

# Mastitis Management – A Challenging Future

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We are at a tipping point for change in the New Zealand dairy industry. On the back of a British Government commissioned review on antimicrobial resistance in humans (May 2016), there will be mounting global pressure on the agricultural sector to reduce the use of antibiotics for the prevention of disease.

*“If we fail to act, we are looking at an almost unthinkable scenario where antibiotics no longer work and we are cast back into the dark ages of medicine” – David Cameron, UK Prime Minister.*

The dairy sector will not be immune to this change as pressure mounts for farmers to only use antibiotics when necessary. This will include restrictions on the use of dry cow antibiotics in uninfected (low somatic cell count) cows.

*‘By 2050, 10 million lives and a cumulative 100 trillion USD of economic output are at risk due to the rise of drug resistant infections’- Jim O’Neill (chairman Antimicrobial Resistance Review 2016).*

Our attitudes toward antibiotics will be challenged and we will have to focus on prevention of diseases, such as mastitis, rather than treatment. We will also need to change our targets to include rational use of antibiotics. New Zealand dairy farms should be aiming to achieve:

- An average season Bulk Milk Somatic Cell Count (BMSCC) under 100,000 cells/ml.
- Less than 10% of the herd treated for mastitis.
- Less than 10 - 20% of cows treated with antibiotic dry cow therapy.

There is now both an economic and moral cost if these targets are not achieved.

The ultimate aim of mastitis control is to limit the number of bacteria on the cow’s teats and to reduce the risk of bacteria entering the udder through the teat canal. Although this sounds simple, mastitis is the end result of complex interactions between the cow, bacteria, environment, milking machine and the farmer. The relative importance of these factors varies from farm to farm so it is important that your plan is specific to your farm.

## Mastitis management

There are two key elements to reducing mastitis:

### 1. Eliminate existing infections

Infected cows are the source of infection for other cows during lactation.

- a. Cull long term infected cows.

We need to make more use of historic records to identify and cull chronically infected cows. Too often clinical mastitis records are incomplete and / or poor use is made of historic herd test information so it is only the recent high SCC cows that are culled. Also mandatory culls (e.g. a high empty rate) often take precedence over culling for mastitis.

b. Drying off strategies.

We should all aim to achieve consistently low SCC throughout the season to reduce the need for antibiotic dry cow therapy at dry-off. Cows with an ISCC of <150,000 cells/ml and heifers with a ISCC of < 120,000 cells/ml can be regarded as uninfected. Options for these cows include no treatment, or treatment with internal teat sealants.

Best practice teat disinfection prior to treatment is often poorly done prior to administration of both milking cow and dry cow intra-mammary tubes.

## 2. Prevent new infections

There are 5 key areas of importance during milking that will reduce the mastitis risk:

a. Identify and treat mastitis cows early.

Routine stripping of the herd (e.g. a quarter at every milking) will identify infected cows quicker to minimise the spread of infection.

b. Reduce spread of bacteria and improve teat skin condition by effective teat-spraying.

Bacteria from milking an infected cow will contaminate the cluster for the next five cows that are milked by that cluster. Teat spray trials in New Zealand and overseas all show a 50% reduction in the new infection rate if teat spray is mixed and applied correctly.

Healthy teat skin has a fatty acid layer that slows bacterial growth reducing the mastitis risk. If teat skin is dry the fatty acid layer is lost and bacteria will multiply in the cracked skin. It is critical to achieve good teat condition in your herd all year round. This requires addition of sufficient emollient and ensuring full coverage of all teat surfaces at every milking all season. This should be a key focus and constantly assessed throughout the season.

Pre-milking teat spraying the colostrum cows will assist to improve milk let down, improve teat condition and reduce bacteria on the teats.

c. Minimise teat end damage

Teat end damage can result from the physical action of the milking machine. Teats are most susceptible to damage in the first few months of lactation (spring) when the teats are first exposed to the physical action of the milking process. Teats may be examined and categorised as normal, rough or very rough / cracked as shown in the following pictures.



*Normal*



*Rough*



*Very rough/cracked*

Within a herd there are many shapes and sizes of teats and some are more prone to damage than others. Damaged teat ends harbour bacteria that cause mastitis and increase the risk of bacteria entering the teat canal.

d. Minimise impacts

Excessive airflow into the cluster during milking may result in a backflow of air that may push any droplets of milk and bacteria into the quarters. There are two common causes of impacts:

- i. Cup slip. Poor cluster alignment, unsuitable liners or heavy clusters are the most common causes of cup slip.
- ii. Poor cluster removal technique. When the cups are removed manually it is important to bend the long milk tube fully and allow sufficient time for the vacuum to drop off so the cups fall away. Pulling cups off or using the claw button does not allow the vacuum to drop off so impacts occur which increase the mastitis risk.

e. Ensure even milk-out

Recent research shows that slight under-milking does not increase the risk of mastitis or affect production. However, uneven milk-out is a mastitis risk and is most commonly a result of poor cluster alignment.

**The best approach you can take is to assess your cows**

To achieve good results and reduce the need for antibiotics farmers are encouraged to assess 50 cows for teat skin condition and teat end damage once a month through the season as an early indicator of problems. The targets are:

- Teat skin condition - target > 95% supple.
- Teat end damage - target > 90% normal.

If any of these risk factors are lower than the target then farmers should look for rectify possible causes or seek expert advice to avoid mastitis.

***The solution to mastitis is not in a tube or a bottle  
- the solution is proactive management***