Lighting Solutions

A well-lit barn can boost your bottom line by reducing energy costs and increasing your cows’ milk production

PLUS:
Increase your farm’s revenue • Cheesemaker wins big • Examine your feed rations
Herd Navigator™ is an advanced precision analysis system that:

- Detects heat
- Detects early stage mastitis cases
- Detects ketosis
- Monitors the urea level to help balance feed protein

I don’t know how we could farm without Herd Navigator. It took our operation to a completely different level.

It’s like walking with a white cane if I didn’t have Herd Navigator.
In This Issue ...

4 EDITOR’S NOTES
Studies show a well-designed, energy-efficient lighting system may boost your herd’s performance

6 DFO CHAIR’S MESSAGE
Dairy farming is a privilege not to be taken for granted

8 DAIRY UPDATE
DFC’s executive director retires ... Ontario dairy processor wins $100,000 ... DFC board changes

16 LEGAL CORNER
Letting an employee go requires understanding your rights and knowing the right steps to follow

18 FARM FINANCE
On-farm breeding programs can increase milk production and add another revenue stream

20 DFC PROMOTION
Food truck inspired recipes ... From Farm to Table teams tour Ontario ... DFC at Big Bike rides

22 COVER STORY
A well-lit barn can reduce energy costs and increase your cows’ milk production

28 RESEARCH
Researchers discover adding active yeast to cows’ diets relieves acidosis and improves rumen health

30 APPLIED SCIENCE
The Dairy Research Cluster 2 is helping drive innovation in human nutrition and health

34 RUMINATIONS
Keeping infections out of your herd is vital to your cows’ long-term health, and lowers your farm’s risk

38 FOCUS ON FEED
Making the right ration adjustments will help your herd reach optimal performance

40 MARKETS
Canadian requirements revised ... Butterfat demand increases slightly... Rising cream prices

43 NEW’N’ NOTED
Canada’s Outdoor Farm Show 2014 dates ... Virtual farm tours at World Dairy Expo

46 BACK FORTY
American scientists invent technology that converts cows’ manure into drinking water
Lighting used on dairy farms has come a long way. As I was researching this month’s cover story, I came across a wealth of information about how light emitting diodes (LEDs) differ from incandescent and compact fluorescent lighting. When designed well, LED lighting can be more efficient, durable, versatile and longer-lasting. The latter is especially appealing when you’re looking to reduce overall costs on the farm.

In addition to cost savings, research has shown milk production can be increased by regulating a dairy cow’s exposure to light. Milking cows exposed to 16 to 18 hours of light followed by six to eight hours of darkness have consistently shown milk yield increases of eight to 10 per cent.

According to an article written by several Ontario Ministry of Agriculture and Food dairy specialists, there is no benefit to providing your cows with 24 hours of continuous light. Without a period of darkness, cows can’t determine the length of the day, which makes them lose their ability to respond to extra lighting. Cows require about six to eight hours of uninterrupted darkness each day to detect light increases.

A short day photoperiod (SDPP) is most appropriate for dry cows. A photoperiod is the interval in a 24-hour period when an animal is exposed to light. Cows that are continually exposed to a long day photoperiod (LDPP) will gradually lose their ability to respond with increased milk production. Short days appear to reset a cow’s ability to respond to a LDPP in the next lactation. This means dry cows should not have the same lighting as lactating cows. If dry cows are exposed to less than 12 hours of light each day, this seems to be enough of a decrease in photoperiod to ensure a response to long days after calving.

Perhaps of greater interest to dry cow management are the apparent effects of a SDPP on udder health and disease resistance. Preliminary studies suggest cows exposed to a SDPP when dry have a greater ability to resist new infections.

More research needs to be done to truly know the effect lighting has on milk production and cow health. In the meantime, turn to page 22 to read more about the benefits of having proper lighting in your barn, and learn how LEDs have changed and evolved in the last few years.
REVOLUTIONARY MILKING
FROM THE REAR

MR-S1
OPTIMAL ROUTING

MR-D1
ONE UNIT, TWO COWS

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The dog days of summer are officially upon us. This is the time of year when we have to pay particular attention to how our “girls” are faring in the hot and humid weather by taking extra precautions to keep them cool and comfortable. After all, happy cows produce more milk.

Recently, the media published numerous articles and circulated several videos about how a British Columbia dairy farm treats its livestock. The media often highlight the negative aspects of our industry, which is the exception to the high-quality care practised by countless dairy farm families across Ontario and throughout Canada. We need to demonstrate to the public how we always strive to provide the best care for our cows.

On-farm programs, such as proAction and Canadian Quality Milk, have established guidelines for how we should care for our cows and calves, and the environment. For instance, Dairy Farmers of Canada has stated “proAction will help Canadian dairy farmers collectively demonstrate responsible stewardship of their animals and the environment, and sustainable production of high-quality, safe and nutritious food for consumers.”

These national on-farm programs outline codes of practice for animal care and let us prove our compliance. This provides assurance to our customers and the public about the farm practices we follow daily and how seriously we consider the welfare of our animals.

Canadian dairy farmers are renowned for producing high-quality milk. Our supply management system is envied around the world because it enables us to earn a fair wage for our labour and provide for our families. Tending to cows and producing healthy dairy products is not an inherited right—it is a privilege. It is our responsibility to earn that privilege every day of the year.

Chair, Dairy Farmers of Ontario
June 24, 2014
Robotic milking technology brings a new way to think about milking and managing cows. The MIone will take over the milking for you – releases you from extremely rigid milking schedules and allows you to focus more on individual-cow monitoring and care. The centralized approach gives you the ability to manage all of the necessary herd management functions and milking equipment in one location in a logical flow. Each milk cluster is attached by a common robot actuator which quickly and efficiently detects the teat by means of a real time 3d vision sensor. The attachment is unique in the fact the cleaning, drying, stimulating and milking all occur in the same liner making for industry leading attachment times.

The MIone can be matched to any sized herd, from 1-box up to 5-box systems.
Ontario dairy producers should review their farm practices, including employee training and standard operating procedures, in light of the animal abuse allegations on a British Columbia dairy farm, says Graham Lloyd, Dairy Farmers of Ontario (DFO) director of communications.

In early June, Mercy for Animals, a non-profit animal rights organization, released a video to media and the public, and the British Columbia Society for the Prevention of Cruelty to Animals (BCSPCA). The video showed several workers abusing dairy cows on a Chilliwack, B.C. farm. Following the video’s release, eight employees of Chilliwack Cattle Sales were suspended, then fired. The employees and farm may be charged pending a criminal investigation, says Lloyd.

“The video clip shows shocking and horrible abuse,” says Lloyd. “DFO does not believe it’s reflective of how most producers care for their animals,” he adds. “Thankfully, there are laws to deal with those cases and DFO supports the maximum penalties for those convicted of animal abuse.”

Ontario producers are encouraged to review their standard operating procedures (SOPs), including practices that address animal well-being, says Lloyd. Farm owners and employees are equally responsible to ensure cows are always treated humanely. Everyone working on the farm should follow the Code of Practice for the Care and Handling of Dairy Cattle. Producers should have their employees sign a document to indicate they understand and will abide by the farm’s SOPs, he adds.

“Dairy Farmers of Canada (DFC) is always looking to continuously improve our animals’ health and welfare,” says David Wiens, DFC vice-president. “DFC strives to do this through funding dairy welfare research, adopting new technology that improves the lives of the animals, and participating in educational sessions that focus on improving the well-being of our animals, as well as supporting the proAction Initiative, which includes a significant animal care module based on the Code of Practice for the Care and Handling of Dairy Cattle, published in 2009.”

Shortly after the video was released to media, Saputo, Canada’s largest dairy processor, announced it would not continue to accept milk from the Chilliwack farm. The BC Dairy Association, along with the BCSPCA, Saputo, the BC Milk Marketing Board, BC Dairy Council and the B.C. Ministry of Agriculture, as well as Farm Industry’s board, met to discuss various ways to strengthen the B.C. animal inspection and enforcement protocol on dairy farms.

On June 20, the British Columbia Dairy Council announced it was satisfied with measures taken on Chilliwack Cattle Sales. Not long after, Saputo started accepting milk from the farm.

“DFO condemns all animal abuse,” says Lloyd. “DFO has a special agreement with the Ontario SPCA that helps enforce animal protection laws. It will call them in whenever animal abuse is suspected. Ontario regulations also authorize DFO to refuse milk, and even revoke a producer’s license in situations of known animal abuse,” adds Lloyd.

“DFO’s board will not tolerate this type of conduct. It encourages all producers to adhere to proper practices and procedures in accordance with the Code of Practice and the Ontario SPCA Act for animal welfare.”
You work hard to produce the most milk while keeping your input costs in check. Why not cool that milk as quickly as possible to obtain all the quality premiums available? Why let the energy meter rob you of your hard-earned profits?

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Call your local authorized Mueller dealer listed below for an analysis of your cooling costs and ways to save.
Dairy Farmers of Canada’s (DFC) executive director Richard Doyle is retiring from the organization this August. Doyle’s career spanned more than three decades. He helped manage several challenges to the supply management system and the dairy industry. He announced his retirement in early June.

“There will be significant changes to senior management of the organization in the coming 18 months,” says Doyle in a news release. “Leaving now will permit the new chief executive officer to build a new leadership team that should ensure DFC continues to excel in promoting dairy products, as well as defend the interests of dairy farmers in Canada.”

Doyle started at DFC in 1976 after he graduated with a bachelor of science degree from the University of Montreal. His first role was administering mastitis, milk recording and animal health programs.

Doyle became more involved in supply management soon after he started. He served as secretary of the national committee responsible for drafting the National Milk Marketing Plan in 1977. This federal-provincial agreement became the foundation of the Canadian milk supply management system.

