



Technical Services Global Newsletter

June 2007

Take a Whole-herd Approach to Improving Reproduction

The endpoint of a profitable reproductive program is to maximize the output of quality pregnancies during each production cycle. Quality pregnancies are those that occur at the optimal time (100 – 110 DIM on average) during the lactation to maximize production and utilize genetics that ensure genetic progress for the herd.

To monitor and evaluate reproductive program success, producers have adopted key performance indicators (KPIs) such as pregnancy rate, submission rate and conception rate. These should be reviewed by all team members who have a direct impact upon reproduction—the herd’s veterinarian, manager, AI technician and nutritionist. If these KPIs are lower than desired, the reproductive team is faced with searching for input factors that can be managed to improve future pregnancy production.

“Our goal in Technical Services is to work with the dairy’s reproductive team to uncover the next profitable opportunity on the dairy that results in improving quality pregnancy production,” says Dr. Neil Michael, Director of Technical Services at ABS Global, Inc. “We take a systematic approach to evaluating input factors including observation of



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the cow and her response to her environment.”

A Systematic Approach

A pregnant cow results from many integrated elements. When all of these individual elements are consistently repeated across the herd, the system leads to reproductive success and greater profitability.

The cause and effect diagram on the next page is a tool used by ABS® Technical Services’ staff to analyze all aspects of the dairy operation to ensure each area is performing at a level that will allow reproductive success. Visually, the input factors “flow downstream” towards the desired effect of quality pregnancies. Let’s work around this

diagram to show how each part influences reproduction.

Semen—ABS Global, Inc. and other major U.S. semen providers utilize CSS Certified Semen ServicesSM guidelines

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Use a Pro to Manage Reproductive Success

Getting cows pregnant is an important part of your herd’s short- and long-term financial success. As with other areas of the dairy where consistency is the key to success, getting cows pregnant can be accomplished by following a simple process that gets repeated for each animal.

In general terms, the process leading to a successful pregnancy includes estrous cycling and heat detection, semen preparation and insemination. These steps may seem simple, but replicating these steps for every cow in the herd—with consistency—is critical to reproductive success. It’s essential to determine if this is something an employee can be trained to handle, or if you should rely on a professional technician.

There are a number of reasons why utilizing a professional technician to handle reproduction management may be warranted. There may not be enough time or employee manpower to dedicate to a consistent reproduction management system. If a high level of reproductive expertise is not available on the dairy, a professional technician trained in the latest reproduction management systems and technology can fill that void. Emergencies or allocated time off may require assistance from an experienced relief technician.

Utilizing a professional technician can open up time for you and your staff to concentrate on other management

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which set comprehensive standards to ensure products are free of disease and minimize health risks. ABS's patented freezing process maximizes sperm numbers in each straw, and monitors status of frozen semen in on-farm nitrogen tanks using safety thaw monitors.

Labor—Once semen is properly thawed, appropriate timing and placement within the uterus are necessary to ensure successful conception. The targeted deposition site is less than 2 cm in length and demands extensive training for consistent delivery.

Another factor is accurate detection of animals in heat. Studies have shown heat detection accuracy to range from 38 – 100 percent in commercial herds. Dr. Michael suggests

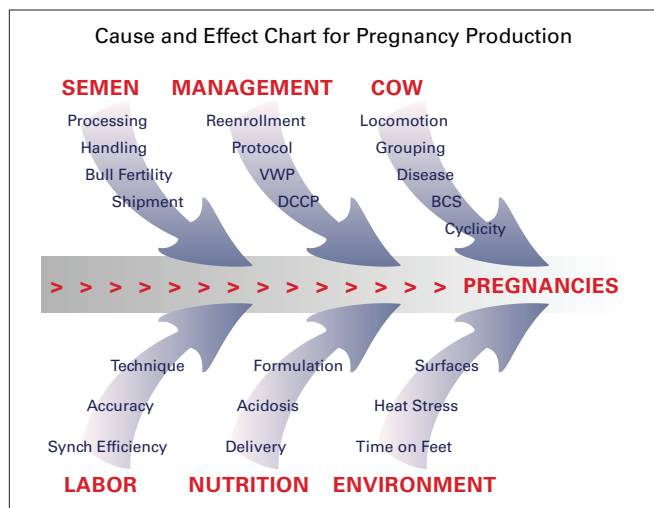
consistent herd check schedule to identify open animals, and a program to reinseminate open animals in a timely manner.

Nutrition—Proper nutrition is critical to deliver a healthy, fertile animal to the VWP and beyond. An important component fed pre- and postpartum is essential fatty acids (EFAs). "The Omega-3 and Omega-6 EFAs impact production of reproductive hormones, and therefore contribute to heat expression, cyclicity and conception rate, with an ultimate benefit of more pregnancies earlier," says Elliot Block, Senior Manager of Central Technical Services for ARM & HAMMER Animal Nutrition. "EFAs must be protected from the rumen, so they aren't broken down by rumen microbes and reach the small intestine for proper absorption."

