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Get the most from your milk lab

Diagnostic testing is a key component of any good mastitis control program. Many of you have brought milk samples to our office for testing, but many more of you may not realize the services we offer in house, as well as through Cornell Quality Milk Production Services (QMPS). There are many types of tests that provide valuable information to help dairy producers achieve excellent milk quality. Diagnostic tests like quarter milk culture identify the type of pathogen causing mastitis infections. These results can then be used to decide whether a cow should be treated and with what treatment. Screening tests like bulk tank culture (sent to QMPS) monitor the herd for the presence of contagious pathogens, and also provide information that can be used to monitor milking time hygiene and equipment cleaning issues. Other tests like bedding or towel cultures can identify potential risk factors for mastitis, or help monitor management of those areas on the dairy.

Here are some guidelines to make sure that you get the most value out of your diagnostic testing. Asking certain questions *before* you submit samples to your Veterinarian can help you avoid common mistakes.

Select the right test

To select the best test for a particular situation, start with a specific question. This will help you select a test that best answers the question, and will help you select the right sample for that test. It is important to consider how you will use the test results. For example, if a mastitis culture is positive for *Staph aureus*, will you try to treat, do-not-breed and segregate/milk last, or cull? If the action is a cow-level action, you can select a cow-level test. A cow-level test would be culture of a composite milk sample, where milk from all four quarters of the cow is combined in one sterile vial. However, composite samples can be difficult to interpret because it is common to isolate multiple organisms and the likelihood of contamination also increases. Unless one of the organisms is a contagious pathogen, it's impossible to say whether any of the organisms were truly causing infection or merely contaminants. Composite samples are really only useful for screening for contagious pathogens, when the result of the test would lead you to a cow-level action (like culling). In most cases, a quarter milk sample will give you the most useful, easy-to-interpret results. These can be done in different scenarios such as clinical mastitis, CMT positive

quarters, and high cell count cows. The use of results of these samples will help guide certain cow level management decisions. For example, in the case of clinical mastitis quarter sample the decision would be to treat or not treat, versus a quarter sample from a high cell count cow could be to treat, milk last, or cull.

Collect the best sample

The key to this step is CLEAN. For any type of microbiological testing you are attempting to identify bacteria that originated in the sample. But bacteria are everywhere, so it's very easy to accidentally introduce bacteria from elsewhere (like your hands, udder skin, collection equipment, etc.) into the sample. When this happens, the results of the test are meaningless. Regardless of the sample type, be aware of possible sources of contamination and use clean and sterile sampling techniques. For individual quarter samples- prepare the cow for milking, wipe teat free of dip (with emphasis on the teat end cleanliness), use alcohol swabs to clean the teat end, express the teat several times, and then express milk into the vial (held at an angle to prevent debris from the udder from falling in).

Another important factor to consider is whether or not the sample is truly representative of what you are trying to assess. For example when doing a bulk tank culture, take clean samples from multiple milkings – each in a separate sterile milk vial – and freeze. These samples are then sent to QMPS and made into a single composite sample that likely tells a more accurate story of your herd versus what happened at one milking.

Understand the results

It is important to have some idea how you will interpret the test results before you submit samples and therefore working with your Veterinarian throughout the process is key. Northwest Veterinary Associates offers in-house milk culturing of composite or quarter samples, as well as result interpretation and management recommendations. If herd level tests are needed we will help you in taking samples, sending the samples in, and interpreting results. In developing these testing strategies with your Veterinarian you will be able get the most value out of your mastitis lab submissions. For those clients that have not utilized these services before please talk with your herd Veterinarian or call our office for more information.

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