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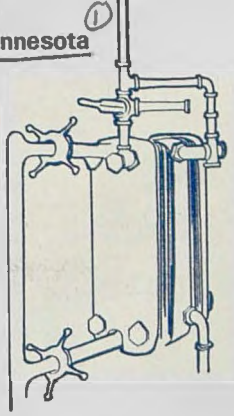

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SAMPLING MILK ON THE FARM

At a recent short course, Mr. Harold Barnum, now retired from the Denver, Colorado, Department of Health and Hospitals, discussed milk sampling and the handling of milk samples. Since this is a topic of general interest, we thought we would pass along some of the highlights of his comments.

THE PROBLEM

No test, whether for bacteria or butterfat of any other quality factor, is any better than the sample tested. The sample must be representative. It must reflect conditions on the farm, at least to the extent possible in transit from the farm to the plant, and during storage at the plant prior to testing.

There is a need for standardizing sampling techniques. This must be done to assure proper sampling and, perhaps as important, it must be done to avoid confusing milk haulers, the men who do the sampling.

Milk samples are the basis for milk purchase, for quality field work, and for regulatory control, and they require much laboratory time and expense. The total procurement program revolves around the sample. Yet how much earnest consideration is actually given to this very important aspect of operation?

THE "UNIVERSAL" SAMPLE

"Universal" is the name applied to a sample taken each collection day, a sample which may be used for any and all purposes, i.e., bacterial or chemical analyses or butterfat testing. (We are speaking of bulk milk, where problems are somewhat more involved than can milk, and where, certainly, the need for standardization is most critical.) Simply put, the "universal" sample concept is: one sample for every purpose.

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SOME ADVANTAGES OF THE "UNIVERSAL" SAMPLE

Here are some of the desirable features of this method of sample collection and handling:

1. Techniques are essentially the same as for butterfat sampling. The only major difference is use of a sterile sample container. Precautions against contamination during sampling are necessary, but such precautions should be taken anyway.

2. A routine is established and does not vary from one collection to the next. Confusion arising from differences in sampling techniques for butterfat and quality test is eliminated. Milk haulers likely would find it easier to adapt to a single, constant routine.

3. Sampling programs designed around the butterfat test provide a check on adequacy of agitation. No other practical check is possible.

4. A sample is available at all times. It may be used for routine testing or rechecking. The latter usually necessitates a special trip to the farm, and the subsequent loss in time, labor, and expense. "Universal" samples also may be used by the regulatory agency in their control work.

5. Neither hauler nor producer is aware of the use, if any, to be made of any particular sample. Temptations are minimized. Consistent techniques are promoted.

6. "Fresh" milk may be tested for butterfat. In some markets milk is now tested under a stratified random sampling program. That is, four samples of fresh milk are tested, with one sample selected at random from each of the four weeks in the month. When a sample is available from every pick-up, this can be a convenient method of operation.

7. A fresh sample is always available for flavor and odor evaluation if desired. Even though the supply of milk has already been committed, flavor and odor can be useful in pinpointing specific off-flavor problems.

SAMPLING DIPPER ON EVERY FARM

In taking samples under aseptic conditions, the sampling dipper is a prime source of contamination. Some markets have found it useful to require dipper storage on the farm. Under this system the hauler's job is simplified. He does not need to carry sampling utensils or sanitizing solutions in the tank truck. At the same time, the producer is made responsible for cleaning and sanitizing the dipper and for storing it in a sanitary manner. Dippers may be stored in sanitizing solutions or in the bulk tank proper. Only the producer is penalized if the dipper is not maintained in a sanitary condition. Dippers should be made of stainless steel and be easily cleanable. They should also be uniform in size.

REFRIGERATION OF SAMPLES

Samples may be considered properly refrigerated only when partly immersed in ice water, with an ice reserve. Anything less, especially in summer months, will allow warm-up. Both churning and bacterial increases can occur, assuming the milk was properly refrigerated on the farm. Sturdy, well-insulated sample boxes, abundantly iced are a must. A thermometer encased in a sample container will provide a necessary temperature check at the plant at time of delivery. Of course, all samples must be properly identified.

SAMPLING PROCEDURE

There may be slight modifications, but the sampling procedure runs about as follows:

1. Wash and dry hands upon entering the milkhouse.

2. Agitate milk for the minimum time required by the regulatory agency and/or the tank manufacturer's instructions (3 to 5 minutes usually is adequate).

3. Legibly identify the sample container before the sample is taken. This can be done prior to starting on the route or while agitation is taking place.

4. Insert clean, sanitized dipper into the milk and rinse it out at least three (3) times.

5. Withdraw milk sample and pour into the container. A four-ounce sample is usually sufficient. If a plastic sample bag is used, do not fill sample bag over three-quarters full. Space must be left for agitation of the sample prior to extraction in the laboratory. The sample should be collected through the port lid and should be held away from the tank while pouring.

6. Close or cap container.

7. Place sample in a refrigerated storage case immediately. Make sure that the ice water is in direct contact with the samples at all times to insure maximum refrigeration.

8. Rinse the dipper and place it either in the wash vat or return it to the tank truck storage area.

9. Deliver samples before ice melts in the sample carrying case.

SUMMARY

There is a need for simplifying and standardizing bulk milk sampling techniques. All samples should be representative of milk on the farm. Cold storage (32°-40°F) must be maintained up to the time of testing.

The "Universal" sample, a proven concept, offers promise for assuring the above needs.

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Cooperative Agricultural Extension Work
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