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## *A Look at Saskatchewan's Niche Dairy Processors*

*This is the third and final piece of a three-part series about Saskatchewan's niche dairy processors*

### **COTEAU HILLS CREAMERY**

Located in Moose Jaw, Coteau Hills Creamery has quickly become a popular name in cheese. Started by Kirby Froese, who boasts a 20-year career in food production, which took him from Australia, to interning as a winemaker in British Columbia, California and Chile.

Winemaking proved fruitful, and culminated in the partnership of Dunham & Froese Estate Winery.

While with Dunham & Froese, Kirby's efforts were well recognized with numerous industry awards, gold medals including 2008 British Columbia New Winery of the Year Award and Tony Aspler, author of *Wineries of Canada*, 2008 ranking as the "number two up and coming winery to watch in Canada".



Now, Kirby is now making Coteau Hills' unique cheeses using milk from local dairy farms. As he says, "it was a very natural transition to dairy processing. From fermenting grapes to fermenting milk."

For his own training, Kirby took a course through the University of Guelph through their Food Science Department for cheesemaking. This course, interestingly, has been offered

through the University of Guelph since the late 1800's. Cheesemaking courses are hard to come by, causing many individuals who are interested in the craft to seek out different avenues for training.

As with other areas of cheese making, and has been identified in previous articles in this series, the infancy of the small processor sector in Saskatchewan proves challenging, albeit rewarding, for those who want to break into the industry. Currently, Froese reports to the three levels of government. CFIA for labelling guidelines, the Ministry of Agriculture Livestock Branch for labeling through their Food Safety Division, and Saskatchewan Health Authority for Food Safety and preparedness

for hazard analysis and recall procedures. That goes without mentioning their relationship with the City of Moose Jaw, who issues their local business licence.

Coteau Hills Creamery immediately processes milk received from the milk truck into their three cheese varieties: Balkan Feta, Great Plains Blue, and Sage Farm Cheese. As Kirby says, the biggest challenge for their operation is the geography of Saskatchewan, “to access our (Coteau Hills) market, many miles must be logged.” That hasn’t stopped them, however. Coteau Hills Cheese main markets are in wholesale to grocery stores and restaurants, with cheese also available through direct sales and local farmer's markets.

Interested in more information? Coteau Hills Creamery can be found on Instagram, Facebook, as well as through their website <https://www.coteauhillscreamery.com/>.

## *Code of Practice*

### **4.2 Breeding**

Breeding management and care of pregnant cows have an impact on the welfare and future performance of cows and calves as herd replacement animals.

#### **RECOMMENDED BEST PRACTICES**

- a. establish a veterinary-client-patient relationship (VCPR) to maintain or enhance herd reproductive performance and use a veterinarian for herd reproductive examinations and consultations
- b. select sires for calving ease to mate to small framed heifers (avoid dystocia)
- c. breed heifers that have achieved adequate body weight and stature
- d. keep reproductive and calving records and use them to monitor performance
- e. employ trained operators for pregnancy diagnosis, artificial insemination and embryo transfer
- f. for natural mating:
  - be vigilant about diseases transmitted by natural service
  - provide secure footing and adequate ceiling height and freedom from hazards for mounting and breeding behavior
- g. match bull weight and stature to heifer or mature cow size and physical condition
- h. feed cows and heifers to achieve suitable body condition at breeding and calving time (see Section 2.1 - Body Condition Scoring).

## **Spring Producer Meetings POSTPONED**

SaskMilk and the Board of Directors have decided, in light of the current information available on Covid-19 and the importance of social distancing, to postpone the Spring Producer Meetings (originally scheduled April 1, 2 & 3). The situation is being monitored by SaskMilk and a new date for the meetings will be determined once it is safe to do so.

## *From DFC*

### proAction highlighting dairy's commitment to responsible and sustainable farming

Millennials are now the largest cohort of Canadians and as they age, progress in their careers and start families, their purchasing power continues to increase. Yet when it comes to food products, millennial consumers view things differently than previous generations. While millennial buying patterns are influenced by traditional factors like price, taste and convenience, the choices they make – products, brands or even support for an industry – are increasingly based on their value systems. Social considerations can trump all others; research has shown, for instance, that millennials value animal welfare and the environment more than the health benefits of a product.

How is dairy adapting to this evolution in the marketplace? What role can proAction play in helping consumers better understand how our industry's values align with their own?

According to a recent study from Forrester in the U.S., seven out of ten millennials actively consider a company's values when making a purchase, compared with just three out of ten baby boomers. In Canada, research by Mintel (2019) found that millennials see brands as an extension of themselves, making them more attentive to ethical and environmental actions taken by those brands. That study found that more than half of millennials (51%) and gen-Zs (52%) choose brands that reinforce the image they want to portray, compared with just 22% of baby boomers.

Why is this significant? It means that if millennials feel a category does not reflect values they espouse – like fighting climate change, for example – it can become a key factor in choosing whether to consume a product from that category.

