



## Highlights of Dairy 2007 Part III: Reference of Dairy Cattle Health and Management Practices in the United States, 2007

In 2007, the National Animal Health Monitoring System (NAHMS) conducted a study of U.S. Dairy Operations. The Dairy 2007 study collected data on dairy health and management practices from 17 of the Nation's major dairy States.<sup>1</sup> These States represented 79.5 percent of U.S. dairy operations and 82.5 percent of U.S. dairy cows.

The following highlights were excerpted from the report released in September 2008: Part III: Reference of Dairy Cattle Health and Management Practices in the United States, 2007.

### Disease familiarity and biosecurity practices

- Almost half of producers (49.3 percent) knew some basics about foot-and-mouth disease, while an additional 8.9 percent were fairly knowledgeable about the disease. More than 8 of 10 producers (80.4 percent) knew some basics or were fairly knowledgeable about bovine spongiform encephalopathy (BSE). Almost 60 percent of producers (57.9 percent) were fairly knowledgeable about Johne's disease, while an additional 36.2 percent knew some basics about the disease. Additionally, more than 50 percent of producers at least knew some basics about *Mycoplasma mastitis*, bovine viral diarrhea, and *Leptospira hardjo bovis*.
- Almost all operations (93.6 percent) would very likely use a private veterinarian for information regarding a foreign animal disease outbreak in the United States.
- Most operations (98.6 percent) would contact a private veterinarian if an animal on their operation was suspected of having foot-and-mouth disease or another foreign animal disease (table 1).

#### <sup>1</sup>States

California, Idaho, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New Mexico, New York, Ohio, Pennsylvania, Texas, Vermont, Virginia, Washington, and Wisconsin.

#### Herd size (Number of Cows)

Small (Fewer than 100)  
Medium (100-499)  
Large (500 or More)

**Table 1. Percentage of Operations that Would Contact the Following Resources if an Animal on the Operation was Suspected of Having Foot-and-Mouth Disease or Another Foreign Animal Disease**

| Resource  | Percent Operations |
|---|--------------------|
| Extension agent/university                      | 20.8               |
| State Veterinarian's office                     | 35.7               |
| USDA  | 21.8               |
| Private veterinarian                            | 98.6               |
| Feed company or milk cooperative representative | 25.7               |
| Other   | 4.1                |

- About one of three operations (30.4 percent) had guidelines regarding which visitors were allowed in animal areas, and 51.3 percent of operations had restrictions on vehicles entering animal areas. A lower percentage of small operations (22.7 percent) provided disposable or clean boots for visitors entering animal areas compared with medium operations (42.1 percent).
- Approximately the same percentages of operations (one-third) routinely, rarely, or never used the same equipment for manure and feed, and no differences were observed across herd sizes.
- Almost one in three operations (31.7 percent) participated in some type of Johne's disease control program. A higher percentage of medium operations (24.7 percent) had a unique Johne's disease program developed specifically for the operation compared with small operations (12.1 percent).
- The majority of operations (70.0 percent) used a multiple-animal calving area/pen. A lower percentage of small operations (65.6 percent) used a multiple-animal calving area compared with medium operations (79.8 percent). Approximately one-quarter of operations used an individual calving area that was either cleaned between each calving or cleaned after two or more calvings (25.5 and 26.2 percent, respectively).

## Source of replacements

- Approximately one-third of the dairy cow inventory (36.2 percent) was replaced (primarily by heifers that calved) during the previous 12 months.
- Almost 9 of 10 operations (88.0 percent) had cow replacements enter the milking herd that were born and raised on the operation. Off-site heifer raising of cow replacements was practiced by 13.9 percent of all operations and was highest for large operations (50.9 percent). Cow replacements were purchased directly from other dairies by 15.3 percent of operations. Purchasing cow replacements from auction markets was practiced by 7.0 percent of operations.

## Disease confirmation

- More than one of five operations (22.7 percent) reported that Johne's disease was confirmed via laboratory testing during the previous 12 months.
- Across herd sizes, approximately 30 percent of operations reported that 2 percent or less of cows aborted (as a percentage of cow inventory).
- For operations that had any abortions, approximately one of eight operations (12.4 percent) submitted samples to a diagnostic laboratory to determine the cause of abortion. For operations that submitted samples, 70.2 percent submitted serum from the dam and 32.7 percent submitted the placenta (table 2).

**Table 2. For Operations that Submitted Samples to Determine Cause of Abortion, Percentage of Operations by Type of Sample**

| Sample Type  | Percent Operations |
|--------------|--------------------|
| Placenta     | 32.7               |
| Entire fetus | 53.8               |
| Serum of dam | 70.2               |
| Other        | 4.0                |

- The majority of operations that had any abortions but did not submit samples for diagnosis (69.6 percent) did not perceive abortion as a problem on their operation.

## General management

- Operations most frequently allowed lactating cows access to pasture (50.9 percent of operations) during summer. In winter, the highest percentages of operations allowed lactating cows access to a concrete alley way or pen, dry lot, or allowed no outside access (35.0 and 28.9, and 25.2 percent, respectively) [table 3].

