

# Record keeping can help South Dakota dairies improve production and reduce emissions

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(PhysOrg.com) -- Good record-keeping can reduce greenhouse gas emissions from dairy farms and improve per-cow productivity.

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That's according to South Dakota Cooperative Extension Dairy Specialist Alvaro Garcia, who said there's proof that productivity per-cow is directly related to good record keeping.

In a 1996 study, Losinger and Heinrichs demonstrated an association between the use of Dairy Herd Improvement Association, or DHIA, record-keeping systems and higher milk production," Garcia said. "A paper by Winsten and others published in the April 2010 issue of the Journal of Dairy Science showed that 76.5 percent of modern dairy farms in Pennsylvania used DHIA and produced 21 percent more milk when compared to dairy operations that did not use the record-keeping system."

Garcia said the same factors hold true in South Dakota dairy operations. To make the comparison, Garcia and other South Dakota State University Department of Dairy Science faculty looked at production parameters for all herds in the state and compared them to those that tested with DHIA.

Between 2006-2009, milk production per cow for the average South Dakota dairy farm increased from 18,580 to 20,128 pounds per lactation or 8.3 percent. Herds that incorporated DHIA record keeping saw a production per-cow increase 14 percent, from 19,451 to 22,239 pounds per lactation.

“The trend in number of cows per farm has been consistent with herd expansion in the state, similar to the one verified elsewhere in the U.S.,” said Garcia. “Herd size grew from roughly 134 cows in 2006 to 225 cows in 2009 for a growth of 68 percent. On the other hand, the average herd size for farms on DHIA grew by 56 percent, from 180 to 282 milking cows for the same four-year period.”

Garcia said these figures seem to indicate that the growth of farms that kept DHIA records was more associated with improved management practices and thus productivity per cow than it was with additional cows.

“These management practices can account for the improvements also observed in milk components. Farms on DHIA increased fat yield by 7.2 percent (from 755 to 809 pounds), and milk protein by 12.3 percent,” Garcia said. “This undoubtedly benefits producers, and the dairy industry because more components results in more dairy products.”

The benefits also stretch to “non-agricultural folks” as increased [cow](#) productivity with the same number of cows reduces the dairy’s carbon footprint, Garcia added.

“More carbons are deposited in milk with higher components and are thus not emitted to the atmosphere as carbon dioxide and methane,” he said. “But methane production is positively correlated with milk production as higher-producing cows eat more and thus produce more methane.”

Between 2006-2009, farms on DHIA produced 2,800 additional pounds of milk compared to those that were not in the program. Those farms saw increases of only 1,788 pounds.

“Research has shown that on average, cows produce 1.4 pounds of carbon dioxide equivalent per pound of milk produced,” Garcia said. “[Carbon dioxide](#) equivalent emissions were thus 3,920 pounds for farms on DHIA and 2,503 pounds for those not on DIHA. But viewed from an efficiency standpoint, the same amount of milk could be produced with 6 percent less cows when adequate records are kept.”

Garcia added that the data shows farms on DHIA have reduced calving interval of nearly 6 percent, dropping from 14.3 months down to 13.5. Shorter calving intervals allow farms to reduce the number of less-productive cows and emissions per-pound of [milk](#) produced.

“Keeping good records, regardless of the method employed, allows for an optimum balance between inputs and outputs in dairy farms,” said Garcia. “It may seem to be an esoteric task to some dairymen, but the proof is out there, in both national studies, and in evidence across our state as well.”

Provided by South Dakota State University

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