

Soil Armor



Seeding into cover crop residue



Diversity

- Sunflower
- Sorghum/Sudangrass
- German Millet
- Soybean
- Cowpea
- Kale
- Radish
- Turnip

Emerging Warm Season Cover Crop 8/5



Residue buffers August heat



Warm Season Cover Crop 9/10



Diverse Taproots



Large Radish





Infiltration Pores


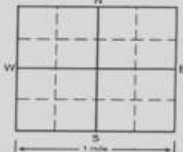


Converting Cover Crop to Dollars



Half For The Critters Below The Ground & Half For Those Above The Ground



 <p>Soil Analysis by Agvise Laboratories Northwood: (701) 587-6010 Benson: (320) 843-4109</p>		<h2 style="margin: 0;">SOIL TEST REPORT</h2>		<h3 style="margin: 0;">Field Location</h3> 	
<p>SUBMITTED FOR: GABE BROWN</p>		<p>FIELD CNTY: BURLEIGH TWP: 139-79 QTR: SE PREV CROP: Triticale</p>		<p>SAMPLE SECTION: 10 ACRES: 105.0</p>	
<p>SUBMITTED BY: ALLIANCE AG-HETTINGER 212 ADAMS AVE PO BOX 1290 HETTINGER, ND 58639</p>		<p>FA1841</p>		<p>REF# 11412682 LAB# 84177 BOX# 2796</p>	

Date Sampled:	10/13/2009	Date Received:	10/20/2009	Date Reported:	10/21/2009
---------------	------------	----------------	------------	----------------	------------

NUTRIENT IN THE SOIL	INTERPRETATION	1ST CROP CHOICE	2ND CROP CHOICE	3RD CROP CHOICE
	VLow Low Med High	Wheat-High Pro.	Corn-Grain	Peas-Field
		YIELD GOAL	YIELD GOAL	YIELD GOAL
		40 Bu	100 BU	30 BU
		SUGGESTED GUIDELINES	SUGGESTED GUIDELINES	SUGGESTED GUIDELINES
		Band	Band	Band
		LB/ACRE APPLICATION	LB/ACRE APPLICATION	LB/ACRE APPLICATION
Nitrate		N 110	N 110	N 23
0-6" 7 lb/ac 6-24" 3 lb/ac 0-24" 10 lb/ac	**	P ₂ O ₅ 26 Band *	P ₂ O ₅ 40 Band *	P ₂ O ₅ 22 Band *
Olsen	**** **	K ₂ O 10 Band(Starter)*	K ₂ O 10 Band (2x2) *	K ₂ O 0
Phosphorus	**** ****	Cl 32 Broadcast	Cl **	Cl **
Potassium	**** ****	S 7 Band (Trial)	S 7 Band (Trial)	S 7 Band (Trial)
Chloride	***	B	B	B
0-6" 10 lb/ac 6-24" 18 lb/ac	**** **	Zn 2 Band	Zn 3 Band	Zn 2 Band
Sulfur	**** **	Fe	Fe	Fe
Boron		Mn	Mn	Mn
Zinc	**** ****	Cu 2 Band	Cu 0	Cu 0
Iron		Mg	Mg	Mg
Manganese	**** ****	Lime 0.0	Lime 0.0	Lime 0.0
Copper	**** ****			
Magnesium				
Calcium				
Sodium				
Org Matter	**** **** **			
Carbonate(CCE)	**** **** **			
0-6" 0.18 mmho/cm 6-24" 0.25 mmho/cm	***	Soil pH	Buffer pH	Cation Exchange Capacity
Soil Salts	****	7.1		% Base Saturation (Typical Range)
				% Ca % Mg % K % Na % H

Crop 1: 70 lbs of 0-0-60 = 32 lbs of Chloride * Caution: Seed Placed Fertilizer Can Cause Injury * Crop Removal: P2O5 = 25 K2O = 15 AGVISE Band guidelines will build P & K test levels to the medium range over many years.

Crop 2: 70 lbs of 0-0-60 = 32 lbs of Chloride * Caution: Seed Placed Fertilizer Can Cause Injury * Crop Removal: P2O5 = 40 K2O = 27 AGVISE Band guidelines will build P & K test levels to the medium range over many years.

