

Livestock Management Practices

to Mitigate Greenhouse Gases



Ontario 

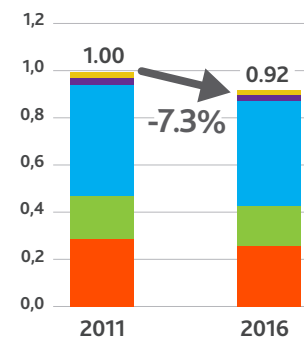
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The most significant source of greenhouse gas (GHG) emissions from dairy farms is in the form of enteric emissions originating from cows as they digest feed. As the feed is digested, methane (CH₄) is naturally produced by microbes found in the rumen.

Most methane escapes from the cow's mouth through eructation (belching) of rumen gases. The methane emitted represents a loss of energy from the diet that the cow could otherwise have used for milk production. For high producing cows, the loss of energy typically represents about 4-7% of the cows' total energy intake.

LOWERING THE CARBON FOOTPRINT OF CANADIAN MILK PRODUCTION

(kg CO₂ equivalent/kg of milk)



Dairy Farmers of Canada conducted two life cycle assessments to measure the impact of the adoption of best practices on lowering the carbon footprint of milk production and identify areas for continuous improvement. The adoption of best practices helped lower the carbon footprint of milk production by 7.3% in five years.

Source: Life cycle assessment of milk production update (2018)

INFORMED BY SCIENCE, FARMERS CAN CONTINUE TO ADOPT BEST PRACTICES FOR LIVESTOCK, MANURE AND CROP MANAGEMENT THAT BENEFIT THE ENVIRONMENT.

Reducing Methane

Many factors affect the amount of methane that a cow produces, including:

- forage quality;
- forage processing;
- amount of dry matter consumed;
- amount and type of carbohydrates in the diet;
- amount and type of fats in the diet; and,
- feed additives.



1 Milk Production

Higher production from cows reduces the intensity of greenhouse gas emissions on a kilogram of milk production basis.

Higher producing cows generate less methane per unit of milk than lower producing cows.

Studies show that the intensity of greenhouse gas emissions by cows varies widely and this variation indicates there is good potential to lower emissions on an industry-wide basis.

2 Forage Quality

Optimal forage quality and forage management at the point of harvest can reduce greenhouse gas emissions on a per kilogram of fat-corrected milk (FCM) basis.

Optimal forage quality improves dry matter intake compared to sub-optimal forages, and better forage quality increases nutrient digestibility. High quality forages can reduce methane production on a per-unit-feed basis.

High quality forage harvested at correct maturity:



Forage quality declines about 0.2% per day in protein and 0.4% per day in digestibility once alfalfa buds appear. Even short delays in cutting can result in significantly lower forage nutrient quality.

Additional Information

Exploring Dairy's Greenhouse Gas Footprint, Ontario Ministry of Agriculture, Food and Rural Affairs:

www.omafra.gov.on.ca/english/livestock/dairy/facts/greenhousegas.htm

3 Balanced Rations

Feeding some supplemental dietary fat, such as those containing unsaturated fatty acids present in some ingredients and by-products, can suppress methane production in the rumen.

It is important to work with your nutritionist when considering the use of supplemental fat fed to cows. While commonly used to increase the energy density of dairy cow rations to support milk production or milk fat content, excess fats or oils can reduce fibre digestion in the rumen and affect milk fat.

As with all ingredients, price will be a factor in choosing the type and amount of fat added to a ration. Generally, inclusion of supplemental fat at 2-4% of dry matter intake is possible without affecting digestion, milk production or composition, depending on the source.

Dairy cows consuming a balanced ration to optimize production:



Precision feeding is an approach designed to match nutrient supply with the animal's nutrient requirements. This can be accomplished by regularly monitoring feeds and reformulating diets to match the animal's nutritional requirements. The practice can lower costs by eliminating overfeeding of expensive protein and energy, which contribute to emissions from cows or from manure.