Animals in Extensive Production Systems

VETS30031 / VETS90123

THE UNIVERSITY OF MELBOURNE

Milk quality – mastitis prevention and herd recording

David Beggs
dbeggs@unimelb.edu.au

Measuring “milk quality”

Normal components of milk

- Protein
- Fat
- Volume

Abnormal components of milk

- Cells

Contaminants of milk

- Bacteria
- Sediment
- Water
- Inhibitory substances

Temperature

Typical milk payments for “milk quality”

Normal components of milk

- Protein (~$9 per kg)
- Fat (~$4 per kg)
- Volume (small negative charge ~2c/L)
  - Milk is typically about 4% fat, 3.2% protein
  - Milk price is often described as kg Milks Solids or c/L

Abnormal components of milk

- Cells (penalties)

Contaminants of milk (penalties)

- Bacteria
- Dirt
- Inhibitory substances

Temperature (penalties if too low)

Cells in Bovine Milk

Bulk Milk Cell Count (BMCC)
- Cells in the vat

Individual Cow Cell Count (ICCC)
- Cells from an individual cow

Types of cells not differentiated when counted

Leukocytes are bad

BMCC - “Premium milk”
- < 250,000 cells per ml

ICCC
- Normal = 50,000-250,000 cells per ml
- In mastitis can rise to several million cells/ml

Mastitis

Infection of the udder

The most important disease in dairy medicine

Mastitis and BMCC

Most economically important disease to dairy industry

- Reduced milk production
- Loss of BCS
- Poorer milk quality (reduced payment)
- Cull cattle
- Cost of treatment
- Antibiotic use

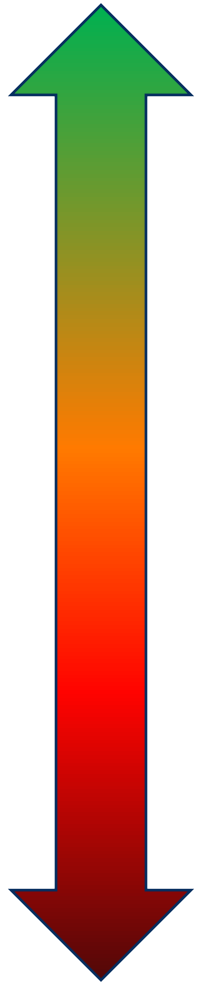
Types of Mastitis

1. Not infected
- Bacteria outside the udder

2. Subclinical
- Bacteria inside udder
- High ICCC, changes to milk chemistry
- Cow fighting an infection

3. Clinical
- Obvious Changes to milk
- No obvious changes to the cow
  - (Outside the udder)

4. Toxic
- Obvious changes to the cow



Herd testing *(aka "Herd recording")*

Processors evaluate bulk milk quality/quantity at each collection

Farmers can also monitor individual cows periodically for…

- Milk production
  - Litres
  - BF (kg and %)
  - Protein (kg and %)
- Individual Cow Cell Count (ICCC)
  - Subclinical mastitis detection

< 50% of Australian herds "herd test" ☹

Control of mastitis

Key strategies:

- Rapid identification and treatment of clinical cases
- Minimising environmental contamination
- Minimising spread during milking
- Maintaining teat end and teat skin health
- Using effective Dry Cow Therapy

Rapid identification and treatment of clinical cases

Missed cases can quickly elevate BMCC (100,000s!)

TARGETS:

- No more than 5/100 cows in first 14 days of lactation
- No more than 2/100 cows per month in subsequent months of lactation

Remove from vat – treat or cull (if 3 or more cases this lactation)

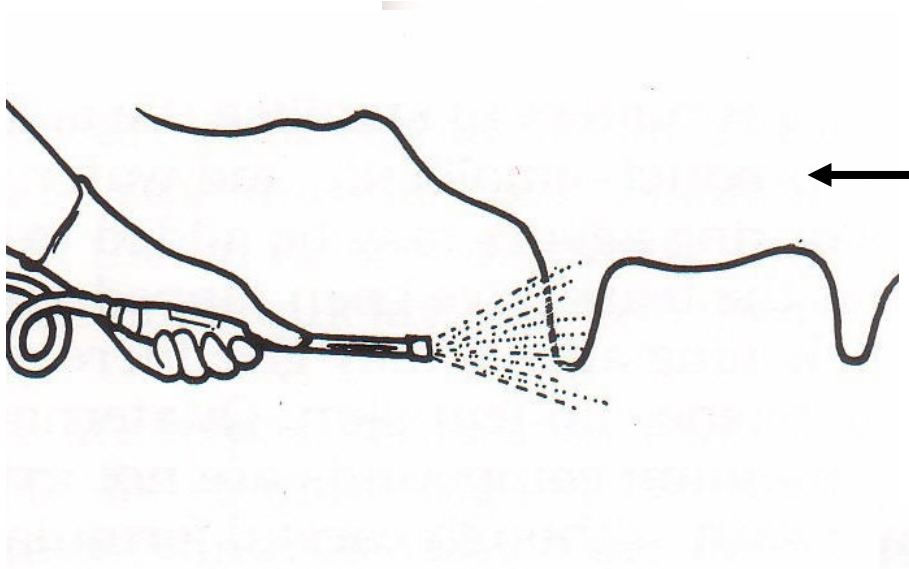
Minimising environmental contamination

- Gateways
- Water troughs
- Laneways and tracks
- Dairy entrance
- Dairy exit
- Feed pads
- Calving pads

