- Culture analysis
- Cow side test
- California Mastitis test

*Demonstration of CMT*

## TREATMENT

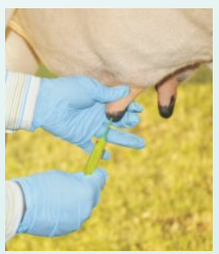
- Vaccination (for microbial mastitis)
- Infusions of antibiotic preparations through the teat duct: A course of therapy is often 2 or 3 infusions at 24 hour intervals, scrub teat end with disinfectant for at least 10 seconds before infusion. Use single dose tubes. After treatment do not add antibiotic contaminated milk into bulk supply until recommended antibiotic retention period has elapsed
- Some severe cases of mastitis may not respond to infusions of antibiotic, If cows have high temperatures and do not eat call for veterinary assistance
- Treatment with special products at drying off
- NSAID may be used for the treatment of acute mastitis

## PREVENTION AND CONTROL

- Maintain clean, well ventilated bedded areas for dairy animals, renew the bedding materials frequently, preferable daily and do not keep animals in dirty paddocks
- Keep animal's udders clean free from soil and manure, regular monitoring of udder health, avoid teat damage and use emollients in teat dip to encourage healing of teat sores
- Rapid identification and treatment of clinical cases by examining foremilk or fitting 'mastitis detectors' into the long milk tubes
- Segregate known mastitis infected animals, milk them last
- Keep records and cull animals with repeated clinical mastitis cases
- Wash dirty udders before milking with clean running water preferably with the hand, a disposable paper towel or a disinfected cloth and dry thoroughly. Do not wash with contaminated cloths and water
- Dip or spray all teats after milking with disinfectant teat dip (eg. hypochlorite, iodophor, chlorhexidine)
- Use a milking machine that conforms to international standards, that prevents 'reverse flow' or the 'impact' of milk droplets during milking
- Routine maintenance of milking machine
- Milking equipment should be adequate in size, functioning properly and regularly cleaned
- Routine whole herd antibiotic dry cow therapy where cows are dried off abruptly and teats are cleaned scrupulously before antibiotics are administered, including the use of teat-end sealants
- Adopt effective fly control programme
- Educate owners and milkers about implementing a standardized milking procedure.

*Cleaning of teats*

*Disinfection of teats*



*Intramammary infusion of antibiotic*

# Management of Mastitis in Dairy Animals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## WHAT IS MASTITIS?

- Mastitis is the inflammation of one or more quarters of the udder in dairy animals can have an infectious or non-infectious etiology
- It is characterized by physical, chemical and usually bacteriological changes in milk and pathological changes in glandular tissues of the udder and affects the quality and quantity of milk

## WHY IT IS IMPORTANT?

- Mastitis in dairy animals is considered as one of the most important managemental disease resulting into huge economic loss to the country
- In India, the economic losses due to mastitis have increased about 115 folds in last five decades and presently the loss due to mastitis is about ₹7165.51 crore per annum
- In Indian context the overall prevalence of mastitis ranges from 25 to 97% with an average prevalence of 45%. The incidence of subclinical mastitis ranges from 20 to 83 per cent in cows and 45 per cent in buffaloes

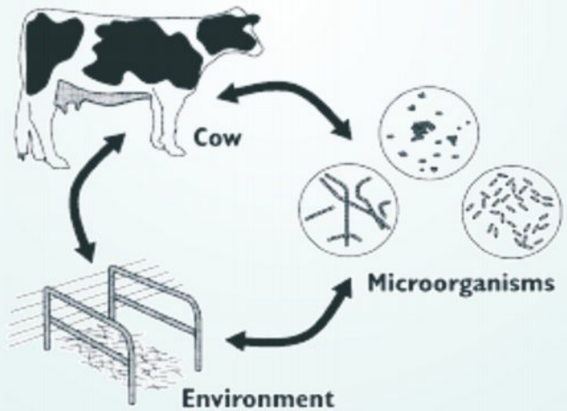
## ECONOMIC LOSSES

- Reduced milk production
- Discarded milk due abnormal milk/antibiotic residues
- Early cow replacement costs
- Reduced cow sale value
- Reduced reproductive efficiency
- Cost of drugs and veterinary services
- Increased labor

## CAUSES OF MASTITIS

Mastitis is multi factorial disease. It is the outcome of interaction of various factors associated with the host, pathogen(s) and the environment. Mastitis micro-organisms, usually bacteria originate in various sites on the animal. They multiply in various ways and are spread from animal to animal. Most common types of mastitis bacteria originate in the udders of infected animals and in sores on teats or other sites on the animal. These pathogens multiply in teat sores or in the bedding materials. The predisposing factors for mastitis are

- Existing trauma (milking machine, heat or cold, injury)
- Teat end injury
- Reduced immunity (following calving, surgery)
- Nutrition (Se, Cu, Zn, Vitamin A, E deficiency)
- Micro-organisms (Bacteria, Fungi, Algae, Mycoplasma)
- Environment (Bedding, soil, water, manure, overcrowding)

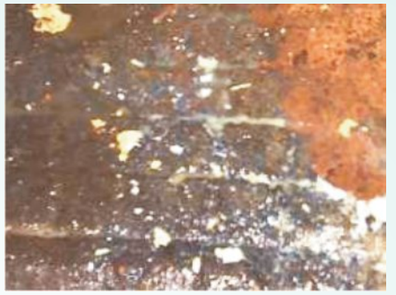



## TYPES OF MASTITIS AND ITS SYMPTOMS

### Clinical Mastitis

- ~ 5 - 10% of all mastitis cases
- Acute type and sudden onset
- Prompt attention needed
- Severe inflammation of the udder
- Clumps and clots in milk
- Serous milk
- Loss of appetite
- Depression and reduction in animal mobility

*Swollen udder*



*Milk flakes*

### Sub Clinical Mastitis

- ~ 90 -95% of all mastitis cases
- Chronic type
- Udder appears normal
- Milk appears normal but there are generally small flakes or clots in the milk
- Milk may have an off-color
- Elevated somatic cell count (SCC) of the milk
- Lowered milk output (~ 10%)
- Longer duration of disease
- Cow appears healthy
- No visible signs of the disease

## DIAGNOSIS

- Physical examination
- Signs of inflammation of udder
- Empty udder
- Difference in firmness of udder
- Unbalanced quarters
- pH test
- Electrical conductivity
- Somatic cell count (SSC)
- Measurement of biomarkers