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## GRASSROOTS NEWS & VIEWS NOVEMBER 2021

### Director's Note — Morrie Goetjen

*Howdy Folks,*

Well, what else is there to talk about, other than the drought of this past growing season? The driest, hottest year since the late 80's, is what the pointy-headed academics are alleging.... and I think, on this occasion, they're bang-on. For those of us who are old enough to recall the drought of the late 80's, we might all agree.... and we might also agree that we do NOT want those years repeated! Hopefully our fortunes will be reversed with an adequate amount of fluffy rain this winter.... starting with a little heavy, wet early snow, perhaps? Along with the hot dry growing season (notice I did not say summer, as we began getting some rain in August, which really helped), came with the usual challenges of having enough grass and/or water. I have a couple of rental pastures, where this proved to be true as some had poor grass and abundant water, while others; the reverse was true. Nonetheless, I muddled through. Certainly having a grazing plan helped mitigate the challenges, but by mid- September, I was going over some pastures that had already been grazed twice. Safe to say, my calf weights will suffer, but I managed to keep the cows on grass and the calves at their side. By now, every producer within our reach has heard (or seen) the horrors this drought has wreaked on our best laid plans.

Speaking of which, our part of the country did get some timely rains in the month of August, which was just this side of 'too late', but it worked! Somehow, my swath-grazing (a 50/50 mix of oats and barley, plus some brassica and vetch) hung on

throughout the month of July and responded nicely to the August rain.... only to be wiped out in the August 31st hailstorm. Having nothing to lose, I delayed cutting the crop by a solid 3 weeks. Surprisingly, it greened-up underneath and might actually pass for a greenfeed crop, although I'm not sure how it will test. Volume is obviously down as is the quality, but, as the old timers would say, "it may not make a cow turd, but...." Alas, in this biz, we are either betting 'for', or 'against' the weather.... but one thing is for certain, Mother Nature always bats last!

On October 4th and 5th we, at FFGA, had Dylan Biggs at one of our pastures for a cattle handling seminar in conjunction with David Irvine on the Human Element. Unfortunately, I was unable to attend due to the flu (yes, got tested for covid, which was negative.... and for the record, I'd sooner have 100 arm jabs, over one covid test. Have you seen the length of that Q-tip they jam up your nose? Good Lord). On a more serious note, the feedback that I received was that Dylan was excellent and my heifers were maybe the nicest, quietest heifers he has ever handled... okay, he didn't say that... that might've been just me, trying sell the quality of my cattle..

Anyway, buckaroos and buckarettes, keep managing your soils and planting fenceposts!!

Until our trails cross again,

Morrie G

*Photo: Morrie & Deb Goetjen*



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# Battling BRD with Genomics



Photo FFGA

If there's an animal health problem that needs solving, it's shipping fever, or BRDC. That's because bovine respiratory disease complex (BRDC) continues to be the leading cause of cattle sickness and death in feedlots and stocker cattle operations, costing the industry more than \$1 billion annually.

Worse, both data and daily experience suggest managing and treating cattle with BRDC is more difficult than ever, despite more advanced vaccines and antibiotics. That's why plenty of folks had their fingers crossed when researchers began the Bovine Respiratory Disease Coordinated Agricultural Project (BRD CAP) several years ago.

In simple terms, researchers are exploring whether genes affecting BRDC susceptibility can be identified, and if so, whether those genes occur with enough frequency and heritability to offer selection potential. Researchers are in the last year of the five-year project but are seeking a one-year extension.

## BRD

Diagnosing BRDC is an inexact science. For every head exhibiting clinical symptoms, others affected by BRDC are

able to hide their symptoms and go unnoticed — and untreated.

“What's exciting is that some people didn't think we'd find much difference,” says Holly Neibergs, a beef cattle geneticist at Washington State University and a member of the BRD CAP team. “But, there are some genes that have large enough effects that we believe we can select for the variants that reduce BRDC susceptibility and make a difference.”

The difference would be huge. Working with the feedlot data collected as part of the project, BRD CAP economists used the most current national estimate of 16.2% BRDC prevalence in feedlots.

They calculate those 4,071,854 feedlot cattle were likely afflicted with BRDC in 2013. Based on a single treatment cost and lost carcass value, they say a conservative estimate is \$253.97 lost per head. That's an estimated total of \$1.034 billion lost by the feedlot industry.

