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## FALL 2015 SMALL RUMINANT NEWSLETTER

### MASTITIS IN THE LACTATING EWE AND DOE

The term “mastitis” refers to inflammation of the mammary gland. Mastitis is a significant area of concern for producers milking sheep and goats due to loss of saleable milk and increased treatment costs. It can also present as a significant area of concern for meat producers due to decreased lamb/kid weights at weaning, and early culling.

Mastitis can be classified as follows:

- “CLINICAL”- this refers to visible changes to the milk or udder (for example clots, flakes, bloody or watery secretions, or hot, swollen quarters). Sometimes an animal will show symptoms of fever, depression, weakness and even death in addition to a hot, painful, swollen udder. This is referred to as “ACUTE” mastitis.
- “SUBCLINICAL”- this refers to milk that appears normal visibly but has elevated somatic cell count (SCC)

**Somatic cells** are made up of white blood cells and epithelial cells that shed from the udder. These cells are beneficial to the ewe/doe because they provide a natural defence against bacteria invading the teat canal. When infection occurs, there is a significant increase in the number of white blood cells in the milk (somatic cell count). The SCC of an individual animal reflects her udder health status, while the SCC of the bulk tank reflects the general state of udder health in the flock/herd. An increase in bulk tank somatic cell count can be worrisome to producers because it often results in decreased milk yields and lower raw milk quality, which can have implications for milk processing. General guidelines for SCC indicate a healthy ewe should have a SCC of 250,000 cells/ml of milk or less. It is important to note, however, that normal goat milk naturally has a much higher SCC than normal sheep or cow milk. Levels of 600,000 – 800,000 cells/ml are not uncommon in healthy goats and may be as high as 1,000,000 cells/ml depending on stage of lactation, estrus cycle, breed and number of lactations.

## COMMON CAUSES OF MASTITIS

- 1) **Staphylococcus aureus**- this is an important cause of mastitis in both sheep and goats. It may cause up to 35% of clinical cases in sheep. Infection can cause a variety of symptoms ranging from subclinical infections to very acute clinical infections. This organism can sometimes cause gangrenous mastitis (watery, dark red secretions, gas bubbles, often death).
- 2) **Pasteurella hemolytica**- The source of infection is typically from the nose and throats of nursing lambs/kids
- 3) Various **yeasts** and **molds**
- 4) **Coliforms**- these are causes of environmental mastitis, the most common being ***E.coli***, ***Pseudomonas*** and ***Klebsiella***.
- 5) **Coagulase-negative staphylococci (CNS)**- this is the most common cause of sub-clinical mastitis in both ewes and does

## OTHER CAUSES OF MASTITIS

**Maedi Visna**- this virus, also known as Ovine Progressive Pneumonia, causes chronic, progressive pneumonia and weight loss as well as changes to the mammary glands of sheep. At lambing, producers may notice the udder is hard and appears to be full of milk, however, it is difficult to express much milk from the glands. This condition has often been referred to as “Hard Bag.” Higher levels of the virus can be found in colostrum than in milk, which suggests colostrum consumption by newborn lambs is an important mode of disease transmission. Maedi visna has a harmful effect on ewe productivity through lower milk production (and lower weaning weights of lambs), higher numbers of respiratory infections, more infertility and more culling/death due to thin ewes. There is no cure or treatment for this disease. It is possible, however, to blood test your flock to determine if Maedi visna is present and the degree of infection.

**Caprine Arthritis and Encephalitis (CAE)**- this disease affecting goats is caused by a virus closely related to Maedi Visna. As in lambs, kids are typically infected through consumption of colostrum from infected does. The most common symptom is infection/arthritis of the joints, classically the carpal joints (knees). Affected goats lose condition and experience varying degrees of lameness. Infected kids may show neurological symptoms including weakness, head tilt, incoordination and difficulty placing the hindlimbs. CAE can also cause a “**hard udder**” syndrome where affected does have a firm, swollen udder with little milk present at the time of kidding. The gland may soften with time and produce some milk, however, production remains low for many goats with this condition. As with Maedi Visna, there is no treatment for this disease but blood tests can be performed to determine affected animals.

