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EC60-635 Mastitis is a Costly Disease

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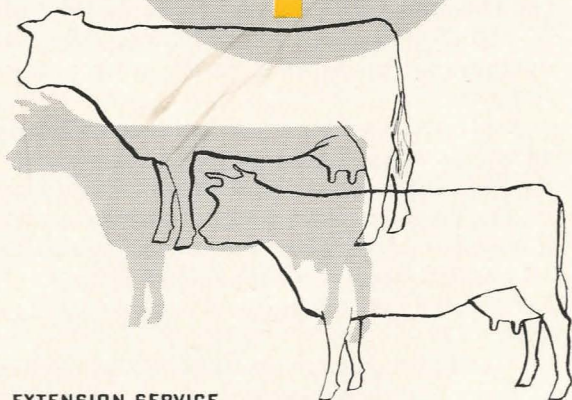
MASTITIS

is a

COSTLY DISEASE

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Mastitis is a **costly** **disease**

C. W. Nibler and Crosby Howe

SUMMARY

Mastitis costs the average Nebraska farmer at least \$1.00 per milk cow per month. This is due to reduced milk production, a shortened productive life and the cost of treatment.

Mastitis is any inflammation of the udder and is caused by a variety of bacteria. These bacteria gain entrance to the udder through the teat canal. Symptoms of mastitis vary among cows and in degree of severity. Cows may die from mastitis.

Cows that are tense, nervous from rough handling and frightened or working under stress cannot resist the bacteria that cause mastitis as well as relaxed, docile, comfortable cows. When udders or teats are bruised or the cells in the udder are injured, they become susceptible to infection.

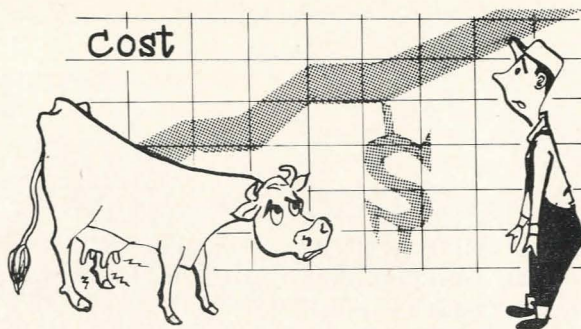
Evidence on the inherited susceptibility of mastitis is not conclusive. Feeds or feeding practices are rarely the cause of mastitis. Adverse weather conditions can cause flare-ups of mastitis.

Milking machines must be properly maintained and correctly operated. It is essential that a good milking routine be regularly followed.

Antibiotics will not cure all cases of mastitis, nor are they a substitute for good management. Veterinarians should be consulted on the use of specific antibiotics for different bacteria.

The Food and Drug Administration classes antibiotics as adulterants if found in milk. If antibiotics are infused in the udder, milk from all quarters must be withheld from market at least 6 milkings (3 days). If antibiotics are given intermuscularly, the milk must be withheld 7 days.

Good management practices should reduce or eliminate most cases of mastitis. Otherwise, the continual cost of treatment will be expensive for Nebraska's dairymen.



Q. What does mastitis cost the average Nebraska farmer who milks cows?

A. The average loss from mastitis is at least \$1.00 per milk cow per month. For a 20-cow herd, this is an annual loss of \$240 or for a 50-cow herd, \$600. Generally one cow out of every four will be infected.

Q. To what is this loss due?

A. Mastitis reduces the milk yield and shortens the productive life of affected cows. The treatment of mastitis is costly.

Q. What is mastitis?

A. Mastitis is any inflammation of the udder.

Q. What causes mastitis?

A. Mastitis is caused by a wide variety of bacteria. Many of these bacteria are present in the barn, on the cow, and frequently in the udder of the cow. Mastitis does not usually occur until the resistance of the udder is lowered through exposure to some form of stress. Accidents that injure the udder and teats, poor management and milking methods, and unsanitary conditions or chilling are a few of the many stresses that may be involved.

