

Subclinical Mastitis in Cattle: A Silent Economic Loss in Dairy Farms

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Introduction

Mastitis is one of the most common health problems affecting dairy cattle and remains a major concern for profitable milk production. Most farmers are familiar with clinical mastitis, where udder swelling, pain, abnormal milk, fever, or other visible signs make the problem easy to recognize. However, there is another form of mastitis that often goes unnoticed—**subclinical mastitis**.

Subclinical mastitis is called a “silent” disease because the cow may appear completely normal. The udder may look healthy, the milk may appear normal, and the animal may continue to eat and behave normally. However, inflammation and infection may already be present within the mammary gland. At the same time, milk production and quality can gradually decline.

This hidden loss can have a considerable economic impact, particularly when several cows in a herd are affected.

Unlike clinical mastitis, where farmers usually take immediate action, subclinical mastitis can go unnoticed for a long time. Early detection and preventive management are therefore essential for maintaining udder health, milk quality and farm profitability.

What Is Subclinical Mastitis?

Mastitis refers to inflammation of the mammary gland. Bacterial infections are an important cause, although mastitis can have multiple contributing factors.

In clinical mastitis, changes in the udder or milk are usually visible. In subclinical mastitis, these changes may not be apparent to the farmer. Instead, inflammation is often indicated by an increase in the **somatic cell count (SCC)** of milk and changes in milk composition.

This makes subclinical mastitis particularly difficult to recognize through routine observation alone. A cow that looks healthy may still have an infected quarter and may be contributing to reduced milk production and increased somatic cell counts in the bulk tank.

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Why Is It an Economic Problem?

The economic importance of subclinical mastitis comes from the fact that the losses are often hidden.

A farmer may notice that a cow is producing slightly less milk but may not immediately connect the decline with udder infection. When several cows experience similar losses, the reduction in total milk production can become significant.

The financial impact may include reduced milk yield, deterioration of milk quality, expenditure on diagnosis and treatment, discarded milk during treatment and withdrawal periods, and premature removal of chronically affected animals from the herd.

The loss from one affected cow may appear small on a particular day. However, when the problem continues across several animals and over several months, it can become an important drain on farm income.

How Does Subclinical Mastitis Develop?

The udder is continuously exposed to microorganisms present in the farm environment. Bacteria can be found in manure, bedding, soil, water, contaminated equipment and on the skin of animals.

During milking, microorganisms can enter through the teat canal. Poor teat hygiene, contaminated milking equipment, wet or dirty housing, teat injuries and improper milking practices can increase the risk of infection.

The problem is therefore not restricted to the cow itself. **The entire milking environment has a role in udder health.**

Good hygiene before and after milking, proper maintenance of milking equipment, clean bedding and effective farm sanitation can reduce opportunities for pathogens to enter the udder.

Detecting the Disease Before It Becomes Visible

Since subclinical mastitis does not usually produce obvious signs, regular monitoring becomes extremely important.

One of the most useful indicators of udder inflammation is the **somatic cell count**.

An increase in SCC can indicate an inflammatory response in the mammary gland.

At the farm level, the **California Mastitis Test (CMT)** is a simple and inexpensive screening method. Milk from individual quarters is mixed with a test reagent, and the resulting reaction gives an indication of increased somatic cell levels.

CMT can help farmers and veterinarians identify quarters that require further examination. However, it should be considered a screening tool rather than a definitive diagnosis. When infections are persistent, recurrent or difficult to control, laboratory examination and milk culture may provide additional information.

The Importance of Good Milking Practices

Milking is one of the most important points at which mastitis can either be prevented or spread.

The udder and teats should be clean before milking. The first few streams of milk can be examined for abnormal changes. Clean hands, appropriate teat preparation and clean milking equipment are essential.

After milking, proper teat disinfection can help reduce the number of microorganisms around the teat opening and lower the risk of new infections.

If machine milking is practiced, the equipment should be maintained properly. Faulty equipment or improper milking procedures can contribute to teat damage and increase the risk of infection.

A clean milking routine may appear simple, but it can have a major influence on herd udder health.

Housing and Farm Hygiene Matter

A cow cannot remain healthy if she is continuously exposed to a contaminated environment.

