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Cooperative State Research, Education, and Extension Service

Initiative for Future Agricultural Food Systems (IFAFS)

Enhancing the Efficiency of Small and Mid-Sized Dairy Farms

by Stacy Kish, CSREES

Dairy cow milk production peaks 6 to 8 weeks after calving and then declines throughout the remaining 12 to 14 month milking period. Understanding the intricate timing in the reproductive system of dairy cattle is important not only to induce lactation, but also to maximize the percentage of cows at the peak of milk production, increasing profits to small and mid-sized dairy farms by as much as 10 percent. >>

With funding from USDA's Cooperative State Research, Education and Extension Service (CSREES), a project team with members in Michigan, Wisconsin and Virginia developed new strategies to improve reproductive performance of dairy cows, including a free online teaching tool and a series of workshops to help dairy management efficiency.

The project team aimed to enhance sustainability and profitability of small and mid-sized farms and to help the farms compete more effectively in a global market place, which is driven by an economy of scale and specialization.

The Virtual Dairy Cattle Encyclopedia of Reproduction, a Web-based teaching tool, was designed to provide information on the fundamentals of dairy cattle reproduction, new technologies and the importance of reproduction to dairy farm profitability.

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Right: Dairy cows in a pen.

Credit: Don Beitz, Jon Schoonmaker, and Portia Allen

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Above: Dairy cow being milked.
Credit: Don Beitz, Jon Schoonmaker, and Portia Allen

Richard Pursley and George Smith at Michigan State University developed the online tool, which features more than 400 pages of information, that includes photographs, illustrations, videos, diagrams of dairy cattle reproductive physiology and tools for successful reproductive management.

"We believe it will be a useful tool for students, dairy producers, farm employees and veterinarians alike," Pursley said.

The pictures, charts and diagrams provide real-life examples of various aspects of heifer reproduction for the end-user. The quizzes accompanying each section test knowledge of the concepts covered in each section. A glossary section also provides definitions of bold-face words that appear in the text.

In addition to the Web-based tools, Pursley and colleagues Milo Wiltbank and Paul Fricke from the University of Wisconsin organized and developed a series of workshops and educational programs to improve reproductive efficiency and pregnancy rates in dairy cattle.

More than 250 veterinarians from 24 states and two Canadian provinces attended the workshops, which were held at 10 locations throughout the Midwest and Northeast.

IFAFS was authorized to establish a research, extension and education competitive grants program to address agricultural genomics, food safety, value-added products, biotechnology, rural resource management and farm efficiency and profitability.

The project team believes that the tools developed from this collaboration could improve profitability of small dairy farms by 10 percent by increasing milk production per cow, thus making each cow within these small herds more profitable.

The user-friendly management tools developed by team members Michael VandeHaar and Chris Wolf from Michigan State and Mike Akers from Virginia Tech will also improve reproductive efficiency and heifer development.

CSREES funded this research project through the Initiative for Future Agricultural and Food Systems (IFAFS) program. CSREES advances knowledge for agriculture, the environment, human health and well-being, and communities by supporting research, education and extension programs in the Land-Grant University System and other partner organizations. For more information, visit www.csrees.usda.gov. ■

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