

# What to consider when choosing a teat dip

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**M**astitis is the number one disease with economic impacts to dairy producers. In fact, there are more than 30 micro-organisms known to cause mastitis and seemingly just as many teat dip products.

Teat disinfection is a cornerstone of any milk quality programme. So how do you choose the best product for your dairy operation? The best approach is to choose a teat dip that:

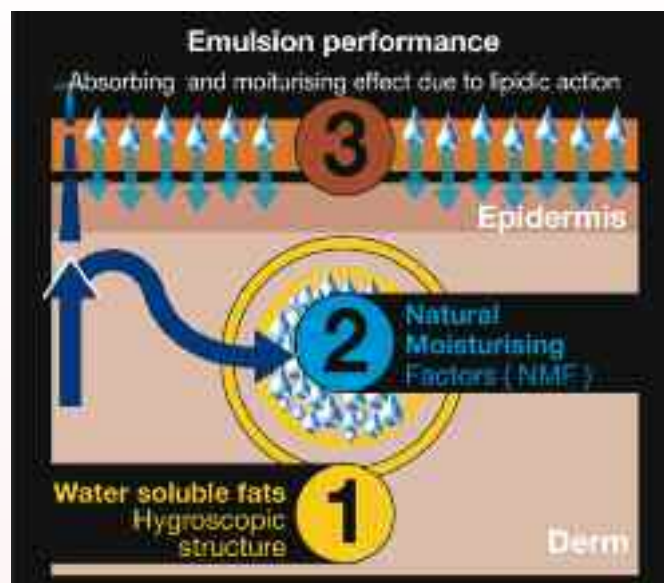
- Works in your specific housing and management system.
- Consistently and effectively kills mastitis causing organisms.
- Maintains healthy teat skin.
- Has been proven effective and is backed by committed service.
- Has been duly reviewed and registered by competent authorities.

## Management

What teat dip is best for your operation can depend on your management and the environment. For pre-milking, wet foam products followed by dry wipe cleaning will provide the best cleaning and disinfection results, especially against environmental mastitis.

For post-milking, generally, non-barrier teat dips and emulsion teat dips are suited for cooler, drier climates, whereas, hot, humid weather calls for a barrier.

Some dairy farmers switch teat dips with the seasons for a customised approach. For example, some farmers might use barrier dip only during rainy seasons or excellent cosmetic emulsion type prod-



**Fig. 1. Effects in and on the teat skin. 1. Acts to reinforce the natural moisturisation properties of the epidermis. 2. Contains hygroscopic agents to maintain optimum skin moisturisation. 3. Acts to moisturise the epidermis while reducing water losses by perspiration.**

ucts such as Ecolab Velucid in cold months.

Walk through your barns. If you need boots, your cows likely fight environmental mastitis pathogens, so pre-foaming disinfection if allowed, followed by a barrier would be a smart choice. True barrier teat dips such as Ecolab Ilo shield and Phytoshield provide excellent protection while letting the teat skin breathe.

If you can wear 'church shoes' into the barns, cows are more likely to face contagious mastitis spread during milking, so a non-barrier teat dip would be advisable.

## Kill power

Generally, the stronger the germicide – the killing agent in teat dips – the better chance of reducing bacterial levels on skin and the lower the risk of mastitis. Consider the germicide's speed of kill and how many organisms it affects.

The most common laboratory method uses an interfering agent (for example, milk) and a bacterial

challenge added to a teat dip sample. After a designated period of time, the mixture is neutralised to stop the germicidal action and the remaining viable bacteria are counted.

In parallel, a non germicidal treatment is also run as a control. Results are often reported in terms of Log<sub>10</sub> reduction which indicate how much the test product inactivated bacteria at the given exposure time compared to the control.

The Log value shows how many zeros follow (for example, Log 5 = 100,000, i.e. a germ count has been

reduced by a factor of 100,000 = kill rate is 99.9%).

Choose teat dips that demonstrate broad spectrum kill and have been tested with an interfering agent like milk. Many germicidal technologies do not share the same breadth of killing power and weaknesses in germicidal systems are often found when testing with real world interfering agents.

The Ecolab standard is to demonstrate at least 5 Log reduction in 15-30 seconds with a 10% milk challenge against the eight most common mastitis relevant bacteria.

It can be difficult for producers to judge accurately the germicidal performance of a teat dip because mastitis is complex in both the range of micro-organisms and the array of environments in dairies. While germicidal information can be useful, only make product comparisons if germicidal testing was conducted within the same study.

## Teat condition

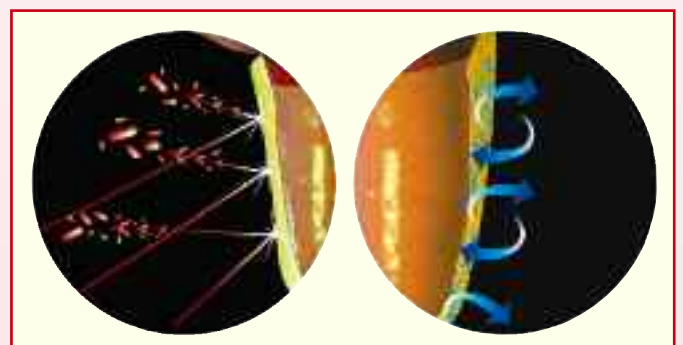
Teat dips should contain skin conditioning components, such as humectants, emollients, and exfoliants, to help maintain healthy skin in many environmental conditions.

