WesternBeef
DEVELOPMENT CENTRE

THE CLIMATE FOR COWS & COWS FOR THE CLIMATE

18th Annual

Summer Field Day

June 21, 2016

at the Termuende Research Ranch
Lanigan, Saskatchewan

WBDC office located in Humboldt, SK
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Collaboratively linking lab and land for the competitiveness and sustainability of the cow-calf industry in Saskatchewan.

WesternBeef
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The Climate for Cows & Cows for the Climate

WBDC 2016 Summer Field Day

Agenda

9:30 a.m.
Registration and Coffee

10:00 a.m.
Welcoming Remarks from:
David Gullacher, President and CEO, PAMI
Paul Jefferson, VP Operations, WBDC
Lee Auten, ADM, Sask Ministry of Agriculture
Termuende Family Representative

10:15 a.m.
An Overview of Current Research on Environment Goods and Services in Alberta Grasslands
Dr. Edward Bork, University of Alberta

11:00 a.m.
BIXS - Consumer Mindset, Social Impact, Transparency and Data Sharing
Deb Wilson, BIXSco, Inc.

11:30 a.m.
Reducing Methane Emissions from Agriculture Can Be a Benefit to Saskatchewan Livestock Producers
Dr. Alan Iwaasa, Agriculture and Agri-Food Canada - Swift Current Research & Development Centre

12:00 p.m.
21 Day Calving and Hay Harvest Challenge Announcements
Saskatchewan Ministry of Agriculture

12:15 p.m.
Lunch, Trade Show and Networking

1:30 p.m.
Bus Tour Stops (20 to 30 minutes each)
Evaluating Whole Plant Corn for Grazing with Beef Cattle - Dr. Bart Lardner, WBDC; Breeanna Anderson, MSc Student and Bree Kelln, DuPont Pioneer
Sampling DNA and Sire Verification in Multi-Sire Breeding Pastures - Stacey Domolewski, MSc Student; Steven James, Quantum Genetix and Leanne Thompson, Living Sky Beef, Co-operating Ranch
Temporary Fencing Demo - Dr. Joy Agnew/Alan Whittaker, PAMI
Effect of Sampling Time on Forage Quality of Annual Crops for Stockpiling - Dr. Paul Jefferson, WBDC
If You Can't Beat 'Em, Eat 'Em; Noxious Weed Control with Goats - Nadia Mori, SK Ministry of Agriculture

4:30 p.m.
Saskatchewan John's Disease Screening & Control Program
Dr. Wendy Wilkins, SK Ministry of Agriculture and Leah Pearce, WBDC

5:00 p.m.
Steak Supper ($15 per plate)

An Overview of Current Research on Environmental Goods and Services in Alberta Grasslands

Dr. Edward Bork, Professor & Mattheis Chair
University of Alberta

Alberta contains about 9 M ha of grazing lands, most of which (6.5 M+ ha) consists of native grasslands. While it is recognized that these areas are important for forage and livestock production, they also provide many other environmental goods and services (EG&S), including carbon (C) storage, pollinator habitat, and biodiversity. We are undertaking research to quantify these benefits in Alberta grasslands.

Perennial grasslands are important sinks for storing C, although the specific role of northern temperate grasslands in altering ecosystem C remains unknown, including the influence of grazing and land use conversion. In this study, we show that native grasslands hold large amounts of C, particularly aboveground in dead and decaying vegetation, but also belowground as soil organic and inorganic C. In pairwise comparisons, native grasslands were found to store approximately 1.5x more total C than introduced forages, and 1.62x more than cropland cover types, respectively. By linking these values to spatial data on land cover changes for the province and present market values for C, we estimate that the current value of C retained in native grasslands by avoiding conversion within each of the Prairie and Parkland regions exceeds $3 B. Similarly, by applying our results to past land use changes, significant value has been lost in C storage due to conversion of native grasslands into both introduced forage and cropland. Our study also revealed that long-term exposure to grazing was consistent with maintaining, and in some situations increasing, the size of select C pools within native grasslands. While grazing predictably reduced C in standing live vegetation, this change was offset by increases in other C pools, including root mass and soil organic matter, particularly under high moisture availability, effectively maintaining or increasing soil C. Our observations also indicated that native grassland had improved soil health metrics relative to other land uses based on soil aggregation and the ability to provide water under increasing moisture stress. More recent studies are quantifying the role of grazing in potentially reducing various greenhouse gases (GHG), including CO2, as well as more potent GHGs such as methane.

