

Staph. aureus Mastitis

As all dairy producers know, mastitis is an age-old problem and even today it continues to be the most significant disease of dairy cattle, costing the Canadian dairy industry millions of dollars annually. Staph. aureus is highly contagious and is a common mastitis bacteria found in Canada. Early infection detection, even before clinical signs are present is extremely important for managing this type of mastitis.

A Practical Look at Contagious Mastitis

The following is an excerpt from National Mastitis Council (NMC) Factsheet. For more information visit NMC at www.nmconline.org or the Canadian Bovine Mastitis Research Network at www.mastitisnetwork.org.

Introduction

Pathogenic microorganisms that most frequently cause mastitis can be divided into two groups based on their source: environmental pathogens and contagious pathogens. The major contagious pathogens are *Streptococcus agalactiae*, *Staphylococcus aureus*, and *Mycoplasma* spp. 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. The infected gland is the main source of these organisms in a dairy herd and transmission of contagious pathogens to uninfected quarters and cows occurs mainly during milking time.

Organisms - *Staphylococcus aureus*

Staphylococcus aureus can be difficult to eradicate, but is definitely controllable. Infected udders are the most important source of infection. The organism readily colonizes teat skin lesions and the teat canal, and eventually passes into the mammary gland. The organism may also survive at other sites on the cow. Mastitis caused by Staph. aureus produces significant damage to milk-producing tissues, and decreases milk production with reported losses of 45% per quarter and 15% per infected cow. Recurring signs of mild clinical mastitis often causes additional losses. High bacteria counts in bulk milk are generally not seen with Staph. aureus mastitis. However, as the number of infected cows increases, the bulk milk SCC increases, resulting in decreased milk quality. Herds with bulk tank milk SCC greater than 300,000 to 500,000 cells/ml often have a high prevalence of Staph. aureus infected quarters.

Management Programs

Transmission of pathogens that cause contagious mastitis from infected cows to uninfected herdmates most generally occurs at milking time. Management factors important in transmitting contagious pathogens include the milking machine, milkers' hands, teat washing materials and treatment procedures. Spread of contagious pathogens can be greatly reduced by good udder hygiene and postmilking teat dipping.

Control Procedures - *Staphylococcus aureus*

Staphylococcus aureus commonly produces long-lasting infections that can persist through the lactation and into subsequent lactations. To prevent Staph. aureus intramammary infections, it is necessary to limit the spread of this organism from cow to cow and to reduce to a minimum the number of infected cows in a herd. To attain these objectives, milk from infected cows should never come in contact with uninfected cows. *Staphylococcus aureus* infected cows should be identified and milked last, or milked with a separate unit from those used on uninfected cows. Clinical mastitis sometimes occurs following prolonged subclinical infections. Antibiotic therapy during lactation may improve the clinical condition but usually does not eliminate infection. Dry cow therapy may give better results than treatment during lactation, but even then, chronic infections can persist into subsequent lactations. Staphylococcus aureus infection status of cows should be one of the considerations when culling decisions are made.

Maintaining a Staph. aureus-free herd is possible but may be challenging as Staph. aureus may reappear even in a closed herd. To achieve a "Staph. aureus-free" status, every infected cow must be identified and handled as described in the preceding paragraph. The "uninfected" herd should be closely monitored by individual SCC and testing.

Summary - Controlling Contagious Mastitis

- 1. Prepare teats properly prior to milking.** Udders should be dry, and teats should be cleaned and dried prior to machine attachment using single-service paper towels or individual cloth towels which have been laundered and dried after each milking.
- 2. Use adequately sized, properly functioning milking equipment.** Use milking machines in a proper manner on properly prepared cows. Avoid unnecessary air admission into the teat cups during unit attachment, machine stripping and unit take-off that can cause irregular vacuum fluctuations.
- 3. Disinfect teats.** Use an effective product after every milking. *Postmilking teat disinfection is the single most effective practice* to reduce the rate of new intramammary infection by contagious pathogens.
- 4. Assess clinical cases for treatment decisions.** Most cases of clinical mastitis other than those caused by Strep. agalactiae, are only minimally affected by antibiotic therapy during lactation. Work together with the herd veterinarian to design a management protocol for mild, moderate, and severe cases of clinical mastitis.
- 5. Use dry cow therapy.** Treat each quarter of every cow at drying off with a single dose of a commercially formulated, approved dry cow treatment product.
- 6. Consider culling chronically infected cows.** Cows which are infected with Strep. agalactiae, Staph. aureus, or Mycoplasma spp. present a risk to non-infected cows in the herd.
- 7. Maintain a closed herd.** If new animals are purchased, test them before adding them to the herd.
- 8. Establish an active milk quality program with the herd veterinarian.**