WESTERN dairy FARMER

October 2015

Rebekah Van der Stoel on her parents Pieter and Miriam Van der Stoel's Prince Edward Island dairy farm during an open house

A long road

The career path for Pieter and Miriam Van der Stoel involved plenty of thought, some roadblocks, and a chance encounter

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The land defines the system

Labour and soil factors affect how this Australian operation is set up

BY IAN CUMMING

GLENORE GROVE, QUEENSLAND, AUSTRALIA - There are only about 20 farms in Australia with milking robots, from several companies, but dairyman Steven Duncan is happy with the three Lely units he installed two and a half years ago.

With the booming mining sector elsewhere in the country, and young talented people making over $200,000 a year, "I couldn't find good labour," to help milk his 180 cows, he said.

He did note that with commodity prices crashing, labour will probably come available as long as that situation lasts.

While the robots themselves cost the same as what a Canadian producer would pay, Duncan has them covered not by an expensive barn specially designed for cow flow, but a small, simple tin roof with no sides anywhere.

With the dealer many miles away, a local mechanically inclined person has become educated on maintenance, but it also means they have to carry a higher than normal inventory of parts, said Duncan.

Thus far things have hummed along trouble-free with the robots averaging 2,000 to 2,200 kilos per robot per day, he said.

Sitting on some of the most fertile land in the country, in this market gardening area, the black rich alluvial soil goes down for 60 feet and "will turn to mud if it's irrigated or it rains," said Duncan. That doesn't make it ideal for pasturing.

Two other roofs have been constructed in the past year, giving this dairy farm a different appearance from the usual one roof over a parlour in this country.

One roof is over the feed manger, where a TMR is fed, and the other is over a compost bedding pack which was only built last year, said Duncan.

All areas are connected directly with the robots.

"The bankers were easier to educate on investing in robots, than the concept of cattle housing," said Duncan. The simple housing, with the roofed compost pack and covered manger, "made it a winner," as to making the whole system work.

The 160 acres he owns, with the majority of it irrigated, grows enough forage for his cows and young stock, but he buys in the grain and protein, said Duncan. His total feed costs in the TMR, which is fed twice per day, are $7.80 per cow per day, he said.

He averages about 36 litres per cow in the winter and 32 litres per cow in the hot summer. His lower fat price at just under 60 cents per litre to Parmalat, "is break even in the current environment," said Duncan.

Both winter and summer forage is grown, mainly a rye grass/alfalfa mixture for the winter and sod seeded sorghum for the summer. "We get about six cuts per year on the rye and four cuts on the sorghum forage," he said.

Steven Duncan: "The bankers were easier to educate on investing in robots, than the concept of cattle housing."

Averaging about one tonne of dry matter per acre per cut, the 10 harvests per year, "means you travel around that field a lot," he said. The haylage is packed into bunks.

He fertilizes about 20 pounds of urea per acre after every cut.

Buying the water for irrigating "is dirt cheap" at $9 per megalitre, he said.

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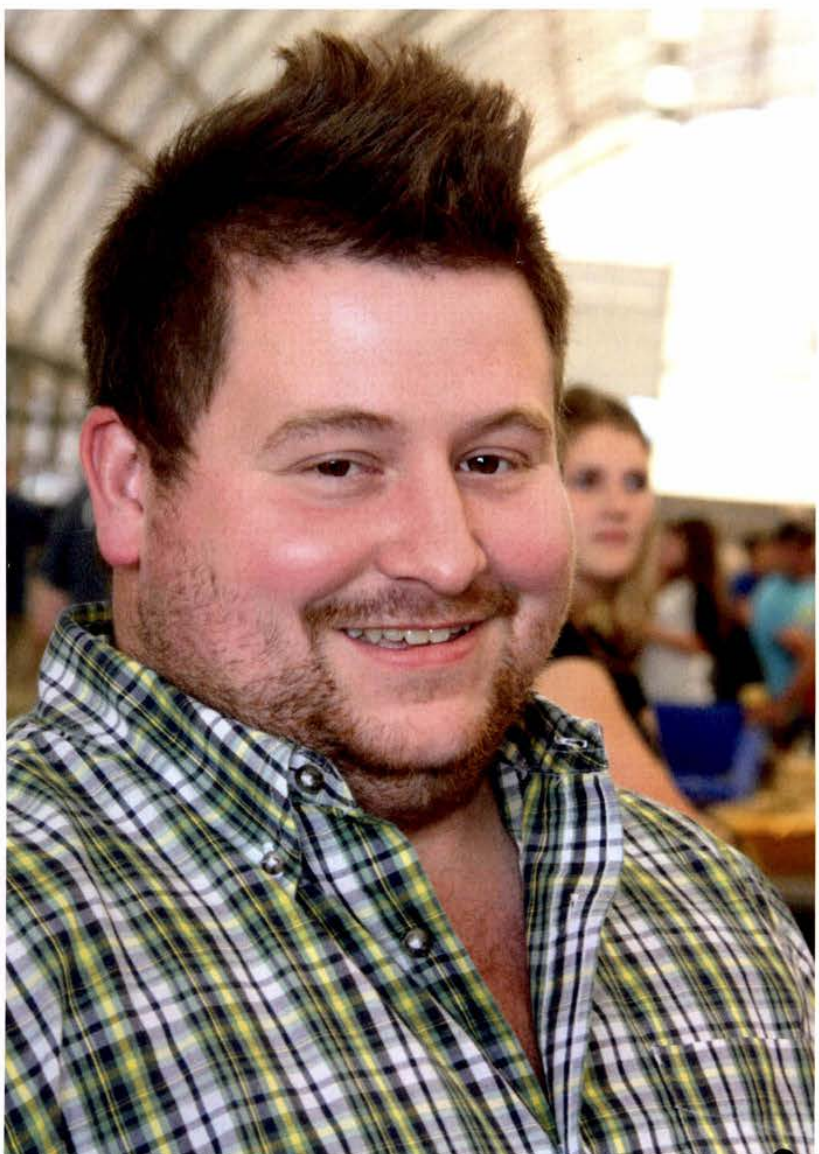
Show Class

He's only 26, but more than a few thousand cows and heifers have already passed beneath Kyle Henderson's clippers

BY SUZANNE ATKINSON



Kyle Henderson: You have to be "willing to put your career ahead of everything else," if you want to reach the pinnacle in this gig; "even if your dad says 'Go out and cut that field of hay.'"

IT'S BEEN A LONG HAUL to the top. And even now that he's arrived, few people actually know Kyle Henderson.

"It's taken me years to get here," the 26-year-old admits. "Well, four or five."

"I busted my balls."

He's among the best in the world, say those who have watched this Millbrook man work his way to the top.

The fitter who has piloted three different cows to World Dairy Expo championships, Henderson chuckles that though his work is well-known; he himself isn't.

"The people who know me," he says, "know me. The rest?" He just shrugs.

When Ontario Dairy Farmer caught up with Henderson in Lindsay, the hard work was done. His string of 10 show animals was relaxing, filling with beet pulp and water on a deep straw-bedded pack in their digs heading into the Ontario Summer Show. Numerous younger fitters were buzzing about, helping out with the manure watch, sharing in a beverage.

This year's judge of the World Dairy Expo youth fitting competition?

He was kicking back, between stints of watering and feeding his own cattle, joking with the other show jocks.

At 26 Henderson has made a name for himself in the world of fitting cattle for the show-ring, classification and the sales ring.

You have to be "willing to put your career ahead of everything else," if you want to reach the pinnacle in this gig; "even if your dad says 'Go out and cut that field of hay.'"

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Did he go?

Oh yeah.

"You've got to."

"I'm not a tractor guy. I'm a cow guy."

It was here in the summer show's clipping competition that Henderson didn't get his start.

He competed four times and finished second every year.

It wasn't necessarily a failure because, more determined than ever, Henderson kept plugging away; a trait he's known for to this day.

"It doesn't matter how good you are in 4-H," Henderson says. "It's the passion that you bring," and how hard you work.

It takes clipping hundreds and thousands of cows every year. He estimates he'll clip 3,000 head in a show season, and spends the off-season clipping for sales and classification.

"He never stops learning," says Gerald Coughlin, co-chair of the Ontario Summer Show committee.

"He's a good kid. He works hard, and he's dedicated," adds Coughlin, explaining that the hard work has paid off for the Millbrook, Ontario man.

"He's got to be as good as there is really."

MilkSource herd manager Jamie Endvik says Henderson can see the potential in every cow and knows how to bring it out.

Clipping, he says, is extremely important in the heifer classes; it can "make or break," the animal's showing. In the milking classes, a good clipper like Henderson can "bring out the character."

Henderson's WDE resume includes last year's red and white champion, Strans-Jen D Tequila REd, the Brown Swiss Old Mill JP Grace in 2010, and Blondin Redman Seisme, getting his start 10 years ago when his father asked the Phoenixes if they would like some help, again at the Ontario summer show. He just completed his 10th year helping them and has travelled throughout Ontario and New York; heading to WDE this year from Albert Cormier's final sale.

"I made sure I was available for that, he says, crediting Cormier with "being a huge influence in my life."