Q. What are some symptoms of mastitis infection?

A. The symptoms of mastitis are not always the same. In acute cases the udder may be hot, swollen, hard, and painful to the touch. The milk is usually abnormal and can vary in consistency from thin and watery to thick and ropy. Milk may have a poor flavor, usually salty.

Q. Do cows die from mastitis?

A. In severe cases the infection may enter the blood stream from the udder causing loss of appetite, high temperature, and ultimate death unless treatment is quickly applied. In other cases, scar tissue will replace secretory tissue in the udder and production will be reduced or one or more quarters may become non-functional.

Q. How is mastitis spread from one cow to another?

A. Different types of bacteria may gain entrance to the udder through the teat canal from different sources. For example, they gain entrance from the floor or ground where a cow lies, from stagnant water in which a cow stands, from contaminated wash water or wash

cloths, from hands of milkers or from milking machine liners that are cracked and worn and harbor bacteria.

Q. How does the comfort of a cow affect her susceptibility to mastitis?

A. Cows that are tense, nervous from rough handling and frightened or working under stress will not be able to resist the bacteria that cause mastitis as well as relaxed, docile, comfortable cows. In addition, nervous, tense cows are more likely to injure their teats and udders.



Q. Why do cows with injured or bruised teats or udders have more mastitis?

A. When cells in the udder are injured, they become more susceptible to infections. Udders may be bruised by being hooked by horned cows, or by bunting or kicking under overcrowded conditions. Other causes of injuries are high door sills, gate corners, stumps, rough dogs, slippery walkways, and many other objects in barnyard and pasture. Cowpox lesions which form on the end of the teats will invariably cause mastitis. Teat injury due to frost bite may also result in mastitis.

Q. Is mastitis more prevalent in young or old cows?

A. In old cows, because the rate of udder infection increases with age. With few exceptions, first calf heifers are free of mastitis at calving time.

Q. Is the susceptibility to mastitis inherited?

A. Evidence on the inherited susceptibility of mastitis is not conclusive. Research indicates there are more cases of mastitis in some cow families than in others. In addition, cows inherit certain characteristics such as the conformation of udders and the tendency to be fast or slow milkers. As an example, cows with pendulous udders generally have more mastitis than cows with strongly attached udders.

Q. Do certain feeds or feeding practices cause mastitis?

A. Experiments on this subject have not shown a relationship between feeds and feeding and the incidence of mastitis. There is some evidence that sudden changes in rations or feeding practices may cause temporary flare-ups of mastitis.

Q. How do weather conditions affect mastitis?

A. Resistance is lowered by cold winds blowing on udders, by cold damp floors or ground, and by turning cows to pasture when the ground or nights are cold in the spring.

—GOOD MANAGEMENT
PREVENTS MASTITIS—



Q. Does milk left in the udder induce mastitis?

A. It is impossible to remove all the milk from a cow's udder and there is always some residual milk. A small amount (1 pound or less) of residual milk is not harmful, but when this amount is quite large (two pounds or more) there are more chances of infected quarters, and visible symptoms of mastitis occur.

Q. In what way can the milking machine cause mastitis?

A. The milking machine is indispensable to the dairy industry and therefore should be properly adjusted and used. Some of the problems in the use of the machines are:

1. Leaving machine on the udder or upon certain quarters too long.
2. Operator trying to take care of too many units (2 or 3 units considered maximum).
3. Malfunctioning pulsators which have a tendency to stick, or air vents that are partially closed, or some parts that are worn. Cleaning of dirty pulsators or replacement of worn or sluggish pulsators may improve udder health.

Q. Can excess vacuum on milking machines cause mastitis?

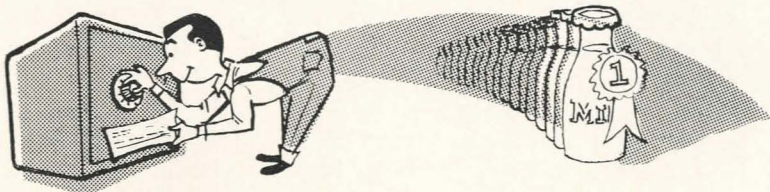
A. In general, if the vacuum does not go above 15 inches, there should be no ill effects. Sometimes, when vacuum gauges do not register accurately, the gauge may register 15 pounds when the vacuum actually is 18 or 19 inches. This will cause trouble.

