

8 Summary

Investigations about different methods of teat disinfection in milking hygiene

A negative controlled field study (part I) was conducted to determine potential iodine residues in milk after predipping with a foaming teat disinfectant containing .27 % polyvidone iodine. The teats of 9 lactating dairy cows were alternately predipped and conventionally cleaned over a period of 12 days. Due to this study design the animals were their own negative controls. An iodine selective electrode was used to measure the iodine concentration in milk of all bucket milk samples in the study period. Iodine concentration of milk was 243.7 ± 51 ppb on days with predipping and 212.7 ± 37.5 ppb on control days, respectively ($p<.001$). Iodine concentration was influenced by the individual cows ($p<.001$) and was negatively correlated with milk yield. Iodine concentration was elevated by predipping with a iodophore depending on milk production. However, iodine concentrations remain within the physiological range of milk.

The effect of an automatic application of a postmilking teat dip regarding to incidence of new intramammary infections (IMI), incidence of clinical mastitis, the influence on somatic cell count (SCC) and the characteristics of udder tissue and teat was investigated in a positive controlled field study (part II). Teat dip was either applied automatically in the treatment group (126 animals) or with a dip cub (control group; $n= 137$).

The incidence of new IMI did not differ on a statistical significant level. In the treatment group it was 20% and in the control group (14.9%, $p>.05$). Incidence of new IMI caused by CNS was higher in the treatment group (6.9%) than in the control (3.5%, $p<.05$). Incidence of clinical mastitis did not differ between groups (.351 cases per pro 100 days in the treatment group vs. .370 in the control group). The development of SCC was comparable in both groups.

Teats in the treatment group showed a higher rate of lesions of skin on March 1st, 2000 (treatment group: 16.2% vs. control group: 11.2; $p<.05$), April 3rd, 2000 (23.1% vs. 7.2%; $p<.05$) and April 26th, 2000 (17.7 vs. 3.0%; $p<.05$).

The effect of postmilking teat dipping with a foaming iodophor agent regarding to IMI, incidence of clinical mastitis, SCC and the characteristics of udder tissue and teat was investigated in a further positively controlled field study (part III).

We compared two groups of animals. Teats were dipped with the new foaming iodophor in the treatment group (122 animals) while teats in the control group (121 animals) were dipped with a conventional iodophor teat dip with the same iodine content. The incidence of new IMI and clinical mastitis did not differ between the groups. We detected .6382 cases per pro 100 days in the treatment group vs. .5005 in the control group. The development of SCC was comparable in both groups.

The teat skin an teat duct condition showed intense fluctuation during study period.

In a fourth study we investigated the efficacy of premilking teat dipping with a foaming iodophor teat dip in a negative controlled field study. We used the same parameters as in part II and III to evaluate clinical efficacy of the method. Predipping was compared with a negative control using a split udder experimental design. All teats were dipped after milking with the same dip.

There was no difference between treated and control quarters in incidence of new IMI during study period (treated quarters: 6.6% vs. untreated: 6.95%), incidence of clinical mastitis (.0575 cases per pro 100 days in the treatment group vs. .0748 in the control group) and geometric mean of SCC of quarter milk samples. Spectrum of detected pathogens was comparable. Condition of udder tissue and teat duct did not differ between treated and control quarters.