

GUIDELINE 5

Use good milking technique and a consistent routine

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Contagious mastitis is caused by bacteria such as *Staph. aureus* and *Strep. agalactiae* that are transmitted between cows during milking. Occasionally *Strep. uberis* and *Strep. dysgalactiae* (normally classified as environmental bacteria) can also be transmitted between cows during milking.

Milk from one infected quarter is spread to the teat skin of other quarters and cows by dirty hands or gloves, by teat cup liners and cross flow of milk between teat cups.

Damaged teat ends are particularly susceptible to infection. Malfunction or poor use of the milking machine can contribute to transmission of infection.

Prevention of contagious mastitis involves:

- disinfection of teat skin after milking
- keeping hands and gloves clean during milking
- careful use of machines that are operating well
- keeping cows settled and teat ends healthy.



Good Read

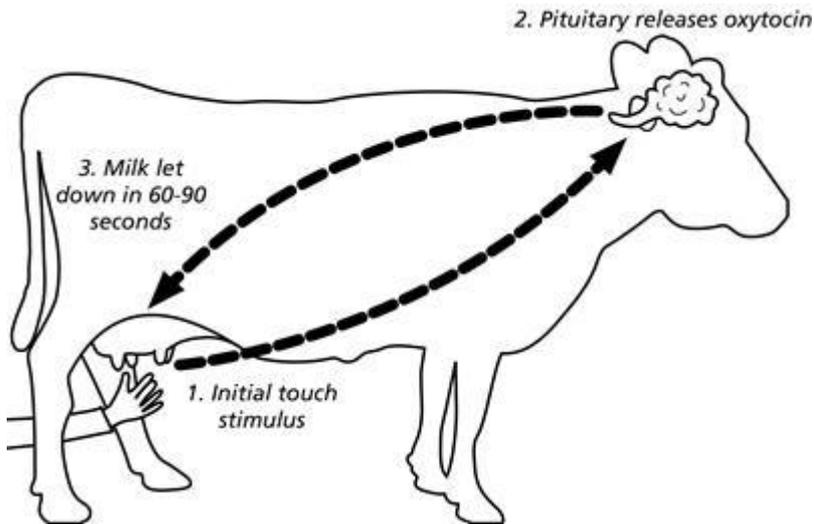
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5.1 Ensure that cows enter the farm dairy willingly by use of good stockmanship.

Calm cows dung less frequently, kick the cups off less often, have a better milk let-down and move through the dairy more easily than stressed and anxious cows.

Cows that are fearful produce adrenalin that prevents milk let-down. Minimise fearful experiences in the dairy such as yelling, use of sticks, dogs or electrified backing gates.

Connection between initial touch and milk let-down response



Treat the cows well, and they will treat you well!



See [Guideline 2.2](#) for tips on preparing heifers for the milking routine

See [Technote 5](#) for more on the connection between good stockmanship and milk production.

5.2 Foremilk strip cows to detect abnormal milk.

Foremilk stripping, or fore-stripping, is the single most effective way to detect clinical mastitis. Consider fore-stripping all cows in their first month of lactation and in periods of high risk.

Periods of high risk include the calving period, or when the clinical case rate is too high, or when the Bulk Milk SCC is too high.

Routine fore-stripping of cows in the first month of their lactation also helps accustom cows to having their teats touched and provides an effective 'signal' for milk let-down.

If done poorly, however, fore-stripping can contribute to the spread of bacteria from teat to teat via milkers' hands. Good milkers rinse and disinfect their gloves if they get milk on them.



Fore-stripping

- SmartSAMM strongly recommends fore-stripping all cows in the colostrum mob at least once a day.
- Farmers should consider systems to allow regular fore-stripping of all cows in their first month of lactation, or all lactation.
- Fore-strip all cows when clots are found on the filter sock and/or the bulk milk SCC shows a sudden increase.



