

## **Peace Country Beef Cattle Days**

Grimshaw Alberta

March 26/19

By: Julie Watchorn

### **Three Principals of Adaptive Stewardship**

Allen R Williams, Ph.D.

Understanding Ag LLC

Soil Health Academy

Joyce Farms Inc.

South Carolina, Mississippi

We know 10% of what happens in our soil...

-Reduce disturbance

-Increase diversity

- Increase living roots

It starts with MICROBES

Rhizophagy-

- Ability of plants to take in soil bacteria, dissolve the bacteria membrane and consume nutrients locked inside
- Plant roots suck in soil bacteria
- Powerful root enzymes dissolve bacterial membranes
- Plants eat nutrients
- Membrane less bacteria spit back out into the soil
- Reform membrane

We are all standing on soil

We are standing on a rooftop of another world

Power of Mycorrhizal Fungi –

- Far better than plant roots at picking up nutrients in the soil (6-10xs)
- Solubilize bound nutrients (especially P)
- Most natural P tightly bound with Fe and Al in recalcitrant compounds

P inputs derived from most fertilizers often react with ambient soil cations to form insoluble salts

- The Mycorrhizal system extends 40-60 cms beyond the plant roots themselves
- Mycorrhizal fungi increase the absorptive surface area of plant roots hundreds to thousands of time

### **Principle of Compounding**

- Never singular effects or impact
- Never neutral –always positive or negative
- Everything we do causes a series of compounding and cascading events
- Also creates epigenetic effects

### **Principle of Diversity**

- Want highly diverse and complex pastures and annual mixes- not monocultures

- Functional groups-Grasses, Legumes and Forbs

Why??

*Compounding and Cascading Effects*

-Always occur –positive or negative

*Secondary and Tertiary compounds*

- Dr. Fred Provenza and others

*Diversity in microbial species*

*Diversity in macro organisms*

Exponential rather than linear

*No effect or impact is singular*

### **Principle of Disruption**

- Nature has tremendous resilience and responds well to challenges
- Planned, purposeful disruptions
- Creates hosts of positive compounding effects
- Every cell in every organism has a memory

*Best tool in your toolbox*

- Observe! Observe! Observe!
- Use all you senses

- Sight
- Taste
- Sound
- Touch
- Smell

Constant observation develops –Intuition

### **Livestock Behaviour**

- An animals nutritional wisdom is very different than our perception of what it should be
- Plants are very good at organic chemistry and mediate relationships among soil, other plants and herbivores
- No person can select by hand a diet as nutritious as an animal can free ranging (in a diverse environment)
- Herbivores will eat 30-60 different foods daily if given the opportunity. A lot of some, a little of others; changes during different seasons
- Study after study show that an animal can detect deficiencies within hours or even minutes and will adjust what they eat or drink *IF* they have options

### **Resources**

[www.soilcarboncowboys.com](http://www.soilcarboncowboys.com)

[www.understandingag.com](http://www.understandingag.com)

[www.soilhealthacademy.org](http://www.soilhealthacademy.org)

[www.pastureproject.org](http://www.pastureproject.org)

[www.grassfedexchange.com](http://www.grassfedexchange.com)

## **Grazing Management**

*Duane McCartney, Forage Beef Systems Research Scientist  
Lacombe, Alberta*

Don't graze until 3- leaf stage in spring

Need litter

- Provides shade
- Increase snow traps
- Reduce raindrop impact
- Increase infiltration

Resting plants is the only way to sustain high production year after year

2 different legumes most beneficial, grasses alone are the lowest yield

Italian Rye Grass- no problem putting calves on it in the fall

-Cheaper than feedlot feed

Feed your best feed after calving

Swath graze

Bale Graze

Don't graze too long

Don't graze too much

Animals gain better when drinking from a trough

If you get short of grass...

- Graze just during breeding season
- Wean early, making sure all calves drink and eat by themselves, feeding high energy feed
- Let cows graze wanting them to go into winter in good condition

## **Planned Grazing**

*Pam Iwanchysko*

*Livestock Farm Production Extension*

*Primary Agriculture Branch*

*Manitoba Agriculture*

*Dauphin, MB*

We are in the business of capturing sunlight and water and converting it to food!!

Why plan your grazing?

Long term ecosystem health and profits

Planned grazing is a powerful tool

Biological N fixation and nutrient cycling

Carbon Sequestration

Re-graze every 90 days (wont work here!)

