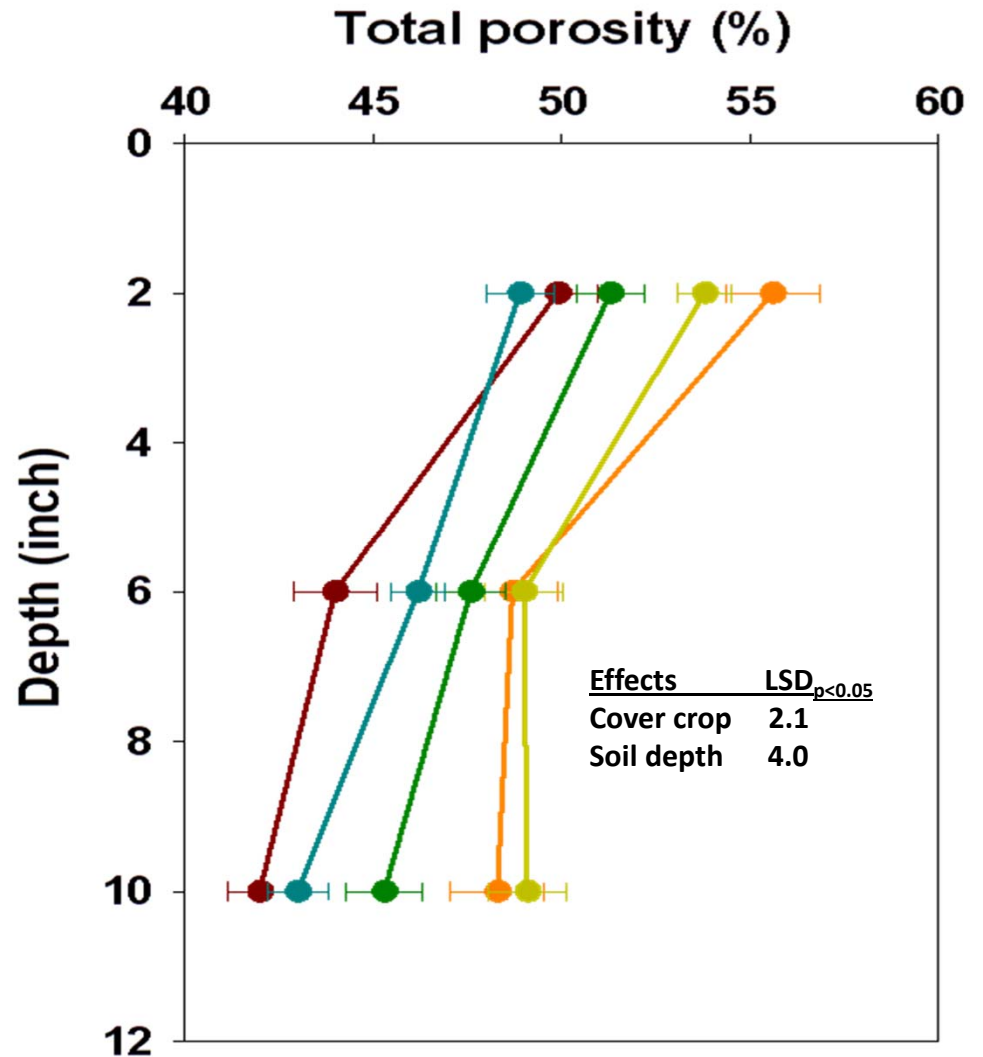
-  NT = No-till (control)
-  NTcc1 = No-till cover crop mix-1
-  NTcc2 = No-till cover crop mix-2
-  NTcc3 = No-till cover crop mix-3
-  NTcc4 = No-till cover crop mix-4



Effects of mixed cover crops in continuous no-till on soil porosity content under corn-soybean-wheat rotation



- NT = No-till (control)
- NTcc1 = No-till cover crop mix-1
- ▼ NTcc2 = No-till cover crop mix-2
- ▲ NTcc3 = No-till cover crop mix-3
- NTcc4 = No-till cover crop mix-4





Liberty Union FFA Field Plot

Company	Brand	Yield
Channel	20232STX	178.0 bu
Channel	20537VT3P	189.8 bu
Channel	20713VT3P	183.4 bu
Pioneer	PO832AMXR	220.1 bu
Nitrogen Applied @ rate of 140lbs /per acre		
Channel	20232STX	121.0 bu
Channel	20537VT3P	123.0 bu
Channel	20713VT3P	119.0 bu
Pioneer	PO832AMXR	129.0 bu

Custom Hire	\$4,654,00
Depreciation	\$150,000
Employee Benefits	\$200.00
All Fuel Expense	\$27,647 (LP gas, lubricants, fuel)
Insurance	\$9,121.00
Interest	\$5,676.00
Labor	\$15,513.00
Land Rent	\$83,479.00
Repairs	\$33,169.00
Warehousing	\$1,000.00
Supplies	\$19,425.00
Taxes	\$5,528.00
Utilities	\$7,127.00
Professional	\$9,768.00
TOTAL COST	\$372,305

