DAIRY FARMERS OF CANADA

SUSTAINABLE MILK PRODUCTION

Research Highlights 2016 – 2017

Dairy Farmers of Canada, in partnership with Agriculture and Agri-Food Canada, and provincial partners, is supporting seven research projects in sustainable milk production through the Dairy Research Cluster and the Organic Science Cluster.

Expected Outcomes of Ongoing Research:

- Measure and benchmark management practices for water use and conservation, feeding, cropping and manure storage to improve sustainability across the whole dairy farm;
- Better balance feed rations to use less protein to benefit the cow, the farmer and the environment;
- Investigate and identify alternative ways to improve cow bedding and dairy cattle health in a sustainable way.

"We suspended a 15-gallon soap barrel from the ceiling and use the water from the plate cooler, as it turns on, it pumps through it and we save that water for our first rinse in the wash system. Basically, it saves 30 gallons a day and adds up to substantial savings in water. I think if we can all conserve a little water, every little bit counts and the more we save, the less we have to worry about the future."

Robin Flewwelling, Sha-Rob Jerseys, Earlton, Ontario
YouTube video: Dairy Water Use Efficiency - Tie Stall

Ongoing Projects:

1. Agri-environmental assessment of Canadian dairy farms: Towards eco-efficient management of forage crops and manure – Principal Investigators (PIs): Martin Chantigny, AAFC-Quebec and Doris Pellerin, Université Laval
2. Mitigation of enteric methane production from dairy cows and impact on manure emissions: Filling knowledge gaps – PIs: Chaouki Benchaar, AAFC-Sherbrooke and Rachel Gervais, Université Laval
3. Balancing dairy rations for protein: filling the gaps and updating formulation models to reduce protein intake sensibly – PIs: Hélène Lapierre, AAFC-Sherbrooke and John Cant, University of Guelph
4. Water footprint assessment and optimization for Canadian dairy farms – PIs: Andrew VanderZaag, AAFC-Ottawa and Robert Gordon, University of Guelph
5. Development of an online interactive self-assessment and improvement tool (footprinter) to assess and compare production/management systems – PI: Edouard Clément, Groupe AGECO
6. Increasing the energy of Canadian forages fed to high producing dairy cows – PI: Annie Claessens, AAFC-Québec
7. Development of sustainable alternative sources of bedding for dairy cows – PI: Renée Bergeron, University of Guelph

Research Success Story

New approach to feeding cows win-win for dairy farmers and the environment

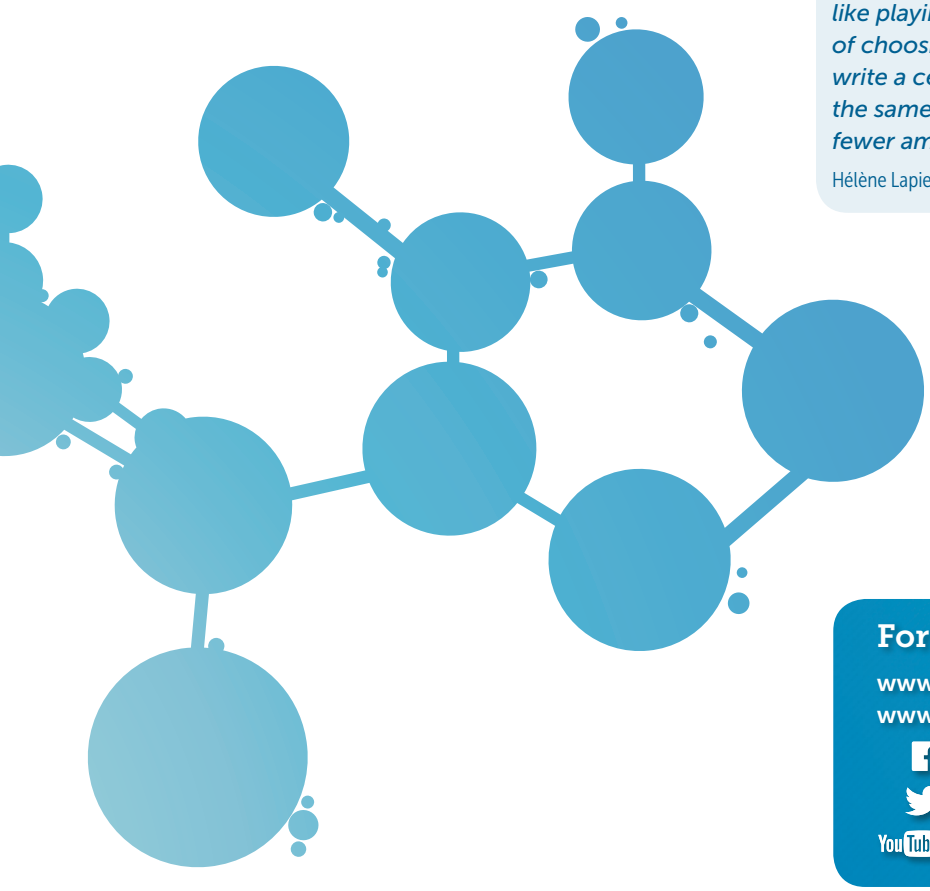
Drs. Hélène Lapierre and Daniel Ouellet, research scientists at Agriculture and Agri-Food Canada's Sherbrooke Research and Development Centre will help improve the formulation models used to develop feed rations for dairy cows. The new formulations, which will cut the protein content of the rations, will increase revenues for dairy farms while reducing GHGs released into the environment.

When the proportion of raw protein in cows' feed rations is reduced and balanced with an appropriate amount of essential amino acids, it allows the cows to more effectively use the protein they consume. The cows produce the same amount of milk and milk protein as before, but they consume less raw protein. Since protein is the most costly component of the feed, it is a win-win outcome for the dairy farm. By saving on feed costs for its cows, an average farm can increase its revenues by about $0.15 per cow per day, which amounts to almost $4,000 per year.

Reducing the proportion of protein in dairy cow rations from an average of 18.1% to a realistic 16.5% would enable Canada to cut its nitrogen emissions by 17,000 tonnes a year and save $77.5 million annually.

"Amino acids are like letters, and proteins are like very long words. To spell a word correctly, you need to have all the necessary letters. Balancing rations for amino acids is a little like playing Scrabble but asking for the letters you want instead of choosing them at random. You will need fewer letters to write a certain number of words if you can choose them. By the same token, the cow can make the same milk protein with fewer amino acids if the ration is well balanced."

Hélène Lapierre, research scientist, Agriculture and Agri-Food Canada



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