

# Mastitis in Animals: Causes, Symptoms, Treatment and Prevention

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Sweta Chaudhary<sup>1\*</sup>, Dr. Satvaan Singh<sup>2</sup>

<sup>1</sup>Student, Department of Agriculture, Keral Verma Subharti College of Science, Swami Vivekanand Subharti University, Meerut-250005, Uttar Pradesh, India

<sup>2</sup>Assistant Professor, Department of Agriculture, Keral Verma Subharti College of Science, Swami Vivekanand Subharti University, Meerut-250005, Uttar Pradesh, India

**M**astitis is a common disease affecting dairy animals such as cows, goats and sheep. It is one of the most prevalent and economically significant conditions in the dairy industry. Mastitis is the inflammation of the mammary gland (udder) and is mainly caused by bacterial infections, though other factors like injury or poor milking practices can also lead to the disease.

## What is Mastitis in Animals?

Mastitis in animals refers to the inflammation of the mammary gland and udder tissue, usually caused by bacterial infections. It is a condition that primarily affects dairy animals such as cows, goats, and sheep, but can also occur in other mammals. In cases of mastitis caused by bacteria, microorganisms such as *Escherichia coli*, *Streptococcus uberis*, and

*Staphylococcus aureus* infect the mammary gland (Wellnitz and Bruckmaier, 2012).

## Mastitis can be classified into two types:

**1. Clinical Mastitis:** This form shows visible signs like swelling, redness, and changes in the milk's appearance.

**2. Subclinical Mastitis:** It is harder to detect because there are no obvious physical symptoms, but it can still significantly affect milk production and quality.

Mastitis affects the health

of the animal, reduces milk yield and increases treatment costs, making it a major concern for dairy farmers.

## Causes of Mastitis in Animals

Mastitis is typically caused by bacteria that enter the udder through the teat canal. However, other factors, such as poor hygiene and injury, can also contribute to



the development of the disease. Some of the common causes include:

### 1. Bacterial Infections

The most common cause of mastitis is bacterial infection, primarily by the following bacteria:

- **Staphylococcus aureus:** This bacterium is responsible for causing both clinical and subclinical mastitis. It is highly contagious and difficult to treat.
- **Streptococcus agalactiae:** Another bacterium that commonly causes mastitis in dairy animals, especially in cattle.
- **Escherichia coli (E. coli):** Known for causing severe and acute mastitis, particularly in cows.

These bacteria usually enter through the teat canal, especially when there is a break in the skin or when hygiene standards are not maintained during milking.

### 2. Poor Milking Hygiene

Milking practices that involve unclean hands or milking equipment can introduce bacteria into the animal's udder. Additionally, rough handling during milking can cause injuries to the teat, creating an entry point for infections.

### 3. Injuries to the Udder

Physical trauma to the udder can make it easier for bacteria to invade. Injuries can occur due to rough terrain, sharp objects in the animal's environment, or even during improper milking.

### 4. Environmental Factors

Unsanitary living conditions, such as wet and dirty bedding, can expose animals to bacteria, increasing the risk of mastitis. During wet seasons, animals are more likely to come into contact with bacteria from the environment, making it a critical period for mastitis management.

## Symptoms of Mastitis in Animals

The symptoms of mastitis vary depending on whether it is clinical or subclinical, but some common signs are present in both types.

### Clinical Mastitis

- Swollen, red or hot udder
- Pain and discomfort in the affected udder
- Milk may appear watery or contain clots or pus
- Reduced milk production
- Fever, lethargy or other signs of systemic infection

### Subclinical Mastitis

- No visible symptoms on the udder
- Reduction in milk yield
- Changes in milk quality, often detected through laboratory tests
- Increased somatic cell count (SCC) in the milk, which indicates an immune response to infection

Early detection is key to managing mastitis effectively, especially in cases of subclinical mastitis, which can go unnoticed for long periods.

## Diagnosis of Mastitis in Animals

Diagnosing mastitis, especially subclinical mastitis, often requires laboratory testing. Some common methods of diagnosis include:

- **Somatic Cell Count (SCC):** This is a test that measures the number of somatic cells (mainly white blood cells) in the milk. A high SCC indicates an infection in the udder.
- **Milk Culture:** This test involves culturing a sample of the animal's milk to identify the type of bacteria causing the infection.
- **California Mastitis Test (CMT):** A simple and cost-effective test that detects subclinical mastitis by measuring somatic cells in milk.

## Treatment of Mastitis in Animals

Treating mastitis promptly is crucial to prevent severe damage to the udder and to maintain milk production.

Treatment typically involves:

### 1. Antibiotics

Antibiotics are the most common treatment for mastitis, especially bacterial infections. Intramammary antibiotics (administered directly into the teat) are often used to target the specific bacteria causing the infection. The choice of antibiotic will depend on the type of bacteria identified through testing. It is essential to follow the veterinarian's prescription, including the withdrawal period, during which milk from the treated animal should not be consumed or sold.

### 2. Anti-inflammatory Drugs

In some cases, anti-inflammatory medications are prescribed to reduce pain and swelling in the udder. These drugs help improve the animal's comfort and aid in faster recovery.

### 3. Supportive Care

Supportive care is often necessary, particularly for animals with severe mastitis. This may include:

- **Frequent Milking:** Regular milking helps to remove toxins and bacteria from the udder.
- **Fluid Therapy:** In severe cases, animals may need fluid therapy to manage dehydration and systemic infection.

## Prevention of Mastitis in Animals

Preventing mastitis requires a combination of good management practices, proper milking procedures, and environmental controls. Below are some effective strategies for prevention:

### 1. Proper Milking Hygiene

- Always wash and dry the udder before milking.
- Ensure that all milking equipment is cleaned and sanitized after each use.
- Use disposable paper towels or clean clothes for each animal to avoid cross-contamination.
- Wear clean gloves when milking to reduce the risk of introducing bacteria to the udder.

### 2. Post-Milking Teat Dipping

After milking, it is important to dip the teats in an antiseptic solution. This practice helps to kill any bacteria that may have come into contact with the udder during the milking process. Post-milking teat dipping is one of the most effective ways to prevent mastitis.

### 3. Maintain a Clean Environment

- Keep the animal's living area clean and dry. Regularly remove manure and provide clean bedding.
- Ensure that the area where animals are milked is clean and well-ventilated.
- Avoid overcrowding in barns, as it increases the risk of udder injuries and bacterial exposure.

### 4. Regular Screening for Subclinical Mastitis

Since subclinical mastitis doesn't show visible symptoms, regular screening through tests like SCC and CMT can help identify infections early. Early detection allows for prompt treatment, preventing the infection from becoming more severe.

### 5. Proper Nutrition

A well-balanced diet can help maintain the overall health of dairy animals, including their immune systems. A strong immune system makes the animal less susceptible to infections like mastitis.

## Conclusion

Mastitis in animals is a serious concern, particularly in the dairy industry, where it can lead to significant economic losses due to reduced milk production and increased treatment costs. By understanding the causes, symptoms, and methods of treatment and

prevention, dairy farmers can manage and reduce the impact of mastitis on their herds. Good hygiene, proper milking practices, and early detection are the keys to preventing mastitis and maintaining a healthy, productive dairy herd.

### References

1. Wellnitz, O., and Bruckmaier, R.M. (2012). The innate immune response of the bovine mammary gland to bacterial infection. *Veterinary Journal.*, 192, 148–152.