



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!



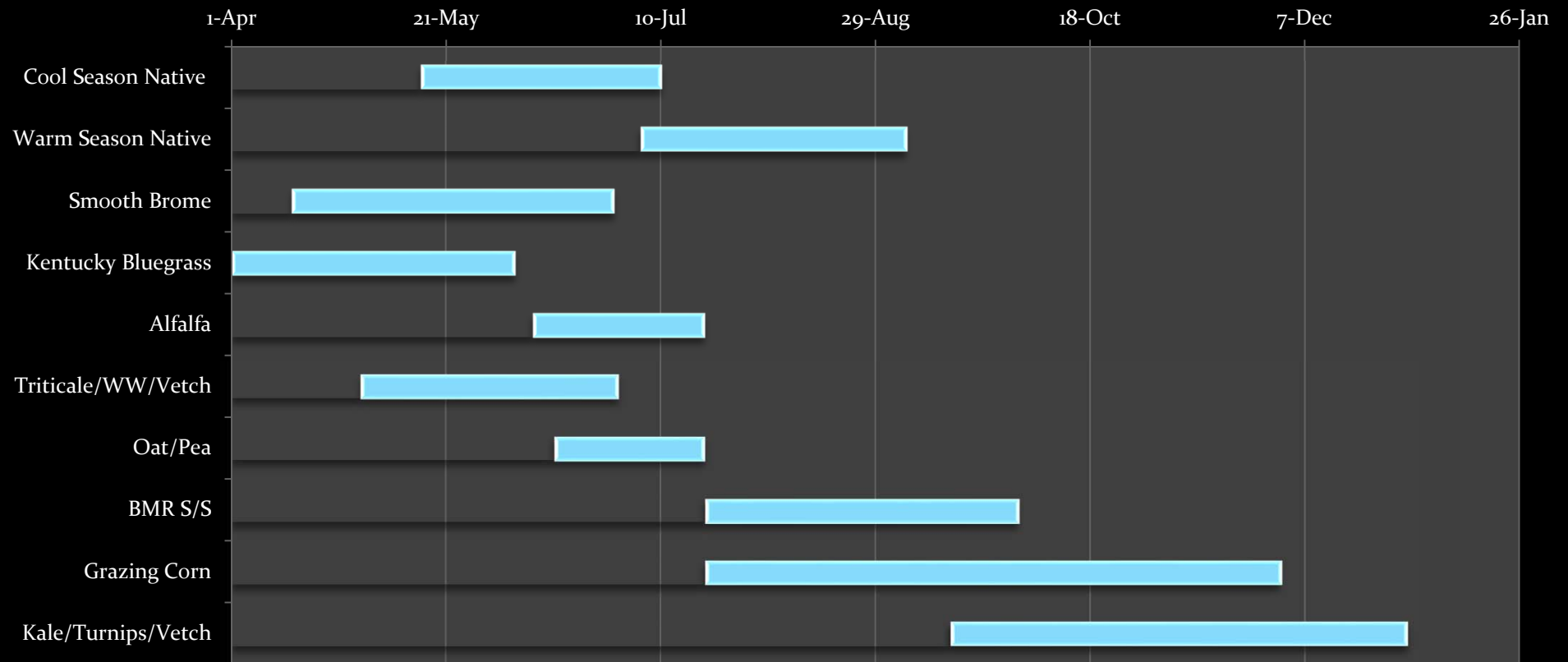
Resource Concerns

- 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

January	February	March
April	May	June
July	August	September
October	November	December

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Forage Chart



Fall Seeded Biennials



Calving on Winter Triticale/Hairy Vetch

- In Sync with Nature



Healthy!