See [Guideline 4.2](#) for tips on fore-stripping colostrum cows

See [Guideline 8](#) for tips on practising good hygiene during milking

See [Guideline 10](#) for tips on fore-stripping and finding clinicals in lactation

Stripping technique

An effective technique is to squeeze the base of each teat between the thumb and the first two fingers, then pull gently downwards. If no clots, flecks or other abnormalities appear in the first two squirts, move to the next teat. Refer to [Healthy Udder - Find 1](#) for tips on stripping cows and finding clinical signs. Foremilk should be stripped onto a black surface e.g. dark RMT paddle, piece of black plastic, or a strip cup to aid detection of discoloured milk.

Some milkers reduce the time (and the risk of injury) by fore-stripping only one or two teats per cow per milking e.g. the left quarters at morning milkings and the right quarters at evening milkings. Alternative ways for regular fore-stripping the whole herd are described in the table below.

Ways to regularly fore-strip the whole herd

System	Description	Comment
Strip all 4 quarters before every milking	Fore-strip all 4 quarters before every milking	Very effective when level of mastitis is high. Time consuming and labour intensive when clinical rate is low.
Strip all 4 quarters once per week	Fore-strip all 4 quarters before one milking e.g. Monday morning	Requires extra labour unit or prolonged milking time. Can be unsettling as cows don't become accustomed to having teats touched.
Strip 2 quarters at 2 milkings each week	Fore-strip 2 quarters at one milking, other 2 at the next milking, once a week e.g. one side in morning, other side in afternoon or both fronts in morning, both backs in afternoon	Milking routine will be slower but this method can be handled by the normal milker, without extra labour.
Strip 1 quarter at 4 milkings each week	Fore-strip 1 quarter at a milking. All quarters stripped over 4 milkings. Use 2 morning and 2 afternoon milkings, or 4 morning milkings	Requires no extra labour and has least impact on milking routine. Less unsettling for cows as teats being touched more regularly. Method is practical when clinical rate is low to moderate.

5.3 Put cups on clean, dry teats - wash and dry dirty teats.

Teat cups should only go on to clean and dry teats. Mastitis risk is a 'numbers game' where the risk of infection is reduced by keeping bacterial numbers low on or near the teat-end.

Milking wet teats is unacceptable, both for risk of mastitis and milk quality issues. Avoid wetting the udder - wet the teats only if they need to be washed.

Always use clean, low pressure water to wash dirty teats.

Teats are rarely dry when teatcups are put on if they are simply left to 'drip' dry. Effective drying is achieved with single use paper towels or suitable woven cloths (such as 'Chux' towels). Each cloth must only be used for one cow per milking.

If teats are dirty, check that paddocks, laneways and areas around troughs, gates and the entrance to the shed are draining adequately and not contributing to dirty teats. Do repairs if necessary. Avoid allowing cows to stand in wet, manure laden yards before being milked.



As a rule of thumb:

- It it's clean, cup it
- If it's dry/dusty, wipe it
- If it's wet and dirty, wash and dry it



Keeping udders clean:

- Trim cows' tails by completely trimming the switch. Repeat twice yearly if necessary
- Clip or remove hair from hairy udders twice yearly. Talk to your vet about udder flaming
- Clean-up sites on the farm that contribute to making udders, legs and tails dirty.



See [Technote 5](#) for more on pre-milking teat disinfection and flaming udders.

See [Guideline 26](#) for tips on fixing areas of the farm that make udders dirty.

5.4 Attach cups using a calm and consistent routine.

Consistent routines help stimulate a good let-down, which generally makes the milking process more comfortable for the cow, more efficient at extracting milk, and more time-efficient for the milker.

Putting cups on too soon can result in cups crawling or creeping up to the base of the udder during the first minute of milking. When teat cups crawl early in milking, milk harvesting is less complete and less efficient near the end of milking.

The optimum time to apply teat cups is 60-90 seconds after the cow's udders or teats are first touched by the milker, or the predictable sights and sounds of a calm, consistent milking routine have stimulated good milk let-down.

Choose a set of procedures that allows or (preferably) requires each milker to be absolutely consistent at every milking, and helps minimise the time between cup attachment and milk let-down.



