

2012 U.S. Dairy Sustainability Report



U.S. DAIRY SUSTAINABILITY
COMMITMENT



About This Report

The *2012 U.S. Dairy Sustainability Report* is the third progress report published by the Innovation Center for U.S. Dairy® to update stakeholders on the progress of the U.S. Dairy Sustainability Commitment. It covers activities in the 2012 calendar year, except where clearly noted. Our previous sustainability report was published in April 2012 and covered the 2011 calendar year. We plan to publish updates on the U.S. Dairy Sustainability Commitment annually. Sustainability reports and additional publications are available for download at USDairy.com/Sustainability.

The report discusses topics most relevant to the industry as identified through the development of the *Stewardship and Sustainability Guide for U.S. Dairy* described on page 10, which includes input received during stakeholder engagement efforts described on page 6.

Reporting boundaries are twofold: specific performance and progress of sustainability efforts led by the Innovation Center to support the U.S. Dairy Sustainability Commitment, and broader sustainability efforts and measures of the U.S. dairy industry as a whole, including health and wellness initiatives under the dairy checkoff program. The report also includes highlights from case studies, profiles of recipients of U.S. Dairy Sustainability Awards and the *Sustainability in Practice* storybook, which are available at USDairy.com/Sustainability, as well as efforts by specific companies in the dairy industry published in sustainability reports and press releases.

The Innovation Center for U.S. Dairy is an Organizational Stakeholder of the Global Reporting Initiative (GRI), the nonprofit,

network-based organization that develops the sustainability reporting framework most widely used by organizations worldwide. We referenced GRI's *Sustainability Reporting Guidelines*, Version 3.1, in the development of this report. Specific GRI indicators are not fully reported, due to the complexities of industry-level reporting and the lack of comprehensive industrywide data to meet the organization-level requirements of GRI performance indicators.

Feedback

We welcome your feedback on this report and the industry's sustainability efforts. Please contact us at InnovationCenter@USDairy.com or follow the link at USDairy.com/SustainabilityReport to take a brief survey.



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Welcome

We are proud to publish the 2012 U.S. Dairy Sustainability Report,

the third report on the progress of the U.S. Dairy Sustainability Commitment. Through this shared commitment, the U.S. dairy industry works together pre-competitively to provide consumers with the nutritious dairy products they want, in a way that makes the industry, people and planet economically, environmentally and socially better.

In the last year, the dairy industry continued to show the strength of its dedication to sustainability, even when faced with challenges as difficult as the 2012 drought. One of the most severe and extensive in half a century, the drought impacted about 80 percent of the country's agricultural land and more than 60 percent of its farms. The steep reduction in crop yields increased feed costs, squeezing farms' already tight margins at a time when producers were still recovering from the 2008-09 financial crisis. As a result of these interconnected environmental and economic challenges, we lost more dairy farms. We also saw the resiliency and determination of farm families and how good management practices can help to buffer against the worst impacts of the drought.

Overall, a slow economic recovery and volatile energy prices continue to affect the industry at all points from farm to fridge. These challenges underscore the importance of our work to ensure business viability and shared prosperity across the U.S. dairy value chain.

From a global perspective, the challenges society faces in addressing the world's food supply remain on the forefront, with increased population, nutrition and health needs, limited natural resources, energy security and urbanization among

the most pressing. These issues drive our efforts to find ways to build on our heritage of stewardship and continuous improvement and to produce responsibly – in short, to do more with less. And in doing so, we strengthen the beneficial role nutrient-rich dairy foods and beverages play in promoting health and wellness within a sustainable diet.

Farms and dairy companies across the dairy value chain recognize that sustainability makes good business sense. For example, producers are having energy audits conducted on their farms to identify ways to lower energy costs and minimize environmental impacts. Likewise, processors are optimizing their performance and developing new and innovative products; packaging companies are developing lighter, more consumer- and environmentally friendly packaging; and transporters are improving fuel efficiency. These and thousands of other actions being taken every day – no matter how small – contribute to the industry's overall success.

The Innovation Center for U.S. Dairy, created by dairy producers to drive action on shared values, has been leading industrywide sustainability efforts since 2008, including groundbreaking research initiatives, projects and tools. This year, the launch of Smart Tools will help members of the dairy supply chain define current performance, select effective management practices and track progress for continuous improvement on the farm, in the plant and on the road.

Another impressive accomplishment, and a focus of this report, is the work on the *Stewardship and Sustainability Guide for U.S. Dairy*, a comprehensive, science-based framework for tracking and communicating progress, improving performance and creating long-term economic growth. Developed

by dairy stakeholders, the guide provides a proactive, voluntary approach to telling a sustainability story based on credible, relevant metrics that build trust with customers and communities.

Our success relies on the pre-competitive, collaborative approach the industry has taken for years. We also acknowledge the invaluable contribution of our partners, including World Wildlife Fund, the U.S. Department of Agriculture and the Center for Advanced Energy Studies, in supporting dairy's role in the 21st century food system.

Our long-term sustainability commitment runs as deep as dairy's roots in rural communities. We understand that today's actions will determine the world our grandchildren will inherit. That's why individuals and businesses across the dairy value chain are taking action and telling their sustainability stories to help consumers learn more about our nutritious products and responsible practices. Whether a dairy farm family talks about one of their cows or a processing plant reports its greenhouse gas emissions, each story strengthens dairy's good reputation and demonstrates our dedication to healthy people, healthy communities and a healthy planet.

This report continues the conversation about dairy's stewardship and sustainability efforts and progress. Please join the discussion by emailing your thoughts to InnovationCenter@USDairy.com.



Tom Gallagher
CEO, Innovation Center
for U.S. Dairy and Dairy
Management Inc.™

Larry Jensen
Chair, Innovation Center Board
of Directors and President,
Leprino Foods Company

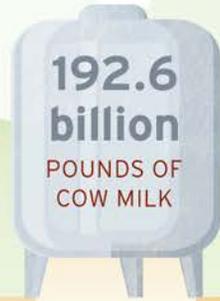
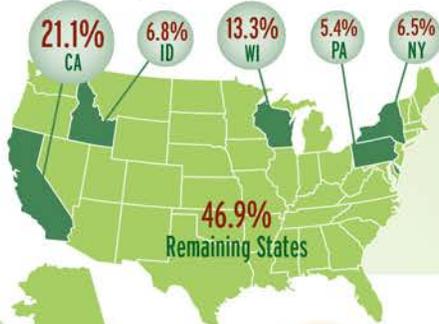
About the Dairy Industry

The U.S. dairy industry – from dairy producers to processors to local grocers – has long played a significant role in our nation’s food system, communities and economy by providing wholesome, nutrient-rich products that promote good health. Dairy producers, processors, transporters and sales points are in all 50 states, making the dairy industry a contributor to local economies across the entire country.

2011 DAIRY SNAPSHOT

Milk production occurs in all 50 states.

The top 5 dairy states in 2011 produced ~53% of all milk in the U.S.



AVERAGE NUMBER OF MILES FROM FARM TO PROCESSING PLANT IS **275 miles**.

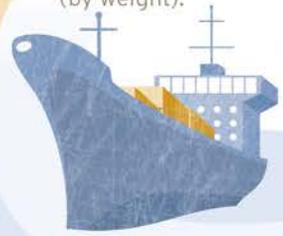


HOW ALL THAT MILK WAS USED



199.4 billion POUNDS OF DAIRY PRODUCTS.

13.3% OF DAIRY PRODUCTS WERE EXPORTED (by weight).



Milk and dairy products are distributed to schools and retail outlets ranging from small neighborhood stores to warehouse outlets.



Americans spent **~6%** of their 2011 food budgets on dairy products at home.



Milk and dairy foods supply **70% of the calcium** and **18% of the protein** in the average American diet.

Sources Milk production and dairy processing data: Dairy Data Highlights, National Milk Producers Federation, October 2012; Family farms stat: USDA ERS; Miles: Ulrich R, Thoma G, Nutter D, Wilson J. Tailpipe greenhouse gas emissions from tank trucks transporting raw milk from farms to processing plants. *Int Dairy J.* April 2013; 31(1):S50-S56; Commercial usage: Annual Commercial Disappearance of Dairy Products, Milk Equivalent, Total Solids Basis (Source: NMPF and USDA/ERS); Export data: U.S. Dairy Export Council; Consumer spending: In 2011, American consumers spent an average of \$6,458 on food purchases; of this amount, \$407, or 6.3 percent, was spent on dairy products at home (Consumer Expenditure Survey, 2006-2011, BLS); Nutritional stats: Dairy Research Institute, NHANES (2003-2006), Ages 2+ years.



728 stakeholders

9 Innovation Center-led projects and initiatives

3 Smart Tools released

Committed to Action

SUSTAINABILITY VISION

We commit to being leaders in sustainability, ensuring the health and well-being of our planet, communities, consumers and the industry.

U.S. dairy sustainability commitment

Dairy has a long history in feeding societies around the world: Its heritage of multigenerational family farms, stewardship of the land and care for animals has given our industry a vibrant and critical role in communities. We also have a history of continuous improvement through the adoption of innovation. Improved breeding techniques, improved cow nutrition and enhanced cow health have enabled U.S. farms to produce more with less. Efficiency and operational improvements in processing, packaging and transporting dairy products contribute further.

The dairy industry has achieved many accomplishments over the years but also recognizes that there's room across the dairy value chain to do more. Through the U.S. Dairy Sustainability Commitment, dairy producers, dairy processors, retailers and businesses are working together so they can continue to provide nutritious products that are responsibly produced and economically viable for all.

This commitment unites us as an industry so that we can collectively address challenges and capitalize on opportunities to contribute to a resilient and sustainable 21st century food system. Working through the Innovation Center for U.S. Dairy, the industry developed a set of guiding principles to communicate the dairy industry's shared values and definition of sustainability to our stakeholders. The Sustainability Council, the main advisory body for the commitment, discussed and refined the guiding principles of the U.S. Dairy Sustainability Commitment, before signing them during the March council meeting in 2012. The principles have been designed to inform Innovation Center sustainability projects as well as the sustainability programs and communications efforts of industry members.

OUR DEFINITION OF SUSTAINABILITY

Providing consumers with the nutritious dairy products they want, in a way that makes the industry, people and the earth economically, environmentally and socially better – now and for future generations.

