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for the West, about the West, from the West

An introduction to the National Animal Health Monitoring System (NAHMS)

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Many readers may have heard or seen the term NAHMS at a meeting or in a magazine article and not known to what the person or writer was referring. This article serves as an introduction to NAHMS, the only USDA organization that routinely collects, evaluates and publishes information on animal health and related practices on U.S. livestock, poultry, and aquaculture operations.

Much of this information is used by Extension personnel to educate producers and by animal scientists and veterinarians as a reference for conducting their own research. The information is also used by USDA to strengthen government animal health programs and to predict how diseases newly introduced to the United States may spread.

What is NAHMS?

NAHMS is a non regulatory program of the United States Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS). NAHMS is designed to describe and help assess the nation's animal-health information needs primarily through national studies. NAHMS has studied all major livestock industries (beef, dairy, equine, sheep and swine), poultry and aquaculture since its inception in the late 1980s. In addition to national studies, NAHMS is involved in ongoing studies such as the bulk tank somatic cell count (BTSCC) monitoring program and the Johne's Demonstration Herd Project.

How are NAHMS studies developed?

NAHMS studies begin with a needs assessment, during which stakeholders are asked to identify the crucial production and health information needs of the respective industry. It is during the needs assessment that the focus and objectives of the study are established.

Study design is the next step and consists of developing questionnaires and determining which and how many samples are to be collected for testing. During the implementation process, questionnaires are administered, study data are collected, and biological samples are taken. Study implementation involves hundreds of personnel from USDA and its National Agricultural Statistics Service (NASS), participating states, and thousands of participating producers. After the data and samples are collected they undergo an analysis process, whereby estimates are generated and biological samples tested. Finally, information gathered during the study is disseminated via multiple reports.

NAHMS 2007 Dairy Study

Dairy 2007 is NAHMS' fourth study of the dairy industry. Previous studies were conducted in 1991-92, 1996, and 2002. There were five steps to developing the NAHMS 2007 Dairy study:

1. Needs Assessment

The needs assessment of Dairy 2007 was conducted during 2006 and identified the top three management issues and diseases/disorders facing the industry, as determined by producers, veterinarians, extension personnel, university researchers and allied industry groups. The needs assessment survey was available on-line from early February through late April 2006 and was promoted via electronic newsletters,

magazines and websites. In May 2006 a group of producers, university/Extension personnel, veterinarians and government personnel were assembled to discuss the results of the needs assessment survey and formulate objectives for the study. The day-long meeting culminated in the formation of eight objectives.

2. Study Design

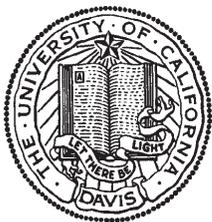
States were selected based on the number of dairy operations and dairy cows within the states. The goal was to account for at least 70 percent of U.S. dairy operations and dairy cows. Once the states were chosen, operations within each state with one or more milk cows were randomly selected from the NASS list of operations that participated in the January 1, 2006 Cattle Survey. Since the selection of operations had to be random to ensure representation of the industry, producers could not participate just because they were interested; they had to be selected from the NASS list.

Study questionnaires were developed with the assistance of more than 50 people, many of whom are experts in subjects addressed by the questionnaires. Questionnaires were further refined by pre-testing in multiple states prior to the start of the study. Since Dairy 2007 was the fourth NAHMS' study of the dairy industry, many questions from previous studies were used so that changes over time could also be reported.

3. Study Implementation

Operations were visited by NASS enumerators during January 2007 and operations with at least 30 cows were eligible to continue to further phases of the study. Of the 3,554 operations contacted by NASS,

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2,194 completed the first questionnaire (Phase I). Of these, 1,077 consented to be contacted by personnel from APHIS or their respective states and were presented with additional information about the rest of the study. Of the 1,077 operations, 582 participated in phase II of the study, which was conducted from February 26 through August 31, 2007.

Were data collectors trained before implementation?

Yes. NAHMS developed training manuals and training was conducted at the state level. Training for phase I of implementation was conducted for NASS enumerators, who collected general health and management information. For phase II of the study, all state NAHMS study coordinators attended a week-long training session in Fort Collins, CO. Coordinator training included presentations by subject experts for each study objective and a farm visit where sample-collection methods were demonstrated. Each state coordinator then organized training within their respective states for state and federal veterinary medical officers, who collected specific health information and performed the biological sampling.

What data were collected during the study?

Producers who participated in all aspects of the study provided a great deal of information relative to several facets of their operation. Information – specifically related to the eight study objectives – was collected on cow comfort; housing and usage, including measurement of stalls and pens; hock and hygiene scores; and preweaning calf growth.

In addition, testing was performed to determine passive transfer in calves; bulk tank milk was collected and evaluated for BVD, *Staphylococcus aureus*, *Streptococcus agalactiae*, *Mycoplasma* and Johne's disease; and manure samples were collected and cultured for *Mycobacterium avium* subspecies *paratuberculosis*, *Salmonella* and *Campylobacter*.

