

Preventing Mastitis

April 10

A Farm Advice Sheet from **SowtheSeed**

Mastitis remains the single most costly disease on most dairy farms. A case of clinical mastitis costs \$250-\$300 and the total cost to the industry in a year is estimated to be \$250million.

While there are a wide range of factors that impact on mastitis this article will summarise some of the key principles of mastitis control and discuss applications of some newer research. Individual farmers with mastitis problems in their herd should work with their veterinarians to understand their specific causes and then apply control procedures pertinent to their situation.

Key areas of mastitis control

Controlling mastitis at drying off

Controlling mastitis by preparing for next season while the herd is dry

Controlling mastitis at calving

Controlling mastitis in early lactation

Mastitis control at drying off

Seasonal pasture dairying is an all in - all out production system. Drying off gives a unique once-a-year opportunity to attack mastitis and set the herd up well for the next season.

- Culling for mastitis at drying off
Culling is an important principle of mastitis control. It removes cows from the herd that cannot be cured and are acting as a source of infection for the rest of the herd. Use your herd records and consider culling cows that have:
 - Recurrent mastitis (three or more clinical cases in their lactation).
 - Continued high somatic cell count (SCC) after dry cow therapy (DCT) at last drying off.
 - Hard lumps in their udders.
 - Aged cows with high SCC, as they are hard to cure.

Unfortunately culling for mastitis is not always done as well as it should be. Excessive non voluntary culling due to such things as poor calf rates, lameness and excessive wastage of under grown heifers, can limit the ability to cull for mastitis. To maintain herd numbers, mastitis cows may be retained and cause problems again in the next lactation. These situations are compounded when cows are being retained to expand a herd and when insufficient numbers of replacement heifers are being reared. In herds such as this mastitis can become a big problem that requires several farm systems to be improved before gains in mastitis control can be made.

- Consider treatment and protection for all cows at drying off
The present SAMM Plan has various recommendations and guidelines for the selective use of DCT and the non treatment of cows assumed to have a low SCC at drying off. There is now sufficient new research and economic analysis to justify the consideration that all cows should be provided with some protection at drying off whether that be whole herd antibiotic DCT, teat seal of low SCC cows or combination therapy of DCT plus teat seal.
 - Treating existing infections with antibiotic Dry Cow Therapy.
The aims of antibiotic DCT are to
 - Cure existing infections
 - Prevent new infections during the dry period
 - Reduce clinical mastitis and SCC at calving
 - Reduce clinical mastitis and SCC in early lactation
 NZ research repeatedly shows that treating cows with DCT reduces the level of clinical mastitis and cow SCC by about half at the next calving.

- Treating low SCC cows at drying off with teat seal alone.

Research at Ruakura in 1998 by Woolford and colleagues showed that the treatment of uninfected low SCC cows at drying off with antibiotic, teat seal or a combination, controlled new infections equally and significantly better than the untreated glands.

Therefore, if a herd has SCC results from a herd test done near drying off it is possible to provide the low SCC cows with protection from teat seal alone that is equal to DCT, or combination DCT and teat seal.

Treating with teat seal alone has the benefit of conserving the use of antibiotic to infected cows only, which could be important in the future. However having an accurate individual cow SCC at drying off is often difficult and the treatment process requires strict hygiene and skilled stockmanship.

- Treating existing infections with antibiotic DCT plus teat seal.

The research above showed that treating with Cevravin alone was as effective as treating with a combination of DCT and teat seal. However overseas research has shown further reductions in mastitis from combination therapy, especially when dry periods exceeded 10 weeks which is the norm in NZ. Recent NZ trials have shown that combination therapy can decrease the level of clinical mastitis at calving to half that occurring after DCT alone. Combination therapy is an option that could have a place in herds with long dry periods and where cows are wintered on crops, regularly stood off on loafing pads or stood off on races in bad weather.

- Consult your vet.

The appropriate choice of dry cow protection for each herd should be established in consultation with your vet, having regard to the disease patterns on your farm, your budget and desired outcomes.

