

CARLIFORNIA MASTITIS TEST

(Level 1)

Topic	Training & information Content
9.1	Introduction to Animal health (Prevention vs curative health care)
9.2	Health signals
9.3	Biosecurity of dairy farms
9.4	Tick born diseases (Prevention and treatment)
9.5	Worm infections (Prevention and treatment)
9.6	Vaccination schedule and planning
9.7	Mastitis prevention and treatment
9.8	California Mastitis Test
9.9	Usage and storage of veterinary medicines on dairy farms
9.10	Administering of medicines to dairy cows
9.11	Instruction use of injectors into teat canal
9.12	Key performance indicators (KPIs) for monitoring health status of dairy herd



1. You will learn about (learning objectives):

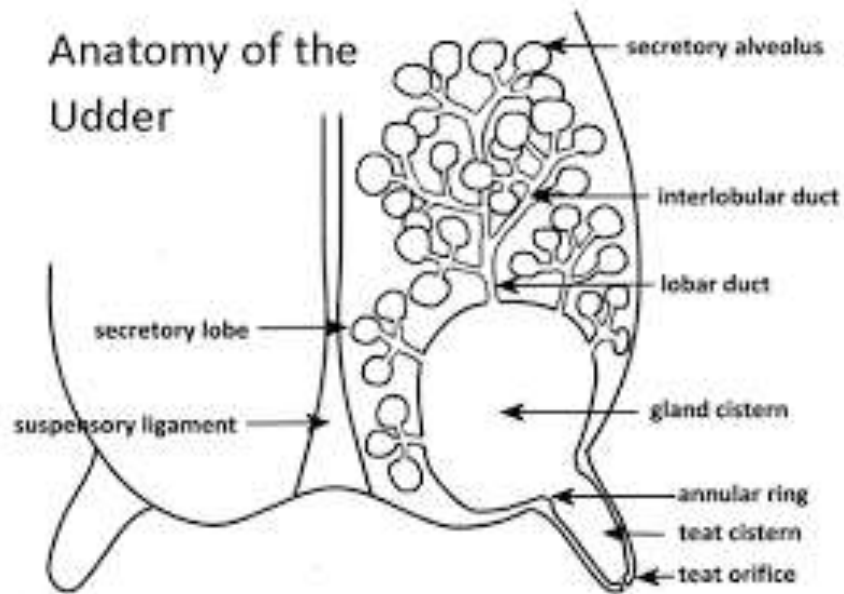
- Somatic cell counts and its effects.
- Why you do not want high cell counts.
- How to carry out a California Mastitis Test

You will learn the theoretics and understanding behind the job. Only practice can give you the skills!

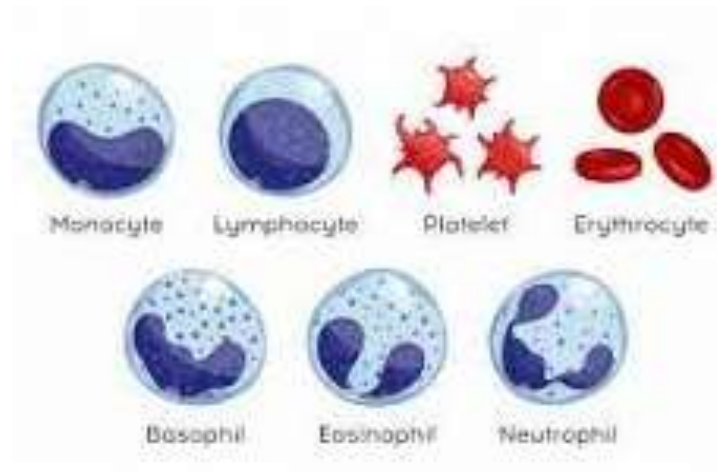


2. Background

- Bacteria cause an inflammation of the udder.
- Udder cells and blood cells die; and get into the milk.
- When there are a lot of cells in milk you will have an udder infection.
- Sometimes the milk is not visibly changed yet, but with testing you find high cell counts.



Tip: White blood cells are the soldiers to fight bacteria. They increase after an infection.

