Water Use in the Canadian Dairy Industry

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The dairy industry invests in research to expand our understanding of water use, protecting water quality, and conserving water resources. This research supports the dairy industry's sustainability goals which include conserving resources and preserving land and water quality.

Key Points

On average, the farms in this study directly used 5.9 litres of water per kg of milk produced in the winter and 6.7 L/kg milk in the summer.

Many dairy farms have opportunities to conserve water, including: reusing plate cooler water, controlling leaks, and managing heat stress as cooler cows need less drinking water.

Researchers monitored water use on 9 commercial dairy farms for 2 years using flow meters.

They looked at daily, seasonal, and yearly water use patterns, as well as direct (e.g., drinking water for cows, cleaning) and indirect (e.g., electricity) water use.

9 commercial dairy farms for **2** years

Water waste in the barn ends up in the manure pit, which can cause extra costs for disposal when spreading manure.

Why is water use important?

Canada has ample fresh water, but in some regions there is considerable pressure on groundwater, particularly during dry years. While manufacturing, municipal needs, and crop production are major consumers of fresh water in Canada, livestock agriculture also uses a significant amount of water.

We all need to work together to protect our water resources!

There are two types of water use:

DIRECT:
Direct water use is all the water used in the barn, for example, water for cows to drink, cleaning, cooling milk, misting, etc.

INDIRECT:
Indirect water use is the water used to create farm inputs, such as electricity, feed concentrates, fertilizers, diesel, etc.

Indirect water use is significant to the overall dairy sector and is typically larger than direct water use in the barn. Therefore, reducing inputs and producing renewable energy has a benefit to water conservation.

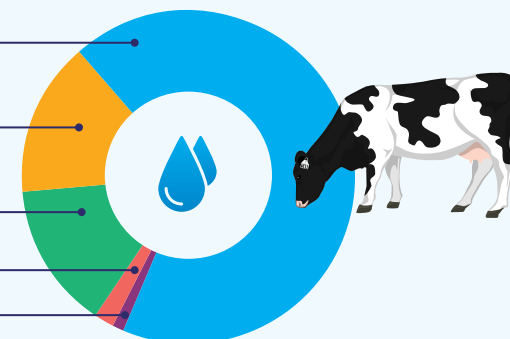Example of direct water use on one farm during one year of monitoring.

Drinking 68%
Plate cooler 15% (not reused)
Parlour wash 14%
Other wash 2%
Sprinklers 1%

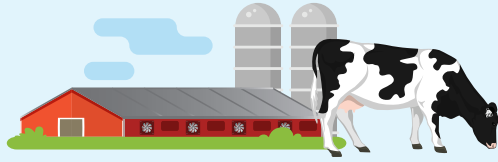## The farms in the study used more litres of water per kg of milk produced in the summer compared to the winter.

Breakdown of the direct water use for the farms:

WINTER

Drinking
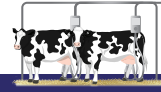**3.8 L/kg**

Other*
2.1 L/kg

Total
5.9 L/kg

SUMMER

Drinking
4.4 L/kg

Other*
2.3 L/kg

Total
6.7 L/kg

Other includes milking system cleaning, other cleaning, cooling water (plate cooler, sprinklers), leaks, etc.

The researchers also explored the differences in daily water use among automatic milking systems (AMS), parlour and tie-stall operations.

SYSTEM	WATER USE
Automatic milking systems*	~40 litres/day/cow*
Tie-stall milking	~22 litres/day/cow
Free-stall parlour milking	~26 litres/day/cow

Standard automatic milking systems use more water due to the number of wash cycles, teat prep, flushing, etc.

Dairy farms can protect water quality by:

- **Ensuring milkhouse washwater** is treated in an approved system
- **Minimizing runoff** around the farm
- **Collecting and managing** silage seepage
- **Managing manure and fertilizer resources** to ensure the applied nutrients are used as efficiently as possible to reduce the level of pollutants reaching the environment

How can you conserve water on your farm?

REUSE
All plate cooler water should be reused. Milking system and bulk-tank wash can be re-used for washing floors.

REDUCE
Check for leaks and overflowing bowls. Consider scraping floors before washing or alternatives to tip-troughs. Standardize cleaning procedures.

COWS
Cooler cows need less drinking water. Ventilation, shade, and sprinklers help.

MEASURE
Every farm is different, tracking your own water is the best way to manage it better.

MANURE
Some farms add water to manure to make it easier to pump. Consider high solids pumps, solid-separators, or using rainwater from the roof.