Wet bedding, accumulation of manure, poor drainage and overcrowding can increase exposure of the udder to microorganisms. Cows spend considerable time lying down, making the cleanliness and dryness of resting areas particularly important.

Regular removal of manure, proper drainage, adequate ventilation, clean bedding

and sufficient space for animals can help reduce the environmental burden of mastitis-causing organisms.

In other words, **mastitis control starts well before the milking machine or milking bucket reaches the cow.**

Nutrition and Overall Health

Udder health is also connected to the overall health of the animal.

A well-balanced ration, adequate mineral and vitamin supply, sufficient clean drinking water and appropriate management during different stages of lactation help maintain the animal's health.

The transition period deserves particular attention because cows experience considerable physiological changes around calving. Proper transition-cow management can contribute to better health and reduce the risk of several production-related disorders.

Heat stress is another important consideration in dairy farms, particularly during hot weather. Providing shade, ventilation and sufficient clean drinking water can help reduce heat-related stress and support animal well-being.

Treatment Requires Professional Attention

Finding a cow with suspected subclinical mastitis does not mean that every case should automatically be treated with an antibiotic.

The appropriate approach depends on the cow, the affected quarter, clinical history, suspected pathogen, stage of lactation and veterinary assessment. Where appropriate, laboratory diagnosis and antimicrobial susceptibility testing can help guide treatment decisions.

Unnecessary or inappropriate antimicrobial use can contribute to antimicrobial resistance and may increase treatment costs without solving the underlying problem.

Farmers should therefore consult a veterinarian rather than relying on leftover medicines or treatment used previously for another animal.

Milk from treated animals must also be managed according to the prescribed withdrawal period so that milk containing unacceptable drug residues does not enter the food chain.

Prevention Is Better Than Repeated Treatment

The most effective mastitis programme is not one that treats the greatest number of cases. It is one that **prevents new infections while identifying existing infections early**.

Farmers can reduce the risk of subclinical mastitis by:

- ☞ Maintaining clean and dry housing
- ☞ Following proper milking hygiene
- ☞ Using appropriate teat disinfection

- ☞ Keeping milking equipment clean and well maintained
- ☞ Monitoring milk yield regularly
- ☞ Screening suspicious cows using CMT or SCC testing
- ☞ Identifying chronic and repeatedly infected animals
- ☞ Maintaining proper nutrition
- ☞ Reducing heat and environmental stress
- ☞ Seeking veterinary advice for persistent problems
- ☞ Maintaining records of mastitis cases and treatments

These practices may require additional attention every day, but prevention is generally more sustainable than repeatedly dealing with disease after it has already affected production.

A Simple Example of a Hidden Loss

Consider a dairy farm with several apparently healthy cows. There are no obvious cases of swollen udders or abnormal milk. Yet the farmer notices that total milk collection has gradually declined.

Instead of assuming that the decline is simply due to feed, weather or stage of lactation, the herd is screened using CMT and milk SCC monitoring.

Several cows show evidence of possible subclinical mastitis.

Now the farmer has an explanation for at least part of the hidden loss and can work

with the veterinarian to identify the cause and improve the farm's mastitis-control programme.

This is the value of **early detection**. The earlier the problem is identified, the greater the opportunity to prevent further production losses and new infections.

Conclusion

Subclinical mastitis may not produce a swollen udder, abnormal milk or a visibly sick cow, but its effect on a dairy farm can be very real. It can quietly reduce milk production, affect milk quality, and increase the cost of maintaining the herd.

The challenge is that farmers cannot depend on their eyes alone to identify the disease. Regular monitoring of milk production, SCC or CMT results, combined with proper veterinary examination, can help uncover infections that would otherwise remain hidden.

Effective mastitis control begins with prevention. Clean and dry housing, hygienic milking, proper teat care, well-maintained equipment, balanced nutrition, and regular monitoring are all important pieces of the puzzle.

The message for dairy farmers is simple:

“A cow that looks healthy may not always have a healthy udder.”

By identifying subclinical mastitis early and addressing the management factors

responsible for it, farmers can protect milk production, improve animal welfare and reduce avoidable economic losses.

Healthy udders mean healthier cows, better-quality milk and a more profitable dairy farm.

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