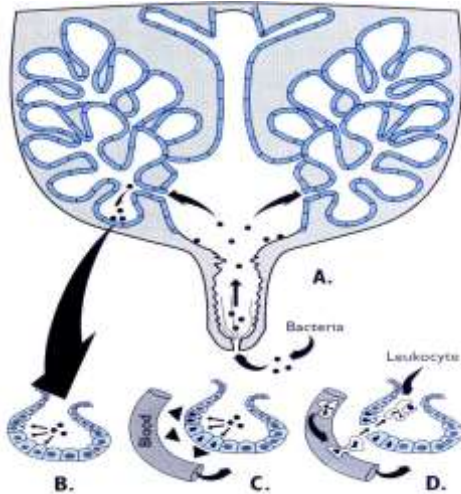


Next to dead udder cells you find blood cells in milk.

3. Somatic cell count

The main symptom of sub-clinical mastitis is an elevated somatic cell count (SCC). That is;

- The pathogen bacteria cause an infection.
- More udder cells die.
- White blood cell enter the area to fight the bacteria.
- More cells as normal will appear in the milk.
- Arbitrary: when more than 250,000 cell/ml are in the milk, one speaks of sub-clinical mastitis
- The milk can be tested on cell count by the **Californian Mastitis Test**.



Performing a CMT is of great help to improve udder health. The details are discussed in another PowerPoint presentation

4. High Somatic cell count



Cows with high cell counts:

- Give lower milk yields.
- Have risk for developing mastitis.
- Have lower quality milk.

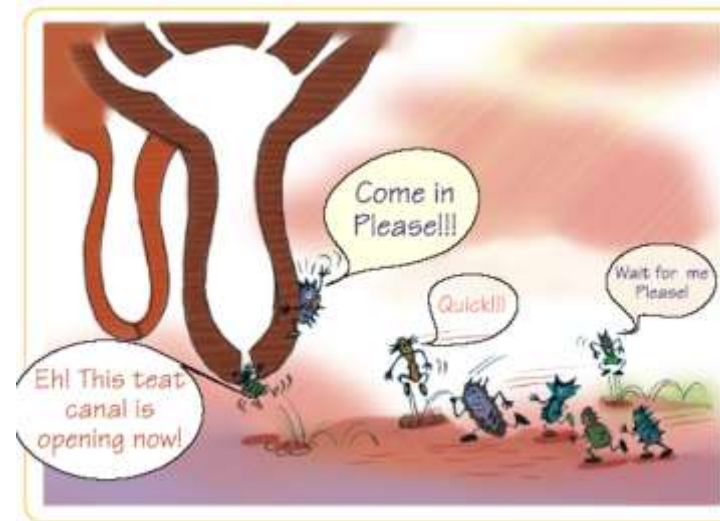
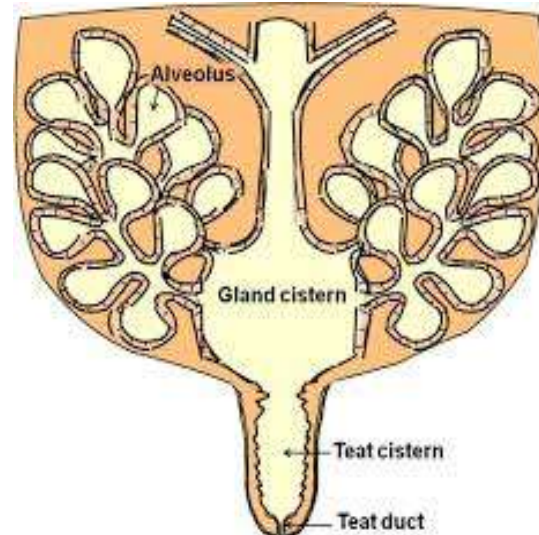


5. Benefits of CMT

- The California Mastitis Test helps to find high cell counts.
- The test is:
 - Cheap
 - Easy to do
 - Gives immediate result.
 - Gives an indication of the level of infection of each quarter.

You test each quarter.

Bacteria come through the teat canal, but cannot go from one quarter to the other.



