

Procedures for Collecting Milk Samples

Proper collection of milk samples is of paramount importance for identification of mastitis pathogens. Aseptic technique is an absolute necessity when collecting milk samples to prevent contamination by organisms found on the cows' skin, udder, and teats; hands of the sampler; and in the barn environment. Contaminated samples result in misdiagnosis, increased work and expense, confusion, and frustration. Contamination can be avoided by following the procedures described below.

Materials for Sampling

- Sterile vials or tubes
- 70% alcohol (ethyl or isopropyl)
- Cotton balls or gauze pledgets soaked in 70% alcohol, or commercially prepared, individually packaged alcohol swabs
- Cooler with ice or freezer packs for storing samples
- Racks for holding sample tubes or vials while sampling cows, and for cooler storage
- Disinfectant for cleaning teats (effective germicidal products used for premilking teat disinfection are recommended)
- Paper towels or individual cloth towels
- Means of identifying samples: permanent ink pen (with ink that is stable in both water and alcohol) or typed labels

Sampling Technique

- Label tubes prior to sampling (date, farm, cow, quarter).
- Brush loose dirt, bedding, and hair from the udder and teats. Thoroughly wash and dry grossly dirty teats and udders before proceeding with sample collection. Udders should be washed as a last resort.
- Discard several streams of milk from the teat (strict foremilk) and observe milk and mammary quarters for signs of clinical mastitis. Record all observations of clinical signs.
- Dip all quarters in an effective premilking teat disinfectant and allow at least 30 seconds contact time.
- Dry teats thoroughly with an individual towel.
- Beginning with teats on the far side of the udder, scrub teat ends vigorously (10 to 15 seconds) with cotton balls or gauze pledgets moist (not dripping wet) with 70% alcohol. Teat ends should be scrubbed until no more dirt appears on the swab or is visible on the teat end. A single cotton ball or alcohol swab should not be used on more than one teat. Take care not to touch clean teat ends. Avoid clean teats coming into contact with dirty tail switches, feet, and legs. In herds where cows are not cooperative, begin by scrubbing the nearest teat until clean, obtain the sample, and move to the next teat.
- Begin sample collection from the closest teat and move to teats on the far side of the udder. Remove the cap from the tube or vial but do not set the cap down or touch the inner surface of the cap. Always keep the open end of the cap facing downward. Maintain the tube or vial at approximately a 45 degree angle while taking the sample. Do not allow the lip of the sample tube to touch the teat end. Collect one to three streams of milk and immediately replace and tightly secure the cap. Do not overfill tubes, especially if samples are to be frozen.
- To collect a composite sample (milk from all four quarters in the same tube), begin sample

collection with the nearest teats and progress to the teats on the far side of the udder. One to 2 ml of milk should be collected from each quarter of the udder.

- When samples are taken at the end of milking or between milkings, teats should be dipped in an effective germicidal teat disinfectant following sample collection.
- Store samples immediately on ice or in some form of refrigeration. Samples to be cultured at a later date (more than 48 hours) should be frozen immediately.

Source: Microbiological Procedures for the Diagnosis of Bovine Udder Infection and Determination of Milk Quality. [NMC publication, 2004]

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