Long before they became part of the collective consciousness, environmental protection and animal welfare were fundamental to Canadian dairy farmers' values. But public perception has not always kept pace due to the rising spread of misinformation about dairy consumption and the production process. In order to build further support for dairy, we must ensure that dairy farmers' commitment to a sustainable production is well understood by millennial and generation-Z consumers so that it doesn't clash with their value system, but rather, comforts them.

DFC's proAction program is crucial in that regard: the values of Canadian dairy farmers *already* align with the values of today's consumers, and proAction provides the proof points to that effect.

"Millennials want to know what is in the food they eat and where it comes from," says Pamela Nalewajek, Vice-President, Marketing at DFC. "They want to know that it was produced in a manner that is ethical and socially responsible, by producers that care just as much as they do about the resources utilized to produce it. proAction is crucial because it allows us to highlight our practices for consumers who are less trustful of claims, in a way that is credible and transparent."

The robust requirements of the proAction program bolster our communication of our industry's long-standing values. The comprehensive marketing initiatives and nutrition programs undertaken by DFC and our provincial counterparts are working to reframe dairy for today's consumer, by countering misconceptions and highlighting the positive impacts of dairy. DFC's

2019 marketing campaigns featured real farmers discussing their commitments to animal care, sustainability and milk quality, and addressing consumer concerns around artificial growth hormones and antibiotics.

In 2019, DFC was recognized by Unilever, one of the world's largest multinational companies for its commitment to sustainable dairy production. This was an acknowledgment of Canadian dairy farmers' stewardship of our animals and the environment, and efforts to produce high-quality, safe, and nutritious food for consumers – and would not have been possible without a program like proAction.

This kind of recognition from objective, respected sources gives even further weight and credibility to our marketing and communications efforts.

The industry's commitments also form the basis for the Blue Cow logo now featured on more than 7,600 Canadian dairy products. Awareness of the logo is at an all-time high with four out of five Canadians – nearly 20 million people – being familiar with the logo.

The Blue Cow resonates with consumers because they want to know which products are made with Canadian dairy and the logo offers them clarity. But beyond an affinity for Canadian-made product, the logo is emblematic of the dairy industry's commitment to excellence, and it's crucial to demonstrating the value of Canadian dairy farmers and their products to consumers. If *proAction* serves as our quality assurance program, the Blue Cow logo serves as the stamp of approval.



**Participants Wanted:** We invite farmers from across Canada to participate in a research study. The purpose of the study is to explore farmers' perspectives of food production sustainability, so that the viewpoints of those who produce food are included in how food production sustainability is defined and taught to students and the public. To be included in this study, you must be actively farming and own or rent the land on which you are producing food. We welcome and respect all points of view.

The study involves one interview, 45-minutes to 1 hour in length. Compensation is a \$25 gift card.

If you are interested in participating or want more information about the study, please contact: **Abbey Cran (acran@uwo.ca), MScFN Graduate Student** Food and Nutritional Sciences, Brescia University College

## *Who Should I Call?*

*Who at the SaskMilk office should producers call? Here's a handy guide!*

<b>For...</b>	<b>Call...</b>	<b>At...</b>
<ul style="list-style-type: none"> <li>➤ Sponsorship Requests</li> <li>➤ Donation Requests</li> <li>➤ Dairyanna's Costume and Events</li> <li>➤ School Milk Program</li> <li>➤ Nutrition Resource Ordering</li> </ul>	Anita Medl	306-721-9483
<ul style="list-style-type: none"> <li>➤ Quota Exchange and Private Quota Transfers</li> <li>➤ Transfer Credits</li> <li>➤ Security Applications</li> <li>➤ Estimates for production</li> <li>➤ Name Changes</li> <li>➤ Designation of Signing Authority</li> <li>➤ Monthly production numbers for producers</li> <li>➤ Producer information for lending institutions</li> <li>➤ Passwords for quota management sheet access</li> </ul>	Bev Solie	306-721-9488
<ul style="list-style-type: none"> <li>➤ Dairy Conference</li> <li>➤ Producer statements</li> <li>➤ Banking info for direct deposit of milk pay</li> <li>➤ Milk pick-up issues –variances in volumes, planning to quit shipping, etc.</li> </ul>	Darlene Weighill	306-721-9491
<ul style="list-style-type: none"> <li>➤ On Farm- licensing, facilities, equipment, driveways, yards, animal care</li> <li>➤ Lab testing results</li> <li>➤ Bulk truck drivers- licensing, complaints/issues</li> <li>➤ Bulk tank calibrations</li> <li>➤ Pro Action- Food Safety (CQM), Animal Care, Traceability, Biosecurity, Environment</li> </ul>	Deb Haupstein	306-721-9486
<ul style="list-style-type: none"> <li>➤ Monthly milk prices paid to producers</li> <li>➤ Provincial &amp; National production updates</li> </ul>	Doug Miller	306-721-9485
<ul style="list-style-type: none"> <li>➤ Adding, editing information on Producer Transfer Credit List</li> </ul>	Jenn Buehler	306-721-9492
<ul style="list-style-type: none"> <li>➤ Media or news stories <i>or</i> if you have been contacted by any media agency or reporter</li> <li>➤ Trade agreements, international trade updates</li> <li>➤ DEAP policy/program enquiries</li> <li>➤ Research enquiries or proposals</li> </ul>	Joy Smith	306-721-9482
<ul style="list-style-type: none"> <li>➤ Social media enquiries (Twitter, Instagram, Facebook)</li> <li>➤ Website enquiries</li> <li>➤ Newsletter advertising</li> </ul>	Julie Ell	306-721-9493

