Grazing Cover Crops and Benefits for Livestock Producers
Keys to Achieving a Healthy Soil

- Least Amount Of Mechanical Disturbance Possible
- Armor On The Soil Surface
- Plant Diversity
- Living Root As Long As Possible
- Integration Of Livestock On Cropland
Cover Crops

Designing for what you don’t have!

Resource Concerns

- Provide crop diversity
- Provide soil surface armor
- Build soil aggregates
- Improve the water cycle
- Integrated Pest Management
- Build soil organic matter
- Nutrient cycling
- Enhance pollinators
- Adjust carbon/nitrogen ratios
- Wildlife winter food & shelter
- Livestock integration
Filling the Production and Nutritional Quality Gaps

January

February

March

April

May

June

July

August

September

October

November

December
Fall Seeded Biennials
Calving on Winter Triticale/Hairy Vetch

*In Sync with Nature*
Healthy!
Mob Grazing High Carbon Biennials
Batt-Latch
Small Paddocks
Carbon!
Soil Armor
Biological Primer
A Biological Primer Is A Diverse Cover Crop Mix That Enhances The Life And The Function Of The Soil
Biological Primers 2013

Annual Ryegrass – CSG
Oats – CSG
Barley – CSG
Winter Triticale – CSG
Forage Winter Wheat - CSG
Rye - CSG

Canola – CSB
Radish – CSB
Turnip – CSB
Lentil – CSB
Sweet Clover – CSB
Phacelia – CSB
Sub Clover – CSB
Buckwheat – CSB
Kale – CSB
Flax - CSB
Crimson Clover - CSB
Berseem Clover - CSB
Persian Clover - CSB
Hairy Vetch - CSB
Winter Pea - CSB
Collards - CSB

Hybrid Pearl Millet – WSG
German Millet – WSG
Sorghum/Sudangrass – WSG
Brown Millet - WSG

Sugarbeet – WSB
Cowpea – WSB
Soybean – WSB
Sunn Hemp – WSB
Ethiopian Cabbage – WSB
Safflower – WSB
Fava Bean - WSB
Diversity

- Sunflower
- Sorghum/sudangrass
- German Millet
- Soybean
- Cowpea
- Kale
- Radish
- Turnip
- Sunn Hemp
- Safflower
- Buckwheat
- Fava Bean
- Persian Clover
- Berseem Clover
- Hairy Vetch
- Hybrid Pearl Millet
- Crimson Clover
- White Millet
- Oats
- Flax
Diversity Drives Soil Health
Cover Crop Seed
Continuing Regeneration
Emerging Warm Season Cover Crop
7/17
Soil Temperatures Are Acceptable
Maximize Solar Energy Collection
Plantain is a Natural Internal Parasite Control
Diverse Primer Ready To Graze
Maximizing Productivity

- ADG 2.25+
- Brix 20+
Feeding the Whole
Phacelia and a Native Pollinator
Lady Beetles (Predators)

Pupae  Larva
1,700 Beneficials for Every 1 Pest!
Converting Cover Crop to Dollars
Radish: 14% CP 70% TDN
Hairy Vetch: 18% CP 70% TDN
Millet: 7% CP 50% TDN
Sorghum/Sudan: 12% CP 72% TDN
Allow Your Livestock To Do What They Do Best!
Tundra?
Economics

- Net Profit/Acre on this biologically primed field in 2012 = $332.99
- Value of Enhanced Soil Health???
# Cost to Finish a 1200# Beef

<table>
<thead>
<tr>
<th>Phase</th>
<th>Days</th>
<th>Per Day</th>
<th>Total</th>
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<tbody>
<tr>
<td>Nursing</td>
<td>300</td>
<td>$1.78</td>
<td>$535.</td>
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<tr>
<td>Weaning</td>
<td>45</td>
<td>1.30</td>
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<tr>
<td>Grazing Nat.</td>
<td>150</td>
<td>.70</td>
<td>105.</td>
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<tr>
<td>Grazing C/C</td>
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<td>.825</td>
<td>74.</td>
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<tr>
<td>Bale Grazing</td>
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<td>198.</td>
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<tr>
<td>Finishing</td>
<td>60+</td>
<td>.85</td>
<td>51.</td>
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<tr>
<td>Totals</td>
<td>735+</td>
<td>1.39</td>
<td>$1,022.</td>
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No-Till Planting Through Heavy Residue
Cash Grain With Zero Synthetic Fertilizers, Pesticides and Fungicides
## Plant Analysis Report

**Account No.:** 21233

**BROWN, GABE**
**3752 106TH ST NE**
**BISMARCK**
**ND 58503**

**Results For:** GABE BROWN  
**Location:** CORN  
**Sample ID:** WEST 22-139-79

**Plant Type:** Corn  
**Stage:** Tassel

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Result (Dry Basis)</th>
<th>Deficient</th>
<th>Low</th>
<th>Sufficient</th>
<th>High</th>
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<tbody>
<tr>
<td>Nitrogen, % N</td>
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<tr>
<td>Phosphorus, % P</td>
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<td>Potassium, % K</td>
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<tr>
<td>Calcium, % Ca</td>
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<td>Magnesium, % Mg</td>
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<td>Sulfur, % S</td>
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<td>Zinc, ppm Zn</td>
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<td>Iron, ppm Fe</td>
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<td>Boron, ppm B</td>
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Reviewed by: Raymond Ward  
7/30/2012  
Copy #:  
Page 1 of 1
Gabe Brown's Soil Samples: Zero-till versus Holistic Soil Healthy System (Zero-till)

- Total Nitrogen Lbs per acre: Zero-till East Field: (Since 1983) First 10 years Monoculture Alfalfa/with some diversity
- Inorganic P2O5 Lbs per acre: Zero-till East Field
- Potassium Lbs. per acre: Zero-till East Field
- Solvita 1 day CO2 evolution: Zero-till West Field - (Since 1993) Diverse Rotations/Multi-Species covers With Mob Grazing
- Water extractable organic carbon - 80x smaller than total soil carbon ppm: Zero-till West Field
- Dollar value of nutrients: 

Dr. Rick Haney ARS, USDA
2012 Corn

- Income/Acre: 142bu./acre @ 6.98/bu. = $991.16/ac
- Expenses
  - Seed $61.66
  - Herbicide $12.50
  - Crop Insurance $17.94
  - Planting $18.00
  - Combining $22.00
  - Trucking $28.40
  - Land Cost $45.00
  - $205.50

Return to labor and management $785.66/acre

Cost per bushel $1.44
Contact Information

- Gabe Brown (Cell): 701-527-5570
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  - E-mail: paul_brown_24@hotmail.com
- Join Brown’s Ranch on Facebook
- Website: www.sustainableranching.com