

MCPEAK
Gross & Cattle
RANCH



A man and a woman are riding horses in a vast, grassy field. The woman on the left is wearing a red and white plaid shirt and green pants, riding a brown horse with a white blaze. The man on the right is wearing a denim jacket, a tan cap, and green pants, riding a solid brown horse. In the background, a herd of brown and white cattle is grazing in the field under a clear blue sky.

McPeak
Grass & Cattle
Ranch

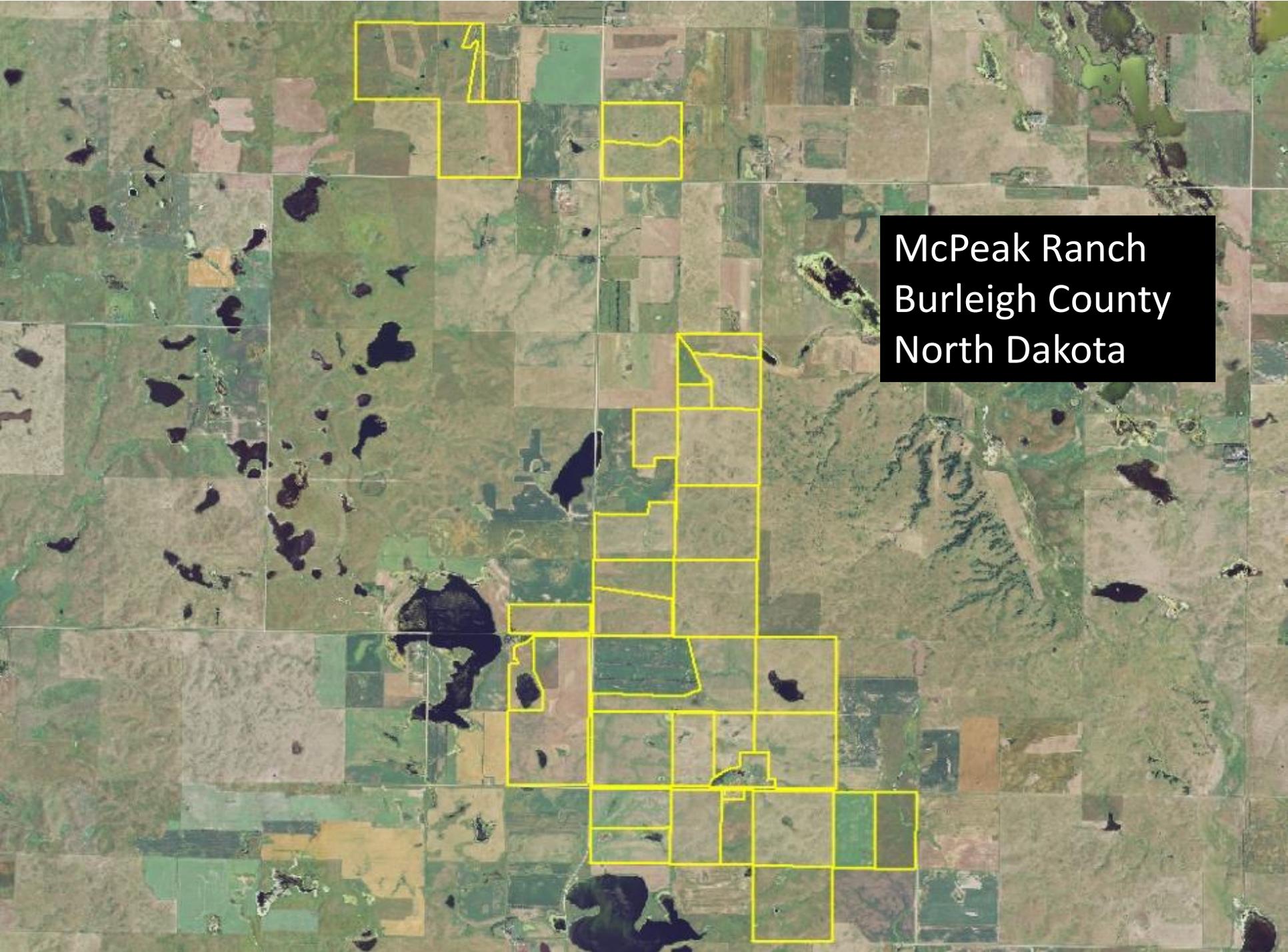
"Everything that is alive plays a role, bees to badgers to beef.