## QUOTA EXCHANGE

The market-clearing price established for the March 2020 Quota Exchange was **\$40,000.00**.

The next Quota Exchange will be held on **April 15, 2020**. All offers to sell and bids to purchase quota through the Quota Exchange must be received at the SaskMilk office by midnight, **April 6, 2020**. SaskMilk recommends that offers and bids be submitted well in advance of the deadline date to ensure adequate time for corrections, if necessary.

When making bids on the Quota Exchange, the price on offers to sell quota is the minimum price that the producer is prepared to accept for that quota. Only if the market-clearing price is equal to or greater than the producer's minimum price will that producer qualify for participation in the Exchange. Conversely, the price on offers to purchase quota is the maximum price that the producer is prepared to pay for that quota. Only if the market-clearing price is equal to or less than the producer's maximum price will that producer qualify for participation in the Exchange. The clearing price is set at the price where the smallest difference exists between the accumulated volume offered for sale and the accumulated volume bid to purchase. The results of the Quota Exchange are outlined in the following Table.

### MARCH 2020 QUOTA EXCHANGE RESULTS

<b>Market Clearing Price per kilogram of butterfat</b>	<b>\$ 40,000.00</b>
<b>Daily Kilograms offered to Purchase</b>	<b>141.84</b>
<b>Kilograms offered to Sell</b>	<b>6.56</b>
<b>Kilograms sold</b>	<b>4.00</b>
<b>Number of Producers</b>	
<b>- offered to purchase</b>	<b>15</b>
<b>- purchased quota</b>	<b>1</b>
<b>- offered to sell</b>	<b>4</b>
<b>- sold quota</b>	<b>4</b>

### MARCH 2020 QUOTA EXCHANGE CLEARING PRICE RESULTS

Price (\$/daily kg b.f.)	No. of Sellers	Cumulative Sellers	Daily Kgs b.f. offered for sale	Cumulative sales	Cumulative Sales less Cumulative purchases	Cumulative purchases	Daily Kgs b.f. offered to purchase	Cumulative bidders	No. of buyers
\$34,000.00	1	1	0.36	0.36	-141.48	141.84	0.00	15	0
\$34,500.00	0	1	0.00	0.36	-141.48	141.84	15.00	15	1
\$35,500.00	0	1	0.00	0.36	-126.84	126.84	24.84	14	2
\$37,000.00	0	1	0.00	0.36	-101.64	102.00	15.00	12	1
\$38,000.00	1	2	1.00	1.36	-85.64	87.00	10.00	11	1
\$38,500.00	1	3	3.98	5.34	-71.66	77.00	21.00	10	3
\$38,600.00	0	3	0.00	5.34	-50.66	56.00	5.00	7	1
\$38,700.00	0	3	0.00	5.34	-45.66	51.00	4.00	6	1
\$39,000.00	1	4	1.22	6.56	-40.44	47.00	20.00	5	2
\$39,500.00	0	4	0.00	6.56	-20.44	27.00	23.00	3	2
<b>\$40,000.00</b>	<b>0</b>	<b>4</b>	<b>0.00</b>	<b>6.56</b>	<b>2.56</b>	<b>4.00</b>	<b>4.00</b>	<b>1</b>	<b>1</b>

\* Please contact Bev Solie at 306-949-6999 for inquiries dealing with quota management sheets, the Quota Exchange, for transfer credits, or with any other quota transactions.



