DAIRY

MASTITIS PROGRAM

CID LINES®
An Ecolab Company

WHERE HEALTH BEGINS

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An Ecolab Company

THE BEST FARM OUTCOMES THAT MAXIMIZE PROFIT POTENTIAL NOW AND FOR GENERATIONS TO COME

WHERE HEALTH BEGINS

Prevention is vital in keeping farm animals healthy and resilient.

That is something we truly believe in at CID LINES, An Ecolab Company – the newly created Global Animal Health Division of Ecolab.

We want to drive the industry forward in changing its whole mindset from reactive to proactive. We want to move, as a sector, from curative to preventive health management, through positive and productive action.
Our Mastits Program is an essential part of that action.

We invite you to discover the program here. As your trusted partner, CID LINES, An Ecolab Company is by your side to care, to help, to support and to consult you on biosecurity and how it can improve the health of both your animals and your business.

Discover our brand story

MASTITIS IS ONE OF THE MOST DEVASTATING AND DAMAGING DISEASES OF DAIRY CATTLE

Mastitis is an infectious disease causing an inflammatory reaction in the mammary gland of the cow. It is the most common disease in dairy cattle characterized by various degrees of severity - ranging from a mild disease with no gross changes but an increase in inflammatory cells in the milk, to a moderate disease with an increase in inflammatory cells and gross changes in the milk.

It is often accompanied by signs of inflammation in the mammary gland including swelling, redness, and painfulness. Mastitis can progress to a severe disease with all of the above changes in the milk and systemic signs including fever, depression, and "off-feed" and occasionally even death in the most severe cases.

Mastitis significantly reduces milk production and milk quality.

An average clinical case of mastitis costs the dairy producer approximately $200 per animal! Mastitis is one of the top three reasons producers cull dairy cows.

Mastitis is of great economic importance to milk producers, with both direct and indirect costs as a consequence. The economic loss from one single case of clinical mastitis ranges from 200-300 US dollars.

In addition, Mastitis adversely affects reproductive performance of dairy cows and on average, it takes 40 days longer to get cows pregnant that have had a case of mastitis compared to herd mates that have not had a case of mastitis.

Treatment of clinical cases of mastitis not only cost the producer in increased labor and treatment costs, and in milk discard, it also increases the risk of antibiotic residue in the bulk tank.

Mastitis is caused by contagious and environmental factors, and although good housing hygiene helps to keep pathogens away, a rigorous teat hygiene routine during milking times acts as a final barrier to infection by mastitis - causing bacteria.

THE COST OF MASTITIS

CLINICAL VS SUBCLINICAL

Clinical mastitis

Clinical mastitis is an inflammatory response to infection causing visibly abnormal milk (changes in color, clots). Changes in the udder (swelling, heat, pain, redness) may also be apparent. Clinical cases that include local signs only are referred to as mild or moderate. If the inflammatory response includes systemic involvement (fever, anorexia, shock), the case is termed severe.

ENVIRONMENTAL MODEL

WHAT IS *E. COLI*?

Escherichia coli is an environmental germ. It resides in the digestive tract and feces and is dispersed in the environment around the cow (in the bedding, stalls, straw areas, floors, traffic lanes, etc.). When teats are in contact with these surfaces, contamination is possible. In most cases, *Escherichia coli* causes clinical mastitis. The most important measures to control environmental germs are to clean the teats before milking and to protect them after milking with a polymerizing barrier or skin friendly product.

BUTYRIC SPORES

Most of the time, winter is synonymous of opening silage silos, which is the main source of butyric spores. These spores originate from the soil and contaminate the milk with dung particles during milking.

To prevent the contamination, it is essential to manage the following 2 factors:

- A good management of silage, avoiding soil harvesting and adding the suitable preservative (avoid spore multiplication).
- Good hygiene management before milking. The good news is that living in the same environment as *Escherichia coli*, the prevention methods are the same.