5.1 Benefits of CMT Cont'd...

These elevated somatic cell count we trace with the Californian Mastitis Test (CMT)

- When milk contains more than 400,000 cells/ml, it becomes visible in the CMT.
- All milk contain somatic cells, because body cells will continuously die and be replaced.
- Below 250,000 cells/ml one considers the udder healthy and when above 400,000 cells/ml one expects a sub clinical mastitis.
- The CMT therefore is an excellent tool to see if a cow has a sub clinical infection or if a treatment is completely successful.
- Every quarter is a separate milk producing unit, so one quarter can be affected while the other is free from infection.



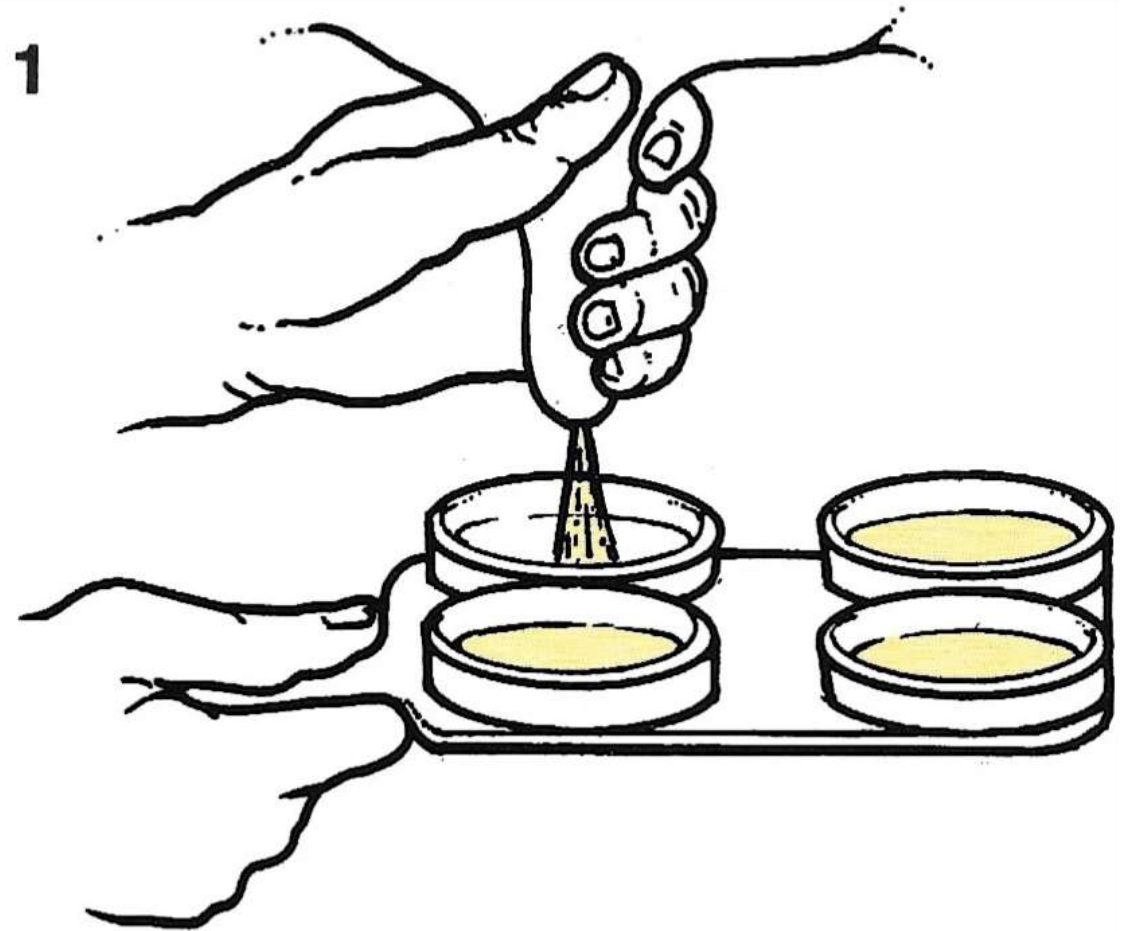
These four grades which can be recognized by judging the Californian Mastitis Test.