“It was very exciting being a part of the negotiations with all the provinces,” says Doyle. “Nothing much has changed in 38 years.”

The 1980s was an exciting yet challenging time for the dairy industry, says Doyle. The industry was experiencing tremendous growth, he says. However, trade agreements targeting the agricultural sector were threatening the stability of Canada’s dairy industry.

“There were no experts in international trade at DFC, so I had to become one,” says Doyle. “This changed my professional life.”

Doyle became executive director in 1986. He continued to lobby for supply management. He organized the 1992 February rally on Parliament Hill in Ottawa. The rally was called at the annual DFC meeting in January. “We had five weeks to organize it,” says Doyle. The rally drew 40,000 farmers from many agriculture sectors across Canada. Farmers were pushing the then Progressive Conservative government to keep Article 11 in the General Agreement on Tariffs and Trade negotiations. Under Article 11 Canada can set quotas on dairy product imports.

“I was the master of ceremonies for the event,” says Doyle. “Facing 40,000 people was the equivalent of a rock concert. We changed the position of the government to keep Article 11 and fight for supply management.”

Lobbying
Lobbying is Doyle’s true passion. He was involved in campus politics in university and helped create a student organization.

“I asked my boss years later ‘why did you hire me?’, says Doyle. There were other people applying for the job who had more qualifications, he says. His boss replied, “You understand lobbying. It’s easy to teach agriculture to a lobbyist, than the other way around.”

“Richard has always been a hard-working individual who has shown passion and leadership in the development of our industry and the defense of our supply management system over the past four decades,” said DFC president Wally Smith in a news release.

Future outlook
Trade talks will continue to change the dairy industry but not threaten supply management, says Doyle.

The European Union’s increased access to the Canadian cheese market through the Comprehensive Economic and Trade Agreement is not the first time Canada has lost some market access.

“I don’t see an end to the quota system. There are no better alternatives,” he adds.

Growing dairy farms and the lack of access to quota is the biggest issue facing the Canadian system, he says.

“It’s been a privilege to work for dairy farmers. They have great values,” says Doyle. “I feel very privileged to have worked for an organization where I could have said what I thought. I’m not shy about expressing my views.”

Doyle has agreed to act as an advisor to the president for the remainder of the year. DFC is posting the chief executive officer position externally, but invited internal candidates to apply. They hope to have a replacement by August.
Dairy Farmers of Ontario (DFO) and the University of Guelph (U of G) share a long history of innovation and collaboration. Both were founded in the mid-1960s, and have collectively spearheaded numerous discoveries and technologies, improved production systems, and trained highly-qualified individuals to support the dairy industry. The Ontario Agricultural College (OAC) and Ontario Veterinary College (OVC), two of the U of G’s founding colleges, have more than 60 faculty who are focused on meeting the dairy industry’s current and future needs through their dedicated research and extension efforts. Areas of research emphasis include nutrition, genetics, welfare, health, environmental and production management, food safety, and product development. As part of this commitment, U of G researchers collaborate with DFO, individual dairy farmers, agri-business and government officials to move the industry forward in several strategic areas.

For example, animal welfare has always been an important aspect of dairy production and, more recently, is increasingly on consumers’ minds. Through the Campbell Centre for the Study of Animal Welfare, U of G researchers are supporting new dis-
coveries and practices related to dairy cow welfare, including the effects of housing and management considerations on behavioral patterns.

The U of G has also been at the forefront of dairy cattle genetic improvement for decades. The university housed the first computer that was used to compute dairy bull genetic rankings and originated the Multiple Across Country Evaluations and the Canadian Test Day Model. U of G researchers also first introduced genomic selection, which has been recognized as the most impactful technological advancement in dairy genetic improvement during the last half century.

Another important innovation was led by professor Brian McBride and then graduate student Tom Wright, department of animal and poultry science. They developed a dairy cow feed supplement containing DHA, an omega-3 fatty acid. DHA supports the normal development of the brain, eyes and nerves, primarily in young children. McBride and Wright, in partnership with nutritional sciences professor Bruce Holub, created DHA-enhanced milk, known as Neilson Dairy Oh! This innovative product has been extremely successful since its release in the early 2000s.

The U of G also supports dairy product safety. For example, Dr. Mansel Griffiths, department of food science, is the DFO industrial research chair in dairy microbiology. Griffiths, a food safety expert, is attempting to better understand how harmful pathogens exist and survive on farms, in packaging plants and dairy products. He is finding innovative ways to detect and eradicate these organisms through his research.

Another U of G priority is maintaining its unique role in educating the next generation of dairy industry leaders through certificate, diploma, undergraduate and graduate programs. For instance, experiential learning courses, such as Challenges and Opportunities in Animal Production, are unique to the U of G. Each year, more than 30 undergraduate students enrol in this course, led by Dr. John Walton, department of animal and poultry science, Mark Carson from EastGen, and Dr. Ken Leslie from the OVC. The students benefit from an enhanced perspective toward dairy operation management. The course’s success is due to the university’s longstanding partnerships with progressive dairy farmers from across the province who let the students visit their farms to get hands-on experience.

DFO, the U of G and the Ontario Ministry of Agriculture and Ministry of Rural Affairs, are collaborating on the new Livestock Research and Innovation Centre - Dairy Facility, currently being constructed at the Elora Research Station. This $25-million state-of-the-art dairy facility will address the research, demonstration, and training needs and priorities of Ontario’s dairy sector.

This multi-disciplinary facility will let faculty, researchers and students from the U of G and other institutions collaborate on dairy-related research activities. They will also develop new technological advances and discoveries to inspire the next generation of dairy farmers.

The U of G and DFO have worked closely together for more than 50 years. The university is committed to continuing to use its expertise, experience and influence to help support and advance Ontario’s dairy industry.

Robert Gordon is the Ontario Agricultural College dean, University of Guelph.

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**NOTICE:** To keep Ontario dairy producers and other industry sectors informed, Dairy Farmers of Ontario publishes changes to its regulations. Complete regulations are available on DFO’s website at www.milk.org.

1. **DFO Regulation 06/14** replaces DFO Regulation 5/14 and was made to adjust the price of Special Milk Classes as a result of a CDC announcement, effective June 1, 2014 as follows:

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Bill Emmott Chair
Graham Lloyd Secretary

**DAIRY FARMERS OF ONTARIO**
Russia’s milk production experiencing larger than expected yearly drop

*Milk output has dropped 1.16 million tons from last year*

With the collapse of the Soviet Union came the collapse of Russia’s dairy industry. United States Department of Agriculture’s (USDA) Moscow bureau warns Russia will not be able to stabilize the country’s milk production, noting the country’s production could fall to levels last seen in 1988. The official yearly estimate was originally 31.4 million tons of milk, but has since been revised to 30.5 million. That amount would be 1.16 million tons less than last year. Shortly before the end of communism in the region, milk output spiked to 54.5 million tons a year. The Moscow bureau allocated the drop to weaker finances in the country, as grain production is also expected to fall throughout the region, among other reasons. www.dairyherd.com ... Dairy hubs, which bring together hundreds of small farmers from several villages in Pakistan, coupled with training programs, has helped improve the country’s dairy sector. Many farmers are now adopting modern techniques, a much-needed development if the country wants to increase its dairy output and be on a par with international best practices. “Our awareness of modern dairy farming has increased and that’s the biggest advantage of this training,” Muhammad Anwar, a small farmer, told The Express Tribune during a training class at a corporate dairy farm in Kasur district. Anwar is one of the many small farmers who regularly take training classes in modern dairy farming. This helps the farmers increase yields, improve animal health and reduce calf mortality. Despite being one of the top milk producers with 50 million cows, Pakistan has a very low yield. In fact, the country is not able to meet local demand. A study of the country’s dairy sector shows small farmers contribute more than 90 per cent of the country’s milk output, and yet often lack knowledge of best feeding practices and animal health. The dairy hubs and training classes set up by the corporate sector are transforming the way dairy farming is done in Pakistan. www.tribune.com.pk ... Britain recently announced new food standards regulations for schools, intended to ensure the school diet is healthier for children. The new regulations, which take effect on Jan. 1 2015, state semi-skimmed milk should be available everyday to children everyday to help address concerns about low calcium levels in children. National Farmers Union chief dairy adviser, Rob Newbery, said the announcement was good news for Britain’s dairy farmers. “By providing fresh milk for children in schools, not only are we improving the nutritional profile of their meals, we’re also shaping consumption trends in the future. Dairy farmers will continue to produce a high-quality, nutritious product, so its great news the market for their milk is being developed in this positive way.” Dairy UK chief executive Judith Bryans said the habits children pick up at an early age can have a major effect on their health in later life. www.farmersguardian.com ... Understanding animals’ behaviour is about to get easier for Kenyan dairy producers. SNV Netherlands Development Organisation has partnered with CowSignals Training Company to help farmers, extension officers, academicians and dairy industry professionals learn to interpret the signals animals send out to communicate their level of comfort or health. Jan Hulsen, a veterinarian and certified master trainer with CowSignals, said the training program, which is funded by the Dutch Embassy, is aimed at helping improve the Kenyan dairy industry. “When we pay attention to the signals sent out by what animals are doing or not doing, we can figure out what’s going on and take the right action to ensure their comfort,” he added. Farmers and other dairy sector stakeholders are being trained on how to listen to dairy animals speak by following three steps: look, think, and act. Through keen observation, CowSignals teaches the trainees to look for success factors, bottlenecks and improvement points across farm operations to ensure cow welfare, health and productivity. www.standardmedia.co.ke ... Danone plans to close its plants in Italy, Germany and Hungary, eliminating 325 jobs because of a drop in fresh dairy sales in Europe. The planned closures at Casale Cremasco, Italy, Hagelow, Germany and Budapest, along with a gradual shift in production volumes to Belgium, Poland, Germany and France, should allow the fresh dairy products division to be more competitive in Europe, Paris-based Danone said in a statement. The project will be fully implemented by mid-2015. Danone shares fell 0.1 per cent to 54.88 euros ($79.83 Cdn), giving the Activia yogurt maker a market value of 35.3 billion euros ($48 billion Cdn). Fresh dairy volume fell in the first quarter to 3.5 million tons of milk, but has since been about 1.16 million tons in 2014. Russia’s milk production is estimated to drop by Russia’s milk production is experiencing a larger than expected yearly drop. Milk output has dropped 1.16 million tons from last year. With the collapse of the Soviet Union came the collapse of Russia’s dairy industry. 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An Oxford County cheesemaker just got a $100,000 boost to grow his cheesemaking business and expand his reach nationally. Shep Ysselstein, Gunn’s Hill Artisan Cheese owner, recently won the 2014 Business Development Bank of Canada (BDC) Young Entrepreneur Award contest. He was awarded the $100,000 grand prize on June 18. “I am very excited about winning the award. I’m humbled by the support I’ve received from the community and very thankful. I was in the cheese factory when I got the call and was obviously very happy,” says Shep.