GUIDING PRINCIPLES OF THE U.S. DAIRY SUSTAINABILITY COMMITMENT

The U.S. dairy industry supports socially responsible, economically viable and environmentally sound dairy food systems that promote the current and future health and well-being of:

- **Our consumers** – through access to safe, nutritious, high-quality products. We value consumer trust and relationships, and we innovate to meet the full range of global dairy consumer needs.
- **Our communities** – through contributing, participating and investing where we live and operate. Our businesses operate safely, maintain agricultural heritage and support community health and development through provision of educational, social and economic opportunities.
- **Our cows** – through animal stewardship. Our animals receive the greatest respect, care, health and comfort throughout their lives. Dairy farmers understand that healthy and productive cows provide high-quality milk.
- **Our employees** – through ensuring a safe and respectful workplace. We value the people on our team. We commit to safe and fair labor practices and equitable

compensation and to provide employees with training and development opportunities.

- **Our planet** – through the stewardship and responsible use of natural resources. We rely on ecosystems and are committed to their health. We manage our impacts on air, biodiversity, land and water through the conservation of resources, and we strive to improve our footprint.
- **Our businesses** – through a focus on long-term economic vitality. We employ leading business practices and meaningful partnerships to enhance the value chain of our products from farm to table. We manage for risk, prosperity and quality of life of our farms, families, communities and stakeholders. We strive to ensure our businesses are attractive to successive generations.

We apply leadership, measurement, science, education, innovation and continuous improvement to enhance our stewardship of sustainable food and agricultural systems.

We commit to these principles through our shared values of honesty, integrity, inclusiveness and transparency.

Dairy's Role in the 21st Century Sustainable Food System

The global population is growing rapidly, placing enormous demands on the world's food supply and our limited natural resources. Increasing urbanization and changing consumption patterns are additional factors impacting the global food system. U.S. dairy is responsive to these needs by continuing to find ways to produce responsibly – to do more with less. Producing milk and dairy products requires land; feed for cows; energy to cool milk and process dairy products; water for crops, cows and processes in the milking parlor and dairy processing facility; and fuel to transport and distribute milk and dairy products. Although these basic resource inputs haven't changed substantially over the years, what has changed are the technologies and science-based practices in use on farms, in processing plants and on the roads, all of which has enabled the industry to achieve substantial increases in efficiency. Continued increases along with innovative approaches are essential to meeting future demand.

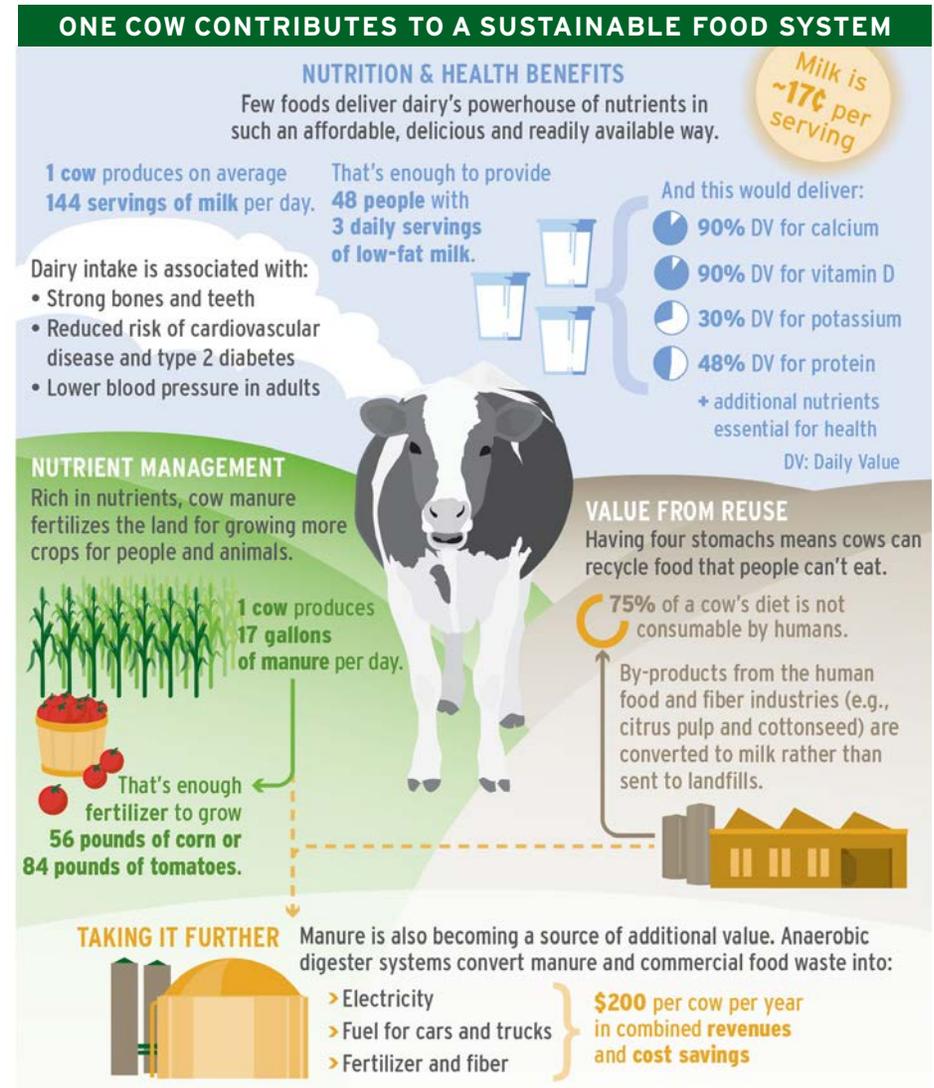
A collective approach

The sustainability challenges related to our food systems are complex and interconnected, requiring whole-system thinking that links safe, nutritious products with environmental stewardship, responsible animal care practices, employee well-being, community support and economic development. The dairy industry recognizes the benefits of working with businesses, government, environmental groups and community partners to find ways to address challenges and seize opportunities that need a collective approach to achieve significant economic, environmental and social benefits.

In today's challenging economic climate, energy, water and resource efficiency improvements can help producers and dairy companies improve profitability and manage risk. Renewable energy generation can provide new sources of revenue while increasing community support for dairy operations and reducing America's dependency on fossil fuels. Along with these approaches, providing nutrition to the global population requires a sustained and focused effort on reducing food waste. Based on some accounts, one out of every three calories produced is wasted in our current food system. Reducing this waste is a challenge shared by those in production and manufacturing as well as retailers and consumers: We all have ways to contribute.

Sustainable dairy

What is dairy's role in a sustainable food system? Looking at one dairy cow provides a unique perspective in the ways dairy is not only delivering nutritious products locally and globally but also contributing to the health of communities, businesses and the planet.



Sources Nutrition: A. Drewnowski, *Am J Clin Nutr*, 2010; USDA National Nutrient Database for Standard Reference SR25; 2010 *Dietary Guidelines for Americans*; Nutrients and reuse: Est. of human-edible and inedible materials computed from the avg. Midwestern lactating cow ration published by Thoma et al.; Greenhouse Gas Emissions of Fluid Milk, 2010; Erb, Kevin; Manure 101, University of Wisconsin Extension, 2010; Digester: Innovation Center, Case Study: Food Waste, 2013.

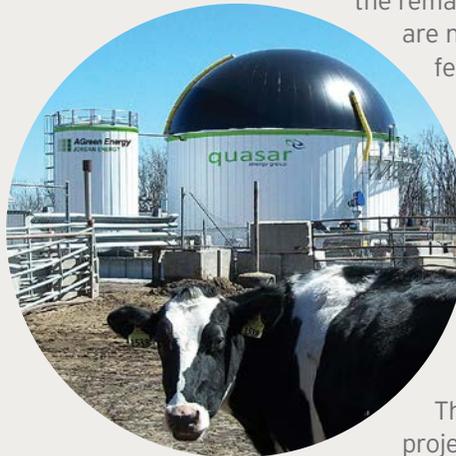
This is just one cow; there are more than 300,000 cows on U.S. dairy farms with digesters in operation, and the numbers are growing.

Dairy Power: A Look at a Successful Partnership Model

Farmer, writer and philosopher Wendell Berry discussed the concept of “solving for pattern,” the process of finding solutions that solve multiple problems, while minimizing the creation of new ones. This concept has been put into practice at Jordan Dairy Farms, a fifth-generation family-owned farm run by brothers Randy and Brian Jordan in Rutland, Mass., where pre-consumer food waste and cow manure, both of which release methane gas when they decompose, are used as a source of clean renewable energy, nutrients and fiber. This results in greenhouse gas (GHG) reductions, healthier watersheds and improved air quality, enhancing dairy’s overall performance further down the value chain.

Here’s how it works: Each day, four regional food producers – HP Hood & Sons, Cabot Creamery Cooperative, Kayem Foods and Cains Foods – send two truckloads of liquid food waste to the farm rather than the landfill. Inside the new anaerobic digester at the farm, bacteria eat the food and manure mixture, which releases methane gas that is converted to 3.7 million kilowatts of electricity each year – enough energy to power 300 homes. After the gas is removed and converted to energy,

The digester-based power, heat, fertilizer and bedding generate approximately \$200 in combined revenues and cost savings per cow per year.



the remaining end products are nutrient-rich liquid fertilizer and fiber bedding for use on the farm or to be sold. The zero-waste, closed-loop system generates \$200 in combined revenues and cost savings per cow per year.

The Jordan Dairy Farms project is the first of five digester systems planned by

AGreen Energy, LLC, a collaborative partnership of dairy producers, digester system builders and operators, and Casella Organics, formerly New England Organics. Jordan Dairy Farms receives a 10-year, 20 percent reduction in electric utility charges that are locked at 2011 rates, and AGreen Energy manages the digester operations, food waste contracts, utility power purchase and renewable energy credit sales that create a return to project investors. To learn more about this project, view the *Food Waste and Third-Party Partnership* case study available at USDairy.com/DairyPower.

“We may not know what will happen with the weather, economy, farm policy and feed prices, but we do know that cows will always make manure and food processors will always have food waste. By tapping the energy potential of food and farm waste, farmers can help the environment, generate income and pass their farms onto their kids.”