## TRANSFER CREDIT SUMMARY REPORT

MONTH	# OF PRODUCERS TRANSFER IN	# OF PRODUCERS TRANSFER OUT	TOTAL KGS BUTTERFAT
February, 2019	26	26	18,341
March	25	25	12,480
April	27	23	21,937
May	19	19	13,404
June	22	21	15,814
July	24	24	13,461
August	27	27	18,297
September	29	29	20,166
October	24	24	15,246
November	32	32	23,235
December	26	26	15,625
January, 2020	27	27	18,191
<b>February</b>	<b>26</b>	<b>26</b>	<b>14,525</b>

## PRIVATE TRANSFERS PROCESSED

MONTH	DAILY KILOGRAMS
February, 2019	164.25
March	50.00
April	21.20
May	0.00
June	35.00
July	158.51
August	55.00
September	5.10
October	32.00
November	34.80
December	122.55
January, 2020	60.00
<b>February</b>	<b>0.00</b>

## OVER QUOTA (OVER 5 DAYS) REPORT BY MONTH

MONTH	# OF PRODUCERS	KGS BUTTERFAT
February, 2019	13	3,220
March	11	2,701
April	14	2,473
May	10	2,556
June	14	2,559
July	7	1,148
August	4	898
September	4	484
October	4	750
November	3	291
December	6	1,257
January, 2020	8	1,275
<b>February</b>	<b>7</b>	<b>1,360</b>

## SUMMARY REPORT OF CREDITS FEBRUARY 2020 – 164 PRODUCERS

DAYS	# OF PRODUCERS	POSITIVE CREDITS ACCUMULATED (KGS OF BUTTERFAT)
+ 5	7	3,350
0 to + 5	47	24,948
TOTAL	54	28,298
DAYS	# OF PRODUCERS	NEGATIVE CREDITS ACCUMULATED (KGS OF BUTTERFAT)
-15	3	3,479
-10 to -15	20	44,978
-5 to -10	32	44,826
0 to -5	55	36,053
TOTAL	110	129,336

## LOST OPPORTUNITY REPORT

MONTH	# OF PRODUCERS	LOST OPPORTUNITY (KGS OF BUTTERFAT)
<b>February, 2020</b>	<b>3</b>	<b>1,183</b>
January, 2020	3	1,374
December, 2019	5	1,026
November, 2019	5	1,253
October, 2019	5	1,398
September, 2019	6	450
August, 2019	5	1,883
July, 2019	6	2,220
June, 2019	3	1,719
May, 2019	2	1,345
April, 2019	0	0
March, 2019	1	57
February, 2019	1	186

## WEIGHTED AVERAGE COMPONENT TESTS & PRICES FEBRUARY 2020

Components	Average Test	Price per kilogram Class 1 to 5
Butterfat	4.2381	16.957759
Protein	3.2996	2.562500
Other Solids	5.8993	0.716627

**The average butterfat price received per kilogram was \$19.95.**

### SASKATCHEWAN MILK POOL RESULTS FEBRUARY 2020

Milk Sale Revenue	\$ 19,272,151.66
Western Milk Pool	\$ 684,486.75
<b>Total Pool Value</b>	<b>\$ 19,956,638.41</b>

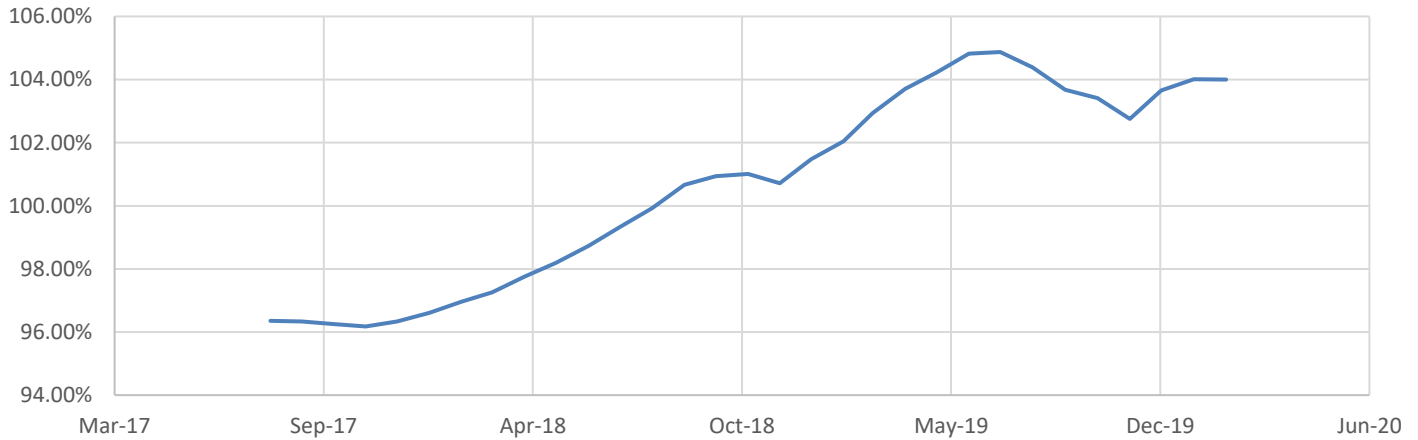


In February, Saskatchewan had a monthly CDC allocation of **899,105 kilograms** of butterfat. In the month of February, Saskatchewan production was **102,419 kgs** of butterfat **over** and cumulatively **over** by **491,852 kgs** of butterfat. On a percentage basis, Saskatchewan is **4.03% above** our CDC allocation flexibility limits based on the Continuous Quota model. The -2.00% lower flexibility limit is in effect.