His business has been growing exponentially since he, and his wife, Colleen Bator, first launched the cheese shop in early 2013. Shep’s cheeses are in such high demand he has outgrown his current annual production capacity of 30,000 kilograms and can no longer meet consumer requests for his products.

Shep will use the money he won to add a new 2,000 square-foot, climate-controlled curing and aging space to his existing building. This will double his production and workforce, and let him create a new line of premium aged cheeses. He originally built his facility a little smaller, about 1,600 square-feet, to save on start-up costs, but with room to expand if his business took off. That time has now come. The expanded curing room will let him store more cheeses longer to increase their flavour.

Shep wants to begin constructing the new facility this fall and complete it in the winter. He has to pay all the necessary fees upfront and will be reimbursed up to the $100,000.

“Colleen and I currently use about 30 per cent of the milk from my family’s dairy farm. Our sales have really grown in our second full year of production,” he says.

Shep credits his success to consumers’ growing desire for local cheese and winning the category champion and the Canadian Cheese Grand Prix in 2013 for his Gunn Hill’s Five Brothers cheese.

Shep’s cheese shop is provincially registered. He wants to get his federal licence by the end of this year so he can sell his products across the country. “For the most part, our facility meets all the criteria for federal registration. We just need to complete some paperwork,” he says.

Shep applied for the BDC Young Entrepreneur Award contest for two reasons: to promote his business and gain some publicity, and obtain funding to take his business to the next level.

Publicity has been one of the best parts about being in this contest, he says. “We received print, radio and
television coverage, which helped raise awareness about what we do and where we are located,” he adds.

Shep also used social media to promote his business and his finalist status in the contest. “We pushed our business and project mostly through Facebook. Each day, I did a different post with myself and someone or something telling people to vote for my project. For example, I took a picture with the cows for one post, then with my dad on another day, and so on. Doing this encouraged other people to share and post their own pages, broadening the network. Each of my posts garnered about 12,000 views,” he says.

Shep would like to be processing up to 50,000 litres a month within the next five years. His goal is to use the majority of the milk produced on the family’s farm—Friesvale Farm.

“I don’t want to grow beyond that point because I think it’s very important to our story and our image to only use milk from our cows,” he says.

Shep suggests dairy farmers who are considering getting started with on-farm processing first find a market for their product.

“When you’re farming, the majority of your effort is spent on producing milk, but when you get into processing, the majority of your effort will go into selling your product. Contests, such as the Canadian Cheese Grand Prix, are great tools for building awareness around your brand,” he says.

After completing university, Shep studied cheesemaking in the United States, British Columbia and Switzerland. It was during these ventures that he developed his passion and skill set for cheesemaking.

Gunn’s Hill Artisan Cheese produces three unique, handcrafted Swiss-style cheeses, made with the milk from the family farm. Shep looks forward to sharing his expertise and love of cheesemaking with others, and hopes to welcome even more visitors when his expansion is complete.

Dairy Farmers of Ontario (DFO) chair Bill Emmott is stepping down from Dairy Farmers of Canada’s (DFC) board of directors this month. Emmott announced his decision in May. DFC board terms run for one year starting in July and elections are held yearly at DFC’s annual general meeting.

Since Emmott is not seeking reelection to DFO’s board at the end of his current term, he decided to step down from DFC’s board in July.

DFO’s board elected Ralph Dietrich to replace Emmott on DFC’s board. Ian Harrop and Sid Atkinson are also DFO representatives on the DFC board.

Dairy Farmers of Ontario (DFO) will be a presenting partner at this year’s Farm and Food Care Ontario’s Breakfast on the Farm event. The second annual event will be held at Stanlee Farm in Avonmore, Ont. The event will be held on Aug. 2.

DFO will have a booth set up at the farm with Maple the cow, DFO’s life-size replica of a milking cow. DFO’s logo will appear on dairy barn information signs and volunteers’ t-shirts.

The event lets the agricultural and agri-food industries connect with non-farming Ontarians. Visitors will get a complimentary breakfast and can take a self-guided tour of the farm. Each area of the farm will have volunteers, farmers and agribusiness professionals available to answer questions.
In The Milk Producer’s May Ruminations article, the authors wrote about strategies you should follow when hiring a new employee to work on your farm. In this month’s legal column, you will learn about the steps you should follow when terminating an employee. Generally, you can terminate an employee at any time with cause and no notice or without cause and ample notice.

With cause
If an employee’s conduct or performance fundamentally affects his or her job, you can terminate the employment contract with just cause. You do not have to provide notice. However, you must know what entails a “just cause.” What may seem like a breach of company policy to you may not be proven in the courts. Theft, fraud and sexual harassment often constitute cause. However, most other forms of misconduct, including insubordination, poor performance and deceit, may not. You should always seek legal advice to avoid an employee making a wrongful termination claim.

Notice of termination
In non-unionized workplaces, such as your farm, you can fire an employee with notice at any time. However, you must adhere to your provincial Human Rights Code, Employment Standards Act (ESA), and health and safety legislations.

You will need to provide notice or a payment in lieu of notice and, in many jurisdictions, continued employment benefits for a determined time when terminating an employee without cause. For instance, the ESA states you must provide proper written notice, or termination pay instead of notice, at a minimum of one week per year of service to a maximum of up to eight weeks. However, courts will typically increase the amounts.

If you have a written contract with the employee, you need to adhere to the stipulations outlined in the agreement. It should state the minimum statute requirements.

It is a good idea to have new employees sign written agreements that outline how the employment can be terminated. This will ensure you are adhering to requirements in your provincial ESA. Even though you may have every right to terminate an employee without cause, you should always treat him or her fairly.

Managing your risk
When you are terminating an employee without cause, and providing minimum notice, you should still provide reasons for your decision. It is the right approach to take and can help mitigate any discrimination claims.

Your reasons may include business changes, internal fit issues, changes in organization, or any other reason that does not infringe on prohibited grounds in the Human Rights Code, ESA or health and safety legislations. Give the employee the minimum reason you are terminating him or her. Do not provide any reason for the employee to consider prohibited grounds.

While you strive to hire the best people, an employee may not always follow the rules or uphold performance expectations. There are times when it is necessary to terminate an employee when you’ve exhausted all other avenues to correct inappropriate behaviour or conduct. Knowing what to do in such situations is imperative. It is always recommended to seek legal advice and make sure you have an appropriate response and proper documentation.

Graham Lloyd is DFO’s general counsel and communications director.
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* University of Kentucky 2014
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Improving generations

On-farm breeding programs can increase milk production and add another revenue stream to your operation

This is the fourth article in a series of six about how to grow your farm profits when quota isn’t readily available.

In the May Farm Finance article, you learned how you can increase your profits by improving herd management on your farm. This month’s article continues on that theme by exploring the financial benefits of an on-farm breeding program.

Breeding and improvements in dairy genetics during the past 30 years have allowed dairy cows to produce more milk than cows in the past. Today, you can improve your cows’ performance and add another revenue stream through cattle and embryo sales by creating a breeding program on your farm.

Here are two examples of dairy producers and their farm’s breeding initiatives.

Good management
Dairy producers can take advantage of financial gains by selling livestock, says Hank Hazeleger. “But you need to be a good manager,” he says. Hazeleger runs Hanalee Holsteins in Embro, Ont. He milks 80 cows and breeds cows for sale and shows, and to improve quality.

The more cows you have to sell the better off you will be, says Hazeleger. You need good nutrition and herd health programs to produce more heifers and cows in calf because they aid fertility, he adds.

Monitoring your close-up cows and assisting with calving will ensure more calves survive and thrive, says Hazeleger. Breeding cows for longevity is key to getting extra lactations out of your herd. For every extra lactation you gain, you will have one more replacement heifer to sell, he says.

Toolbox
There are many tools available to help producers become successful breeders, says dairy farmer Don Johnston. He runs Cherry Crest Holsteins, with his wife Nancy, and his son Kevin, in Martintown, Ont. They milk 68 cows. Johnston’s family was always interested in livestock genetics. He and his wife have been breeding cows for more than 30 years.

Registration and classification services can help you get started with a breeding program, says Johnston. All breed associations offer these services. Registering your cows will identify good cows and cow families, prevent inbreeding and generate higher sale prices, says Hazeleger. A registered purebred cow will sell for a premium compared with a non-registered cow, he adds.

