TEAT DIPPING TROUBLE

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Post-milking teat disinfection is one of the most important components of mastitis control. It is essential that the entire surface of the teat is coated with the solution as soon as possible after milking. The entire surface needs to be coated as it will have been in contact with the liner of the milking machine, which may act as a fomite transferring infection from cow to cow.

Method of Application

Dip

Dipping is the preferred way to apply teat dip. It uses less solution than spraying and provided that it is carried out thoroughly, it will provide excellent cover of the teat. In order to teat dip, it is essential that the teat dip cup is large enough to contain the entire length of the teat. It should be designed in such a way that the spillage of the teat dip solution is minimal. There are a variety of designs of teat dip cups on the market which can achieve this goal.

It is important that the cup is kept clean throughout milking. At the end of milking, any remaining solution should be discarded and the pot thoroughly cleaned and refilled prior to the next milking. During milking, it is possible that contamination can enter the teat dip cup. This will be easily seen in lighter coloured solutions such as chlorhexadine or hypochlorite. It may be more difficult to see in iodine or dark coloured solutions. If contaminated, the solution should be discarded, and the cup cleaned and refilled.

On average, the amount of teat dip used per cow per milking will be 10cc per cow per dipping. Usage may increase if the teat dip cups are kicked or tipped over, or do not have an anti-spill design. Anti-spill cups are preferable as they are more economical in use and are less likely to become contaminated.

Spray

Teat spraying can also be very effective, but needs to be carried out thoroughly. Many people prefer spraying as they consider it to be quicker than dipping. In general, you need to rotate the lance of a sprayer twice around the teats in order to give sufficient cover. The teat spray lances must be long enough to be able to reach underneath the udder, and also have jetters that are effective in action.

The teat spraying will use 15cc of solution per cow per milking. Teat sprayers are more expensive than teat dip cups and need to be maintained. If the nozzles become blocked, or if the spray pattern is reduced, then the coverage of the teat may also be poor.

In some parlours, the milkers begin to teat spray as they open the gate to release the cows from the parlour. Cows receive a quick spray as they walk past, but this provides a very poor coverage of the teat. If these cows were to be examined outside the parlour, the observer would be able to identify which cows were milked through the left and right sides of the parlour, as only one half of the teat is likely to be thoroughly coated.

Spray nozzles need to be checked regularly to ensure that they are providing a cone of spray and that they are not leaking throughout milking which will result in a costly waste of post-dip solution.

Automatic teat sprayers (ATS)

Automatic teat sprayers have been installed in some milking parlours. The aim is to reduce the number of tasks the milker has to perform and thereby speed up the throughput of cows. The ATS is situated at or towards the exit from the parlour and is triggered by an electronic eye, which is activated as the cow walks past. The jetter then releases a burst of disinfectant spray from the nozzle or a raised bar on the floor and directs it towards the udder.

ATS systems have been in existence for some 20 to 30 years. The concept of reducing the number of tasks for the milker is perfectly sound. The big problem is that ATS systems are ineffective at providing a thorough coating on the entire surface of each teat of every cow after milking. In addition, they also use significant amounts of teat dipping solution, somewhere in the region of 20 to 30cc per cow per milking. This is between two and three times the amount used when manually teat dipping.

The main disadvantages of ATS systems include:

- The nozzle may become blocked or run out of solution and the milker is unable to see this from the pit
- The magic eye is defective
- The spray is unable to coat the entire surface of every teat as it has one nozzle
- There may be a significant delay from the time the cow finishes milking until it passes through the ATS and the teat canal has started to close

- Some cows rush or walk slowly through the race and the teats are missed entirely
- Some cows push through the race, causing the ATS to see only one long cow and so triggering only one burst of spray after the last cow pushed through
- If situated outside the parlour, the spray may be deflected by the wind
- Faeces deposited on the spray jetter by one cow may be sprayed on to other cows
- Cows with high udders may not get coated
- Some spray systems have a jetter bar which could make contact with the teats and udders of cows with pendulous udders, thereby spreading infection .

For all the above reasons, the use of ATS systems is not recommended.

Storage of Teat Dips

Teat dip solutions need to be stored securely and in areas where they will not freeze. In some dairies, the teat dip solution may be stored at the front of the parlour with an open lid on a drum, or even in open buckets. As the parlour is hosed out and washed, and as the cows exit the parlour, there is plenty of opportunity for contamination to enter and to contaminate the teat dip. It is important that teat dip solutions are stored carefully and with minimal risk of contamination occurring.

RTU (Ready to Use) solutions and solutions that need to be diluted

Some teat dip solutions come only in an RTU format while others have to be diluted according to the manufacturer's recommendations. RTU solutions are easy since all the farmer has to do is use them. Solutions which have to be diluted require more attention. It is important that they are diluted with potable water (water free from faecal contamination) and at the correct rate of dilution.

Some people make a guestimate of the dilution required which can result in solutions being too weak or too strong. If too weak, then the killing power of the teat dip is likely to be compromised. If it is too strong, this is going to be costly and secondly, may cause some irritation to the teat.

There are some brands of teat dip on the market which do not have high levels of teat conditioners present. Some farmers try and compensate by adding glycerine when diluting these teat dips. This may provide a solution which is less effective in killing bacteria at the end of milking but may help in conditioning the teat. Glycerine may react with the chemicals and bases already in the teat dip, and result in a solution which has poor killing and conditioning properties.

If a teat dip does not condition teats correctly, rather than add glycerine and various other conditioners to the solution on a 'let's hope this will do' basis, one should change to a better brand which will improve teat condition.

Common Problems with Post Milking Teat Disinfection

Listed below are a variety of problems the author has encountered.

- Poor coverage of teats through a poor application technique through spraying, ATS systems, or using a teat dip cup of the wrong shape or design.
- Incorrect dilution of teat dip
- Diluting teat dip excessively so that it can be used as a pre- and post- milking teat dip
- Adding high levels of glycerine to poorer quality teat dips to try to achieve high levels of teat conditioning
- Use of ATS systems; this author has never seen an ATS system that provides adequate cover
- Contamination of teat dip cups during milking
- Dilution of teat dip using contaminated water. This is especially true when using hypochlorite or other solutions which do not have a broad spectrum of action
- Blocked spray jetters, or spray lances which provide a poor spray pattern
- Seasonal spraying of teat dip. Every teat must be dipped after every milking throughout the lactation

Summary

Post-milking teat dipping is essential to control the spread of mastitis organisms during milking. The entire surface of each teat needs to be thoroughly coated after each milking throughout the lactation. Teat dip solutions need to be used according to the manufacturer's recommendations.

The ideal form of application is by teat dipping which will generally achieve a better coating of the teats than spraying and will use considerably less solution. Spraying can be just as effective, provided it is applied diligently, but farmers must accept that they will use up to 50% more solution.

Many farmers are reluctant to change from a cheaper teat dip to a branded quality product. My recommendation here would be that if you change from spraying to dipping, not only can you have the branded product, but you are also more likely to have better teat dipping.

Comparison between dipping and spraying

	Dipping	Spraying
Teat cover	generally good	good if careful
Volume used per cow/milking	10ml	15ml
Cost	very cheap equipment	more expensive to install
Points to watch	dirty teat dip cups	blocked nozzles causing slow flow rates
	keep pot full	
	cows with very short or long teats	solution running out during milking