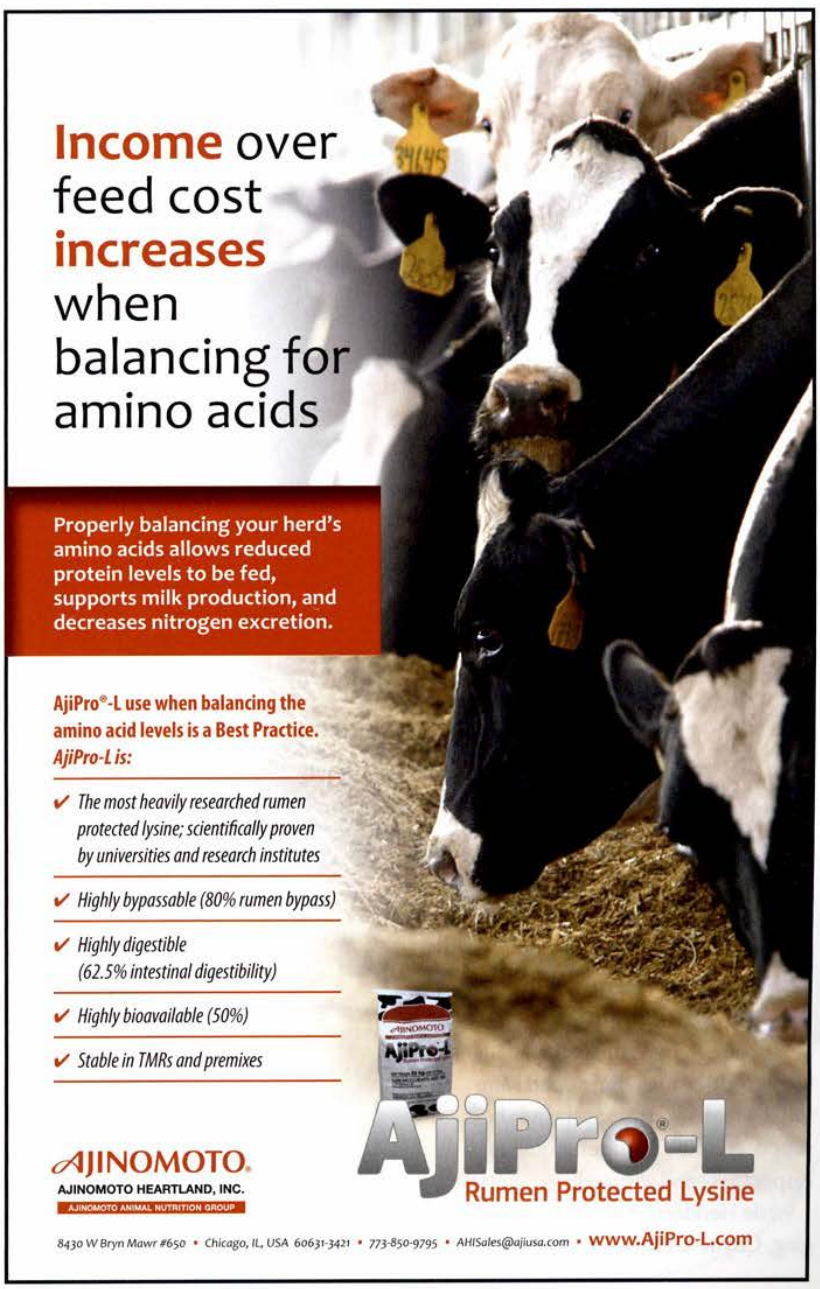
He says he learned a lot "just listening to him."

Henderson gets the easy stuff right, says Coughlin. He is always prepared. His clippers are well-maintained and "he knows exactly what every blade can do."

Having Henderson on the job, adds Coughlin "is probably good for a couple of placings."

He gets the hard part right too, says Katie Coyne-DeBruin.

"When he is done clipping an animal, every hair is in place. The top line hair is straight up and down. Lots of fitters have a curl in it or it's going forward, but Kyle has just the right touch to get it in the direction it needs to be. The hair on



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the heifer's belly is also blended in to the sides, cut appropriately for the heifer (long if she needs depth, short if she doesn't) and is blown out and ring ready. The rest of the animal is clipped with no lines or marks."

She too praises his dedication.

"Kyle will clip all day and into the evening if that's what it takes to get it right."

And she says, he "does his work without a lot of talking or fanfare - he just does what he is asked to do and doesn't make a big deal of it. This is rare in his line of work."

Coughlin too admires his get-to-work attitude.

"He's very quiet; very studious," he says, adding that Henderson's mentor, Mike Phoenix, was as good as anyone ever to prepare an animal for the show ring.

Henderson "just pays attention...and he's not afraid to try different things," adds Coughlin, who has included Henderson in his judging line-up for the summer show over the past three years.

"He's respected everywhere."

It's all of that that Katie Coyne-DeBruin expects Henderson to bring when he becomes the first Canadian to judge the World Dairy Expo's youth fitting competition this month.

"When we select a judge for our fitting contest, we want them to really understand fitting - how to clip, how to blow up the top line, how to properly use the equipment - Kyle fit this first criteria easily,"

she told Ontario Dairy Farmer, describing Henderson as "simply one of the best fitters that there is."

"He's gotten some of the best cows in the world clipped for shows and you'd never know it. He is the first Canadian fitter to judge the contest and I am thrilled for him. He does the job he is supposed to do, he does it quietly, respectfully and very well."

While Henderson isn't big on bragging, Coyne-DeBruin, WDE's youth

superintendent says his credentials do the talking.

"The reason you're not getting much out of him is because he wouldn't want to talk about himself! He has prepared numerous champions in Ontario, Wisconsin, European shows and more. He has fit the MilkSource string at World Dairy Expo and the Royal with huge amounts of success, including several champions and premier breeder and exhibitor banners."

"Kyle also has clipped at some of the most prestigious sales in the world," she notes.

As his career has propelled him onto the international circuit, Henderson hasn't abandoned his central Ontario clients. He has been a part of the Webbview team for about eight years, says an enthusiastic Christina Webb Pettey.

"He always shows up on time and does his best. He takes pride in making every cow look her best," adds Webb, who says his talent is almost instinctive.

"He makes every cow look natural; like that's how she was supposed to look."

With Henderson on the clippers, Webbview has enjoyed lots of success bringing home Honorable Mention banners from the Quinte Exhibition, exhibiting the grand champion Jersey two years ago and grand champion in Belleville three years ago.

"We've had tons of success with him."

Henderson spends 90% to 95 per cent of his time on the road, mostly doing shows in the summer time, then in the off season clipping whole herds, mostly between Toronto and the Quebec border.

"That's my life." He says he followed the usual route. He worked at home "playing with calves," going to shows and helping people on their farms, learning from others, teaching himself, wll while completing high school, then graduating from Kemptville College.

And he's now at the point where "I don't have to call anyone. If I can do it, I do."

He's clipping 250 days a year and making a good living.

"You can't spend three hours on a calf," he says. "If you can't get a calf done in 45 minutes you're wasting time; you're too nit-picky."

At World Dairy Expo Henderson will be doing more than just judging the end product.

"Kyle will watch the youth for 60 minutes, make notes and place the top ten. After the youth are done, he will give them individual pointers on how to improve," says Coyne-DeBruin.

The youth have one hour to clip and prepare their animals, and Henderson will be watching how well they know and handle their equipment including "knowledge of which clippers to use where on the body, finished product and overall appearance of animal."

"We are looking forward to having him as our judge as he works well with young people, knows his fitting and is a great young man." D

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PROFILE

Becoming information managers

Seven-year-old Aleah takes a moment to pose with her parents Brian and Amber Craswell during Crasdale Farm's open house during PEI Old Home Week.

Crasdale Farms has gone from being one of the oldest, to one of the most technically advanced dairy barns on the Island. But they also kept the ring. BY SHARON GROSE

CRASDALE FARM went from being one of the oldest dairy facilities on Prince Edward Island, to being one of the most technically advanced dairy barns in Canada.

Brian and Amber Craswell used to milk 62 cows in a tail-to-tail tie-stall barn until, according to Brian, the barn outlived its usefulness. Their set-up was labour-intense enough, and then an employee of 30 years decided to move west to work in the oil fields. They decided it was time for a change.

Historically their focus was show animals and that had them traveling across North America showing cattle. You may have seen them in the show ring at Royal Winter Fair or World Dairy Expo in Madison., Wisconsin. Changes in the marketplace caused the couple to re-examine their goals

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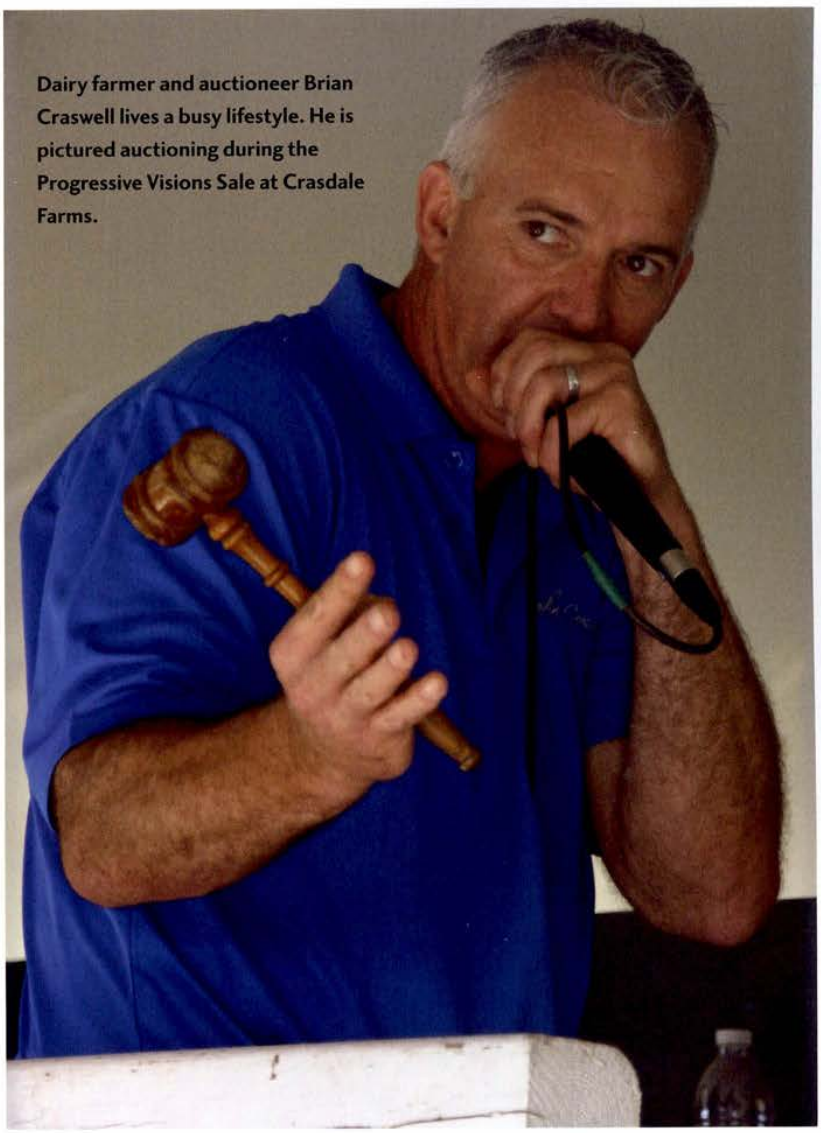
"Show cows and everyday cows are getting closer together because they should be"



Dairy farmer and auctioneer Brian Craswell lives a busy lifestyle. He is pictured auctioning during the Progressive Visions Sale at Crasdale Farms.

and they now focus on genetics and milk.