Bill Jorgenson
Managing Partner
AGreen Energy, LLC

\$3 Billion MARKET POTENTIAL MONETIZING MANURE

The Innovation Center’s Dairy Power™ project is focused on realizing the significant potential of anaerobic digester systems that can produce renewable energy and value-added products, generate revenue for dairy producers and create jobs. Dairy Power can create a new paradigm for producers – the sustainability advantage of high-efficiency, low-risk, profitable dairies. In fact, the Innovation Center commissioned Informa Economics to perform a national assessment of the full market potential of a fleet of 2,647 anaerobic digesters. Report findings show a \$3 billion market potential through the products and coproducts developed by mature digester systems that process manure and commercial food waste, with additional value for potential nutrient trading markets, and renewable energy and low-carbon energy production incentives. The Center for Advanced Energy Studies developed the integrated Dietary Analytic and Nutrient Analysis model that provided key data for the assessment. The report *National Market Value of Anaerobic Digester Products* is available at USDairy.com/DairyPower.

Stakeholder Engagement & Collaboration

“We’ve got dairymen, we’ve got processors, we’ve got equipment manufacturers, and we’ve got NGOs involved in the Sustainability Council. They’re all working together and producing really quite phenomenal results. And it teaches you that if you get the right focus, you can accomplish almost anything.”

Anson White
 Vice President of Human Resources
 United Dairymen of Arizona

We rely on the multiple perspectives and expertise gained through working collaboratively with individuals and organizations within and outside of the dairy value chain. By embracing a wide variety of perspectives that includes the dairy industry, governmental agencies, program funders, researchers, nongovernmental organizations (NGOs) and others, we are better positioned to take positive, definitive action on achieving our vision for healthy people, healthy communities and a healthy planet.

For a broader discussion of our approach to stakeholder engagement and a listing of our formal stakeholder groups, refer to the *2011 U.S. Dairy Sustainability Report* available at USDairy.com/SustainabilityReport.

Sustainability Council

The Sustainability Council, our main stakeholder advisory body, oversees the Innovation Center’s strategic direction and actions taken toward meeting the U.S. Dairy Sustainability Commitment.

Now in its fifth year, the 122-member group represents 85 organizations across and outside of the dairy value chain. In 2012, the Sustainability Council welcomed 15 new members. To view a full list of current Sustainability Council members, visit USDairy.com/SustainabilityCouncil.

Sustainability Council members lead 11 project teams that represent more than 700 dairy stakeholders contributing to a long-term sustainable dairy industry. In 2012, the council met three times in person, including a March meeting at the White House, and conducted several online meetings. In 2012, members approved and signed the guiding principles of the U.S. Dairy Sustainability Commitment and provided oversight and input to the draft *Stewardship and Sustainability Guide for U.S. Dairy*.

Strategic partnerships

Ongoing formal partnerships with World Wildlife Fund (WWF), the U.S. Department of Agriculture (USDA) and the Center for Advanced Energy Studies (CAES) strengthen and broaden our sustainability efforts through the valuable expertise, perspectives and resources they provide.

World Wildlife Fund: Since 2009, WWF has been collaborating with the Innovation Center to advance mutual conservation goals and improve the economic, social and environmental sustainability of the dairy industry. In 2012, WWF and the Innovation Center renewed their formal partnership and expanded it with a new joint project. The two organizations will convene a blue ribbon task force including key agronomists, NGOs, academics and policymakers to identify solutions and strategies regarding the role different farming production systems have to play in 21st century global food security.

U.S. Department of Agriculture: A 2009 Memorandum of Understanding (MOU) between USDA and the Innovation Center makes research and financial resources available for programs that support dairy’s efforts to reduce greenhouse gas emissions and increase its financial and environmental sustainability. In 2012, USDA continued its support through project funding, outreach and collaboration. Building on the success of the first three years, a new MOU is scheduled for April 2013.

Center for Advanced Energy Studies: CAES works with the Innovation Center and the Dairy Research Institute® on a national technology-based economic development and research program in the areas of renewable energy, environmental stewardship and life cycle analysis of dairy systems and processes. In 2012, CAES worked with the Dairy Power team to develop an anaerobic digester system modeling and assessment tool. To learn more about Dairy Power, refer to page 5.



Each year, a broad range of dairy industry stakeholders contribute time and expertise by serving as members of the Sustainability Council and on Innovation Center-led project teams and working groups. In 2012, 728 stakeholders contributed an estimated 34,378 hours, reflecting nearly \$4 million in estimated business value.¹

“Looking back on the last year, it’s clear that World Wildlife Fund and the Innovation Center for U.S. Dairy have made real progress toward our vision for a more sustainable dairy industry. I look forward to the year ahead, as we pilot our metrics and tools on farms throughout the country and expand our collaboration to explore solutions for global food security in the 21st century.”

Jason Clay
Senior Vice President
Market Transformation
World Wildlife Fund

Organizational affiliations

The Innovation Center participates in initiatives focused on sustainable agriculture and dairy production through the following organizational affiliations:

- Field to Market, the Keystone Alliance for Sustainable Agriculture
- Global Reporting Initiative Organizational Stakeholder Program
- International Dairy Federation
- National Initiative for Sustainable Agriculture
- Sustainable Agriculture Initiative
- Sustainable Food Lab
- The Sustainability Consortium

Collaborating with the U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (EPA) joined the Sustainability Council in 2012. In addition, we partner with EPA on its SmartWay® program to improve fuel efficiency and by promoting energy savings through its ENERGY STAR® Challenge for Industry in cooperation with the International Dairy Foods Association (IDFA). Learn more about dairy’s involvement with these programs in the Energy section on page 18.

Amplifying dairy’s voice

In 2012, the Innovation Center continued to share dairy’s sustainability story with stakeholders at the global, national and regional levels. Outreach efforts include presentations on the U.S. Dairy Sustainability Commitment, peer-reviewed research projects and newsletters, and other news media articles to share better practices, case studies and project results.



Recognized by organizations and institutions for their knowledge and expertise, Innovation Center team members welcome opportunities to share research findings and key learnings from our sustainability initiatives. In 2012, representatives were invited to speak at the National Academy of Science, the Institute of Medicine and the Sustainability Summit hosted by the Food Marketing Institute and the Grocery Manufacturers Association.

“We are pleased to work with the Innovation Center to support their efforts to unlock the full market potential of anaerobic digestion technologies by providing a suite of services and capabilities that are unique to the partners of the Center for Advanced Energy Studies – the three in-state research universities of Idaho and the Idaho National Laboratory.”

Dennis D. Keiser, Ph.D.
Faculty/Research Professor
College of Engineering, University
of Idaho at Idaho Falls, Center for
Advanced Energy Studies

Sustainability Strategies in Action



The Innovation Center supports the dairy industry's shared sustainability goals through integrated approaches grounded in science that deliver tools to build business value and support measurement, management, continuous improvement and innovation, and communicate dairy's sustainability progress. The work led by the Innovation Center brings together the experience, expertise and excitement of hundreds of individuals across the dairy value chain and from

academia, governmental agencies and NGOs to develop innovative solutions and enhance dairy's reputation.

Sustainability research and projects

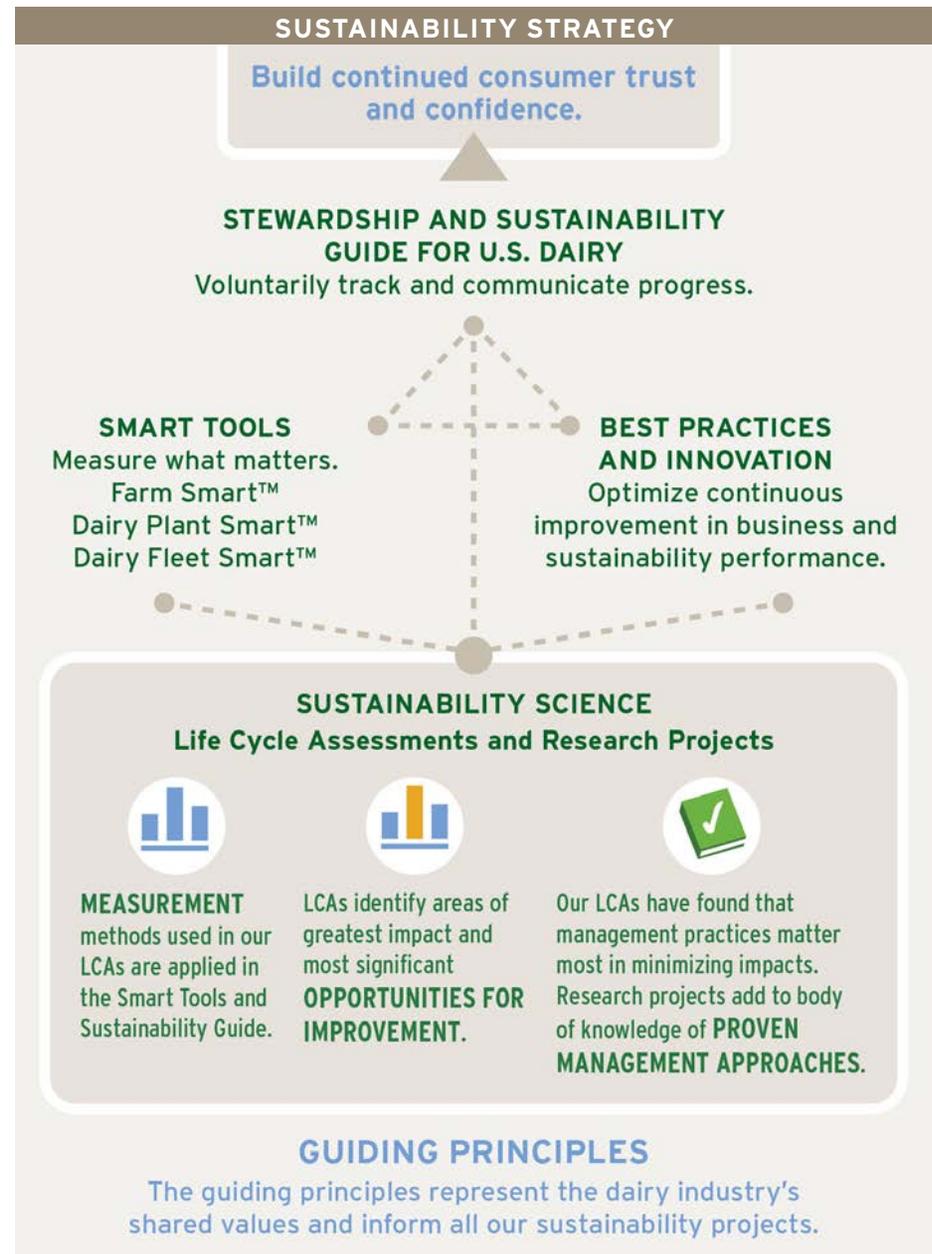
The Innovation Center has commissioned research and launched sustainability projects that deliver environmental and economic results across the dairy value chain. In 2009, key findings from the Greenhouse Gas Life Cycle Assessment (LCA) for Fluid Milk helped define a group of projects that are estimated to meet almost half of the industrywide voluntary goal to reduce greenhouse gas emissions for fluid milk by 25 percent by 2020 and to deliver an estimated \$238 million in business value across the industry.