Mob Grazing High Carbon Biennials



Batt-Latch



Small Paddocks



Next Move



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

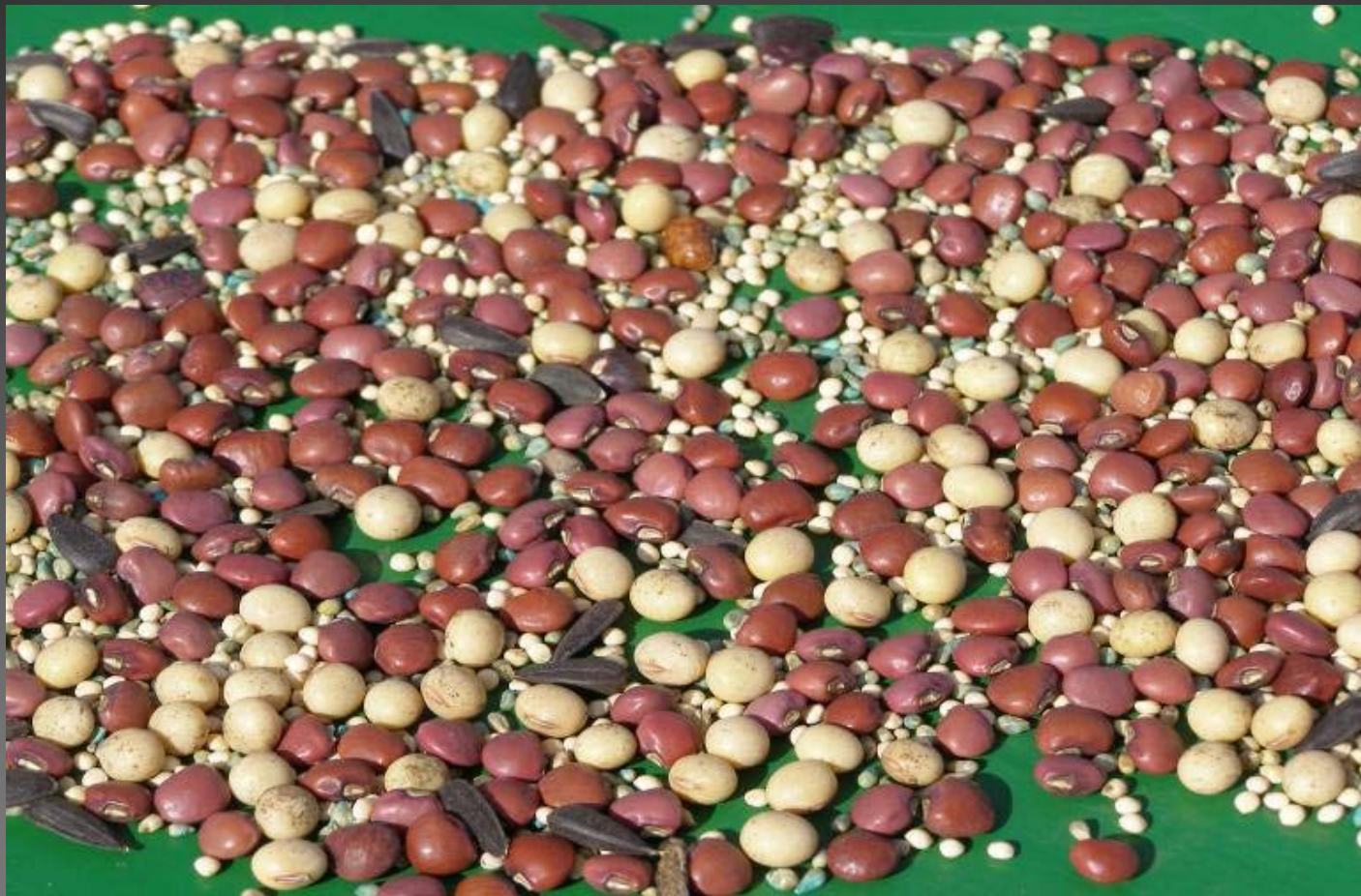
Diversity