The more life on the ranch, the better I feel I am caring for the land."

Ranch History and the Grazing System

The Grazing System was started over 25 years ago.
After the First Drought.





McPeak Ranch
Burleigh County
North Dakota



Grazing System

- 15 pasture system
- Primarily once over with some pastures grazed twice
- Recovery Time 80 – 90 Days
- Pasture size ranges from 80 acres to 160 acres



Grazing System

- Monitoring pastures by observing the grass, not the calendar
- Season of use change.
- Exposure period 2-3 weeks/pasture.



Sometime Later the Ranch Experienced a Second Drought.
A 3 Year Dry Spell with very Little Snowfall.



Resulting in a Livestock Pipeline System being Installed.
Converting from surface ponds to livestock tanks.



Old System: Calving January 1st

New System: Calving May/June - Last 14 Yrs

A herd of cattle of various colors (brown, black, white, and tan) is grazing in a vast, open grassy field under a clear sky. The field is rolling and covered in green and yellowish grass. The cattle are scattered across the landscape, some standing and some grazing.

Changing the calving date
resulted in several changes

- Less Disease
- Lower Vet Bill
- Less Labor
- Saves on Hay and Bedding
- No Longer Heat Barns
- No Tagging

Hayland System

**When the Third Drought Occurred.
The Grazing System Had Plenty Of Grass
But The Hay Field Production Dropped To Half Or Less.**

So.....Todd asked me why?



Factors Affecting the Balance between Gains and Losses of Organic Matter in Soils

