forage VIEWS

WEST-CENTRAL FORAGE ASSOCIATION

March 2018

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Important Dates

March 19th: WCFA AGM

WINTER FEEDING IN 2019

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These weather patterns this summer and fall forced farmers in Alberta to put up feed that varied widely in quality, and in quantities less that we are accustomed to in the West Central area. Snow, rain, and smoke aside, the cattle herd has nutrient requirements that must be met throughout the winter feeding period. This year especially, meeting those nutrient requirements using forages of limited quantities, and with varied quality, will require some planning, but the use of supplemental feeds should make it possible to navigate through spring calving.

To start, it is important to understand the nutrient requirements of cattle and how they change depending on the level of production. Trevor Yurchak and Dr. Erasmus Okine do a very nice job outlining the "Beef Ration Rules of Thumb" (available at open.alberta.ca/publications/3035887) which is a handy document to consult for anyone who is feeding cattle.

In brief, to maintain body condition, a bred cow should receive a ration containing energy containing 55% TDN at mid gestation, 60% TDN during late gestation, and 65% TDN during lactation. Totat disgestible nutritents (TDN) is one of the more common calculations to determine feed energy, and takes into account digestible protein, fibre, carbohydrates, sugars, and starches. Without sufficient energy in the ration, cattle may lose weight, fail to grow, or be unable

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WINTER FEEDING IN 2019 CONTINUED

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to utilize dietary protein. For the same bred cows discussed above, the crude protein of the total ration should be 7, 9, and 11% (mid-gest, late-gest, and lactation) of the animals dry matter intake in order to maintain body condition. Protein is essential for fetal development, milk production, and muscle maintenance. Lastly, it is important to monitor the concentration of macrominerals calcium and phosphorus in rations, as these minerals play important roles in skeletal maintenance, fetal development, and reproduction. In the total ration, a ratio of calcium: phosphorus should be between 2:1 and 7:1.

As a generalization, feed testing this year has revealed forages with slightly reduced protein and energy content. These lows may be the result of plants maturing earlier from a lack of moisture, and/or reduced photosynthesis due to smoke. No matter what your forage, your goal is to ensure that the total ration provides adequate protein, energy, and minerals at the appropriate levels during each stage of production. So long as these requirements are met, cattle are relatively flexible in terms of the blend of feeds that provide the nutrients to them; providing the producer or nutritionist options when balancing a ration. The table below outlines the relative components of some commonly fed feedstuffs usually being offered in Alberta.

There have been numerous inquiries from producers looking to feed a straw and pellet ration this year, again due to the hay shortage. Because straw is

FEED	CRUDE PROTEIN	TDN	CAL	PHOS
Wheat Straw	3.9	44.57	0.13	0.08
Barley Straw	4.2	50.20	0.25	0.09
Oat Straw	4.5	46.00	0.26	0.1
Pea Straw	6.5	50.22	0.85	0.08
Canola Straw	6.3	45.21	1.3	0.06
Oat Grain	11.0	76.15	0.08	0.34
Barley Grain	12.5	88.10	0.07	0.38
Alf/ Grass Hay	14.3	59.13	1.22	0.19
Wheat Grain	14.4	89.34	0.06	0.4

Source: Alberta Ag (cowbytes) and Trouw Nutrition Canada feed tests

WINTER FEEDING IN 2019 CONTINUED

low in both protein and energy, supplemental feed (with relatively high protein and energy content) is required. In addition to the important roles protein plays listed in paragraph 2, supplemental protein is necessary for straw fed cows in order for the rumen to fully function and break down fiber in the straw. Based on this, Trouw Nutrition has developed several protein pellets to fit a wide variety of forage feeding scenarios. Among the most common are the 18% protein pellet, designed to be fed alongside a complete straw diet, and the 15% or 13% protein pellet, which are designed for feeding with lower quality hay or hay/straw blends. All pellets come with a complete vitamin and mineral package as well as the option to include rumensin. If we apply our "rules of thumb" and assume a cow in mid-gestation is fed a combination of the 18% pellet and barley straw (while consuming 2.3% of her bodyweight in dry matter daily), then feeding 6 lbs. of pellet and allowing free choice straw provides adequate nutrients for maintenance in mild winter temperatures. Combinations of feed grains, such as barley, and a protein rich feed, such as peas, fed alongside straw can also work for cattle. In all situations, it is crucial to remember that vitamin and mineral supplementation is important and the inclusion of rumensin can reduce coccidiosis and improve feed efficiency.

