Putting it All Together: Udder Health Programs in Private Practice

Brenda Moslock-Carter, *DVM*
Keseca Veterinary Clinic, PLLC, P.O. Box 267, Geneva, NY 14456

Abstract

Veterinary technicians (LVTs) can play a large role in the implementation of successful udder health programs in private practice. In addition to performing microbiological testing, LVTs can gather on-farm data necessary to evaluate and/or monitor key factors that influence udder health, such as teat-end scoring, hygiene scoring, and parlor performance (i.e. prep routine, timing, and equipment function). Recent software developments have made it possible to seamlessly export culture results directly into DairyComp305®[a], enhancing the ability to monitor pathogens at both the individual cow and herd levels.

Résumé

Les techniciens vétérinaires peuvent jouer un rôle important dans la mise en œuvre de programmes de santé du pis efficaces en pratique privé. En plus de faire les tests microbiologiques, les techniciens peuvent recueillir des données à la ferme nécessaires pour évaluer et/ou surveiller les facteurs qui ont une importance particulière pour la santé du pis tels l'évaluation du bout du trayon et la performance en salle de traite (i.e. routine de préparation, minutage et fonctionnement de l'équipement). De nouveaux logiciels permettent d'exporter sans erreur les résultats de culture directement dans le programme DairyComp305®[a] améliorant la capacité de surveillance des agents pathogènes tant au niveau de la vache que du troupeau.

Introduction

The decision to provide a comprehensive udder health program in private practice requires a serious commitment from management. Establishing an in-house laboratory for milk cultures is often the cornerstone of such programs. In addition, having someone available to gather additional data from the farm can greatly enhance the practice's ability to positively impact milk quality on the dairies it serves.

The In-House Mastitis Laboratory: Making it Work

Establishing an in-house mastitis laboratory involves a major commitment of time, but minimal equipment. In order to compete with larger diagnostic laboratories, which can undoubtedly perform cultures at a cheaper price than a veterinary clinic would charge, the clinic must be able to deliver value-added service and turn around cultures rapidly, with next-day reporting of results.

The first requirement is having a dedicated person in charge. Assuming that the veterinarians on staff will be able to squeeze in reading plates and reporting results in between calls is a recipe for failure. Obviously, someone needs to plate incoming samples, perform the necessary tests to make a diagnosis, and report out the results to the clients in a timely manner. But other responsibilities include: maintaining an adequate inventory of media and supplies; managing sample acquisition, storage and disposal; maintaining files of lab results (electronic and/or hard copies); and maintaining equipment.

The second requirement is adequate training. Although having had some college-level microbiology coursework is helpful, anyone who is motivated can be taught the skills necessary to perform cultures and read plates. Resources are available through the American Association of Bovine Practitioners (AABP) and the National Mastitis Council (NMC), as well as some veterinary colleges. The NMC's *Laboratory Handbook on Bovine Mastitis* is highly recommended.[2]

The third requirement is the equipment and supplies. Some of the most expensive pieces of equipment needed are those that most large animal clinics would already have: a freezer for storing milk samples, a refrigerator for storing media, and a microscope for determining bacterial morphology. Other necessary equipment includes a 98.6°F (37°C) incubator, (+/- another 89.6°F (32°C) incubator, if doing bulk tank cultures / bacterial counts), a Bunsen burner or a hand-held propane torch for flaming loops, an incandescent light source, and a fluorescent light source. Laboratory supplies needed include sterile cotton swabs for plating milk, wire loops, disposable sterile plastic 1-mL pipettes, microscope slides and, if doing bacterial counts, small graduated pipettes. Necessary media and reagents include blood agar plates, MacConkey plates, coagulase tubes, broth tubes, a Gram staining kit, hydrogen peroxide, and potassium hydroxide. Other selective media, including split plates, are also available and have been described.[3,4]

