

Mastitis Control

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What Is Mastitis?

Mastitis is the most costly disease of dairy cattle today. It has been estimated that between 20 and 40 per cent of all milking cows in the United States have some form of the disease. A recent survey made by the North Dakota Agricultural College Veterinary Science department indicated that almost 20 per cent of the milking cows examined gave abnormal milk and more than twice that percentage had some form of mastitis. The decrease in milk production may vary from five per cent to as much as 100 per cent, depending on the severity of the attack and the time that it starts.

Mastitis is any inflammation of the milk producing glands in the udder. This inflammation can be caused by several types of bacteria or it may be due to an injury. If the disease is caused by bacteria it is called infectious mastitis and if by an injury, such as bruising, it is known as non-infectious mastitis.

What Are the Kinds of Mastitis?

Non-Infectious Mastitis may be produced by injuries as a result of horning; kicking; rough hand milking; prolonged machine milking; chilling from lying on cold concrete; bruising from gutters, high door sills, machinery, feeders, rubbish, etc.



Fig. 1. Guernseys or Holsteins, they are sometimes like shoppers in a bargain basement when it comes to entering or leaving a building. The considerate herdsman will seek to prevent crowding through doors and gates, which produces bruising as result of bumping, slipping and pinching.

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Any of these causes of non-infectious mastitis may weaken a cow so that she is more likely to develop some type of infectious mastitis. If no infection gets started this type of mastitis usually clears up as soon as the injury heals. However, while it is of short duration it is severe, causing stringy, flaky, or bloody milk, and the udder is usually sore.

Infectious Mastitis can be divided into two types—acute and chronic. The acute form is severe and in North Dakota is usually caused by a bacterium called a *Staphylococcus*. The animal may go off feed, develop a high temperature and have a swollen, hot, and painful udder. The milk will be stringy, watery, or bloody. It is difficult without laboratory tests, to distinguish acute mastitis from the type due to injury.

The chronic form is not so severe but is usually characterized by periodic “flareups.” This form is caused by a bacterium called a *Streptococcus*. Many cows with this type of mastitis never produce abnormal milk. They are called “carriers” or “spreaders.” Other cows may produce flaky milk following some injury or as a result of weakening following some other disease, such as impaction.

In all cases of chronic mastitis, whether cows show symptoms or not, there is a gradual destruction of the milk forming gland with a replacement of scar tissue. Eventually the cow will have a light quarter or even a non-producing quarter. This type of mastitis is sometimes seen in the heifer prior to calving. It can be spread when calves are permitted to nurse each other after they have been fed milk from mastitis carrier cows.

A Mastitis Control Program

The major responsibility in controlling infectious and non-infectious mastitis falls on the man with the milk pail. On the basis of findings at the North Dakota Agricultural Experiment Station and other state and federal research centers it is known that infectious mastitis can be controlled and non-infectious mastitis reduced. To get this job done it is necessary to maintain close cooperation with your veterinarian, enlist the help of the extension service and your dairy supply fieldman.

Since you, the dairyman, see your cows at least twice a day, the control job rests in your hands. You must have an earnest desire to eradicate the disease. By following the outline below, stressing prevention rather than treatment, you can control this costly disease.

Mr. Dairyman, to control mastitis you should:

1. Find the infected cows.

Laboratory tests made by your veterinarian will detect the infected cows and the involved quarters. One of the best laboratory tests in use at present is the Hotis test. It should be run on each quarter of every milking cow every month until the spread of mastitis between cows is stopped. Then laboratory tests every three to six months will be enough.

2. Re-arrange the milking order of your cows to make full use of the laboratory test results.

Milk the cows in the following order: young negative cows, older negative cows, negative cows with history of previous udder trouble and last, the infected cows.

3. Improve the milking practices.

a. Stimulate the cow to "force down" her milk by washing and massaging the udder with chlorinated water (200 parts per million) at a temperature of 120° to 130°F. Follow the manufacturer's directions for preparing the chlorine solution. If other types of dairy disinfectants are used, be sure to follow directions.

b. Wash the udder with single service paper towels that have been soaked in the hot disinfectant solution.

c. Use a strip cup each milking to detect flaky milk. The use of the strip cup helps stimulate the cow to "force down" and helps to lower the bacterial count of the milk by getting rid of the foremilk. Do not discard foremilk on the floor of the milking barn.

d. Milk the cows rapidly and completely. With proper stimulation most cows will milk out in two to five minutes. The machine must be removed as soon as the cow is completely milked or the cups will begin to crawl on the quarters, resulting in tissue injury either up on the gland or on the tip of the teat. Older cows adjust themselves to rapid milking most easily at freshening.

4. Clean and sterilize milking machine to avoid spread of disease between cows.

a. After each milking all equipment should be washed and sterilized with steam or chemicals.

b. Rinse and disinfect teat cups between cows. Teat cups must be rinsed in lukewarm water by complete submersion to remove all milk. Then soak the teat cups at least two minutes in chlorine water containing 200 parts per million of available chlorine to effectively disinfect the teat cup liners. The same length of time should be used if other disinfectants are employed.

c. Discard and replace the disinfecting solution as soon as it becomes milky because it has lost its strength.

d. An extra milking machine head avoids loss of time and insures proper disinfecting time when enough cows are milked to warrant the extra expense.

5. Prevent udder injuries because they cause non-infectious mastitis and make the cow more susceptible to infectious mastitis.

a. Avoid rough hand milking or improper machine milking. Follow manufacturer's recommendation for machine vacuum. Have your gauge checked for accuracy by the dairy supply fieldman at least twice a year.

