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New study 'sets record straight' on U.S. dairy industry emissions

By Alyssa Sowerwine

MADISON, Wis. — Results of a new study released this week show that the carbon footprint of a gallon of milk is 17.6 pounds of carbon dioxide equivalents per gallon of milk consumed. The study also found that, combined with data from additional studies, total U.S. dairy emissions are approximately 2 percent of total U.S. emissions.

"This is far less than the 18 percent number that some misapplied to the U.S. dairy industry based on the 2006 Food and Agriculture Organization (FAO) 'Livestock's Long Shadow' report, which actually measured global livestock emissions, not U.S. dairy emissions," says Erin Fitzgerald, vice president of sustainability at the Innovation Center for U.S. Dairy.

"The study helps us articulate and set the record straight on what our environmental impact is," Fitzgerald says. "We're taking the first proactive step."

The Innovation Center for U.S. Dairy commissioned the Applied Sustainability Center at the University of Arkansas to conduct the greenhouse gas (GHG) life cycle assessment (LCA) of fluid milk, also called the carbon footprint study, which was completed in July. Dr. Greg Thoma, professor of chemical engineering at the University of Arkansas and lead investigator of the study, presented the findings this week at the International Food LCA Conference in Italy.

In addition, study results are expected to be published in a peer-reviewed academic journal in 2011 and will be submitted to the Life Cycle Inventory Library as the first U.S. national-level fluid milk carbon footprint study.

According to the Innovation Center, study results show that best management practices are an important driver of the carbon footprint for farms, plants and transportation fleets, rather than the geographic region, business model or size of the farm or organization.

The Innovation Center also notes that according to research from Cornell University, the dairy industry already reduced the footprint of milk production by 63 percent from 1944-2007 as a result of production efficiencies, nutrition management and other improvements.

The results garnered much attention from industry leaders this week.

"Generation after generation, dairy farmers have made many improvements in the care of the land, air and water," says Jerry Kozak, president and CEO of the National Milk Producers Federation.

"I am pleased that hundreds of America's dairy farmers completed detailed surveys about their farming practices in order for us to create the most comprehensive, accurate assessment of our industry's collective carbon footprint," Kozak says. "Being proactive in this effort is another way to make improvements in the next generation."

U.S. Agriculture Secretary Tom Vilsack also commended U.S. dairy farmers and processors for their commitment to economic and environmental sustainability.

"American agriculture can play an important role in reducing carbon emissions and improving the environment, and the dairy industry in particular has been a leader on these issues," Vilsack says. "This carbon footprint study will be very helpful to all stakeholders in the dairy industry, and I look forward to working with dairy producers, processors and the entire value chain on efforts that benefit the environment and improve the economic viability of the industry."

• **Study methods, key findings**

For the study, researchers measured GHG emissions for one gallon of fluid milk by analyzing 2007-2008 data from more than 500 farms and 50 processing plants across the United States and more than 210,000 round trips transporting milk from farm to

Turn to STUDY, page 12 ⇨

STUDY

Continued from page 1

processor.

Researchers followed the journey of a gallon of milk from the beginning of the life cycle when crops are grown to feed cows; milk is produced and delivered to processors; through processing, packaging and distribution; all the way to the purchase and disposal of milk by the consumer.

The completion of the carbon footprint study is a significant first step for the dairy industry in a comprehensive, science-based approach to measure and improve its environmental footprint, says Fitzgerald, who notes that the study identifies opportunities for efficiency and innovation across the fluid milk supply chain, including feed efficiency, manure management, energy management and fuel efficiency.

Fitzgerald adds that the study indicates the Innovation Center is on track for its various innovation projects and that the dairy industry is in a good position to meet its goal of reducing the carbon footprint of fluid milk 25 percent by 2020.

"I think it's great to set the record straight," says Connie Tipton, president and CEO of the International Dairy Foods Association (IDFA). "We now have a baseline we can work with to determine how we can be more efficient and reduce emissions."

Tipton says the study gives the dairy industry a benchmark for its 2020 carbon reduction goal, noting that having this benchmark makes the goal more attainable.

"We're excited and think this is a great opportunity for the U.S. dairy industry," Tipton says. "We're at a good starting point. The industry is taking it very seriously."

• Industry examples

Fitzgerald notes that dairy businesses across the country already are making changes that are environmentally and economically beneficial.

The Innovation Center has collected a variety of success stories, case studies and best practices, providing a platform for industry partners to learn from one another and make informed decisions that suit their unique needs, she says.

Land O'Lakes Inc., St. Paul, Minn., recently released its 2010 Corporate Social Responsibility report. In addition to providing information about the cooperative and its businesses, the CSR report discusses Land O'Lakes' environmental stewardship and sustainability efforts, says Chris Policinski, president and CEO, Land O'Lakes Inc.

"This publication is Land O'Lakes' second CSR report, and I am proud of the strides we have made — both in reporting our commitments and in the tangible progress we have achieved throughout the organization," Policinski says.

Over the past three years, Land O'Lakes has been working with Dairy Management Inc. and the Innovation Center for U.S. Dairy to help improve the environmental footprint of the dairy supply chain, says Policinski, noting that the cooperative has three approaches to promoting environmental stewardship: working with farmers to use safe agricultural technology; collaborating with industry partners to develop and promote sustainability initiatives; and working at its offices and facilities to reduce the use of water, energy and other resources as well as to cut waste generation and increase recycling and the use of renewable sources.

In addition, in 2009 Land O'Lakes established a companywide Energy Council, which set a goal to reduce energy use per pound of product by 25 percent over a 10-year period using 2008 as a baseline. Policinski says the cooperative expects to meet this goal through energy awareness and education, equipment/facility enhancements, consumption tracking and adjustment, and the use of alternative and renewable energy sources.

HP Hood LLC, Lynnfield, Mass., also is actively working to reduce its environmental impact.

The company has established energy management plans in its 22 processing plants, which include energy use, recycling and water use initiatives.

HP Hood also has decreased diesel fuel consumption through safe driver practices, electronic onboard recorders, temperature controls and automatic idle shutdown, among other practices, company officials say.

At LALA USA, Dallas, the company is actively working on switching to more energy-efficient light fixtures and addressing heat loss issues in its plants, says Howard Depoy, director of power, refrigeration and sustainability, LALA USA.

Depoy also is a team leader in Next Generation Cleaning, an Innovation Center project facilitating the evaluation, pilot testing and commercialization of low-temperature processing plant cleaning technologies throughout the United States and around the world.

"We are excited about this project as it continues to move forward, especially as we work to understand the proper protocols necessary to ensure success in energy reduction, product quality and operational efficiencies," Depoy says.

On the fleet side, LALA USA has been upgrading to higher-efficiency trucks over the past three years, says Depoy, noting that traveling at a maximum speed of 65 miles per hour yields fuel savings of 6 to 7 percent.

"We believe in that triple bottom line," Depoy says. "Sustainability is good for the environment, the economy and the community."

• What's next?

Fitzgerald notes that carbon emissions are only one measure of environmental impact and that additional studies on nutritional value, economic impact and other environmental measures such as water quality and land use also are under way.

In addition, the Innovation Center is working to gather participants for an LCA assessment study on cheese.

Fitzgerald notes the center is looking for about 40 cheese companies to participate.

"This fluid milk study was the first of its kind, and we're looking forward to continuing with the cheese study," she says.

More information on the U.S. fluid milk carbon footprint study is available at www.usdairy.com/sustainability. CMN