

Since May 1996 data generated in the Dairy '96 initiative by the National Animal Health Monitoring System has been forthcoming (see March 1996 Colorado Dairy News). Although Colorado was not one of the states sampled. The results on a regional and national basis provide our producers with thought-provoking information. The Colorado Dairy News will feature topics from this study in this and future issues. We appreciate the assistance of Dr Scott Wells and his associates at NAHMS with these articles.

Waste Handling Facilities and Manure Management on U.S. Dairy Operations

During the planning phase for a National Animal Health Monitoring System (NAHMS) study of the dairy industry, industry representatives asked this USDA program to describe current use of animal waste handling systems. The information would support the dairy industry in responding to public concerns about the environment. The NAHMS Dairy 96 collected data during the second phase of the study from 1,219 producers with 30 or more dairy cows in 20 states* that represented 79 percent of the milk cows in the United States.

Most operations with fewer than 100 dairy cows used some form of solid waste storage (79.2 percent, Figure 1). As herd size increased, solid waste storage methods became less common (59.5 percent in operations of 200 or more cows). Use of methods for storing manure in a liquid form increased with herd size. The two primary methods are slurry and lagoon. With the slurry method, manure is stored as a thick liquid in a pit under the barn floor or in a tank or earth-basin until it is applied onto land. With lagoons, either anaerobic or aerobic, manure is diluted with water, often from flush systems and milking parlor wash water. Slurry systems were more common than lagoon systems for herds of fewer than 200 cows. Both systems were equally popular among producers with 200 or more cows. Over 90 percent of herds with 200 or more cows had some type of liquid manure storage. Since evaporation reduces total lagoon volume, especially in more arid parts of the country, it is not surprising that lagoons were most common in the western U.S. Producers with liquid manure systems in the midwest and northeast preferred slurry systems over lagoons.

The Dairy 96 study also assessed management practices associated with minimizing environmental consequences of manure applications (Figure 2). Manure nutrient analysis, manure application rates based on crop nutrient requirements, manure incorporation, and no-spreading buffer zones around waterways are four management practices designed to limit environmental impacts of waste handling. Most dairy producers (89.4 percent) used one or more of these manure management practices.

Nearly half (43.2 percent) of the producers who applied manure to land indicated that they established manure application rates based on manure nutrients or crop needs.

Less than one-seventh (14.0 percent) of producers analyzed their cows' manure for nutrient content, however. Producers from larger herds (100 or more dairy cows) were

more likely to analyze the nutrient content of their manure than their small herd counterparts.

Manure incorporation into soil within 24 hours minimizes odors and nitrogen loss to the atmosphere. Under one in seven producers with fewer than 100 cows (15.8 percent) incorporated their manure into soil within 24 hours. The percentage increased with herd size to over one-third (38.7 percent) of producers with 500 or more cows.

More than three-quarters (78.1 percent) of producers who spread manure reported having buffer zones of 50 feet or more where manure was not spread.

The relationship between good waste management and good milk production management was analyzed. Dairy producers who used at least three of these waste management practices were placed in one group and those who used fewer than three were placed in another. Producers were also grouped into quartiles by their milk production per cow. Producers in the top per-cow production group were twice as likely to use at least three of the manure management practices than those in the bottom per-cow production group (32.5 percent vs. 14.7 percent). Thus, good waste management was not in conflict with milk production per cow. Most dairy producers used at least one management practice designed to limit environmental impacts of dairy waste management.

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