During calving, straw and pellet/grain rations may still be used to meet nutrient requirements. Greater amounts of concentrate will be required to meet cow's higher protein and energy requirements. Using the same cow herd from the previous paragraph, only now freshly lactating, an additional 9 lbs. of rolled barley is required to meet her increased production demands when compared to mid-gestation. Saving better quality forage for calving time is also wise, as higher quality feeds offered during this period can help to meet the increased nutrient requirements.

In summary, there are many ways to feed beef cows throughout the winter, even in years when hay or silage may in high demand. If you need assistance, talk to your nutritionist or feed rep, they have likely already mapped out similar situations for other producers. No matter what your winter feeding situation looks like, I also strongly recommend having your forages analyzed for feed quality. For a relatively minor cost you can determine the protein and energy levels of feeds that make up the majority of your ration, and avoid situations such as underfeeding energy, or bringing in supplements that provide more protein than your animals require.

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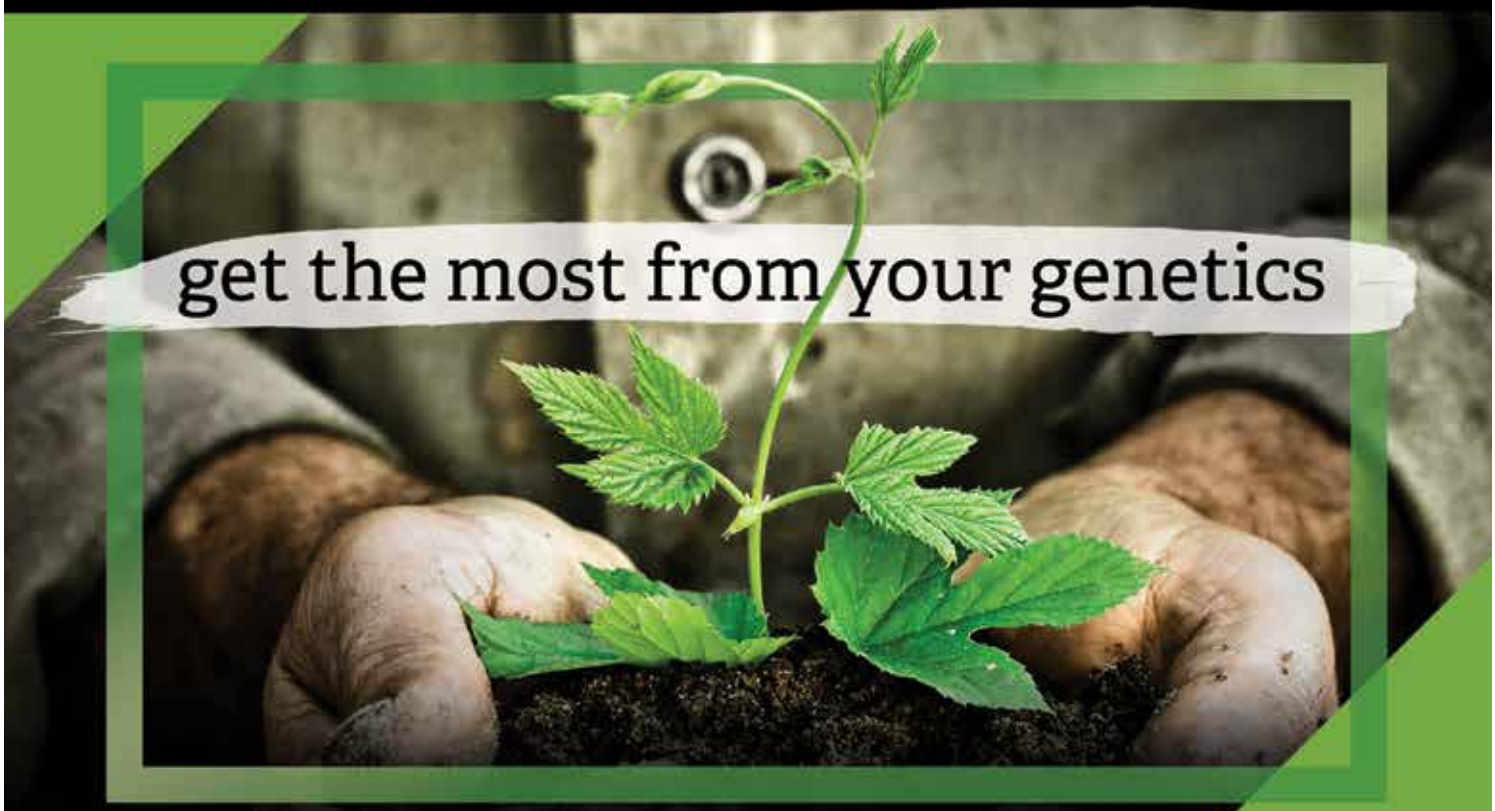