Minimising spread during milking

- Maintain milking machines
  - Vacuum
  - Pulsation
  - Rubberware
- Avoid under or over milking
- Milker HYGIENE (gloves)
- Post milking teat disinfection (teat spraying)
- Segregate infected cows

Teat spraying



Incorrect

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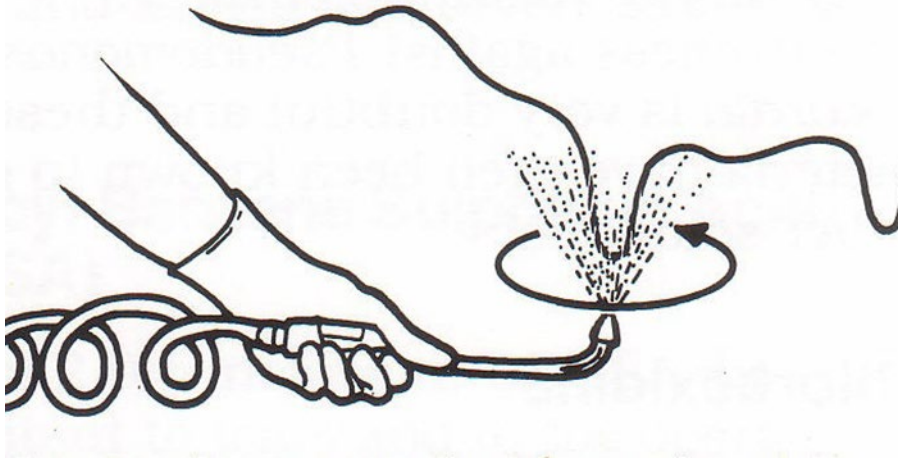
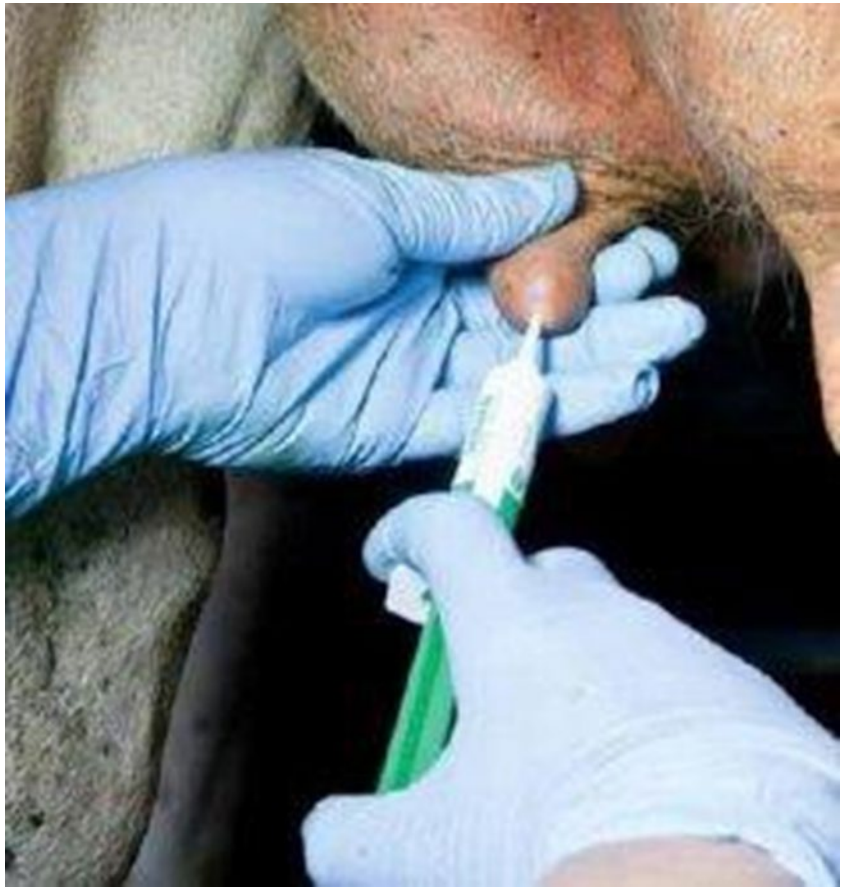


Teat Sealants and Dry Cow Therapy

- Teat sealants - seal teat canal at end of lactation
- Dry Cow Therapy - Long-acting antibiotic preparation
- Infused into each quarter immediately after the last milking for the season
- Main actions:
  - Treats existing infections
  - Prevents infection during the dry period
  - Also helps develop keratin plug



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AEPS – DAIRY WEEK 1