

## Dip After Milking To Prevent Udder Infections

Chemically sanitizing cows' teats immediately after milking is a promising way to reduce the incidence of udder infections that cause mastitis.

A number of micro-organisms infect the udder, contributing to the general inflammation called mastitis. Bacterial invasion likely begins with a beachhead at the openings of the teats. For colonies of bacteria there are dangerously close to the udder's interior. Now, research at Beltsville, Md., and Ames, Iowa, indicate that the best time to apply control measures is immediately after milking, not before, as is usually done.

### At Beltsville

ARS microbiologist W. D. Schultze selected, from cows in a regular milking barn, a group with large skin populations of staphylococcus bacteria on their teats. Immediately after these cows were milked, half of them had their teats dipped in a solution containing the disinfectant chlorhexidine at 2,000 parts per million.

Thirty days of dipping reduced the average staph level on teat ends from 84 points to 3 points on a scale where 100 represents a heavy infection. Population scores of cows with untreated teats did not change in the same month.

To double-check, Schultze switched the use of the dip to the other cow group. Dipping lowered the average skin population score from 84 points to 4 points, while the score of the now-untreated cows rose from 3 to 57 points in 21 days.

As a direct test, Schultze then isolated a smaller group of cows and deliberately exposed them by dipping teat cups of the milking machine in rinsing water laden with about 5 million staphylococcus per milliliter. One side of each udder was dipped in the sanitizing solution after each milking, the other side remained untreated. Since each udder quarter is an independent gland without direct connection to the other three, one quarter can become infected while the others remain healthy.

Fourteen percent of the dipped quarters became infected, while 41 percent of the unprotected quarters caught mastitis during a year's lactation.

The dip used by Schultze contained an agent to prevent chapping of the teat skin, a side effect that may become serious with lengthy dipping. Schultze first used tung oil, a drying agent incorporated in at least one commercial teat dip as a chapping preventive. Some cows still suffered from extensive skin scaling and irritation.

He then tried lanolin, a softening agent often used in cosmetic lotions for humans. This base prevented skin problems throughout the year in all but one test cow; but no dip with lanolin is commercially available, so far as Schultze knows.

### At Ames

Veterinarian J. S. McDonald exposed the teats of noninfected dairy cows for three weeks to teat cups dipped in milk contaminated with 2 million *Streptococcus aureus* bacteria per milliliter. Udder infection was prevented by dipping teats in chlorhexidine solution within 30 minutes after milking with contaminated equipment.

McDonald then dipped teats directly in bacterial cultures and continued dipping teat cups in contaminated milk for another 3 weeks. Dipping in the disinfectant still prevented udder infection.

Only when McDonald added another stress — overmilking for 4 minutes just before contaminating teats and teat cups — did 1 percent of the udder quarters become infected. The tests were conducted at the National Animal Disease Laboratory.

Dipping teats in disinfectant solution must be done after milking. McDonald sanitized teat cups before milking each

cow, but contaminated teat ends immediately after milking. A half hour before the next milking, he dipped teats in disinfectant, yet 2 percent of the quarters became infected during the 3-week trial.

Dipping really was the difference in preventing udder infection. McDonald cured all udder infections that had occurred during previous trials, then dipped all teats before and after each milking for 3 weeks. Teat cups were also dipped in infected milk. Without treatment, more than 9 percent of the quarters of cows on trial became infected.

The dip tested by McDonald

### Weed Killers

Many farmers and home gardeners have both seeds and chemical weed killers to store for next year. I'd like to point out the danger of keeping these weed killers near any seeds or bulbs,

because there may be enough fumes in the room to reduce or stop germination when planted. The herbicides should be kept in a separate room and the emulsion form not allowed to freeze. All spray materials should be stored in the original container if possible, in order to maintain identification and keep application instructions. If any chemical is present without identification, it is best to throw it away rather than to take the chance of being the wrong one. I have known of improperly identified chemicals killing plants when they were intended to stop insects or a disease. Be careful in using and storing all chemicals.

was unusual in that its chlorhexidine strength was five times that of common commercial dips — 10,000 ppm instead of 2,000 ppm. McDonald strongly recommends the high strength. At least one commercial dip with 10,000 ppm chlorhexidine is already marketed, cost is about one-quarter cent per cow per milking.

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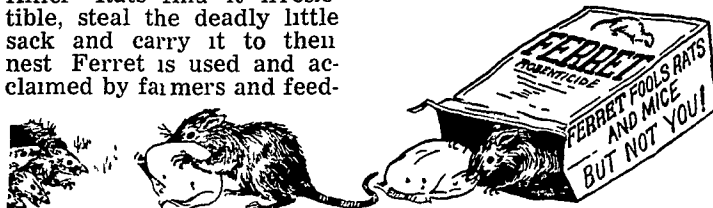
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