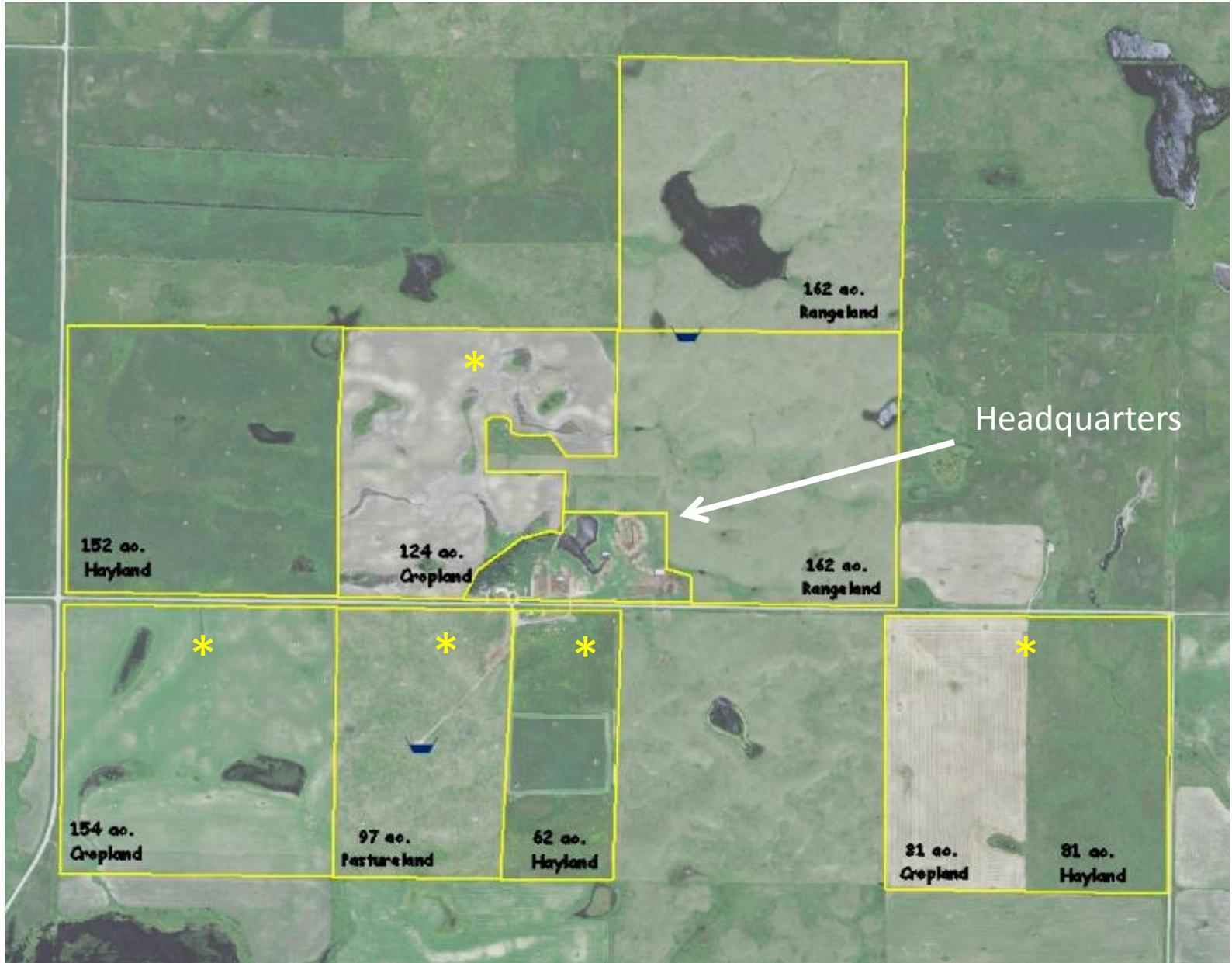
Factors Promoting Gains

- Green manures or Covers
- Conservation tillage
- Return of plant residues
- Low temperatures & shading
- Controlled grazing
- High soil moisture
- Surface mulches
- Application of compost & manure
- Appropriate nitrogen levels
- High plant productivity
- High plant root:shoot ratio