## BRD CAP in a nutshell

The BRD CAP is a unique, collaborative project — funded by the USDA National Institute of Food and Agriculture — comprised of six land-grant universities, the Agricultural Research Service and an interdisciplinary team of 27 researchers that includes veterinarians, geneticists, microbiologists, epidemiologists, animal behaviorists and livestock economists. All have experience with BRDC from the vantage point of their specialties, which include immunology, epigenetics, and quantitative genetics. You can find more of the specifics at [brdcomplex.org](http://brdcomplex.org), which is a site dedicated to the project.

The project looks at BRDC susceptibility, separately, in both beef cattle and dairy cattle. For beef, DNA was collected from 1,000 head of *Bos taurus*, crossbred

feedlot cattle in Washington, and another 1,000 head from a feedlot in Colorado. Researchers screened hundreds of thousands of head via cooperative dairies and feedlots to identify candidates that were more or less susceptible to BRDC.

At the beginning of the year, researchers were completing the first analysis of feedlot data. “The heritability of BRDC susceptibility in the 2,000 beef feedlot animals is similar to, or a little better than, what we found in the Holstein calves,” Neibergs says. For dairy, BRDC susceptibility is estimated to be moderately heritable at 0.21.

That's a higher level of heritability than achieved in previous field studies. Researchers believe one reason is their use of an objective scoring system to more precisely diagnose BRDC.

So, identifying genomic regions associated with BRDC susceptibility offers the potential to create commercial assays that could be used to determine susceptibility levels of individual cattle. Ultimately, it also means breed associations, AI companies and the like could incorporate the identified genes into breeding values and genetic evaluation, so that producers could select cattle less likely to produce calves susceptible to BRDC.

Both of those possibilities are likely at least a couple of years down the road.

## Long and Winding Road

Forgetting the genomics discussion for a moment, diagnosing BRDC is inexact at best. For every head exhibiting a telling clinical symptom like a snotty nose, runny eyes, droopy ears or a cough, countless others affected by BRDC go unnoticed — and untreated. Lung lesions from infected and presumably healthy calves underscore that fact in a variety of studies.

*On the cover: Cattle Grazing at the Working with Cows & Working with People Workshop in Cochrane. Photo: Sonja Bloom*

*(Continued on page 3)*

## Thank you for your support!



(Continued from page 2)

In the BRD CAP, 67.7% of the cattle diagnosed with BRDC had lung lesions; 67.2% of the healthy control population did.

That's where the aforementioned objective method of diagnosing BRDC comes into play. Researchers used nasal and throat swabs — culture tests — for bacteria and PCR detection for viruses. They also used the McGuirk diagnostic system, which assigns scores to cattle based on observations of temperature, nasal discharge, ocular discharge, ear position, head tilt and coughing. This latter system was developed for use with dairy calves, but researchers found it serves beef cattle admirably, too.

Bovine respiratory disease complex (BRDC) continues to be the leading cause of cattle sickness and death in feedlots and stocker cattle operations, costing the industry more than \$1 billion annually.

Profiles of the sick cattle were compared with the healthy ones to see if there were any genetic markers associated with reduced susceptibility to BRDC. This process is known as a Genome-Wide Association Study (GWAS).

"The first genome-wide association study was conducted for the Colorado and Washington cattle using two different analytical approaches and by using one of two phenotypes," Neibergs explains. "We either called an animal sick or healthy for our case-control analysis, or we gave them a health score based on the McGuirk diagnostic system.

"Our QTL results are similar with both phenotypes. We also looked at different ways of diagnosing BRD and how that affects the heritability for BRD susceptibility," Neibergs says. "From our data, the McGuirk system does a good job in diagnosing BRD with good heritability estimates. However, our results could also be used to identify which clinical signs tend to be associated with higher estimates of heritability for BRD than others."

QTL is short for quantitative trait locus. This is a segment of DNA that varies in its chemical composition (DNA sequence) and has been found to be associated with a trait. For example, one form of the DNA could be associated with susceptibility to BRDC, whereas another form would be associated with higher resistance to BRDC.

"We know there are several million genetic differences between cattle," Neibergs explains. However, knowing where some gene markers (genes or DNA sequences) are means researchers can use

a process called imputation to predict the DNA sequence which lies in between. So, analysts can fairly accurately predict the entire genome of these animals.