Classifications are a comprehensive
evaluation of a cow’s physical structure. Once a cow is classified you will know its good and bad traits, says Hazeleger. You can better choose bulls for corrective mating, when you know where to make improvements in a cow, says Hazeleger. Using the best bulls with cows that have lower traits will strengthen those traits over time, says Johnston.

Milk recording, dairy evaluation clinics and genomic testing are other tools that can help you with on-farm breeding programs.

Genomics

Genomics are an important part of the dairy breeding business, says Johnston. It involves genomic cows and bulls. Both will help you make sound decisions when breeding the next generation, he says.

Genomic testing your herd is a starting point, says Johnston. You can examine your cow’s genetic makeup and make better breeding choices, he adds. Mating high-genomic bulls with an average or lower performing cow may result in a calf with higher genomics, says Johnston. At Cherry Crest Holsteins, Johnston uses genomic and proven bulls. The genomic bulls he uses are from cows in demand.

Acquiring genomics from popular cow families requires a financial investment, says Hazeleger. Producers who are patient may find bargains, he adds. A high-demand calf from a popular cow family may cost more than $50,000. However, the number two calf from the same cow family may cost less than $10,000 and breed almost as well, says Hazeleger.

Researching top bulls and cow families, and studying pedigrees, takes time, but is necessary for any on-farm breeding program, says Hazeleger.

Taking cows to market

Marketing is a large part of selling cattle, says Johnston. It’s a social business since you have to promote your cattle or embryos, he says. “If you have a good cow, you have to tell the world about it,” says Johnston. “The key is person-to-person contact. Find out who the people are in the business and learn from them.”

Hazeleger uses his farm’s Facebook page to promote his cows. Attending cattle shows and advertising in breed magazines also helps. Showing cows can increase your notoriety, says Hazeleger. If you have embryos to sell, contact companies that buy embryos, he adds. “You have to work for a sale.”

Amy Reusch is the assistant editor for The Milk Producer.

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Street celebration

Dairy Farmers of Canada focuses on popular food trend for summer cheese magazine

The All You Need Is Cheese (AYNIC) summer magazine features recipes that highlight the popularity of gourmet food trucks found in a growing list of Canadian cities. The issue is entitled A Street Celebration. It features 13 simple and easy-to-recreate recipes made with cheeses containing 100 per cent Canadian milk. Coupons for the cheeses used in the recipes are included in the magazine.

The Professional Mac and Cheese Taster Wanted contest is featured on the magazine’s back cover. The contest lets readers apply online for a chance to be chosen as the fourth judge at this year’s Grate Canadian Cheese Cook-off. The winner, along with three food celebrities, will judge macaroni and cheese creations. Chefs Dave Bohati and Andrew Farrell, and foodies Kevin Durkee and Bal Arneson, will compete against each other with original macaroni and cheese recipes, using cheese made from one local cheesemaker. The competition will take place Aug. 27 in Toronto.

The magazine also includes profiles on The Globe and Mail’s food journalist and cheese blogger Sue Riedl, and cheese processor Grandpa’s Dairy Produce.

Recipes inspired by Canada’s food truck trend are featured in the summer issue of the All You Need Is Cheese magazine.
How milk gets from the farm to the table

DFC created the From Farm to Table program in 2009 to educate urban families about life on a dairy farm. Several From Farm to Table teams are touring Ontario and Maritime communities from May to October to show families how milk gets from the cow to their table. The teams welcomed about 320,000 people last year.

Part of the program’s success is due to the teams using an interactive life-size mechanical cow called Moonica. Team members invite children to milk Moonica and hand out stickers and colouring sheets, while parents are shown a short video on milk production and life on the farm.

Each From Farm to Table team has three members, including one person who grew up on a dairy farm. The teams visit a farm yearly to learn about the daily life of a dairy producer, caring for cows and how milk gets from the farm to the consumer. In June, they spent a day on Hoenhorst Farms in Oxford County, Ont.

Visit www.dairygoodness.ca/farmtotable/ to see where Moonica and the From Farm to Table teams will be next.

The interactive life-size mechanical cow called Moonica is used by From Farm to Table teams to show the public how cows are milked.

DFC dietician teams distribute milk and dairy products through the Big Bike campaign

Dairy Farmers of Canada (DFC) is the presenting sponsor for the Heart and Stroke Foundation’s Big Bike fundraising campaign for the second year. The campaign engages community groups, organizations and companies to raise money for the Heart and Stroke Foundation by riding a 29-seat tandem bike through their communities.

More than 600 Big Bike rides will take place across Canada from April to October. DFC’s team of dietitians will promote dairy products’ role in establishing healthy eating habits at some of the bike rides. The dietitians will offer participants milk after the bike rides and talk to them about dairy products’ benefits.

DFC’s dietitians will be at Big Bike rides in Calgary, Alta. from Aug. 28 to 29; Guelph, Ont. on Aug. 12; and Toronto, Ont. on Aug. 21. They will also be in Halifax, N.S. on Aug. 20.

Dairy Farmers of Canada’s dietician teams will distribute milk and talk about the benefits of dairy products at various Heart and Stroke Foundation’s Big Bike rides this summer.

DFC brings you the latest national marketing and nutrition news with this feature. Learn more about the programs and activities we carry out to get the most from your promotion dollar.

We welcome your comments, so write or fax us at: DFC, c/o Communications Co-ordinator, 1801 McGill College Ave., Ste. 700, Montreal, QC H3A 2N4. Fax: (514) 284-0449 or email: francois.guignard@dfc-plc.ca.
A well-lit barn can boost your bottom line by reducing energy costs and increasing your cows’ milk production.

Dairy farmer Rob Krijnen is installing light emitting diodes (LEDs) in his new calf barn. He’s expecting significant energy savings by switching to LEDs from the metal halide lights seen above.
Ontario dairy farmer Rob Krijnen is looking forward to his return on investment by way of reduced energy costs. He recently spent thousands of dollars to buy light emitting diodes (LEDs) for his new calf barn and existing dairy barn.

Krijnen, who farms in Thorndale, Ont. and milks 340 cows, is always looking for ways to improve his cows’ milk production and make his farm more efficient. He decided to install LEDs after doing some research on the potential energy savings. He also wanted to offset the increased energy costs to run his Daritech Bedding Master manure composter.

“LEDs are low maintenance, which is very appealing when considering my long-term needs on the farm,” says Krijnen.

He bought 150 LEDs to replace the 120 400-watt high bay metal halide lights currently used in the dairy barn, and 30 to install in his new calf barn. He estimates, after calculating his current lighting energy costs, he’ll save about $7,000 a year on his electricity bill. He hopes to have all the lights installed, which he’s doing himself, by the end of the year. Krijnen bought his lights from Dortmans Bros. Barn Equip. Inc., which carries Agrilight lighting products. Agrilight Inc. is the leading company for lighting fixtures for the livestock industry. It is based in the Netherlands and has a manufacturing facility in Beamsville, Ont.

“The upfront costs are much more than what I paid for the metal halide lights, but the long-term benefits will far outweigh the initial costs,” says Krijnen. He spent only $12,000 for the 60 metal halide lights, compared with the $70,000 he paid for the LEDs.

The true benefit of LEDs is their long life—up to 120,000 hours, says Andrew Hannon, lighting solution specialist for Agrilight Inc. LED systems can last well over 10 years before requiring maintenance or replacement.

“With traditional systems, after 20,000 to 30,000 hours you would have to replace lamps and ballasts. A metal halide bulb can cost more than $50 each,” says Hannon.

It wasn’t that long ago LED technology could not compete with a 400-watt metal halide output. A typical 400-watt high bay produces about 20,000 lumens. However, that number quickly decreases due to the shortened life of metal halide. If it’s operating at just 70 per cent output, it will only produce about 14,000 lumens, and yet still consume 456 watts of electricity. Lumen is a standard unit of measurement of the total amount of light produced by a light source, such as a bulb or tube.

**Research has shown milk production can be increased by regulating a dairy cow’s exposure to light.**

A good quality LED fixture will produce about 18,000 lumens while only consuming 213 watts of electricity, a 54 per cent reduction in operating costs. Also, LEDs consistently maintain 92 per cent or higher output running at 60,000 hours, and are rated to function up to 100,000 hours or more.

**Does lighting really matter?**

Proper lighting is important for managing your dairy herd, and improving operator efficiency, comfort and safety. Research has demonstrated having adequate light levels throughout the day results in higher milk production in cows, faster growth in heifers and improved signs of heat and fertility, says Jack Rodenburg, a renowned dairy specialist and owner of DairyLogix, a consulting agency.

Research has shown milk production can be increased by regulating a dairy cow’s exposure to light. Milking cows exposed to 16 to 18 hours of light followed by six to eight hours of darkness have consistently shown milk yield increases of eight to 10 per cent.

“Poor light quality can mean details such as vaginal...
discharges and small injuries get missed,” says Rodenburg. “Proper lighting in barns is beneficial to cows and farmers, and helps make the barn a safer and more pleasant environment to work in.”

Ideally, dry cows should experience three to four weeks of shorter days during the dry period. The lengthening of the daylight hours in the period around calving enhances the response to longer days during the next lactation, says Rodenburg.

For cows, proper light levels throughout the day help activate serotonin, which stimulates activity, growth, production and reproductive systems, says Chris Roelofsen, territory manager and agriculture lighting products manager for Canarm Ag Systems. If the light levels are not high enough during the day through natural sources, such as open curtains or windows, then you need to artificially create those levels, he says.

Your cows fare better when they are in a more natural environment with lights that closely mimic the sun. Other benefits include higher feed intake and reproductive performance. Cows exposed to long periods of light while lactating consume more feed and produce more milk than cows on a natural photoperiod (the interval in a 24-hour period when an animal is exposed to light), says Harold House, engineer, dairy and beef housing and equipment for the Ontario Ministry of Agriculture and Food.