	(1) Monthly Total Production  Kgs bf	(2) Total Monthly CDC Quota Allocation  Kgs bf	(3) Monthly Over or (Under) Production  Kgs bf  col. 1 – 2 = 3	(4) Lower Flexibility Limit <b>-2.00%</b>  Kgs bf  col. 8 * -1.5%	(5) Upper Flexibility Limit <b>1.25%</b>  Kgs bf  col. 8 *1.0%	(6) Cumulative Over or (Under) Production with limits  Kgs bf	(7) Cumulative Over or (Under) Production with limits (%)  col. 6 / 8	(8) Rolling 12 Month Total Quota  Kgs bf
<b>Feb-19</b>	952,042	850,527	101,515	-233,155	145,722	38,809	0.33%	11,657,731
<b>Mar-19</b>	1,059,099	1,014,739	44,360	-233,467	145,917	83,169	0.71%	11,673,338
<b>Apr-19</b>	1,014,853	1,037,295	(22,442)	-235,167	146,980	60,727	0.42%	11,758,366
<b>May-19</b>	1,036,056	975,850	60,206	-235,510	147,193	109,973	0.93%	11,775,477
<b>Jun-19</b>	1,002,199	921,880	80,319	-235,031	146,894	190,292	1.62%	11,751,546
<b>Jul-19</b>	1,023,972	989,207	34,765	-235,709	147,318	225,056	1.91%	11,785,438
<b>Aug-19</b>	1,038,800	1,078,644	(39,844)	-237,795	148,622	185,212	1.56%	11,889,763
<b>Sep-19</b>	1,022,245	1,065,838	(43,593)	-240,186	150,116	141,619	1.18%	12,009,314
<b>Oct-19</b>	1,082,691	1,143,505	(60,814)	-242,523	151,577	80,805	1.07%	12,126,134
<b>Nov-19</b>	1,047,766	1,085,754	(37,988)	-242,752	151,720	91,402	1.56%	12,137,583
<b>Dec-19</b>	1,088,248	1,063,255	24,993	-242,958	151,849	214,717	1.77%	12,147,887
<b>Jan-20</b>	1,095,413	920,697	174,716	-242,944	151,840	389,433	3.21%	12,147,191
<b>Feb-20</b>	1,001,524	899,105	102,419	-243,915	152,447	491,852	4.03%	12,195,769

- (1) Monthly Production in Saskatchewan
- (2) Total Monthly Quota = Class 1 sales + Monthly MSQ + Carry Forward
- (3) Difference between the monthly production (1) and the total monthly quota (2)
- (4) The Lower Flexibility Limit is -2.00% of Rolling 12 Month Total Quota (9)
- (5) The Upper Flexibility Limit is 1.25% of Rolling 12 Month Total Quota (9)
- (6) Previous Month Cumulative Over or (Under) Production + Current Monthly Over or (Under) Production (capped at lower or upper limit if applicable)
- (7) Equal to Column (6) expressed as a percentage basis within the flexibility limits
- (8) Total Monthly CDC Quota Allocation for the previous 12 months

## SK Milk Production Sask Position



## INHIBITOR TEST STATIONS

SaskMilk has established a number of inhibitor test stations around the province. Producers needing to check their bulk tanks for inhibitors can take a sample to the test station closest to their location.

The test stations have the Charm Trio test strips available for testing. The Charm Trio test is the test that the plant uses. It tests for the following drugs:

Beta-lactam Drug	Detection Level† (ppb*)	US Safe Level or Tolerance / Canadian MRL (ppb*)	Sulfa Drug	Detection Level† (ppb*)	US Safe Level or Tolerance / Canadian MRL (ppb*)
Amoxicillin	3.1	10 / None	Sulfadimethoxine	4.7	10 / 10 <sup>∞</sup>
Ampicillin	7.7	10 / 10	Sulfamethazine	7.7	10 / 10 <sup>∞</sup>
Ceftiofur and Metabolites <sup>^</sup>	53	100 / 100	Tetracycline Drug	Detection Level† (ppb*)	US Safe Level/Tolerance / Canadian MRL (ppb*)
Cephapirin	14	20 / 20	Chlortetracycline	54	300 / 100
Cloxacillin	7.4	10 / None	Oxytetracycline	66	300 / 100
Penicillin G	2.2	5 / 6 <sup>&amp;</sup>	Tetracycline	21	300 / 100

† Positive at least 90% of the time with 95% confidence.

\* parts per billion or ng/mL

<sup>^</sup> Ceftiofur parent drug sensitivity is approximately 1/2 that reported in the table.

<sup>&</sup> Canadian MRL for penicillin G is 0.01 IU/ml, equivalent to 6 ppb.

<sup>∞</sup> Canadian MRL for sulfa drugs are singly or in combination with other MRL listed sulfonamides.