The Craswells have had the opportunity to tour quite a few different dairy barns as they travelled across North America with their auction business. They were drawn to VMS system because they felt the cows appeared more relaxed and comfortable. Cow comfort was a priority when it came time to design and build their new barn. They opted for a DeLaval

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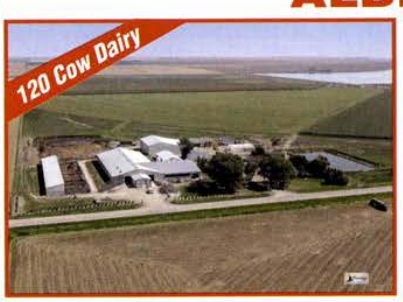

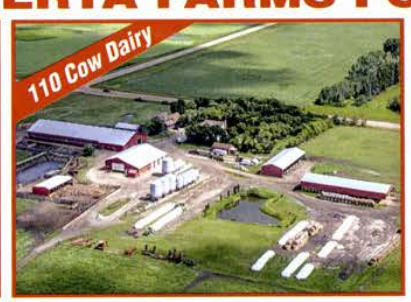

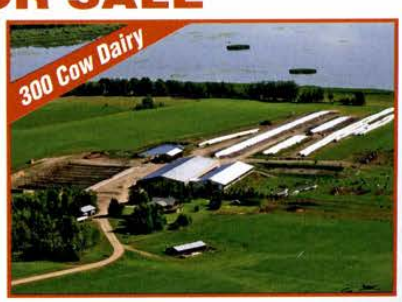

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Brian and Amber recently hosted an open house at Crasdale Farms during Old Home Week in PEI. Fellow dairy producers and the general public toured their new barn. It was a great opportunity to showcase their barn and educate consumers on modern dairy practices.

Robotic milking system, automatic feed system and Herd Navigator.

"The amount of information about each individual cows we have is amazing and makes you realize how little we knew about our cows before!" said Amber.

"We are farmers that became more managers, we're not doing as much labour," said Brian, "with the tie stall system we were more hands-on but the day passes quickly and not much time was spent with each cow. The auctioneer business has us traveling across Canada, but staying in touch is no problem because we can log in to our system from anywhere."

Craswell feel their new system allows cows to make their own decisions on feeding, milking and rest, allowing managers more flexibility to manage their time more efficiently.

The transition from tie stall to robotic went well until they put other cows into the herd. They brought the whole herd in all at once and within six weeks cows were visiting the robot 3.1 times on average. Things got a little complicated when Brian added 23 cows on a Friday afternoon and then left for a few weeks with his auctioneer business. The original herd learned traffic patterns but then new cows were introduced and the old cows became annoyed with the cows that didn't know what to do.

"If I had to do it again I would milk 100 cows instead of 60 and would put them all in at once."

When asked if robots can milk show cows, Brian was quick to reply that robots can milk any cows. The challenge is having the time to put the show cows on special feed for showing. "Show cows and everyday cows are getting closer together because they should be," said Brian.

When asked about offering advice to farmers thinking about robotic milking systems, Brian and Amber said it is important to plan ahead and include as many experts possible in the decision process. "Get advice from your vet, feed manager, dairy specialist and anyone else you have confidence in" and ask a lot of questions, said Amber. "Sometimes as dairy farmers, we don't information-share enough. While we are a large group, we operate individually, but we should remember, there is strength in numbers."

When designing and building a new dairy facility is important to set your budget and timeline. "Get everything 99.9% final on paper and then don't make many changes while building because that tends to kill your budget," said Amber.

"It's a major project and change. The unexpected will happen, you just need to stay calm and milk on!" added Amber. Ⓓ

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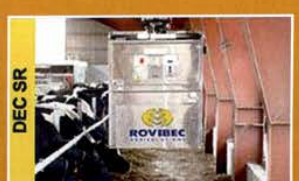

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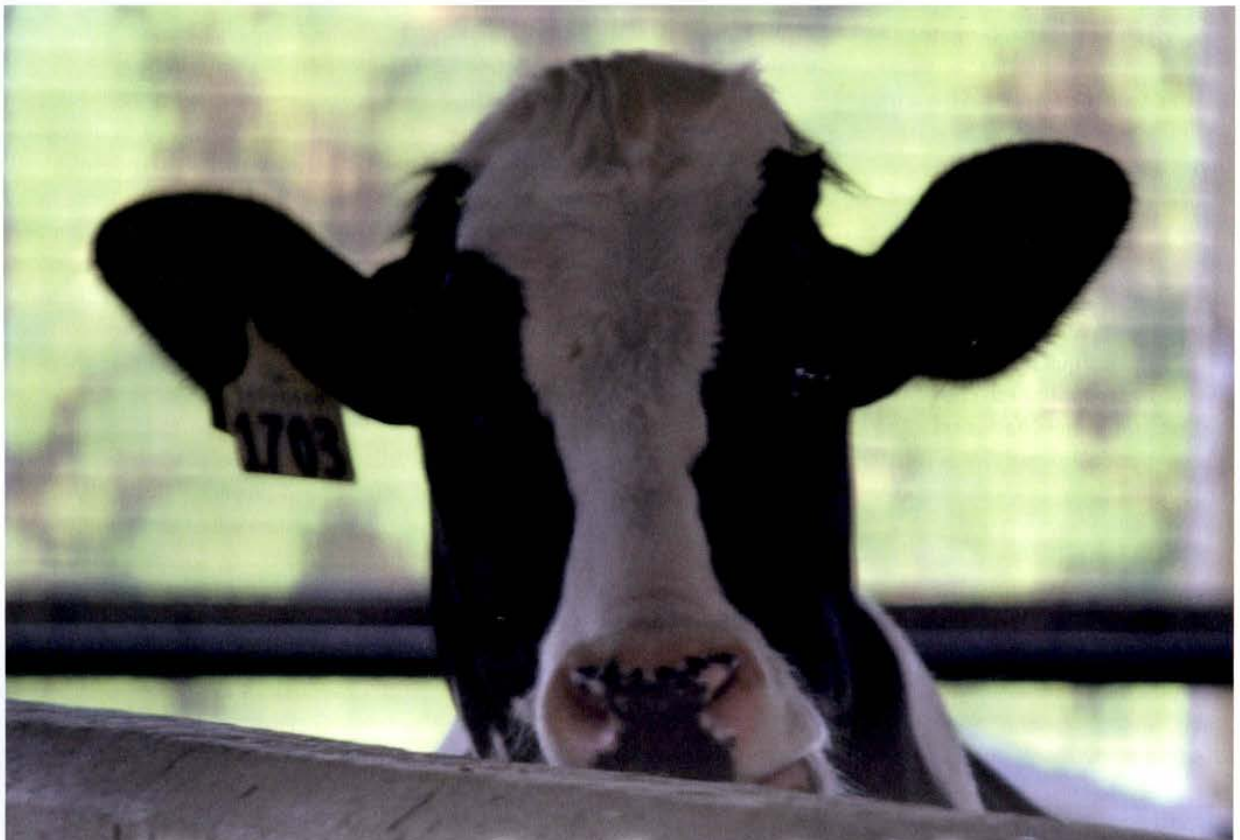

Do early lactation cows need B-vitamins supplements?

WHEN I BALANCE a lactating dairy TMR, I first use available forages as a base, then add energy-enriched feeds such as grains and fats, then add protein sources, add in macro-, trace minerals and fat-soluble vitamins. I might finish these diets off with a small amount of pro-biotics and other specialty feed ingredients.

My final dairy diet should contain enough essential nutrients in the right proportions to meet the essential nutrient requirements of dairy cows that produce large volumes of milk and milkfat as well as maintain healthy body condition. Oddly enough, I largely ignore formulating B-vitamins such as choline (B4), niacin (B3), biotin (B8), and thiamine (B1) into lactation diets.

That' because the National Research Council (2001) from which I draw information for lactating cow nutrient requirements, dictates: ""B-Vitamins requirements of lactating dairy cows can be met through synthesis by ruminal microorganisms and escape of dietary sources from the rumen." Furthermore, it has been my experience that aside from the occasionally polio case in bulls (caused by a B12 deficiency), actual B-vitamin are rare in lactating dairy cows.