In the case of the BRDC CAP, researchers used a genotyping chip to collect about 778,000 gene markers for each of the 2,000 beef calves.

"Next, we will choose the markers with the largest effects on BRD susceptibility, and then identify feedlot cattle that will be the most informative for these regions and then sequence the whole genomes of these cattle," Neibergs explains. "Genotypes of all 2,000 of the feedlot cattle will be imputed up to whole genome sequence, and the accuracy of the imputation will be checked by the sequenced animals."

Then the GWAS will be conducted again to further narrow the region for each QTL, and to identify other QTLs with large effects that may have been missed with the initial analyses. "From these data, a genotyping assay will be developed to validate these QTLs in new beef populations, and to confirm the imputation QTLs. This will probably be completed at the end of this year."

Once verified, Neibergs explains these QTLs can be added to commercial genotyping platforms for industry use. At this stage, she says it appears there are 10 to 20 large-effect QTLs that are associated with BRDC susceptibility.

Hopes are that the identified BRDC markers will be predictive across beef breeds.

"The cattle evaluated so far have been crossbred," Neibergs explains. "Since purebred cattle have not yet been evaluated, it is not known how large of an effect each of the QTLs will have in different purebred breeds. At some point, purebred cattle will also need to be evaluated so that accurate predictions for them can be developed."

Curt Van Tassel at the USDA will also be working on bringing EPDs or breeding values to the beef side when we are at that stage with the beef cattle, Neibergs adds. As it is, there is currently no breed-wide or industry-wide approach to collect BRDC phenotypes, let alone collect them in a standardized fashion.

Members of the BRDC CAP participated in a Beef Improvement Federation committee to provide recommendations to establish guidelines for collecting BRDC information that can be used to understand the impacts of BRDC, and to assist in establishing breeding values for BRD.

In the meantime, Neibergs says, "We are very interested in working with breed associations and other industry partners to obtain additional samples with BRDC phenotypes, to be able to do more extensive verification. This will be important as we determine how important each of these QTLs are in each breed and in different regions of the country."

*Author Wes Ishmael | Feb 08, 2016*

*Original article can be found at*

<https://www.beefmagazine.com/health/battling-brd-genomics>



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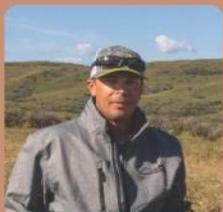
## Speakers



**Barry Yaremcio**



**Ryan Copithorne**



**Daryl Chubb**

**December 8, 2021**

**Wheatland County Administration Office**

### Schedule

10:00 Coffee & Registration

Winter Feeding Alternatives (Barry)

Market Update & Financial Risk Mitigation (Ryan)

Producer Perspective; Winter Grazing System (Daryl)

3:15 Wrap up

### Register at:

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### Cost: (Includes Lunch)

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# 'It's not the cow, it's the how': why a long-time vegetarian became beef's biggest champion

Nicolette Hahn Niman was an environmental lawyer who became a cattle rancher and didn't eat meat for 33 years. For both the ecosystem and human health, she argues, it's how animals are farmed that matters.

After refusing to eat meat for 33 years, Nicolette Hahn Niman bit tentatively into a beefburger two years ago. She had become a vegetarian because she was concerned about animal welfare and the environmental cost of meat. Unlike most vegetarians, she had experience of the dire conditions on factory farms during her career as an environmental lawyer campaigning against pollution caused by industrial meat production in the US. Then she married a farmer.

Hahn Niman's journey from vegetarian activist to cattle rancher to writing a book called *Defending Beef* may be driven by love, but it is also informed by a lawyerly desire to stick up for small farmers besieged by the growing ethical and environmental clamour against meat. The burger turned out to be an unexpectedly delicious brief pleasure, but it was the 18 years working on the ranch alongside the man who grilled it – and raised the cow – her husband, Bill Niman, that inspired her.

Hahn Niman was raised in semi-rural Michigan and was working in New York as an environmental lawyer for Robert F Kennedy Jr when she fell in love with a farmer. Kennedy Jr's charity, Waterkeeper Alliance, was seeking to stop livestock farmers from polluting water bodies with slurry, and Hahn Niman began working with farmers who were doing the right thing, including her future husband. When the couple met for coffee in Central Park, "I just realised, wow, this is a really handsome man, in addition to his work that I admire," she says, on a video call from her farm kitchen. When she moved from New York to the Pacific coast to be with Niman on the rough, arid terrain of his 1,000-acre ranch, she planned to continue as a lawyer.