6. Steps for conducting CMT

- Discard the foremilk.
- Draw one or two squirts of milk from each quarter into a paddle dish.
- Follow the order Left front, Left Rear, Right Rear then Right front.



1

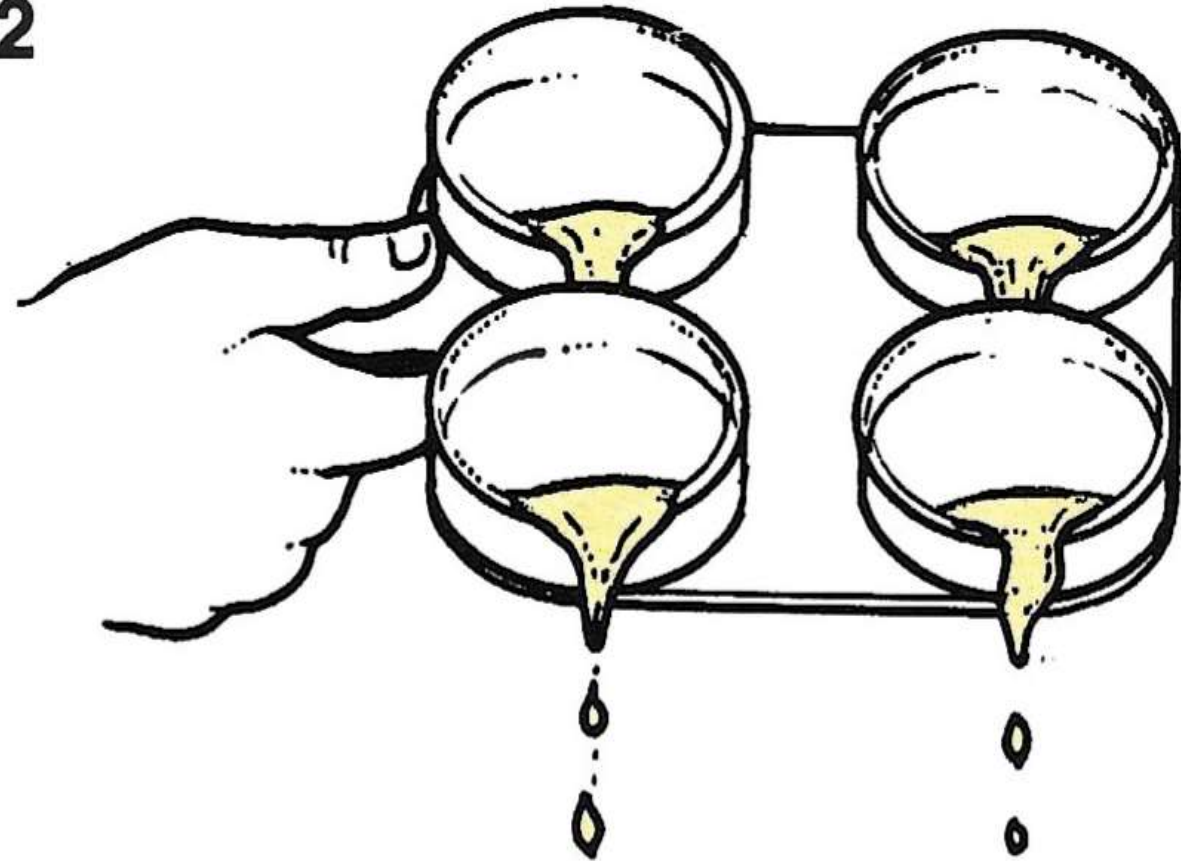


6.1 Steps for conducting CMT Cont'd...

- Discard excess milk. This way you have equal amounts of milk in each cup. Also, you are safe on the use of test liquid.