BARNS AND TEATS

The litter is the main source of environmental contaminations where the majority of bacteria such as *E. coli* and *Streptococcus* (e.g. *S. uberis*) can be found. A healthy environment allows the cows to be cleaner and reduces the risk of contamination.

CLINICAL VS SUBCLINICAL

Subclinical mastitis

Mastitis can exist in the absence of visible signs of infection, and is then referred to as subclinical mastitis. Subclinical mastitis is the most prevalent form of mastitis.

Detection is best done by examination of milk for somatic cell counts using either the California Mastitis Test or automated methods provided by dairy herd improvement organizations. Somatic cell counts are positively correlated with the presence of infection. The higher the somatic cell count in a herd bulk tank, the higher the prevalence of infection in the herd.

Reduced milk production constitutes the major cost component of the total economic loss caused by subclinical mastitis and it can be very expensive!

CONTAGIOUS MODEL

WHAT IS *STAPHYLOCOCCUS AUREUS*?

Staphylococcus aureus **is a germ that resides on the skin. The main reservoir is the udder and the skin. During milking, these germs have the opportunity to pass from cow to cow, generating long-lasting infections.**

In most cases, *Staphyloccocus aureus* causes subclinical mastitis. The most important control method is to disinfect the teats before and after milking, as well as the clusters between each cow to prevent cross-contamination.

WHAT IS *STREPTOCOCCUS UBERIS*?

Streptococcus uberis **is a germ that resides in the environment as well as on the skin. As such, it is qualified as a ubiquitous germ in animal husbandry. The prevention methods regroup the measures applied for both contagious and environmental pathogens: cleaning and disinfection of the teats before milking, disinfection and protection with a polymerizing barrier or skin conditioning product, as well as disinfection of the milking clusters between each cow to prevent cross-contamination.**

MILKING EMPLOYEE AND TEAT

Good milking practices include washing hands and forearms before milking, covering wounds with a bandage, and wearing milking gloves. During milking, the milking employee can be a vector of contamination. Indeed, the presence of commensal bacteria on his skin can directly infect a healthy cow. Also, he can be an actor of a cross-contamination by spreading germs from an infected cow to a healthy one. During milking, if the cleanliness of hands deteriorates, a second cleaning should be done.

HOW TO PREVENT MASTITIS

ESCHERICHIA COLI
Environment

STREPTOCOCCUS UBERIS
Environment & skin

STAPHYLOCOCCUS AUREUS
Skin

ENVIRONMENT MODEL
mostly
Clinical mastitis

CONTAGIOUS MODEL
mostly
Subclinical mastitis

Udder hygiene
PRE-MILKING
CLEANING
DISINFECTION

Cluster hygiene
DURING MILKING
DISINFECTION

Udder hygiene
POST MILKING
DISINFECTION
PROTECTION


BY YOUR SIDE IN
THE PREVENTION
AGAINST MASTITIS

PRE-MILKING PREVENTION

BENEFITS OF A GOOD PRE-MILKING ROUTINE

Not only good teat preparation does help combat mastitis infection, it can actually have a positive effect on milk yields and quality.

The pre-milking cleaning process can help stimulate milk flow and increase the milk let-down reflex, with an additional benefit seen when units are applied 60-90 seconds after the teats are first touched.

Pre-milking teat disinfection can also help improve keeping the quality and the flavour of the milk by reducing the number of thermoduric bacteria which are resistant to the pasteurization process.

Pre-milking Priority n°1 : cleaning

The main objective is to physically eliminate, by mechanical cleaning, the germs (often environmental germs such as *E. coli*) already present on the teats before attaching the teat liners.

An efficient cleaning will prevent these germs from contaminating the liner, the milk and the teat during milking. A disinfectant combined with mechanical elimination helps to achieve an optimal result by removing contagious and environmental germs. The Application of an actively disinfecting foam on the teats, such as **Keno™pure** is an efficient pre-milking teat preparation.

Pre-milking

Forestripping the cow allows to identify possible clinical mastitis. The application of the pre-milking solution must be followed by a drying step. Wiping the teats allows easy cleaning, the elimination of the "residual" water and the disinfectant solution on the teats, as well as the stimulation of the udder.