"I began doing small tasks around the ranch and I discovered I loved it," she says. "I said to Bill: 'I'd like to work on the ranch.' And he was shocked. I was still vegetarian at the time, and he was like: 'Oh, wow, I didn't think you'd want to be a rancher.'

"I wanted to be capable of doing whatever needed to be done here at the ranch. I didn't want to be a helpless female."

For seven years, she worked full-time on the farm, where they refuse to use chemicals on the land or animals, before raising their two sons. She says she and Bill are constantly learning. "The most important thing I learned was that in the two years I'd been working on agricultural issues as an environmental lawyer, I just scratched the surface in terms of understanding the real daily issues of agriculture."

Many environmentally aware people believe that if they are still eating beef they probably shouldn't be. Fuelled by the popular Netflix film, *Cowspiracy: The Sustainability Secret*, there has been a backlash against the meat. Rainforests are razed for cattle grazing, and the industrial farming of cows causes soil erosion and water and air pollution. Meanwhile, people who gorge on burgers, butter and ice-cream seem beset by chronic diet-related diseases and ballooning obesity rates. Worst of all, livestock farming is driving the climate crisis, causing around 14% of annual greenhouse gas emissions.

Hahn Niman's time rebutting the claims made in *Cowspiracy* includes debating with one of the film's directors in San Francisco. "It was really shocking because I've never sat next to someone who knew less about agriculture in my life," she says. "Yet here is someone telling everyone how we need to eat and what we need to farm. I feel like I need to bring facts and reason in and say, 'OK, you've heard this inflammatory statement. Where's the truth? How do we get to solutions? We want to eat healthily and ethically – what choices should we make?'"

Hahn Niman's argument is summarised by a slogan T-shirt she likes to wear: "It's not the cow, it's the how." A cow is not an innate eco-devil, but how they are farmed is often fiendishly damaging. She does not defend grazing on obliterated rainforests but joins other influential farmer-writers such as Gabe Brown, Charles Massy, Simon Fairlie, and the controversial, iconoclastic ecologist-grazier Allan Savory, in proposing a better kind of cattle farming. If cows are freed from barns and feedlots – the cramped dirt pens in the US where they are fed grain – and allowed to roam and eat diverse natural grasses and shrubs as their wild ancestors did, they can restore soils, enhance natural diversity and help capture

carbon. Cows, she believes, can engineer healthier ecosystems, and healthy grass-fed animals provide meat with measurable health benefits over factory-farmed stuff.

This sounds reasonable, but the carbon cost of cattle is what troubles most environmentalists today. In her book *Defending Beef*, Hahn Niman explains how naturalistic cattle grazing adds manure and organic matter to the soil and encourages plants that help draw down carbon. Unlike crops, which are traditionally cultivated by ploughing the soil and releasing carbon, there is a wealth of evidence showing that carefully grazed grasslands sequester carbon.

But evidence also shows that grasslands' rates of carbon sequestration tail off after 20 years. A scientific study in 2017 concluded that, at best, careful cattle grazing could offset 20-60% of its annual emissions. The same study calculated that, globally, 1g of protein per person per day comes from grass-fed animals, whereas 32g of protein per person per day comes from all animal sources including fish, with 49g from plant sources. Ruminants already collectively take up about a quarter of the planet's useable surface; it would not be possible to move to grass-fed meat and keep eating it at current levels without devastating environmental consequences, turning forests into vast prairies.

These kinds of big global studies frustrate Hahn Niman because, she argues, they fail to account for the complexity and diversity of land. "In that report, they say, 'This is crazy, you have this huge amount of land used for grazing and it's only producing this tiny percentage of nutrition.' But if you ignore what those lands could actually be used for in agriculture, then that statistic means nothing." For instance, her own ranch has rough, dry ground and Mediterranean-style weather; they cannot grow crops there. So, the Nimans are converting arid grassland into sustenance where no other human food could be produced.