A system for recording the results of the diagnostic tests used to identify the bacteria isolated, as well as

reporting results, must also be developed. Such a system can be exclusively paper-based or can include electronic reporting and/or data storage. Recent software advances have not only simplified tracking samples in progress and maintaining a database of culture results, but have also enhanced the ability of the veterinarian and producer to utilize culture data to evaluate trends at the herd level. In New York, Culture Tracker®[b] was developed to aid in processing samples at the laboratory and to enable the delivery of the results electronically to the source farm. Once sample information is entered into Culture Tracker®, either manually or electronically from the herd's Dairy Comp® file, Culture Tracker® generates a worksheet for the laboratory technician. After culture results are final and have been entered into Culture Tracker®, the results can be uploaded to Dairy One, where they can be accessed by the source farm's computer and downloaded into their Dairy Comp® program, either manually or automatically using the Dairy Comp® task scheduler. For herds that are on Scout®[a], the culture results come in when the client downloads the most recent Dairy Herd Improvement (DHI) test results. A key benefit to this feature is that culture results automatically get entered on individual cow card pages in a consistent manner. The client does not have to worry about entering or filing the results with a cow's record, and the herd veterinarian does not have to depend upon the client to enter the results. Moreover, since the results are entered in a consistent manner (using a one-letter code for each pathogen), results can be readily analyzed both within and between herds using Dairy Comp®. Scatter graphs of culture results can be analyzed chronologically and by days-in-milk (DIM), and can be further broken down by lactation to evaluate herd trends. Data from Culture Tracker® can also be exported into a spreadsheet such as Excel, further enabling a clinic to maintain and analyze culture data even for clients without Dairy Comp® or Scout®.

On-Farm Data Collection

Troubleshooting milk quality problems or searching for bottlenecks that limit further improvements in milk quality requires a working knowledge of what is actually occurring on the dairy. Data collection forms for recording hygiene scores, teat end scores, teat condition scores, udder prep routines, and parlor performance are readily available from several university sources, as well as the NMC.[1,5,6,7] LVTs can spend the necessary time on a dairy needed to collect the data more cost-effectively for the producer than a veterinarian billing for the same time. When collecting and monitoring data such as teat-end scores become a regularly scheduled event (quarterly or semi-annually) with the same person, key observations are often made beyond what are being recorded on the data collection forms. Procedural drift in udder prep routine, changes in cow behavior signaling potential problems with equipment or cow handling, unit alignment problems, and towel cleanliness are just a few things an observant technician may detect while officially there to collect other types of data. Particularly when the milkers get to know the technician and become more relaxed with their presence, they are more likely to let their guard down and behave as they normally do instead of making a conscious effort to try harder because the veterinarian is standing there.

Conclusions

Both in the lab and on the dairy, LVTs can play a key role in implementing a successful udder health program in private practice, particularly if they are passionate about helping dairies succeed in achieving high milk quality.

Footnotes

[a]DairyComp305® and Scout®, Valley Agricultural Software, 3950 South K Street, Tulare, CA
[b]Culture Tracker®, Dairy One, 730 Warren Rd., Ithaca, NY

References

1. Food Animal Production Medicine, Clinical Information and Forms, Milk Quality. http://www.vetmed.wisc.edu/dms/fapm/fapmtools/milk_quality.htm. Accessed May 2011.
2. *Laboratory Handbook on Bovine Mastitis*, Revised Edition, The National Mastitis Council, 1999.
3. McCarron JL, Keefe GP, McKenna SL, Dohoo IR, Poole DE: Evaluation of the University of Minnesota Tri-plate and 3M Petrifilm for the isolation of *Staphylococcus aureus* and *Streptococcus* species from clinically mastitic milk samples. *J Dairy Sci* 92:5326-5333, 2009.
4. Minnesota Easy Culture System II. Quality Milk Production Services, NYS Animal Health Diagnostic Laboratory. 34 Cornell Drive. Canton, NY 13617. http://www.ahdc.vet.cornell.edu/sects/QMPS/Services/minnesotaculturemanual.pdf Accessed May 2011.
5. National Mastitis Council. NMC Resources. http://nmconline.org/documents.html. Accessed May 2011.
6. University of Minnesota. Minnesota Dairy Initiatives Dairy Diagnostics Tool Box. http://www.ansci.umn.edu/dairy/toolbox/toolbox.htm. Accessed May 2011.
7. University of Wisconsin Department of Dairy Science Milk Quality Resources. http://www.uwex.edu/milkquality/Udder_Health/index.htm#UHSC. Accessed May 2011.