Don't believe the myth . . .

Contrary to popular belief, following good pre-milking hygiene saves time: up to 20% less milking time compared to no pre-milking hygiene. Udder preparation stimulates production of oxytocin, a hormone that allows the release of milk.

So the reward for good hygiene is TRIPLE. It pays off on animal health, treatment for your cows and it saves time!

Which application method to use: foam or spray?

Both methods have their assets and benefits. The first and most important thing is to obtain a good coverage of the teats.

But effective spraying needs to be done in a very specific way and takes just as much time as teat dipping.

The increase in herd size, and consequently the increase in total milking time, has led some farmers to switch to spraying.

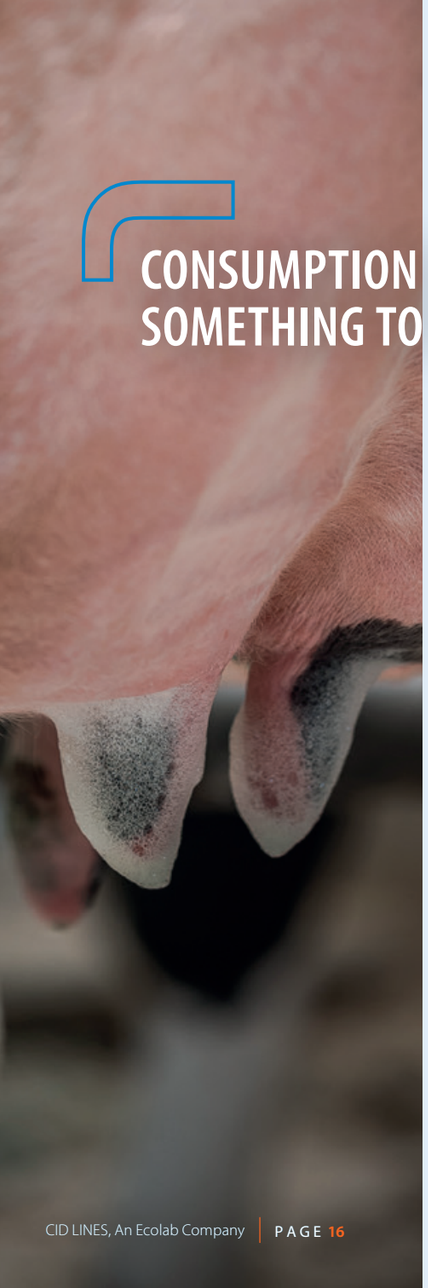
Good, effective spraying is done with by covering all 4 teats, on all sides of the teat. In practice, doing this correctly takes as much time as dipping 4 teats with a foam.

But even then spraying covers only 50% of the teat - or leaves half of it **UNTREATED** and **UNDISINFECTED**. This will never be the case with foam or dip as it covers the whole teat.

Consumption is something to consider

While a good spraying consumes on average 8 L/cow/year of product, foaming only consumes a maximum of 1L /cow/year and dip 3L/cow/year.

ALWAYS REMEMBER EFFICIENT CLEANING PREVENTS GERMS FROM CONTAMINATING LINER, MILK AND TEAT.



CONSUMPTION IS SOMETHING TO CONSIDER

What is the best option to dry the teats before attaching the teat liners?

Paper is dry and requires no maintenance. On the other hand, the quantity of waste to be managed is important.

Reusable towels (cloths, mops): it is an economical solution. It provides a good mechanical cleaning thanks to the fibers. This helps to remove the finest pieces of dirt. The cleaning effect can be improved by using a detergent such as a soap. On the other hand, it is necessary to ensure the maintenance of the reusable towels in between 2 milking, to make sure that they do not become a vector of transmission.

Microfiber cloths

Based on microfiber technology, the tissue combines softness, strength and powerful mechanical action.

It surpasses all other wipes by achieving the ultimate result in hygiene. Easy to clean and disinfect in a bucket (**DermaPowder®**) or in a washing machine (**DermaPerfect®**).