Test stations are located at the following locations:

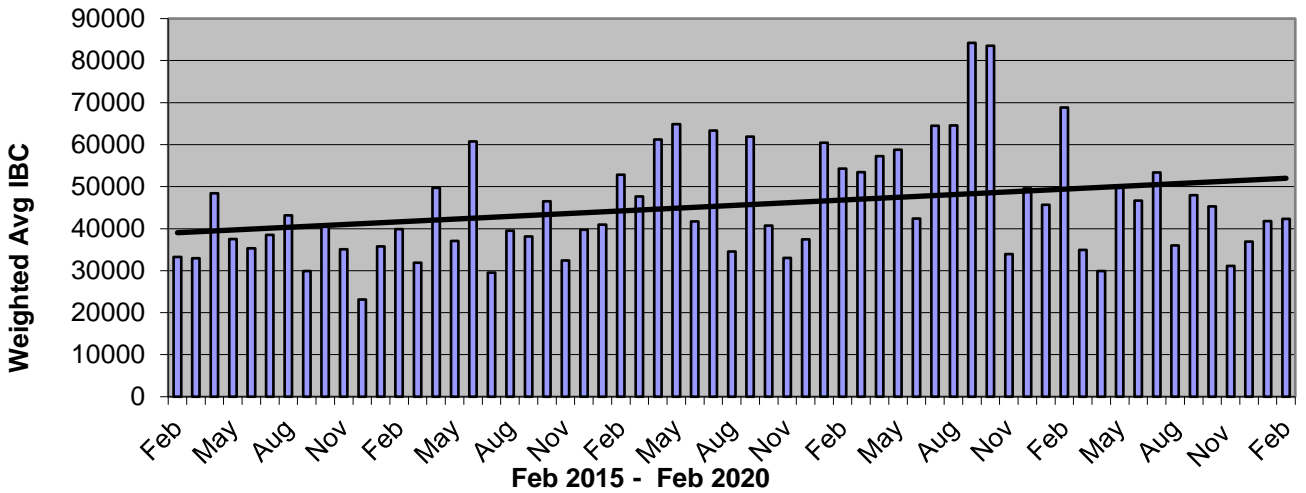
1. Swift Current, SK - Agrifoods truck bay - 675 Cheadle Street West Office 306-773-1097 or Rodger Ruf 306-741-3261
2. Star City, SK - Star City Colony - Reuben Tschetter 306-921-9381
3. Grenfell, SK - Jim Ross 306-697-2232
4. Yorkton, SK - Ford Dairy Farms Inc. - Bud and Margaret Ford 306-782-7240
5. Saskatoon, SK - Agrifoods Truck Bay - east of the Saputo plant receiving bay  
lead hand - Mike V. or Mike K. 306-664-0202 after hours: 306-668-8135

Charm tests strips and Charm testers are now available for purchase through SaskMilk. Agrifoods is now carrying SNAP test kits for tetracyclines as well as beta lactams.

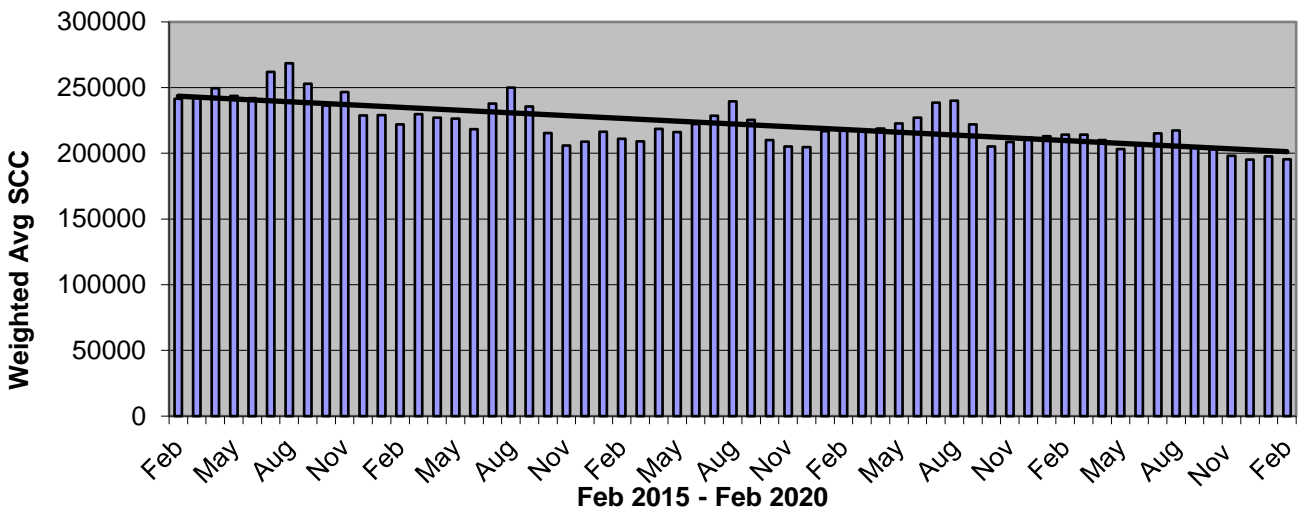
For further information you can contact: Deb Hauptstein 306-721-9486