As part of the U.S. dairy industry's commitment to transparency and knowledge sharing, we strive to make our LCA findings widely available. The April 2013 issue of the *International Dairy Journal* features 10 peer-reviewed articles highlighting findings from the fluid milk LCAs commissioned by the Innovation Center; the articles are available at www.sciencedirect.com/science/journal/09586946/31/supp/S1.

Learn more at
USDAIRY.COM

Learn about sustainability research efforts at USDairy.com/Sustainability/Science.



Innovation Center Sustainability Projects

The sustainability projects cover milk production, processing and packaging milk and dairy products, and transportation and distribution. And yet, the benefits continue along the value chain, assisting retailers and brands in meeting their own sustainability goals. Key project results for 2012 are highlighted throughout the report.

Projects to support dairy farms

What makes dairy farms unique are their cows, and with the herd comes a host of distinct considerations compared with the rest of the value chain. The following projects focus on aspects of dairy farm operations with the greatest opportunities for improvement and innovation, the benefits of which support the entire dairy value chain. Each concentrates on one of the main sources of greenhouse gas emissions on dairy farms (excluding crop production), while delivering additional environmental, economic and community benefits.

Cow of the Future™ seeks scientifically sound, economically viable and socially responsible ways of reducing enteric methane emissions from cows through improvements in dairy cow nutrition, genetics and health.

Dairy Power/Biogas Capture and Transport™ is focused on realizing the significant potential of anaerobic manure digester systems for U.S. dairy producers by helping to put 1,300 methane digesters on dairy farms by 2020.

Farm Energy Efficiency™ promotes energy conservation, efficiency, cost savings and greenhouse gas reductions through outreach efforts that link producers to programs and funds for energy audits and technology upgrades. Energy audits identify efficiencies with the best potential return on investment for cutting costs and saving energy. Learn more at USDairy.com/SaveEnergy.

Learn more at
USDAIRY.COM 

An update on the current status of these projects and links to tools and resources are available at USDairy.com/Sustainability.

Smart Tools for field and farm, in the plant and on the road

A focus on cost savings and business value can spur significant progress in many areas. The Innovation Center has developed management tools to support continuous economic, environmental and social improvement for producers, processors and transporters, and help the dairy industry communicate its progress. These tools put scientific research findings to work to help managers identify the best practices and improvement approaches for their specific operations. The tools also support communicating with the *Stewardship and Sustainability Guide for U.S. Dairy* described on page 10. All three project teams launched versions of their tools in 2012 and are working closely with the industry on ongoing testing and development.

Farm Smart™ is an integrated online management system that helps dairy producers optimize dairy management practices to save costs, create revenue and reduce their environmental footprint. It also helps producers share positive improvements with neighbors, customers and consumers.

Dairy Plant Smart™ helps dairy processors and manufacturers track and reduce energy use, emissions and operating costs. The online resource features case studies on proven energy efficiency approaches with sizable cost and energy savings. The project also promotes participation in the **U.S. EPA's ENERGY STAR Challenge for Industry**.

Dairy Fleet Smart™ combines science-based decision-making tools with education on recommended management practices that reduce fuel consumption, costs and emissions. The benchmarking and modeling tool builds on the **U.S. EPA SmartWay** program by providing recommendations tailored to dairy industry shippers and carriers.

“We are working hard to breathe life into our LCA findings by creating dynamic process-based models that reveal the complex interdependencies between soil, climate, watershed and specific farm management practices. These efforts are translating our science into tools that help the industry make informed decisions based on the unique aspects of their operations.”

Dr. Ying Wang
Director of Sustainability Research
Innovation Center for U.S. Dairy

Stewardship and Sustainability Guide for U.S. Dairy

“It is rare for any industry to take the bull by the horns as the Innovation Center for U.S. Dairy has, and in doing so, bringing its diverse stakeholders along in a very inclusive and constructive way. I would say that the Sustainability Guide is a model for industry associations interested in developing similar frameworks.”

Terry Stone
Sustainability Value Chain Manager
Syngenta

U.S. dairy is dedicated to continuously improving production and processing methods using the highest standards of scientific and management practices to ensure beneficial environmental and economic outcomes. In 2011, the Innovation Center launched the development of the *Stewardship and Sustainability Guide for U.S. Dairy* (Sustainability Guide), as an integral step in achieving the industry's sustainability goals. The Sustainability Guide



provides a useful and meaningful approach to voluntary sustainability tracking and communication, that together with other efforts, will drive ongoing improvements in the industry's sustainability performance. It also provides a consistent way to discuss key aspects of dairy's stewardship and sustainability story, which can

be shared with consumers and customers such as grocery stores, restaurants and other retail outlets.

An important driver in the creation of the Sustainability Guide was the lack of a comprehensive sustainability measurement and communication system for the dairy industry that was based on science and developed with practical input from the industry and its stakeholders. Continuing the pre-competitive, collaborative approach the industry initiated in 2008, the Sustainability Guide project brings together a diverse group of industry stakeholders who have knowledge of dairy production to work together to identify and track the economic, environmental and social components of dairy sustainability. Consistent industrywide guidelines benefit the entire dairy value chain, as well as our communities, consumers and planet, by enhancing the value of voluntary communications.

Tracking supports continuous improvement

At the dairy business level, the Sustainability Guide provides a systematic, unified approach for dairy farms and companies of all sizes to evaluate performance and identify opportunities for improvement. By incorporating the expertise of producers and processors, the Sustainability Guide reflects farm and plant realities to address the complexities and unique aspects of these operations. It is flexible to accommodate both regional differences and the range of dairy systems and production methods in use. This dairy-specific approach helps to optimize performance and promote both individual and collective action with the identification of opportunities for improvement and efficiency.

Communication builds confidence and trust

The benefits of measuring and managing performance to promote continuous improvement are straightforward. Advances in resource efficiency and productivity make good business sense and have been an industry focus for a long time. Communicating progress generates significant value to farms and dairy companies and to the dairy industry overall.

Just as dairy has continually brought new and innovative products to market to meet consumer needs and preferences, the industry recognizes that consumers and buyers are increasingly interested in aspects beyond product characteristics such as taste, nutritional value, price or packaging. Consumers and buyers also want to know how the food they buy is produced and who produced it. They want proof that each step in the dairy value chain incorporates responsible practices to conserve natural resources, protect the environment, provide animal care and contribute to communities.

Retailers and food processors are assessing the sustainability aspects and impacts of their products more thoroughly and evaluating their supply chain as part of their risk management strategies. Through research such as



Innovation Center life cycle assessments, companies now realize that the largest impacts of their products often occur at the beginning of a product's life cycle. To achieve their sustainability goals, retailers and food processors recognize the need to understand the sustainability performance of their suppliers. The Sustainability Guide supports telling results-driven sustainability stories built on credible, relevant metrics.

A look inside the guide

The Sustainability Guide provides an industry-level and stakeholder view of sustainability topics that are most relevant to the industry, as informed by research findings and diverse stakeholder input. It includes guidance regarding what to track and communicate – and how to do so at the farm or company level for economic, environmental and social topics. The guiding principles of the U.S. Dairy Sustainability Commitment (listed on page 3), which express the industry's sustainability values, are the foundation of the guide.

The first draft of the Sustainability Guide covers the industry's dairy producers, fluid milk processors and dairy product manufacturers (e.g., cheese, yogurt, ice cream) and aligns with the guiding principles. As shown in the table on this page, draft version 1.1 contains a Farm Indicators section that includes draft indicators for energy, greenhouse gas emissions and animal care, and a Processor and Manufacturer Indicators section that includes draft indicators for energy, greenhouse gas emissions, water, community contributions and labor management.

The Sustainability Guide is intended to be revised and adapted over time to address the emerging needs of the industry and its customers, as well as scientific advances. Over the coming years, the guide will be expanded to include additional indicators within current and new topics.

In order to ensure harmonization and limit duplication of efforts, the Sustainability Guide teams reviewed indicators and metrics from other measurement systems and programs for alignment where relevant and applicable. As a result, many respected efforts such as the Farmers Assuring Responsible Management™ (FARM) program, *Global Reporting Initiative's Sustainability Reporting Guidelines*, Carbon Disclosure Project (CDP), and other state and regional dairy programs inform the ongoing development of the topics and indicators. The guide also is integrated with the Farm Smart™, Dairy Plant Smart™ and Dairy Fleet Smart™ tools, providing streamlined management, progress tracking and communications.

Progress and next steps

In fall 2012, the Sustainability Guide teams completed a draft version 1.1 of the guide for industry review. The Innovation Center invited producers, cooperatives, suppliers, processors and manufacturers to review the draft and provide feedback on the indicators and the Sustainability Guide as a whole, with a focus on the importance of the indicators for communicating sustainability efforts to stakeholders, the practicality of reporting them and whether any were missing. The guide has been updated based on comments received.

In 2013, producers, processors and manufacturers will test draft version 1.1 indicators and then refine the indicators for feedback from customers and other stakeholders through a stakeholder consultation period. In collaboration with producers, cooperatives and others, the Sustainability Council will further refine the water, community, labor management and economic impact indicators in 2013 and 2014.