OPTIMUM MASTITIS PROTECTION FOR YOUR COWS

Keno™pure

The pre-milking solution for everyday

— Cleaning & disinfecting
— Skin conditioning
— Versatile application
— The perfect match for The Pure Foamer

Keno™pure is a concentrated product with excellent foaming properties. It penetrates soil and dirt quickly and cleans thoroughly, thanks to its mix of Ionic and non-ionic surfactant.

Keno™pure is formulated with lactic acid, a disinfectant biocidal active substance PT3, for teat disinfection before milking.

Keno™pure contains Glycerine for a good teat skin conditioning.

DermaPerfect®

Premium cloths disinfection

— Peracetic acid formula
— Broad spectrum powdery disinfectant detergent
— Energy saving as well cost saving

Originally developed for hospital environments, DermaPerfect® is a performant powdery disinfectant detergent for the washing machine.

Based on peracetic acid,its broad spectrum of action (bactericide, virucide, levuricide and sporicide) makes it the product of choice for disinfecting cloths to use between milkings.

Energy saving as well as cost saving
With its efficacy from 40 C, DermaPerfect preserves the fibers of your cloths as well as the longevity of your washing machine.

*Use biocides with precaution. Before any use, read the label and the information concerning the product. This product is not necessary available or registered in every country. Check the registration number in your country.

DURING MILKING

TIP:

For fast disinfection of the milking clusters, use a safe, low residue product like **Keno™cid 2100 5%** and automate this practice with CID LINES Pure Sprayer.

Disinfection is priority n°1!

In order to reduce cross-contamination between dairy cows during milking, disinfecting the clusters between each cow is a top priority. Ideally this practice should be extended to the whole herd. If that is not possible, it should be done at least for cows with mastitis, cows with high somatic cell counts and freshly calved cows.

TIP:

Remember that food contact directives in some countries demand a rinsing with drinking water, especially after the use of Peracetic Acid.

Keno™cid 2100 5%

- Based on peracetic acid (5%) and hydrogen peroxide
- Strong oxidizer
- low residue, fast acting

Product based on peracetic acid for cleaning and disinfecting milking clusters.

DISINFECTION IS A **TOP** PRIORITY

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POST-MILKING PREVENTION

A teat dip is a product that must fulfill several properties in order to perform in the farm environment, in contact with teat skin, with a long contact time. A teat dip should be assessed regarding the following criteria: conditioning, covering, disinfecting.

Post-milking priority n°1 : disinfecting

The most important control of germs is disinfecting teats before and after milking, as well as disinfecting clusters between each cow to prevent cross-contamination.

When the skin condition is under challenge, high emollient formulations, combined with a gentle disinfectant for the skin are highly recommended. Example: skin has a good tolerance for chlorhexidine or lactic acid based teat dips like **Keno™mint** or **Keno™cidin** or **Kenolac®**.

What are the options when skin condition is of good quality?

Oxidizing ingredients, such as iodine in **Keno™din, Keno™din Film** or **Kenostart®** can be recommended as they offer a large spectrum of activity, protecting against bacteria and also virus (responsible for warts) and algae (such as *Prototheca*).

DISINFECT BEFORE, DURING AND AFTER MILKING

Keno™din/ Keno™din SD**

For high infection pressure and viral skin infections

- Active iodine complex 3000 ppm
- Strong and long-lasting disinfection: bactericidal, yeasticidal and virucidal eff ect.
- High level of emollients
- Strong orange/brown coloration of the teats

Kenolac®/ Kenolac® SD**

Strong disinfection, soft for teats

- Disinfection based on Lactic acid 3,6%
- Approved for organic farms
- Strong yellow coloration of the teats
- Exist in SD version (Spray & Dip)

Kenostart®/ Kenostart® SD**

Power of Iodine vet drug

- Active iodine complex 3000 ppm
- Veterinary medicines for teat disinfection as part of prevention strategy for mastitis in lactating dairy cows.
- Pharma selected raw material
- Produced in GMP area
- Approved field trials as part of registration.
- Pharmacovigilance, dedicated quality system to guarantee efficacy and safe usage in the field.