## Provincial Weighted Average

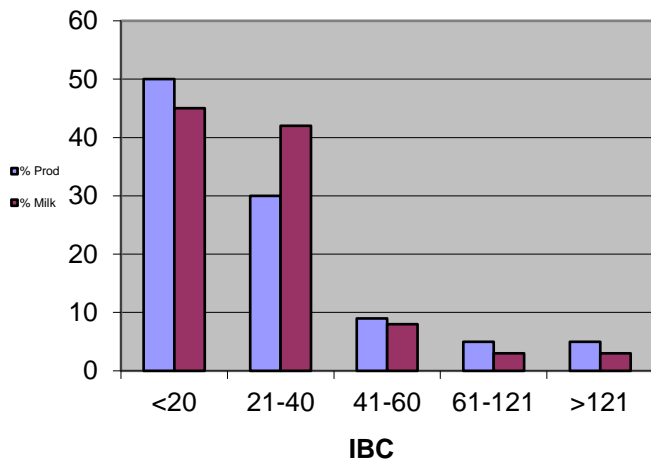
### Monthly Weighted Average IBC



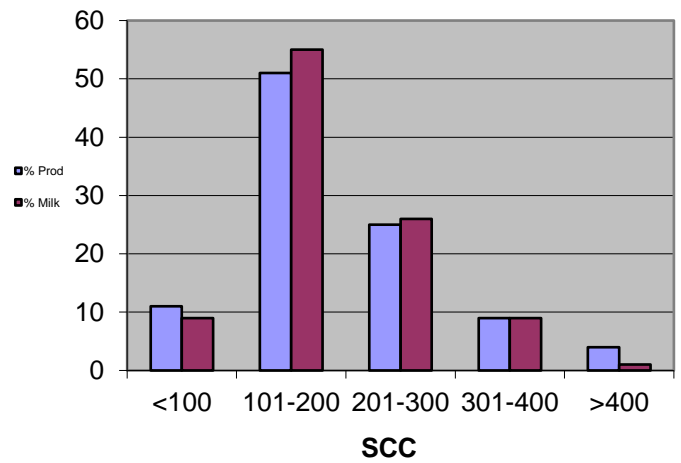
### Monthly Weighted Average SCC



#### Feb 2020



#### Feb 2020



## Prevalence of Digital Dermatitis in Canadian Dairy Cattle Classified as High, Average, or Low Antibody- and Cell-Mediated Immune Responders

S.L. Cartwright<sup>1</sup>, F. Malchiodi<sup>2</sup>, K. Thompson-Crispi<sup>3</sup>, F. Miglior<sup>2,4</sup>, and B.A. Mallard<sup>1,2</sup>

<sup>1</sup>Department of Pathobiology, University of Guelph, Guelph, ON

<sup>2</sup>Center of Genetic Improvement of Livestock, University of Guelph, Guelph, ON

<sup>3</sup>Trouw Nutrition Agresearch, Nutreco Canada Inc., Guelph, ON

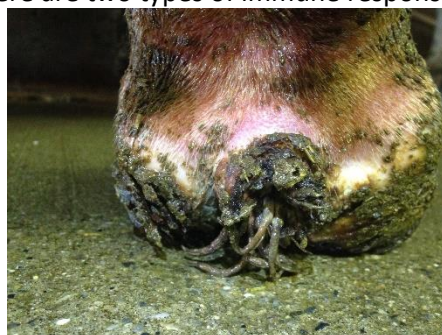
<sup>4</sup>Canadian Dairy Network, Guelph, ON

### Why is this important?

Lameness is one of the most costly and serious animal welfare concerns affecting the Canadian dairy industry, as it has been associated with many issues, including reduced milk yield and lower fertility. It is estimated that 20-35% of Canadian dairy cattle are lame, with the most common lesion being digital dermatitis at an incidence rate of 15% of all lesions. Digital dermatitis is an infectious hoof lesion that typically affects the skin at the base of the hoof heel. It is highly contagious and caused by bacteria found in damp and dirty conditions, such as manure slurry. The Canadian dairy industry has made great efforts in recent years to implement preventative measures, including foot baths and treating lesions with antibiotics during trimming. Despite these efforts, this disorder remains prevalent.

Studies have shown that cattle classified as high immune responders have a lower incidence of mastitis, metritis, ketosis, displaced abomasum, and retained placenta.