Our ongoing examination of vegetation responses to long-term grazing also indicate that grazing was influential in increasing plant species diversity under moderate moisture conditions, thereby contributing to the maintenance of overall biodiversity. Within mesic environments of SW Alberta, grazing helped limit woody species encroachment into grasslands, and even increased grassland shoot and root production. Although grazing did not lead to widespread changes in range health or native species cover, it facilitated an increase in introduced species, but only in high moisture environments, where this pattern was associated with increases in ecosystem C. Recently initiated studies are quantifying the role of grazing and grassland retention in supporting various components of ecosystem biodiversity, including important pollinators such as bees.

In summary, results from these research projects aim to highlight the compatibility of native grasslands in maintaining, and sometimes increasing, a variety of environmental goods and services, including forage production, biodiversity and C storage. Our long-term goal is to encourage the development of novel policies and market mechanisms that reward grassland managers for maintaining and improving these EG&Ss.

BIXS - Consumer Mindset, Social Impact, Transparency and Data Sharing

Deb Wilson
BIXSco Inc.

Globally and locally, consumers are demanding more information about the quality of their beef, history of care and chain of custody. With more robust tracking and tracing, Canadian beef could access lucrative international markets and compete on a global stage as a high end product. As BIXS becomes fully operational, we will be able to track beef from farm to packer/retailer, as was proved in the McDonald's pilot project. This allows the producers to showcase all their excellent production practices all along the chain, providing a record of genetics, management and history of care – reflecting the pride of the industry.

Most parts of the industry track information, but unfortunately they do not share information. Most of this data remains in the sector of the industry where it originates, therefore the value of it is not fully realized by other sectors in the industry. BIXS allows for that data to be shared upstream and downstream making it available to researchers, packers, retailers and producers. Data can then be analyzed, the information derived allows the industry to make decisions – unlocking the value of data sharing.

What does Sustainability mean and how does BIXS support that in Canada? Find out how data-sharing and transparency supports sustainability and why retailers see it as critical to continuing consumer demand for beef.

Reducing Methane Emissions from Agriculture Can be a Benefit to Saskatchewan Livestock Producers

Dr. Alan D. Iwaasa (Grazing Management/Ruminant Nutritionist)
Agriculture and Agri-Food Canada - Swift Current Research & Development Centre
Alan.iwaasa@agr.gc.ca

What are Greenhouse Gases and what is Canada's Agricultural Emissions?

Greenhouse gas (GHG) emissions can occur naturally through biogenic processes such as the decomposition of biological materials, forest fires, and fermentation, as well as, through anthropogenic (human) sources of GHG emissions (e.g., burning of fossil fuels). Agricultural contributions to total GHG emissions in Canada is relatively small, accounting for about 8.1% of total national GHG emissions in 2009 (Environment Canada 2011). For the agriculture sector the main GHGs are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). Carbon dioxide comes from fossil fuel combustion in farm machinery and losses of soil organic matter. Methane emissions come from livestock manure and from ruminant animals during the normal digestive process of enteric fermentation. Nitrous oxide comes from fertilizer usage, crops and manure. In Canada, CH4 (enteric fermentation and manure) emissions accounted for over 39% of the total agriculture GHG emissions in 2009 (Environment Canada 2011). Methane is 21 times more effective at trapping heat in the atmosphere than CO2 over a 100-year timeframe.

Win-Win Opportunities

Agriculture can be a significant contributor to Canada's GHG emissions which are long-lived and have long-term influence on our environment. Methane emissions represent production inefficiencies and losses of energy, therefore reducing these losses will improve the efficiency of livestock production. This should be seen as a potential win-win opportunity for forage and livestock producers and not a threat to the agricultural industry. Properly managed grazing livestock and perennial grasslands are more productive, more profitable, and provide the best opportunities to reduce GHG emissions and improve our environment and sustainability.

