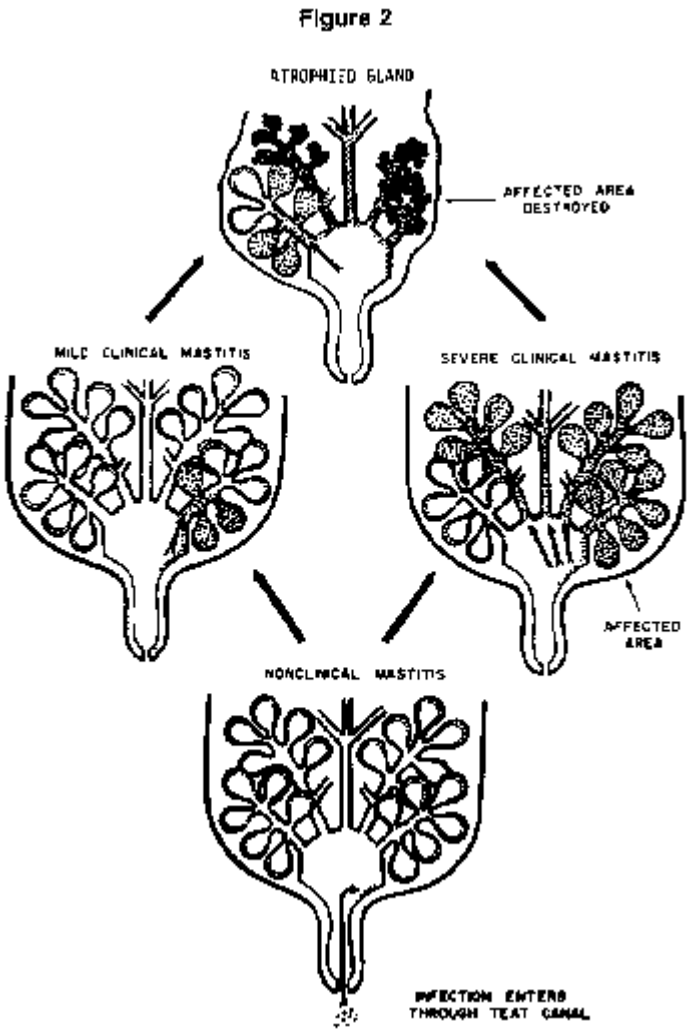
Mastitis

- **Inflammation of the mammary gland**
  - Almost always from intramammary infection
  - Bacterial or mycotic infection can cause milk secreting cells to dysfunction
- **Decreased milk production can last through one or more lactations**
- **Most cases are mild or subclinical infections**
- **More severe cases can lead to agalactia, systemic infection, or death**

Mastitis

- **Normal mammary gland has somatic cells for defense**
  - In mastitis, increase numbers of WBCs respond to infection and can be found in abnormal milk
- **Inflammation of mammary cells lead to increase in blood proteins and enzymes in milk and decrease in normal proteins**
- **Types of Infection**
  - Subclinical-Infection with no gross abnormalities of milk or gland



