

***Staph aureus* Mastitis – Different Looks**

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Mastitis caused by *Staphylococcus aureus* can present the dairyman with several different looks. This fact was brought into focus by two recent mastitis histories. One represented a more sudden occurrence while the other had been going on for several years. Many cows were infected in both herds; however, the indications of infection were different. In the herd outbreak, the dairyman made a quick response while in the other long term situation; the dairyman had delayed action for a long time.

The sudden outbreak happened in a herd of about 800 cows and represented new infections in herd that had been relatively free of *Staph. aureus* mastitis. In this herd, the bulk tank count rose quickly to nearly 800,000 cells/ml over a period of a couple of months. During this time, more non-responsive, mild cases of mastitis were seen than normal. The creamery reported finding *Staph. aureus* in their routine bulk tank samples. As this dairyman worked in close association with a veterinarian with interest in mastitis, a total herd culture was done to identify as many of the newly infected *Staph. aureus* cows as possible. The herd culture found more than 150 cows infected with *Staph. aureus*.

In the herd with a long term history of elevated bulk tank somatic cell counts, the bulk tank somatic cell counts ranged from 300,000 to 600,000 with the average of about 450,000 cells/ml. As the counts were generally below the action limit for the cooperative, no corrective action was suggested by the cooperative milk quality representative. On this dairy, there were repeated cases of mastitis with recurrence of mild clinical cases every 3-5 weeks in many of the same cows. Despite intramammary infusion with different antibiotics, signs of mastitis would soon occur again. As mastitis data was kept on a wall calendar, the actual numbers of repeated infections was not readily apparent. This dairyman utilized his veterinarian primarily for emergency situations and had not consulted with him for advice on the on-going mastitis situation. Identification of *Staph. aureus* as the causative bacteria followed the suggestion by the local county cooperative advisor to take some milk samples for culture. Milk culture of the entire herd of about 350 milking cows revealed nearly 60 *Staph. aureus* infected cows.

In the herd with a sudden increase in bulk tank somatic cell count, the outbreak probably resulted from an introduction of *Staph. aureus*-infected cows into the herd. Or perhaps there was a smoldering infection that was allowed to flare up due to a sudden flaw in the milking technique or decreased attention to teat dipping. As most of the cows were not previously infected, their immune systems responded with a huge outpouring of somatic cells to fight these new infections. The result was a rapid increase in bulk tank somatic cell count reflecting the spread of infection to other cows.

The herd with the long-standing infection with *Staph. aureus* had long since pasted the acute stage of infections. While the mammary glands continued to respond to the infections, these chronic infections had reached a stage of equilibrium between the bacteria and defensive mechanisms. Thus the somatic cell response was sufficient to signal a continuing problem but not enough to trigger an action response from either the cooperative or the dairyman.

These two different situations tell a lot about the dairymen's interaction with their cooperative and veterinarians, but the point to be made here is that under different situations infections with *Staph. aureus* can be anticipated to give widely different bulk tank somatic cell count readings. This variation should be kept in mind when attempting to speculate about the cause of elevated bulk tank somatic cell counts or their causes.

In both of these herds, the veterinarians became totally involved in the mastitis problem. Total herd cultures revealed the extent of the infections within the herds for each dairyman. One herd intensified their efforts to monitor new infections and other began a monitoring program. They used frequent culture of the bulk tank milk as well as culturing all fresh cows and cows with clinical mastitis. Each dairyman renewed their efforts to provide complete teat coverage with a post-milking teat dip using dip cups rather than spraying. One herd began total dry cow antibiotic treatment. All the identified *Staph. aureus*-cows in both herds were put into separate milking strings and milked after all other cows.

These two dairymen will be able to recover from their current situations, however, it will take several years of concentrated effort on their parts. For the time being, they have some additional financial burdens in a time of low milk prices. Over the next year or two they will also be facing the need to market most of the *Staph. aureus* cows as these infections generally respond very poorly to antibiotic therapy. This will also be a financial loss equal to the difference in beef price and replacement price. This can be spread out over time to ease the impact. Hopefully they will be able to sustain their control and prevention efforts to overcome these *Staph. aureus* infections.