Methane Emissions from Enteric Fermentation in the Rumen

Methane is produced during the normal digestive process of enteric fermentation by herbivores. Microorganisms (e.g., methanogenic bacteria) break down carbohydrates and proteins into simple molecules for absorption through the gastro-intestinal tract and CH4 is produced as a by-product. This process results in an accumulation of CH4 in the rumen that is emitted by eructation and exhalation. Some CH4 is released later in the digestive process by flatulation, but this amount is very small (< 2% of total emissions). On average the daily CH4 emission from a grazing yearling or a mature cow can range from about 175 to 300 g per day and emission rates will vary depending upon a number of dietary factors, such as: type of forage, level of intake and production, grazing systems, environment etc. Cattle typically lose 6% of their ingested energy from CH4 being eructated. Since CH4 represents a loss of carbon from the rumen and thus an unproductive use of dietary energy, animal researchers have been looking for ways to suppress its production. The most promising CH4 mitigating strategies are by improving the productivity and efficiency of livestock production.

Environment Canada. 2011. National inventory report 1990-2009 Greenhouse gas sources and sinks in Canada. Published on the website http:www.ec.gc.ca/ges-ghg/.

21 Day Calving & Hay Harvest Challenge Announcements

Saskatchewan Ministry of Agriculture

Saskatchewan's Forage Harvest Challenge 2016
Growing and Harvesting good quality forage is the first step in meeting the nutritional demands of livestock.

The Saskatchewan Forage Harvest Challenge is a province-wide initiative to promote the value of feed testing. The Saskatchewan Ministry of Agriculture has partnered with Peavey Mart and Central Testing Laboratories to run the 2nd Annual Forage Harvest Challenge.

Feed testing is a tool to assist producers to manage winter-feeding and avoid the over/under feeding of nutrients. To participate in the Forage Harvest Challenge, pick up a booklet at any Ministry of Agriculture office or Peavey Mart in Saskatchewan. Fill out and submit the entry form at the back of the booklet along with a copy of the feed test to be entered to win.

Winners will be determined by random draw. A copy of a 2016 feed test must accompany each entry to be eligible. More than one entry per operation is permitted. The contest deadline is January 15, 2017. The grand prize is a $1000 voucher for use at any Saskatchewan Peavey Mart store. There will also be four $250 vouchers awarded for feed testing from Central Testing Lab.

Submit your feed test results for a chance to win!

To learn more, contact the Agriculture Knowledge Center at 1-866-457-2377 or visit us online at Saskatchewan.ca and search 'Forage Harvest Challenge'.

The 2016 Saskatchewan 21 Day Calving Challenge Contest
Cow herd reproduction is the most important factor affecting the profitability of Saskatchewan's beef producers. It is five times more important than growth rate and 10 times more important than carcass quality when it comes to contributing income to the ranch. Saskatchewan Agriculture, Cargill, Co-op Feeds, New Life Mills, and Saltec–Ceres Industries have once again joined forces to host the Saskatchewan 21-Day Calving Challenge Contest to raise awareness surrounding cow herd reproduction and to track reproductive success.

One of the simplest ways to track the reproductive success of a cow-calf herd is to plot calving distribution on a graph. This is simply a calculation of how many calves are born in each 21-day period of the calving season. The goal is to have at least 60 per cent of the herd calving in the first 21 days of the calving season.

Most cow-calf producers have a calving book in their pockets at calving time. This simple record-keeping system can tell you more than which calf belongs to which cow. The Saskatchewan 21-Day Calving Challenge invites producers to record, measure and evaluate their calving season to see how their herds measure up on reproduction and profitability. Producers taking the challenge used the contest calving books to record their calving season and guide them in calculating their calving distribution percentages. In addition to providing a place for record keeping, the calving book is full of production, nutrition and reproductive information.

To participate in the contest, producers filled out the tear-away entry form at the back of their calving book and sent it in to enter the draw for one of four $1,000 vouchers for mineral supplement. Winners of the 2016 21 Day Calving Challenge contest will be announced today.