## **CALIFORNIA MASTITIS TEST (CMT)- What is it?**

The CMT is a sheep/goat-side test that is a reasonably accurate indicator of somatic cell count and helps with detection of sub-clinical mastitis. The CMT reagent reacts with DNA present in epithelial and inflammatory cells. The more DNA present, the more the milk will form a “gel” on the paddle. Talk to your veterinarian if you would like further information on how to use this test as a SCC monitoring tool in your herd or flock.



## **TIPS ON PREVENTING MASTITIS IN LACTATING EWES/DOES**

- Keep the barn, milking area and pens well drained and ventilated
- Teat and udder preparation should include washing and sterilizing teats (with appropriate teat dip or warm water disinfectant solution). This will also help to stimulate milk letdown. Remember to attach milking units quickly following udder preparation to prevent the loss of the effect of udder stimulation on milk let-down.
- Allow at least 30 seconds contact time before teats are dried with an individual use paper towel or cloth.
- Wear nitrile gloves to keep the milker’s hands clean and dry. This is very important as gloves prevent bacteria from colonizing on skin and are much easier to keep clean.
- Strip 2-3 squirts from each teat into a strip cup to check for abnormal milk.
- Perform regular CMTs to help identify animals contributing to high SCC
- Dip teats with an appropriate post-dip following removal of the milker unit. This is the most effective method to reduce the incidence of new intramammary infections.
- Cull chronically infected ewes/goats or milk them last to reduce the risk of infecting healthy animals.
- Keep milking equipment clean and well maintained to provide stable teat end vacuum. Check teat cup liners regularly for wear and replace as necessary.

- Use selective intramammary dry therapy to help eliminate existing infections and to prevent new infections during the dry period

Unfortunately, it is not possible to diagnose the cause of mastitis based solely on the appearance of the milk, udder or animal. The only way to accurately determine the cause is to collect milk from infected or suspect udders and submit them for culture.

## **PROTOCOL FOR PROPER MILK CULTURING**

- 1) Label sample vial (include the date, farm ID, sheep ID and left or right or “C” for composite)
- 2) Ensure the udder is free of dirt or manure; If the udder is dirty, wash it with an antibacterial soap and dry with a clean towel
- 3) Ensure the samplers’ hands are washed and dry. Clean gloves are recommended.
- 4) Strip the fore-milk (milk that is sitting in the teat and cistern), ideally into a strip cup
- 5) Teat ends should be disinfected thoroughly with alcohol swabs. Disinfect the far teat first and sample it last to avoid contamination
- 6) Use a sterile milk vial. Ask your veterinary clinic for some if you do not have these vials available.
- 7) Be careful to not touch the inside of the lid or vial or allow dirt to fall into the vial when sampling. Tilt vial on a 45 degree angle.
- 8) Fill the container  $\frac{1}{2}$  to  $\frac{3}{4}$  full.
- 9) Refrigerate the sample and transport to the lab as soon as possible or it can be frozen if it won’t be transported for at least 24 hours. Fresh samples are preferred.

## **HOW DO I TREAT MASTITIS?**

Animals that develop clinical cases of mastitis are often very ill and require immediate treatment. There are currently no antibiotics approved for treatment or prevention of mastitis in small ruminants so it is a good idea to work with your veterinarian to help establish some treatment protocols. If the animal is showing systemic signs of infection (fever, off feed, depression, dehydration), treatment generally focuses on supportive care and appropriate antibiotic therapy. If there is heat, pain and swelling limited to the udder only, typically animals are treated with infusion of appropriate intramammary mastitis products. Commercially available intramammary products are designed for infusion of the **entire tube** into one half of the udder- **DO NOT** split tubes between the teats of one animal or between different animals as the risk of introducing new infections is high! It is also important to note that because all infusion products are given “off label” in small ruminants, there is no established milk withdrawal time. Producers should be testing milk samples to ensure they are negative before putting the treated animal back into the tank or discussing withdrawal times with a veterinarian.

Please contact the veterinary clinic if you would like to discuss mastitis prevention, treatment protocols, or milk culturing details with one of the vets!