

Streptococcus agalactiae Fact Sheet

Mastitis caused by *Streptococcus agalactiae* is still a common cause of elevated Bulk Tank Somatic Cell Counts [BTSCC] and can also be the cause of elevated Standard Plate Counts [SPC] or Plate Loop Counts [PLC] in Bulk Tank milk. This disease is still often undiagnosed, but is highly contagious. Clinical signs of mastitis are often lacking with this pathogen, but average individual cow Somatic Cell Counts [SCC] for this pathogen run in the 800-900,000 range. Prevalence of this pathogen is decreasing but can infect from 1-99% of the cows in a herd.

Streptococcus agalactiae and Disease

Streptococcus agalactiae causes mastitis in dairy cattle. When infected, the vast majority of cows show no signs of clinical mastitis, though some will show intermittent mild clinical signs of mastitis including clots and/or flakes in the milk and occasional mild swelling of the affected quarters. Infected quarters can run extremely high bacteria counts, as high as 500,000,000 CFU/ml of milk. As such, these infected quarters can produce enough bacteria to cause illegal elevations in the SPC or PLC.

Sources

Streptococcus agalactiae can only live and reproduce in cows' udders. It does not live in the environment for more than a few days under ideal conditions. Infected udders are considered to be the only source of *S. agalactiae*. As such, purchased cows [and occasionally, first calf heifers] are the primary sources of new infections with *S. agalactiae*.

Diagnosis

Streptococcus agalactiae are Gram-positive cocci that often form chains. They grow well on most standard enrichment media including the standard blood agar with 0.5% esculin. *Streptococcus agalactiae* is beta-hemolytic, esculin negative, CAMP test positive and Lancefield group B positive. *Streptococcus agalactiae* is the only bacteria in this Lancefield group. A human pathogen exists in this Lancefield group and is genetically similar to those *S. agalactiae* that cause mastitis in dairy cattle. This human pathogen, also called *S. agalactiae*, causes a severe disease in newborn children which is fatal in 25% of cases. Recent testing has shown that while the human pathogen can cause mastitis in dairy cattle, the strains that cause mastitis in dairy cattle are genetically different from the human strains, and that the dairy strains do **not** cause the diseases seen in humans. Thus, milk from dairy cows infected with *S. agalactiae* does not represent a disease risk for humans.

Epidemiology

Streptococcus agalactiae is introduced into a herd most often through the purchase of infected animals, usually cows. Rarely, heifers are infected at some point in their lives

and can subsequently freshen infected with *S. agalactiae*. Also rarely, *S. agalactiae* can be brought from one infected herd to another on the hands and clothing of people. Infection most often occurs during milking and is passed from cow to cow on contaminated milking equipment, hands and common use towels used between cows in pre-milking udder preparation.

Streptococcus agalactiae mastitis often becomes chronic, and cows infected with *S. agalactiae* have average Linear Scores of 6.2. This infection can exist in the background for years with small numbers of infected cows before surfacing as a major mastitis problem in a herd. Herds that have not purchased cattle for many years can suddenly emerge with illegal somatic cell counts due to *S. agalactiae* mastitis. It is postulated that these herds can maintain a very low incidence of *S. agalactiae* mastitis for years by good udder prep, good post milking teat dipping and effective dry cow therapy. Then, for whatever reason but typically due to a break in prevention practices, the incidence of new infections rise in these herds, and suddenly as many as 50% of the cows in the herd can be infected with *S. agalactiae*.

Control

Mastitis due to *S. agalactiae* is still very responsive to intra-mammary antibiotic therapy. Experience in New York State has shown that treating all 4 quarters 2-3 milkings in a row yields 75-85% cures on average. Some antibiotic resistance has emerged over the years, but many strains of *S. agalactiae* remain sensitive to penicillin and other approved beta-lactam drugs.

Elimination of this pathogen from a herd is both possible and cost effective. Elimination requires identification of all infected cows followed by treatment as soon as culture results are available. The herd should be re-sampled 3-4 weeks after the therapy to identify new infections and cows whose infections were not cured following the initial therapy. This should be continued until at least one and preferably 2 whole herd surveys are negative for *S. agalactiae*. The bulk tank should then be monitored on a monthly basis to assure that *S. agalactiae* has been eliminated from the herd.

Good udder prep, post milking teat dipping and universal dry cow therapy have been shown to control *S. agalactiae* mastitis in the past. Experience in New York, however, has shown that this more conservative approach rarely if ever eliminates this infection from a herd. In fact, many herds whose bulk tank somatic cell counts have reached penalty levels maintain that they are following those practices. These practices may fail due to poor teat dipping or teat spraying, and skipping milkings to dry cows off prior to dry cow therapy.