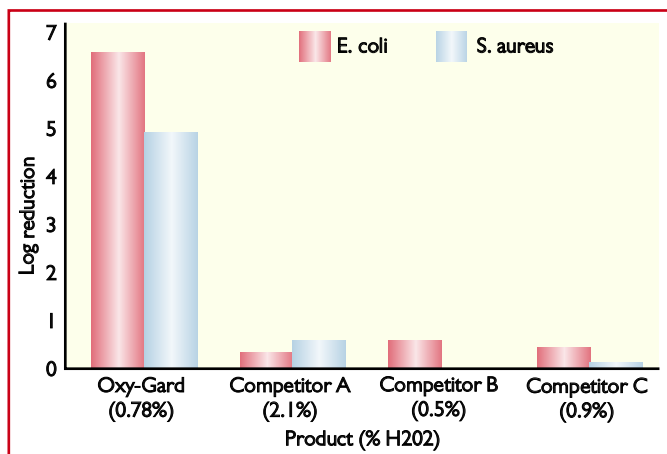
Rapid changes in weather, improper milking equipment operation, harsh chemicals and infections can all irritate teats.

Hyperkeratosis, in particular, is a growing issue as production and parlour throughput is pushed.

It is worth mentioning that empirical observations have shown that

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**Fig. 2. Quality formulation shows better germicidal performance using less active ingredient than competitor.**

Continued from page 29 specific teat dips active ingredient such as acidified sodium chlorite (ASC), chlorine dioxide, bioxidium or lactic acid are beneficial in case of hyperkeratosis.

It is difficult to design quality research studies to identify true teat dip effects. The best studies are performed using split udder designs where half the udder is treated with one product and the other half with another.



They offer the lowest risk of bias, but unexplained variation in scoring is still observed and the limits in discrimination power are apparent.

Good skin conditioning is a very important factor when selecting a teat dip and Ecolab is committed to develop the best methods to evaluate skin conditioning properties of teat dips.

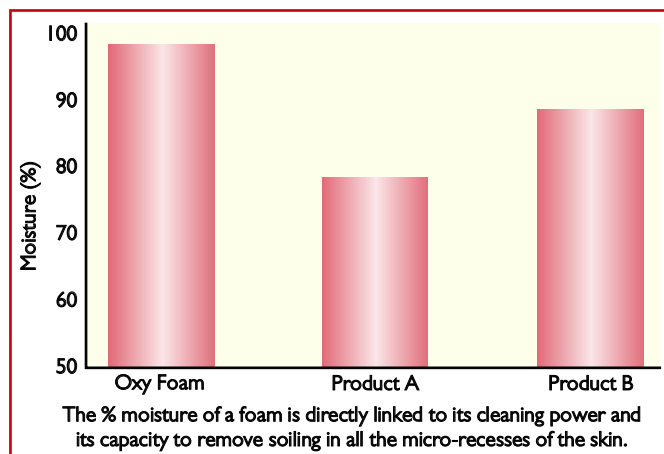
### Formulation quality

It is important to be confident in a consistent quality teat dip with every container.

The quality of a formulation will determine how well the active ingredient is performing and how well the physical and cosmetic features are delivered.

Only quality formulations with good stability will bring the same consistent kill rate and skin properties over the shelf life.

Formulation quality is not only about efficacy but also about safety



**Fig. 3. The impact of formulation quality on the foam cleaning performance.**

to applicators and to animals. Some ingredients are more dangerous than others and not all companies impose on themselves strict guidelines to select their raw materials.

Prefer products from companies that do not compromise on product safety and have the structure to support it.

Teat dips must be manufactured under professional manufacturing conditions and in the case of Vet drug under Good Manufacturing Practices (GMPs), which are procedures to help ensure the quality, safety and efficacy of drug products.

Companies with good manufacturing programmes will include a range of testing to approve all incoming raw materials and outgoing finished goods.

Ecolab applies a standard that no new product can be sold before six months of accelerated stability testing is in hand to ensure the product does not drop below the intended label level coupled with germicidal efficacy data.

After product launch, there is an ongoing stability programme where each year selected lots of each product are monitored over their shelf life to ensure quality parameters do not change with time.

These are just a few of the basic quality standards required.

Quality systems impart a significant cost and not all teat dip manufacturers apply the same quality standards.

Unfortunately, there is no way to look at a product label and discern the level of quality.

High quality products are supported by quality microbiology studies and clinical studies for vet drugs.

Kill power, skin conditioning traits and quality of a teat dip are all important factors when choosing a teat dip.

But, do not just look at the label, consider your herd's management factors and use the most thoroughly tested and proven teat dips from providers that offer a reliable service and who adhere to high quality standards. ■