Stewardship and Sustainability Guide for U.S. Dairy

Draft Version 1.1 Topics

FARM INDICATORS

Draft version 1.1 indicators developed by and for dairy producers include:

- Our Planet: Energy, GHG emissions
- Our Cows: Animal care

PROCESSOR AND MANUFACTURER INDICATORS

Draft version 1.1 indicators developed by and for America's fluid milk processors and product manufacturers include:

- Our Planet: Energy, GHG emissions, water
- Our Communities: Community contributions
- Our Employees: Labor management




 Many organizations across the dairy chain are awarded and recognized for their actions that contribute to healthy people, healthy communities and a healthy planet. The report highlights a brief sample of awards and recognition received across the dairy value chain in 2012.

The dairy industry is rich with stories of dairy farms, businesses and collaborative partnerships advancing the cause of sustainability. Each year, the Innovation Center recognizes dairy farms, businesses and collaborative partnerships for their contributions to healthy people, healthy communities and a healthy planet. The U.S. Dairy Sustainability Awards showcase that sustainability makes good business sense and encourage collaboration by honoring efforts that have a high potential for adoption by other dairy farms and businesses. More information is available at USDairy.com/Sustainability/Awards.



Outstanding Dairy Farm Sustainability

Petersen Dairy Farm | Appleton, WI:

When the city of Appleton decided to build a high school less than half a mile from Petersen Dairy Farm, the Petersen family began exploring composting as a way to manage the dairy's manure and associated odors. Now compost is sold at the dairy by the five-gallon pail, primarily to home gardeners. Visitors witness firsthand how their old newspapers are recycled as bedding, mixed with manure, composted and ultimately returned to their gardens for use as mulch and to their yards for plant food. By turning their urban location into an asset, the Petersens prove that cows can be good neighbors.



Skyridge Farms | Sunnyside, WA:

Dan DeGroot, owner of Skyridge Farms, cultivated an organization that optimizes performance and preserves the environment. Since 2003, DeGroot has improved lighting, added occupancy sensors and installed a programmable logic control system. The management team can automatically control lighting, fans, and soaker and flush systems with the system, all of which maintains optimum performance and keeps the herd comfortable. This upgrade alone yields a 20 percent energy savings annually across the five freestall barns. With composting, Skyridge Farms harvests manure nutrients, provides quality bedding for the herd and eliminates 600 truckloads previously used to transport manure.



PrairieLand Dairy | Firth, NE:

A creative partnership between four families allows employees at PrairieLand Dairy to focus on their specific talents and pursue their passion for stewardship. Sustainable design is reflected in every aspect of the facilities, which were built to be efficient and low-impact while maximizing cow comfort. Automatic cooling, waste management and pest control systems are just part of the solution. PrairieLand Dairy also uses gravity, the geothermal properties of well water and natural wind to their advantage. By considering these aspects, the partners estimate savings of more than \$200,000 in energy, water and equipment repair.



Outstanding Dairy Farm Sustainability Honorable mention

McCarty Family Farms |

Rexford, KS: The McCarty Family, owners of McCarty Family Farms, have revitalized their rural

northwestern Kansas community by providing more than 100 direct jobs, creating a need for additional housing and, in turn, increasing school enrollment. McCarty Family Farms' unique "cow to cup" partnership with Dannon and the addition of an on-site processing plant has improved economic stability while aggressively reducing their environmental impact. The plant has yielded significant progress toward the dairy's water reduction goal. Approximately 59,400 gallons of raw milk from the dairies is processed through an evaporator every day. Every drop of the water removed during the evaporation process – 39,000 gallons per day – is reused throughout the dairies.

Outstanding Dairy Processing & Manufacturing Sustainability



Unilever Henderson | NV plant:

Since 2010, Unilever plants worldwide have been implementing the company's Sustainable Living Plan – an initiative that is working to improve consumer health and well-being, reduce environmental impact and enhance livelihoods. Employees at the Henderson, Nev.-based ice cream plant worked side by side with environmental experts to analyze energy efficiency and water usage. The team identified an opportunity to use technology to reduce electricity use by 13 percent, natural gas use by 16 percent and water consumption by more than 1.1 million gallons per year. The Unilever ice cream plants in the Americas division regularly meet and share best practices to help reach Unilever's ambitious environmental goals.



Outstanding Achievement in Energy Efficiency

Ballard Family Dairy & Cheese | Gooding, ID: Energy efficiency is sometimes overlooked, but at Ballard Family Dairy & Cheese the Ballards see it as a way to reduce

their overhead and eliminate propane use. An energy audit and a team of energy management experts helped identify four primary areas of savings that included using solar thermal power for the hot water system, installing LED lighting, replacing vacuum pumps and adjusting the milk cooling process. The Ballards achieved their goals, saving \$23,000 annually and reducing the dairy's carbon footprint by 121,500 pounds per year, while decreasing its water footprint by 365,000 gallons annually.



Outstanding Achievement in Renewable Energy

Green Valley Dairy |

Krakov, WI: At Green Valley Dairy, the management team's "waste not" philosophy has them constantly evaluating

opportunities to reclaim energy, recycle water and repurpose manure nutrients. In 2005, Green Valley Dairy set out to build on this belief. The management team determined that anaerobic digesters would help manage manure nutrients and reduce odors while decreasing the dairy's carbon footprint. Although it was one of the first digesters in Wisconsin, the benefits of this plan quickly gained public support. Today, three anaerobic digesters have the capacity to produce 1,200 kWh of "green" electricity – most of which is used on the dairy or sold to the local utility.



Outstanding Achievement in Renewable Energy Honorable mention

Fulper Family Farmstead |

Lambertville, NJ: Fulper Family Farmstead has focused on environmentally friendly activities,

including soil conservation, crop rotation and farmland preservation, since the dairy's origin in 1909. As operating costs continue to rise, the Fulpers found that a solar energy system would increase energy efficiency, sustainability and revenue, while decreasing the farm's carbon footprint and utility costs. Installed in 2011, the freestanding, ground-mounted system creates 500 kWh daily – enough to cover all the operation's electricity needs and power approximately 100 homes. Today, the farmstead sells \$30,000 in renewable energy credits annually.

EVERYDAY CHAMPIONS

Although receiving recognition and awards feels good, we know that the actions – both large and small – taken every day across the dairy value chain matter most in demonstrating dairy's sustainability commitment. Discover stories about the unique ways that dairy farm families and dairy food companies across the country are contributing to providing healthy products, healthy communities and a healthy planet at dairygood.org.

This report also highlights examples of sustainability in action, based on case studies, profiles of recipients of U.S. Dairy Sustainability Awards and the *Sustainability in Practice Storybook*, which are all available at USDairy.com/Sustainability.

GOLD SPONSORS



SILVER SPONSORS

Dolphin Watercare | quasar energy group | Syngenta | U.S. Dairy Export Council

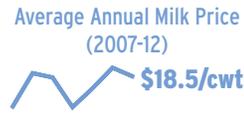
A demonstration of ingenuity and resiliency for economic viability

Linnea and Joel Kooistra are accustomed to working with dairy industry experts such as veterinarians and animal nutritionists. The Illinois dairy producers have added a new expert to the mix: financial advisor. As the drought crippled many parts of U.S. agriculture, dairy producers such as the Kooistras were not exempt. They rely on corn production to feed their cows, and with the dwindling nationwide supply, the Kooistras – like many dairy producers – were facing the challenge of making their business work. “It was just a very stressful time,” Linnea said.

The Kooistras are continuing their family tradition as dairy producers. Their grandparents emigrated from the Netherlands more than 100 years ago to begin a new way of life in America. Today, the Kooistras milk 250 cows on their Woodstock, Ill., farm. Surviving the drought’s impact meant being resourceful. For the Kooistras, it meant using equity to pay feed costs with little to no profit being made for their milk. It meant working with an animal nutritionist to consider alternative ingredients to feeding their cows without sacrificing quality. And it meant remaining open to any and all ideas from university professors and extension agents about ways to manage – and survive – the 2012 drought.



2012 economic challenge: higher feed costs combined with a drop in milk prices*



Our Businesses

The sustainability progress of the dairy industry depends on long-term economic vitality at each step in the dairy value chain. Nationally, dairy is the third-largest agricultural commodity, with 2011 revenues of \$39.5 billion at the farm level, accounting for 10.6 percent of U.S. agriculture's total value (USDA).² Dairy production and processing occurs in all 50 states. Furthermore, dairy is the No. 1 agricultural product by income in 10 states: Arizona, California, Idaho, Michigan, New Hampshire, New York, Pennsylvania, Utah, Vermont and Wisconsin.

The dairy industry – most significantly, farm families – was hard-hit by several economic factors in 2012. The 2012 drought, which was the longest and driest in half a century, damaged corn crops and drove the price of corn and other feed stock commodities to record high levels. Because milk prices do not reflect rising feed costs, producers had to make tough decisions: borrow money to feed their herds and operate at a loss; use alternate feed sources and reduce milk production; sell herds and land to stay afloat; or worst yet, declare bankruptcy. The fact that many producers were still recovering lost equity from the 2008-09 recession compounded the impact. The loss of farms is not just economic; it impacts people, families and communities and has a cultural toll, as generations of farming knowledge leave the industry. Despite these economic challenges, the dairy industry's resiliency and resourcefulness is unwavering, as seen in the story of the Kooistra family on the previous page.

Local economic impacts and multipliers

The U.S. dairy industry is not merely made up of producers and dairy companies; it is a complex economic web extending far beyond individual farms and dairy plants. Dairy's economic contribution, especially in rural communities, can be essential to the health of a local economy.

Dairy farms and companies create jobs, pay taxes that support local and state governments, make charitable contributions and stimulate economies through the purchases of needed goods and services and through other activities. Moreover, producers and processors account for significant indirect economic activity resulting from their business activity.

Economic multipliers measure the ways this economic activity ripples out from the farm and plant to the community. For example, dairy farms are indirectly responsible for jobs associated with feed suppliers, veterinary services, equipment suppliers, utilities and financial services, thereby multiplying their economic impact. The remainder of the dairy industry makes similar contributions, and employees across the industry spend payroll earnings on groceries, rent, home mortgages, health care, travel, entertainment and other goods and services, extending the economic effect across states.



