

Managing Dry Cows For Improved Udder Health - Dr. Rob Walsh

The dry period represents the highest risk period for new intramammary infections over the course of a single lactation. To be more specific the risk for new intramammary infections is highest the week before and after drying off and again the 2 weeks before and after calving. These infections can become cases of clinical mastitis during the dry period but more frequently become cases of mastitis after calving. Here are some statistics:

- 52% of clinical coliform mastitis, through the first 100 days of lactation, stemmed from a dry cow infection. (Bradley, 2000)
- 61% of all new gram-negative IMI occurred while dry. (Todhunter, 1991)
- 51% of all new environmental streptococci IMI occurred while dry. (Todhunter, 1995)
- 56% of clinical mastitis cases due to *Streptococcus uberis* originated in the dry period.
- 33% of clinical mastitis cases due to *Streptococcus dysgalactiae* originated in the dry period. (Bradley, 2001)

The udder health goal for the dry period is to have as few infected quarters as possible at calving. On an average farm striving to have less than 10% of cows calving with a cell count above 200,000 is an achievable goal.

As with every disease the risks for infection come down to the cows ability to fight off infection, the presence of the ‘bug’ that we are concerned with and the impact of the environment on both the cow and the ‘bug’. In very simple terms we need to give the cow ample space, lots of good feed, and keep them clean and dry to prevent mastitis.

At dry off we expect the cow to stop milk production and form a keratin plug in the teat canal within 5 days to prevent bacteria from gaining access to the udder. At the same time we are adding stress by changing social groups, and her ration. Improving the cow’s ability to fight off infection can focus on teat end health and cleanliness. Cows with rough teat ends will be at higher risk of infection than cows with healthy teat ends. When possible, continuing to teat dip even after dry off will help reduce the number of bacteria at the teat end.

The cow’s ability to form a keratin plug in the teat canal research done at the University of Guelph indicated that cows milking higher than 20 kg/day were less likely to form a plug within one week of dry off than cows milking less. Abrupt cessation of milking has been the standard for drying off cows for years. Recent data would suggest that doing something to reduce milk production before the day of dry off will pay dividends. There are several options to reduce milk production:

1. Change location – as cows adjust to a new social group milk production will decrease
2. Change feed – removing energy can reduce milk production as much as 10%
3. Change milking frequency - there is no standard recommendation on the schedule for intermittent milking. Once per day has dropped daily production on average 10% within 7 days.
4. Vaccination with a Core antigen mastitis vaccine – there is often a milk decrease in cows that are vaccinated. This option is theoretical, however the use of a mastitis vaccine before cows are most at risk of infection is a good management practice especially if you see mastitis in your fresh cows.
5. A combination of the above – in several studies a combination of the above has reduced milk production up to 50% within 7 days.

Internal or external teat sealants have also consistently reduced new infections over the dry period. These products are designed to mimic the cows natural keratin plug. Internal teat sealants have been around for approximately 5 years in Canada. In that time research projects have consistently been shown to decrease the risk of infection. When infection status at dry off and linear score at dry off were taken into account, overall quarters treated with an internal teat sealant were:

30% less likely to develop a new IMI through the dry period;
33% less likely to have a case of clinical mastitis; and
83% less likely to have clinical mastitis due to environmental streptococci when compared to quarters treated with a dry cow intramammary antibiotic alone.

Treating every quarter of every cow with dry cow intramammary antibiotic remains the most cost effective protocol that can be implemented on any farm. Selective dry cow therapy has been discussed and implemented in various countries with inconsistent results.

The risk of new intramammary infections immediately around calving is increased for several reasons, as milk accumulates the enzymes and cells that protect the udder are diluted by colostrum. In addition the concentration of dry cow antibiotic will be below the MIC (minimum inhibitory concentration). This means that the dry cow antibiotic is not actively killing bacteria.

Cows with dry periods longer than 70 days are more likely to have a new infection over the dry period relative to cows that are dry shorter than 60 days. Further cows dry less than 70 days also get pregnant faster, are less likely to have ketosis, retained placenta and displaced abomasums. Dry cow length is a management decision that is made at the time of insemination and again at the time of dry off.

On the environment side providing ample space in a clean well bedded environment is the key. There is no perfect bedding material for dry cows. Regardless of bedding material management is key to minimize the risk of increased bacterial counts in the bedding. Do not assume pasture is this clean and dry environment. Managing pasture to limit access to wet spots, shade trees and other areas where cattle will congregate to prevent cows from lying in mud.

Start planning for udder health before drying off by managing for the right length of dry period, reduce milk production as much as possible before dry off, treat quarters and seal them and finally keep cows in a clean dry environment.