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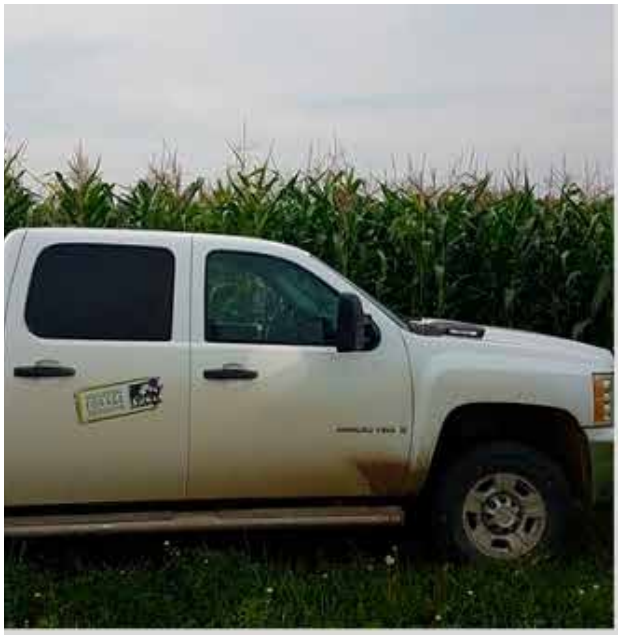

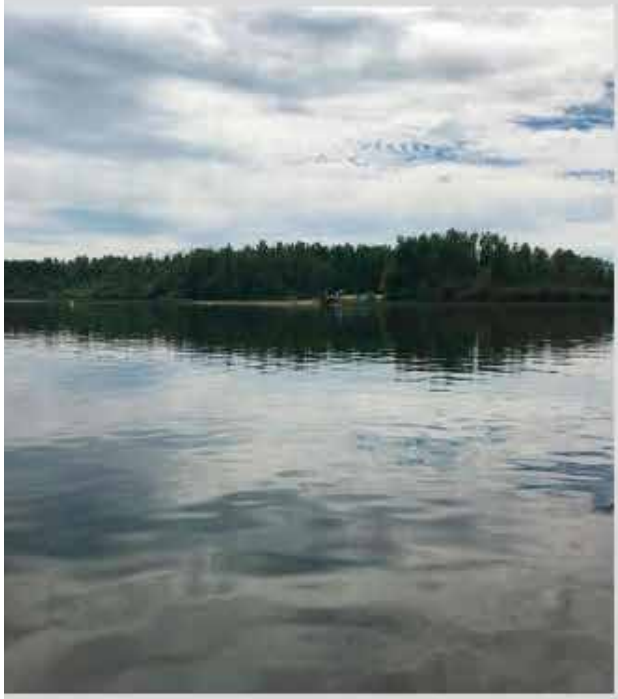

2018 Year in Review

KNOWLEDGE TRANSLATION TRANSFER

Joel Salatin & Steven Kenyon
Ladies Ranching Retreat
2 x Antimicrobial Legislation Changes
AGM with John Knapp
Curt Pate Stockmanship School
High Legume Pasture Seminar
Progressing Your Operation Field Tour
Sheep & Goat Symposium
Feed What You Need Workshop

RESEARCH PLOTS

Corn Variety Trial
Cover Crop Variety Trial
Regional Silage Variety Trial
Perennials Variety Trial
Reed Canary Trial
Industrial Hemp Variety Trial