The Innovation Center will be working with a team of experts to develop economic multipliers for inclusion in future versions of the Stewardship and Sustainability Guide. By choosing to communicate economic impacts, dairy producers and processors can inform stakeholders about the value of dairy to local communities, attract new businesses to settle in the area or promote dialogue with local policy and regulatory bodies. In addition, tracking economic sustainability metrics and practices can help dairy businesses identify opportunities to reduce costs or generate new income streams.



A recent study conducted by the California Milk Advisory Board indicates that for every job on the farm, 22 are created off the farm.

EMPLOYMENT AND PAYROLL

- Milk production (includes only producers covered by unemployment insurance)
- Dairy product manufacturing

Employment



Payroll



Source: Quarterly Census of Employment and Wages. U.S. Department of Labor, Bureau of Labor Statistics

*Source: USDA/NASS. Milk-feed price ratio: Pounds of 16 percent protein mixed dairy feed equal in value to one pound of whole milk.

Industry Spotlight: Transparency & Communication

REPORTING LEADERS

Sixteen organizations from the Sustainability Council have published sustainability reports:

- Danone (The Dannon Company in U.S.)
- Danigold, Inc.
- Dean Foods
- General Mills
- Glanbia USA
- Hilmar Cheese Company
- Kraft Foods Inc.
- The Kroger Co.
- Land O'Lakes, Inc.
- McDonald's
- Nestlé
- PepsiCo
- Retail Industry Leaders Association
- Safeway
- Syngenta
- Wal-Mart

■ Indicates GRI-based report.

Organizations across the dairy value chain recognize the importance of communicating their sustainability efforts and performance to consumers, investors, NGOs and other stakeholders.



Sustainability Reporting

To date, 16 organizations from the Sustainability Council have published sustainability reports, and 13 have followed the Global Reporting Initiative's Reporting Framework – the world's most widely used standard for best practices in sustainability reporting.

The Carbon Disclosure Project

Dairy producers and processors are participating in voluntary disclosure initiatives such as the Carbon Disclosure Project, an independent not-for-profit organization holding the largest database of primary corporate greenhouse gas emissions information in the world. Over the years, businesses such as Prairie Farms Dairy, Oakhurst Dairy, Stonyfield Farm, Tillamook County Creamery Association and The Kroger Co. have voluntarily shared their greenhouse gas results. In addition, Dean Foods, Kraft Foods Inc. and PepsiCo have been featured in the CDP's annual S&P 500 Carbon Disclosure Leadership Index for their climate-related disclosure practices.

“For Dean Foods, reporting is the right thing to do. The Innovation Center is a strong supporter of transparency and reporting for dairy. The work on the Sustainability Guide and developing metrics that everyone can use for reporting will be a tremendous benefit to the industry once everyone embraces it.”

Dale Bunton

Senior Director of Engineering West and Sustainability
Dean Foods

Certified B Corporations

Reflecting a newer trend, a growing group of companies across 60 industries have become Certified B Corporations, meeting third-party verified standards of social and environmental performance, accountability and transparency. In July 2012, Cabot Creamery Cooperative became the first dairy cooperative to achieve B Corporation certification, and in October, Ben & Jerry's® joined the more than 650 worldwide B Corps.

“Cabot's B Corporation certification is an important third-party validation of our business practices,” says Dr. Richard Stammer, Cabot CEO. “These practices include governance by our farmer owners, the environmental impact we have on the land, how we treat our employees and how we support the communities where we live, work and sell our products.”

Since 1944, producing a gallon of milk requires fewer resources:*



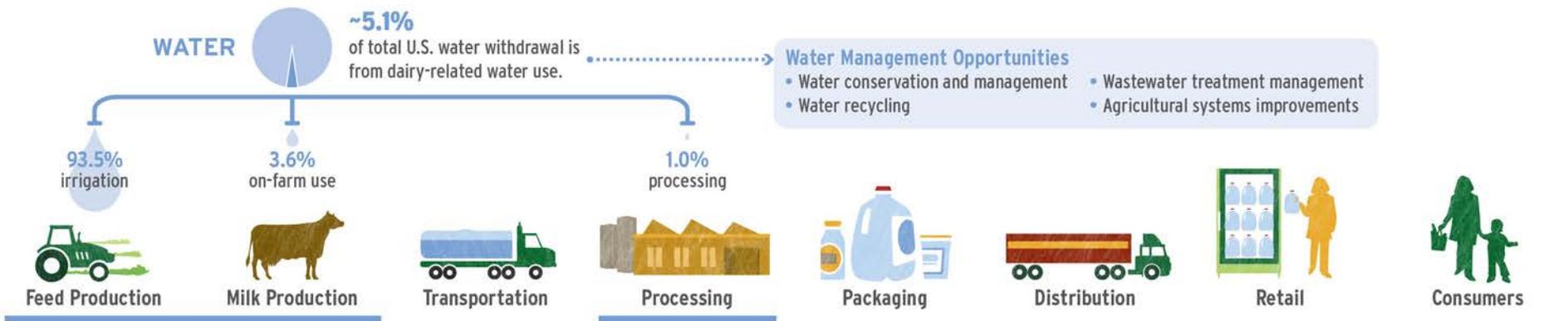
Our Planet

The dairy industry has a long history of continuous improvement and conserving natural resources for future generations. Managing the environmental components of producing milk and dairy products will continue to demand sustained commitment, ingenuity and action to achieve long-term sustainability as part of a resilient global food system. A key conclusion across multiple life cycle assessments is that management practices can improve the environmental footprint of virtually all farms and businesses. Small, incremental changes on a farm or in a plant add up to significant progress for the whole industry. It's the power one step can have when multiplied by more than 51,000 dairy farms or 1,200 processing plants: Together we travel farther.

Environmental priorities

Informed by Innovation Center-led research, the environmental indicators in draft version 1.1 of the Sustainability Guide focus on the areas that have the most significant opportunities to improve dairy's environmental footprint: energy and greenhouse gas emissions for producers and processors, and water as an additional consideration for processors. Although the full environmental footprint of the dairy industry includes other important environmental impacts, including biodiversity, land use, air quality and waste, leading with these three priority areas will enable the entire dairy industry to make substantial progress on what matters most. At the same time, individual dairy companies and industry groups are working on other environmental areas, and future versions of the guide will consider additional topics for inclusion.

ENVIRONMENTAL PRIORITIES

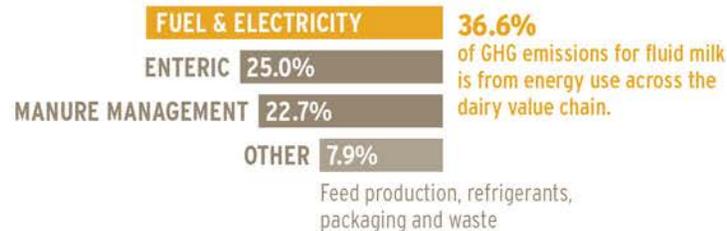


GHG EMISSIONS

~2% of total U.S. GHG emissions is from the production of dairy products.

- GHG Management Opportunities**
- Energy management (see right)
 - Feed efficiency
 - Manure management
 - Agricultural systems improvements

Carbon Footprint of Fluid Milk by Source



ENERGY

~0.4% of total primary energy use in the U.S. is from the production of dairy products.

Even though 0.4% is small, opportunities exist at every step from farm to fridge to reduce energy use and costs.

- Energy Management Opportunities**
- Collectively, all changes – no matter how small – add up and deliver bottom line results:
- Energy efficiency and conservation efforts
 - Practices to promote fuel efficiency

Sources: Henderson et al., U.S. Fluid Milk Comprehensive LCA, University of Michigan and University of Arkansas, 2012. Thoma et al., Greenhouse Gas Emissions of Fluid Milk, 2010.

Energy

>> TAKING ACTION across the value chain

ENERGY

Energy upgrades at 140-cow Palmyra Farm in Md. save **\$1,670 IN ANNUAL ENERGY COSTS.**

USDairy.com/SaveEnergy

Switching from diesel to compressed natural gas sourced from Fair Oaks Farms is projected to save **\$2M IN ANNUAL FLEET FUEL COSTS.**

That's a 28 percent reduction of annual fuel costs for the 42-truck fleet managed by Ruan Transport Corporation.

Installing high-efficiency light bars in freezer cases at 1,700 of The Kroger Co.'s 2,500 stores saves **\$10K IN ANNUAL ENERGY COSTS PER STORE.**

Learn more at
USDairy.com

Increasing and volatile energy prices affect the bottom line and present business risks, making energy a closely managed and frequently monitored attribute in sustainability efforts. In addition, the use of nonrenewable fossil fuels is directly linked to other key sustainability aspects, including greenhouse gas and other air emissions, water quality and use and other indirect environmental impacts.

Farms and dairy companies are strategically managing energy use in order to reduce costs and lower exposure to spikes in energy prices. Energy efficiency and conservation efforts, even simple changes, are delivering real savings. Additional benefits of measuring and improving energy performance include increased resource efficiency and enhanced environmental and regulatory management.

The focus on energy is not simply about consumption but also about sources. Replacing fossil fuel energy sources with renewable ones such as wind, solar and biogas digester systems can reduce the use of nonrenewable energy sources and reduce emissions and other environmental impacts created by the extraction and processing of purchased fossil fuel-based energy. Of particular interest for the dairy industry are anaerobic manure digester systems, which create renewable energy while reducing on-farm methane emissions, the second-largest source of greenhouse gas emissions in the dairy value chain. This approach also addresses manure and nutrient management on farms, which improves water and soil quality and can potentially create new revenue streams for producers. Learn more on page 5.

Communicating about energy

Energy consumption is a frequently asked question on a growing number of supplier questionnaires and scorecards, often based on customer and consumer interest. Communicating on areas of high concern to stakeholders builds trust and cooperation, as all parties recognize they are working together toward common objectives. As such,

reporting energy performance can enhance producers and dairy companies' reputations with buyers and communities. It also provides an opportunity for dairy farms and companies to showcase energy reductions and demonstrate continuous improvement.

The Sustainability Guide includes indicators for energy usage to support telling this energy story. Reporting about energy also directly ties to greenhouse gas reduction efforts, as discussed in the following section.

2012 energy results on Innovation Center projects

Many of our sustainability projects focus on energy efficiency as a means to reduce energy use and costs. In addition, Dairy Power continued to support the implementation of anaerobic manure digesters to produce renewable energy.

