

Environmental Streps

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Background:

Many Streptococcal species are present in the cow's environment. Sources of "environmental Streps." include manure, soil, bedding and many sites on the cows' body. Species of environmental Streps. include: *S. dysgalactiae*, *S. uberis*, *S. bovis* and *Enterococcus faecalis*. These bacteria are sometimes referred to as "non-ag." Streps. or Strep. species.

Symptoms:

All dairy herds must deal with mastitis caused by environmental Streptococcus because of their widespread presence in the environment. Herds that have controlled contagious mastitis may have more problems with environmental streps. Herds with environmental mastitis problems can have high bulk tank somatic cell levels and high levels of clinical cases.

Culturing of the bulk tank can indicate the level of streptococcal bacteria in the bulk tank. However the source of the bacteria can be from the teat skin (hygiene) or multiplication in the udder (mastitis). Bacterial Plate counts can be elevated due to cows with mastitis shedding very high numbers of this bacteria. Herds adopting a non-antibiotic treatment protocol for mild mastitis may experience elevated plate counts and an increase in the recurrence or relapse rate of clinical cases. The increase in relapse rate is due to the fact that the infection is never cured and clinical signs come and go.

Cows with mastitis caused by environmental Streps. generally have mild to moderate clinical signs. Their somatic cell count may be in the millions and can shed large numbers of bacteria into the bulk tank. This high level of shedding has led some researchers to believe that they can behave in a contagious manner.

Diagnosis:

Bacteriological culturing of the milk can be used to determine whether mastitis is caused by environmental Streptococcus. Some laboratories will report the results as non-ag Streps. or Strep. species. Other laboratories will report the species of Streptococcus present. This level of detail may be important in designing treatment protocols or assessing their effectiveness.



Treatment:

The spontaneous cure rate for subclinical mastitis caused by environmental Strep. has been reported to be around 65%. However spontaneous cures of clinical mastitis are reported to be low (<20%) and affected cows may have relapses if they do not receive appropriate antibiotic therapy.

Treat clinical cases of mastitis caused by environmental streps with approved intramammary antibiotic products for an appropriate number of treatments. Extended treatment periods (up to 6 days of intramammary treatment) to treat *Strep uberis* infections have been shown to result in cure rates that exceed 90%. In general environmental Strep. respond to penicillin-based antibiotics with the exception of some Enterococcus species.

Preventive Management:

The choice of bedding can influence the types of bacteria that your cows' udders are exposed to. Environmental streps. thrive in straw. They also thrive in cool, damp environments. Therefore grooming of stalls should be performed two to three times a day to remove manure and wet bedding.

For sand based stalls it is critical that the back 2 to 3 feet of each stall be cleaned and leveled at each milking. A weekly schedule of replacing sand in the freestalls will insure the stalls remain full of clean sand. Develop standard operating procedures for maintenance of clean comfortable stalls.

Make sure that employees responsible for stall maintenance and scraping alleys understand their role in mastitis prevention and control. Bedding cultures can be helpful to assess whether current practices are sufficient to keep environmental streptococcal counts low.

The dry period is a time when new subclinical infections can occur. The times of greatest risk for acquiring new infections during the dry period are two weeks after dry off and the prefresh/calving period.

Dry cow treatment will provide protection for the first two weeks of the dry period. The housing and bedding of the cows should be carefully scrutinized for the dry and prefresh groups and the calving pens. If a bedded pack is employed make sure not to overcrowd it. If pastures are used, make sure that they are in good condition.



Having multiple paddocks available allows grasses to recover after wet conditions. For the prefresh group, properly designed freestalls are usually more desirable than a bedded pack because you can control where the cow places her udder during this high-risk period.

Many farms are focusing on individual use calving pens with a complete change of bedding with each calving. Changing of the bedding with each calving does not allow the bacterial counts in the bedding to rise above acceptable levels. Internal teat sealants have been shown to be effective in limiting the amount of new infections during the dry period.

To minimize the risk that the milking machine could play a role in mastitis make sure to keep it properly maintained. Regular milking system analysis will ensure that the teat end vacuum is properly set and stable.

Stable teat end vacuum will reduce the chance of reverse jetting of bacteria into the mammary gland during milking. Proper premilking teat sanitation will decrease the amount of bacteria in the milk in the event that reverse jetting occurs. Good teat end stimulation (10-20 seconds) and a prep-lag time of one to two minutes will ensure good milk letdown and decrease overall machine on time. Keeping the inflations clean is also very important.

