Mastitis: modified teat cups give better back-flushing

Department of Agriculture, Western Australia
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Modified teat cups give better back-flushing

Back-flushing of the teat cups has not brought the expected reduction in the spread of mastitis in some dairy herds. Replacement of the conventional nut-and-tail nipple with a special flushing nipple, or use of a one-piece teat cup liner, will ensure that flushing is efficient.

SIMPLE new equipment is now available to ensure efficient back-flushing of milking machine teat cups for mastitis control in dairy herds.

"Back-flushing" means passing water through the teat cups in the opposite direction to the flow of milk. Its aim is to remove milk and bacteria from the teat cup liners after each cow is milked, so stopping the transfer of bacteria from infected to non-infected cows.

If flushing is efficient the spread of bacteria by the teat cups should be eliminated.

But after the development of back-flushing and its adoption by many dairy farmers, it was found that back-flushing was not always efficient because the water did not completely wash the milk from the insides of the teat cup inflations.

Now a simple adaptation can make back-flushing thoroughly efficient and is strongly advocated by the Department of Agriculture. It involves the use of either a special one-piece teat cup liner, or replacement of the conventional nut-and-tail nipple with a special flushing nipple. Both are cheap and readily available.

The original work performed in the Department of Agriculture's Dairy Laboratory showed that when teat cups were artificially coated with milk containing mastitis-causing bacteria and then flushed with 2 pints of water, 99.7 per cent. of bacteria were flushed out.

Several pilot scheme farmers were encouraged to adopt routine back-flushing after every cow milked. The success of mastitis control on these properties indicated the value of back-flushing in helping to prevent the spread of mastitis bacteria.

However, in some herds new cases of mastitis continued to appear. These herds were investigated and in all cases where back-flushing had failed to prevent the spread of mastitis it was found that the actual flushing was inefficient. Milk could still be found in the cups after the passage of water. It was significant that herds like Wokalup Research Station which obtained excellent control over mastitis were using teat cups with integral one-piece teat cup liners. Herds such as that at Bramley Research Station which met with initial failure were using teat cups with a nut-and-tail nipple.

The nipple type of cup, unfortunately, is used in most dairies in Western Australia.

Close examination of those teat cups with a nut-and-tail nipple revealed milk remaining in the teat cup liner after flushing. Lowering the water pressure and rigorously shaking the teat cups decreased the amount of milk remaining but this was difficult to arrange and to perform conscientiously.

This flushing deficiency obviously had to be overcome if back-flushing was to be easily and effectively adopted by the majority of dairy farmers. The Department of Agriculture, farmers and dairy supply companies became interested in the problem and their joint efforts have led to the development of two methods of
THE NEW ADAPTED NIPPLE:
The arrow shows how water sprays out and removes all milk in the liner, even at high pressure. Back-flushing is excellent.

OLD-TYPE NIPPLE: The arrow shows where milk remains in the liner after flushing with water. Back-flushing is poor.

INTEGRAL TEAT CUP LINER:
The integral teat cup liner allows very efficient cleansing when back-flushed with water.

INTEGRAL TEAT CUP LINER FITTED INTO STANDARD CUP:
The nipple is removed from the cup and the nipple hole enlarged so that the liner can be pulled through. Back-flushing is excellent.

adapting teat cups for efficient back-flushing. Both can be widely adapted at little expense.

Special flushing nipples have been developed and are available from a commercial dairy supply company. These are 85 cents each and can be placed into most nipple cups. Trials indicate that when fitted, they allow for very efficient flushing even with high pressure water, such as at mains pressure.

Integral teat cup liners can be fitted into most brands of cup. The conventional nut-and-tail must be removed and the hole in the teat cup enlarged until the liner of choice can readily be pulled through the enlarged hole. The removal of the nipples does decrease the total weight of the claw and additional weights may have to be added for efficient milking.

Water in the Bulk Milk
The problem of water installed for back-flushing being inadvertently introduced into the bulk milk supply has not been great. But farmers are warned not to rely on two-way taps as these can not be guaranteed leakproof. The introduction of water at the claw itself is safer than introducing it into the milk line.