Q. In what way can the milking machine be operated to perform at maximum efficiency?

A. Follow a good milking routine to prevent mastitis. Keep machines in good operating condition, and follow manufacturer's directions. It is important to have a steady vacuum all the way from the pump to the end of the vacuum line, and to the teat cups through the farthest petcock. Dirt, grease, and dried milk deposits can plug vacuum lines. Follow these points in operating milking machines.

1. Operate unit with vacuum and pulsation rate as manufacturer recommends.
2. Never use less than one-inch vacuum lines. Clean system at least four times a year.
3. Keep vacuum pumps, regulators and pulsators clean.
4. All milking machine rubber, including stanchion hoses, should be cleaned after each use.
5. Put machines on only clean, properly prepared animals.

—PROTECT YOUR PAYCHECK—MARKET QUALITY MILK—



Q. What are recommended practices to follow in the preparation and milking of cows?

A. Listed below are the necessary steps to follow:

Step 1. Get the cow ready. Stimulate the let down of milk by massaging and wiping the teats and udder with a wet, warm, clean sponge or paper towel, one minute before milking. The warm water, temperature 120°F, into which the sponge or towel is dipped may contain a good sanitizing agent like chlorine, quaternary ammonium or iodine compounds. Be sure to use them at the strengths recommended on the container. Some milking parlors are equipped with a hose and nozzle through which warm water is available for washing udders. Be sure to keep the water warm for stimulating let down. Dry teats and udders after washing.

Step 2. Use strip cup regularly. Milk two streams from each quarter into strip cup. If the milk is abnormal, milk the cow last and keep her milk separated from the other cows' milk.

Step 3. After the let down has been stimulated (40 to 60 seconds), attach teat cups quickly, but gently. Delay in attaching teat cups after stimulation wastes some of the helpful internal pressure. Adjust milking machine to work properly for each individual cow.

Step 4. Machine strip the cow. Keep teat cups from crawling upward as the udder empties. Pull teat cups downward with one hand while massaging the quarters of the udder with the other hand.

Step 5. Remove teat cups gently. Shut off the vacuum and press your thumb between teat cup and teat. This breaks the vacuum seal and the teat cups will slide off. Then open the petcock for a moment to draw off any milk left in the tubes.

Q. Can mastitis be prevented?

A. Most cases of mastitis can be prevented by good management and the application of sanitation practices.

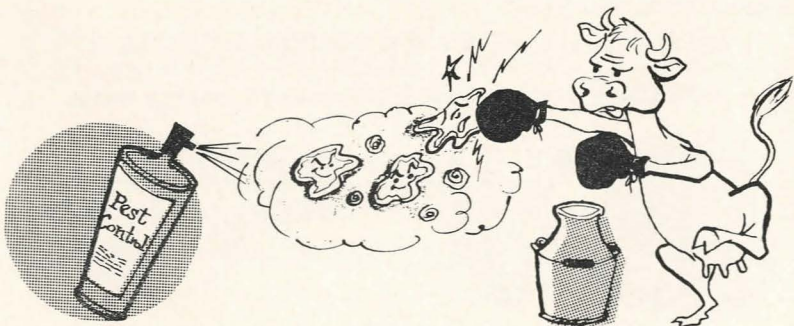
Q. Can all cases of mastitis be cured?

A. No, cows that are chronic carriers should be disposed of because they are always a source of infection for other cows in the herd.

Q. Can mastitis be cured with antibiotics?

A. Some cases of mastitis can be cured when treated with an antibiotic, provided the antibiotic is effective against the bacteria causing the trouble.