Many environmentalists argue in response that if diets were to become much less meaty, all such grazing land could be rewilded, sequestering even more carbon, while cropland is farmed more intensively to feed the world. This, responds Hahn Niman, fails to acknowledge the soil erosion and carbon emissions caused by inten-

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sive, plough-based farming. As the innovative Australian farmer Charles Massy puts, it, says Hahn Niman, “Natural landscapes have a way of functioning. And in modern agriculture and modern human life we tend to ignore what that functionality looks like – where there should be watercourses, grasslands, forests.” We need to “create agricultural systems that work with the natural land function, rather than just ploughing it and doing whatever we want,” she argues. Where grasslands occur naturally and have been grazed by wild herbivores for millennia, farming with nature is grazing cattle.

The current consensus is that livestock cause 14% of global emissions; Hahn Niman calculates those cattle make up 8%, but she writes of cattle farmers who claim to sequester so much carbon in their grasslands that their cows are carbon neutral. What is her best estimate of how much those emissions would fall if we only raised grass-fed beef? “As a lawyer, I understand the desire to create statistics that we can use as evidence but coming up with a global figure is probably nonsense,” she says. Modelling of the emissions of natural grazing systems doesn’t account for how they positively benefit hydrology or water retention in the soil. “I’ve learned from living here for 18 years that even one part of our ranch is incredibly different from another. What you should do on the land is radically specific to that place. I am convinced that grazing, when done well, is probably beneficial everywhere. But to legitimately quantify how much [carbon] benefit you’re going to get globally – I actually don’t think that can be done.”

If the world switched to eating only grass-fed beef, people would have to eat much less and pay much more. Hahn Niman points out that naturalistic grazing does not mean meat would be only for the rich because many poor people graze livestock this way already. “We need to have

food bear its full cost,” she says. “Cheap food is not the answer – we need to make good food available for everyone.”

The true cost of cheap food includes all “these downstream effects”: water and air pollution, soil erosion, animal cruelty – and the poor human health they cause.

Proselytizing the health benefits of grass-fed beef comes easily to Hahn Niman. She makes a good case for America’s obesity problem being caused not by grass-fed burgers, but by ultra-processed foods. Two-thirds of calories eaten by US children come from ultra-processed foods. These include the new generation of lab-made meats. She points out that a “confinement pork” producer (you can guess how the pigs are reared) she once fought as an environmental lawyer recently started a vegan food range. We need “real” food, not factory food, she argues.

Her own return to meat-eating was driven by health concerns as she turned 50, including a diagnosis of osteopenia, the precursor to osteoporosis. She cites research showing how livestock will deliberately graze plants to address specific health issues (another reason to allow animals to graze naturally) and believes that humans have the same kind of innate “nutritional wisdom,” as Fred Provenza argues in his book, Nourishment.

Hahn Niman accepts that moving to a healthier, low-carbon food system, when global capitalism is still pushing production in the opposite direction, is a challenge that can seem as overwhelming as the climate crisis. She believes it requires government legislation as well as consumers choosing to eat locally produced food. And eating locally requires more food production close to people’s homes and a demographic shift to the countryside: fewer than 20% of Americans live in rural areas; less than 1% work in farming. Post-Covid, there are signs of a move from city to country in many nations. Hahn Niman hopes such shifts will deliver a healthier

outdoor life for many children. She observes the benefits of farm life for her sons, who are 12 and eight. “We forage for mushrooms and blackberries, we have our own orchard, so there’s a lot going on that involves their bodies and food – physical activity of meaning, not just going into the playground, which is fun too.”

Hahn Niman may have remained a vegetarian for many years after she became a cattle rancher, but after returning to meat she now eats it daily. “When I started eating meat again, I was reconnecting with my whole upbringing, my culture and the foods that I’ve grown up with,” she says. “I’ve felt physically and emotionally good. It’s been surprising how much joy that has brought me.”

Author: Patrick Barkham  
Original article can be found at <https://www.theguardian.com/>



Photo: FFGA

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# Managing Ag Plastics Long-term – Can Product Suppliers Play a Bigger Role?

In Canada and around the world, certain industry sectors take responsibility for managing their products and packaging when consumers/users are finished with them (typically called at 'end of life') so the resources can be recovered and reinvested in the economy.

In these cases, a variety of market forces encourage these companies, called 'producers', that supply or import products and packaging into the market to take on this important responsibility. An example of a voluntary, industry-wide initiative that keeps agricultural plastic out of landfills and off farmland is Cleanfarms' empty container recycling program. Now a national program, it got its start in Alberta more than 30 years ago.

Some provinces have adopted regulatory mechanisms to ensure that products like electronics, paper and packaging (blue cart and bag programs), tires, among others, are properly managed.