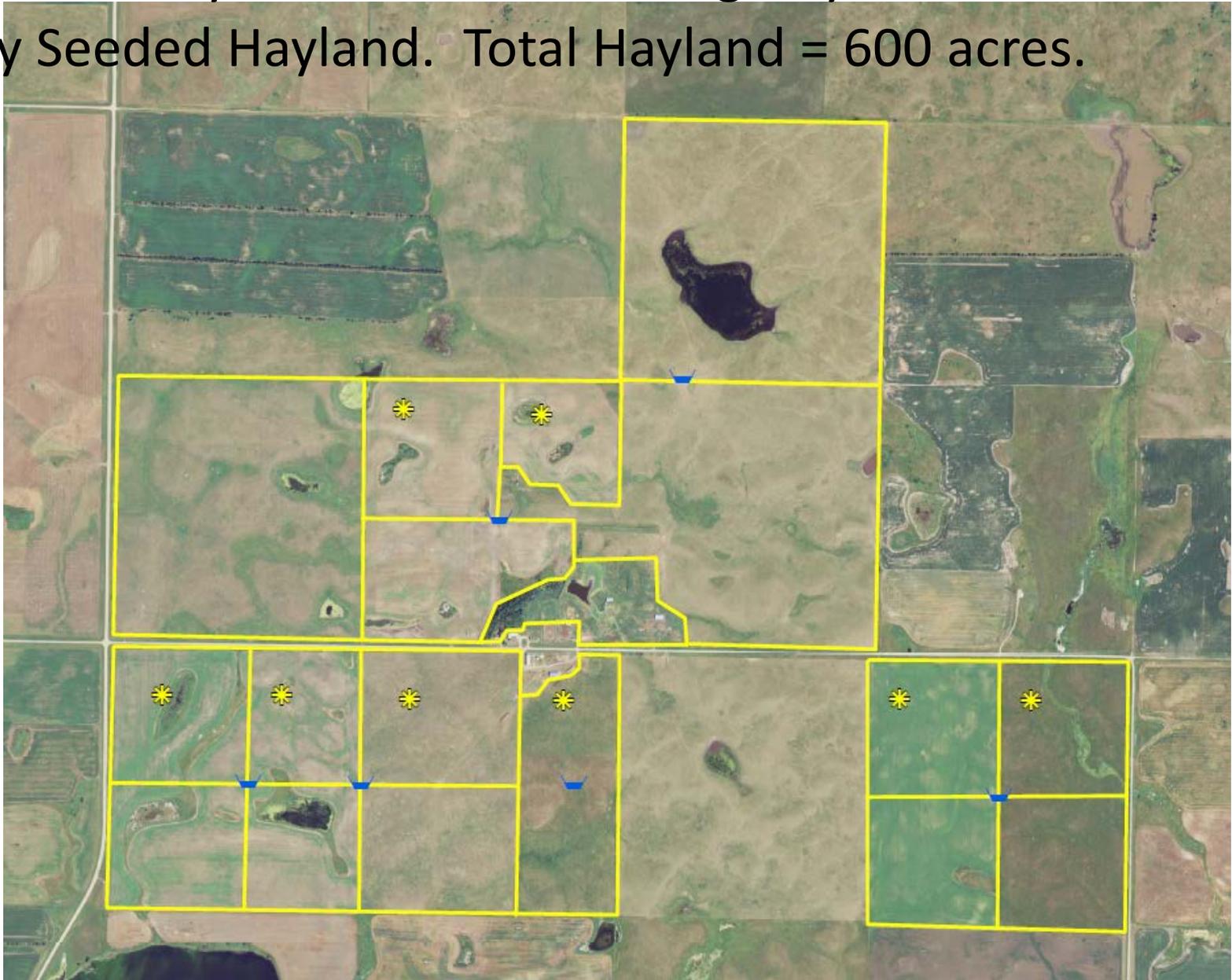
Factors Promoting Losses

- Erosion
- Intensive tillage
- Whole plant removal
- High temperatures & exposures to sun
- Overgrazing
- Low soil moisture
- Fire
- Application of only inorganic materials
- Excessive mineral nitrogen
- Low plant productivity
- Low plant root:shoot ratio

Before:



After: 14 Hayland Fields of Existing Hayland & Newly Seeded Hayland. Total Hayland = 600 acres.



Some of the Hayland was Existing and some was Seeded in 2013

	lbs/ac:
Alfalfa	2.20
Meadow Bromegrass	2.03
Green Wheatgrass	1.00
Cicer Milkvetch	0.80
Western Wheatgrass	0.80
Intermediate Wheatgrass	0.43
Green Needlegrass	0.60
Maximillian Sunflower	0.25
Canada Milkvetch	0.25

More Diversity In Future Plantings
Flowering Forbs and Warm Season Plants

Cover Crops were used to Prepare
a Seedbed for the new Seeding's.



08/30/2013



No Exporting on Hayland Policy

- The Cattle are no longer wintered at the Headquarters.
- All Hay is Stacked and Fed on the Hayland Fields.
- Before: Zero Animal Impact Days vs After: 7 Months of Animal Impact.
- Serves as the Drought Plan for the Grazing System too.



Hay is stacked in a new location each year avoiding excess manure and urine.



Panels Protect the Hay Supply



Summer Tank

Winter Tank



Winter Feeding on Hayland
Feeding Cattle and Soil

Bio-Windbreak



Closest Hayland to the Headquarters

Lowers The Manure Hauling/Spreading Bill.
Captures More Urine and Manure Where We Want It...In The Field



-15 degrees
20 mph winds



Feeding A Different Location Everyday For Even
Distribution Of Urine, Manure, and Armor