Crop 3: 70 lbs of 0-0-60 = 32 lbs of Chloride * Caution: Seed Placed Fertilizer Can Cause Injury * Nitrogen Guidelines have been adjusted because most of the Nitrogen in this field is deep. Crop Removal: P2O5 = 21 K2O = 22 AGVISE Band guidelines will build P & K test levels to the medium range over many years.

Planting Into Cover Crop Residue



Brown's Ranch

Same Field



June 16, 2009

Corn planted into previous years'
cover crop residue



July 1, 2009

Rapid residue decomposition

From: AGVISE LABORATORIES
BOX 510
NORTHWOOD, ND 58267
(701)-587-6010

County:
TWP:
Sec:
Qtr:
Acres:

Grower:
GABE BROWN

Date Received: 08-04-10
Date Reported: 08-05-10
Date Sampled: 08-02-10
Lab Number: 26234

Field ID: SAMPLE 1M
Sample ID: CORN R1
Crop: CORN
Variety:

Submitter:
ALLIANCE AG-BISMARCK
1505 YEGEN ROAD SOUTH
BOX 996
BISMARCK ND
58504

Nutrient	Test Level	Rating
Total N	3.6 %	S
P	0.32%	S
K	1.9 %	S
S	0.16%	S
Ca	0.56%	S
Mg	0.19%	S
Na	0.01%	S
Zn	20 ppm	S
Fe	129 ppm	S
Mn	85 ppm	S
Cu	11 ppm	S
B	7 ppm	S

Sufficient Range	
2.9	To 3.7
0.25	To 0.50
1.8	To 2.8
0.16	To 0.50
0.30	To 0.60
0.16	To 0.40
0.00	To 0.10
19	To 75
50	To 250
18	To 300
3	To 15
5	To 25

D.R.I.S. FOR CORN:
N P

Residue Consumed by Soil Life



The Soil Is Alive!



Microbial Functional Groups sample 27

Amounts of PLFA in nanograms (ng)/ g dry weight soil

PLFA Groupings

Total PLFA	6104.9
Saturated	2960.9
monounsaturated	2216.7
polyunsaturated	927.2
Sat : unsat	0.94
mono: poly	2.4
Actinomycetes	212.9
Fungi	785.9
Arbuscular Mycorrhizas	230.0
Total Bacteria	4417.1
Gram positive	982.4
Gram negative	1224.0
Gram positive : Gram negative	0.8
Ratio Bacteria:Fungi	5.6
Total Hydroxylated	73.7
Sulphur Oxidizing bacteria	0
pre17	285
pre19	655
Cyclo 17	153
Cyclo 19	131
Pre 17/cyclo 17	1.9
Pre 19/ cyclo 19	5
Predator: Prey	0.15
nematodes:protozoa	0.9
Flavobacterium	0

This sample has a higher amount of PLFA than the others, with a large amount of polyunsaturated PLFA indicating that the microbial community is highly adapted to the environment and actively exchanging nutrients. This is reinforced by the presence of both Cyclo 17 and Cyclo 19, every indicator in this community is well balanced, with a high amount of SOM turnover. Protozoa number are in the high range indicating a well structured soil with higher nutrient turnover. As a note this is where the pheasants were roosting.

Diversity Drives Soil Health



2011 Maize

- Yield 10mt/hectare
- Gross Income \$2546.00/ha
- Expenses:
 - Seed \$158.26
 - Herbicide 30.88
 - Crop ins. 44.33
 - Planting 44.47
 - Harvesting 54.36
 - Trucking 60.29
 - Storage 31.43
 - Land cost 86.48
- Total Expenses \$510.50/ha
- Return to labor and management **\$2035.50/ha**

2010 Spring Wheat

- Yield 4.17mt/ha
- Income \$1239.40/ha
- Expenses/ha
 - Seed \$39.53
 - Seeding 29.65
 - Herbicide 34.59
 - Crop Ins 18.16
 - Harvesting 49.42
 - Trucking 30.64
 - Land Charge 86.48
- Total Expenses \$288.47/ha
- Return to labor and management \$950.93/ha

Healthy Profit\$ From Healthy Soil\$



Part of our Holistic Goal: Regenerating Landscapes for a sustainable future.



Livestock are a tool used to improve
soil health