Farm Energy Efficiency: This project promotes the use of energy audits to help producers plan for and achieve significant reductions in energy use and operating costs. In collaboration with the USDA Natural Resources Conservation Services (NRCS) and EnSave, Inc., the Innovation Center works with local partners – from dairy cooperatives and trade and promotion organizations to utilities and government entities – to inform producers of energy saving opportunities. In 2012, 169 dairy farms completed energy audits with associated energy cost savings estimated at more than \$660,000. NRCS funded \$274,300 for energy audits and energy conservation improvements.

Visit USDairy.com/SaveEnergy to learn how energy audits can reduce on-farm costs.

Energy Audit Results	2012
Number of energy audits conducted	169
Potential energy savings (million British thermal units [MMBtu])	17,890
Potential cost savings	\$661,142

Dairy Power/Biogas Capture and Transport: The Dairy Power/Biogas Capture and Transport project is focused on realizing the significant potential of anaerobic manure digester systems for U.S. dairy producers by helping to put 1,300 methane digesters on dairy farms by 2020. The number of digesters in 2012 decreased in part due to the expiration of the 2009 American Investment and Recovery Act Section 1603 grants for renewable energy projects and reduced Rural Energy for America (REAP) funding. The 2012 estimated business value to producers was \$56.7 million.³

Dairy Power Results	2011	2012
New U.S. dairy digesters brought online in year	15	8
U.S. dairy digesters in operation at year-end	176	160
Renewable energy generated (gigawatt hours) ⁴	541.0	636.5

Dairy Plant Smart and U.S. EPA ENERGY STAR

Challenge: A key component of the Innovation Center’s Dairy Plant Smart project is to promote industry participation in the U.S. EPA ENERGY STAR Challenge for Industry, a national call to action for commercial and industrial operations to improve energy efficiency. The specific goal for the dairy industry is to reduce energy intensity (British thermal units per pound of dairy product produced) by 10 percent in five years. The challenge is a project of the Dairy Processing Focus, a partnership between the ENERGY STAR program and the International Dairy Foods Association.

The dairy industry continues to be one of the leading sectors in the ENERGY STAR Challenge, making up 23.5 percent of participating plants. Through 2012, 148 dairy companies have signed up for the challenge, and 25 processors have already achieved the reduction goal, saving 1,041,860 million British thermal units of energy in 2012 – enough energy to power 23,899 homes for one year.

Take the ENERGY STAR Challenge for Industry at www.energystar.gov/index.cfm?c=industry_challenge.take_the_challenge.

2012 ENERGY STAR Challenge Results	2012	Total
Dairy facilities that achieved the challenge	18	25
Estimated energy savings achieved (MMBtu)	721,785	1,041,860



RUAN TRANSPORT CORPORATION,

a longtime SmartWay member, a key participant in the Dairy Fleet Smart project and an

Innovation Center Sustainability Council member, was honored by EPA in October 2012 with a SmartWay Excellence Award for its industry leadership in freight supply chain environmental performance and energy efficiency. In addition to implementing strategies such as idle reduction, auxiliary power units, improved equipment and driver training, Ruan operates one of the largest compressed natural gas (CNG) fueled fleets, which eliminates as much as 1.8 million gallons of annual diesel fuel use. The CNG fleet transports Indiana dairy products and provides a model for dairy transport nationwide.⁵

Dairy Fleet Smart and U.S.

EPA SmartWay: In addition to the Dairy Fleet Smart tool



described on page 9, the Innovation Center’s Dairy Fleet Smart project includes promoting industry participation in the U.S. EPA SmartWay program, which helps long-haul fleets and professional drivers reduce their fuel consumption and air emissions through a range of advanced technologies such as on-board electronic recorders, financing programs and driver best practices.

Join SmartWay at www.epa.gov/smartway.

“Ruan has a long tradition of seeking and implementing strategic fuel conservation measures, which not only controls costs, but helps protect the environment. The SmartWay Excellence Award affirms our commitment to safe, efficient business practices that benefit our customers, team members and the global community.”

Steve Chapman
President and CEO
Ruan Transport Corporation

Greenhouse Gas Emissions

Industry's goal: 25 percent GHG reduction for fluid milk by 2020

With growing customer and consumer interest in the carbon footprint of products, dairy producers and companies across the country are taking steps to measure and understand the greenhouse gas emissions associated with their operations. Producers

One of the most frequently reported environmental indicators in GRI sustainability reports within the food and beverage sector is greenhouse gas emissions.⁸

are employing proven practices to reduce greenhouse gas emissions – ranging from maintenance or replacement of equipment, to changing the feed rations of the cows, to the generation of renewable energy – while achieving cost savings and additional revenue.

Similarly, processors, manufacturers and transporters are implementing energy and fuel management initiatives that contribute to emissions reductions, as described in the Energy section. Together, these efforts contribute to providing consumers nutritious food and beverages that are made in ways that minimize their carbon footprint.

2012 greenhouse gas results on Innovation Center projects

Several projects reported greenhouse gas reductions for 2012 in metric tonnes of carbon dioxide equivalent (mtCO₂e).

Project	2012 GHG Reduction (mtCO ₂ e)
Dairy Power/Biogas Capture and Transport ⁹	1,415,195
Farm Energy Efficiency	3,699
Dairy Plant Smart through its promotion of the ENERGY STAR Challenge for Industry	40,181

Learn more about Dairy Power and Farm Energy Efficiency in the Energy section.

Communicating about greenhouse gas emissions

Sharing greenhouse gas mitigation efforts and results proactively builds trust in dairy. Reporting provides a credible way to discuss how companies are managing their carbon footprint. The Sustainability Guide provides a unified approach to discuss performance through the use of relevant indicators for total greenhouse gas emissions and greenhouse gas intensity, which looks at emissions per unit of production (milk produced, milk processed or unit of output). Reducing the greenhouse gas intensity can reduce costs, improve the life cycle performance of dairy products and contribute to reducing environmental impacts beyond greenhouse gas emissions.

The Innovation Center's sustainability projects described throughout this report collectively aim to meet almost half of the industrywide voluntary goal to reduce greenhouse gas emissions by 25 percent by 2020 and to deliver an estimated \$238 million in business value across the industry. Reporting results for emissions helps to demonstrate support of this goal and communicate progress toward achieving it. For example, as part of its revised sustainability goals in 2012, Dean Foods aligned its greenhouse gas reduction goal with the dairy industry's goal.

CARBON COUNTS: Companies that disclose greenhouse gas information can receive recognition in various sustainability ratings and scorecards. The nonprofit Climate Counts, for example, uses publicly available information to develop its annual scorecard. The Climate Counts Scorecard released in December 2012 recognized several organizations within the dairy value chain for their carbon disclosure and reduction efforts: Stonyfield and Group Danone were in the top scoring tier for exceptional leadership, with Ben & Jerry's, Kraft Foods Inc. and Starbucks, which was recognized as a sector leader in food services, receiving scores in the second-highest tier for making strong headway in reducing their carbon impact.

>> TAKING ACTION across the value chain

GHG EMISSIONS

Since 2007, Dean Foods reduced emissions by **8.4 PERCENT PER GALLON OF PRODUCT.**⁶

Between 1995 and 2005, energy efficiency initiatives at Stonyfield Farm's processing facility reduced energy use and achieved a **33 PERCENT REDUCTION IN GHG EMISSIONS PER POUND OF PRODUCT.**

The 180-kilowatt dairy digester system at Pennwood Farms reduces carbon emissions by an estimated **1.7 TONS OF CO₂E PER COW ANNUALLY.**⁷

Learn more at
USDAIRY.COM

Global population growth places enormous demands on food systems to produce more with fewer natural resources, especially water, one of our planet's most valued assets and a critical component in the production of nutritious dairy products. According to a recent Bank of America Merrill Lynch global research report, demand for water is expected to outstrip supply by 40 percent by 2030, and close to half the world's population will be living in water-stressed areas.¹⁰ For generations, agricultural producers and growers have understood the importance of water,

because their prosperity is directly tied to this precious resource.

They continue to build upon successful water stewardship practices to meet future water constraints.

In 2012, the dairy industry was hard-hit by both water scarcity and water excess. The 2012 drought was one

of the longest and driest

droughts in more than 50 years,

affecting more than 60 percent of U.S. farms. Even when drought conditions ease, the effects on dairy producers can be felt for years to come. On the other end of the spectrum, excessive rains and ocean surges from Superstorm Sandy disrupted the food supply chain in the Eastern United States, where almost 20 percent of the country's milk production occurs.¹¹

Key findings of the Water Life Cycle Assessment

In 2012, the Innovation Center released key findings about dairy's water impacts across the value chain from the



KEY FINDINGS

- Water is a local issue impacted by both water supply and watershed characteristics.
- Dairy feed and milk production, as well as processing stages, drive the overall environmental impact.
- Variability means opportunity for improvement.

IMPLICATIONS FOR INDUSTRY

- The LCA results show where the dairy industry can make the greatest improvements.
- Water use and water quality should be measured and managed in a way that is relevant to the locale, with practices best suited to the individual operation.
- The broad range of current water management practices present a variety of improvement models.

Comprehensive LCA for Fluid Milk. The water LCA tells us that milk production accounts for just 5.1 percent of all water withdrawn from U.S. watersheds, with dairy feed (4.9 percent) being the largest consumer, followed by dairy farms and then dairy processing activities. There is no “silver bullet” solution to reducing dairy's water impacts: Regional differences and microclimates, water and manure management practices and changing weather patterns are just a few variables that add to the complex and ever-changing water challenges faced by dairy and others.

The water LCA underscores the advantage of using scientific findings to measure, manage and communicate dairy's progress in dairy stewardship and sustainability. For a more detailed discussion of the water findings, refer to the *U.S. Fluid Milk Comprehensive LCA Final Report* (Andrew Henderson, et al.) available at USDairy.com.

“In 2012, water-related impacts are being felt more broadly, and more businesses have recognized these growing water-related risks than before. Across the board, respondents report more water-related risks and opportunities. More respondents are assessing water-related risks in their direct operations and supply chains and are also evaluating water-related opportunities. In addition, respondents report taking more tangible action to manage these issues and seize opportunities.”