- 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

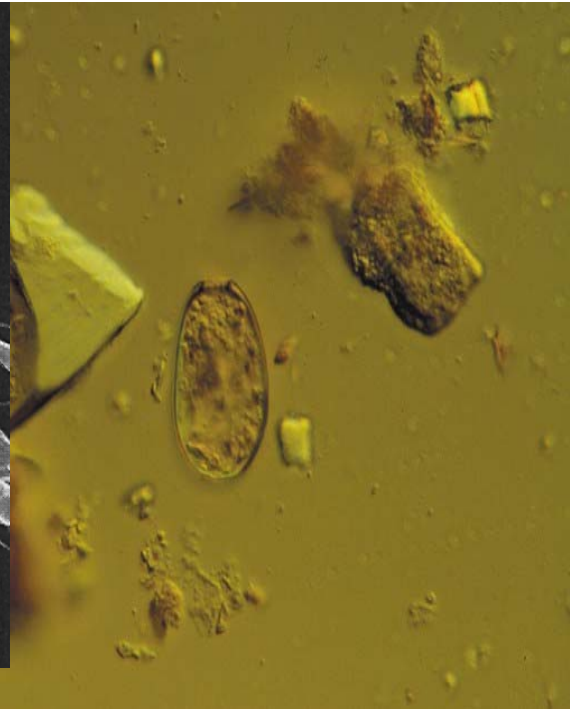
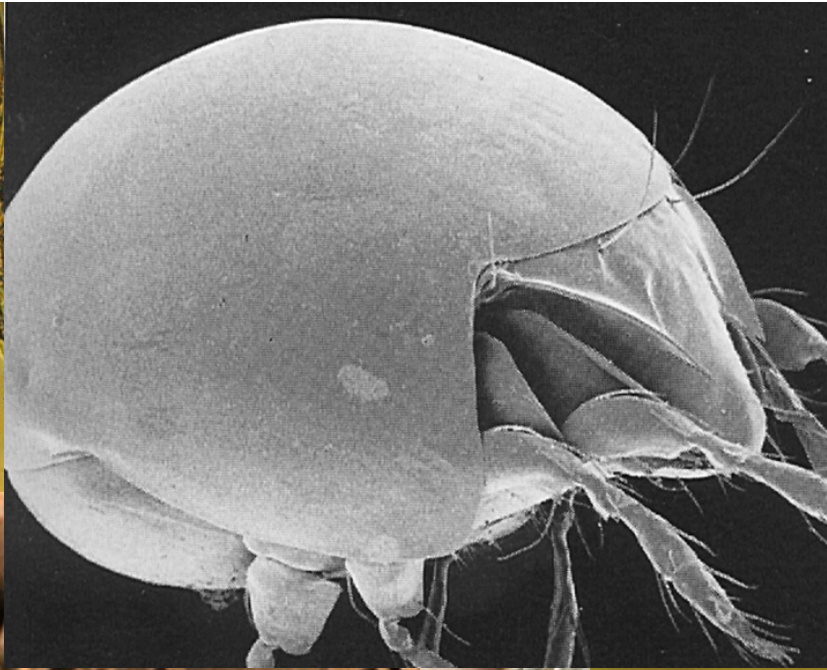


1,700 Beneficials for Every 1
Pest!