Generally referred to as 'extended producer responsibility (EPR)', this policy approach not only requires producers to take responsibility for the end-of-life management for their products and packaging but it also encourages them to design products that are more durable and recyclable so materials and components continue to be used in the economy for as long as possible. An example in agriculture is the reusable 1000L tote that, in some cases, is used to replace individual 23L single use pesticide and fertilizer containers.

EPR regulations place legal obligations on industry producers to develop, operate and fund these programs, but they do not place any obligations on the product user; for example, in reference to agricultural plastics, the farmer.

Manitoba has established an EPR policy to require that industry producers take responsibility for collecting and recycling grain bags, baler twine and pesticide

and fertilizer containers. Prince Edward Island just passed a provincial regulation that impacts ag plastics. Saskatchewan was the first province to establish EPR for grain bags. Now in its fourth year of operation, recycling has increased from 1,257 tonnes in year one to 2,536 tonnes in 2020.

## How EPR enables recycling

Many waste management programs are currently financed through municipal taxes so property taxpayers pay the cost of waste collection and disposal. EPR ensures that the legal and financial responsibility for managing materials at end of life is shifted away from municipalities and broader taxpayers and onto the producers that make or import the products.

When an EPR policy has been established, often industry producers will create a stewardship organization that is charged with the responsibility of developing and operating the collection pro-

*(Continued on page 9)*



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(Continued from page 8)

grams. Funds are raised to operate the programs through stewardship fees that the producers pay based on the types and amount of product or packaging each company puts on the market and that is recovered for recycling. Provincial EPR regulations typically set a target percentage that is to be recovered for recycling each year. Cleanfarms is an example of an industry stewardship organization that develops and operates national and regional programs on behalf of its member companies, many of which are in crop input industries.

Depending on the material, municipalities often act as collection sites for these stewardship programs and are compensated for the important role they play in ensuring that users in their communities can access these services.

For used ag plastics, farmers are usually asked to prepare them by shaking out excessive dirt and snow and rolling or bagging materials to transport them to designated collection locations.

The parties obligated through EPR are then responsible for arranging transportation from collection sites to specific recycling facilities. In the case of

grain bags, two recycling facilities are in Alberta and one is in the USA where the plastic is processed into pellets which are then used to make products like plastic bags, dimensional plastic lumber, and agricultural fence posts.

Depending on market conditions, revenue can be generated from the sale of used ag plastics to recycling facilities. However, the revenues generally do not cover all the costs involved with transporting materials to end markets, compensating collection sites and associated administration. To cover this cost differential, producers have the choice to absorb recycling costs into the price of the product, or establish an environmental handling fee (EHF), which is a separate fee the user sees at the point of purchase. As an example, in Saskatchewan, grain bag recycling is funded through a non-returnable EHF that ranges from \$37 for a 9 x 250 foot bag to \$66 for a 10 x 400 foot bag. Costs vary depending on the weight of the bag and it works out to about \$25 cents per kilogram.

#### About

Cleanfarms and the Alberta Agricultural Plastics Recycling Group (APRG) are publishing a series of infor-

mation articles for Alberta farmers to develop a shared understanding of the importance of used agricultural plastics resource management.

A common theme throughout this monthly series will be an exploration of how ag plastics, once used, can be recycled to reclaim the natural resources and the invested energy, returning them to the economy where they can be remanufactured into new products.

This practice is important to Alberta farmers because it contributes to agricultural sustainability that begins and ends on the farm, providing stewardship for future generations, as well as environmental health. Future articles will feature discussions on change management such as first sellers and manufacturers taking responsibility for used materials (extended producer responsibility), and explore practical recycling, including opportunities and challenges, for products such as grain bags, silage and bale wrap and baler twine that have real-time applications for farmers.

*Article supplied by CleanFarms.*  
Cleanfarms is operating a three-year pilot project for grain bag and baler twine re-

## Feeding Through the Winter on Limited Feed Supplies

### Webinar- Featuring Barry Yaremci

Barry was raised on a mixed farm in northeastern Alberta. He has a Bachelors degree in Agriculture specializing in Animal Science as well Barry has completed a Masters degree in Animal Science specializing in nutrition. For many years he has provided advice to farmers and ranchers on cattle nutrition, forage production, animal management and production concerns. In March of 2020, he started Yaremci Ag Consulting Ltd. as an independent ruminant nutritionist and production management consultant.

