Milk Money Fact Sheet 05

Mycoplasma Mastitis

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Background:

Mycoplasma are bacteria-like organisms that can cause diseases in animals. They differ from most bacteria by the fact that they lack a cell wall; instead they are enveloped in a membrane. Mycoplasma species are capable of causing mastitis, arthritis, reproductive disease, ear infections and respiratory disease in dairy cattle. *Mycoplasma bovis* is the most common species of mycoplasma to cause mastitis in dairy cows.

Mycoplasma mastitis is classified as a contagious mastitis pathogen because the infection can be spread from cow to cow during milking. The reservoir for the infection is the udder and lungs of other infected cattle. Unlike other forms of contagious mastitis, mycoplasma infection can spread from the respiratory system via the blood or lymph system to the udder.

Symptoms:

Herds with mycoplasma infections may experience an increase in mastitis that does not respond to treatment. This may lead to an increase in the death loss or culling rate due to mastitis. New infections may occur after the herd has experienced an outbreak of pneumonia. Management factors associated with mycoplasma outbreaks include: purchasing heifers, use of multi-dose intramammary infusions and inadequate milking procedures.

Cows with clinical infections may have abnormal milk that is often brown to tan with flaky sediment. Some milk samples may appear to have a sandy, granular appearance when allowed to settle. The infection may spread from one infected quarter to multiple quarters despite treatment. Frequently the affected cows' milk production will drop dramatically. Clinical mastitis symptoms may follow an episode of pneumonia. Subclinical infections do occur with or without elevated somatic cell counts.

Diagnosis:

Bulk tank culturing is a good way to monitor a herd for the introduction of mycoplasma mastitis. Like *S. aureus,* shedding patterns may lead to a false negative bulk tank sample. The dilution effect may also limit the ability of detecting a mycoplasma positive cow from a large herd. For this reason it is recommended to sample pens of no larger than 200 cows. Several companies market an insert to place in the milk line with a sampling port.

Individual cows with clinical mastitis may be cultured for mycloplasma. In milk samples obtained from individual cows, a negative mycoplasma culture usually means that the organism is not present. However, a false negative from an individual cow milk sample can occur.

For individual milk samples to be tested for mycoplasma, it must be specifically requested. To detect mycoplasma, milk is plated on selective media and incubated for seven days in a carbon dioxide incubator. Freezing milk samples will reduce the sensitivity of culturing. The sensitivity of a test is it's ability to correctly identify all the positive samples. Therefore, whenever possible, submit chilled, fresh samples.

Treatment:

There is no approved intramammary antibiotic that is effective for treatment of mycoplasma mastitis. Penicillin-based antibiotics that attack the cell wall are ineffective for mycoplasma. Cull infected cows promptly or strictly segregate the infected group and milk them last.

Do not use treatments from multiple dose vials for intramammary infusion. Only use FDA approved individual dose antibiotic preparations for intramammary treatment. During several outbreaks the staff of the farms have spread mycoplasma infections because the organism contaminated medicine bottles.

Prevention:

Prevention starts with a well thought out milking routine and properly functioning milking system. Essential elements of the milking routine include pre and post milking teat disinfection and use of individual towels to clean and dry teats. Properly ventilated barns are critical for all classes of livestock, because mycoplasma is also a respiratory pathogen. Some parts of the country experience a seasonal increase in the amount of positive bulk tanks during the colder months.

If your farm hasn't experienced mycoplasma mastitis and you're considering expanding it is a good idea to prepare a biosecurity program. A mastitis biosecurity program can decrease the risk of purchasing infected cattle. Begin a surveillance program for mycoplasma by setting up a milk culturing routine. Animals to culture would include: all newly purchased animals, fresh heifers and cows and clinical cases of mastitis.

Request to examine bulk tank cultures from the herd of origin. If possible, isolate purchased cows after calving until a negative composite milk sample is obtained. Do not house and milk fresh cows with the sick cows. Herds that are routinely purchasing cattle should routinely submit bulk tank milk for mycoplasma culture.

Frequent bulk tank milk culturing will provide an early warning if mycoplasma infected cows have entered your herd. Once you have a positive bulk tank for mycoplasma, then you will want to identify the affected cows. Smaller herds may choose to culture all the milking cows. However this can be an overwhelming task for large dairies. Pen or string sampling is a good strategy for larger herds. Remember not to move animals in or out of the pens while you are waiting for culture results.

Once you have identified affected pens, then you can culture a smaller number of cows. Once the affected cows are identified remove them from the milking string and submit another bulk tank sample for analysis. Either cull culture positive animals or isolate them into a separate group to be milked last. Remember the infected cows serve as a source for new infections.

Calves fed infected milk may develop pneumonia, joint infections and head tilts related to ear infections. Properly pasteurized waste milk will reduce the amount of mycoplasma below infective levels. Housing calves in properly ventilated buildings or huts will decrease their exposure to this respiratory pathogen.