Stimulate a good milk let-down

Encourage all milkers to use the same routine. The first touch by the milker (the signal to trigger milk ejection) can be one of the following:

- Talking to the cows
- Foremilk stripping
- Pre-wiping teats
- A brief manual palpation of each quarter (to feel hot or hard quarters before milking)
- A brief rub down of each teat to remove dirt.



Minimise air intake when attaching clusters

Milk carrying capacity of the milkline is reduced by air admitted when cups are attached or removed. Minimise air leakage by:

- Ensuring that teat cups fit claws correctly (so cups hang over claw inlets properly)
- Lifting each teatcup with a 'kink' in the short milk tube until the moment of attachment.



Reduce the time between applying the cups and milk let-down

Watch the claw bowls during the first minute of milking. When the time between cup attachment and let-down is too long, milk flow into the claw bowl typically slows or stops after about 15-20 seconds of initial flow and does not restart for another 45-60 seconds.



See [Healthy Udder - Prevent 1](#) - for tips on attaching and removing teat cups.

5.5 Eliminate machine stripping from your milking routine.

Do not use weights on clusters to speed up milking. These affect balance and increase liner slippage, which increases the risk of mastitis.

Avoid allowing a few slow milkers to slow down the entire row/platform. Remove their cups before they have completed milking - they don't produce less milk or develop more mastitis if cups are removed early. Consider culling slow milkers.



See [Guideline 5.7](#) for more on shorter milking times.

5.6 Take teat cups off by cutting the vacuum and allowing them to slip free of the teats.

Do not break the vacuum at the mouthpiece lip of the liner

Air entering at the cup mouth, because of liner slip or rough cup removal, causes vacuum fluctuation in the cluster. Milk droplets may be thrown back against the teat ends. These impacts carry bacteria into the teat canal beyond the reach of a teat disinfectant.

Bacteria that gain entry to the teat canal at or near the time of cluster removal pose a greater risk of infection, leading to clinical or subclinical mastitis, because there is much less chance they will be flushed from the teat canal by milking flowing from the teat.

Rough cup removal also increases damage to the teat end and skin, increasing the risk of mastitis.

If machine parts are malfunctioning and affecting vacuum levels, repair/replace them promptly.



See [Healthy Udder - Prevent 1](#) - for tips on removing teat cups.

5.7 Select the end-of-milking point that is appropriate for the herd.

- Aim to milk most cows as completely as possible, within a reasonable time, at every milking. This can be achieved with maximum ACR threshold settings of 400 mL/min for herds milked once or twice daily
- Aim to milk all cows out as evenly as possible. Uneven milk-out leads to residual milk being left in the udder, which makes the udder become more uneven. This reduces ease and efficiency of milking
- Don't wait around for slow cows to finish. Instead, remove clusters from slow-milking cows based on the expected time for 80% of the herd to be milked out. This means removing clusters from the slowest 20% of cows before they finish milking. In a 20-a-side Herringbone, don't wait for the last 2 or 3 cows; on a rotary, select a platform rotation time and set a strict policy that "no cows goes round twice" unless there is a specific reason
- Excessive overmilking (up to 5 minutes), coupled with a poorly adjusted machine, can quickly lead to teat damage, and in turn, to mastitis.



Undermilking and overmilking

The conventional wisdom that undermilking reduces milk yield, increases mastitis and increases SCC is no longer supported. The greatest risk for teat damage, and therefore for mastitis, appears to be when cows are routinely over milked with a poorly adjusted milking machine.



Common overmilking risk

Cows are most at risk of excessive overmilking in systems with a large number of bails per operator and no ACRs.



Seek advice on setting end-of-milking point

See a qualified advisor ([MPTA certified milking machine consultant](#) or [accredited vet](#)) to check your milking machine settings and identify the appropriate end-of-milking point, for your herd.



See [Guideline 6](#) for tips on regular milking machine maintenance that will help prevent excessive under and over milking.

See [Technote 5](#) for an overview of the latest research on milking times and MaxT.