Pictures from NRCS

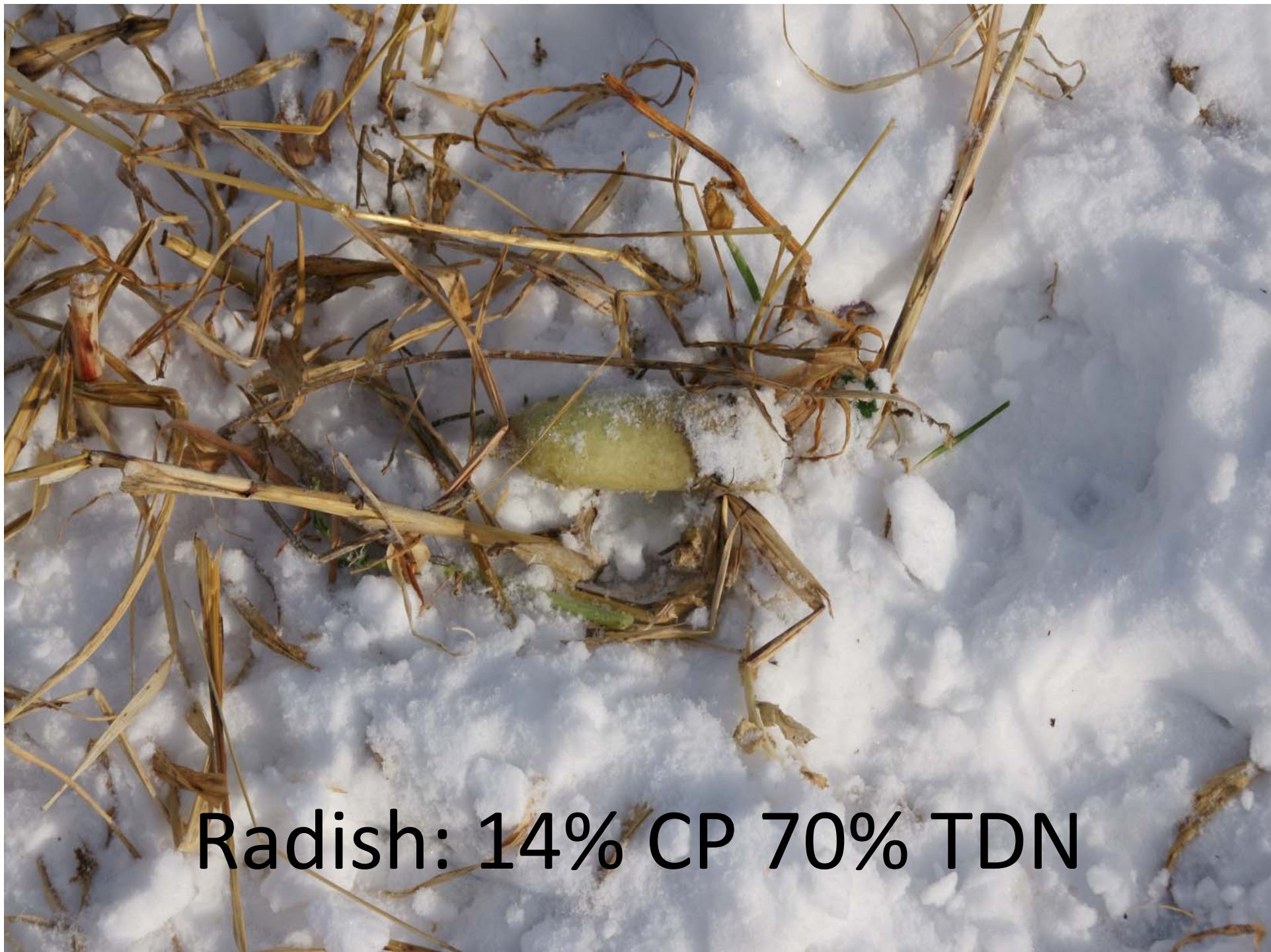




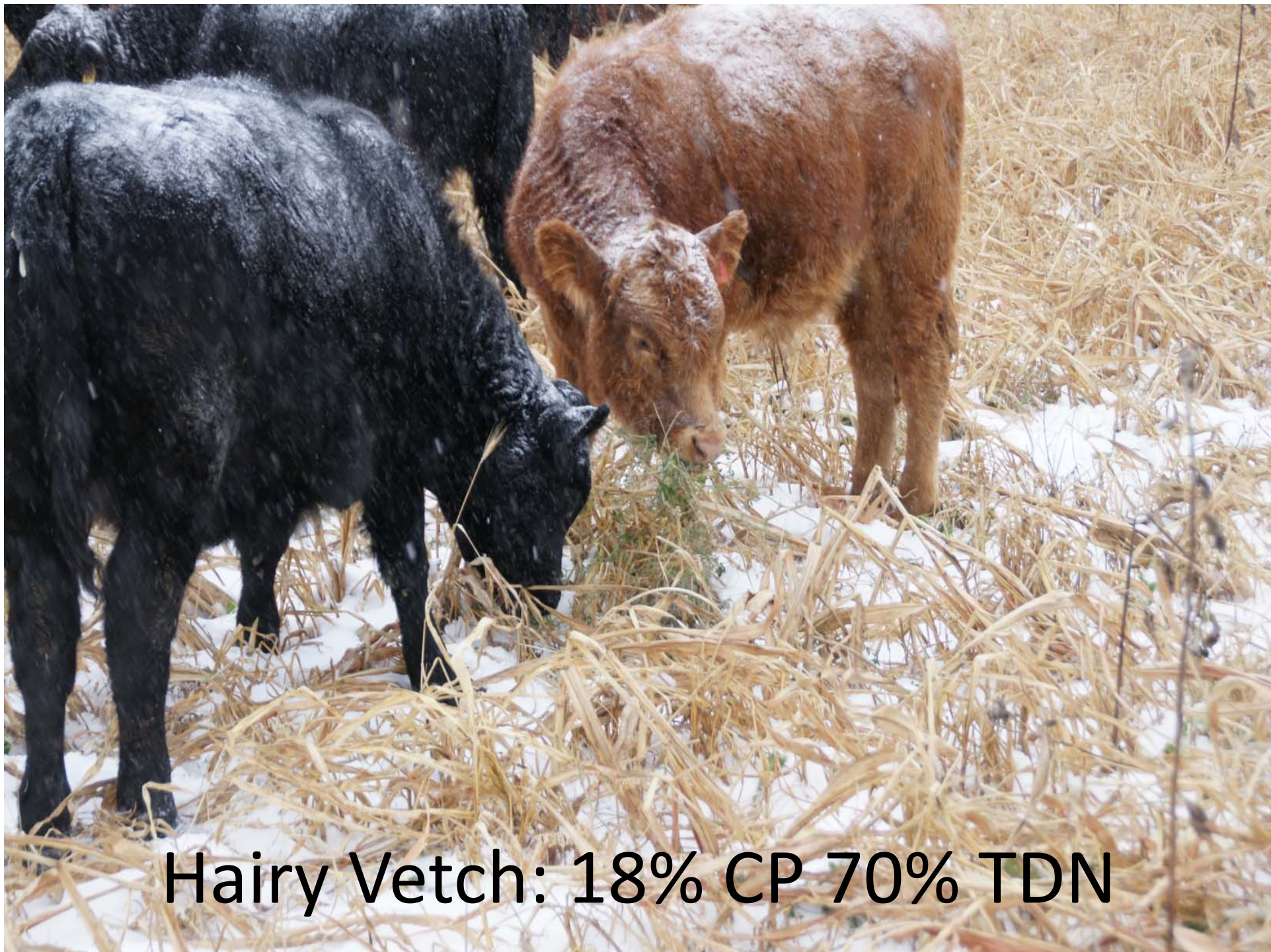


Converting Cover Crop to Dollars



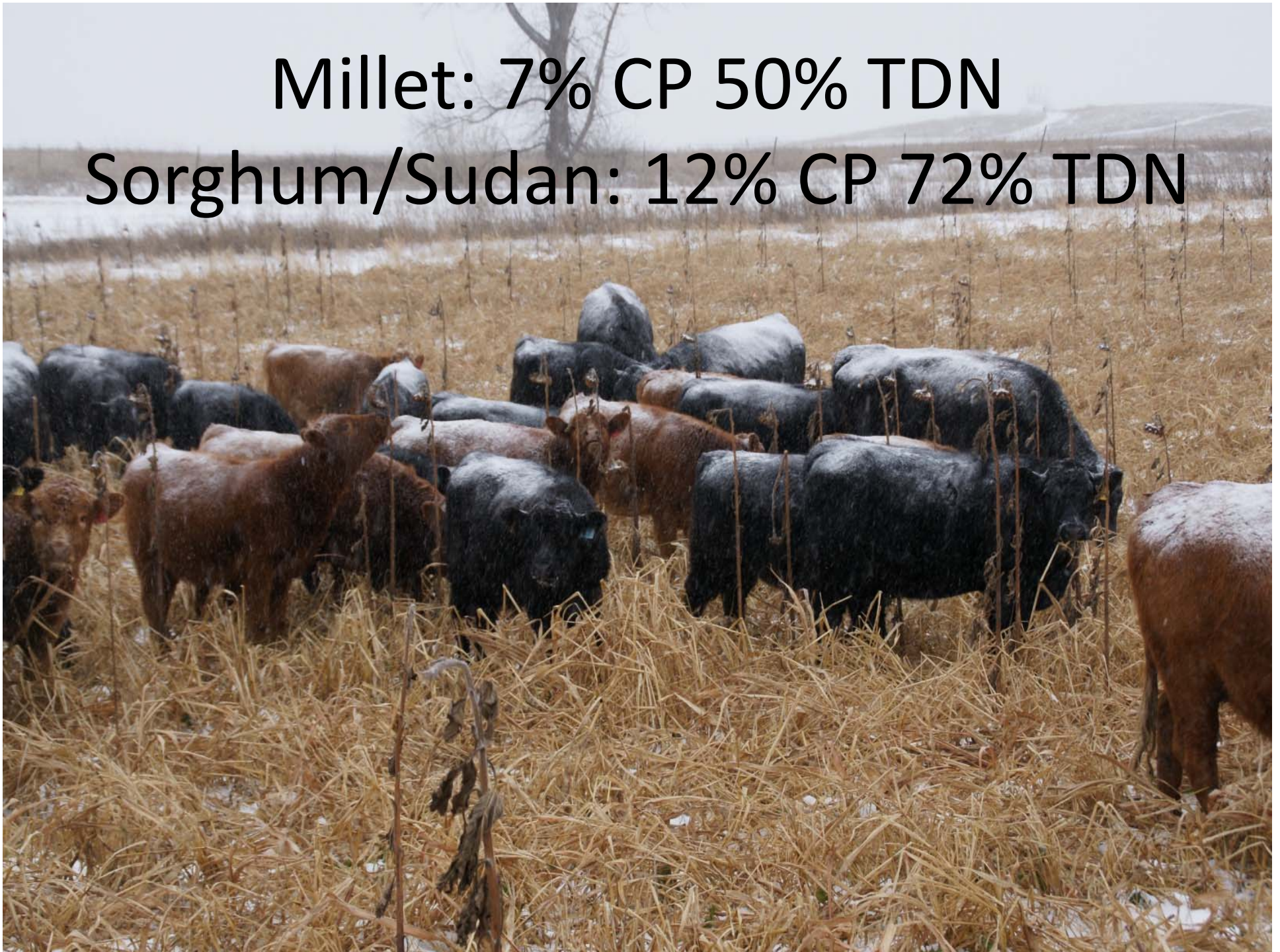


Radish: 14% CP 70% TDN



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

• Phase	Days	Per Day	Total
• Nursing	300	\$1.78	\$535.
• Weaning	45	1.30	59.
• Grazing Nat.	150	.70	105.
• Grazing C/C	90	.825	74.
• Bale Grazing	90	2.20	198.
• Finishing	60+	.85	51.
• Totals	735+	1.39	\$1,022.



No-Till Planting Through Heavy Residue

Cash Grain With Zero Synthetic Fertilizers, Pesticides and Fungicides





Ag Testing - Consulting

Account No. : 21233

Plant Analysis Report

BROWN, GABE
3752 106TH ST NE
BISMARCK

ND 58503

Invoice No. : 1111318
Date Received : 07/27/2012
Date Reported : 07/30/2012

Lab Number : 7356

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

Plant Type : Corn
Stage : Tassel

	Result Dry Basis	Sufficiency Levels			
		Deficient	Low	Sufficient	High
Nitrogen, % N	3.52				
Phosphorus, % P	0.39				
Potassium, % K	2.68				
Calcium, % Ca	0.454				
Magnesium, % Mg	0.266				
Sulfur, % S	0.26				
Zinc, ppm Zn	31				
Iron, ppm Fe	202				
Manganese, ppm Mn	62				
Copper, ppm Cu	12.1				
Boron, ppm B	17.5				