#### Topics:

- Changes in annual nutrition over production cycle
- Grazing crop regrowth
- Using various forms of supplemental protein
- Concerns with using canola
- Nitrate concerns & managing higher levels
- Bale processor impacts on feed quality & waste
- Using liquid molasses products on straw bales

November 17, 2021

7:00pm to 8:00 pm MST

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# 'Preg' testing cows is easier than it used to be

Most beef producers routinely pregnancy test cows after breeding season, to determine which ones to keep and which ones to sell. It's a major cost to feed open cows through winter. Another major reason is that finding more than a typical number of open cows can alert you to a disease problem. Trichomoniasis, vibriosis, IBR, BVD, and leptospirosis can cause cows to lose their pregnancies. Nutritional deficiencies can also show up as open cows.

There are several methods available for preg testing, including palpation, ultrasound and blood tests. Dr. Steve Hendrick of Coaldale, Alta., prefers ultrasound, primarily because he's most experienced with it. "With experience, manual palpation can be very accurate as well. One of the added benefits of ultrasound is that you can sex the fetus. This may be desired by some producers, especially in a purebred herd," he says.

"You can also assess viability of the fetus. Being really good at pregnancy testing (and determining stage of pregnancy, etc.) is an art; it's not all science. There is a lot of variability in size of the buttons (cotyledons), size of the fetus, etc. You have to weigh many factors, the same with ultrasound. You can take measurements such as trunk measurements and crown to rump length, to estimate stage of pregnancy," he says.

"Most producers are just content to know whether the cow is pregnant or not, but some want to know if she will calve early or late in the calving season, for management purposes, such as sorting the herd for pre-calving scours vaccinations." Some producers also want to know whether to put a certain cow with an early group (to watch more closely during colder weather) or a later-calving group.

"Blood testing has a place, particularly for herds that are remote and far from a veterinary service," says Hendrick. If the veterinarian has to drive for two hours to get there, it will cost more for the farm call. And for a small herd, it may be more cost effective to just draw the blood samples yourself and send them to the lab.

The disadvantage to the blood test is that you must wait two or three days for the results. This is a problem if you need to make the decision immediately on which cows to keep or cull. It's

not a problem if you'll be handling the cattle again. Blood samples can be drawn, for instance, when a person brings cattle in for pre-weaning vaccination of calves. The results would be available when the cattle are brought back in for weaning, and the open cows could be sorted off at that time.

The method chosen for checking will depend on your management and goals, feed costs and markets. In a drought, you might want to wean calves early and sell cull cows early, to reduce feed costs. "We had a situation here this spring where some producers exposed their cows to a bull before going out to pasture, and did some early preg checking. Grass was slow coming, and they were fairly confident that the cows were far enough along that they didn't need to put a bull with them when they went to pasture. With the high expense of bulls this year, they wanted to save money. They were having to break groups up into different pastures to utilize other grass and couldn't run them in one large group. They needed to stretch their bull power, and asked us to preg-check their cows early," says Hendrick.

Producers need to realize that there's always a certain amount of early pregnancy loss in every herd. "If you preg check cows early, a few that were determined pregnant are no longer pregnant by calving time. This is true with the blood test, as well. The pregnancy protein lingers in the bloodstream a couple of months after calving, or after an abortion." If you took the blood sample just after a pregnancy loss it may show as positive or suspect, even though the cow was no longer pregnant.

## **Extension-arm Ultrasound**

The extension-arm probe has been in use about 15 years. The first commercial extension arm units had an oscillating probe, so you didn't have to rotate the rod to view the uterus and its contents.

Dr. Andrew Bronson and his partner Bruce Hill from Alberta then developed an improved version of this technology called Repro-Scan that uses a convex rectal probe that produces a larger image, with more durable equipment.

"When we started our company, there were no beef ultrasound units available with the convex rectal probe. We created one and put it into a portable

case," says Bronson.

The big advantage to the extension-arm unit is that it is much easier on the person doing the pregnancy testing. Palpation and arm-in ultrasound put a lot of wear and tear on veterinarians who do a lot of this.

"My partner and I preg checked more than 150,000 heifers by ultrasound in 2-1/2 years — when the Canadian border was reopened and nothing pregnant was allowed to be exported. We would not have been able to do this many without extension-arm ultrasound," notes Bronson.

