



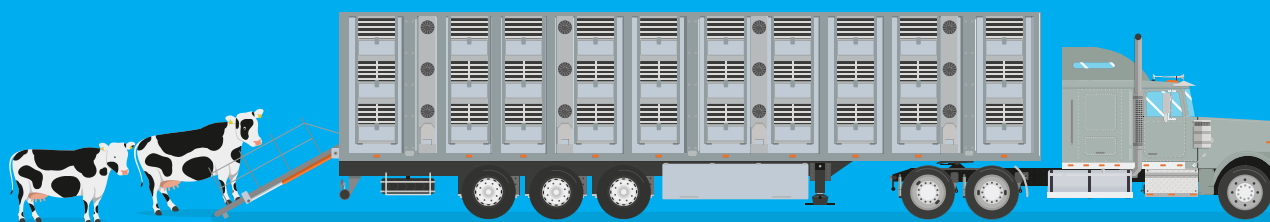
# Drying off cull dairy cattle

at high production and in emergency situations

## REQUIREMENTS FOR THE TRANSPORTATION OF CULL DAIRY CATTLE

In Canada, cows leaving the herd may be transported over long distances from farm to final destination or be held at auction for long periods of time. This was confirmed in a recent Canadian study, where it was demonstrated that cows could spend significant amounts of time away from the farm, prior to slaughter.<sup>1</sup> Current federal transport regulations require that lactating animals should not be transported unless they are milked at intervals sufficient to prevent udder engorgement.<sup>2</sup> Thus, many cows may need to be dried off prior to shipping, unless they are going directly to slaughter from the farm (within 12 hours or less).

Revised federal regulations (2020) set new standards for dairy cattle transport.



## IMPACT OF DRY-OFF ON COW WELFARE

Proper dry-off procedures for lactating dairy cows are important to maintain the Canadian dairy industry's high standards for animal welfare; this would include avoiding causing unnecessary pain from having an engorged udder or acute mastitis, hunger, and unfulfilled motivation to be milked.<sup>3,4</sup> This is true both for end-of-lactation cows which will remain in the herd for a subsequent lactation, and for cows which are destined to leave the herd earlier. The latter may be at, or near, peak production since they may be leaving due to reasons unrelated to milk production, including lameness, infertility, mastitis, or injury. Lower-producing cows (< 15 kg/d) show less engorgement than higher-producing cows (> 25 kg/d) after dry-off.<sup>5</sup> Thus, it is recommended to reduce milk production of higher-producing cows prior to drying off. This helps prevent painful udder engorgement and discomfort for the cow, as well as reduces the risk of clinical mastitis.<sup>6</sup>

When the expected departure date from the farm is known, decreasing milk production should be done by gradually reducing milking frequency and the quality of feed, over a period of 5 to 7 days.<sup>7,8</sup> If a target production level < 15 kg/d is unachievable over 7 days, aim for at least a 33% reduction from the animal's initial production level. Decreasing milking frequency to 1 x/d helps to lower milk production rapidly, without causing pain or discomfort.<sup>7</sup> Lowering the protein and energy content of the diet, without restricting feed access, helps lower milk production without causing hunger.<sup>9</sup> Never restrict water access<sup>9</sup>, as this can cause thirst and dehydration. Keeping the cow's environment clean and dry throughout the dry-off process will help minimize risk of infection.<sup>10</sup>

The Canadian dairy industry aims to maintain high standards of animal welfare at all times.



**TABLE 1: Example dry-off schedule**

Day 1	<b>AM milking only</b> Transition to a low-quality forage diet*.
Day 2	<b>AM milking only**</b>
Day 3	<b>PM milking only</b>
Day 4	<b>NO milking</b>
Day 5	<b>FINAL AM milking</b>

\* Move the cow from the lactating cow herd to a different pen or stall, if possible.  
\*\* AM milkings can be prolonged if the cow has high production (e.g. Prolong AM milkings for 4 days instead of 2, thus drying off at Day 7).