Some university dairy nutritionists do not agree with the NRC's B-vita-

[The writer is an independent dairy consultant based in Winnipeg]

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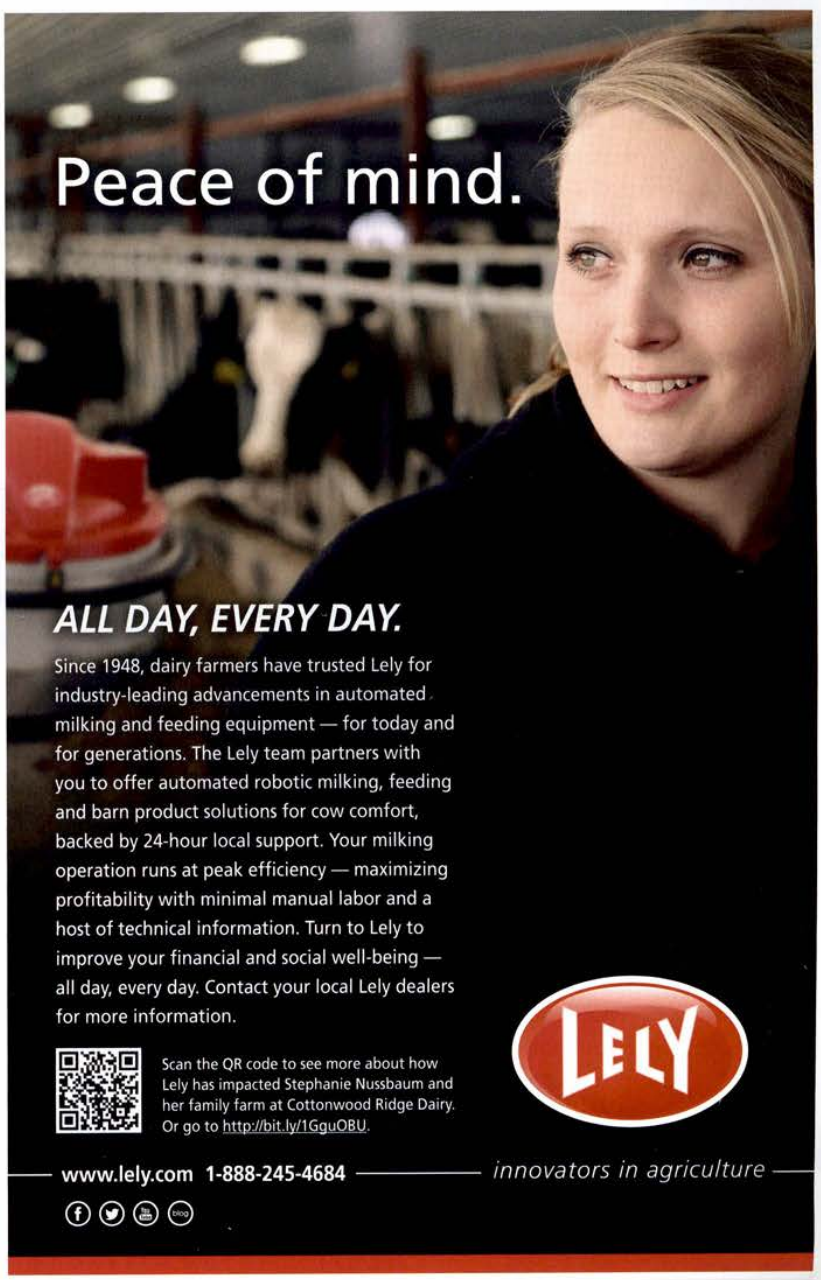
min assessment. They believe that the genetic pedigree of today's high producing dairy cow calls for routine supplementation, because the modern cow's requirement for B-vitamins exceeds what amounts that rumen microbes can normally supply. Here is a brief overview of such positive B-vitamin unversity research:

- Penn State fed 6 grams of supplemental niacin to lactating dairy cows fed a typical lactation diets consisting of; either corn silage, or corn silage and hay, or pasture. The researchers found that cows producing at least 35 kg of milk produced about 2.5 kg more milk with supplemental niacin.
- University of Maryland study, the researchers infused choline directly into the small intestine of lactating dairy cows and successfully exhibited a 1.9 kg per head per day increase in milk production. The general conscience among studies is that a choline supplement needs to be "protected" to bypass the rumen to provide any benefit to the animal.
- University of Florida fed mature dairy cows 0 or 20 mg; 16 days precalving and 0 or 30 mg of biotin; 70 days post-calving. The researchers not only found that milk production increased about 1.0 kg per head per day on the biotin treatments, but these cows had less non-esterified fatty acids (NEFA) built up in their livers, which is a leading cause of fatal fatty liver syndrome in high performing dairy cattle.
- Ohio State attributed 20 mg of supplemental biotin added to the transition-early lactation diets resulted in 2.9 kg more milk produced by biotin-supplemented cows compared to an un-supplemented control group. The control cows averaged about 37 kg of milk/day versus about 40 kg of milk in the biotin-cows.
- Dr. Randy Shaver from University of Wisconsin (2000) feed 150-300 mg per head per day of rumen unprotected thiamine (B1) to lactating dairy cows fed low fiber/high NFC diets. The results showed a nominal increase in dry matter intake, milk production and milk components.

The biological mechanism for these documented positive B-vitamin responses is largely unknown. However, many ruminant scientists believe that many B-vitamins such as niacin, biotin and thiamine act as the "on" switch of enzymes in the numerous intermediary energy-yielding steps, which are required to transform dietary nutrients into a metabolite form that the cows' tissues can use for body maintenance and for performance such as good milk production. Choline, which is not part of any particular enzyme system, like these other B-vitamins also plays an active role in carbohydrate and fat



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metabolism.

For example, although interdependent of one another, these particular B-vitamins are strongly advocated by the same researchers to be involved in the regulation of NEFA (non-esterified fatty acids) metabolism in the liver of early lactation dairy cows.

Whether we are feeding health or metabolically challenged dairy cows, dietary carbohydrates (containing glucose) are often in short supply for early milk production. The dairy cow must then burn her own body fat to produce immediate energy or non-esterified fatty acids (NEFAs), which are later transformed back into energy-rich glucose or provide fatty acids for butterfat. However, when too many NEFAs are produced for glucose transformation, a good portion of these NEFAs end up as poisonous ketones. It is these circulating ketone bodies that lead to toxicity associated with ketosis in early lactating dairy cows.

Since these B-vitamins are significantly involved in the bio-chemical reactions that drive efficient carbohydrate and fat metabolism, it is likely that they help drive the biochemical reactions that produce more energy (glucose) is ultimately available to the early lactation cow and thus help prevent dangerous ketosis.

A common recommendation is to add each of these B-vitamins to a transition cow diet, which is fed three weeks before calving and three weeks into early lactation; 6-12 grams of niacin per head, or 60 grams of choline (in a rumen-protected form), and biotin added at 20 mg per head, daily. The respective cost per head per day also as follows: niacin @ 8.5-17 cents, rumen-protected choline @ 60 cents, and biotin @ 3 cents. Lastly, I recommended adding thiamine @ no more than 10 cents per head per day to help stimulate appetite and dry matter intake. One should realize that there is no substantial proof that adding any of these B-vitamins together yields a cumulative response.

Nor is there any proof that the general lactating cow population needs added B-vitamins to their overall dairy diet. Rather, the existing research and my own experience tells me that the best areas in the dairy barn for B-vitamin supplementation is: (1) early lactation cows in negative energy balance, (2) 1st calf lactating heifers to stimulate feed intake and (3) cows suffering from significant digestive upsets. Otherwise, I formulate a well-balanced nutritious dairy diet that ultimately promotes good rumen function, in which the "rumen bugs" should produce sufficient B-vitamins for healthy and productive dairy cows. D

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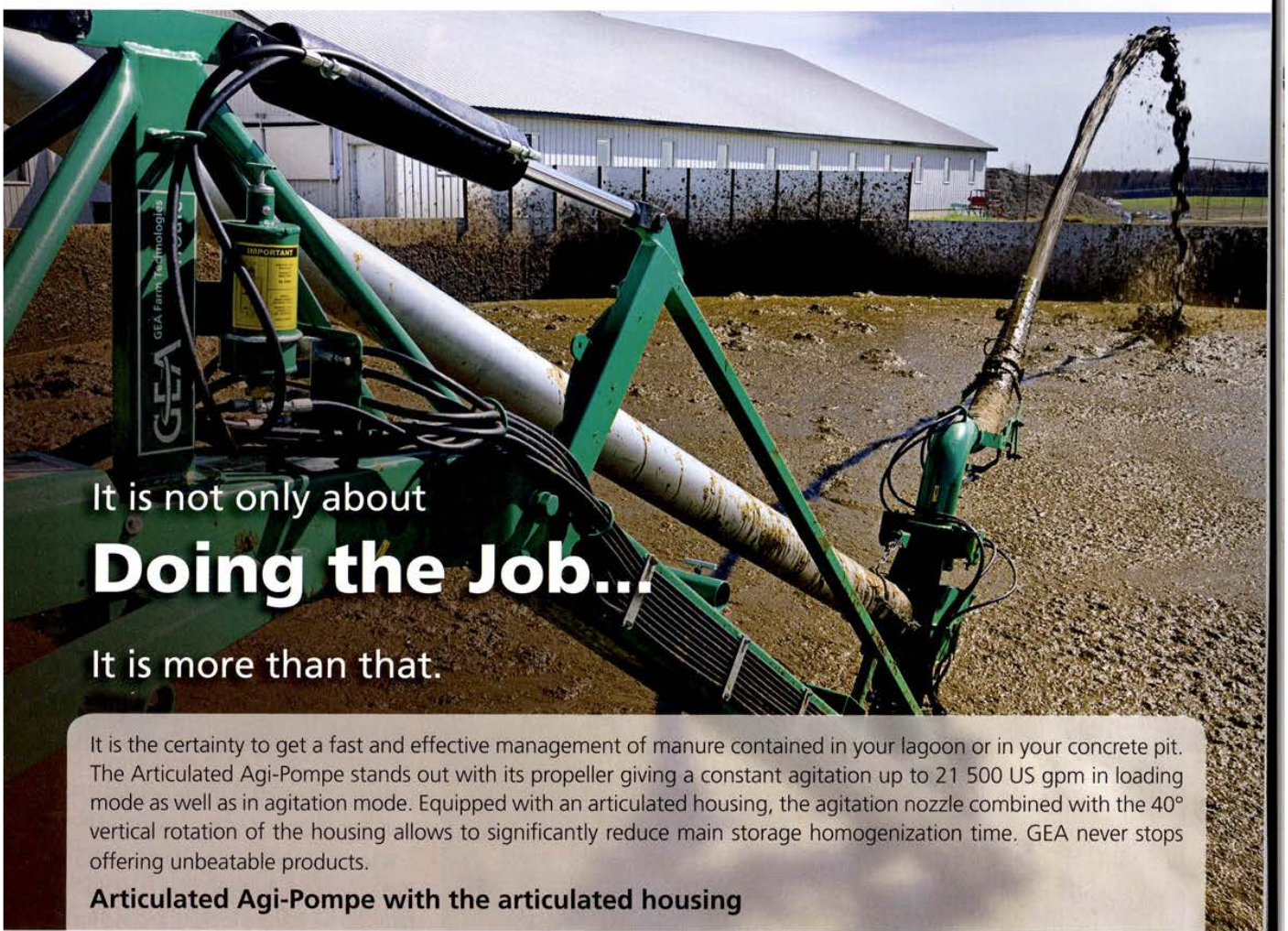
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Pieter and Miriam Van der Stoel with Davida (17), Deborah (15), Priscilla (13), Rebekah (9), Jerusha (5), John-Peter (11), Jonathan (7)

A long road

The career path for Pieter and Miriam Van der Stoel involved plenty of thought, some roadblocks, and a chance encounter

BY SHARON GROSE

ROBOTIC MILKERS SPARKED Pieter Van der Stoel's interest when he was an agricultural school student in Holland. He was always interested in mechanics and technology and equipment. He was raised on a dairy farm and attended an agriculture-focused high school. Part of his study requirements had him volunteering on a farm.