**Fix Cost
for
Dave Brandt
Farms**

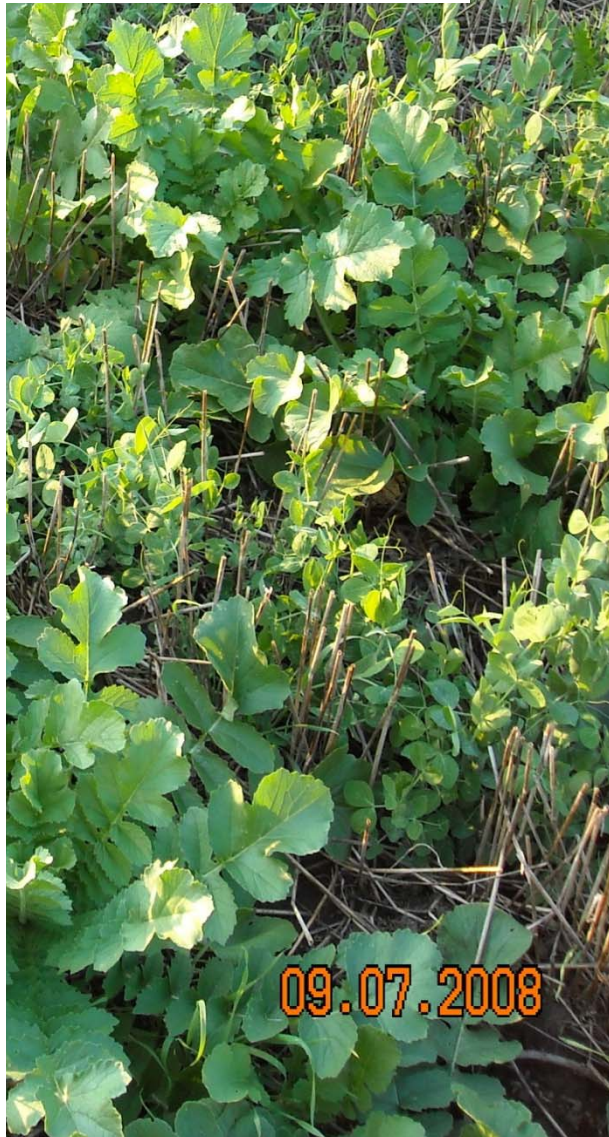
**1400 ACRES
CROP LAND**

Cost \$266 per Acre

No-Till Corn After Beans

Seed Corn	\$91.50
Spread 100 lbs. 18-46-0	\$74.50
Spread 150 lbs. 0-0-60	\$51.00
1 qt. Round up	\$3.94
1 pint 2-4-D	\$2.29
1 lb. Atrazine	\$3.40
1 lb. Simazine	\$5.17
21-0-0-24 (50 lbs.)	\$19.50
46-0-0 Urea (110 lbs.)	\$40.50
28% Nitrogen = 84 lbs @ .75 cents per lbs.	\$63.00
Starter fertilizer 9-24-3 (10 gallons/ac.)	\$73.00
Second 1 qt. Roundup	\$3.94
1 qt. Prowl	\$12.49
TOTAL VARIABLE COST	\$444.23
FIX COST	\$266.00
COST PER ACRE	\$710.23
120 bu. Corn	\$5.92 per bu. 11.30.2012
Diesel Fuel use per Acre	\$2.90 gal

Planting & Radish



Biological primer Seed	\$17.50
Seed Corn	\$91.50
50 lbs. 28% N@.75 cents/Lb.	\$37.50
Roundup 1qt	\$3.93
Prowl 1qt	\$12.49
AMS 3#	\$1.26
Starter Fertilizer. 10 gal/ac. \$7.30	\$73.00
TOTAL VARIABLE COST	\$237.18
FIX COST	\$264.00
Yield: 142 bu./ac.	\$3.50
COST PER ACRE	\$501.18
Use fuel per Acre	2.5 gal

No-Till After Blend Cover Crop

Planting Cover Cost \$10.00

Cover Seed \$42.00

Rolling Cover \$5.00

Seed Cost for Corn \$91.50

TOTAL COST \$148.50

FIX COST \$262.00

COST PER ACRE \$410.50

Cost Per Bu. \$2.36

**Diesel Fuel Cost
(reduce fertilizer and
herbicide) 2.4 gal**

12.22.2011

2007 National Resources Inventory Soil Loss In Tons Per Acre Per Year

North Dakota

Wind 5.1

Water 1.5

Total 6.6 Tons/Ac/Yr

Top soil Replacement

Cost \$264

Colorado

Wind 12.9

Water 1.8

Total 14.7 Tons/Ac/Yr

Top Soil Replacement

Cost \$588

Texas

Wind 8.1

Water 2.6

Total 10.7 Tons/Ac/Yr

Top Soil Replacement

Cost \$428

Montana

Wind 4.3

Water 1.7

Total 6.0 Tons/Ac/Yr

Top Soil Replacement

Cost \$240

Minnesota

Wind 3.9

Water 2.0

Total 5.9 Tons/Ac/Yr

Top Soil Replacement

Cost \$236

Ohio

Wind 1.5

Water 6.8

Total 8.3 Tons/Ac/Yr

Top Soil Replacement

Cost \$330

A ton of Top Soil cost \$40.00



Improving Soil Health:

- 1) Mimic Nature**
- 2) Management-watch the details**
- 3) Profitable**