Evaluating Whole Plant Corn for Grazing with Beef Cattle

D. Jose, S. McMillan, B. Anderson, B. Kelln and H.A. (Bart) Lardner

Trial 1A & 1B Materials and Methods:

- Over 3 yr whole plant corn and whole plant barley biomass and quality was determined at 4 different locations (Fairview AB; Evansburg AB, Melfort SK, Scott SK).
- At Lanigan, each yr, 15 ac of corn (Zea mays cv. DKC 26-25) was seeded at 30,000 seeds/ac and 30 ac of barley (Hordeum vulgare cv. Ranger) was seeded at the rate of 96 lb/acre. Barley was swathed at soft dough stage for swath grazing and greenfeed and whole plant corn continued growth into September.
- Each yr, 60 dry pregnant cows stratified by BW (1450 lb) were randomly allocated to 1 of 3 replicated (n = 2) grazing systems which were (i) grazing standing whole plant corn (**SC**) (TDN = 67.1%; CP = 9.6%) in field paddocks; (ii) grazing swathed whole plant barley (**SB**) (TDN = 60.6%; CP = 10.9%) in field paddocks; or (iii) drylot pen feeding round bale barley hay (**BH**) (TDN = 60.7%; CP = 11.6%).
- Over 3 yr, corn biomass from small plots, ranged from 4.0 to 5.6 ton/ac DM across sites and varieties while barley biomass averaged 3.2 ton/ac DM across sites. Nutritive value indicated barley CP was higher than corn (11 vs 8%) however, corn energy content was either higher or similar to forage barley energy level (69 vs 67%, respectively).
- In the extensive cow grazing study, dry matter intake of cows grazing whole plant corn was lower ($P=0.01$) compared to cows grazing whole plant swathed barley or barley hay fed in drylot pens. Cow BW change, BCS, average daily gain, rib and rump fat changes were not different ($P>0.05$) between cows in either winter grazing system. Daily variation in ruminal pH parameters was observed ($P<0.05$) in cannulated heifers consuming whole plant corn or swathed whole plant barley in the field grazing systems.
- Cows managed in the field grazing systems (SC, SB) had lower system costs, **26** and **37%**, respectively compared to the drylot barley hay (BH) system.

Trial 2 Materials and Methods:

- At Lanigan, each yr, 10 ac of corn (Zea mays cv. DKC 26-25) was seeded at 30,000 seeds/ac and 20 ac of barley (Hordeum vulgare cv. Ranger) was seeded at the rate of 96 lb/acre. A portion of barley crop was swathed August 25 each year at the soft dough stage and left in windrows for winter grazing, while the remaining portion was baled to be fed as processed green feed in bunks in drylot pens. The corn crop was left standing for winter grazing.
- Each yr, 120 fall weaned beef calves were stratified by BW (560 lb) and randomly allocated to 1 of 3 replicated (n=2) backgrounding systems which were (i) grazing standing whole plant corn (**COR**) (TDN = 65%; CP = 8.7%) in field paddocks; (ii) grazing swathed whole plant barley (**BAR**) (TDN = 61%; CP = 11.2%) in field paddocks; or (iii) drylot pen feeding barley hay (**CON**) (TDN = 57%; CP = 10.9%).
- Calf ADG during backgrounding was similar ($P>0.05$) between COR, BAR and CON systems. There were no differences ($P > 0.05$) in feedlot performance parameters, except calves feedlot finished on corn grain diet yielded more ($P=0.04$) Canada Prime grade carcasses than calves finished on barley grain diet.
- The extensive backgrounded calves had costs that were **33%** and **29%** lower for standing corn and swath-grazed barley, respectively compared to drylot backgrounding system. Averaged over 3 yr, the cost of gain for corn grazing calves was **50%** less compared to drylot bunk fed calves.

In summary, adoption of extensive winter grazing systems such as grazing whole plant standing corn or swathed whole plant barley can reduce labour and production costs during winter months, compared to feeding barley hay bales in drylot pens.

Sire Verification in Multi-Sire Breeding Pastures

Stacey Domolewski

This study is working with 6 cooperating ranches across Saskatchewan to evaluate the use of sire parentage verification in commercial cow-calf operations. Sire verification is an important tool for several reasons. Knowledge of which calves come from which bulls, allows producers to make culling decisions for bulls that are not prolific, or not producing top quality calves. Knowing which bulls are the most prolific, and what traits bulls are passing on to their progeny can also assist in the decision of which calves to keep as replacement heifers. Sire verification is also the only way to know the true value of a bull on an operation.

DNA parentage testing is a simple and accurate way to determine parentage in multi-sire breeding pastures. However, problems can arise when a sire cannot be verified due to the fact that even with the most accurate of lab tests there are still genotype errors that occur, and also due to errors where the sire could not be accounted for, such as in a situation where a neighbors bull got into the pasture. Even with these problems, DNA parentage verification is still considered to be the most efficient way to determine a sire's contribution to an operation that utilizes multi sire breeding pastures.