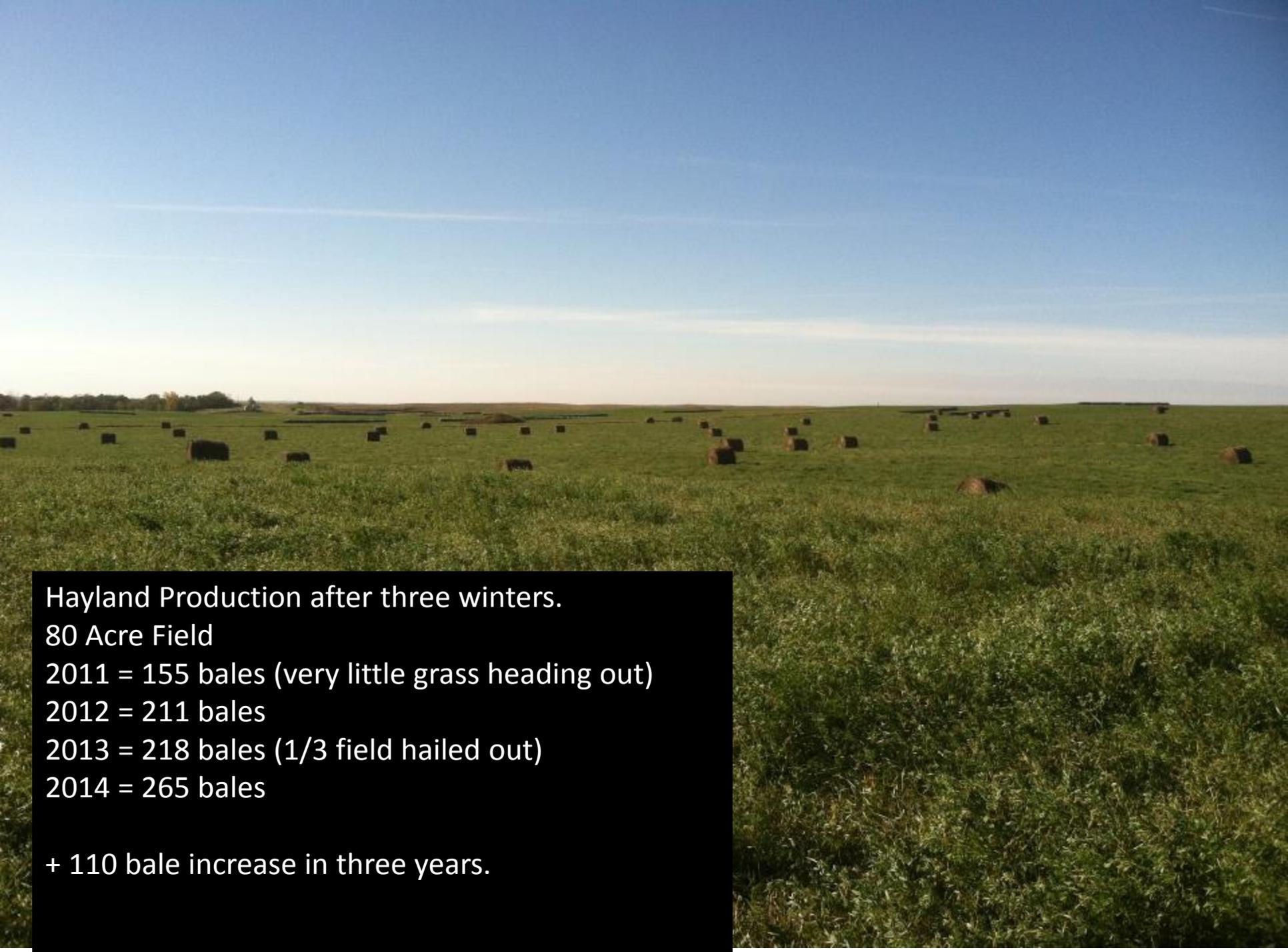
Snow windbreaks help draw cattle away from the primary windbreak.



A red tractor is shown from a side-rear perspective, mowing a field of tall grass. The grass is a mix of vibrant green and golden-brown, indicating it is in the process of being cut. The tractor's red body and black components are visible on the right side of the frame. The field extends to a flat horizon under a bright, overcast sky.

Results after feeding on hayland for three winters

07/23/2014



Hayland Production after three winters.

80 Acre Field

2011 = 155 bales (very little grass heading out)

2012 = 211 bales

2013 = 218 bales (1/3 field hailed out)

2014 = 265 bales

+ 110 bale increase in three years.