4. Data Analysis

All data collected during the study was sent to NAHMS for validation and to generate estimates. It generally takes 3 to 4 months from the time NAHMS receives the data until draft reports are produced. In addition to being reviewed by multiple USDA personnel, all NAHMS reports are reviewed by 3 to 5 experts who are chosen based on the content of the reports.

5. Dissemination

NAHMS produces four distinct products using estimates derived from its national studies:

1. Descriptive reports are generated for each questionnaire administered. Part I, III, and IV of the Dairy 2007 study contain information gathered exclusively from questionnaires administered in 2007. Part II is a trends report and contains and compares information collected during Phase I of Dairy 2007 and Phase I of the three previous dairy studies conducted by NAHMS.

Part V is also a trends report and contains and compares information collected during Phase II of Dairy 2007 and Phase II of the three previous dairy studies.

2. Interpretive reports provide a more in-depth look at respective topics as well as more interpretation of the data, compared with descriptive reports.

3. Informational sheets are generally 2 to 4 pages in length and are designed to succinctly summarize a specific topic.

4. Manuscripts are scientific papers submitted to peer-reviewed journals, such as the *Journal of Dairy Science*.

Creating reports is a time consuming process, and although the first dairy report has been released (Part I, November 2007), more than 10 additional reports will be released during 2008.

The following is the list of Dairy 2007 objectives and their corresponding reports:

1. Describe trends in dairy cattle health and management practices.

– Part II: Changes in the U.S. Dairy Cattle Industry 1991-2007, 2007; March 2008

– Part V: Changes in Dairy Cattle Health and Management in the United States, 1991-2007, 2007; expected summer 2008

2. Evaluate management factors related to cow comfort and removal rates.

– Dairy Facilities and Cow Comfort on U.S. Dairy Operations, 2007 interpretive Report; expected spring 2008

3. Describe dairy calf health and nutrition from birth to weaning and evaluate heifer disease prevention practices.

– Part I: Reference of Dairy Cattle Health and Management Practices in the United States, 2007; October 2007

– Off-Site Heifer Raising on U.S. Dairy Operations info sheet; November 2007

– Colostrum Management information sheet; March 2008

– Part IV: Reference of Dairy Cattle Health and Management Practices in the United States, 2007; expected June 2008

– Calf Health and Management Practices on U.S. Dairy Operations, 2007 interpretive report; expected summer 2008

– Calving Management on U.S. Dairy

Operations information sheet; expected summer 2008

4. Estimate the prevalence of herds infected with bovine viral diarrhea virus (BVD).

– Bovine Viral Diarrhea (BVD) Detection in Bulk Tank Milk and BVD Management Practices in the United States info sheet; expected summer 2008.

5. Describe current milking procedures and estimate the prevalence of contagious mastitis pathogens.

– Part III: Reference of Dairy Cattle Health and Management Practices in the United States, 2007; expected May 2008.

– Milking Procedures on U.S. Dairy Operations info sheet; expected summer 2008.

6. Estimate the herd-level prevalence and associated costs of *Mycobacterium avium* subspecies *paratuberculosis*.

– Johne's Disease on U.S. Dairy Operations info sheet; expected April 2008.

7. Describe current biosecurity practices and determine producer motivation for implementing or not implementing biosecurity practices.

– Part I: Reference of Dairy Cattle Health and Management Practices in the United States, 2007; October 2007

– Part III: Reference of Dairy Cattle Health and Management Practices in the United States, 2007; expected May 2008

– Biosecurity Practices on U.S. Dairy Operations, 2007, interpretive report; expected spring 2008

8. Determine the prevalence of specific food safety pathogens and describe antimicrobial resistance patterns.

– Antibiotic Use on U.S. Dairy Operations info sheet; expected June 2008

– Listeria and Salmonella in Bulk Tank Milk on U.S. Dairy Operations informational sheet; expected June 2008

– Salmonella and Campylobacter on U.S. Dairy Operations informational sheet; expected June 2008

– Food Safety Pathogens Isolated from U.S. Dairy Operations, 2007 interpretive report; expected fall 2008

How can you obtain a free copy of the Dairy 2007 reports?

All Dairy 2007 reports or reports from any NAHMS study are available at <http://nahms.aphis.usda.gov/> You can also obtain hard copies of individual reports or add your name to our automatic mailing by visiting our website or by e-mailing us at NAHMS@aphis.usda.gov or by calling 970-494-7001.

When will the next Dairy study be conducted?

The next NAHMS dairy study will likely be conducted in 2013.

Future issues of *Western Dairy News* will contain informational sheets from the NAHMS Dairy 2007 study.

Western Dairy News is published as a service to people interested in the health and welfare of the Western dairy industry. Archives of this publication may be found at:

<http://animalscience-extension.tamu.edu/dairy/wdn.html>

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