A bull's value lies in the number of calves that are sired and the value of the traits that are passed on to those calves (high weaning weights, feed efficiency, etc.). This suggests that a bull can be of very high genetic merit but low economic value if the sire is only producing a few calves each year. Bulls are selected for a variety of traits depending on producer preference (high average daily gain (ADG), high weaning weight, low birth body weight (BW), etc.), however these traits have nothing to do with fertility, and may even have a negative correlation. Sire verification using DNA parentage testing provides an opportunity to calculate the economic return on investment for a bull regardless of his assumed value do to phenotypic traits.

As SNP technology advances, the cost of sire verification has been decreasing and the ease of incorporating it into a commercial livestock operation has increased.

This study is working with 6 different beef operations across Saskatchewan. Each of these operations use a multi sire breeding pasture system and have DNA sampled the calves at vaccination or spring turnout time to allow parentage testing. Bull DNA samples were taken at the time of semen testing pre-breeding.

Figure 1: comparing the Bull Prolificacy Index (BPI)(number of calves sired/bull:cow ratio*pregnancy rate) for bulls in each breeding group

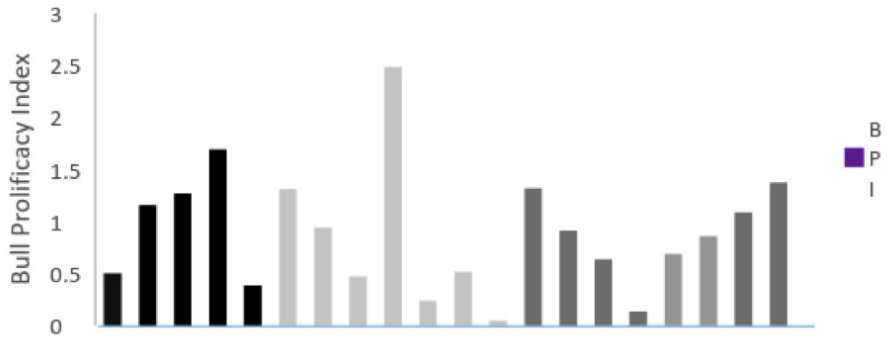


Table 1: Number of calves produced by each sire in all four breeding groups from one of the producer cooperator as well as bull traits that were measured for each of the sires.

Sire	Breeding Group	Age	SC	% normal	#cows	#calves samples	#sires in pasture	#calves sired	% calves sired	BPI
A	1	3+	46	46	147	130	5	13	10.00%	0.5
B	1	2	40	86	147	130	5	30	23.08%	1.153846154
C	1	1	36	79	147	130	5	33	25.38%	1.269230769
D	1	2	40	86	147	130	5	44	33.85%	1.692307692
E	1	3+	45	86	147	130	5	10	7.69%	0.384615385
F	2	3+	45	75	147	128	6	28	21.88%	1.3125
G	2	3	40	87	147	128	6	20	15.63%	0.9375
H	2	3	42.5	83	147	128	6	10	7.81%	0.46875
I	2	3+	44	92	147	128	6	53	41.41%	2.484375
J	2	2	40	79	147	128	6	5	3.91%	0.234375
K	2	1	42	72	147	128	6	11	8.59%	0.515625
no sire match	2				147	128	6	1	0.78%	0.046875
L	3	3+	43	89	73	66	3	29	43.94%	1.318181818
M	3	2	42	87	73	66	3	20	30.30%	0.909090909
N	3	2	41	79	73	66	3	14	21.21%	0.636363636
no sire match	3				73	66	3	3	4.55%	0.136363636
O	4	3+	37	84	83	70	4	12	17.14%	0.685714286
P	4	1	37	76	83	70	4	15	21.43%	0.857142857
Q	4	1	37	91	83	70	4	19	27.14%	1.085714285
R	4	3+	44	88	83	70	4	24	34.29%	1.371428571

Sampling DNA

Steven James
Quantum Genetix

How many cows is each bull servicing? Are the genetic performance traits you wanted truly being passed on? Q-link tests reveal real and accurate results without you ever needing to guess again. Then apply that knowledge to your advantage for herd improvement. This discussion will show what's involved, from sample collection to herd improvement decisions.