Lucky for Pieter that farm was adjacent to Wiboerhoeve Experimental Farm in Lelystadt, Holland where automatic milkers were being tested. He was introduced to automatic milkers in the late 1980s before any units were even sold.

When he saw them in action he thought they were great and he decided then and there he would have one day. He continued to follow their progress when they were finally offered on the market and his neighbour bought one. He noticed that the farmer's time was not spent milking cows but in fixing machines. Pieter is quick to admit that is how he would like to spend his day. He's the first to admit that "milking was never really my hobby."

When his father was ready to retired Pieter lacked funding to take over the farm. So he started looking around for more economical options. Pieter and his wife Miriam decided to take a working holiday to Canada and tour some farms. They started in Alberta and BC but quickly realized that although a beautiful area, land and farms were far too expensive. A friend suggested they try touring eastern Canada so they headed to the Maritimes. New Brunswick and Nova Scotia were nice but they fell in love with PEI.

During the Maritime holiday, a chance meeting with DeLaval dealer Jason Cleveland at a local gas station was the start of a long-time relationship. Pieter was lost and stopped to ask Jason

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directions; the small gesture is remembered fondly by Pieter whenever he recounts the story of buying his farm in PEI.

They followed Jason directions to the farm and discovered it was just what they wanted. The former owners were divorcing and not talking to each other but eventually they agreed on a selling price. Pieter and Miriam returned to Holland to arrange visa's and sell the family farm. It took 9 months to get the visa and still the farm in Holland had not sold. There were over 300 farms on the market at that time, so it was a tough challenge.

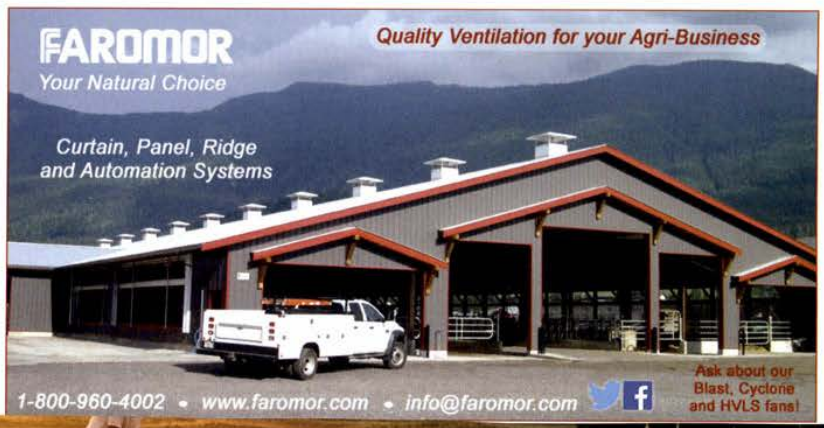
The PEI farm consisted of 80 acres and an empty barn when Pieter purchased it in April of 2004. He started buying cows and 21 kg of quota to start milking in June 2004. He continued to buy quota every month until he obtained 70 kg. He thought he had a nice size family farm but too many troubles arose in the old barn. But when he went to the bank to request money to build a new barn he was turned down.

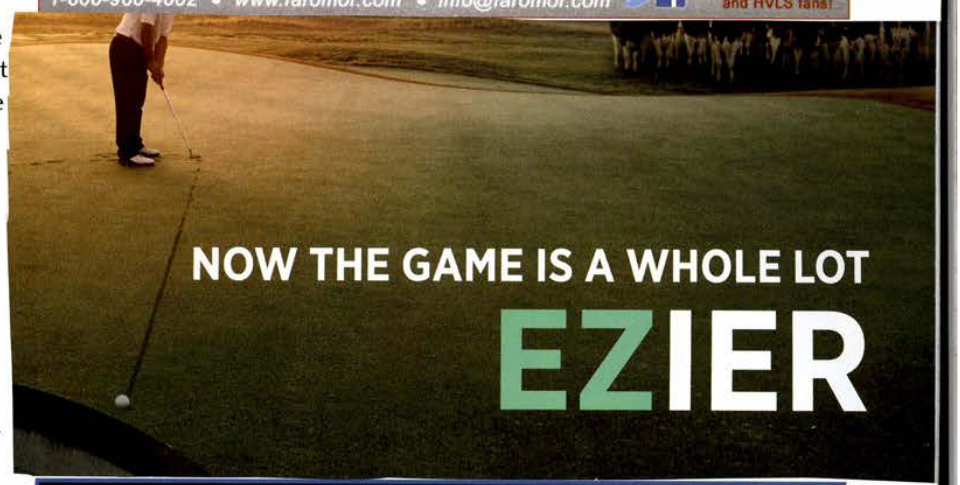
Three years later the bank agreed to construct a new barn. Pieter redesigned barn plans, moving the manure pit outside which allowed him to build a cheaper bigger barn. DeLaval approached him in the fall offering to finally sell him a robot. They wanted to send him to Sweden for training but he felt he could not leave the farm. There wasn't anyone in the Maritimes trained to maintain robots yet.

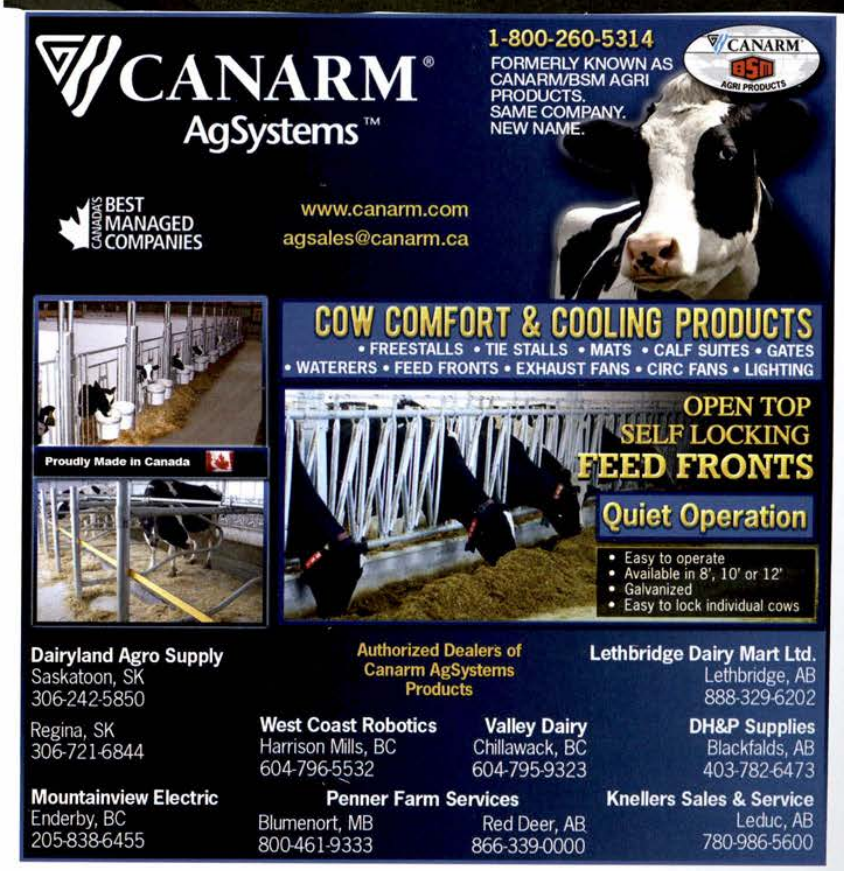
In December 2006 Pieter became the first farmer on PEI with a DeLaval robotic milking unit. By waiting a year he was able to buy a newer style robot and DeLaval hired and trained two people for maintenance and upkeep of the robot.

"The challenges with robotics are not mechanical but computer difficulties - programming knowledge is necessary" said Pieter.

Jason and Pieter paths crossed once again when he became his DeLaval rep







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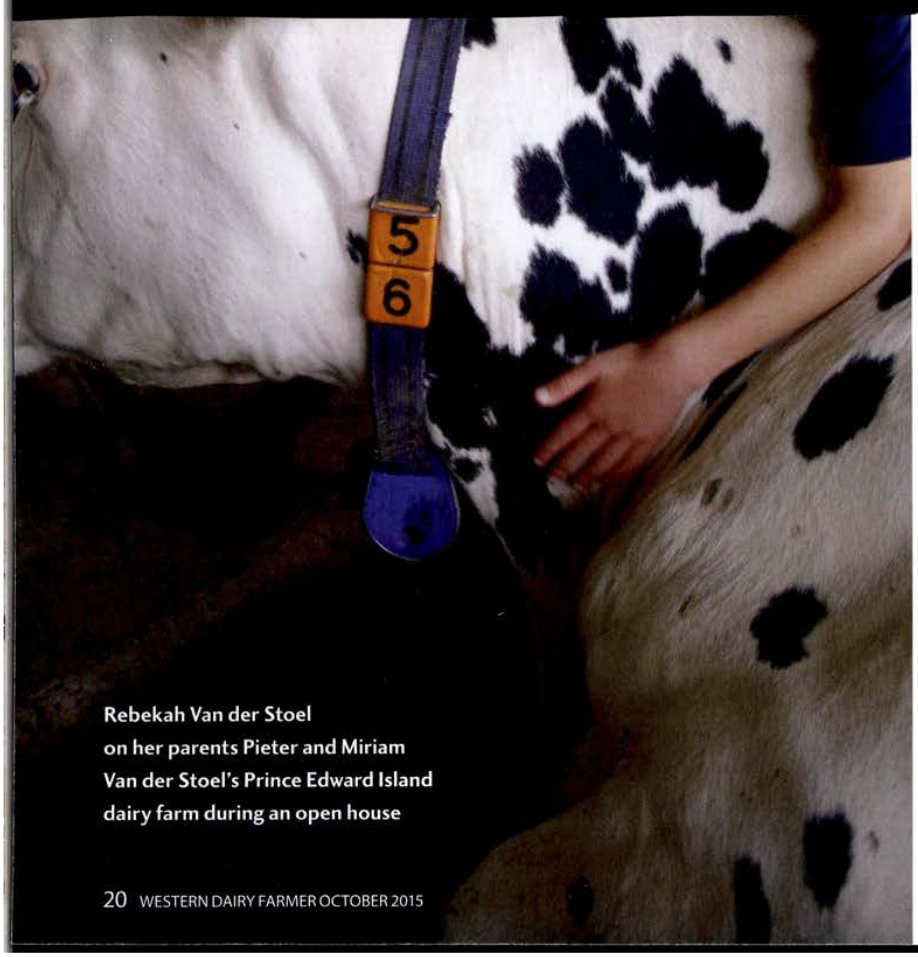

Rebekah Van der Stoel on her parents Pieter and Miriam Van der Stoel's Prince Edward Island dairy farm during an open house

"The challenges with robotics are not mechanical but computer difficulties - programming knowledge is necessary"

at Island Dairy Service. To this day, Pieter fondly recalls the part Jason played in directing his family to the farm they purchased by offering directions to a lost family.

