

IMPROVING LINER HYGIENE REDUCES RISK OF MASTITIS INFECTIONS

Roger Blowey explains how improving liner hygiene should be a priority in the battle against mastitis.

With the better milk prices, it makes sense for farmers to sell as many litres as they can. Minimising the saleable litres lost due to mastitis is within the control of all dairy farmers and should be a priority.

New mastitis infections are most likely to come from the environment or a previously infected cow. While farmers are familiar with the importance of the spread of infection from cow to cow in the development of new infections, few seem to be aware of the valuable role that liner hygiene can have in reducing the risk of infection.

It is widely accepted that the majority of new infections enter the teat during the milking process when the teat end muscles are relaxed. Consequently the liner is a major source of potential infection. While ensuring cows are clean before milking and that operator hands are clean can help reduce possible infections, the liner will still spread infection for three reasons.

The first reason is that the liners are in contact with the teat for a long time, far longer than the milkers hand or cloth, so increasing the opportunity for infection to spread. The second is that when the liner is removed from the previous cow it is not unusual for it to contain some milk soiling, and finally the liner is in contact with the whole teat.

Despite these reasons, liners are not cleaned between cows in the majority of milking systems. There are many excuses why liners are not regularly cleaned, most revolving around time and inconvenience but new automated systems not only allow

fast convenient cleaning but also deliver a significant reduction in bacterial contamination.

One such system is the Clusterflush from Vaccar which cleans the unit after every cow is milked, being triggered by the ACR. When the unit is released the vacuum is automatically reapplied to sweep out any residual milk. Plain or sanitised water is then gravity fed through the long milk tube to the cluster. This is followed by a blast of compressed air to force out the water. The whole process is then repeated, taking around 30 seconds from the time the cluster is removed so has no significant impact on milking times. The system can work with water or a solution of paracetic acid.

To test the effectiveness of the system, a trial was carried out on two farms where Clusterflush was installed. Both farms had low bulk milk cell counts and Bactoscans and the cows were visibly clean.

To test the system the flushing system was switched off while at least two rows of cows were milked. The inside of liners were then swabbed. The Clusterflush was then turned back on and the liners re-swabbed after more cows had been milked.

The results are summarised in the table. They show that uncleaned liners had significant levels of bacteria including Staphylococci. Some of the liners also had coliforms present, indicating contamination with faecal material. After flushing levels of all bacteria were greatly reduced.

One farmer who is convinced of the benefits of Clusterflush is Anthony Gibbs from Lower Bentley Farm near Bromsgrove who runs a herd of 150 cows which is milked twice daily through an 11:22 Westfalia parlour. The farm is under-going organic conversion and the cows are currently yielding just over 7000 litres.

The herd had been having mastitis problems. Cell counts were averaging just under 400,000 cells/ml while clinical cases were typically two per week. The main problem was identified as Straph Aureus infections.

To try and control the problem Mr Gibbs, his son Graham and herdsman Will Temple embarked on a programme of a more stringent pre-milking routine and manual cleaning of liners. Cows were wiped, pre-sprayed and then wiped again.

The liners were dipped in buckets of a peracetic acid solution after every cow and while this helped reduce the levels of infection the method had some serious drawbacks.

“Having buckets in the parlour made the pit very cluttered making moving around difficult,” Anthony explains. “The biggest problem was time. Dipping the clusters added 30 minutes per milking when milking was normally only taking two hours anyway. This adds up to nearly 400 extra hours milking per year which had to be paid for.”

Having dipped manually and having been convinced of the benefits of dipping clusters, The Gibbs invested in a Clusterflush system in February 2007 with the system being installed over two days.

Cell counts are now around 170,000 cells/ml, clinical cases are down to less than one a month while Bactoscans average 10-15. As well as the better results and the reduction in milking times, the Gibbs have also been able to simplify the pre-milking routine and cows are just sprayed with an iodine solution.

The evidence suggests that routine cluster dipping can have a significant effect on the control of the spread of mastitis, while automated systems allow it to be carried out without adding to milking times.

Organisms		Farm 1	Farm 2
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(cfu/ml)							
		pre flush	post flush	Reduction (%)	pre flush	post flush	Reduction (%)
Total bacterial count		5,966	48	99%	8,275	87.5	99%
Total staph		3,755	3.3	99.9%	475	17	97%
Staph aureus		256	0	100%	123	0	100%
coliforms		8.3	0	100%	22.5	2.5	89%