Temporary Fencing Demo

Dr. Joy Agnew and Alan Whittaker
PAMI

A quick and efficient method of putting up and taking down temporary fencing may allow livestock producers to take advantage of crop residue grazing and opportunity feeds, which would help reduce their winter feeding costs. Existing methods for setting up perimeter fencing are labour-intensive and generally take days to set up for any significant amount of fencing. In addition, existing methods are neither suitable for use on frozen ground nor do they easily accommodate three-dimensional (3-D) attributes in areas that have significant wildlife pressure. Several producer groups have found that adding a string of wire approximately 0.5 m outside of the standard wire (which creates the third dimension of the fence) prevents wildlife from entering the fenced area due to their limited depth perception.

The purpose of this project is to design, build, and demonstrate a system that allows a single operator to set up three kilometers of temporary fencing in less than a day. Based on the design attributes that were generated from a discussion with stakeholders, several concepts were evaluated. Solutions that involved finding more innovative ways to pound posts into the ground were discarded due to their inability to meet the time restriction and the difficulty in incorporating 3-D fence attributes. The final concept developed for this project involves A-frames (1.2 m high and 1.5 m wide) that sit on the ground and support three wires on one leg and one wire on the other leg resulting in a 3-D fence. A proof-of-concept system was built and tested to demonstrate the ability to set up the A-frames and string out the wire in a single step.

The prototype dispenser was designed to sit on a standard flat-deck trailer to minimize the manufacturing cost of the dispenser. The frames were designed so that they easily stack and deploy and can be handled (picked up) by the front-end loader of almost any farm tractor. The prototype fabrication was completed in March, 2016 and preliminary testing will be completed this summer. Finally, an economic analysis will be completed to compare the cost of fencing using the newly designed system with the cost of traditional methods. This project is scheduled to conclude in December 2016.

Effect of Sampling Time on Forage Quality of Annual Crops for Stockpiling

Paul Jefferson[1], Emma McGeough[2], Bruce Coulman[3], Bill Biligetu[3], Karin Wittenberg[2], Kim Ominski[2], Doug Cattani[2], Brittainy Hewitt[2], and Xinhui Peng[3]
[1]Western Beef Development Centre; [2]University of Manitoba; [3]University of Saskatchewan

Stockpiled annual crops can be grazed by the beef cattle in the fall and winter. The objective of this project is to evaluate the productivity and quality of seven annual crops seeded in spring and stockpiled until October for grazing. It was conducted in Arborg, Roblin and Carman MB and at Lanigan and Saskatoon SK in 2014 and 2015. Fusion corn, Golden German Millet, Haymaker oats, Hazlet fall rye, Maverick barley, Aubade Westerwold annual ryegrass, and Mammoth soybean were seeded in late May in replicated small plots at each location. Fertilizer was added according soil test recommendations. Annual ryegrass was harvested in summer and then stockpiled for October. Other crops were not harvested until mid-October. However, forage samples were taken for quality analysis in mid-August, mid-September and mid-October. Samples were sent to Central Testing Laboratory in Winnipeg for chemical analysis for crude protein (CP), neutral detergent fiber (NDF), total digestible nutrients (TDN), and nitrate concentration on a dry matter (DM) basis.

The results for the Lanigan site only are presented for this report. Soybeans did not produce results in 2015 due to herbicide damage. The results from 2014 and 2015 are averaged for presentation for the other six crops.

