
Impact of pre-milking teat preparation practices on milk quality

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This study was conducted to determine the influence of various cow teat pre-milking cleaning regimes on the microbiological quality of raw milk. The benefits of full preparation comprising a teat wash and dry over no treatment were evident in a significantly reduced microbial load for a number of bacterial species when cows were indoors by night. Overall the microbial load in milk was low even in the no preparation treatment reflecting the importance of housing and milking parlour hygiene.

Key words: Microbial load, milk quality, pre-milking, teat preparation

Due to time constraints at milking and a shortage of available farm labour, there is now a trend away from pre-milking teat cleaning practises that may impact negatively on milk quality. This study reports the results of imposing different hygienic practises on cows at milking on the microbiological quality of milk and includes a more extensive range of microbial species of interest than previously reported.

Four treatments for cleaning of teats comprising (i) wash and dry with paper towel (full treatment), (ii) no teat preparation, (iii) washing only and (iv) dry wipe only were applied in a 4x4 latin square designed trial involving four groups of autumn-calving Friesian dairy cows (n=56) and two periods (each of 2 days duration). Cows were maintained at pasture by day and indoor at night on a sawdust/lime bedding. Following 2 days on each treatment, 2.5 litre quantities of milk were collected aseptically at the subsequent milking from each cow group. Triplicate analysis was performed on all treatment milks for total bacterial count (TBC), thermotolerant and spore forming species, staphylococci, coliforms, enterococci and E.coli incidence and sediment levels.

Summary

Introduction

Materials and methods

Results and discussion

TBC, staphylococci, enterococci and coliform bacteria were reduced with full teat preparation compared with other treatments (Table 1). These results are in agreement with those Pankey (1989). Milk from cows on full treatment showed a consistent reduction in sediment compared with other treatments but this was not significantly different. The results suggest that attention to housing and milking parlour hygiene would reduce the need for cleaning teats prior to milking. However, the differences observed in bacterial counts between full and no preparation also indicate that where hygienic conditions are poor and soiling of teats is likely to occur, then a cleaning regime should be implemented.

Table 1. The effect of pre-milking treatments on bacterial counts (cfu/ml) in raw milk.

Treatment	TBC	Thermo	Spores	Staphs	Enterococci	Coliforms	E.coli	Sediment
Full	3800 ^b	10	30	900	10 ^b	14 ^b	2	1.9
Wash	5800 ^{a b}	14	30	1300	14 ^b	20 ^{a b}	3	4.1
Dry wipe	8000 ^a	20	40	2000	40 ^a	50 ^{a b}	4	3.8
None	10500 ^a	30	50	1400	50 ^a	40 ^a	5	3.6
F test	0.05	0.05	0.063	0.142	0.004	0.038	0.395	0.207
Sig.	*	*	-	-	**	*	-	-

References

Pankey, W.J., 1989: Premilking udder hygiene. *Journal of Dairy Science* 72,1308-1312.