BIOLOGICAL THREAT REDUCTION

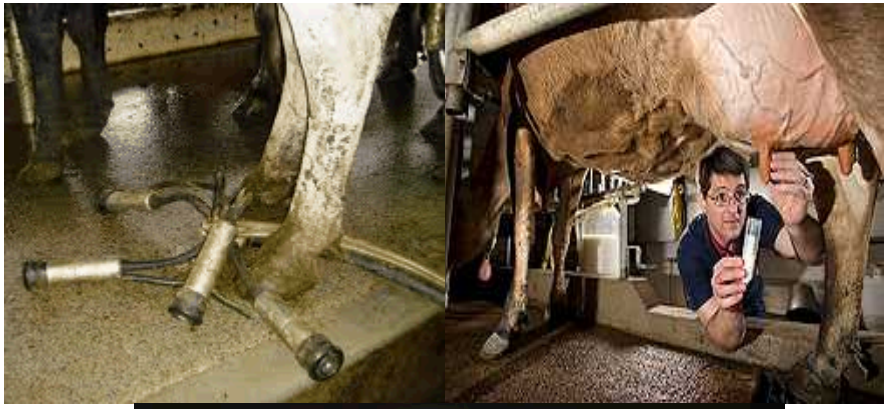
Mastitis

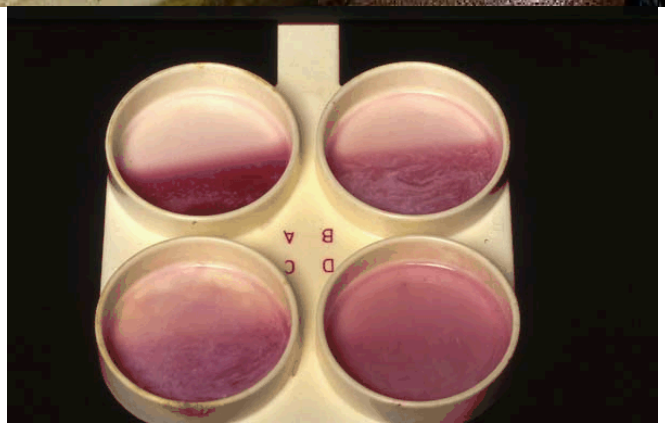
- **Types of infection**
  - Clinical-Infection with grossly abnormal milk with gland inflammation or systemic illness
    - **Mild-Overall healthy animal with abnormal milk**
    - **Moderate-Abnormal milk and gland inflammation but no systemic illness**
    - **Severe-Milk or gland abnormalities with systemic illness**
    - **Gangrenous mastitis caused by Gram –'s, S. aureus, or Clostridium perfringens**
- **Causative agents**
  - Any bacterial or mycotic agent could infect
  - Most common agents can be classified by habitat

Contagious	Environmental
Streptococcus agalactiae	Streptococcus dysgalactiae
Staphylococcus aureus	Streptococcus uberis
Mycoplasma bovis	Coliforms (E. coli, Klebsiella, etc.)

Mastitis

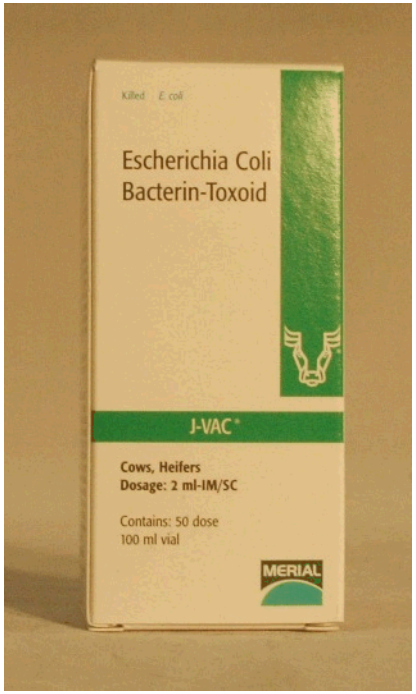
- **Transmission**
  - Contagious mastitis primarily spread from cow to cow during milking
    - **Chief reservoir is infected udders**
    - **Contaminate machinery, hands, towels, other objects**
  - Environmental mastitis results from large populations of pathogens on the teat ends
    - **Often results in clinical disease**
    - **Can be self limiting or chronic**
- **Diagnosis**
  - Culture of organism can help with persistent cases but won't help identify known environmental pathogens
  - California Mastitis Test





Mastitis

- **Treatment and Prevention**
  - Control should focus on PREVENTION rather than treatment
  - Hygiene management
    - **Clean and dry teats before milking**
    - **Dipping teats pre and post dipping**
    - **Removal of feces or contaminated water**
    - **Clean bedding to prevent buildup of environmental pathogens**
  - Vaccination against *Staph. aureus* and coliforms (Gram negatives)



Mastitis

- **Treatment**
  - Early detection and early therapy is best
    - **Beware of herd wide increases in clinical mastitis**
    - **Increase incidences of poor milk or positive CMT results**
    - **Increase somatic cell counts in bulk milk**
  - Intramammary administration of antibiotics is most effective treatment
    - **Many commercially available products**
    - **Choose based on suspected pathogen but broad spectrum may be best choice**
    - **Administration of oxytocin to remove milk within teat recommended**
  - Antibiotics per os or anti-inflammatory therapy may be indicated in severe clinical cases
    - **May reduce effects of systemic illness caused by coliforms**