Results and Discussion

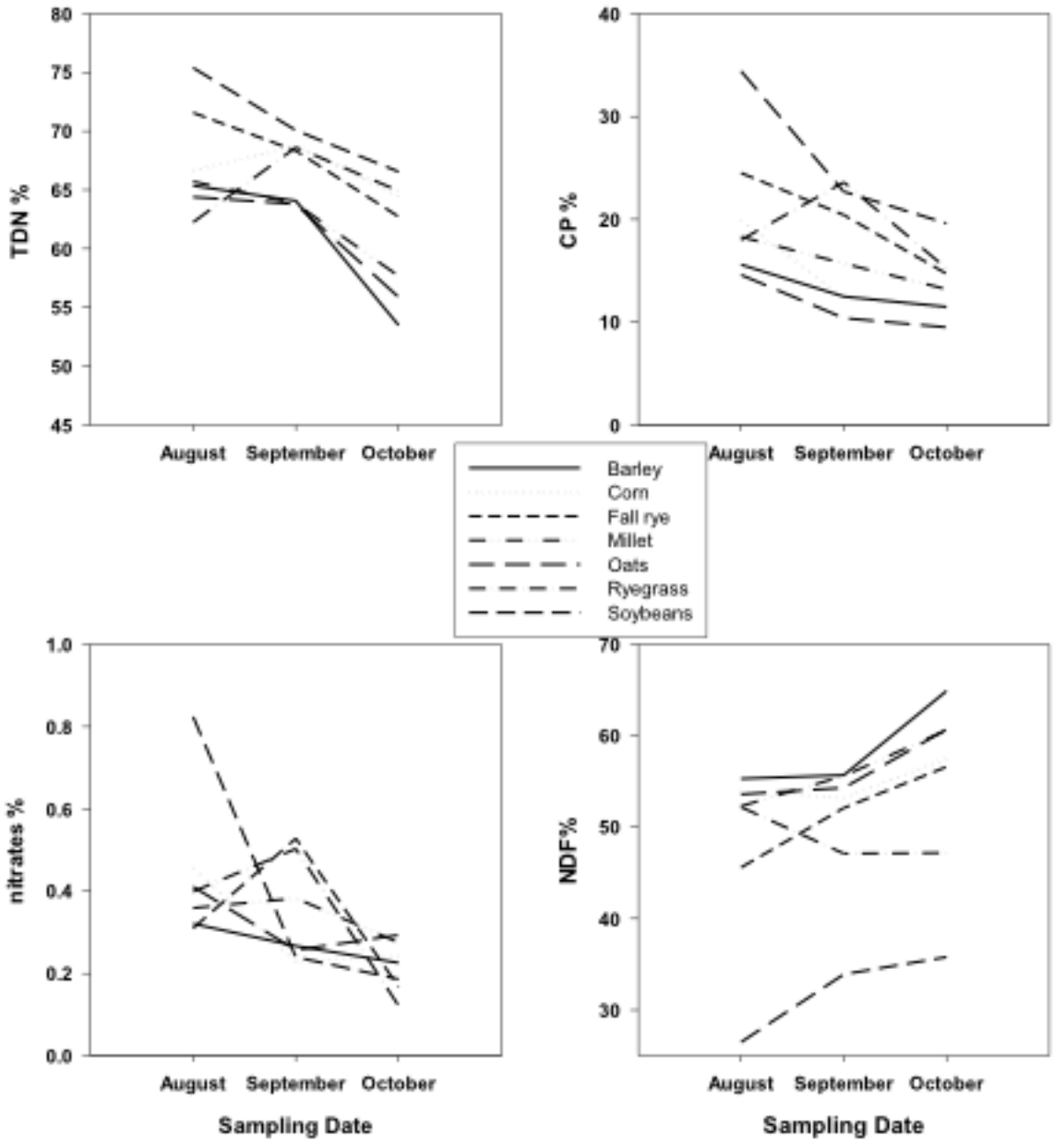
Crude protein (CP) declined with advancing maturity with the exception of annual ryegrass (Fig. 1). Soybeans had high CP concentration but had not advanced beyond flowering stage when growth was stopped by frost in 2014. All crops had adequate CP concentration for fall grazing by spring-calving cows. Soybeans, corn, fall rye and annual ryegrass had higher TDN concentration than barley, oats and millet (Fig. 1). These energy levels would be adequate for fall grazing by cows. Nitrates were elevated for all crops in August and September and the levels observed here suggest that precautions be taken if grazing these crops in late summer. By October nitrate levels were in the safe range for soybeans, annual ryegrass, and fall rye. The NDF concentration was lowest for soybeans and increased for all crops except annual ryegrass (Fig. 1). As NDF increases, animal intake decreases as rumen fill can limit the amount of forage consumed.

These results indicate that barley, oat and millet crops had declining forage quality from August to September. Swathing at the appropriate growth stage to preserve forage quality for later grazing appears to be better method of utilizing these crops. Soybeans had good forage quality but low yield due to frost. Corn, annual ryegrass and fall rye exhibited good forage quality for stockpiling.

Funding: WBDC acknowledges the Beef Cattle Research Council and AAFC Science Cluster for funding.