**Table 3. Percentage of Operations by Primary Outside Area that Lactating Cows had Routine Access to During Summer and Winter**

| Primary Outside Area     | Percent Operations |        |
|--------------------------|--------------------|--------|
|                          | Summer             | Winter |
| Pasture                  | 50.9               | 9.4    |
| Concrete alleyway or pen | 12.8               | 35.0   |
| Dry lot                  | 20.8               | 28.9   |
| Other                    | 2.4                | 1.5    |
| None                     | 13.1               | 25.2   |
| Total                    | 100.0              | 100.0  |

- During summer, 39.5 percent of lactating cows were on operations in which the primary outside area was a dry lot, 22.3 percent were on operations in which the primary outside area was pasture, and 19.0 percent were on operations with no outside access. In winter, similar percentages of lactating cows were on operations in which primary outside access was a concrete alleyway or pen, dry lot, or allowed no outside access (32.3, 32.7, and 29.7 percent, respectively).
- On approximately half of operations (51.1 percent), flooring for lactating cows was predominately concrete, representing 55.6 percent of cows. Pasture was the predominate flooring on 10.1 percent of operations but only 5.1 percent of cows. Dirt was the predominate flooring on 5.4 percent of operations, representing 20.0 percent of cows, which probably reflects the use of dry lots on large operations.
- The ground or flooring surface for lactating cows was usually dry on 60.3 percent of operations during summer and 49.5 percent in winter. Lactating cows usually stood in water or slurry on less than 1 percent of operations (0.6 percent).
- Approximately 8 of 10 large and medium operations (83.2 and 81.9 percent, respectively) housed cows in freestalls, compared with about 3 of 10 small operations (27.2 percent). For operations that used freestall barns, two-row freestall barns were the predominate setup for small and large freestall operations (48.1 and 49.5 percent, respectively). The percentage of operations with six-row barns increased as herd size increased.
- For lactating cows in the summer, fans were the most common method of heat abatement provided on small and medium operations (74.3 and 77.7 of operations, respectively), while a similar percentage of large operations provided shade, sprinklers or misters, or fans (55.6, 61.6, and 61.0 percent, respectively). Overall, 94.0 percent of operations provided some form of heat abatement for lactating cows.

- For lactating cows, straw and/or hay were used on 54.1 percent of operations, representing 33.4 percent of cows. Sawdust/wood products and rubber mats were used on similar percentages of operations (35.0 and 30.2 percent, respectively), although sawdust/wood products were used for a higher percentage of cows (31.2 percent) than were rubber mats (18.5 percent). Sand was used on 21.9 percent of operations and for 30.3 percent of cows.
- For dry cows, straw and/or hay was used as bedding by more than 6 of 10 operations (62.2 percent), representing 47.2 percent of cows. Most operations (92.5 percent) provided bedding to dry cows, and most dry cows (92.7 percent) had access to bedding.
- The majority of small and medium operations fed all lactating cows the same ration (65.6 and 62.2 percent of operations, respectively), while large operations most frequently fed individuals or groups based on production or stage of lactation (70.5 percent of operations).
- The most common feedline for small operations was a tie stall (46.2 percent of operations) while post and rail was the single most common on medium operations (37.1 percent of operations). The majority of large operations (79.6 percent) used headlocks at the feedline (table 4).

**Table 4. Percentage of Operations by Feedline Used for the Majority of Lactating Cows, and by Herd Size**

| Feedline                  | Percent Operations         |                     |                        |          |
|---------------------------|----------------------------|---------------------|------------------------|----------|
|                           | Herd Size (Number of Cows) |                     |                        |          |
|                           | Small<br>(Fewer than 100)  | Medium<br>(100-499) | Large<br>(500 or More) | All Ops. |
| Pct.                      | Pct.                       | Pct.                | Pct.                   |          |
| Tie stall                 | 46.2                       | 9.2                 | 0.0                    | 34.1     |
| Stanchion                 | 14.2                       | 3.9                 | 0.0                    | 10.7     |
| Post and rail             | 11.3                       | 37.1                | 15.7                   | 18.0     |
| Headlocks                 | 3.8                        | 22.2                | 79.6                   | 13.2     |
| Elevated feed bunk in pen | 17.8                       | 20.3                | 0.1                    | 17.3     |
| Other                     | 6.7                        | 7.3                 | 4.6                    | 6.7      |
| Total                     | 100.0                      | 100.0               | 100.0                  | 100.0    |

- The percentage of operations that separated close-up cows increased as herd size increased; 57.1 percent of all operations separated close-up cows from other dry cows.
- The most common water source across all operation sizes was a water tank or trough (93.2 percent of operations).
- About one of three operations cleaned single cup/bowl for one cow or water tank/trough 13 or more times per year. No cleaning was reported on

- 14.2 percent of operations using a single cup/bowl for one cow, 24.2 percent of operations using single cup/bowl for multiple cows, and 4.6 percent of operations using a water tank/trough.
- Excluding those that died, one of four cows (25.8 percent) was permanently removed from dairy operations during the previous 12 months. There were no differences across herd sizes in the percentages of cows removed.
- The majority of operations that permanently removed cows (87.8 percent) sent cows to a market, auction, or stockyard.

