

What is a mastitis problem? - Research indicates low SCC herds can have clinical mastitis cases as frequently as high SCC herds.

- Bulk tank or weighted average SCC over 200,000
- Discarding over 0.5% of the milk produced per year
- More than 1 to 2 clinical mastitis cases per 100 cows per month

What are the two types of mastitis pathogens?

Mastitis-causing bacteria can be divided into two groups based on the source of infection: contagious and environmental.

The major contagious pathogens are *Streptococcus agalactiae*, *Staphylococcus aureus* and *Mycoplasma species*. With the exception of some mycoplasmal infections that may originate in other body sites and spread systemically, these three organisms gain entrance into the mammary gland through the teat canal. Contagious organisms are well adapted to survival and growth in the mammary gland and frequently cause infections lasting weeks, months or years.

Primary environmental pathogens include coliforms, streptococci other than *Strep ag.*, and staphylococci other than *Staph aureus*. The primary source of environmental pathogens is the surroundings in which a cow lives. Therefore, control methods developed for contagious pathogens are not as effective against environmental pathogens.

What is *Streptococcus agalactiae*?

Strep ag is a contagious pathogen and can be controlled and eradicated from a herd by good milking practices, including proper udder preparation using single use towels, post-milking teat dip and treating and segregating infected animals. This is one of the few organisms that responds very well to most commercial intramammary antibiotic products in both the lactating and dry period.

However, if a chronic infection does not respond to therapy, the cow should be culled to prevent infecting other cows. *Strep ag* eradication is relatively easy and cost-effective. By culturing cows to determine their infection status, infected animals can be treated effectively to eliminate the bacteria.

What is *Staphylococcus aureus*?

Staph aureus commonly produces long-lasting infections persisting through the lactation and into subsequent lactations. *Staph aureus* infected cows should be identified and milked last or milked with a separate unit from those used on uninfected cows. Antibiotic therapy during lactation usually does not eliminate infection. Infected quarters not responding to a single regimen of therapy are generally unresponsive to additional lactation treatment, regardless of culture and sensitivity tests. Dry cow therapy may give better results than treatment during lactation, but even then, chronic infections can persist into subsequent lactations. *Staph aureus* infection status of cows should be one of the considerations when making culling decisions.

What is *Mycoplasma*?

There is no effective treatment for mycoplasma mastitis, but the disease can be controlled by identifying infected animals through culturing milk samples from all cows in the herd, followed by segregation and/or culling the infected animals. If *Mycoplasma sp.* infected cows remain in the herd, they should be milked last or with a separate unit from those used on uninfected cows. Rigid sanitary precautions must be followed including the use of single-use towels. *Mycoplasma sp.* does not respond to antibiotic therapy during the lactation or dry period so infected cows should be culled.

What is Coliform bacteria?

The coliform bacteria which often cause mastitis include *Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella oxytoca* and *Enterobacter aerogenes*. Coliform infection rates are about four times greater during the dry period than during lactation. The rate is significantly higher during the first two weeks of the dry period as well as the two weeks before calving. The infection rate is highest in the early stage of lactation and decreases as lactation advances. Infection rates increase with each succeeding lactation. Accurate records of new clinical cases, together with milk cultures from clinically infected quarters, help assess the extent of coliform mastitis. Unfortunately, this impact is not as easy to measure with bulk tank somatic cell counts, individual cow somatic cell counts, whole-herd cultures, culture of a subpopulation of cows or bulk tank cultures.

What is Environmental Streptococci?

Environmental streptococci and coliform infection rates are nearly identical. The percentage of quarters infected with environmental streptococci at any one point in time is generally low and seldom exceeds 10 percent. The impact of environmental streptococci mastitis is best assessed by culturing milk from fresh cows, cows going dry and clinically infected quarters. Individual cow somatic cell counts and whole-herd cultures are less effective monitoring schemes. Bulk tank milk bacterial and somatic cell counts can be elevated by infections caused by environmental streptococci. However, the extent of environmental streptococci in a dairy herd cannot be reliably assessed by those measurements.

What is Coagulase-Negative Staphylococcus (CNS)?

CNS species are the organisms most frequently isolated from bovine milk samples. CNS species usually are designated as "skin flora opportunists", rather than as environmental or contagious bacteria since CNS are a part of the normal teat skin flora. CNS can colonize the teat canal. Some species also are found free-living in the environments. A culture may be positive for CNS, but this does not mean the quarter is infected. Because CNS are commonly found on teat skin and in the streak canal, they are a common cause of contaminated milk cultures.