

Reducing Antimicrobial Use in Youngstock



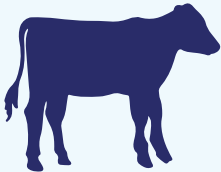
Why do we need to reduce use?



Resistance is an issue that affects us all: Antimicrobial resistance (AMR) is a growing concern for both animal and human health. Resistance occurs when bacteria adapt to the drugs designed to kill them, making infections harder to treat.



As users of antimicrobials, we have a role to play in the problem AND the solution: Antimicrobial use (AMU) plays a significant role in the problem of resistance. In the dairy industry, most antimicrobials are used to manage udder health, but calves also receive a meaningful proportion of the antimicrobials.



Our youngstock are most vulnerable: Research shows that calves can have a higher level of resistant and multidrug-resistant bacteria compared to older cattle, highlighting the importance of managing AMU in calves.

The current picture of use and resistance in youngstock

A recent study on Canadian dairy farms evaluated the level of AMU and AMR in dairy calves.

Records were collected from each farm on antimicrobial treatments in the first 60 days of life. Both electronic herd management system and paper records were collected.

The study also collected fecal samples from calves on Canadian dairy farms and tested them for resistant bacteria.

Scan to watch a short video about the study!



What Did the Study Find?

Nearly **30%**

of calves received antimicrobials in their first 60 days. There was a large variation in AMU between farms, which demonstrates that **you can succeed with lower use.**



37%

of *E. coli* isolates were resistant to several types of antibiotics (also known as multiple drug resistant *E. coli*). The highest level of resistance was to tetracycline (**41%**).



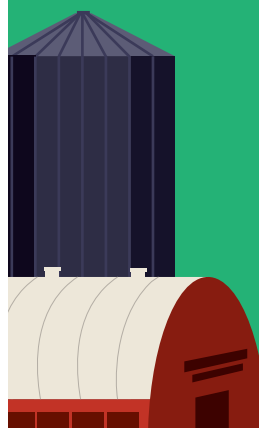
High levels of AMU = Higher risk of multi-drug resistance.

Farms with higher levels of antimicrobial treatments were found to be **3 times more likely** to have multiple drug resistant *E. coli* in calf feces compared to farms with lower antimicrobial use.



There is opportunity to improve disease and treatment recording.

Farms with usable AMU records are better positioned to take action to reduce AMU.



The importance of reducing respiratory illness and diarrhea in calves

By reducing the amount of illness in calves through effective prevention and mitigation strategies, we reduce the need for AMU. However, reducing AMU is not the only reason why we should focus on reducing respiratory illness and diarrhea, as these illnesses have other short and long-term impacts:

Higher mortality rates

Lower conception rate and delayed time to first calving

Slower growth and reduced feed efficiency

Reduced milk yield in first lactation



What Can Farms Do to Reduce Illness?

Colostrum & Transition Milk

Colostrum management is critical for calf health. Poor colostrum management can lead to a condition called failed transfer of passive immunity, where calves don't absorb enough protective immunoglobulins from colostrum. This makes calves susceptible to respiratory disease and diarrhea. To prevent this, ensure calves receive:

- ✓ **4 L of colostrum** at their first feeding (ideally within 4 hours after birth).
- ✓ A second feeding of colostrum **within 12 hours**.
- ✓ High-quality colostrum (**> 22% on the Brix scale**).
- ✓ **Clean colostrum** (bacterial contamination can impact absorption of immunoglobulins).

Feeding transition milk (milkings 2 to 6 after calving) or supplementing milk with small volumes of colostrum or colostrum replacer for the first 7 to 10 days of life can:

- ✓ **Enhance** intestinal development.
- ✓ **Reduce** diarrhea and mortality.
- ✓ **Improve** growth in some cases.



Milk Nutrition

- ✓ Providing a high plane of milk nutrition (**~ 20% of body weight**) helps reduce respiratory disease by providing calves with nutrients to support the immune system.
- ✓ **Can improve recovery from diarrhea**; however, avoid feeding waste milk, as it has been shown to increase the risk of diarrhea.

Environment

- ✓ In winter, **use long-straw bedding** deep enough for calves to nest (legs are not visible) to keep them warm and reduce disease risk.
- ✓ **Ensure bedding is dry**, as wet bedding increases the risk of respiratory disease.
- ✓ Provide **at least 3.25m² per calf (35 ft²)** in group housing, with group sizes of 10 or less.
- ✓ **Ensure fresh air reaches calves** without causing a draft.
- ✓ **Good drainage is key** to lowering ammonia levels and maintaining air quality.

Record Keeping

- ✓ **A simple yet effective way** to monitor antimicrobial treatments more accurately.
- ✓ **Helps identify patterns** in disease and treatments, making it easier to target areas where antimicrobials are used.
- ✓ May help to identify what diseases are being **most commonly treated** with antimicrobials.

Funding partners



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