Graze before too mature

Benefits: why we do this-

Possibly better cattle performance and forage production (biological nitrogen fixation and carbon sequestration)

Improve water quality (healthy perennial pastures protect against erosion)

Enhanced wildlife habitat (perennial pastures provide food for birds, animals, earthworms and many other soil organisms)

### **Amber Moskalyk**

*Canadian Beef Sustainability Acceleration Pilot*

*VBP+*

Sustainable Beef -

- Social Responsible
- Economically Viable
- Environmentally Sound

Five Principles of Beef Sustainability

- 1- Natural Resources
- 2- Community and People
- 3- Animal Health and Welfare
- 4- Food
- 5- Efficiency and Innovation

The CBSA is an initiative to deliver a credible, assured supply of beef from certified sustainable sources

It will allow for future consumer-facing claims about sustainable beef production in Canada, which will help strengthen consumer trust in the Beef Industry

Which in turn will help Canadian Beef in the global markets

VBP+ workshops on-line or In-person

5 year renewable

Return is approximately \$18 per head amount varies per quarter

### **Bill Wilson-Forage Friendly Enterprises**

200 cow/calf pair (Beef Booster) Dawson Creek, BC

Calves May 1 Pastures June (ish)

All rented pasture land

Uses creeping Red Fescue / Red Clover

Fall/winter Grazing/Swath

Bred heifers go on the best grass had too many open

Late June grazing gives pasture rest time

Winter grazing improves soils

After Sept. 15 you save \$1.40 per day

[bill@foragefriendly.ca](mailto:bill@foragefriendly.ca)

### **Paul Kinnee-Berwyn. AB**

Calves may/June

Weans March/April

Pasture Map.com not phone compatible

Graze June come back 90 days later  
Swath graze oats and Italian Rye grass  
Not sold on cover crops  
Pastures legumes/brome/timothy  
\$1100/year Pasture Map.com

**Clay Armstrong-Hythe, Ab**

Planned and not so planned grazing  
How often to move cows day/week/month  
Depends on Water supply, Shelter and/or Escape plan  
You can use bush pasture instead of letting cows punch out pasture

Julie Watchorn

## Soil Health

Manning, AB.

June 11, 2019

Hosted by NAARA

Kim Cornish – Currently Director of Food Water Wellness Foundation – Calgary  
Producer/Farmer Liaison and Interface Development  
Degree in Political Science

Kim was in Namibia, Africa for 6 years as Coordinator of the Vergenoeg Permaculture Project with duties such as recruitment, marketing and publicity. I gather that she presently does marketing for Dr. Cornish.

Dr. Kris Cornish – Doctorate in Agriculture Sciences, USA

Kris travels putting on seminars to promote soil health. They had recently been in Taber, AB. At Shipwheel Cattle Feeders working with Blake Holtmen on soil rejuvenation on an intensive grazing project and built up organic matter in the soil from 1% to 6%. She spoke about building carbon in the soil, calling it Regenerative Agriculture Conservation Cropping – amount of carbon sequestration. She and Kim met at a conference in Rome in 2011 where close to 500 scientists met to discuss the importance of carbon in the soil as to world food sustainability.

Kris also talked about soil mapping saying that if you can't measure it, you can't change it. They both spoke about carbon offsets and said that Quebec is writing their protocols now and that these will affect us.

Soil and infiltration and compaction were demonstrated. Aggregates in the soil and their effects on water holding capabilities were also demonstrated using screens and water,

- For Northern AB, 9% carbon in the soil is considered good
- Soil health refers to the continued capacity of the soil to function as a vital living ecosystem that sustains plants, animals and humans
- Biological activities in the soil are controlled by carbon – more carbon - better water retention meaning more resilience to drought, heat, etc.
- In university she was told that it takes about 1000 years to build an inch of topsoil – this is now happening in a lifetime or less and in some cases a few years as has been proven in North Dakota.
- Carbon content is built from the top down, not from the bottom up
- Without enough carbon in the soil, life is not supported. No food can be produced without a plant to harvest sunlight.
- Soil is organic – the top 6 inches holds billions of organisms and nutrients.

- Growth promotes carbon as well, even insects biting a leaf can cause carbon to move into the ground

We finished of the day by sifting soil through two sizes of mesh screens and then adding water – the water should remain clear if aggregates are good – a simple enough test.

Garry Candy