Cow—Cow health is fundamental to reproductive performance and covers a wide array of management and risk-avoidance tools. "It's really a function of energy dynamics and disease prevention," says Dr. Michael Overton, Associate Professor, Department of Population Health, College of Veterinary Medicine, University of Georgia. Analyzing the cow's current status can help determine where management changes need to be made. "If cows are too thin, then we need to go back and see what's causing it, starting in the prefresh group."

Environment—Healthy cows are a product of a healthy environment. Taking time to observe cows and how they respond to their housing environment can be revealing. "Aside from milking and daily management time, if cows aren't eating or drinking, expressing heat or lying down chewing their cud, you are losing an opportunity to improve reproduction, production and the overall health of your cows," says Michael.

In summary, maximizing one of the input factors while ignoring others is not likely to provide consistent pregnancy production. "Reproductive performance is impacted by many different factors on the dairy—the trick is to optimize or balance all of them in a systematic manner that maximizes pregnancy production," says Michael. ■



taking unannounced blood or milk progesterone samples to monitor heat detection accuracy. The ABS Technical Services' staff utilize blood progesterone assays to routinely monitor synchronization efficiency and cyclicity within herds.

ABS provides a certified training program for professional Reproduction Management Specialists (RMS®). The skillsets of these technicians are built to ensure consistent semen handling, placement and heat detection accuracy. (See article in this issue that compares utilization of on-farm labor vs. professional technicians.)

Reproductive Management—Successful reproduction hinges on the ability to develop and adhere to a schedule of regular activities. This begins with identifying and adhering to an optimal voluntary waiting period (VWP) to begin insemination. Next comes compliance with a synchronization program that suits available labor, cow handling, accessibility and facility limitations. Finally, coordinate with a veterinarian to develop a

For Further Reading ...

Dalton JC, et al. Effect of Simultaneous Thawing of Multiple 0.5-ml Straws of Semen and Sequence of Insemination on Conception Rate in Dairy Cattle. *J Dairy Sci* 2004;87:972-975.

<http://jds.fass.org/cgi/reprint/87/4/972>

For a Spanish version of this Whole-Herd Approach article, go to http://www.absglobal.com/tech_serv/newsletterfiles/TSNewsSum2007SP.pdf.

Use a Pro to Manage Reproductive Success ... continued.

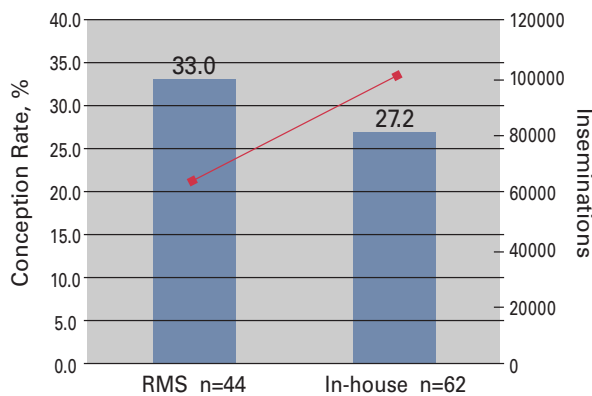
areas. Training new employees or temporary relief workers can be challenging as well.

"It's important to make an informed decision about whether to use a professional technician or to train one of your employees to manage breeding activities," says Dr. Hernando Lopez, Technical Services Consultant for ABS Global. "Whichever method is chosen, that person must perform at a high level to achieve consistent results."

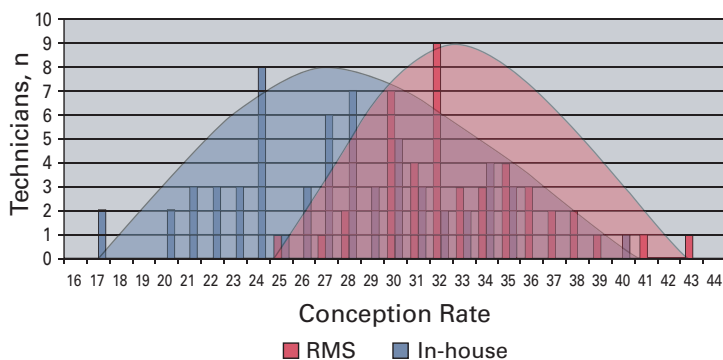
Research shows benefits

ABS research reviewed 44 ABS Reproductive Management System (RMS®) specialists and 62 on-farm employees. Graph 1 shows how the conception rate among professional technicians was nearly six points higher than the in-house group. Graph 2 compares the distribution of conception rates by technician. The data from professional technicians covered a much tighter range, and represented a higher level of performance, than the in-house employees'.