**Purpose of having good lighting**

The primary purpose of light is to illuminate your work space. Light must be bright enough to see properly, uniform to prevent shadows, and a colour as close to natural sunlight as possible to distinguish colours of objects correctly, says House.

The lighting plan in your barn should take into consideration the light output of the fixtures, mounting height and distance between the fixtures in both directions, says Rodenburg.

“The most common error I see in barns is poor light distribution, so that the light intensity is double what is needed under the fixture and half what is needed halfway between the fixtures,” he says.

Lighting accounts for about 15 per cent of the energy use on a dairy farm. A variety of lighting options are available, and new and more efficient systems continue to evolve, says House. LEDs are gaining in popularity. The more energy efficient lamps also have the longest lifespan. A longer lamp life reduces the maintenance cost of a lighting system due to replacement costs.

Good lighting design should account for the space, walls, reflection value and position, such as height, angle, and location, says Herman Post, chief executive officer of iBarn Incorporated, a subsidiary of Post Farm Structures.

You want to ensure the light level is maintained throughout the fixture’s life, says Post. Finding the right fixture that suits your barn ceiling height is key, he says. If you use a fixture that is too direct or too powerful you will get high lumens directly under the fixture, a ‘hot spot’ and then ‘dark spots’ or minimal low lumens between fixtures, he adds.

Lux or foot candle is a standard unit of measurement of a light’s intensity. It is also referred to as illuminance or illumination. For example, one lux is equal to the illumination of a surface one foot away from a single candle. Colour emitted by a light source is measured in degrees of Kelvin (K).

A proper lighting system should provide an even light level throughout a building. For dairy cows, you should consider buying the whiter spectrum of light products, says Roelofsen. Kelvin levels between 5,000 and 6,000 better mimic the sun and help keep a cow’s serotonin levels activated. You should also consider the durability and efficiency of the products you are buying, he says.

Light levels should be uniform throughout the barn, or at least anywhere a cow can see light, says House. Putting lights over the feed alley only severely limits a cow’s exposure to extra lighting. The light level needed to obtain a proper photoperiod response is 15 to 20 foot candles or about 160 to 215 lux, he says.

**Quality, performance and energy efficacy**

All LED products have a warranty, and hour, lumen and wattage ratings. Look for words such as ‘suitable for damp locations’ or products designed specifically for agricultural buildings, says Roelofsen.
When comparing LEDs with conventional lighting, you can expect a 50 to 85 per cent savings in electricity costs. For example, a 400-watt metal halide fixture uses a ballast, which generates 54 watts on top of the energy output of the 400-watt bulb. Fluorescent tube fixtures also use a ballast, which can add another 10 watts of electricity demand.

Consider what each of the fixtures or bulbs is rated for in lumens per watt, says Roelofsen. Incandescent fixtures tend to be in the 10 to 20 lumens per watt range, fluorescents and sodium fixtures are in the 45 to 55 lumens per watt range, while LED products are about 80 to 110 lumens per watt. The higher the lumens per watt the lower your daily operating costs, he says.

**LEDs in dairy barns**

There are typically three types, your standard screw-in LED bulbs, strip LEDs and high bay LEDs. Each type has its place and is usually dictated by the ceiling height or existing wiring in the building. Regardless of the type of conventional lighting you currently have in your barn, there is an LED product that can be used in its place, says Roelofsen.

The most common LEDs used in dairy barns are the fluorescent replacement tubes. Heat is the biggest issue for LEDs. A fixture that no longer operates is often related to a driver failure caused by heat. Panel LEDs are highly recommended. They are becoming the standard because of their simplicity, reliability, and ability to get lumens where they are required, says Post.

Dust and dirt, and especially flies in dairy barns can also affect LED quality. In the spring and summer, flies getting inside fixtures are probably the biggest reason for lumen depreciation, says Hannon. LEDs must be sealed to prevent flies from getting into the fixture and getting it dirty or dying inside the lens.

“Fixtures should be washable. Look for an ingress protection rating on the fixture. The higher the rating, the less likely you will have flies or water getting in,” says Hannon.

---

**Lighting terminology basics:**

- **Lumens** — Lumens (lm) is the amount of light output from a lamp. A 40-watt (W) incandescent lightbulb produces about 13 lumens per watt or 13 lm/W;
- **Footcandle or Lux** — Brightness is a measure of the amount of light striking a surface. It is measured in units of footcandles. One footcandle is defined as one lumen of light falling on one square foot. The metric equivalent of a footcandle (fc) is a lux (lumen per square metre). One footcandle is equivalent to 10 lux. On a bright sunny day in mid-summer the light level would be about 8,000 foot candles or 80,000 Lux;
- **Average Rated Life** — The average time it takes for 50 per cent of a light bulb to fail;
- **Colour Rendering Index (CRI)** — The measurement of a light source's ability to render colours the same way sunlight does;
- **Efficiency** — The efficiency of a lamp is expressed as the amount of light provided per unit of input energy, or lumens per watt. The efficiency of most lamps increases with lamp size.

Source: Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs.

**Recommended light levels for dairy facilities**

<table>
<thead>
<tr>
<th>Work area or task</th>
<th>Minimum light level in footcandles (Lux)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parlour, pit and near udder</td>
<td>50 (500)</td>
</tr>
<tr>
<td>Parlour, stalls and return lanes</td>
<td>20 (200)</td>
</tr>
<tr>
<td>Parlour, holding area</td>
<td>10 (100)</td>
</tr>
<tr>
<td>Milk room, general</td>
<td>20 (200)</td>
</tr>
<tr>
<td>Milk room, washing</td>
<td>75-100 (750-1,000)</td>
</tr>
<tr>
<td>Freestall barn, feed alley</td>
<td>20 (200)</td>
</tr>
<tr>
<td>Freestall barn, stall area</td>
<td>10 (108)</td>
</tr>
</tbody>
</table>

Source: Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs.

**What to look for when buying LEDs:**

Look for LED products with a damp or wet location rating. This will ensure you have something that will stand up long term. Also, look for products that are designed to limit dust and dirt build-up. All LED products will have some sort of heat sink in them to help dissipate the heat they create. This is often in the form of fins or groves. If these fins or groves are internal and you can’t see them or they are enclosed by the rest of the fixture, then they will not collect dust and dirt. If the bulbs or fixtures are out in the open, they will get hot and could fail prematurely as dirt and dust builds up on them.

Information provided by Chris Roelofsen
Dairy barns can be programmed with lights that automatically turn on at specific times of the day, ramping up slowly to mimic the rising sun. They can also be installed with a dimming feature to help extend the fixture’s life and save electricity, as well as mimic sunset. If the barn is brightly lit by natural sunlight, the lights will automatically dim. If you are going to use dimmers make sure the LED product you are using is a dimmable LED.

LEDs don’t leak, drip or have any glass, says Don Oudekerk, chief executive officer of Ocean Clear LED solutions Inc. They are a solid nanocrystalline that glow in a plastic holder. Dust build-up prevents cooling and can lower the lifespan of LEDs, as can long exposure to high temperatures, he says.

What about costs?
The capital cost of investing in LEDs is about 1.5 times or even double the cost of traditional lights, says Post. However, if capital cost is the only factor, you have missed out greatly on the true value of LEDs, he says.

Once you factor in operational costs, as well as replacement and maintenance costs, then the ROI makes your decision easy, he adds. If you are making an adjustment to increase the foot candles to 15 to 20 and operate with long-day photoperiod you will likely see a positive improvement in your cows’ reproduction and production.

The operating and maintenance costs of LEDs are where they excel, says Roelofsen. For example, if you are using a 454-watt fixture and decide to change it for a 150-watt LED, you can save close to $300 per year based on 18 hours per day of use. The lifespan of LEDs is about five to 10 times longer than some conventional products. The time and money you will spend maintaining or replacing your lights is also greatly reduced, he adds.

Costs of LEDs are rapidly decreasing, says Oudekerk. “For commercial applications, the payback is about two years, on hydro savings alone. Most LEDs, if run correctly, can last 100,000 hours,” he says.

How have LEDs changed and evolved the last few years?
LED lighting is very directional, so if it’s not designed properly with the right fixture, the effect will not be consistent, minimizing its real value, says Post. Choosing the right supplier who has the right fixture and understanding to make the right design is important, he adds.

LED lumens and watts continue to increase every year and the costs of these products continue to decrease, says Roelofsen. This is due to better technology and increased production and demand. The costs and efficiencies are now at the point where the payback is quite quick, about one to three years, and in some cases as low as a year, he says.

By 2020, LEDs may be around 200 lumens per watt, and may account for up to 60 per cent of the market, says Post.

The main disadvantage to using LEDs is the initial cost to install them. Before investing in a new lighting system, take the time and effort to educate yourself on LEDs to ensure you are not disappointed, says Roelofsen.

Sharon Laidlaw is editor of The Milk Producer.
What's Red And White And Read All Over?

WE ARE!

Proudly owned and published by Canadian dairy farmers, *The Milk Producer* is our nation's best read dairy magazine. Every month, 7,000 Canadian dairy farm families in nine provinces turn to our magazine to learn about policies, technology and research that help them manage their farms. If you need to reach them, talk to us and we’ll show how we’re your best marketing investment for delivering this $3.7 billion market.

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Email: bill.dimmick@wsdmediaservices.com
Phone: 905-808-2760
When adjusting your herd’s total mixed ration (TMR) you should consider how changes to the diet might affect your cows’ digestion. A high-starch diet can increase your cows’ risk of developing acidosis. This nutritional disease causes rumen pH to drop, decreases feed intake and lowers milk production. University of Guelph researchers have discovered adding active yeast to cows’ feed can successfully prevent acidosis and improve rumen health.