Controlling Mastitis by Preparing for next season while the herd is dry

Preparation for mastitis control in the coming season should include:

- Repairs to dairy yards for ease of stock handling
- Testing and repair of milking machines
- Replacement of rubber ware
- Reviewing mastitis control procedures with your vet
- Training staff in the farms mastitis control procedures
- Planning staff levels to ensure there will be sufficient skilled staff to manage the colostrum mob cows at calving and in early lactation.

Controlling mastitis in heifers at calving by using teat seal

Trials involving treating heifers with teat seal 4- 6 weeks before the start of calving have resulted in a 50% drop in clinical mastitis at calving and a 75% reduction in SCC. A very conservative cost benefit analysis showed that where the incidence of heifer mastitis was over 15% the exercise was profitable. This indicates that in most herds, pre calving teat sealing of heifers is a practice well worth considering.

The process requires a good degree of planning and care. Heifers need to be broken in by running them through the shed daily for a week before treatment and they should have their tails trimmed. The application of the teat seal requires top quiet stockmanship, top hygiene and plenty of time. However, the results represent the best progress in the control of heifer mastitis in 20 years. Many vet practices are providing teat sealing teams. Those wishing to teat seal heifers should book with their vets by May 1st for an appropriate treatment date.

A bonus of teat sealing heifers is that they are shed trained before they calve, their first milking is easier and more heifers let down completely allowing them to be fully milked out, which in itself is a benefit to mastitis control.

Controlling Mastitis at Calving

Management techniques for controlling mastitis at calving

- Removing calves from their mothers within 12 hours of calving plus milking the cows promptly and completely has been shown to reduce the incidence of mastitis at calving. While twice a day collection of newly calved cows can be difficult to achieve, the principle of prompt removal and milking out should be built into spring management plans.
- Heifers with udder oedema are especially prone to mastitis, but so far a reliable way of preventing oedema without causing other problems has eluded researchers.
- Calving cows on clean dry pasture is an ideal goal that is difficult to achieve in most NZ springs. However the practice of grazing springer mobs from the far end of the calving paddock towards the gate, and letting the newly calve cows onto the clean pasture after calving has merit.
- Transition diets, magnesium supplementation and dietary cation anion balance (DCAB) should be worked out to prevent metabolic disease so that cows can be milked out completely at their first milking. [See Farm Advice Sheet July 09 – The Transition Cow – www.intelact.co.nz]

Controlling mastitis in the colostrum mob

The training, skills assessment and supervision of staff handling the colostrum mob should also be a priority, as those dealing with these animals need the expertise to make sound judgment decisions. The demands for careful colostrum mob management clash with other peak demands for labour at calving time. One of the key winter planning priorities of management should be to ensure there is enough skilled staff available at the dairy to manage the colostrum mob to best practice standards.

70% of clinical mastitis occurs in the first week after a cow calves. 50% of clinical mastitis occurs while cows are still in the colostrum mob. Therefore the provision of enough experienced staff to manage the colostrum mob expertly should be a high priority in all dairies.

Best practice colostrum mob management includes:

- Prompt removal of calves from their dams after calving.
- Hand stripping of all quarters of all cows before they are first milked, actively looking for clinical mastitis. (Train staff to hand strip and recognize clinical mastitis).
- Maintaining strict hygiene and treating clinical cases aggressively.
- Complete milking out of heifers and cows at their first milking. Milk twice a day.
- Teat spraying all the area of all the teats after each milking.
- Hand stripping every quarter of every cow at each milking in the colostrum mob.
- Ensuring all quarters are checked carefully before cows are put in the main mob.
- Consider RMT testing all cows before they leave the colostrum mob.
- Cows showing a positive RMT test but no sign of clinical mastitis can be left in the colostrum mob another 24 hours and rechecked. If quarters are still strongly RMT positive in cows after the sixth milking they are likely to be infected. Allow 10 milkings for heifers before deciding to treat in the absence of clinical signs.

