

GUIDELINE 7

Use post milking teat disinfection on every teat after every milking

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Bacteria in milk from infected quarters may contaminate the skin of many other teats during milking. For example, after a liner has milked an infected quarter, bacteria may be transferred to the next 5-6 cows milked with that cup.

After milking, bacteria multiply on the teat skin and may extend into the teat canal. If the whole surface of each teat is disinfected immediately after milking, this spread can be minimised. Teat disinfection also helps to keep teat skin supple and healthy.

Teat disinfection after milking reduces new infections due to cow associated bacteria such as *Staph. aureus* by 50% and is also important in reducing *Strep. uberis* infections. It is one of the most effective cell count and mastitis control measures available, but it only works if it is done thoroughly.

Teat disinfectants must be diluted to the correct concentration for use. The active ingredients often lose their disinfectant ability with time after mixing, and if you include additives to improve skin condition (emollients) these may reduce disinfectant activity. Any contamination with milk and other organic material also reduces activity. Correct mixing each day is best to get maximum performance.

Some emollients are not suitable for use with particular disinfectants.

Failure to cover the whole teat of every cow at every milking and poorly diluted teat sprays are the most common errors in teat disinfection.



Good Read

[Technote 7 - Use post milking teat disinfection on every teat after every milking.](#)

7.1 Use a registered teat disinfectant.

Select a product based on duration of activity, speed of bacterial kill and ability to function in the presence of organic matter. For mixing purposes, farm water must be of high quality.

Use this checklist to select a teat disinfectant for your farm:

- Effectiveness - Generally a part of registration, although professional advice may be required for unusual bacteria
- Suitability for your farm water - See [Guideline 7.3](#)
- Occupational health issues - such as staff skin reactions
- Teat skin reactions
- Visibility on teat skin
- Price per cow per milking
- Shelf life - will the quantity be finished prior to expiry?
- Milk residues - a condition of registration and on label use

Registered products

Teat sanitisers are designated as a veterinary medicine under the ACVM Act 1997. The product registration process provides an assurance of efficacy and safety with respect to human and animal health, environmental impact and likely impact on trade relating to the use of the product within the New Zealand dairy industry.

Active ingredients currently registered in New Zealand are:

- Iodine
- Chlorhexidine
- Acid anionic compounds (dodecyl benzene sulphonic acid)
- Chlorine and Chloramine T

Unregistered products or off-label use

Farmers using unregistered products risk applying ineffective treatments, having chemical residues in milk or meat, and causing harm to the environment, human health or animal health.

Further, use of registered products in a way that is contrary to the label ("off label", for example using post milking teat disinfectant before milking) can put farmers at risk of fines covering consequential risk or loss by dairy processors. The one exception to this is "off label" use under veterinary supervision.



Beware of unregistered products

Beware of products that do not have a unique ACVM Registration Number displayed on product labels and product advertising. The format should be "Registered pursuant to the ACVM Act 1997, No. A#####"



Registered products

See the [MPI Food Safety website](#) for the list of ACVM registered products.

7.2 Mix a fresh batch regularly.

Fresh batches should be made up regularly, at least 2-3 times per week or as per label.

The stability of working dilutions of teat sprays are affected by dilution rates, water quality, ambient temperature and emollients, to name a few.

When making up teat disinfectant:



- Always use an empty, clean, rinsed container
- Only use water sources approved for milk contact surfaces
- Don't make up more solution than can be used in 3 days
- Cover securely to prevent accidental or environmental contamination
- Store inside, out of direct sunlight and in a cool area: do not store at temperatures >40°C.



Precipitating teat disinfectants

Made-up teat disinfectants can precipitate out if mixing containers are contaminated by alkali milking machine cleaning products.



See [Healthy Udder - Prevent 3](#) for tips on making up teat spray correctly.

7.3 Use water of very high quality.

A number of water quality issues can alter effectiveness of teat disinfectants.

- Alkalinity greater than 500 ppm
- Hard water (high concentrations of calcium and magnesium)
- Organic matter, which can inactivate the disinfectant
- Contamination with Pseudomonas bacteria which are not sensitive to certain disinfectants. Mastitis due to these bacteria are virtually impossible to treat
- Presence of chlorine in the water
- Presence of iron or manganese from bore water.

If the quality of water available at the dairy is suspect due to adverse conditions, e.g. flooding of a surface water supply, farmers should consider an alternative water supply, such as rain water tank, potable water from the farm house to make up teat disinfectant. Alternatively source a Ready-To-Use product. Cooled water from the hot water tank is another potential source of good quality water.