Animal science professor Brian McBride and research associate Dr. Ousama AlZahal added four grams of baker’s yeast to the TMR of 16 cannu-lated cows at the Elora Dairy Research Centre. Cannulated cows have a port-hole-like device that allows access to a cow’s rumen. The researchers found the yeast alleviated acidosis symptoms and improved the health and function of the cows’ rumens.

“Rumen microbes can’t function properly and acidosis becomes an issue when cows are switched from roughage diets to high-starch diets,” says AlZahal.

Acidosis prevents volatile fatty acids (VFAs) from being absorbed in the rumen. VFAs are essential for milk production. The disease also lowers rumen pH. Cows have acidosis when their rumen pH is below 5.6. Normal rumen pH is 6.5 to 6.7, depending on diet.

Subacute acidosis causes a cow’s feed intake to decrease by 10 per cent and leads to reduced milk production. Cows may stop eating if the condition develops to acute acidosis.

The researchers found the added yeast consumed restored the pH of the cows’ rumens. This action produces more rumen microbes and improves digestion.

“The yeast improved pH levels, feed intake and milk production,” says McBride. “It also created a healthier environment within the rumen, allowing other important microbes to thrive.”

McBride and AlZahal found cows fed the added yeast recovered from acidosis within three weeks, compared with untreated cows.

“Yeast offers a safe, accessible and affordable method of treatment producers can easily incorporate into their cows’ feed,” says McBride.

The researchers are continuing to study how yeast can be used to treat and prevent acidosis.

Alaina Osborne is a student writer for the University of Guelph’s office of research. This research was supported by AB Vista and the Ontario Ministry of Agriculture and Food and Ministry of Rural Affairs.
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Focus on dairy products’ role

The Dairy Research Cluster 2 is helping drive innovation in human nutrition and health

Over the next five years, seven new major research projects in human nutrition and health will focus on dairy products’ role in supporting cardiovascular, metabolic and bone health, including the role of dairy in healthy weight and Type 2 diabetes prevention.

The new Dairy Research Cluster 2 was launched on Jan. 1, 2014. Research teams from across the country

Projects and research teams in human nutrition and health:

- **Integrated research program on dairy, dairy fat and cardiovascular health:** Dr. Benoit Lamarche, Université Laval, P. Couture, Université Laval, P. Jones, University of Manitoba, É. Lévy, University of Montreal;
- **The effect of milk products and novel milk products on satiety, food intake and metabolic control (glycemia) in early and late adulthood:** Dr. Harvey Anderson, University of Toronto, J. Hamilton, University of Toronto, D. Goff, University of Guelph, B. Luhovyy, Mount Saint Vincent University, S. Turgeon, Université Laval;
- **Dairy nutrition and diabetes risk in vulnerable populations: a novel biomarkers-based approach:** Dr. Anthony Hanley, University of Toronto, R. Bazinet, C. Lee, R. Vieth, University of Toronto, D. Cole, Sunnybrook Hospital, S. Harris, Western University, R. Retnakaran, B. Zinman, Mt. Sinai Hospital, J. Gittelsohn, John Hopkins School of Public Health, S. Bruce, University of Manitoba, L. Wagenknecht, Wake Forest University, C. Lorenzo, University of Texas, J. Norris, University of Colorado, A. Maple-Brown, Menzies School of Health Research;
- **Beneficial effects of milk and fermented dairy products on intestinal and adipose tissue inflammation, and obesity-linked cardiometabolic diseases:** Dr. Denis Roy, Université Laval, C. Asselin, University of Sherbrooke, M. Lessard, Dairy and Swine Research and Development Centre, S. Gauthier, A. Lagacé, Y. Pouliot, D. Roy, STELA, Université Laval, A. Marette, Centre de recherche de l’Institut universitaire de Cardiologie et de Pneumologie de Québec, Y. Boutin, Transbiotech;
- **Association between dietary intakes and cardiovascular risk of Canadians using the Canadian Health Measures Survey cycles 1+2:** Dr. Susan Whiting, University of Saskatchewan, H. Vatanparast, University of Saskatchewan;
- **Role of high dairy diet on bone health outcomes in pregnant women and their offspring in early life (Bone BHIP):** A randomized clinical study: Dr. Stephanie Atkinson, McMaster University, M. Mottola, H. Prapavessis, Western University;
- **FAMILY (FAmily MILk product two-year) dose-response study to enhance bone health:** Dr. Hope Weiler, McGill University, S. Bacon, Concordia University, S. Morin, E. Rahme, McGill University.

For short summaries of each project, visit www.DairyResearch.ca. For updates on nutrition research results, subscribe to NutriNews at http://www.dairynutrition.ca/newsletter.
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want to better understand the link between dairy products and nutrition, and health and wellness, to improve Canadians’ health and reduce health care costs. The projects could help increase Canadians’ milk and milk product consumption and enable Dairy Farmers of Canada (DFC) to promote new products and technologies.

DFC’s research investments will address important questions about dairy products’ role in preventing key diseases and conditions. Emerging scientific evidence shows milk products may help reduce the risk of cardiovascular diseases, obesity, Type 2 diabetes and osteoporosis and their associated health care costs. However, more research is needed to better understand how consuming milk products can help these conditions, including the role of higher-fat milk products, such as cheese, an important item in Canadians’ diet.

The research results will provide the dairy industry guidance on critical health policies affecting Canadians. Health Canada is currently finalizing a Guidance Document on Health Claims related to food and satiety. Milk products’ role on satiety and food intake is an emerging area of research and a current topic of interest for the dairy industry in relation to health claims. The research projects could help provide the dairy industry with the scientific substantiation it needs to follow these guidelines.

The cluster projects will provide information to support current research, such as bone health. The results of a recently commissioned systematic review by Dairy Farmers of Canada have identified important research gaps in milk and milk products’ role on bone health. Specifically, there is a need for well-designed studies, such as randomized controlled trials. These studies could provide DFC with the information it needs to support potential claims related to dairy products and bone health.

DFC is investing more than $5 million to advance its understanding of dairy fat’s role in cardiovascular and metabolic health, including its impact on reducing Type 2 diabetes risk.

The results will benefit the entire Canadian dairy industry. The research findings may provide scientific substantiation for health claims related to satiety and bone health. They may also help guide public health policy development and clinical practice guidelines in relation to dairy products, including higher-fat varieties.

The data from some of these projects may be useful with respect to the formulation of novel and functional foods.

Maria Kalergis is the national program manager of scientific affairs for Dairy Farmers of Canada.
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Whether you want to increase your herd size, improve genetic diversity, remedy gaps in heifer production, cover unexpected cow removals, or increase milk production, you need to be extra vigilant to reduce the risks of introducing new diseases to your existing herd when buying cows from other producers or sales barns.

Buying cattle to add to your herd comes with risks, including increased treatment costs for sick calves, high somatic cell counts (SCCs) in the herd, lower milk production, increased risk of milk and beef drug residues, as well as increased costs for disease prevention and labour, and a greater risk of unexpected cow and calf mortality.

Cows may not be infected when they leave their herd but can become infected by mixing with other cows at sales barns or during transport. Buying cattle to add to your herd comes with risks.

Cattle movement varies greatly across the dairy industry. Many dairy producers prefer to keep a closed herd to reduce disease risk. They will not introduce live cattle to their farms. They also breed their cows and heifers using artificial insemination (AI). Most consider embryo transfers synonymous with having a closed herd. However, these herds have certain disease issues. Although your cows’ health status generally remains stable in a closed herd, you can still tailor your health programs to efficiently address a cow’s specific disease profile.

Previous government-run disease programs, such as the one for Brucellosis, made adding new cows more difficult. When this program was in effect, you could only add cows from herds with a similar health status, such as Brucellosis-free listed herds. All cows had to be permanently identified using a metal ear tag. Tag numbers were tallied at the annual blood testing visit by an accredited veterinarian. Cow movements were moni-
tored under the federal program.

However, cattle sales barns were few and far between, and mature cattle sales for dairy purposes were infrequent. The Brucellosis program was discontinued in 1985 because the disease was no longer present in the Canadian cow population.

Cow movement has increased since this program ceased and new disease problems have appeared. Bovine Digital Dermatitis (BDD, Strawberry Foot) emerged in the early 1990s and is now in 70 per cent of tiestall barns and 97 per cent of freestall operations (Cramer, 2008). The Bovine Viral Diarrhea (BVD) virus caused outbreaks in more than 400 Ontario dairy herds in the mid-1990s (Carman et al, 1998), and continues to be a factor in poor reproductive performance. New infectious agents, most recently Anaplasma marginale and Salmonella dublin, have appeared due to movement of infected cows.

Introducing new cows to your herd is the biggest threat for new disease problems. In Ontario, information collected from the Johne's Risk Assessment and Management Plans (RAMPs) and herd testing showed farmers with test-positive herds were 2.3 times more likely to have bought cows from multiple herds than from negative herds. In a survey of dairy producers entering the Johne's program, 43 per cent of them reported the disease had entered their farm from buying cows. Only 21 per cent of the producers did not buy any cows in the last 20 years.

**Has disease introduction risk by cattle additions changed?**

As milk production increased, the impact of subclinical disease on dairy herd performance grew. In Ontario, diseases with subclinical infection—when a cow appears normal but is test positive—have been shown to decrease milk production. Johne's test-positive cows that look healthy make, on average, three kilograms less milk per day. Cows with SCCs above 200,000 cells per millilitre make less milk, even though they appear healthy and their milk appears normal.

