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A Day in the Life: Riding Along with Penn Vet's Field Service

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BY SALLY SILVERMAN

The sun is barely over the horizon, and the Penn Vet William B. Boucher Field Service, based at New Bolton Center, is well into its first call. Michaela Kristula, DVM, MS, a Field Service clinician for 28 years who now serves as the section chief, along with three senior students, is preparing to perform pregnancy checks at Mason's Chrome View Dairy. This dairy is a regular weekly stop for Field Service. Dr. Kristula and her students suit up in insulated overalls, with waterproof covers. The 29 cows are lined up in a palpation rail.

"These cows were bred 33 to 39 days ago," explains Dr. Kristula.

In order for cows to consistently produce milk, they must become pregnant every year, and an efficient reproductive program is reflected in the business's bottom line.

The classic way to determine pregnancy is through palpation of the uterus, through the rectum. Dr. Kristula moves from student to student asking what they feel.

"It takes a lot of experience," she explains as she works with each student to confirm their exam findings. The dairy manager stands by with a clipboard to record findings for each cow. Those cows that are not carrying a calf receive an injection of prostaglandin as part of a routine resynchronization program and will be bred again in three days. When the job is finished, Dr. Kristula declares, "It's a great day because we found a lot of pregnancies!"

A PRACTICE ON THE MOVE

Boucher Field Service is a fully equipped ambulatory veterinary practice. Each year, food animal Field Service provides routine and emergency health care for about 20,000 cows, and an assortment of small ruminants within a 30-mile radius of the New Bolton Center campus in Kennett Square. The nine veterinarians, three of whom are residents, are divided into equine and food animal specialties, offering primary and preventive health services.

When the Field Service vehicle arrives at Mason's Dairy, resident Kim Crowe, DVM is already on site. Dr. Crowe is a veterinarian in residence at the Dairy participating in a post-graduate training program. The work experience she gains from this special program will

Dr. Smith and students recheck Hailey at home.



help her bridge the gap between understanding daily farm activities and veterinary medicine. Specifically, she is responsible for routinely monitoring the health status of the herd and briefs Dr. Kristula on what needs to be done after the reproductive examinations are completed.

Checkups on Pregnancy

"This is usually how our days start in food animal Field Service," says Dr. Kristula. "For dairy farms, we make regular weekly visits and start with reproductive exams. Our arrival time is precise, coinciding with the time the cows exit from the milking parlor so as not to disturb them the rest of the day when they are eating or resting. After the reproductive exams, we check sick cows and address any other problems."

Ensuring Herd Health

Standing in a chute is #1909. The students start their examination and Dr. Crowe records their findings on a special form. Dr. Crowe guides the students through their examination findings. Both she and Dr. Kristula deflect questions back to the students, encouraging them to come up with answers themselves. This is as much a teaching opportunity as a clinical one, and #1909 is the beneficiary of the process. Students are an everyday part of Field Service. In fact, even though Field Service is an elective



Recording data for #1909.

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clinical rotation, the hands-on clinical training Field Service offers is the main reason the rotation is always fully enrolled.

A diagnosis of ketosis and uterine infection is made for #1909. The team decides to administer IV dextrose, antibiotics, and 10 gallons of water enriched with alfalfa, yeast and propylene glycol. All the treatments the cows receive are entered into the farm's computer record keeping system, which acts as a safety net to ensure no drug residues enter the food supply.

The next cow to be examined is separated from the herd, and as she is guided through the labyrinth of gates, she displays a severe limp. The specialized chute allows for the cow's foot to be lifted from the ground and presented for trimming. An abscess is found in the left hind foot, and Dr. Kristula does the majority of the hoof trimming before handing the knife to a student to finish.

A TEAM APPROACH

It has been a full morning but the Field Service team will next meet with the dairy's owner and management group to review the herd's metrics and discuss current issues on the dairy. In addition to Drs. Kristula and Crowe, Mason's farm advisory team includes Jon Garber, VMD of Field Service and the farm's nutritionist, Linda Baker, VMD of the Section of Center for Animal Health and Productivity. All are rewarded with a hearty meal, including home-baked cupcakes, prepared by Pam Mason.

Dr. Garber navigates his computer to Dropbox, a cloud-based storage service that the advisory team uses to share the farm's files, and projects the herd monitor spreadsheet onto a screen. Dr. Kristula reviews the metrics on cow health, reproduction and milk production and a discussion ensues about recent changes to the non-milk producing ration made by Dr. Baker.

In order to compete economically, a dairy farm needs to constantly set goals, develop plans to reach those goals, and look for ways to be more efficient. The work performed by the food animal Field Service section is a valuable part of this successful equation. Some questions that arise during these meetings are difficult to answer and have led to research projects. Dr. Kristula and Billy Smith, DVM, MS have conducted important research projects on the Mason's dairy related to cattle lameness and reproductive efficiency.

It's close to 4PM when the meeting concludes and the Field Service crew heads back to the New Bolton Center campus.

NEXT STOP: QUARRYVILLE...

