

Electronic feed system produces dramatic results

By Doris Crowley

Computerized management is one of the newest technologies to be applied to dairy farming. In a move to strengthen its research efforts and provide additional information to local dairy farmers, in January 1984 the University of Delaware Agricultural Experiment Station installed an electronic feeding and milking system on its Newark farm.

Each cow in the Delaware herd now wears an electronic transponder on a collar around her neck, as do most of the young stock. Through a computer located in the farm office, this transponder automatically identifies the animal in the milking parlor and controls her access to high energy feed supplements in the university's large free stall barn. It also provides a continuous record of her performance and activity.

According to extension dairy specialist Dr. George Haenlein, the new system makes it possible to individualize herd management and eliminate many of the production inefficiencies which cost dairy farmers money. Benefits of computerizing the university herd have been dramatic.

In the milking parlor, the new system features the latest technology in electronic milk metering, milker back-flushing, automatic milker take-off, quarter milking, milk precooling and milk monitoring. Flashing signal lights tell personnel if a cow has been treated with antibiotics and should be milked separately. The system also informs the herd manager if a cow is off her feed and may be sick, or if she's coming into estrus and should be bred.

Information on each animal is routinely stored in the computer, where it is readily accessible for study. Herd manager Jim Wolfer says it takes him about 15 minutes a week to update feeding information on the herd. And thanks to mini-terminals beside each stall in the milking parlor, he doesn't even need to go to his office to check up on individual animals.

Since each cow identifies herself on the system through the transponder around her neck, there's also no chance for human error in the form of oversights or mistakes in identification. This guarantees accurate record-keeping.

The computer is the key to the whole system. It has been programmed to provide printed copies (routinely or on demand) of the following information: summaries of milk produced and grain fed through the two automatic feeders; a list of all cows giving less than 85 percent of their normal milk production; a list of all cows eating less than 90 percent of their allotted grain; a report on cows currently needing special attention for breeding purposes or pregnancy checks; a breeding report on the entire herd, listing each cow as either bred or open, when due to calve, when ready to be bred, stage of lactation and when she should be dried off; a summary of milk produced and feed consumed by each cow since calving, including her feed/milk ratio; and a complete report on each cow in the herd.

This information is useful for both research and making routine management decisions.

The system's two electronically activated feeders make it possible to deliver prescribed amounts of feed supplement to each cow based on her production record and individual need. The transponder around her neck permits her to access her daily grain ration in a minimum of six meals over a 24-hour period. She receives only a handful or so of feed each time, so she never gets a chance to overeat or to steal another cow's ration.

"Instead," says Haenlein, who is an authority on dairy nutrition, "she becomes a nibbler, using what she gets more efficiently, with none of the digestive highs and lows common in most open barn arrangements where more aggressive animals often eat more than they should." With intake spaced out in several small meals, rumen fermentation and digestion are spread more evenly over the 24-hour period and so become more efficient. Leveling out consumption also helps eliminate metabolic disturbances such as ketosis and milk fever.

The electronic feeders have had another, unexpected benefit. Because each cow gets only her allotted ration, pushy eaters have no incentive to crowd out more timid ones. "As a result," says the specialist, "we've eliminated the

bossy cow—one of the main behavior problems in today's open barn management system."

Another benefit of the feeders is that the daily computer printout of the herd's activities identifies any cows which aren't eating all of their allotment. This makes it possible to detect potential problems early. "Otherwise," says Haenlein, "it may be another 24 hours before someone notices a cow's off her feed. By then, her milk production will also be down. Under our new electronic system we can treat sick cows sooner and more effectively."

Haenlein believes the adoption of computer technology is essential to dairy farm survival, since it permits farmers to retain the labor-saving advantages of open barn or group management while again giving cows the individual attention they got years ago in the

old, labor-intensive stanchion barn.

It is too soon to determine the economic impact of the university's new electronic dairy system, but it is already proving its worth as a research and teaching tool, as well as an aid to herd management.

"Based on my own experience with the University of Delaware dairy herd and my observations of other herds using computer feeders, I believe the savings will be at least as great and the payoff period possibly even shorter, if there was free-choice grain feeding before," the specialist says. "Two added benefits of this new computer technology are the greater ability to put weight back on a cow after she calves, and to maintain per peak production longer."

Haenlein points out that computer feeders won't solve all dairy management problems. "Producers still must stay on top of all those additional records the system will generate if they want to get the greatest possible efficiency by dispensing the right amount of feed to the right cow at the right time. And they still need to test forage to be sure the proper balance of nutrients is available. This may require altering the feeds offered in response to changing forage test results."

He also points out that electronic equipment needs special treatment to operate properly without breakdown. "It's quite a change from the days when dairy farming was mostly a pitchfork operation," he says. "Let's hope this new technology will return to the dairy farm those profits which presently are so hard to find."

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