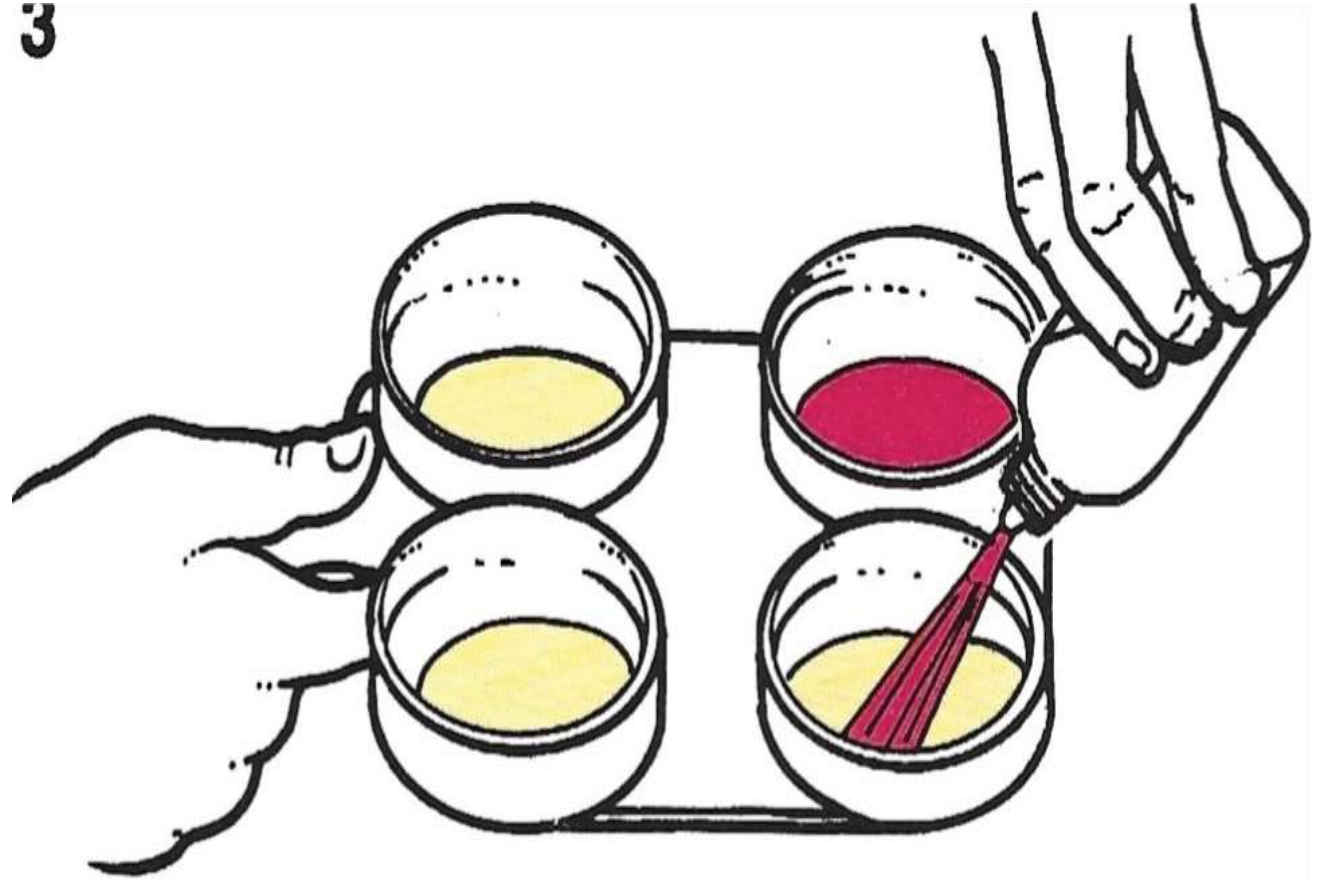
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6.2 Steps for conducting CMT Cont'd...

- Add an equal amount of reagent compared to the volume of milk.

