



DAIRY CATTLE REPRODUCTION COUNCIL

New USDA Research Sheds Light on Current U.S. Dairy Reproductive Practices

Benchmarking and implementing achievable herd goals begins with the creation of a performance baseline. A recent study released by the National Animal Health Monitoring System (NAHMS), a section of the USDA, is helping to provide this baseline for U.S. dairy reproductive programs by collecting and sharing current herd performance data.

The study collected information from 17 of the nation's major dairy states, representing 79.5 percent of U.S. dairy operations and 82.5 percent of U.S. dairy cows. The information collected will serve as a useful tool for dairy producers and industry professionals to benchmark and improve reproduction.

The first NAHMS dairy study was conducted from 1991 – 1992 with subsequent studies completed in 1996, 2002 and, most recently, in 2007. NAHMS was started to collect information on animal health and management practices of U.S. livestock, poultry and aquaculture. NAHMS is the only USDA organization that routinely collects, evaluates and publishes this type of information.

Once published the information is often used by extension specialists to educate producers as well as by animal scientists and veterinarians as a reference for conducting future research. The USDA uses the information to strengthen government animal-health programs and to predict how new diseases may spread.

First year for reproductive focus

The fourth report, released in February 2009, from the most recent study was the first report to delve into dairy cattle reproduction in an effort to provide more information on current reproductive performance, explains USDA Dairy Specialist and Veterinary Epidemiologist Dr. Jason Lombard. As the inaugural study with reproductive information, it will serve as baseline research and will be the backbone for future studies.

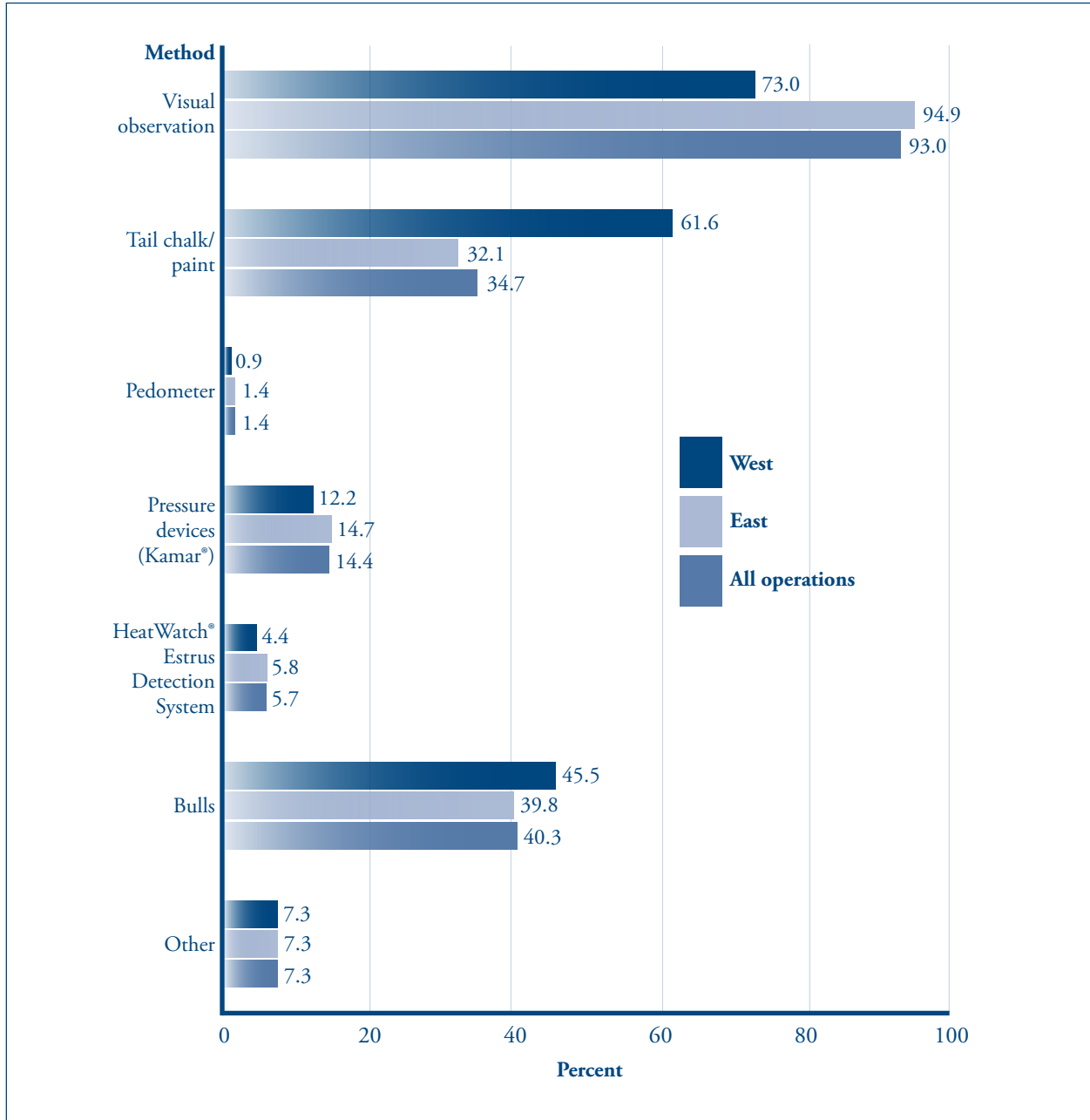
“The study results allow producers to see how well their practices measure up to what other producers are doing,” says Dr. Lombard. “In cases where we have data on what should be done, this report gives them the background information on what their goals should be.”