Controlling Mastitis in early lactation

Early detection of clinical cases of mastitis is the key to mastitis control during lactation. Every cow that is mistakenly milked with clinical mastitis contaminates the cup liner with bacteria that are then spread to the next 7-10 cows that are milked with that cup.

Milking systems and training that encourages staff to be always looking for quarters with clinical mastitis are essential.

- Detection of mastitis quarters at cups on.

Usually in dairying in NZ there is no pre-stripping of quarters before cups are applied, therefore it is important that milking staff are trained to feel the quarter with their hands as they apply the cups and to recognize hot and swollen quarters. Having identified a suspect

quarter, staff need to be trained to stop milking the cow, remove the cups, hand strip the quarter to confirm it's status and then manage the cow as a mastitis case. They also need to be trained to recognize that the cups applied to an infected quarter are themselves infected as will be their hands. Procedures for cleaning cups and hands need to be in place.

○ Detecting mastitis quarters at cups off.

Staff removing cups should be trained to watch for swollen quarters and quarters that are not milked out properly. On suspicion of a swollen quarter, the quarter should immediately be hand stripped to confirm if clinical mastitis is present. If no mastitis is observed the cow should be marked and rechecked at the next milking.

○ Use of the filter sock to monitor clinical mastitis.

On smaller farms where only one herd is milked at each milking it is easy to adopt a policy of checking the filter after each milking to see if any cows with clinical mastitis have been milked. If mastitis clots are found the herd should be hand stripped at the next milking before the cups are put on, to find the clinical case before there is any more spread of infection.

On larger farms where several mobs are milked through the same dairy, it is important that the ability to check for clinical mastitis in the milk filters after each mob is milked, is retained. This involves money being invested in plumbing and taps at the milk filters so that each filter can be shut off, opened and checked without milking having to be stopped.

Where this system is in place management retains the ability to check for cows milked with clinical mastitis mob by mob and therefore respond, mob by mob. Where this feature is absent a major component of mastitis monitoring cannot be done and management can only check the filters after the whole herd is milked and have no ability to determine which mob is involved.

Money spent on milk filter plumbing is a great way of monitoring and motivating milking staff to detect clinical mastitis during milking and should be a standard feature of modern dairy installations. It also provides a check mechanism after hand stripping mobs looking for clinical mastitis.

If your dairy is not set up to allow all milk filters to be checked for clinical mastitis after each mob is milked, install the facilities now and use them to reap the benefits of improved mastitis control.

Control of Mastitis through Teat Spraying

Many studies have shown that new infections from contagious mastitis bacteria are reduced by between 50% and 90% by effective post milking teat spraying or dipping. Note that teat spraying reduces the number of new infections; teat spraying does not decrease the number of existing infections - that is achieved through treatment and culling.

Treat spray should cover the entire teat surface in contact with the liner - at least the bottom half of the teat. Staff should be trained to teat spray with an in-around - out motion. A flick of teat spray that only forms a droplet on the teat end may not be effective.

When correctly applied, teat spray usage should be 20 ml per cow per milking.

Pre milking dipping of teat solution followed by drying with paper towels reduced infections from Strep. uberis by about 50% in USA trials. Pre milking teat spraying in NZ conditions may be beneficial in cases of high Strep. uberis challenge. However no controlled trials have been done in NZ and pre milking teat spraying is not a substitute for post milking teat spraying.

Controlling mastitis in a problem herd

Control in a problem herd can be demanding on time and finances but will ultimately be rewarding. The science and practices required are all well understood. The main requirement is for the farm owners to decide that mastitis control is a farm priority, and then set about getting the correct advice on a mastitis control plan tailored to their circumstances.

Milking machines need to be thoroughly tested and maintained to recommendations. Almost every dairy practice has at least one veterinarian with post graduate training in diagnosis and control of mastitis in problem herds. They can help with milking time investigations, bacteriology, action plans and staff training.

If you have any further questions please contact your Intelact consultant or call Intelact Head Office on 0800 735 588.