Reviewed By : Raymond Ward

7/30/2012

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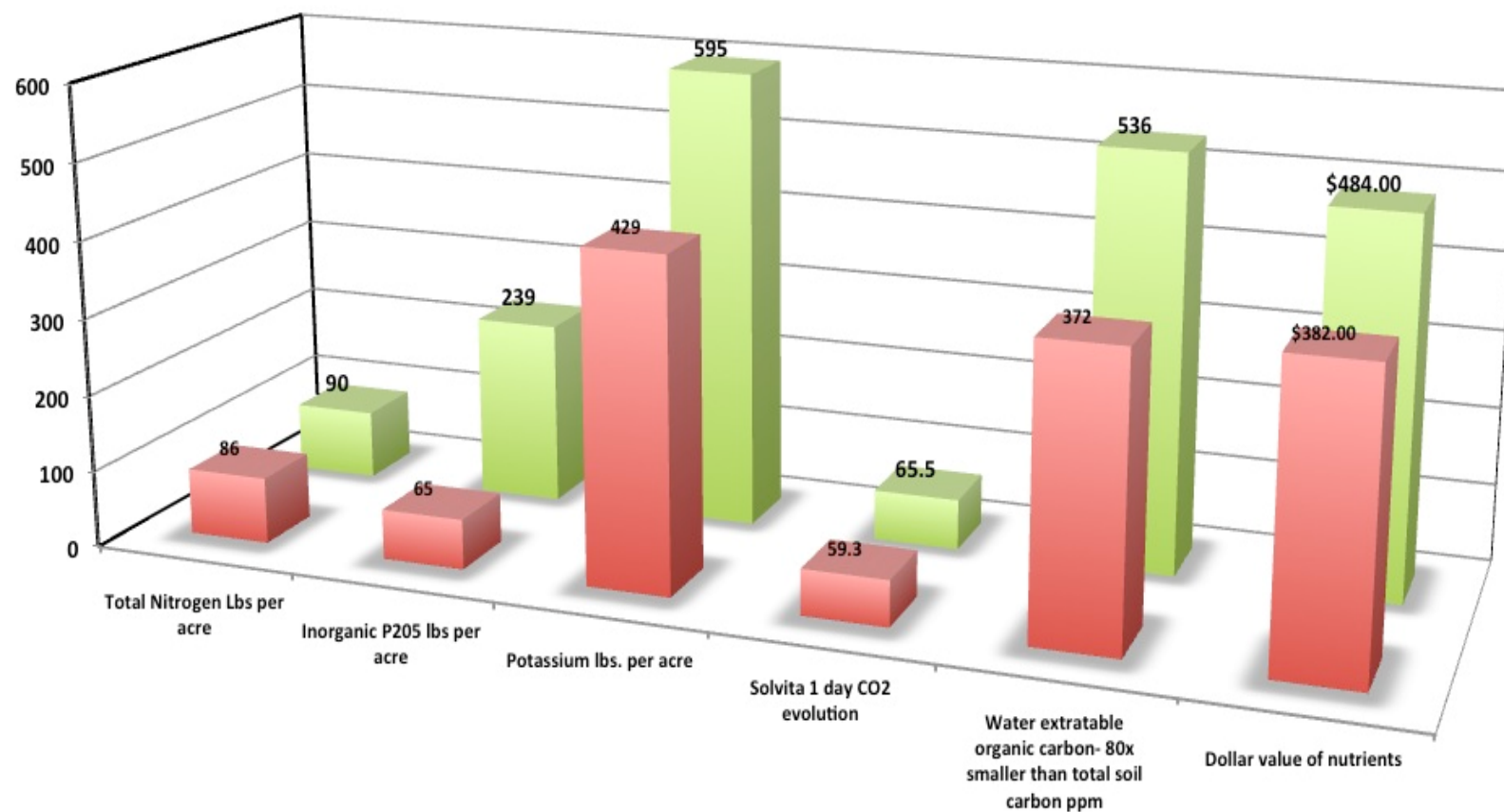
Page 1 of 1

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Gabe Brown's Soil Samples: Zero-till versus Holistic Soil Healthy System (Zero-till)



■ Zero-till East Field- (Since 1983) First 10 years Monoculture Alfalfa/ withsome diversity

■ Zero-till West Field- (Since 1993)- Diverse Rotations/Multi-Species covers With Mob Grazing

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	<u>\$45.00</u>
	\$205.50

Return to labor and management \$785.66/acre

Cost per bushel **\$1.44**



Healthy Plants

Healthy Animals

Healthy People

Clean Water

Clean Air



HEALTHY SOIL

Contact Information

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