Milk production losses increase as SCCs climb. Cows can be test positive for Neospora, BVD and the Bovine leucosis virus and still show no illness signs. Reducing cow infections, whether or not you notice sick cows, can help increase your herd’s milk production. Testing helps you identify under-performing cows.

Having easier access to a greater variety of tests from veterinary diagnostic laboratories and milk recording organizations, as well as reduced testing costs, have led to increased testing across the industry. For example, more than 100,000 Ontario cows have been tested for Johne’s using the milk ELISA. Producers are now more aware of a cow’s disease status, and will remove a test-positive cow from the herd.

While export requirements may require a certain disease or test status, there are no restrictions on sending cows to a local sale or herd. The risk of healthy-looking, test-positive cows appearing in the local marketplace has likely increased. Buying a cow without knowing its history and assuming it is healthy based on visual inspection poses a greater risk today than before the widespread use of tests for subclinical diseases.

Ontario dairy herds have increased in size. The rate of infection transmission within a dairy herd has also changed. Diseases that were once infrequent may have higher prevalence today. Disease amplification can occur rapidly. Studies show larger herds are more likely to have Johne’s and have a greater proportion of cows infected than smaller herds. Herd size affects transmission of Johne’s and other contagious diseases if the risk is not recognized and good management is not practised. Contagious mastitis is more prevalent when following poor milking hygiene in parlour-milked herds compared with tiestall herds where the milking order...
is more consistent.

Disease prevention in larger herds often requires a different management approach. The risk of buying infected cattle varies depending on the disease and the original herd size.

Using sexed semen may also affect population and infection rates. Disease spread rises and infection rates increase as more calves are born and a higher proportion of them are retained and kept closely together.

Cows may not be infected when they leave their herd but can become infected by mixing with other cows at sales barns or during transport. The recent episode of Porcine Epidemic Disease in swine shows the potential for viruses to spread via livestock in trucks. A study of the population dynamics at two Ontario livestock markets selling more than 1,000 dairy cows and calves per week showed farmers were 63 and 89 per cent of the sellers and 45 and 37 per cent of the buyers. This increases disease spread given the high degree of mixing that occurs and the number of cows in contact with each other.

Purchased cows, as well as cows that leave the herd, mingle with other cows and return to the home herd, pose risks. Cows and heifers traveling to fairs or shows, where they are housed, fed and milked with cattle from other farms, also pose a risk for disease introduction.

Reducing risks

The more you move or add cows, the higher the probability an infected cow will be introduced to your herd. Review current animal movement policies to ensure a suitable action plan is in place to mitigate risks. Recognizing and responding to this increased risk now is a critical motivator for change.

Regulatory approaches to cattle disease control, such as those run by governments in the past, are unlikely unless a disease in cattle poses a risk to human health or food security. Industry or producer-run approaches are necessary to protect the productivity, health and welfare of individual dairy herds.

The Economic Analysis of Dairy Breeds is a recent study that claims that Jerseys are the most economical and financially viable dairy breed.

What does it say?

**small size = big benefits**

The Jerseys success in the study stems from a smaller body size. It tells us that Jerseys are more efficient converting feed to milk. As they calve younger, they are making you money sooner. Jerseys are more fertile, need fewer inseminations, and have up to \( \frac{1}{3} \) less difficult births than the larger breeds. They require less veterinary attention and less labour to milk.

But can they fill the milk tank?

Of course they can, all while consuming 13% less in total feed expenses. See the full report here: [www.jerseycanada.com/pages/economic-analysis-of-dairy-breeds.html](http://www.jerseycanada.com/pages/economic-analysis-of-dairy-breeds.html)

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Tips for adding cows to your herd:

- If you need to add cattle to your herd, plan ahead. Impulse buying is not a good idea;
- Make sure your herd’s immunity is maximized by using effective vaccination programs for diseases, such as BVD and IBR;
- Buy directly from a herd rather than from sales barns;
- Know the health status of the herd you are buying from. What programs for disease control is the herd following? Does the farmer work closely with a herd vet? What diseases was the herd tested for and what were the results? Is the herd on DHID? Is the farmer using individual cow somatic cell counting? How often have you introduced new cattle to your herd?
- Don’t mix cattle during transport;
- Get livestock transporters to move cattle to and from your own herd using clean trucks;
- Test before buying. Tests for diseases, such as Johne’s, Leukosis, Neospora, Anaplasma marginale, Staphylococcus aureus, Mycoplasma bovis and Strep. agalactiae, using blood or milk samples are easy to have done. Your vet can help you request these and interpret the results;
- Buy only cattle you can isolate at home for at least four weeks before mixing with your own herd. Lactating cattle will be hard to isolate. Isolation means no direct physical contact, no nose-to-nose contact, no contact via manure, water or feed, and sufficient separation and barriers to prevent aerosol spread of viruses, such as IBR;
- Don’t buy pregnant cattle. While you may test the cow, you cannot test an unborn calf. Diseases, such as Johne’s, BVD, Anaplasmosis and Neospora, can all be transferred in utero, resulting in the birth of infected calves;
- Only obtain embryos produced using recognized disease-prevention practices. Few diseases are transmitted in the embryo. However, storage fluids can become contaminated with pathogens, such as BVD and Mycoplasma sp.;
- Bulls are no exception and may pose a greater risk for disease introduction because they may move from herd to herd, and come in contact with a high proportion of a herd.
Nutritional adjustments are a necessary part of a good herd management program. The right decisions at the right time can pay big dividends. For these ration changes to be effective, you need to first resolve any underlying herd challenges to ensure the changes made are not just a costly exercise.

It’s essential to make sure your herd management program is efficient before fine-tuning the ration. Even the best rations can be affected by management issues and other herd dynamics. Not all problems can be solved through the ration alone. What is the point of increasing ration density if water is not readily available? Why supply feed additives if there are issues with ration mixing?

The first step
Make sure your assessment is based on sound data. A herd monitoring system must be in place to accurately and consistently obtain key data, such as individual health incidents, milk and component production, and reproductive events. You can then monitor trends and changes. The system should track realistic numbers and offer more information than just total milk shipped.

Take the time to define the information you need to collect and how it will be entered into your management software. This can be tricky until you fully know all the procedures. For instance, your farm management team and consultants must be certain the 10 cases of ketosis or milk fever recorded are actually 10 cases, and not just one cow entered into the system 10 times. If necessary, revise herd protocols and train employees to ensure they are following policies and recording information accurately.

Monitor parameters
Once you’ve established proper monitoring, you and your management team can address the performance bottlenecks that are hampering your herd’s performance and focus on solutions. Use the data gained through accurate monitoring to assess herd performance.

Key metrics to evaluate include:
- Milk production parameters, such as production per cow per day, and milk component production and milk production trends;
- Reproduction parameters, such as 21-day pregnancy rate, conception rate and days to first insemination;
- Herd health incidents and total incidence for transition diseases, such as retained placenta, metritis, ketosis and milk fever.

Seek expert advice
Seek outside expertise when appropriate to offer a fresh perspective on the data you’ve gathered. Use the advice to make decisions and changes to your herd management program. These analyses should be done regularly to enable your herd to reach optimum performance.

Ration adjustments
If health issues are higher than average, or suddenly change, your nutritionist will need to focus on early lactation diets. If improved reproduction will provide you with the greatest economic return, then your nutrition specialist can make changes that will help you reach your goals.

Essi Evans, PhD, is a ruminant specialist and president of Essi Evans Technical Advisory Services Inc. in Bowmanville, Ont. Dr. Elliot Block is a research fellow for Arm & Hammer Animal Nutrition.
DFO QUILTING CONTEST

As part of its 50th anniversary celebrations, Dairy Farmers of Ontario is sponsoring a quilting contest that will provide an opportunity to showcase your creative skills.

Entries will be judged in three categories:

1. Wall hanging, featuring a dairy related theme (perimeter maximum 160” minimum 96”). Winning quilter will receive $250, second prize is $150 and third prize is $100.

2. Quilt Block of a stylized 50th Anniversary logo (12” by 12” with an unfinished edge and with the diameter of the logo itself being no more than 8”). The winning block will be awarded $200 with the second prize of $100 and third prize of $50.

3. Wearable Art, featuring a dairy related theme. A $100 prize will be awarded to the winning entry and $50 to the runner-up.

Please visit www.milk.org for complete rules and entry form or phone Dairy Farmers of Ontario office at 905-821-8970.

Belleville Cheese Warehouse SCHOLARSHIPS

Dairy Farmers of Ontario (DFO) has an annual scholarship program to commemorate the valuable role the Belleville Cheese Warehouse had in the dairy industry over many years.

The program offers up to four $3,000 scholarships to students entering a degree or diploma program in agriculture.

Eligibility criteria for these scholarships include:

- applicant must be a son or daughter of a DFO licensed dairy producer (sons or daughters of current board members are not eligible);
- applicant must be entering semester one of an agricultural degree program or a diploma program in agriculture; and
- applicant must have achieved an average of 75 per cent or greater in Grade 12 credits (best six to be averaged).

Selection criteria will be based on:
- academic achievement;
- future career plans;
- other entrance scholarship awards received or pending in 2014; and
- demonstrated leadership in secondary school and/or community activities.

Payment if selected:
The scholarships will be payable in two instalments, one in semester one and one following semester two, based on satisfactory achievement.

Application forms are available on DFO’s website www.milk.org in the Forms section under Farmers.

Complete application forms must be sent to Dairy Farmers of Ontario by August 29, 2014.

For more information, please contact Anna Garisto at 905-821-8970 or anna.garisto@milk.org.
Due to a reporting error, the butter stocks figure for the last 15 months was off by 1.4 million kilograms, says Kristin Benke, Dairy Farmers of Ontario economist.