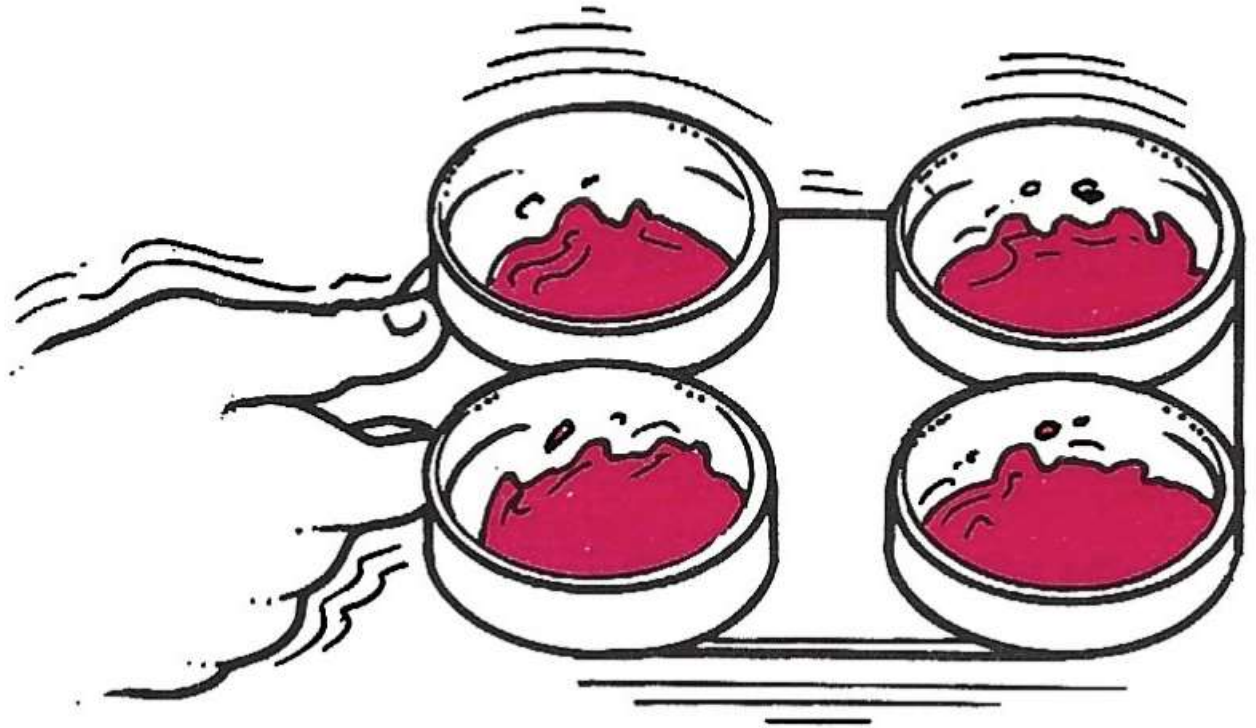
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6.3 Steps for conducting CMT Cont'd...