—KEEP PESTICIDE RESIDUES OUT OF MILK—



—KEEP ANTIBIOTICS OUT OF MILK—



Q. Are antibiotics effective against all bacteria?

A. No, there are many different antibiotics and there are many different kinds of bacteria; for instance, *Streptococcus agalactiae* is quite sensitive to penicillin whereas *Micrococcus pyogenes* is not.

Q. Is this same selectivity true of other antibiotics?

A. Yes, different bacteria and different strains of bacteria are affected by different antibiotics or other drugs. This is one of the reasons that it is important to have a veterinarian examine cows and draw milk samples for laboratory diagnosis.

Q. Should dairymen seek an approach to mastitis other than treatment with antibiotics?

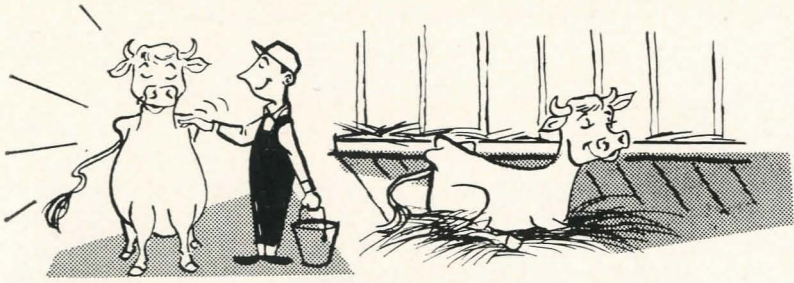
A. Major emphasis should be placed on prevention through management and sanitation. The cases of mastitis that develop in spite of the precautions then must be treated. If tests prove that the infection is killed by a certain antibiotic, then that is the product to use, under the supervision of a veterinarian.

Q. What about antibiotics in milk?

A. The Food & Drug Administration classes antibiotics as adulterants if found in milk. Therefore, every effort must be made to keep antibiotics out of milk. If antibiotics are infused into the udder, milk from all quarters must be withheld from market at least 6 milkings (3 days). If antibiotics are given intermuscularly, the milk must be withheld 7 days.

Q. What will a dairyman do if he cannot use antibiotics to treat mastitis?

A. Consult your veterinarian and have him assist you in setting up a herd health plan. One of the first things is to examine all cows physically and test milk from each cow. This would determine the cows affected and the kind of infection involved. A program of management should be adopted to eliminate the incurable cows and then properly treat the other cows. Good management practices should reduce or eliminate most cases of mastitis. Otherwise, the continual cost of treatment will be expensive for Nebraska's dairymen.



The following management practices are related to incidence of mastitis:

1. Cow Comfort

- a. Provide dry, well bedded stalls or loafing shed.
- b. Cows respond to gentle, regular, and patient handling.
- c. Give cows good working conditions—everything that contributes to comfort contributes to udder health.
- d. Do not use dairy cows to glean corn fields.

2. Proper Sanitation

- a. Clean and sanitize milking equipment so it is not a source of infection.
- b. Employ strict sanitary practices to prevent spread of mastitis.

3. Good Ventilation

- a. Prevent exposure of udders to chilling from drafts or cold floors. Early in the spring do not turn cows to pasture when ground is cold.
- b. Prevent drafts from broken or open windows, loose doors, or silo chutes—particularly if directed toward the cow's udder.
- c. A good working temperature for a cow is from 45 to 55°F.

4. Prevention of Injuries

- a. Remove sources of injury such as logs, mud holes and old farm machinery.
- b. Treat teat cuts and bruises.
- c. Cull old cows with pendulous and poorly attached udders.
- d. Prevent calves from sucking one another.

5. Milking and Milking Machines

- a. Operate milking machine according to the manufacturer's directions.
- b. Keep motor and pump clean and free from dust and dirt.
- c. Check pulsators to see that they are operating properly.
- d. Check for signs of trouble like bluish colored teat ends, redness after milking, a white ring around the teat opening or uneasy cows.
- e. Follow rules for good milking procedures at all times.