- b. Provide comfortable quarters with plenty of dry bedding to prevent chilling and injury to the udder. This is especially important where cows are stanchioned during the winter. Make certain that the platform is long enough for the cows. The rim of the gutter produces serious bruising if the cow lies with her udder in the trough.
 - c. Keep fences, barns, feed racks, and watering troughs in repair so the cow's udder does not get cut or bruised.
 - d. Drive cows slowly to avoid injury from crowding through gates, doors, over sills, or slipping on floors.
 - e. Dehorn cows to prevent hooking and bruising of udders. This is especially important when modern type loose housing is used.
6. **Keep the cow with the swollen, inflamed, or injured udder in a box stall or separate from the rest of the herd until she has recovered.**

Quarter sample tests should be run in the laboratory at once so that sound treatment can be started. Hot applications, massage, and frequent hand milking will help to control tissue injury. Reduce grain feeding when signs of udder congestion appear.

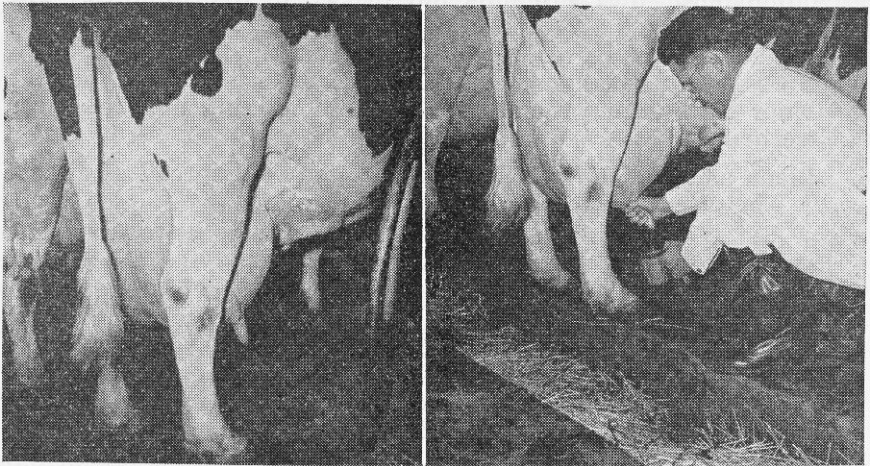


Fig. 2. (left) shows a large and pendulous udder, the kind most easily injured, which may result in mastitis infection.

Fig. 3 (right) The strip cup is a "must" in preventing and detecting mastitis, and in producing high quality milk.

7. **Improve calf feeding practices to prevent spread of mastitis to heifer calves.**
- a. Keep calves stanchioned or tied when feeding.
 - b. Give grain after feeding milk.
 - c. Wait 30 minutes after feeding before turning calves loose.
- If the calves' muzzles are dry there is less tendency to suck each other.

8. **Close your herd to female replacements as soon as possible.**

Rely on your own heifers as replacements in the milking herd. If it is necessary to buy cows be sure to have a laboratory test run on every cow before she goes into the milking herd. Unbred heifers, bred heifers, and dry cows that are purchased should always be tested before they are put in the milk string.

9. **Rely on mastitis treatment only as one part of herd management for control of mastitis.**

- a. Have reactor or carrier cows that are milking treated only when they show visible signs of mastitis.
- b. Have all reacting cows treated during the dry period.
- c. Eliminate all badly infected cows which will not respond to treatment.

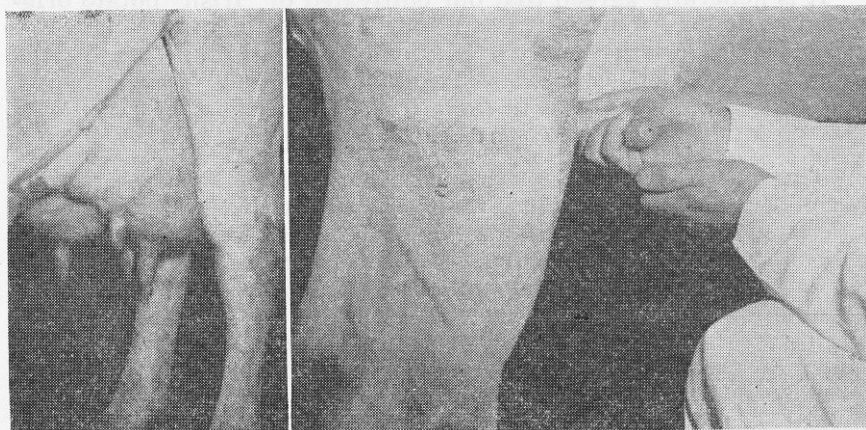


Fig. 4 (left). The left front quarter on this cow has shrunk because of the chronic form of infectious mastitis. The quarter can still spread the disease to other cows.

Fig. 5 (right) shows teat erosion resulting from leaving the milking machine on too long, which allows the teat cups to creep. This cow is a fast milker.

10. **Base the type of treatment to be used on the laboratory findings.**

- a. Penicillin or sulfanilimide in oils should be used on streptococcic mastitis.
- b. Aureomycin should be used on staphylococcic mastitis.

Any treatment to be effective and give you full value must be based on the specific infection. If you treat without knowing the type of bacteria that is causing the trouble you are wasting your money, wasting valuable drugs, and may be hurting the cow.

Remember, treatment without a management program is doomed to failure. Sound treatment requires periodic laboratory testing.