References: <sup>1</sup>Stojkov et al. 2020, J. Dairy Sci. 103:2636-2649; <sup>2</sup>Government of Canada 2019, [https://laws-lois.justice.gc.ca/eng/regulations/c.r.c.,\\_c.\\_296/page-17.html](https://laws-lois.justice.gc.ca/eng/regulations/c.r.c.,_c._296/page-17.html); <sup>3</sup>Valizadeh et al. 2008, Appl. Anim. Beh. Sci. 109:190-200; <sup>4</sup>Zobel et al. 2013, J. Dairy Sci. 96:5064-5071; <sup>5</sup>Silanikove et al 2013, J. Dairy Sci. 96:6400-6411; <sup>6</sup>Dingwell et al. 2004, Prev. Vet. Med. 63:75-89; <sup>7</sup>Tucker et al. 2009, J. Dairy Sci. 92:3194-3203; <sup>8</sup>Gott et al. 2016, J. Dairy Sci. 99:4005-4017; <sup>9</sup>Code of Practice for the Care and Handling of Dairy Cattle 2009, <https://www.nfacc.ca/pdfs/codes/Dairy Code of Practice.pdf>; <sup>10</sup>Zobel et al. 2015, J. Dairy Sci. 98:8263-8277.

# RECOMMENDED BEST PRACTICES

## ✓ DO

Start gradually drying off a cow **at least 5 to 7 days before expected transportation.**  
This can be done by:



- Milking the cow once a day, potentially with an intermittent schedule (see example in Table 1).
- Removing the cow from her current lactating cow diet, and instead offer free-choice access to a lower energy and lower protein diet, such as a lower quality forage, while ALWAYS maintaining access to plenty of clean drinking water.
- Consulting your nutritionist if you need help to determine which diet to switch cows onto.
- Moving the cow from the lactating cow herd to a different pen or stall, if possible.
- Keeping cows in a clean environment to maintain clean teat ends.

Target a production level **of less than 15 kg/d** before stopping milking.



Milk the animal immediately before shipping **if the cow is still producing milk on the day of transport.**



Consult your **veterinarian:**



- If any health issues may prevent the cow from being transported.
- For the best way to proceed with severely sick or injured cows, to determine if emergency dry-off and transportation is appropriate.
- For the best way to drain a quarter, if necessary, without further damaging the udder or teat for cows who have teat damage that prevents milking.

## ✗ DO NOT

**Restrict feed access.**



**Restrict water access.**



**Give antibiotics or medications that have a meat and/or milk withdrawal period if going straight to slaughter.**



**Load an animal that is unfit for transport.**



# DRY-OFF PROCEDURES BEFORE TRANSPORT

COW IS LEAVING THE HERD

**KNOWN** DEPARTURE DATE:

**TIME TO PREPARE**

**COW PRODUCES:**

**MORE** than 15 kg/d



**MILK THE COW 1X/D FOR 5-7 DAYS**  
(see Table 1).



**REMOVE FROM LACTATION DIET**  
and feed ad libitum low-quality forage diet.



**DO NOT STOP MILKING UNTIL TARGET MILK PRODUCTION OF <15 KG/D IS ACHIEVED**  
(or a minimum reduction of 33% from initial production level).



**IF NOT DRIED OFF BEFORE TRANSPORT,**  
then milk the cow one final time immediately before shipping.

**LESS** than 15 kg/d



**PREFERABLY, PRIOR TO TRANSPORT, DRY OFF THE COW OVER 5-7 DAYS,**  
following the same procedure as cows producing more than 15 kg/d.



**IF SHE IS NOT DRIED OFF BEFORE TRANSPORT,**  
milk the cow one final time immediately before shipping.

**UNKNOWN** DEPARTURE DATE:

**NO TIME TO PREPARE (OR EMERGENCY)**

**COW PRODUCES:**

**MORE** than 15 kg/d



**IF THE COW IS GOING STRAIGHT TO THE ABATTOIR**  
(<12 hours away), milk immediately before shipping.



**IF THE COW IS GOING FURTHER AWAY, CONSULT YOUR VETERINARIAN FOR THE BEST WAY TO MANAGE THE COW BEFORE SHIPPING.**  
This may push back the departure date if her condition does not meet federal transportation requirements.

**LESS** than 15 kg/d



**MILK THE COW IMMEDIATELY BEFORE TRANSPORT,**  
if she meets all federal transportation requirements.

