



COLLECTING STERILE MILK SAMPLES

1. PURPOSE

- 1.1. This Standard Operating Procedure (SOP) instructs farm workers and students on how to collect a sterile milk sample at the UBC Dairy Education and Research Centre.

2. SCOPE

- 2.1. This SOP will describe how to properly collect a sterile milk sample while working in the milking parlour.

3. RESPONSIBILITY

- 3.1. The Operations Manager is responsible for reviewing and updating this procedure as required.
- 3.2. The Operations Manager is responsible for ensuring all personnel who may be responsible for collecting sterile milk samples are properly trained.
- 3.3. Training will include animal handling, and milking procedures. See SOPs on Moving and Chasing Cattle, Handling of Cattle, Clinical Mastitis and Milking Procedures.
- 3.4. The person obtaining the milk sample is responsible for recording pertinent data in the dairy day book, while the Operations Manager is responsible for transferring that information into the dairy management software.

4. SAFETY PRECAUTIONS

- 4.1. All personnel working in the milking parlour must wear personal protective equipment –coveralls, rubber apron, disposable latex gloves and dedicated facility footwear.
- 4.2. Disposable latex gloves must be worn when working in the milking parlour to protect both the workers and cows from bacteria.
- 4.3. Be careful when working around the animal's udder as some animals, especially 1st lactation animals, may kick.



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- 4.4. Walk carefully in the milking parlour so as not to slip on the wet floor.
- 4.5. Thoroughly wash your hands with hot soap and water when leaving the milking parlour.

5. GENERAL

- 5.1. Sterile milk samples are taken from select animals that may be exhibiting clinical signs of mastitis. Care must be taken to ensure no extraneous bacteria contaminate the milk sample.
- 5.2. Numbers of bacteria will increase exponentially at room temperature. It is therefore very important to immediately cool the samples as they are collected, and to keep them refrigerated or frozen until they arrive at the lab.
- 5.3. The number of any animal sampled, along with its symptoms, will be recorded in the dairy day book and herd management software.

6. MATERIALS AND EQUIPMENT

- 6.1. Disposable Latex gloves
- 6.2. 70% isopropanol in a spray bottle
- 6.3. 4x4" gauze pads, or Q-tips
- 6.4. Sterile sample container, with lid
- 6.5. Waterproof marker
- 6.6. Ice
- 6.7. Small container to hold ice

7. PROCEDURE

- 7.1. During pre-stripping of the udder, if any animal shows signs of clinical mastitis, sterile milk samples can be obtained using the following steps:
- 7.2. The animal should have her teats pre-dipped before milk sampling takes place as per normal milking procedure. See SOP on Milking Procedure.



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- 7.3. Spray your clean gloves with 70% isopropanol before proceeding.
- 7.4. Ensure the udder is clean of dirt and bedding. Moisten a gauze square or Q-tip with 70% isopropanol and wipe the teat end for 15-20 sec or until clean. See Fig 1.
- 7.5. If sampling from more than one quarter, start from the farthest away and work towards you. Use a separate gauze or Q-tip for each teat, and let dry.



Fig 1. Cleaning teat end with isopropanol and gauze

- 7.6. Using a waterproof marker, pre-label the sample tube(s) with the animal's #, quarter sampled and date. Quarters are designated RF (right front), LF (left front), RB (right back) or LB (left back).
- 7.7. Immediately before sampling, and using one hand, open the sterile sample container without touching the rim or inside of the lid. Keep the lid facing downwards. With the other hand pull one stream of milk onto the floor.
- 7.8. Without touching the container or lid with the teat, direct the 2nd and 3rd streams of milk into the container from a distance, and at a 45 degree angle. This will help prevent hair and manure contamination of the sample. See Fig 2 & 3.

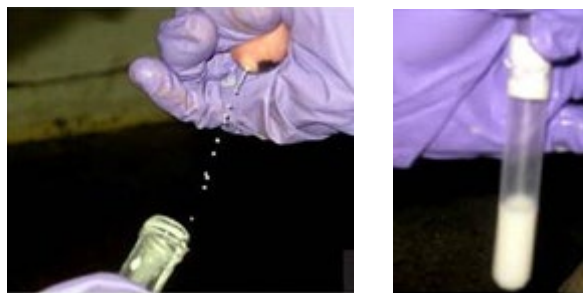



Fig. 2 & 3 Collecting a sterile milk sample

- 7.9. Immediately recap the sample container and place in an ice bath.

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- 7.10. Milk samples will be transported to the lab for analysis. If analysis is not available that day, freeze samples until they can be worked on. This will prevent an increase in bacterial numbers.
- 7.11. Respray your gloves with 70% isopropanol.
- 7.12. Record information - the date, the animal's number and which quarters were sampled - in the Dairy Day Book.
- 7.13. Wash hands thoroughly with hot soap and water when leaving the milking parlour.

8. REFERENCES

- 8.1. CCAC Guidelines on the Care and Use of Farm Animals in Research, Teaching and Testing. CCAC. 2009
- 8.2. Code of Practice for the Care and Use of Dairy Cattle. National Farm Animal Care Council. 2009 Dairy Cattle Extension Online. <https://dairy-cattle.extension.org/collection-and-preparation-of-milk-samples-for-microbiological-culturing/> Accessed November 12, 2019
- 8.3. Dairy Cattle Extension Online. <https://dairy-cattle.extension.org/collection-and-preparation-of-milk-samples-for-microbiological-culturing/> Accessed November 12, 2019
- 8.4. National Mastitis Council. Online Protocol, Guidelines and Procedures. <https://www.nmconline.org/wp-content/uploads/2016/09/Procedures-for-Collecting-Milk-Samples.pdf> Accessed November 12, 2019.

9. REFERENCED SOPS

- 9.1. SOP-Cow-006 Moving and Chasing Cattle
- 9.2. SOP-Cow-016 Milking Procedures
- 9.3. SOP-Cow-017 Clinical Mastitis
- 9.4. SOP-Cow-023 Handling Cattle



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10. APPROVAL AND REVISION HISTORY

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