

Obtaining the Optimal Culture Results from Milk Samples

The VDL offers milk cultures for both mastitis and bulk tank sampling. The best results are obtained from appropriately collected samples that are either frozen immediately or transported on ice to the laboratory within 24 hours of collection. Note: If *Mycoplasma* sp. is suspected, *Mycoplasma* culture must also be specifically requested.

Sample Collection: Samples should be collected prior to milking. Please carefully follow the instructions below to avoid contamination.

1. Thoroughly wash and dry hands before handling udder.
2. Clean dirty udders and teats with disinfectant solution (chlorhexidine or iodophor) and fully dry with a clean paper towel.
3. Strip a few streams of milk (or a few drops from a dry cow) prior to sample collection.
4. Clean teat end with gauze or cotton moistened with alcohol and allow to dry. Use separate gauze or cotton for each teat end. Do not touch clean teat ends before the sample is taken.
5. Remove the cap from tube and hold cap with open end facing downward. **Do not set cap down or touch inner surface of cap.**
6. Samples should be collected and submitted in a sterile screwcap container. Keep tube at about 45° angle and squirt 5-20 ml of milk into a sterile screwcap tube. **Rubber stoppered blood tubes and Whirl-Paks are unacceptable due to contamination issues.** Sterile screwcap tubes are available at the VDL for a nominal fee.
7. Only fill the sample tubes about $\frac{3}{4}$ full. Larger volume samples are not required and increase the risk of contamination. Immediately cap the tube. Do not touch the lip of the tube with teat end or fingers.
8. Tighten cap and label tube. Immediately refrigerate and pack samples on ice after collection. Keep at 39°F (4°C) or freeze until delivered to diagnostic lab. A delay in cooling of as little as 15 minutes may cause overgrowth of pathogens by contaminant/normal flora bacteria, leading to inaccurate culture results.

The following video is also available with instructions for milk culture collection:

<https://www.youtube.com/watch?v=on0SrRkDFtk>

Interpretation of Results:

Bacterial Growth: Interpretations are based on the pathogenicity of the bacterium isolated and its quantity in the sample. In samples with more than one bacterial species, only obvious (contagious) pathogens will be reported. Submission of multiple samples can increase the likelihood of identifying the causative agent.

Contaminated Samples: Contaminated samples will be reported with comments indicating “no obvious (contagious) pathogen present” or “Indicated the isolated bacterium”. Only contagious



pathogens will be reported in contaminated samples; it is recommended that contaminated samples be recollected following the aseptic techniques described above.

Reasons for “No Growth” Culture Results:

1. Traces of antibiotic or disinfectant in the milk can inhibit growth of organisms.
2. Number of organisms is below detectable levels (may occur with *Staphylococcus aureus*).
3. Improper handling or transport delay may reduce viable organisms to below detectable levels.
4. Organisms may have been phagocytized or cleared by the animal's immune system.
5. Infection is caused by organisms that grow slowly or do not grow on routine culture media e.g., *Mycoplasma* sp., anaerobic bacteria, etc.