

Rubberware Maintenance

for milk quality excellence

Regular rubberware maintenance is vital for efficient milking, mitigating mastitis risks and preserving milk quality. Implementing a routine of systematic checks offers a straightforward approach for identifying problems and guiding preventative maintenance.

Overlooking rubberware maintenance and replacement can result in incomplete milk out, cup slip, and long-term teat damage.

INCOMPLETE MILK OUT CAN BE CAUSED BY

- Liner deterioration or incorrect liner type
- Poor cluster alignment due to rubberware tubing being the incorrect length, twisted, or poorly aligned in relation to the cow
- Mismatch between the claw inlet and the short milk tube causing partial closure of the short milk tube where this tube joins the claw

LOWERING BULK MILK SOMATIC CELL COUNTS (SCC) AND MASTITIS CASES

DairyNZ estimates defective milking equipment causes 40-50%* of clinical mastitis cases in New Zealand dairy herds. Prolonged use of deteriorated milking liners can damage teats, increase infection risk, and lead to SCC grades. Implementing the best practice of changing liners every 2,500 milkings is crucial for effectively preventing mastitis.

*DairyNZ. (2023). *Milking Machine Care*. Retrieved from <https://www.dairynz.co.nz/animal/mastitis/milking-machine-care>



DairyNZ advocates changing liners every 2,500 milkings. Since milking liners are the only component of the milking system in direct contact with the cow's teat, adhering to this regular replacement schedule can mitigate various issues and maintain optimal milking hygiene.

2,500 LINER CHANGE

Milking liners flex and squeeze the teat during each pulsation cycle, essential for teat massage and maintaining blood supply. However, deterioration over time – losing shape, tension, and inner surface condition – can impair milking performance and cow health. Exceeding this usage limit can lead to reduced milking efficiency, teat end damage, and increased clinical and sub-clinical mastitis.

- **Flex cracking in the barrel** increases the risk of liners splitting and bacteria growth, leading to milk contamination, risk of grades, and contributing to new mastitis infections by spreading bacteria between cows.
- **Mineral deposit build-up** creates an abrasive liner surface, resulting in teat damage and an increased risk of mastitis.
- **Liner mouthpiece and barrel distortion** can arise from swelling caused by milk fat and chemical absorption, affecting liner mounting tension critical for pulsation and maintaining a high milk flow rate. Performance of worn liners diminishes over time, resulting in cup slip and increased average milk out time. Worn liners increase the risk of new mastitis infections due to incomplete milk out.
- **Inelastic, swollen, or cracked liners** cannot apply the massage pressure required to stimulate milk let down. As a result, the milk yield from a worn liner is consistently lower compared to that of a new one. Worn liners have the potential to cause losses of up to 5% in milk yield due to under-milking.

Cleaning a milking system

Milking system cleaning procedures are essential for maintaining milk quality by removing all milk residues from rubberware and eradicating contaminating bacteria. Additionally, thorough cleaning extends the longevity of rubberware and prevents premature degradation.

Here are some essential aspects to consider for cleaning procedures:

WATER TEMPERATURE

- Cold water can cause redepositing of the milk residues removed, while excessively hot water can denature protein, degrade detergents, and damage seals and rubberware
- Aim for a water temperature of 80-85°C
- Dispose of hot water washes when the temperature falls to below 55°C

CHEMICAL DETERGENTS

- Acid detergents effectively eliminate mineral deposits and bacteria, especially in hot water, and provide extended protection when left in the plant post-wash. Always include acid sanitisers to the final wash
- Alkaline detergents remove milk fat and protein from rubberware but can degrade it if not rinsed thoroughly. Follow with an acid wash to neutralise alkali and sanitise the plant. Alkaline detergents typically contain chlorine or have chlorine added
- Contact your chemical supplier to ensure the correct use and dilution rates for wash cycles

PLANT CLEANING ROUTINES

DairyNZ recommends as a minimum the following steps need to be carried out:

- Cold water rinse after every milking
- An acid wash after every milking
- An alkali wash at least twice weekly
- An acid rinse after every alkali wash
- Thorough rinsing and draining

Use our liner change calculator



Our liner change calculator indicates when liners are due for change and sets a calendar reminder. **Scan the QR code or visit www.skellerup.co.nz/dairy/when-to-change-liners**

Rubberware maintenance checklist

Routine inspections of rubberware, conducted on a daily, weekly, and monthly basis, aid in identifying deterioration and addressing any emerging issues promptly.

Assign these inspections to farm staff as part of day-to-day responsibilities. By documenting these checks, trends can be identified, facilitating timely action to ensure optimal milking performance.

DAILY CHECKS

- Observe cow behaviour during milking for signs of discomfort, this can indicate potential rubberware issues
- Check cow teats for any colour changes, swelling, or abnormalities as the cups are removed
- Check that cows are milking out properly. Split liners, holes in the pulse tubes or short milk tubes, or faulty pulsators, can affect pulsation and milk out
- Check for distortion of liner mouthpieces caused by jettets. As a preventive measure, promptly remove clusters from jettets after completion of the wash cycle

WEEKLY CHECKS

- Inspect rubberware (liners, short milk tubes, pulse tubes, etc.) for holes or splits that could be affecting milking performance
- Check for twisted liners by examining arrows on mouthpieces and short milk tubes for alignment, or manually assess liner position with your thumb
- Examine cow teats for cracks or sores, and if more than 5% of cows are affected, inspect rubberware to troubleshoot the issue

MONTHLY CHECKS

- Examine rubberware for signs of deterioration. Cracked and perished rubberware harbours bacteria and can lead to grades. Distortions of the liner mouthpiece lip can impact milking and washing procedures
- Assess milk-out performance and milking times

RUBBERWARE RENEWAL

Timely replacement of rubberware is essential for achieving optimal milk quality. Follow best practice guidelines for rubberware replacement:





- Regularly inspect milk tubing for rubber deterioration and replace any rubberware in contact with milk on a seasonal basis. Assess the internal condition of milk tubing by scraping the inside; if residue leaves a black mark on your hand, it's time for replacement
- Replace rubberware either once a season or as soon as signs of perishing, cracking, or damage appear, whichever comes first
- Milking liners should be changed every 2,500 milkings

MILK FILTRATION

Skellerup single-use milk filters offer reliable and consistent milk filtration. Reusing filters compromises integrity and raises the risk of splits. Maintain optimal filtration performance and milk quality by using a new filter for each milking.

Request a dairy shed rubberware review

We recommend scheduling a **FREE** rubberware review on an annual basis. The local Skellerup Technical Specialist will visit the dairy shed to troubleshoot, document, and review dairy rubberware. During the review, the Technical Specialist will:

-  Isolate and troubleshoot issues in the dairy shed
-  Provide rubberware recommendations to suit the milking equipment and herd
-  Give expert advice to optimise milking efficiency, milk quality, and cow health
-  Issue a rubberware maintenance plan



Book your dairy shed rubberware review now

Scan the QR code or visit www.skellerup.co.nz/book-a-farm-visit