Regarding cost, Bronson doesn't charge any more for this service than for palpation. "It does the same job I was able to do with my hand. But if the client wants accurate fetal aging, which takes more time with ultrasound, then I charge more."

## **Blood tests**

The advantages of the blood test over palpation include being able to detect pregnancy a little sooner with better accuracy. It can be done quickly and easily, taking a blood sample from a vein under the tail, with less trauma to the animal. The BioPRYN test is very accurate on heifers, and on cows that are 90 or more days past calving. If checked too soon after calving, there will still be some PSPB present in the bloodstream, which could result in a false positive.

Today there are nearly 50 labs in North America that process blood samples, including two in Canada. Dr. Bruce Hill at Sunny South Veterinary Services, an animal health supply outlet, located in Lethbridge has been running the BioPRYN tests for more than five years at their BioCheck lab.

"The rancher can bleed the cows, using red-top tubes, then label and mail those tubes to us, by Purolator or Canada Post. The samples don't need to be kept cool — just wrapped in bubble wrap to protect them from breakage, says Hill.

"We can send instructions on how to tail bleed cows if they've never done it before, and there are videos on the BioTracking website on how to bleed cows. We also provide the tubes and have pre-made kits we can send out. They contain prepaid Canada Post envelopes, to make it as easy as possible," says Hill.

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“The blood test works well for anyone who has individual ID on their cows. It’s just a matter of bleeding the cows, sending the samples to the lab, and then getting the results back to know which cows are open,” says Hill. It’s easy to collect the samples.

“The test is accurate as early as 28 days after conception. If you have a short breeding season on heifers — such as a 30-day breeding season — you could do this test 30 days after pulling the bull. With a synchronized AI program you can check them 30 days after they are inseminated,” says Hill.

Then you’d know which ones are open, early enough to sell them as open heifers to a feedlot market when the price is best.

“If you only have 30 to 50 heifers to check, and your vet is one or two hours away, the farm call is costly. We have many Hutterite colonies that have used the blood test a lot for their dairies because they are out in the middle of nowhere, two or more hours away from a veterinarian. They preg check and look for open cows every two weeks, so the blood test is less expensive,” he says.

In Western Canada there are

two labs that do the BioPRYN test, the Prairie Diagnostic lab in Saskatoon and the BioCheck lab in Lethbridge. A Quebec company is running a DG29 blood test, developed by Conception Animal Reproduction Technologies of Quebec.

Susan Cook runs the WCVM Endocrine Lab of Prairie Diagnostic Services in Saskatoon, and has been doing the BioPRYN test for three years. We don’t get enough samples to do them daily like some of the labs. We set up on Thursdays. There is an overnight incubation and the results are ready by early afternoon on Friday,” she says.

“The rancher could get supplies and collection tubes from their vet; we don’t provide those. The blood tubes and needles are readily available from farm/feed supply stores. There are at least four stores here in Saskatoon where a person could buy needles and tubes,” she says.

“This blood test is more accurate than earlier tests in which we had to measure progesterone (which is a positive non-pregnancy test). I was very happy when BioTracking made its kits available for the BioPRYN test,” Cook says. Samples come to their lab from all over Canada, as far away as Quebec.

“We charge \$5 each for the tests. In the last six months, BioTracking has altered the assay just a little so that this same test will work for sheep, as well. We can now do pregnancy tests on sheep and goats if people have dairy goats or purebred sheep they need to check,” Cook says.

The blood samples can be sent by Canada Post or courier. PDS has an agreement with Purolator which makes shipping less expensive. This information can be found on the PDS website [https://www.pdsinc.ca/under Resources, Sample Protocols, Packaging, and Courier Rates](https://www.pdsinc.ca/under-Resources, Sample Protocols, Packaging, and Courier Rates). The website lists the PDS services and submission forms, sample protocols and phone number.

*Author: Heather Smith Thomas*  
Original article can be found at <https://www.canadiancattlemen.ca/features/peg-testing-cows-is-easier-than-it-used-to-be/>

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December 3, 2021  
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Email [enviro@foothillsforage.com](mailto:enviro@foothillsforage.com)

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\*\*Please note that we are operating under the Restrictions Exemption Program. You must provide proof of vaccination (using QR code) or a negative COVID-19 test (within the last 72 hours) to attend. If you require help downloading your QR code, please connect with staff prior to arrival.



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