

SECTION II-6

DETECTION OF MASTITIS USING POOLED MILK SAMPLES

6. DETECTION OF MASTITIS USING POOLED MILK SAMPLES

Bulk tank or pooled milk can be used as an inexpensive screening test to detect prevalent pathogens in a flock. The main pathogen that is relevant in these samples is *Staph. aureus* in ewes. This method of detection is an ideal option for a screening program, with regular sampling (e.g. monthly) to monitor changes in bacterial populations in flocks.

6.1 CULTURING POOLED MILK

6.1.1 OBTAINING AN ASEPTIC MILK SAMPLE FROM THE BULK TANK OR BUCKET

Bulk tank samples are a good way to monitor for some mastitis pathogens in the flock. The best time to take a sample is just before the milk truck arrives so that the maximum number of milkings is represented. When sampling from the bulk tank, it is important that the milk is agitated properly before sampling to ensure that all milk is mixed properly to get a truly representative sample for the flock. Agitation should occur for approximately five minutes before sampling.

Milk samples should be taken from the top of the tank from the manhole. The outlet at the bottom of the tank should not be used for sampling, as there can be bacterial build-up in this pipe, thus giving a biased milk sample. A clean sanitized dipper should be used for collecting milk. After collection, milk is aseptically placed in a sterile milk vial (by pouring or use of a sanitary straw), as used for individual ewe culture, and refrigerated or frozen until it can be cultured as outline in Section II.5.4.

When milking into buckets, which are to be frozen for later delivery to the processor, a sample should be taken from each bucket (Fig. 1) and then pooled in a single vial (Fig. 2). Prior to sampling, each bucket should be thoroughly mixed and sampled using a clean, sanitized dipper. This sample only represents one milking but is still a good way to monitor mastitis pathogens in the flock.

Fig. 1. Bucket sample



Fig. 2. Pooled sample



6.1.2 INTERPRETING RESULTS

With pooled milk samples, there is often an environmental pathogen cultured (e.g. coliforms, *Pseudomonas*). There is a chance that this group of pathogens is transmitted directly to the bulk tank from mastitis infections, however, it is also probable that these pathogens are from environment. This environmental population can be found anywhere from wet and dirty udders during milk preparation to faulty equipment in the parlour. These bacteria if present in high numbers may indicate a severe hygiene problem in the milking system. Please see Section V Quality Milk, for more information.

Any contagious pathogens that are present in a high enough prevalence should be detected in the bulk tank sample. For example, a pooled sample, which is positive for *Staph. aureus*, strongly indicates that

there are several ewes in the flock infected with this important contagious pathogen. See Section VI.4 for more information on how to manage this.

6.1.3 INTERPRETATION OF RESULTS FROM POOLED SAMPLES

Culture results from pooled milk can be reliable; however, they do not have the capacity to detect pathogens as efficiently as culturing individual ewes. If there is a high prevalence of a particular pathogen, specifically *Staph. aureus*, pooled milk culturing should be able to detect it in the sample. However, if there is a low prevalence of a major pathogen, the culture results could give a false negative result, where some ewes are infected but too few to be picked up on a pooled sample.