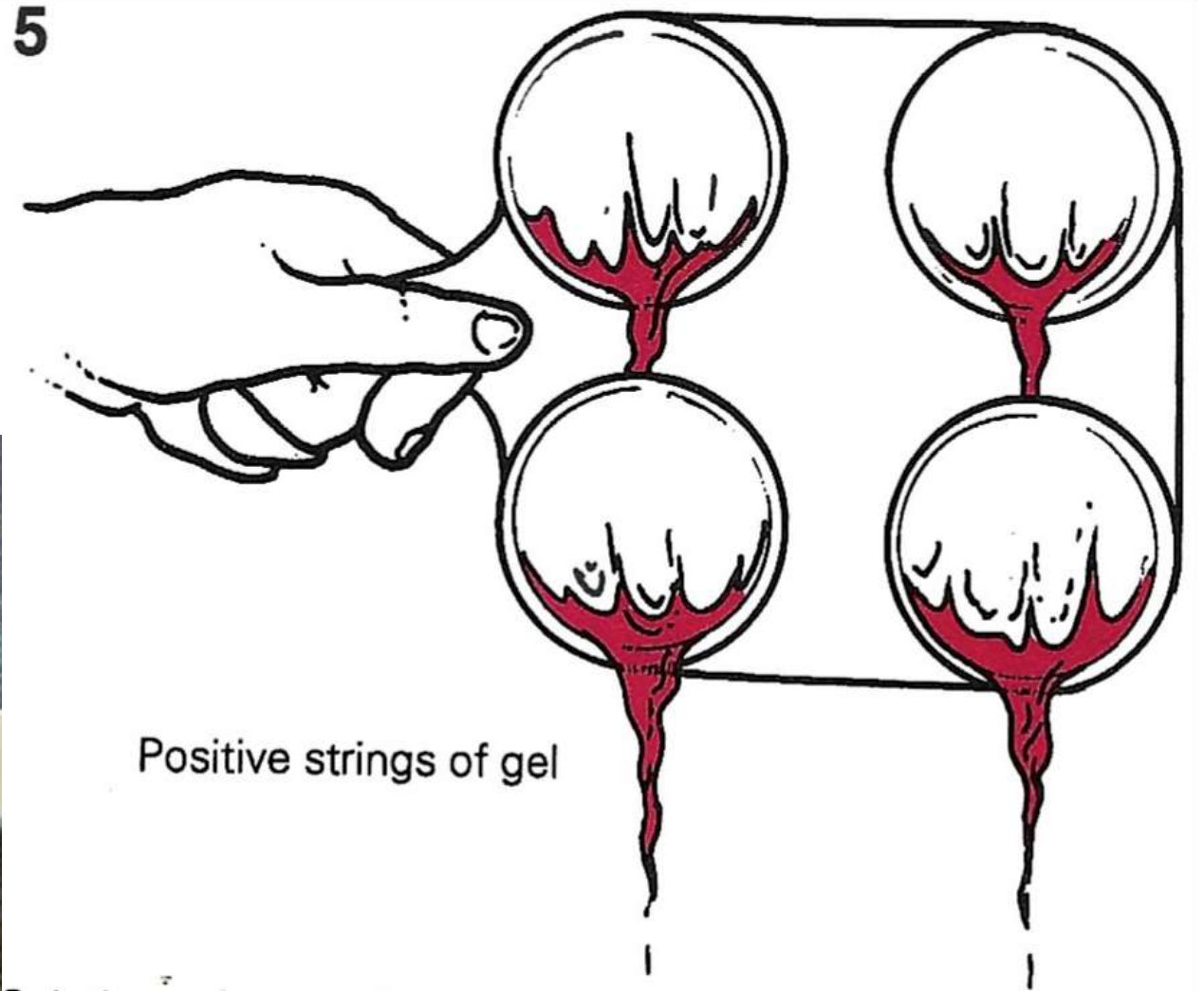
- Mix the milk and the reagent. Please do not use your fingers.
- If necessary use a stick.

4



6.4 Steps for conducting CMT Cont'd...





- Solutions are examined for the presence of a gel or slime reaction.
- Gelatinous 'strings' indicate a high cell count.



7. Video illustrating CMT



8. CMT results

Test outcome	Result	Score	Description	SCC
	Negative	-	Mixture remains liquid. No slime or gel form. It can drip out of the paddle well.	< 400,000
	Trace	+	Mixture becomes slimy or gel like. It is seen to best advantage by tipping paddle back and forth, observing mixture as it flows over the bottom of cups.	> 400,000
	Weak Positive	++	Mixture distinctly forms a gel.	
	Clear positive	+++	Mixture thickens immediately, tends to form jelly. Swirling cup moves mixture in, towards center exposing outer edges of the cup.	> 1,000,000

8.1 CMT results Cont'd: Write down results

Cow name	Left front	Right front	Right rear	Left rear
Marie	-	-	-	-
Anita	+++	-	-	++
Nelly	-	-	+++	-
Marie 2	-	-	-	-
Joan	-	++	++	-
Paula	-	-	-	-

- Write the results down.
- When more than 1 out of 5 quarters tests positive call help from an expert.
- This can be a veterinarian or an extension officer.

Example of how to fill the results of a CMT test.

- Make sure each cow can be recognized on the sheet either by name or ear tag number.
- Write the results down per quarter;
 - RF = right front
 - RR = right rear
 - LR = left rear
 - LF =left front

9. Principle behind CMT

When not having commercial test liquid

- CMT test liquid is often difficult to get and expensive.
- You can use dish wash detergent instead.
- Do not dilute it before use.

Dish wash
detergents