Pieter is looking forward to a long term relationship with Jason, figuring his automatic milking unit should last at least 20 years. He continues to upgrade his 2007 model as new software becomes available.

Pieter advises farmers thinking about purchasing a robotic milker to spend time doing research. It took PEI farmers quite a bit of time to move to robotics. They wanted to see his unit and watch how it worked. "PEI farmers are a bit more reserved" said Pieter, "I came from Holland where European technology sees the newest and the latest first."

It took about 5 years for PEI farmers to come around, added Pieter.

Farmers need to give some thought to why they want to buy a robot.

"If you don't want to be in the barn, don't buy a robot - take up another type of farming." advised Pieter. "A robotic milking system requires more management, hoof trimming is important, feeding is important. I see the cows on computer and there are some really good cows I hardly get to know but I know the bad cows because I see them on the computer all the time. I know all my cows but I don't know my good cows as well" Ⓓ

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John Deere's new 8000 self-propelled forage harvester

Deere adds three new 8000 series self-propelled forage harvesters

JOHN DEERE has added three new models to its lineup of 8000 Series self-propelled forage harvesters.

Moreover, John Deere has redesigned the entire 8000 family of self-propelled forage harvesters from the ground up in its quest to deliver better performance and productivity with 65 per cent less maintenance.

"We took the momentum from the 8000 Series rollout last year and added to an already stellar lineup of forage harvesting equipment," said Tim Meister, marketing division manager with John Deere.

Meister was speaking at a new product reveal held recently at John Deere's newly-opened Tractor and Engine Museum in Waterloo, Iowa.

Meister said the three new models, which include the 8300 (483 hp),

[John Phair is a reporter with Ontario Farmer Publications]

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8700 (755 hp) and the 8800 (832 hp), make the line-up of John Deere forage harvesters even stronger with the ability to deliver optimal harvesting speed, reliability and improved forage quality.

He noted that each model can be equipped with HarvestLab, a John Deere patented advanced crop analysis and documentation component that uses moisture and constituent sensing to improve forage quality.

"HarvestLab has been expanded to include sampling of alfalfa and small grains and will analyse protein and sugar levels as well as NDF and ADF levels, all on the fly," he said.

"This allows for quick decision making to maximize forage quality."

He added that HarvestLab sends harvest data from the machine to the operation center where it can be stored or shared with the producer's crop adviser.

Header options for the 8000 Series machines include the John Deere Small Drum Rotary Harvesting units for 6 to 12 rows and the John Deere Large Drum Rotary Harvest units for 6 to 10-row machines.

In addition, the company has introduced an all-new 9 Series Hay Pickup.

"All John Deere headers are automatically speed-matched to the length of cut," added Meister.

Other features include the Dura-Drum cutter-head with reverse sharpening and other technologies that improve forage processing and nutrient quality.

Meister said the new 8000 Series models provide value to forage produces in three distinct areas: first, they feature a new 770 Plus Rotary harvesting unit that reduces stalk and ear losses. Second, they improve the ability to harvest down corn.

And third, their improved capacity adds another element to their performance.

"The channel width is matched to engine horsepower, which customizes capacity to customer needs," he said, adding that all new models include a new spout design and turning mechanism which allows for higher speed of operation and increased productivity.

Meister said another new feature is John Deere's Active Fill Control, which also increases productivity and accuracy in the field.

"This new capability allows for automated filling of trucks and wagons, which reduces operator fatigue and crop losses," he said.

"It's a really neat feature that will be available in the 2016 models," he added.

For those harvesting on rocky land, they are sure to welcome John Deere's new stone detection system.

"And it's not for just big rocks, it can also detect small stones using sound wave technology," said Meister, adding that if a stone is detected the feed rolls automatically stop to prevent knife damage.

"Small stones can damage the machine but more importantly, they can do harm to cows when feeding out the forage."

He added that John Deere is the only company on the market with a stone detection system with this level of sophistication.

Other available features include dual tire options for reduced soil compaction and better traction in wet soil conditions.

"About 10 per cent of our customers like duals, it gives them a little more stability in wet conditions," he said.

Finally, Meister says the new 8000 Series models provide forage producers improved fuel efficiency, noting that field studies have indicated that the 8000 Series can deliver up to a 15 per cent reduction in fuel costs. Ⓓ

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— Mitch Breunig

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Among their top cows is Ms Apples Annesa-ET VG-88 (above, owned together with Kevin Jorgensen). She is one of Apple's highest genomic daughters, with over 40,000M as a 3-year-old.

Flushing top dams to high genomic bulls has produced crops of fresh 2-year-olds making marks at Mystic Valley.

"Udder Comfort gets fresh cows off to a great start," says Breunig. He puts a high priority on cow comfort from freestalls to parlor and sells over 100 young fresh cows every year.

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Strategies for reducing high-quality forages

BY THE TIME THIS ARTICLE is read all the forages to be harvested will be in storage. Some crops may have been salvaged for silage rather than for grain. Some farmers may have harvested very little in their first cut crops or none at all. Hopefully, there was the sense of mind to cut the first crop anyway, even if there was none to bale. If the crop was harvested before heading out, even if it meant cutting off the tops of the plants, and it rained, a second crop could have been sufficient to harvest.

On the other hand, if the farmer allowed the forage to head out, and then it rained, no crop could have been harvested. This is true for grass and cereal crops. Of course there will be areas of Western Canada where drought was very extreme while in other areas adequate rainfall occurred. If good quality forage or for that matter any forage is available and insufficient this year, what are some alternatives other than selling cows and quota.

Just about any kind of forage can be fed to ruminant animals, but the maturity and type of forage will directly affect milk production. Some low quality forages can be successfully mixed with high quality forages to profitably produce milk. For example, mixing canola forage with cereal, grass or legume forages is very acceptable, and can produce surprising positive results.

Analyzing each of the available forages, including straw is a good start when considering mixing forages. Mixing more than three types of silages is not highly recommended simply because too many silos are left open. Mixing silages with hay is also limited because of the amount of dry hay lowering the moisture levels of the TMR below 50%, which can lead to increased sorting behavior. Dry hay also requires a great deal of energy to process, even though high capacity chopper-mixers are available.

Feeding hay separately from the TMR also has its issues. When dry hay is offered free choice with low silage and grain TMRs this can lead to severely imbalanced rations for many cows. Some cows will consume very little TMR and eat mainly hay, while others will consume mainly TMR, leading to bouts of ruminal acidosis and laminitis. To choose this feeding strategy, all cows must be prevented from consuming hay until they are finished consuming the TMR.

This also means that these kinds of low percentage forage to concentrate TMRS may have to be fed twice daily, to prevent the high risk of ruminal acidosis and laminitis. Before the cows are fed low forage to concentrate TMRs, it is recommended the cows be comfortably full on good quality hay. Total mixed rations high in concentrates should not be fed to hungry cows; this practice leads to a high risk of rumen acidosis.

If straw is chosen to be one of the low-quality forages to be included in milk cow rations, the best place for it to be added to the ration is with the silage and grain. Feeding straw by itself and free-choice does not work very well if milk production is to be emphasized. This practice can work well when feeding replacement cattle.

The number of silos open at one time is also a limited option, especially when several crops are available in silos and in short supply. New rations must be developed for each crop. If the replacement stock are being fed silage, up to three silos can be open at one time if the milking herd size is greater than three to four hundred head. Less than this number, the deterioration rate of the open silos is faster than the feeding rate, and this may lead to serious silage deterioration issues.

Silage quality once lost cannot be restored. Lost quality in forage negatively affects both milk production and growth. Total energy as determined by net energy for milk or net energy for gain can numerically be restored with some success using grain supplementation, but it cannot restore the production units in both milk and growth with the reduction in feeding high quality forages. Replacing high quality forage with low quality forage usually leads to greater risk of over-conditioning in both the milk cow herd and the replacement cattle.

The type of forage being replaced must be analyzed carefully.

[The writer is an independent dairy consultant based in Rochester, Alberta]

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For example, canola forage (and kochia crops) should be analyzed for sulfur concentration. Sulfur content in the ration is usually not a concern, even when mixing canola forage with other forages. If canola forage is fed separately, such as feeding replacement stock, the total sulfur content should not exceed 0.4%. Of course there are cases where the sulfur in canola varieties that exceeded 0.6% caused no problems in sulfur toxicity directly or indirectly via copper-molybdenum interactions, or sulfur inhibition of such metals as copper and selenium when these metals were normally supplemented in the rations as they are today. To be safe, it is always prudent to attempt to keep the sulfur levels less than 0.4% when formulating rations.