Figure 1. Mean concentration of Total Digestible Nutrients (TDN), Crude Protein (CP), nitrates and Neutral Detergent Fiber (NDF) over 2014 and 2015 as affected by date of sampling at Lanigan SK.

Figure 1. Mean concentration of Total Digestible Nutrients (TDN), Crude Protein (CP), nitrates and Neutral Detergent Fiber (NDF) over 2014 and 2015 as affected by date of sampling at Lanigan SK.



If You Can't Beat 'Em, Eat 'Em; Noxious Weed Control with Goats

Nadia Mori, MSc, P.Ag.
Regional Forage Specialist, Sask Ministry of Agriculture, Watrous Regional Office

Common tansy (Tanacetum vulgare) is a perennial noxious weed of increasing concern in Saskatchewan. The essential oils of the plant contain thujone, a neurotoxin that can lead to epileptiform convulsions in animals and humans. Rangeland herbicides such as Restore II which control common tansy also remove desirable broadleaf plants like alfalfa. Roguing or cultivation is usually not practical and biological control agents are not yet available. For large-scale infestations where herbicide applications are not feasible, goat browsing of common tansay may be an economical alternative.

A goat browsing trial was implemented in eight paddocks approximately 900m2 each, on a pasture near Pathlow, Saskatchewan. A goat herd of 125 meat goats were browsing on site for an average of 8 days each during the summer of 2014 and 2015. The animals were herded daily to and from the paddocks to a night corral. The goats used in the browsing trial adapted surprisingly fast to the new feed source (Picture 1).
Goat browsing should occur when common tansy is at vegetative or bolting growth stages to avoid potential seed spread. Forage quality of common tansy also declines throughout the growing season and earlier browsing provides greater forage quality to the animals. Animal health must be closely monitored when feeding thujone containing plants like common tansy. Supplemental feed in the form of hay and alternative browse needs to be offered to the animals. Due to its abortive effects, common tansy cannot be fed to pregnant or lactating animals. Prolonged or continued browsing of common tansy may cause subclinical damage to liver and kidney tissue.

The reduction in common tansy volume immediately following browsing was visually striking (Picture 2). However, plants grew back with lush, dense vegetative growth late in the growing season. Common tansy tended to leaf-out close to the ground following browsing which resulted in an increase in canopy cover of the weed although the vertical plant height and abundance of mature plants was significantly reduced. Fall browsing or a fall rangeland herbicide application is suggested to increase control. Goat browsing requires a multi-year approach to weed containment and control.

Picture 1. The grip and strip goat browsing method on common tansy.

Picture 2. Fence line contrast following common tansy goat browsing in June 2014.

Saskatchewan Johne's Disease Screening and Control Program

Dr. Wendy Wilkins, SK Ministry of Agriculture
Leah Pearce, WBDC

The Saskatchewan Johne's Disease Screening and Control program for beef cattle was first rolled out in the fall of 2013. This program is funded under Growing Forward 2 and is administered by the Saskatchewan Stock Growers Association (SSGA) on behalf the Saskatchewan Ministry of Agriculture. The goal of the program is to provide support for cow-calf producers who are interested in Johne's prevention and control in their herds. The program was first directed at purebred breeders, but later opened up to include commercial producers in the fall of 2014.

The program accepts applications from producers on a first-come, first-served basis. Once approved, the producer then arranges for his or her veterinarian to collect blood samples from all mature animals (two years of age and older) in the herd, up to a maximum of 250 head per producer. The program covers the cost of the initial veterinary visit to collect blood samples and the cost of testing. Producers with more than 250 head may arrange with their veterinarian to have additional animals tested at their own expense. If there are one or more positive tests, then the producer is also required to complete a full Johne's Risk Assessment and Management Plan (RAMP) with the veterinarian; in these cases, the program pays up to $500 for the veterinarian's time and travel expenses related to completing the RAMP.

To date, 7500 head from 54 different herds have been tested under this program. Forty percent of herds tested had at least one animal test positive for Johne's. A total of 264 cattle have tested positive. It is important to note that the number of herds testing positive for Johne's under this program does not represent the Saskatchewan cow-calf industry as a whole. Most herds enrolled in this program were at higher risk for the disease to begin with, as the primary reason for participation was because Johne's had previously been found in their herds.

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Collaboratively linking lab and land for the competitiveness and sustainability of the cow-calf industry in Saskatchewan.