Quick tests can be used to check the active ingredient in the mix. If this is in the acceptable range, no further testing is required. Confirmatory lab-based tests are required if results are inconsistent or interpretation is difficult.

Water testing can be carried out by local water authorities or independent laboratories. They may also have local knowledge of water quality issues.

If a problem is suspected with purchased concentrate, contact the manufacturer immediately and retain the remaining product.



Seek advice

Contact your teat disinfectant supplier for advice on mixing up teat sprays or testing the final mix on farm.



When to test the teat spray mix

Ask your supplier about testing your final mix:

- If you have any concerns about the teat spray effectiveness
- If the water supply has changed
- If the mixing routine, staff or product has changed

7.4 Mix products according to label directions.

Mix products according to the label to achieve the correct level of active ingredient. These labels have been produced after rigorous testing and contain a safety margin.

Label statements may vary for different weather conditions and potential mastitis risk. Presence of emollient may also affect the amount of teat spray concentrate required.



Set up good systems on farm to ensure correct and consistent mixing of teat spray

- Make sure all milkers know the routine (explain and show them)
- Record instructions and display prominently, for ease of reference
- Update procedures if the mix changes
- Make sure instructions are clear for relief milkers.



See [Healthy Udder - Prevent 3](#) for tips on making up teat sprays.

7.5 Maintain teat condition, by adding additional emollient if required.

Emollients help soften and condition teat skin, reducing the numbers of mastitis pathogens in teat sores and cracks. They have an important role in mastitis control. As a general rule of thumb “no teat spray currently on the market can cope with a New Zealand spring without extra emollient”.

Emollients registered for addition to specific teat disinfectants on farms (as distinct from emollients added to concentrates or ready-to-use products by manufacturers) can be found on the ACVM list of registered products, available from the [MPI Food Safety website](#).

Some emollients, such as food-grade glycerine and sorbitol, are permitted for use in teat care applications by ACVM.

Unapproved materials should NEVER be used as emollients - examples include: bloat products, canola oil, tea tree oil or emulsified paraffin.



Adding emollient

Many registered teat disinfectants are marketed with some emollient incorporated. More emollient may be added to bring the concentration in the final mix to a maximum of 15%, but 20% emollient may block teatspray nozzles. More emollient should be added when teats are under high challenge. See the table below for recommendations.



Emollient calculations

The additional emollient volume always replaces that of water in the mix. Calculating the amount of emollient requires a knowledge of

- The total volume of teat spray required
- Concentration of emollient in the teat spray concentrate
- Final total concentration in the mix.



See [Healthy Udder - Prevent 3](#) for tips on making up teat sprays

See [Technote 7](#) for more information and an example calculation.

	High Challenge	Low Challenge
Weather and farm conditions	Wet & cold weather Muddy pastures Bulk milk SCC above herd target High degree of teat dryness High level of teat end damage	Dry & warm weather Dry pastures Bulk milk SCC below herd target Little teat dryness No teat end damage
Recommended emollient concentration	Add extra emollient (5-10%) to provide a total maximum emollient concentration of 15% in the final mix.	Add extra emollient, if required, to provide a total emollient concentration of up to 5% in the final mix.

7.6 Spray or dip the whole surface of all teats after every milking throughout lactation.

Ensure the whole teat surface is covered with disinfectant. All the teat surface touched by the teat cup liner must be covered. A drop of teat disinfectant seen at the end of the teat does not indicate adequate coverage.

Spray upwards from beneath teats, not from the side. Do not spray cows as they walk past.

Dipping is more reliable than spraying for getting complete coverage. Dip cups can be obtained from your teat disinfectant supplier or agricultural merchant.



See [Guideline 7.7](#) for more on checking coverage.

7.7 Check coverage.

Check that at least 20 mL of prepared teat disinfectant is being used per cow per milking if spraying (10 mL per cow per milking if dipping). Adequate volume alone, however, does not ensure teats are being covered.

Check the 'far sides' of teats of at least some cows after spraying every day to ensure they are being covered.

Check spray pattern of spray units. Spray on the pit wall or hold a sheet of white paper 10 cm from spray and spray it like you would a teat. Hollow ring spray patterns miss the teat. If required, change or service nozzles.



Wrap a paper towel around a teat to assess coverage



A "patchy" pattern indicates incomplete teat coverage



A "solid" pattern indicates good coverage of the teat barrel



20mL per cow per milking

Do a quick calculation to see if enough product is being used for your herd. For example a 200 cow herd should be using at least 4 litres of prepared teat disinfectant each milking:

- 20mL x 200 cows = 4000mL or 4 litres



See [Healthy Udder - Prevent 2](#) for tips on checking coverage.