Using cereal straws for forage supplementation in rations is acceptable, but it will lower milk production and help to maintain healthy rumens. Greater concentrations of straw can be used in replacement animal rations, but more grain and protein supplementation must be used to balance the rations (J.Dairy Sci. 92:2078; 2009). Again, more and more straw in the diet being replaced with forage increases the potential for increased numbers of animals becoming over-conditioned. Over-conditioned animals also delays breeding age, because the animals tend to have lower rates of gain. These are the sacrifices one has to make with forages of extremely low digestibility and hoping that next year will be better.

Another alternative when feeding lower quantities of high quality forage is to increase the concentrate to forage ratio to below 50%. Rations containing 35 to 45% forage dry matter in a ration can be done if you are willing to cull cows that are prone to getting rumen acidosis.

Recently, Dr. M. Oba from the University of Alberta and his colleague (J. Dairy Sci. 98:5735; 2015) have observed that cows in late lactation showing low milk urea nitrogen (MUN) and low milk fat concentrations tend to be more prone to rumen acidosis. This means that rations containing a lot of concentrates (over 50%) can be fed to cows and maintain productivity to a satisfactory level when you are willing to cull cows that are show low MUNs and butterfat concentrations.

Furthermore, rations containing protein supplements derived from the alcohol industry, like brewers wet and dried grains, and other distillery products increase the neutral detergent fiber (NDF) content of the ration significantly and can be substituted for grain and protein supplements successfully (J. Dairy Sci. 82:2716; 1999). These supplements can be purchased dry, and in some areas of Western Canada, wet brewers grains are also available.

Another alternative is to use oat hulls. They are also high in NDF and can be substituted for some of the forage and grain in the ration to reduce the inclusion of high quality forage.

Oat hulls, too, are a local product and are not available province-wide. It is advised that an un-biased nutrition consultant be called upon to guide the use of these alternative feeds. Whenever the dry matter forage is reduced below 50% in the TMR, care must be taken to ensure that the ration never runs out in the bunk. Otherwise when the next ration is delivered to the bunk, the cows will tend to overeat which could lead to bouts of rumen acidosis and later an increased prevalence of laminitis.

Of course, when feeding rations containing more than 50% concentrates, the cows will produce less methane, which pleases the clean air advocates and climate change prophets. The shift in methane production is not that great when cows consume rations high in concentrates, and will never approach those levels that pigs and chickens can reach.

Reducing the need to feed high quality forages because the availability may be less than normal due to the drought conditions in various regions across Western Canada can be accomplished by feeding alternative forages or increasing the use of distillery products. Care must be taken whenever choosing alternatives different from those you might be familiar with. It is advised that a reputable nutrition consultant be chosen to help formulate rations and practices that will keep the dairy herd healthy and robust. Ⓓ

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Self-propelled

Manure crawler concept has saved lagoons around the world

BY BOB REID

WITH A DRAMATIC entrance usually reserved for rock stars, the unveiling of a revolutionary piece of farming technology occurred in Ontario recently.

To the accompanying sound track of Space Odyssey, from concealment under a slowly rising tarpaulin, emerged blindingly bright head lights through the mist surrounding a self propelled liquid manure agitator.

Not just any self-propelled manure agitator but the 100th unit rolling off the assembly line at Nuhn Industries Limited as part of an open house held in a recently completed 34,000-square-foot expansion to the manufacturing complex.

The several hydraulic features on the self levelling machine and extensive piping for expelling streams of liquid manure at high pressure in multiple directions resulted in the unit being compared in looks to the 'bat mobile' of movie and television fame.

As a result the unit was painted black instead of the company's signature red color, said vice-president Ian Nuhn.

"It is amazing what 85 guys in Sebringville can create," said Nuhn in reference to the number of employees currently working at the facility.

Starting with a blank computer screen, an actual prototype of the very first machine was created within just 10 days in 2013.

"We didn't know if it was going to float," said Nuhn.

Nevertheless the prototype, named a lagoon crawler, was taken to a manure expo held in Guelph before it had even been put in the water.

Interest in the machine's potential was immediate with orders received for similar machines yet to be built. It was a venture requiring some nerve and a lot of skill.

In January of 2014 all regular production of manure tanks and related equipment at the facility ceased with all work then dedicated to making six more of the self-propelled agitators. To immediately test the units a machine had to be taken to the warmer climate of California in February with Canada locked frozen in the dead of winter

The lagoon crawler can enter earthen liquid manure storage ponds for the agitation process. A submerged pump with a 14-inch intake on the belly of the unit requires no priming. Its 21-inch impeller forces through the liquids that are blasted back into the pond in the agitation process. The high pressure at which this occurs allows the breaking up of any settling of solids that have occurred over time.

A six-inch diameter nozzle mounted on the front of the machine can direct jets of liquid to a specific target area.

This has proven especially useful for dairy operations which use sand as a bedding. The need to bring in a backhoe and/or bulldozer to remove settled sand is eliminated.

The machine is remotely controlled up to 1,000 feet away, steered like a jet boat by altering the high powered jets of water emerging from the seven agitation pipe locations on the crawler. It is propelled and steered on a solid surface by the four hydraulically powered wheels.

If the machine gets hung up while floating over solid material, the wheels will then move it forward.

"There are two ways to build a machine – agonize over it for two years before building it or put machines out there right away and develop it as problems arise," said Dennis Nuhn, president of the company.

He prefers the latter and standing behind the product to address problems. As an example, the first intake pumps were being worn out quickly from the

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sand deposits in the lagoons. To address that the pumps – capable of pumping over 10,000 gallons per minute - were subsequently made of a much harder nickel alloy steel to prevent wear.

In California Nuhn encountered lagoons 20 to 30 acres in size that had been in use for years with agitation taking place only around the edges. As a result the middle portion slowly filled in with solids to the point where the lagoons were becoming unusable.

The lagoon crawler – able to access all areas of the lagoons - was able to break up the solids into a liquid suspension form that could then be removed.

"You can build a machine to give them their lagoons back," said Nuhn, an important step since legislation there had stopped the creation of new lagoons.

In Ontario most liquid manure storage facilities are enclosed in above ground cement structures which does not allow the lagoon crawler direct access. This has been addressed by the bolting of a removable steel frame to the 15,000-pound crawler which can then be lifted into a cement tank and later removed by a crane.

The majority of the lagoon crawlers have been sold in Wisconsin but some have been sold as far away as China and Russia. Nuhn sees huge potential for further sales there.

He was aware of one farm in Russia containing 1,200 lagoons.

The crawlers are powered by a 270 horsepower diesel engine and sell for $190,000 Cdn. Their unique appearance has resulted in units, while in transport on the highway, being pulled over by police, just so they can have a closer look at them, said Nuhn.

Ian Nuhn, 25, is the fourth generation of the family involved in the business, having started working in the shop as a 12-year-old. His natural inherited ability in engineering has proved valuable in creating prototypes. While in high school he won a gold medal in a Canadian skills competition.

Dennis, his father, represents the third generation and was responsible for relocating the business in 1985 from a small shop established in nearby Wartburg by his grandfather in 1902, as a welding repair shop. He began working with his father in the shop as a teenager.

When many Dutch immigrants moved into the area, in need of liquid manure tanks, Dennis began constructing them from discarded gas tanks and various other materials. From that humble beginning the business quickly expanded with the growing demand.

The 34,000-sqaure-foot expansion completed this year represents the third addition to the original building at the Sebringville location in the past six years, totalling 100,000 square feet.

Another addition will be required within a year, predicted Dennis, whose daughter Katherine also works at the family-owned business.

"I am a lucky man. I get to come to work and play with my children every day," said Nuhn. D

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Concerns about electromagnetics

A Saskatchewan couple with electromagnetic field sensitivity blames "dirty electricity"

BY JEFFREY CARTER

AFTER READING about stray voltage concerns on an Ontario dairy farm, a Saskatchewan couple decided to talk about their battle with a similar issue.

Ken Mack and his wife, Jacquelyn O'Connor, both say they are acutely sensitive to electromagnetic fields. Mack has also been diagnosed with electromagnetic field (EMF) sensitivity by Dr. William Rea at Rea's Environmental Health Center in Dallas, Texas.

Rea, who's been studying and treating EMF sensitivity since the early 1990s, said he treats about 200 cases at year.

"Dirty electricity is a real problem and I think EMF will be the epidemic of the 21st century," he said.

Typical symptoms, according to the clinic website, include heart rate irregularity, fatigue, headache, tingling, dizziness, chest pain, nausea, skin sensitivity, eye irritation, muscle ache, chronic fatigue, memory loss and confusion. Sources of EMFs listed include power lines, cell phones, smart metres, Wifiand antennae.

Along with EMF, Rea works with patients with other environmental ailments, including sensitivity to mould organisms and chemicals. "Eighty per cent of people who are sensitive to EMF are also sensitive to the chemicals in foods," he said.

Mack and O'Connor both complain of EMF sensitivity. They say they experience symptoms at their rural homes Langenburg, Saskatchewan and in Loudon County, Tennessee where O'Connor said there have also been problems with her family's dairy herd.

In Tennessee, they blame transmission signals generated by a local utility that they say travel through their three-storey home.

"We had to move. We had to abandon our home. Now we live at the back of the property in a trailer with solar power," O'Connor said.

In Saskatchewan they say they've traced the problem to communication devices installed by SaskPower that regulate power distribution through low level pulse, microwave radiation.

They are now living off-grid in Saskatchewan. Electricity in their home is generated by wind and solar energy with a battery backup system.

Rea said utilities have become "fairly cooperative" when it comes to EMF complaints but that's not been the experience for Mack and O'Connor.

In response to an e-mail query, SaskPower stated that smart metres have not yet been installed in Saskatchewan residences.

In Loudon County, Jarrod Bracket, general manager of the Fort Loudon Electric Cooperative, was aware of couple's concerns but would not comment.

"We won't make a comment. It's in litigation," he said.

O'Connor said the lawsuit she's involved with has not yet gone to trial.

According to the World Health Organization publication, Establishing a Dialogue on Risks From Electrmagnetic Fields, EMFs occur in nature but during the 20th century manmade EMF sources have steadily increased. There are recommended exposure limits set through national and international standards.

The debate, according to WHO, is centred on whether long-term, low level exposure below those limits impact people.