SACA INITIATIVES

Shining Bank Lake Community Stewardship Initiative
3x Pond Days
3x Classroom Agriculture Presentations
ALUS PAC
Athabasca River Basin Initiative
Biological Control Agent Program
58 Environmental Farm Plans

FACILITATING PRODUCER

10x Newsletters
Social Media & Email Information Exchange
10x Cowbytes
5 Consultations
Forage & Soil Sampling Analysis
Rental Equipment

4RS AN IMPORTANT ASPECT OF SUCCESSFUL FARMING, REGARDLESS OF REGULATION

BY: DR. THOMAS L. JENSEN, NORTHERN GREAT PLAINS DIRECTOR, INTERNATIONAL PLANT NUTRITION INSTITUTE (IPNI)

Required plant nutrients can be most successfully applied following the 4R Nutrient Stewardship Principles. The 4R nutrient stewardship principles are the same globally, but how they are used locally varies depending on field and site-specific characteristics such as soil, cropping system, management techniques and climate.

The 4R principles are described as applying the right source of nutrient, at the right rate, at the right time, and in the right place. This applies to all nutrients that are required above what the soil can supply, and for all crops, cropping situations, and nutrient sources. Having an adequate and balanced supply of plant nutrients is essential for well yielding crops, especially as cropping practices have improved using higher yielding varieties, moisture conserving conservation tillage, and more effective pest control options. As crop yields increase there is greater demand on our soils to supply both a sufficient and balanced supply of nutrients.

Benefits are realized from using the 4R principles in both environmentally regulated and non-regulated situations. In fact, effective use of 4R usually exceeds minimum guidelines for most nutrient regulations. A useful example is a farm where I helped develop a nutrient management plan. This 3,680 acre corporate mixed farm located north of Calgary, Alberta consisted of a 500 farrow-to-finish hog operation and a 100 cow dairy. Crops included barley, wheat, canola, as well as 40 acres of pasture. All manure from the hog and dairy operation was handled using a liquid manure system with an above ground steel storage lagoon that was emptied twice a year and land applied, in early spring and mid fall.

I was asked to help the farm manager develop a nutrient management plan compliant with recent changes with the provincial Agricultural Operation Practices Act (AOPA). This act contains

regulations for manure applied to farmland in Alberta. The Act applies to any confined livestock operations greater than 500 animal units. The farm was having a challenge meeting previous county bylaws that had restricted land application of the liquid manure to only 960 acres of the total 3,680 acre farm. Application of the manure to about only one-quarter of the cropped acres was resulting in excess applications of manure. Plant available soil test N and especially P were greater than crop requirements, and soil residual levels of N were greater than that allowed under the provincial manure regulations.

By following the 4R principles, a nutrient management plan for all of the cropped acres utilizing all the manure along with additional

purchased fertilizers was possible. This nutrient management plan complied easily with the provincial manure legislation, and made much better use of the manure by integrating use of mineral fertilizer. This resulted in higher yielding crops, and less potential for environmental harm. Additionally, it was shown that the provincial legislation took precedence over the county bylaws. Fields where previously the county thought manure should not be applied, could receive manure applications as long as setback distances from residences, permanent water bodies, and drinking water wells were complied with.

I have yet to see a farm where use of the 4R Nutrient Stewardship Principles has not been able to exceed nutrient or manure management legislation guidelines. This means that 4R nutrient management plans can help farmers achieve high yielding crops, effectively utilize manure if the farm has livestock, and manage adverse environmental effects. It is important to note that this can be done as long as sufficient land is available to effectively utilize available manure. I did another nutrient management plan for a 1000 farrow to finish hog farm that only had 470 acres of cultivated farmland. In this instance I recommended that manure application agreements be made with neighboring farms to adequately utilize the nutrients from the manure and avoid excess nutrient applications. These agreements were beneficial to both the farm with the hog operation as well as neighboring farms.

An important aspect of utilizing 4R Nutrient Management on a farm is that there is consideration for economic, social and environmental goals. In the first farm example used above, these goals would have been achieved whether or not there had been environmental regulations in place. This shows that achieving economic, social and environmental goals are often mutually compatible.