The following information, charts and graphs were extracted from the 2007 NAHMS study and evaluate estrous detection, breeding practices, pregnancy diagnosis and decision-making by U.S. dairy producers.

Estrous detection

Study results showed that 93 percent of all operations use visual observation to detect heat, followed by bull use at 40.3 percent and tail chalking at 34.7 percent. Researchers noted that tail chalking was used by a higher percentage of Western dairies while a higher percentage of Eastern dairies used visual detection as their main estrous detection method. The following chart details other heat detection methods used, separated by geographical location.

Figure 1. Percentage of Operations by Method Used to Detect Heat (Estrus) During the Previous 12 Months, by Region



Of the herds visually detecting heats, 37.9 percent had a set number and length of times per day for observing estrus, while 22.9 percent spent 20 minutes or less doing so each day. Because visual detection continues to be one of the top ways producers are identifying heats, this time spent actively observing is alarming, shares Dr. Lombard.



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“It is important to point out the apparent lack of time devoted to visual heat detection,” shares Dr. Lombard. “Fewer than 40 percent of producers had a set number of times and duration per day for observing estrus. The recommendation for visually observing heats is 30 minutes three times per day, and only about 8 percent of producers spent 81 or more minutes per day watching for heats.”

Breeding practices

Artificial insemination (A.I.) was used by 75 percent of operations while natural service was used by 26.8 percent.

- Smaller herds use bulls as their breeding method more often than larger herds, while larger herds utilized A.I. technology more often than smaller herds.
- Timed-A.I. was used to manage reproduction on at least some of the heifers and/or cows in 58.2 percent of herds, while a higher percentage of operations used timed-A.I. on heifer breedings.
- Timed A-I. programs were used on a higher percentage of heifers and cows in the Eastern region when compared to the Western U.S.
- Why are producers using timed-A.I.? The highest-ranking reason was to help catch up on nonpregnant cows. To control all first and subsequent services ranked second.
- Almost one-third of producers have used CIDRs in the past year to treat anestrous and cyclic females, as well as to synchronize estrus as part of a herd program.

“The difficulty in getting cows pregnant hasn’t changed in recent years, and has possibly become more difficult,” explains Dr. Lombard. “I suspect that the amount of time spent observing for heats, which on most operations is less than optimal, has led to fewer cows being observed in estrus, fewer cows getting inseminated and fewer pregnancies. But heat detection is only one factor, decreased reproductive performance is a multifactorial problem.”

Detecting pregnancy

To ensure cows are reenrolled in the proper breeding program, timely pregnancy diagnosis is critical. Dairies agreed with this sentiment, with 67 percent evaluating reproductive status at least once a month if not more frequently.

- 75 percent of large operations performed pregnancy exams weekly or every two weeks.
- 50 percent of small dairies performed pregnancy exams monthly.
- 69.3 percent of medium-sized operations performed exams once or twice a month.

