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Prevention of mastitis in milch animals using post milking teat dip cup by dairy farmers

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Abstract
Mastitis is the biggest enemy of the dairy industry. Which occur mainly due to milking practises during and after milking. Hygiene and sanitation are major keys to preventing this problem. The present study was conducted to prevent mastitis in dairy animals using teat dip cups containing antiseptic solutions. In the present investigation, post milking dipping of teats in antiseptic solution was performed on 60 cows irrespective of age and breed during 2 years. Out of these, 11 out of 30 animals in the non-using teat dip cup group develop mastitis and 2 out of 30 in the teat dip cup using group. Thus, teat dips are IMI prevention approach that lowers the risk of mastitis, lowers production costs, and lessens the negative effects of medication on animals and milk consumers.

Keywords: Mastitis, teat dip cup, antiseptic solution, and milch animals

Introduction
The single most effective method for preventing IMI in lactating dairy cows is postmilking teat antisepsis. Mastitis-causing organisms may enter the teat canal in establishing IMI, and numerous factors affect this risk. The quantity and variety of germs on human skin have been shown to be directly correlated with the occurrence and types of MI. Teat dipping is a quick, easy, and affordable way to minimise bacterial populations on teat skin, and a wealth of published data indicates that doing so will lower the incidence of IMI. To control mastitis various control measures have been developed and adopted over the past few years. Despite development of various techniques for control of mastitis, the disease is still prevalent and posing a major threat to the milk production (Bhutto *et al*, 2012) [2]. Among these control measures, post teat dip has gathered a great importance as an essential preventive tool in mastitis (Hassan *et al*, 2009) [4]. Post teat dip has been demonstrated to be highly effective in preventing new intra-mammary infections against different pathogens causing mastitis. Lack of awareness, delay in detection of sub-clinical mastitis, unhygienic milking practices, inadequate treatment etc. are some of the important contributing factors in higher incidence of mastitis (Radistitis *et al*, 2000) [3].
Teat dipping was originally promoted in 1916 by Moak (Moak, 1916) [1]. To stop the spread of Streptococcus agalactiae, a diluted pine oil solution was utilised. Because the products were ineffectual and the supporting evidence was inconclusive, the approach was not widely followed. By demonstrating the reduction of staphylococcal populations on milking machine liners caused by the use of germicidal teat dips. Teat dipping is widely recommended by dairy advisers and used by creative dairy producers as a result of its benefits. The market for teat dip was rapidly flooded with a range of chemicals as chemical producers immediately recognized its commercial potential. Some of these items only marginally deviated from the extensively evaluated ones. Others were launched fast and with little testing, some using inventive formulas and innovative disinfectants. There are mainly six categories of post-milking teat sanitizers i.e. acrylic latex, quaternary ammonium compounds, chlorhexidines, sodium hypochlorites, Lactic Acid Based + Ethyl N-Acetyl-N Butyl-,beta.-alaninate and iodophors (physical barriers). So, the present study was planned to study the effect of Lactic Acid Based 8% + Ethyl N-Acetyl-N Butyl-,beta.-alaninate 0.1% (Exp in w/w), which is Filmadine for dipping of teat after milking.

Material and Method
A trial was conducted on 60 cows randomly divided into two treatments having 30 animals.

The duration of trial was 2 years during 2017-18 and 2018-19. Standard managemental practices were followed during entire experiment period. In treatment T1 teat dips were used and in T2 teat dips were not used. The selected farmers were trained in respect of cleanliness of shed, milking techniques, cleaning and disinfection of teats and udder. The farmers were trained to carry out post teat dip technique. The milking was performed after washing udder and teat with ordinary water, udder dried with cloth in control group and teat dip was applied after milking. California Mastitis Test (CMT) method was used for detection of mastitis in dairy animals. First few strips of milk were discarded, teat and udder were washed and dried with cloth. Disinfecting, thickening and greasing dipping product used after milking. Lactic Acid based 8% + Ethyl N-Acetyl-N Butyl-,beta.-alaninate 0.1% (Exp in w/w), which is FILMADINE is Ready-to-use product and teat dip cup for dipping of teat after milking. Teat dip technique. The milking was performed after washing udder and teat with ordinary water, udder dried with cloth in control group and teat dip was applied after milking. California Mastitis Test (CMT) method was used for detection of mastitis in dairy animals.

The farmers were trained to carry out post teat dip technique. The milking was performed after washing udder and teat with ordinary water, udder dried with cloth in control group and teat dip was applied after milking. California Mastitis Test (CMT) method was used for detection of mastitis in dairy animals.

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Result and Discussion

The results of entire experimental period are presented in Table 1. Out of total 30 animals, the group treated with teat dips showed lower incidence of mastitis i.e. only 2 animals were tested positive for mastitis. In comparision to this, 11 animals were tested positive for mastitis in the group where teat dips were not used. The gross cost of rearing per animal was Rs. 110 and Rs. 115 in group treated with teat dips and not treated with teat dips, respectively. The gross returns per animal were Rs. 241.5 in group treated with teat dips and Rs. 175 for group in which teat dips were not used. Similarly, net returns were Rs. 131.5 and Rs. 60 for T1 and T2 group respectively. Benefit cost ratio for T1 and T2 was 2.19 and 1.52 respectively.

Table 1: The results of entire experimental period are presented

Parameter	T1 (Teat dips used)	T2 (Teat dips not used)
No. of Animals	30	30
Mastitis developed	2	11
Gross cost (Rs./animal)	110	115
Gross returns (Rs./animal)	241.5	175
Net returns (Rs./animal)	131.5	60
BCR	2.19	1.52

The results of the experiment indicates improvement in gross returns and net returns per animal when teat dips were used. The benefit cost ratio was also improved when teat dips were used. The incidences of mastitis were higher when no teat dips were used. The use of teat dip cups minimises the risk of mastitis in animals and lowers production expenses by reducing the cost of medicine, which boosts milk output's B:C ratio. Because they cannot devote a lot of attention to one cow and cannot lower their dairy farm's milk yield, commercial dairy farms are more likely to utilise teat dip cups. Small dairy producers, on the other hand, cannot afford the loss of milk and the cost of treatment for mastitis. Teat dipping has also been shown to have succeeded in reducing microbial populations and minimizing new intra-mammary infections, so teat dipping has been used widely, especially in flocks that are very susceptible to infection and is a very effective method for preventing mastitis (Paape *et al*., 2001; Bergonier and Berthelot, 2003; Contreras *et al*., 2003) [7, 5, 6].

Conclusion

An attempt was made to outline the advantages of post-milking teat sanitization in connection to certain mastitis bacteria as well as the development of teat sanitizers historically. The cleanliness of the teats is simply one of many factors that affect the frequency of new IMI. Proper milking techniques and functional equipment are necessary for the best results from post-milking teat antisepsis. The key element of the IMI prevention approach that lowers the risk of mastitis, lowers production costs, and lessens the negative effects of medication on animals and milk consumers is teat dipping.

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