

Selective Dry Cow Therapy Project Factsheet:

Preparing cows to dry-off successfully – Focus on reducing milk production

This factsheet was created by Ann Godkin and the Selective Dry Cow Therapy project advisory committee which includes producer Norm McNaughton, along with Guy Seguin and Ashley Wannamaker from Dairy Farmers of Ontario, Robyn Elgie from the Ontario Association of Bovine Practitioners, Richard Cantin from Lactanet, David Kelton from the Ontario Veterinary College and Cynthia Miltenburg from the Ontario Ministry of Agriculture, Food and Rural Affairs.

Why reduce milk production? Lower milk production at dry-off time prevents new udder infections by:

- Reducing leaking during the first 24 to 48 hours post dry-off;
- Keeping bacteria from entering the teat;
- Allowing the formation of an effective keratin plug at the teat end;
- Improving local teat and udder immune defenses, and
- Signaling for physiological changes to begin that improve the cow's systemic immune defenses.

Why is reducing milk production more of concern now than in the past? Cows reach the end of lactation with higher levels of milk production due to improvements in:

- Genetic selection, ration balancing, feeds, feed quality, cow comfort, and
- Persistency of lactation.

Research shows that in 2001 Ontario cows finished lactation with daily milk production averaging about 15 kgs on their last test day; in 2019 that number is about 21 kgs.

What's the best level to target for milk production at dry-off?

No one optimal target has been set for milk production at dry-off time to reduce future mastitis. Recent research has shown that:

- With cows producing more than **18 kgs** of milk the day before dry-off had a three times greater odds of leaking milk, compared to cows with milk levels of 13 to 18 kgs. Reducing milk leakage reduced the risk of a new mastitis infection appearing in the next lactation by 21%.
- With cows producing more than **21 kgs** of milk, 26% experienced mastitis compared to only 16% with less than 13 kgs at dry-off.

Research shows that cows with less than 18 to 20 kgs of milk by dry-off day will be at a lower risk of both leaking and mastitis in the subsequent lactation.

Estimates are that about **25% of cows leak milk in the first 48 hours** after dry-off. The rate of leaking varies between farms. Other impactful factors, such as teat end quality, are also important. Most producers in Ontario do not currently track the occurrence of leaking after dry-off, although it appears this is an important issue to quantify and study.

How can milk production be reduced?

Milk production can be reduced by:

1. **Reducing milking frequency starting 5 to 7 days before the day of dry-off:** from twice to once daily reduces milk production. In a 32 cow herd milked with an AMS, cows milked twice daily produced an average of 22.1 kg/day (+/- 9.2 kg) the day before dry-off while those milked once per day starting 7 days before dry-off produced 18.9 kg/day (+/- 6.3 kg) , a reduction of about 15 % in daily milk production. Other research has shown that reducing the frequency of milking from three to two times per day was not successful, but confirmed that a reduction in milking from twice to once per day was.
2. **Changing the diet:** to a lower energy level will reduce milk production; however the type and amount of change to be recommended needs further research. Cows that received a ration with a 45% reduction in energy (70% of the regular bunk PMR with 30% added barley straw; 3kg of concentrate reduced to 1 kg in the AMS) dropped from 18.8 to 15.2 of milk/day.

Abrupt diet changes may cause adverse metabolic effects and can produce behaviours in cows that show they are hungry. The degree of diet change requires further study as there is a need to balance cow welfare with the benefits from a reduction in milk production.

Although reducing water intake can reduce milk production, this is not a recommended strategy.

Utilization of these strategies varies from farm to farm, often dependant on facilities, and within farms, according to cow milk production level.

Summary:

Reducing milk production at dry-off reduces the risk of new mastitis infections. Mastitis infections that begin at dry-off can persist into the next lactation and increase the mastitis cases in fresh cows. To prepare cows for dry-off, a change in milking frequency to once daily milking and a reduction in the energy content of the diet starting 5 to 7 days before dry-off date is recommended.

Monitoring milk production levels at dry-off, the incidence of leaking in the first 48 hours after dry-off and the incidence of mastitis infections in the next lactation will help producers and veterinarians fine-tune dry-off and dry cow management protocols.

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