



# ESCHERICHIA COLI MASTITIS

## CONTROLLING E.COLI MASTITIS

A *mastitis* is an inflammation of the mammary gland which is almost always due to the effects of infection by bacterial pathogens. When the balance between host defenses and invading pathogens attracts a marked inflammatory response, clinical signs become apparent. Infections from any pathogen can be clinical or subclinical, depending on the duration of infection, host immune status and pathogen virulence.

Environmental *mastitis* are mastitis caused by bacteria that can be found in the cow's environment. The primary habitat of bacteria causing environmental mastitis is in the environment: feces, soil, bedding or water. The contamination can occur during environmental contact of the teats at milking time or between milkings, or during dry period. Environment mastitis are often clinical mastitis with a low increase in somatic cell count. They can appear in early lactation and also during the drying period.

One of the main pathogens responsible of environment *mastitis* is *Escherichia coli*. *E.coli* is a gram negative, mobile, asporulate and aerobic germ which is the most dangerous one week after calving. Some self-cure can appear but in other cases the quarter is lost and the animal can die.

*E.coli* is found in the soil, the bedding, the manure and in dirty or undrinkable water. The major source of *E.coli* in the cow's environment is presumed to be the adult bovine alimentary tract, where most *E.coli* tends to be sensitive. The enteric flora of calves is in general more resistant than that of adults. The fact that cows are often housed at calving proximity to young calves in whom levels of resistance in the enteric flora are much higher than in adults is a point to take in consideration to handle a *E.coli* mastitis problem.

## PREVENTION IS THE KEY: reduce the number of bacteria to which the teat end is exposed.

The control of clinical *mastitis* usually focuses on the prevention and elimination of pathogens that arise from an environmental reservoir:

### • Environment:

- Cow's environment should be as clean and dry as possible.
- Cows should not have access to manure, mud, or pools of stagnant water. Herd environment should be as dry and clean as possible. The environment of maternity and dry cow is as important as that of the lactating cow. Avoid overcrowding, poor ventilation and general lack of farm cleanliness and sanitation.

### • Bedding:

- Numbers of bacteria in bedding will depend on available nutrients, amount of contamination, moisture and temperature.
- Inorganic materials such as sand or crushed limestone will be low in nutrients and moisture and therefore, bacteria.
- Finely chopped organic bedding materials such as sawdust, shavings, recycled manure, pelleted corncobs, peanut hulls and chopped straw frequently are high in bacteria numbers.

### • Teat dipping

Use a teat dip with a proven germicidal activity, efficient during milking interval and allowing a good teat conditioning. Kenostart, based on stabilized iodine has a proven efficacy against *escherichia coli* in dirty conditions (en norm 1656).

- **Dry cow therapy**

- Recommended for all quarters of all cows at drying off.
- Helps control environmental streptococci during the early dry period.
- Has little or no value in controlling coliforms.
- Not effective during the period prior to calving or select a long action infusion.

- **Proper milking procedure**

- Proper milking procedure is important.
- Teats, but not the udder, should be washed.
- Teats should be clean and dry before the milking machine is attached.
- Milking wet udders will likely increase *mastitis*.

- **Predipping**

To milk cows with wet udders and teats is likely to increase the incidence of environmental *mastitis*. Teats should be clean and dry prior to attaching the milking unit. Washing and disinfecting the teats, not the udder, are recommended. Use water of good sanitary quality for udder preparation. Use a germicidal product to reduce the level of germ on the teats before milking in order to avoid their entry in the udder through the milking machine. Kenopure has cleaning, disinfecting and conditioning properties. It is efficient against *e.Coli* according to en 1656.

- **Milking machine**

- Should be maintained and operated properly.
- Badly functioning milking machines resulting in frequent liner slips and teat end impacts will increase environmental *mastitis*. Regularly control milking equipment and avoid its contamination.

- **Nutrition:**

- Proper nutrition will reduce the risk of environmental *mastitis*.
- Care should be taken to feed dairy cattle a balanced ration.

## Advised protocols

For each possible vector, a hygiene protocol must be implemented. See the specific purpose protocol :



GENERAL  
HYGIENE



PERSONNAL  
HYGIENE



MILKING  
MACHINE



MILKING  
ROUTINE