### Milk quality and milking procedures

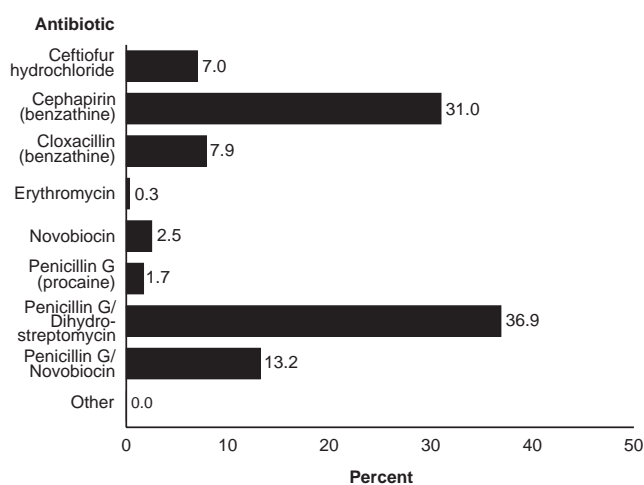
- Almost 9 of 10 operations (89.6 percent) reported an average BTSCC below 400,000 cells/ml, and 70.9 percent reported less than 300,000 cells/ml. Herd-size differences were minimal, with a lower percentage of medium operations having a BTSCC of less than 100,000 cells/ml compared to small and large operations.
- The percentage of owners/operators that milked the majority of cows decreased from 74.8 percent for small operations to 0.0 percent of large operations. Family members milked the majority of cows on 17.4 percent of small operations and 14.3 percent of medium operations. No large operations reported family members performing the majority of milking.
- More than 9 of 10 operations (91.8 percent) milked fresh cows twice daily, while less than 1 of 10 (6.2 percent) milked fresh cows 3 times daily.
- The majority of operations (92.5 percent) milked cows (other than fresh cows) twice daily.
- Nearly all operations (92.6 percent) forestripped at least some cows, and approximately one of four of these operations (27.4 percent) forestripped cows prior to teat disinfection.
- The majority of operations (about 60 percent) used iodophor compounds as predips in both summer and winter. Chlorhexidine was the next most common predip used by about 1 of 10 operations. There were no differences in summer or winter in the percentages of operations by compound used.
- Single-use paper or cloth towels were used to dry teats prior to milking on the majority of operations during summer and winter.
- The majority of operations (approximately 70 percent) used an iodophor compound as a postdip disinfectant. Chlorhexidine was used by about 13 percent of operations.
- A higher percentage of medium and large operations (76.9 and 89.5 percent, respectively) used automatic takeoffs compared with small operations (30.2 percent).
- Approximately half of operations (55.2 percent) reported milkers wore latex or nitrile gloves to milk all cows.
- More than half of all operations (52.9 percent) performed milk cultures during the previous 12 months.

- Almost 1 of 10 operations (9.9 percent) did not use any dry-cow treatment, and a percentage of these were likely organic operations where the use of antibiotics is not allowed. Some, but not all cows, were treated on 17.8 percent of operations, and all cows were treated on 72.3 percent of operations. More than 4 of 5 cows (81.7 percent) were treated at dry-off, while 5.9 percent were not treated.

## Antibiotic use

- The most commonly used dry-cow antibiotics were cephapirin (31.0 percent of cows) and penicillin G (procaine)/dihydrostreptomycin (36.9 percent of cows) [see figure, below].

For Cows Treated with Dry-Cow Intramammary Antibiotics During the Previous 12 Months, Percentage of Cows Treated, by Type of Antibiotic



- Almost one of four unweaned heifers had diarrhea during the previous 12 months (23.9 percent), and 17.9 percent of all unweaned heifers were treated for diarrhea. A lower percentage of unweaned heifers had respiratory disease (12.4 percent), and 11.4 percent of heifers were treated for respiratory disease.
- More than half of operations (50.9 percent) used antibiotics in rations for weaned heifers, including 32.7 percent that used only ionophores.
- Only 5.9 percent of weaned heifers were affected with respiratory disease, and 5.5 percent of all weaned heifers were treated with antibiotics.
- Mastitis was the disease that affected the highest percentage of cows (18.2 percent), and, not surprisingly, the highest percentage of cows were treated for mastitis (16.4 percent). Lameness and reproductive diseases affected 12.5 and 10.0 percent of cows, respectively, and 7.1 and 7.4 percent of all cows were treated for lameness and reproductive diseases, respectively.

Visit the NAHMS Web site at: <http://www.aphis.usda.gov/nahms> for a complete copy of Part II: Changes in the U.S. Dairy Industry, 1991-2007.

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