Graph 1: Conception rates for RMS and in-house technicians.



Graph 2: Distribution of rates for RMS and in-house technicians.



Dr. Joseph Dalton at the University of Idaho also led research from eight large commercial dairies that compared professional technicians to herdsman inseminators. Average conception rate for herds using a professional technician was 45 percent versus 27 percent in herds using an on-farm inseminator.

Performance, Consistency, Objectivity

"Professional technicians provide dairy producers a higher level of performance and consistency," Lopez says. "And they are another set of eyes on the dairy to recognize and overcome reproductive challenges."

RMS technicians learn how to be successful in the field through rigorous training programs. ABS RMS specialists are certified at an ABS GLOBAL owned and operated training facility, where they take part in classroom training as well as field training at large, commercial dairies near the training facility.

Consistency is important. RMS technicians are trained to focus on executing the critical steps necessary to culminate in a successful pregnancy, and replicate these procedures on a vast number of cows.

Technicians monitor their own performance, and are also reviewed by an area sales manager and those involved with technical services. "We want our reproduction professionals to work as another set of eyes on the dairy," Lopez says. "That means they need to take time to analyze cow comfort, manure scoring, locomotion and other items on the dairy that could have an impact on reproduction, then communicate to the producer areas where improvements can be made."

There is no area of management on your dairy that will have a greater impact on cow longevity, productivity and long-term profitability than your reproduction program. It's important to pay close attention to the people dedicated to getting cows pregnant. Even if you dedicate one or more employees to focus on reproduction management, they must have the proper training and monitoring to ensure success. In the next newsletter we will outline training programs offered by ABS Global to provide your employees with the expertise needed to get cows pregnant in a timely fashion. ■

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Summer: Bad for Cows, Good for Bacteria

Hot temperatures and dairy cows do not make a good match, especially when it comes to milk quality. Your regular focus on cow comfort and cow health must be taken up a notch to help cows avoid problems with mastitis this summer.

“Bacteria love heat and moisture, so they grow faster,” says David Bray, animal science professor at the University of Florida. “And when it’s hot, the cow’s immune system is compromised so preexisting infections, like subclinical mastitis, can become more of a problem.”

While Mother Nature supplies the heat, our efforts to keep cows cool bring additional moisture. Sprinklers and misters do a great job of keeping the cow’s body cool, but the side effects can lead to a spike in mastitis. Water can drip down the udder and reach the teat end, carrying with it dirt and manure. Cows are also wet when they lie down, adding moisture to the stall and providing opportunity for bacteria to grow.

Stay Clean and Dry

Avoiding summer mastitis requires a proactive approach to managing the environment where cows and heifers live. James Umphrey, Technical Services Team Udder Care Product Manager at ABS Global, provides the following advice to help avoid mastitis this summer:

- Focus on milking procedures. Those doing the milking should pay special attention to milking procedures to ensure that clean, dry teats are being milked. After milking, teats should be covered with an effective barrier dip to kill existing bacteria on the teat and reduce the growth of new bacteria between milkings.
- Keep bedding clean and dry. “With the amount of water used to cool cows, it’s tough to keep stalls dry,” Umphrey says. Also, bacteria will use any organic material as food to grow. Regular stall grooming to remove manure and water will help cut off the food supply.

Dr. Bray adds to pay close attention to calving areas as well. “The period around calving is one of the highest

times for new infections,” he adds. “So make sure the area where the cow calves is free of dirt, manure and anything else that can harbor bacteria.”

- Keep alleys and areas where cows congregate clean. Make sure alley-cleaning systems are adequate enough to manage manure levels. Also make sure areas around waterers, feed alleys, holding areas and other congregating areas are kept as clean as possible.
- Reduce stress with adequate cooling. Even though the extra moisture can create a habitat for bacteria, it’s still important to adequately cool cows. This can reduce stress and avoid a depressed immune system.

Limit New Infections

The ABS Technical Services’ team works with dairy producers to ensure the right systems are in place to minimize mastitis caused by environmental pathogens. “Our goal is to limit the opportunities for bacteria to grow in order to prevent new infections from occurring,” says

Umphrey. “We work with a lot of producers whose primary goal is to reduce somatic cell counts so they can get to the next level of premiums and improve their milk check. This approach helps offset higher feed costs.”

When working with a dairy, the Technical Services’ team completes an analysis that uses critical control points to identify problem areas. The analysis includes milking equipment, milking procedures, animal environment and other factors to determine where a herd can make adjustments to improve milk quality. Regular follow-up visits measure ongoing success and offer an opportunity to adjust management to achieve specific goals.

Summer may be a bad time for cows, but you can take the appropriate steps to make sure it’s not a good time for bacteria. Visit with your ABS representative to determine how the technical services team can identify areas to improve milk quality in your herd. ■



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