** Exist in SD version: Spray and Dip

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POST-MILKING PREVENTION

Udder hygiene and cosmetic protection

Certain periods of the year are more challenging for teat skin condition it represents an aggravating factor regarding sanitary risk. This is especially the case, in winter, when outside temperatures are close to 0°C, or in spring, when the herd is going on pasture, the cold and drying wind increases the risk of teat chapping.

In addition to the sensitivity of the udder, these cracks are open doors to the development of *Staphylococcal* infections.

Keno™mint/ Keno™cidin has been developed to fight against such a challenge. It ensures disinfection thanks to chlorhexidine digluconate and superior teat care thanks to emollients and Menthae arvensis. In addition, the restoration of the skin hydration smoothes the teats, which facilitates cleaning before milking.

Do you have a milking robot or a post-milking spray equipment? Discover the sprayable version of **Kenolac®** with **Kenolac® SD (Spray & Dip)**, **Kenostart®** with **Kenostart® SD (Spray & Dip)**, **Keno™cidin** with **Keno™cidin SD (Spray & Dip)**, **Keno™mix** with **Keno™mix SD (Spray & Dip)**, **Keno™mint** with **Keno™mint SD (Spray & Dip)**.

THE SKIN HYDRATION SMOOTHES THE TEAT

Keno™mint/Keno™mint SD**

For maintenance of good teat skin and teat

- Disinfection based on chlorhexidine
- Chlorhexidine and Menthae arvensis combination allowing extra skin and teat-end conditioning properties
- Light blue coloration of the teats
- Exist in SD version (Spray & Dip)
- Wintertime

Keno™mix/Keno™mix SD**

Fierce against bacteria, gentle to the skin

- 1 mix allow 26 days of chlorine dioxide disinfection
- Strong and powerful disinfection, part of a strategy of high somatic cell count reduction
- Maintain a good teat skin condition
- Very low consumption thanks to its balanced viscosity
- Dark green colorization of the teats
- Exist in SD version (Spray & Dip)

Kenocidin® / Kenocidin® SD**

Chlorhexidine vet drug solution

- Disinfection based on chlorhexidine
- Veterinary medicines for teat disinfection as part of prevention strategy for mastitis in lactating dairy cows.
- Pharmacovigilance, dedicated quality system to guarantee efficacy and safe usage in the field.
- Approved field trials as part of registration.
- Pharma selected raw material
- Produced in GMP area

** Exist in SD version: Spray and Dip

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POST-MILKING PREVENTION

TIP:

After milking, the teat remains extremely vulnerable and receptive to bacteria and pathogens for a prolonged period of time. Use barrier teat dip to protect it during this critical period.

Udder hygiene and environmental risk prevention is a crucial step

The teat canal remains open for 30 to 120 minutes after milking which makes it extremely vulnerable and receptive to bacteria and pathogens.

The use of a product with barrier technology generates a second skin that protects the teat canal during the time needed to close.

It also prevents the teat from being soiled until the next milking. As an example, **Keno™din Film** creates a second skin effect and is removed at the next milking.

Keno™din Film's second patented barrier technology combines three essential elements for maximum effectiveness:

- A thickener that controls adhesion and limits dripping.
- A polymer that adapts to the teat shape and size during milking and protects against mechanical abrasion.
- A softener that makes the polymer elastic/flexible.

Keno™din Film

Second skin protection

— Barrier teat dip based on iodine complex 3000 ppm
— Low consumption
— Moisturizes the skin
— Long lasting protection
— Easy to remove with Keno™pure

BARRIER TECHNOLOGY SECOND SKIN PROTECTION

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NOTES

CID LINES, An Ecolab Company, is by your side in your battle to prevent and treat mastitis. These tips and practices will help you significantly. But we have even more to offer. Do not hesitate to contact our representatives if you need help, advice or products to try out.

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