So far, there is no conclusive evidence pointing to low level exposure as being a concern, according to the agency. Ⓓ

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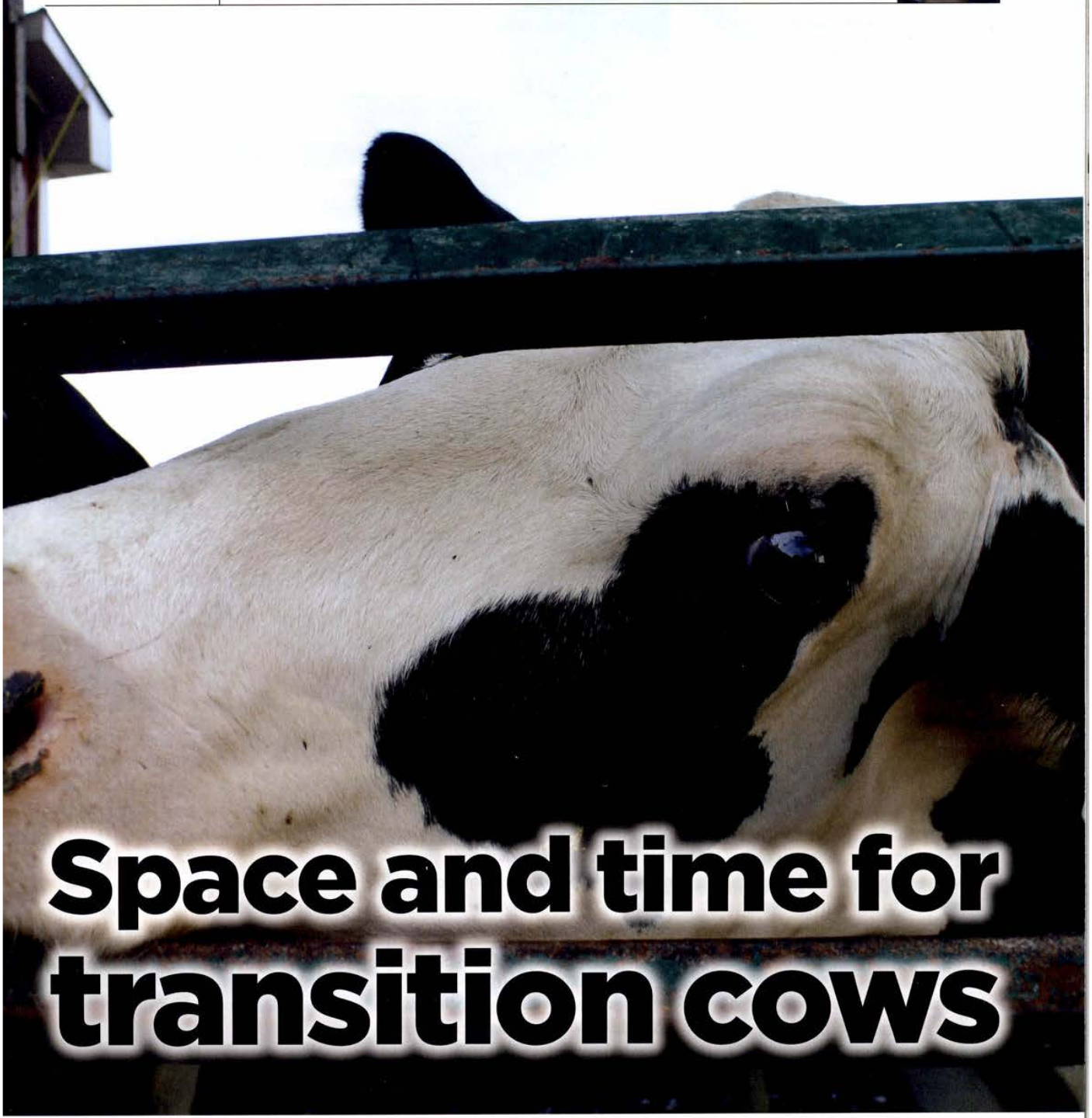

Space and time for transition cows

THE BEST WAY to avoid treating cows is by getting them off to a good start after calving. There is a lot of focus on dry cow pen management, but fresh pen management is just as important. The underlying concept is that stress is detrimental to cow health. Stress is commonly caused by overcrowding and pen moves, and even more specifically, the timing of pen moves.

Dry cows can be split into far-off and close-up groups, or there is a trend to manage them as one larger group. In either case the requirements are similar: provide enough space and provide constant access to fresh feed. Far-offs kept in freestalls need one USABLE stall per cow and 24"/hd bunk space. When are you drying cows off? Is it in time to meet your goals? For

[The writer is amember of the Ontario Association of Bovine Practitioners]

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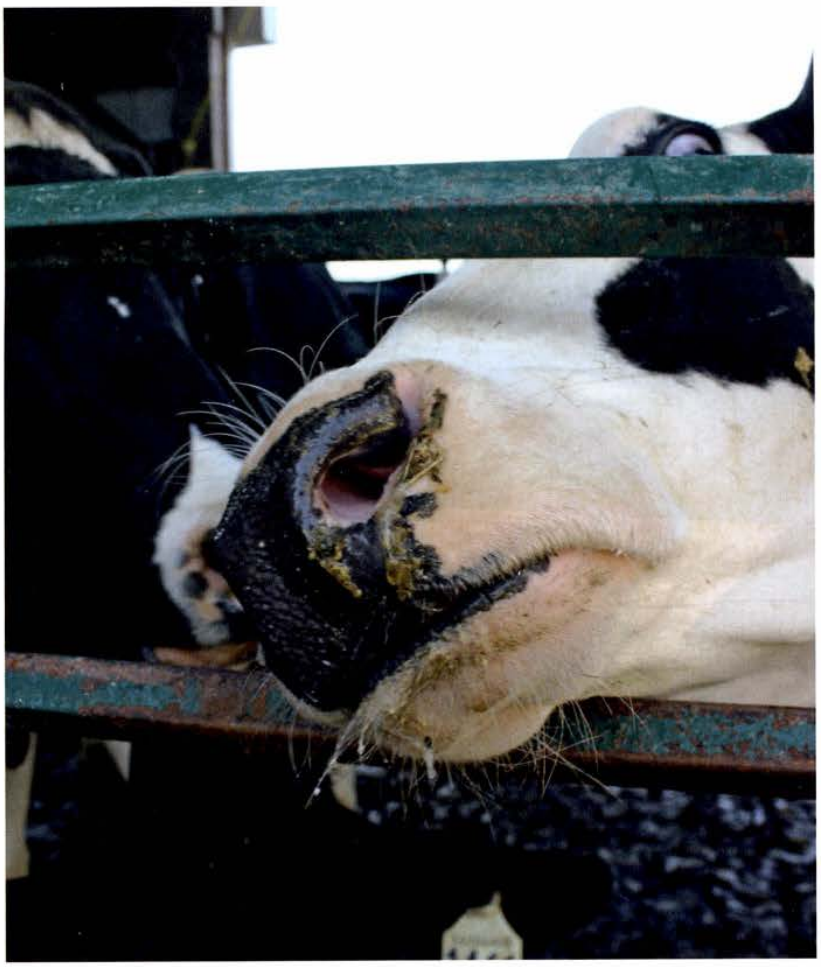
example, if you dry off cows once a week with the goal of a 60 day dry period, you need to dry off the cows at 60-66 days due, not the cows 54-60 days due.

Close-up cows are most commonly on a pack, and the more space the better. Current research is indicating that 100-150 square feet of pack per cow, and even more if possible, is required. This space is defined as USABLE pack: when calculating, take into account cut off corners, water bowl cut-outs, and do not include any alleyways. Provide 30" bunk space per head and have fresh feed readily accessible at all times. Close-up cows need to be in this pen by 21 days due and heifers by 28 days due. In fact, if you can feasibly separate the heifers and cows here, even more social stress is removed. Check the timing of your pen moves, as a week too late can have serious repercussions on transition. Also keep in mind that the variation around calving time is +/- 10 days from the due date, and cows with twins will often calve early. So a cow moved to the close-up group at 14 days before calving can calve a week early and not have enough time to adapt before being moved again to a fresh cow group.

One-group dry cow management eliminates a pen move, so there is inherently lower social stress across the dry period. Also, if a cow calves early, it's not as big of a deal because she wasn't moved recently. It is important to make these pens quite large, at least 150 sq ft usable pack/hd and 30" bunk/hd, to deal with the seasonal calving fluctuations. Always have multiple water sources and continuous access to fresh feed.

How much space do you need? There are some great online tools available for calculating your transition facility needs, namely the Dairyland Initiative website. The general rule of thumb is to accommodate 140% of the average calving rate. If you only calculate for the average, you will be overcrowded half the time! As a quick example, a 200-cow dairy with a 60d dry period needs to have facilities that will accommodate 40 dry cows at any one time (21 far off and 19 close-up/springers). Of course, these numbers are based on a stable herd size, so if you are (slowly) expanding then you need to take that into account.



Fresh cows are moved into a fresh group or the general population. Keep in mind that stress at this stage will undo your entire transition cow program. So NEVER mix fresh cows with sick/lame/treated cows. Not only does this expose fragile fresh cows to illnesses, but it greatly increases the chance of overcrowding the fresh cows. Even if it's only for a few days, don't do it! Whether using a pack or stalls, keep the numbers down: +100sq ft pack/hd or one usable stall per cow; ideally 30" bunk space/hd here as well; and two water sources. The duration of stay in the fresh pen ranges, but is usually around 3-21 days. Any chance you have to separate cows and 1st lactation heifers at this point is beneficial. If fresh cows go directly into the general population, separating by lactation is even more important. Still, kicking fresh cows into the group early means the group crowding should not exceed 100%.

Available space, and timing and number of pen moves have a huge impact on transition cow success. To see if your facilities are adequate, ask yourself:

- What kinds of facilities do you have available? Physically measure the usable pack space for the dry cows and calculate the number of calvings that space needs to accommodate (140% of average).
- How many pen moves does a cow make between drying off and joining the main group?
- When does she make those pen moves in relation to her due date? To her fresh date?
- Who is in each group? Are cows and heifers mixed? Are sick/lame/treated cows in with fresh cows?

Use your dairy consulting team to help design a solution to your transition cow problems and avoid treating fresh cow diseases. Ⓓ

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