Fall Dormant Grazing in October and November
14 Hayland Fields x 3-5 Grazing Days in Each.

Hayland On The Left Was Hayed One Week Before The Hayland On The Right. Received No Rain for 6 Weeks Prior to Haying.



Traditional Hayland
Exporting All Hay. The Soil Is Tired.
10 Year Stand



Hay Fed On The Field.
The Soil is Healthy Again With Soil
Armor and Carbon. 20 Year Stand

Summary

Beef Cow – Manure & Urine Produced Daily, (ASAE 1999)

62 lbs Manure (0.4% N ; 0.2% P)

20 lbs Urine (1.1% N; 0.01% P)

Calculated Nitrogen

Manure 100 cows/120 days @ 0.23 lbs N/Hd/Day = 2760 lbs N

Urine 100 cows/120 days @ 0.22 lbs N/Hd/Day = 2640 lbs N

Total N = 5400 lbs

50 % Retention = 2700 lbs N divided by 40 acres = 68 lbs N/ac

100 % Retention = 5400 lbs N divided by 40 acres = 135 lbs N/ac

Western Beef Development Centre, Lanigan, SK

University of Saskatchewan, Saskatoon SD

P Jungnitsch, H A Lardner, & J J Schoenau

McPeak Grass and Cattle Ranch
Gestating Beef Cows, middle 1/3 of pregnancy
Nutbal Samples taken in January, 2015
Nutrient Requirements of Beef Cattle - Dakota Cow Clinics - NDSU

Hayland Fields	Crude Protein Mid Preg 7% Late Preg 9% After Calving 11-12%	Digestible Organic Matter Mid Preg 55% Late Preg 60% After Calving 65%	DOM/CP Ratio 4-7 Is Good	Fecal Nitrogen	Fecal Phosphorus >0.3 Is Good
North	6.65%	55.43	8.3%	1.19%	0.18%
Far East No Hay Exporting	9.94%	59.17%	6.0%	1.74%	0.34%
East	7.9%	57.41%	7.3%	1.4%	0.17%
Big Hayfields	8.03%	55.21%	6.9%	1.41%	0.27%
Below	6.7%	56.82%	8.4%	1.12%	0.2%

October 23, 2014

- Total Biology 1671 ng/g
 - Solvita 50 ppm
 - Organic Carbon 186 ppm
 - Inorganic N 3.0 lbs
 - Organic N 26.2 lbs
 - pH 7.2
- Total Biology 2502 ng/g
 - Solvita 134 ppm
 - Organic Carbon 257 ppm
 - Inorganic N 3.6 lbs
 - Organic N 47.9 lbs
 - pH 6.9
- 3 Years Winter Feeding**

No Winter Feeding.

Carbon is Food for the Soil Biology



Everything that is alive plays a role

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Take Care Of Your Soil Like You Do Your Cow Herd. They Both Need To Be Fed.



Summary

Connecting The Carbon Dots

- Calving With Nature
- Native Grazing System
- Wintering on Hayland
- Animal Impact On Hayland

Thank You

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Self Education

- The Nature and Properties of Soils – 14th Edition : by Brady and Weil

www.bcscd.com

- Buffalo Bird Women's Garden : by Gilbert Wilson

www.dakotalakes.com

- The One Straw Revolution: by Masanobu Fukuoka

www.sustainableranching.com

- Managing Cover Crops Profitably 3rd Edition

www.mandakzerotill.org

- Guns, Germs, and Steel: by Jared Diamond

- Soil Biology Primer: by Elaine Ingham

- Life in the Soil: by James Nardi

Thank You

www.bcscd.com

Bee Basics – Moisset & Buchmann

Conserving Bumble Bees – Hatfield, Jepsen, Mader, Black, & Shepherd

Beneficial Insect Habitat Planning – The Xerces Society

Attracting Native Pollinators – Mader, Shepherd, Vaughan, Black, & LeBuhn

Life in the Soil – James Nardi

Undaunted Courage – Stephen Ambrose

Dirt – David Montgomery