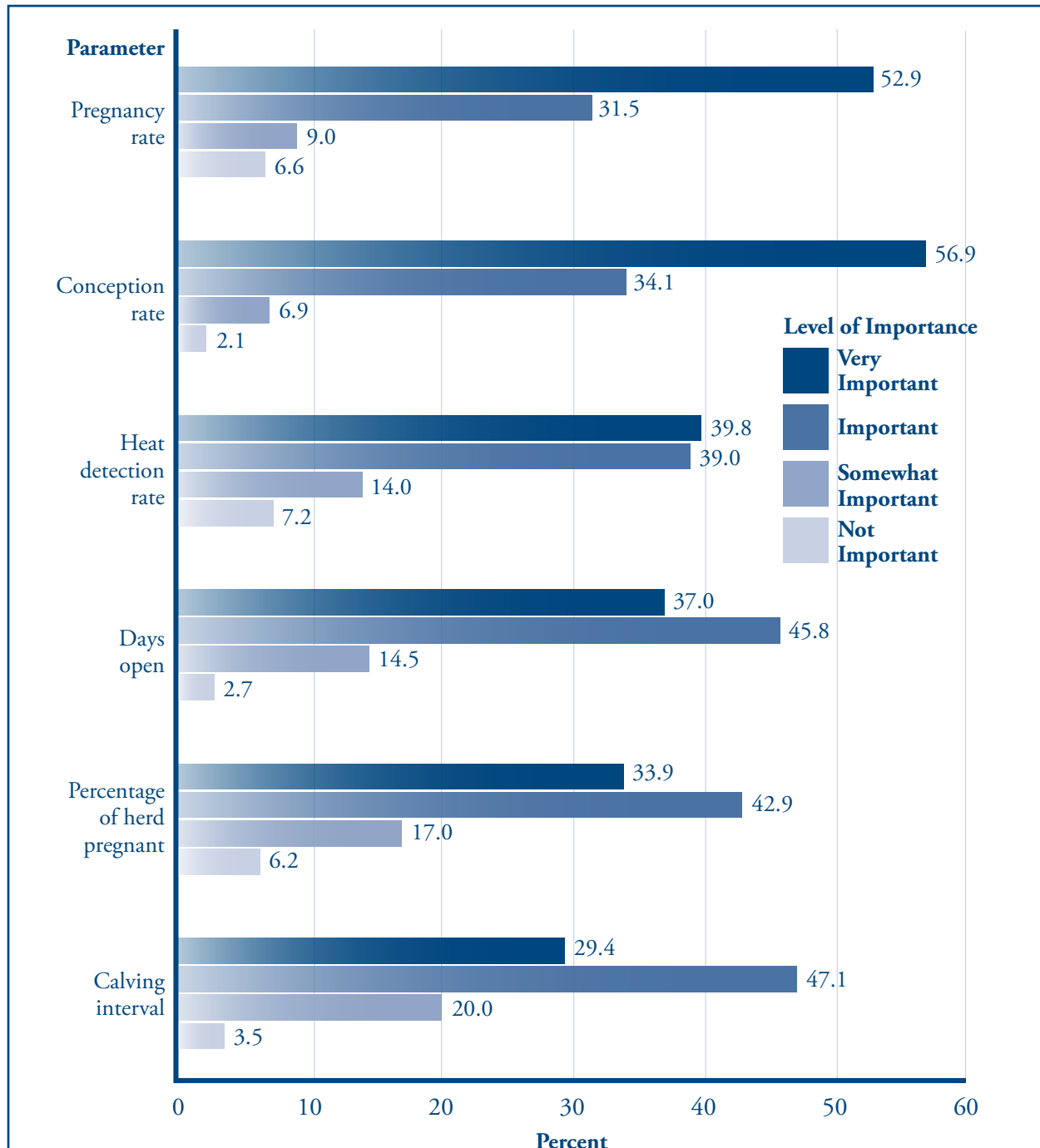
As the chart below outlines, rectal palpation is the method most routinely used by 85.7 percent of operations. Ultrasound was used in over a quarter of Eastern dairies and 14 percent of Western herds.

Table 1. Percentage of Operations by Method Used to Detect Pregnancy, by Region

Method	Percent Operations		
	West	East	All Operations
Rectal palpation	96.3	84.7	85.7
Ultrasound	14.0	28.6	27.4
Blood Test	2.6	4.3	4.1

“As the study shows, the frequency of pregnancy exams is dependent on the breeding method and herd size. Herds using bull breeding don’t need to be checked as frequently and even in small operations it doesn’t make sense to have pregnancy exams completed frequently. Large operations have many cows to check so more frequent exams are necessary. Of course, if the operation concentrates on heat detection, they should have a good idea of the pregnancy status of many of the cows to be examined,” says Dr. Lombard.

Figure 2. Percentage of Operations by Level of Importance of Reproductive Parameters Used to Evaluate Herd Reproductive Performance





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Evaluating reproductive parameters

As part of the study, producers were asked to identify the parameters most often used to evaluate herd reproduction. Conception rate was recognized by 56.9 percent of producers as the highest ranking “very important” parameter while pregnancy rate ranked second. Heat detection was rated “not important” by 7.2 percent of producers, ranking the highest for having the least importance.

The parameters fall into one of two data categories—either recent or historical data, explains Dr. Lombard. Pregnancy rate—conception rate multiplied by heat detection rate—is a calculation which can be evaluated for a period of time in the recent past and can be set for a specified time frame. On the other hand, historical data, like percentage of herd pregnant and calving interval, examine what happened months ago.

“Pregnancy rate, in my opinion, is the most important as far as giving the producer the most up-to-date information from the list we provided them,” says Dr. Lombard.

The future of U.S. reproduction

Moving forward, this information should be used as benchmarking tools by dairy producers in hopes of achieving goals beyond the averages. Dr. Lombard looks to the study to help implement training tools for producers.

“We want to evaluate practices that are associated with poor reproductive outcomes, like long calving interval or multiple services per conception, and see if the information collected in the study can give us more insight into those crucial outcomes,” says Dr. Lombard. “Future studies that stem from this first one will supply more knowledge regarding reproductive practices in the dairy industry.”

To access the complete study, visit <http://www.aphis.usda.gov/vs/ceah/ncahs/nahms/dairy/>.