A couple of days later, Dr. Smith, who has been a Field Service clinician for 14 years, slides a portable ultrasound unit onto the backseat of his truck. Two vet students and Matt Stock, VMD will join him on this visit. Dr. Stock is a Penn Vet grad who became interested in food animal veterinary medicine and surgery during his clinical year. The Field Service post-graduate training program has allowed him to become eligible for board certification in food animal through the American Board of Veterinary Practitioners.

Their first call is a small dairy farm just south of Quarryville, and a collie-mix and an aging Lab hustle towards the arriving truck, eager for the dog biscuits that Dr. Smith hands out. Steve Wagner, the farm's owner, has a special interest in producing cows of the highest genetic quality. His Brown Swiss dairy cows, a breed that produces lower volume but richer milk than their Holstein counterparts, are frequent successful international contenders at the annual World Dairy Expo in Madison, WI.

Another Method to Check on Pregnancies

Wagner prefers to have pregnancy tests performed with an ultrasound exam, rather than the traditional palpation per rectum.

"It's a choice that we are able to offer to our clients. Ultrasound exams takes a little longer and are therefore a little more expensive," explains Dr. Smith.

While ultrasound and rectal palpation are both accurate methods for pregnancy diagnosis, ultrasound is more accurate for ovarian structure determination and this farm's reproduction protocol relies on this information for subsequent heat detection and breeding.

Dr. Stock slips on a pair of science-fiction-looking goggles, hands the ultrasound machine, about the size of a laptop, to Dr. Smith, and inserts the ultrasound probe

into the rectum of the first cow. Dr. Stock directs the probe via the image that appears on the goggles while Dr. Smith uses the screen to explain to the students what the ultrasound indicates. The students will follow behind Dr. Stock and palpate the ovarian structures, making this a valuable learning opportunity for a beginner.

In another section of the barn, they check some cows that had embryo transfers and have already been declared pregnant. Pregnancies from 55 to 65 days are the best for fetal gender determination. When Dr. Stock confirms that one of the cows is having a female calf, everyone in the barn – vets, students and Mr. Wagner — cheer enthusiastically. Naturally, on a dairy farm, female calves are desirable.

When all of the reproductive exams are finished, attention is turned towards a weaned calf. “Harley” has already visited the George D. Widener Hospital for Large Animals, where she was diagnosed with a pharyngeal abscess. On antibiotics, the calf’s temperature is down, but the swelling persists. In the follow-up treatment, the students drain the lesion and flush it.

... THEN OFF TO LANCASTER

With no time for a sit-down lunch break this day, the group stops for a quick bite to eat and then heads towards Lancaster to a farm owned by a gentleman new to raising Angus cattle. This new client may not be dealing with the trials of milk production, but there are different challenges facing this operation.

Dr. Smith explains the difficulty of purchasing cows to start a herd. “Often when you buy animals, you buy trouble,” he says.

This client had inadvertently purchased a calf persistently infected with bovine viral diarrhea virus. Although the virus may easily be identified using diagnostic tests, the infected cows often do not show clinical signs and continuously shed the virus causing havoc in the rest of the uninfected cows.

“Now he is working on cleaning up the herd. Owners and veterinarians develop a great relationship with each other when they work together to improve the health of the animals,” says Dr. Smith.

The fencing is still fresh and new, and the cows are moved into an enclosure that narrows, filing one-by-one into a chute. These animals are considerably feistier than the Holsteins and Brown Swiss cattle that the students worked with earlier, and are visibly more agitated at being restrained. It is only with quick, confident movements that the students are able to insert ear tags for identification, snap ear notch samples for bovine viral diarrhea testing, and deliver vaccinations.

TEACHING MOMENTS

Most clients visited by Field Service appreciate the teaching aspect of the service. “They are happy to have us there because they recognize the importance of educating young vets,” said Dr. Smith.

When the hard part of the job is over, the team treks to a run-in shed set up on a hill. Two calves have been born overnight, and the students perform newborn calf checks. The students gently listen to the newborns’ hearts and lungs and take ear skin samples. Since the Field Service veterinarians cannot be there for the birth of every calf, the owner is trained to perform a health check and obtain the skin sample for testing. Over time, all newborns will be tested for the virus.

While much of the day-to-day activities of food animal Field Service revolve around reproductive and animal health checks, the broader mission of the service is to have proactive approaches to prevention of disease. Emphasis is placed on both promoting health and treating illness appropriately. The veterinarians work to establish protocols on-farm that identify disease sooner and maximize treatment success. They engage with the farm management to train employees in protocol implementation pertaining to animal health and welfare, antibiotic usage, reproduction, milking routines, calving and care of the newborn. If they are not producing the desired results, existing programs and protocols are modified. The ultimate goal is to maximize cow health so they can be productive.

“It’s definitely a win-win situation because animals are healthier and this improves both the welfare of the animals and the bottom line of the farm,” said Dr. Kristula.

The benefits go beyond the clients to the consumers who ultimately enjoy safe, high quality milk and meat products, agree Drs. Kristula and Smith.

“We have been very fortunate in Field Service to have progressive clients to work with who welcome the students to their farms year after year, and allow us to give students an extraordinary breadth of primary care experiences,” said Dr. Kristula. 



Dr. Kristula and student palpate for pregnancy.