There are two types of immune responses: cell-mediated



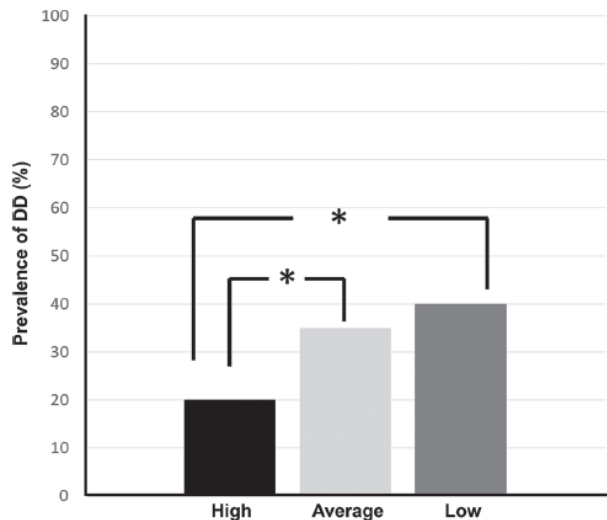
(which predominantly protects against viruses) and antibody-mediated (which primarily protects against bacteria). Although genetic selection for resistance against specific pathogens may be done, it is not considered ideal, as selection for resistance against one pathogen may cause susceptibility to others. Therefore, it is more beneficial to select for high immune responders that demonstrate an overall greater ability to respond to a wide array of pathogens. The objective of this study was to evaluate the prevalence of digital dermatitis in Canadian dairy cattle classified as high, average, and low immune responders.

### What did we do?

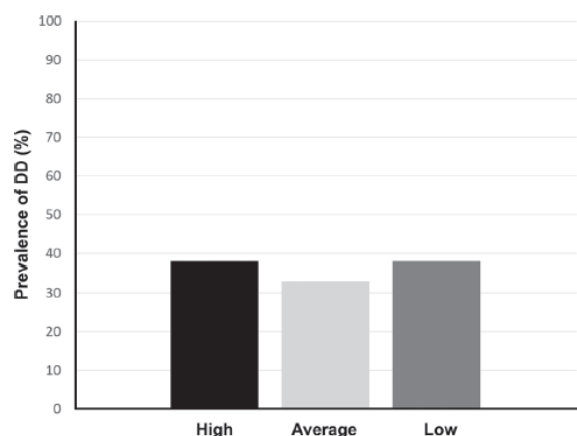
A total of 329 cattle from 5 commercial dairy farms in Ontario were evaluated for immune response using a patented test protocol that involved collection of blood samples, injection of cattle with known antigens, and a series of subsequent laboratory tests. Hoof health data were collected by the farms' hoof trimmer, using Hoof Supervisor software, from December 2011 to November 2013. Digital dermatitis was assessed as either present or not present at each trim event for each cow.

### What did we find?

Overall prevalence of digital dermatitis in the study was 34%. Results for the prevalence of digital dermatitis in animals ranked as high, average, and low for antibody-mediated (Figure 1) and cell-mediated (Figure 2) immune response are shown below.



**Figure 1.** Prevalence of digital dermatitis in cattle ranked as high, average, and low for antibody-mediated immune response.



**Figure 2.** Prevalence of digital dermatitis in cattle ranked as high, average, and low for cell-mediated immune response.

High antibody responders had significantly lower prevalence of digital dermatitis compared with average and low antibody responders (Figure 1). There were no significant differences observed between high, average, and low cell-mediated immune responders for prevalence of digital dermatitis.

### What does it mean?

Antibody responses are typically associated with an animal's defense against extracellular (outside of the cell) pathogens, including bacteria. Therefore, it makes sense that antibody responses would play an important role in defending the animal against bacterial pathogens that cause digital dermatitis. Interestingly, these results were also seen in a study examining mastitis, which is another disease typically caused by extracellular bacterial pathogens.

Alternatively, cell-mediated immune response is typically associated with an animal's defense against intracellular (within the cell) pathogens, usually viruses. Since the primary pathogen involved in digital dermatitis is extracellular, it is logical that no significant difference was seen in cell-mediated immune responder cows.

It is important to note that these two immune response systems work together to control infectious disease. As noted early, selecting for overall immune response is preferable to selecting for response to a single pathogen. Therefore, selecting for animals with both high cell-mediated and antibody-mediated immune response will not only improve disease occurrence but may also decrease the prevalence of infectious hoof lesions,

### Summary Points

- High antibody responders were less affected by digital dermatitis
- Selecting for overall high immune response animals will result in decreased disease in a herd

This project was funded by grants from National Sciences and Engineering, Boviteq, the Dairy Research Cluster Initiative (Dairy Farmers of Canada, Agriculture and Agri-Food Canada, the Canadian Dairy Network, and the Canadian Dairy Commission), and Alberta Milk.

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5 Holstein bred Heifers for sale 14 months old, start date for breeding Feb 25, 2020. Very good condition, very calm, calf hut raised.

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