This led to the Canadian Dairy Commission (CDC) underestimating the Canadian requirements for industrial milk by 0.68 per cent. As a result, the CDC revised the Canadian requirements calculations to 198.7 kg from 197.35 kg for the 12-month period ending April 2014, an increase of 4.6 per cent compared with the same period a year ago.

The CDC has also revised the June MSQ and total quota calculations for all provinces. The correction resulted in a 0.4 per cent increase in P5 provincial quota. The correction will have no immediate impact on the quota issued to producers, but will be taken into account when market conditions are reviewed by the P5 quota committee.

**Butterfat demand increases slightly**

Butterfat requirements were up 4.6 per cent in April, compared with the same period a year ago, says Benke. The demand increase is due to strong growth in butter and special classes, as well as a slight increase in demand for cream.

This was offset slightly by a decrease in butterfat demand in yogurt and specialty cheeses, as well as a slight decrease in fluid milk.

---

**Canadian requirements revised**

**P5 and Western Milk Pool blend prices**

The graph below shows the 12-month blend price for the P5 provinces and the Western Milk Pool (WMP).

*There is a two-month lag reporting these figures.

**Solids non-fat to butterfat (SNF-BF) ratio**

This graph shows Ontario’s SNF-BF ratio for the last 12 months in relation to Ontario’s target SNF-BF ratio of 2.2840.
The growth in requirements is expected to slow in the coming months, as demand for special classes decreases, and the butter market growth slows. This could be offset somewhat by strong competition at the retail level, says Benke.

Solids non-fat (SNF) demand increased by 0.1 per cent in April compared with the same period last year. This is due to increases in butter and special classes, but was offset by decreases for fluid milk and cheddar cheese, and SNF to make yogurt.

The SNF surplus will likely increase in the coming year due to butterfat demand increases and the decreases in SNF demand, says Benke.

Rising fluid cream sales help cushion lower fluid milk demand

AC Nielsen figures continue to show strong increases in butter sales. However, sales of other industrial products have slowed. Fluid milk sales continue to decrease, but have been offset by rising cream sales in the fluid market.

Butter sales were up 6.2 per cent for the 12-month period ending the beginning of May. Cheese sales were up 0.6 per cent for the same period. Although still positive, this is much smaller than the increases that have consistently taken place over the last few years, says Benke. Fluid milk sales were down 1.3 per cent, while fluid cream sales rose by 2.3 per cent.
Milk marketings: During the month of May total DFO milk marketings were 1.7 per cent lower than the corresponding month a year ago. Total DFO milk marketings for the 12-month period April 2013 to May 2014 was 2.4 per cent lower compared with the same period a year earlier. 3,934 producers sold milk to DFO in May compared with 4,004 a year earlier.

Ontario deductions
For May 2014

<table>
<thead>
<tr>
<th></th>
<th>Within quota</th>
<th>Over quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average gross</td>
<td>$83.115</td>
<td>$0.000</td>
</tr>
<tr>
<td>DFO Administration</td>
<td>$0.615</td>
<td>$0.615</td>
</tr>
<tr>
<td>CQM Administration</td>
<td>$0.020</td>
<td>$0.020</td>
</tr>
<tr>
<td>DFO Research</td>
<td>$0.050</td>
<td>$0.050</td>
</tr>
<tr>
<td>Canwest DHI</td>
<td>$0.060</td>
<td>$0.060</td>
</tr>
<tr>
<td>Transportation</td>
<td>$3.100</td>
<td>$3.100</td>
</tr>
<tr>
<td>Market Expansion</td>
<td>$1.500</td>
<td>$1.500</td>
</tr>
</tbody>
</table>

Total Deductions $5.345
Average total net $77.770

*These kg per hL equivalents are based on Ontario’s May 2014 average composition of 4.02 butterfat, 3.30 protein and 5.79 other solids, rounded to the nearest cent.

The actual transportation rate for May 2014 was $3.10 per hL.

Ontario monthly producer blend price

Net after DFO deductions. Per hL based on monthly provincial kg-per-hL composition.

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>June</td>
<td>July</td>
<td>August</td>
</tr>
<tr>
<td>$75</td>
<td>$80</td>
<td>$85</td>
</tr>
<tr>
<td>$90</td>
<td>$85</td>
<td>$80</td>
</tr>
</tbody>
</table>

P5 utilization by class*
For April 2014 (kg of butterfat/kg of solids non-fat)

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Homo, 2%, 1%, skim, chocolate milk flavoured milks, buttermilk</td>
</tr>
<tr>
<td>1b</td>
<td>Fluid creams</td>
</tr>
<tr>
<td>2a</td>
<td>Yogurt, yogurt beverages, Kefir and Lassi</td>
</tr>
<tr>
<td>2b</td>
<td>Ice cream, sour cream, frozen yogurt</td>
</tr>
<tr>
<td>3a</td>
<td>Fresh cheese, specialty cheese</td>
</tr>
<tr>
<td>3b</td>
<td>Cheddar cheese</td>
</tr>
<tr>
<td>3c</td>
<td>All types of Mozzarella except when declared in 3d</td>
</tr>
<tr>
<td>3d</td>
<td>Mozzarella used strictly on fresh pizzas by establishments registered with the CDC</td>
</tr>
<tr>
<td>4a</td>
<td>Butter and powders</td>
</tr>
<tr>
<td>4b</td>
<td>Condensed and evaporated milk for retail sale</td>
</tr>
<tr>
<td>4c</td>
<td>New products</td>
</tr>
<tr>
<td>4d</td>
<td>Inventory, animal feed</td>
</tr>
<tr>
<td>4m</td>
<td>Domestic surplus</td>
</tr>
<tr>
<td>5a</td>
<td>Cheese for further processing</td>
</tr>
<tr>
<td>5b</td>
<td>Non-cheese products for further processing</td>
</tr>
<tr>
<td>5c</td>
<td>Confectionery products</td>
</tr>
<tr>
<td>5d</td>
<td>Planned exports (Class 4m is grouped with 5d)</td>
</tr>
</tbody>
</table>
Canada’s Outdoor Farm Show 2014 dates

Correction

Canada’s Outdoor Farm Show (COFS) will take place Sept. 9 to 11, 2014 in Woodstock, Ont. New this year is the 2014 field demonstrations line-up. It includes a corn silage harvesting demo, cover crop tillage demo, skid steer Ride’n’Drive, corn stalk baling demo and silage bagging demo. These field demonstrations will run each day of the three-day event.

Back for a third year, attendees will be treated to a special kind of crop plots with the new addition of live equipment demonstrations. With help from the experts at Vermeer, you’ll be able to see the equipment cut, prepare and bale these new crops. Demonstrations will be held in eight acres of miscanthus and switchgrass.

For more information about the show or for exhibitor inquiries, visit www.outdoorfarmshow.com.

Note: Descriptions of products and services are for the information of our readers only. Publication of this information does not constitute endorsement by The Milk Producer.

Virtual farm tours at Expo

World Dairy Expo to take place Sept. 30 to Oct. 4 in Madison, Wisc.

Virtual Farms Tours at the World Dairy Expo give you the opportunity to experience a wide variety of farms and management styles, all from the comfort of a chair. The tours are presented by the farm owners and managers and include a half-hour pictorial overview of their farm, including general operation information and highlights of exceptional management practices. There will be time for questions and discussion after the tour.

The free tours will be presented daily, Tues., Sept. 30 through Sat., Oct. 4, in the Mendota 1 meeting room in the exhibition hall. The presentations will be available for viewing on World Dairy Expo’s website after the show. Full summaries and details can be viewed at www.worlddairyexpo.com.

More than 70,000 dairy producers and industry experts from 90 countries travel to Madison, Wis. annually. The five-day event showcases the finest in dairy genetics and the newest technologies available to the dairy industry. It includes 2,500 head of North American dairy cattle competing on the famed coloured shavings, more than 850 exhibiting companies in the trade show, expo seminars, and youth competitions.

You can also relax in the Coliseum and see the dairy cattle exhibitors compete for coveted awards or get caught up in the bidding at one of the breed sales to purchase top genetics. The theme this year is Designer Dairy.
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As dairy farmers, you deal with a lot of manure. It may seem like you spend too much time shoveling it, only to find more. Thanks to technological advances, you’ve found good use for your cows’ manure. Today, it can be converted into energy, cow bedding and fertilizer. New technology has found yet another use for manure: water.

Michigan State University scientists have created a system called the McLanahan Nutrient Separation System that extracts and cleans water from cow manure.

The separator is an add-on to an anaerobic digester, which is where the process begins. Manure is broken down and methane gas is collected to use as energy. The add-on system transfers volatile components of the manure into an air stream, and uses ultrafiltration and reverse osmosis to remove the remaining pollutants. What’s left is water that is clean enough for livestock to drink.

The scientists think the technology will be useful for livestock operations in dry regions since it can capture 50 gallons of water from 100 gallons of manure. According to the scientists, one U.S. milking cow produces 10,000 gallons of manure each year, 90 per cent of which is water. In Canada, milking cows produce the most manure of all livestock at 62 kilograms per day, equivalent to about 16 gallons, according to Statistics Canada.

Climate change, urban growth and increasing food production are putting pressure on the world’s water supply. In 2009, Statistics Canada reported a threat to water availability in several areas across southern Canada. It also stated about 85 per cent of Canadians live 300 kilometres from the Canada-U.S. border. However, 60 per cent of Canada’s freshwater flows north into the Arctic Ocean. By 2025, two thirds of the world’s population may face water shortages according to the World Wildlife Federation.

While some people might not like the idea of drinking water that originated from cows’ manure, the separator could be a crucial tool to keep your cows hydrated.

The separator may be commercially available at the end of 2014.
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**Higher 56-Day Non-Return Rate**

Based on MRR from CDN, December 2013.

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