*Collective Responses to Rising Water Challenges
CDP Global Water Report 2012*

>> TAKING ACTION across the value chain

WATER

Equipment and process upgrades at numerous Dairy Farmers of America member facilities are projected to save **\$1.4M AND 14M GALLONS OF WATER PER YEAR.**

Sustainability improvements at Darigold facilities have led to a **13 PERCENT REDUCTION IN WATER CONSUMPTION.**

The new evaporator at McCarty Family Farms removes extra water from raw milk, providing **39K GALLONS OF WATER PER DAY FOR REUSE ON THE FARM.**

Learn more at
USDAIRY.COM



Communicating about water

Across the dairy value chain, dairy farms and companies manage water consumption and quality through the use of meters, science-based tools and other available information that consider the complexity and regional variations of dairy operations. Not only do these tools and practices support the industry in addressing external challenges created by extreme weather and an economic downturn but also they provide the tangible results that help tell dairy's story and drive continuous improvement in managing water resources.

An increasing number of companies are voluntarily disclosing their water footprints and are interested in the water use of their suppliers. Draft version 1.1 of the Sustainability Guide includes indicators for processors in the areas of water use, efficiency and quality to support and unify these efforts. Processors can use the guide to track and communicate their water progress, which helps build customer, community and consumer trust in dairy products. In 2013 and 2014, the water indicators for farm will be

drafted, tested and piloted, as well as integrated with Farm Smart and Dairy Plant Smart.

SUSTAINABILITY CONNECTIONS: Key findings of the water LCA show us there is no single approach to managing water impacts. Instead, a variety of factors



must be considered in order to address water issues for a specific farm or business. The LCA studies identify opportunities, which we share to empower producers and processors to focus on what matters most for their unique location. The Innovation Center's Farm Smart and Dairy Plant Smart tools will incorporate these new water findings to help dairy businesses make informed, science-based decisions to manage environmental and economic aspects of their operations.

Our Communities



The U.S. dairy industry is committed to a socially responsible dairy food system that promotes the current and future health and well-being of people, communities and the planet. Well-being has many definitions and components. For us, it starts with the health

and wellness our nutrient-rich

dairy products promote in people at home and around the world (as highlighted in the Health and Wellness section).

It also extends to the health and safety of dairy workers and the animals they care for and to the communities where we operate and call home.

Draft version 1.1 of the Sustainability Guide has identified community contributions as the most



relevant topic for producers and processors to begin using when communicating dairy's values and contributions to the American people. Community contribution indicators for producers are currently under development, and draft indicators for processors are included in draft version 1.1 of the guide.

Sharing progress and stories supports us in connecting American consumers with our work as dairy producers and processors. It helps to develop closer relationships with neighbors, dairy workers, communities, retailers, consumers and others.



“My overall vision for sustainability is to be a farm that’s off the grid, a farm that can sustain itself, provide power for itself, provide the natural resources that we need to run the farm, as well as in the end, give back to the community.”

Brian Medeiros
Partner
Medeiros & Son Dairy

SPOTLIGHT ON REPORTING

Each year, organizations across the dairy value chain publish sustainability reports that share their approaches to nutrition, health, wellness and food security:

- Darigold’s 2010 report describes how it partners with the dairy industry and develops new products to encourage healthy eating.
- Hilmar Cheese Company’s 2011 report covers its commitment to improve community food resources through food drives and food and financial donations.
- Land O’Lakes’ 2012 report features approaches to providing “better for you” food options such as reduced-sodium and low-fat food products.
- Safeway’s 2011 report highlights its \$116.46 million in food product donations to local hunger relief programs.
- Wal-Mart’s 2012 report explains its long-term plans to provide underserved communities with access to fresh and affordable groceries.



Supporting communities, helping the environment

For dairy producer Lawrence Petersen, the city of Appleton, Wis., is his home and his history. His family started Petersen Dairy there in 1934, and after a lifetime of dairy farming, Lawrence has passed the torch to his sons, Mark and Steve. The Petersens are dedicated to the health and well-being of their community and have been working with Appleton schools and nonprofits to encourage newspaper recycling since 1988. The dairy pays for collected newspapers, which are shredded and used for cow bedding. The newspaper drives build close relationships between Petersen Dairy and the community. Field trips to Petersen Dairy teach children how a dairy farm operates and how their recycling efforts contribute.

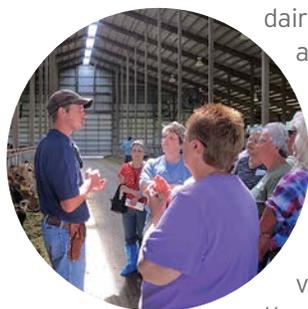
When the community of Appleton began to grow in the mid-1990s, a new high school opened near the dairy. The Petersens began composting as a way to manage manure and create more value for the community that had grown to the dairy's gates. Today, students and compost customers regularly visit Petersen Dairy to see firsthand how their newspaper is recycled as bedding, integrated into compost, then returned to them as nutrient-rich, value-added compost. Partnerships like these exemplify dairy's integral role within the social fabric of rural communities.

Our Communities: Community Contributions



Most producers run family-owned farms and have deep, multigenerational roots in their community. In addition, companies, cooperatives and individuals across the dairy value chain regularly support social causes; it's simply second nature to help out.

Providing food and assistance for disaster relief, helping to end hunger, and educating youth about health, fitness and nutrition are just a few examples of dairy's contributions. Learn more about these efforts in the Health and Wellness section of this report. Through volunteering, contributing and investing where we live and operate, dairy demonstrates our deep-rooted commitment to our communities.



The community contributions of producers, dairy companies and their employees are well-known by their friends and neighbors. By sharing stories of these efforts with a broader audience, through websites and publications, stakeholders beyond the local community can learn about the collective value of these contributions across the industry. Companies within all

industries are proud of their community efforts and regularly tell their stories to build employee engagement, gain customer loyalty and inform the general public of their contributions to local communities.

The Sustainability Guide provides a unified approach for dairy processors and manufacturers to share these stories. By focusing on volunteer efforts, monetary and product donations and educational events, it offers dairy companies a framework for tracking and communicating dairy's many contributions to local communities.



Joining together to fight hunger

In 2012, a new partnership was established with National Dairy Council®, Feeding America® and the Academy of Nutrition and Dietetics® to work together to create solutions to help fight hunger and promote healthy food choices that include nutrient-rich dairy. The new initiative also will make additional resources available for the 50 million U.S. citizens who are food



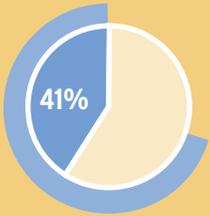
insecure. The broad effort brings together agriculture and food production experts, health professionals and hunger relief agencies to raise awareness, promote nutrition principles in feeding programs and find innovative ways to increase access to healthy foods, including low-fat and fat-free dairy products.

DAIRY GIVES BACK

Dairy companies and their employees donate time, food, funds and expertise to help their communities. Here are just a few examples:

- Oakhurst Dairy donates 10 percent of its pre-tax profits to organizations that promote healthy kids and a healthy environment.
- Ben & Jerry's employee-based Community Action Teams administer grants and provide hands-on support to local charities.
- The Tillamook County Creamery Association supports local communities through donations of food and money to more than 200 Oregon organizations annually.
- The Kroger Co. donated nearly 66 million pounds of food to food banks in 2011, providing more than 55 million meals for those in need.
- Between 2009 and 2011, Kraft Foods Inc. delivered 25 million meals through their mobile pantry partner, Feeding America.

Our Cows: Animal Care



2013
projection
70%

PARTICIPANTS IN THE DAIRY FARM PROGRAM REPRESENT NEARLY 41 PERCENT OF THE U.S. MILK SUPPLY.

SUSTAINABILITY CONNECTIONS:

High standards of animal care have been linked with increases in milk production and quality. The forthcoming *Best Practices Guide* developed as part of the Innovation Center's Cow of the Future project identifies calf and cow management practices that not only support the health and productivity of cows but also can help lower enteric methane emissions per unit of fat-and-protein-corrected milk.

Dairy producers are committed to the health and well-being of their cows, and they recognize the increasing importance of animal care to customers, consumers, neighbors and other stakeholders, as well. Communication helps to assure consumers that producers use humane animal care practices, thereby building confidence across the industry.



High standards of animal care have been linked with increases in milk production and quality.

Keeping cows content and healthy is a round-the-clock priority: It's imperative for the productivity and success of the farm. A typical dairy farm maintains the health of its dairy cattle by providing a nutritious diet and fresh water, housing and living space, and disease prevention, detection and treatment programs, which are typically developed in consultation with a qualified veterinarian.

Draft version 1.1 of the Sustainability Guide includes indicators to communicate aspects of the animals' environment, nutrition, handling and treatment, as well as herd health and the management of special needs animals. One of the indicators reports the adoption of science-based animal care guidelines that are supported by members of the dairy industry and include veterinary-client-patient relationships, standard operating procedures and practices for euthanasia and on-farm evaluation.

For producers who are not following a specific animal care guideline program, the guide includes indicators for reporting on an established relationship with a certified veterinarian and the implementation of a herd health plan with standard operating procedures to ensure good husbandry practices, both of which help to ensure the health and safety of the animals as well as animal caregivers.

NMPF FARM Program

The Animal Care indicators reflect the National Dairy FARM Program: Farmers Assuring Responsible Management, a voluntary, third-party-verified animal care and quality program created by the National Milk Producers Federation (NMPF) with the support of Dairy Management Inc. Cooperatives and producers currently utilizing the FARM program represent nearly 41 percent of U.S. milk supply, a figure that's expected to exceed 70 percent in 2013.¹²

Counseled by the multistakeholder National Dairy FARM Advisory Panel, the FARM program establishes consistent practices for on-farm animal care and milk production, which help to assure consumers that dairy cows are treated well. Key components of the comprehensive program are on-site farm evaluations and third-party verification of the program's content and execution to ensure its validity and integrity to customers and consumers.

- Since enrollment in the FARM program opened in September 2010 through December 2012, 7,378 on-farm evaluations have been conducted.
- From September 2010 to December 2012, Validus Ventures, LLC, an ISO 9001:2008-certified auditing and verification company that specializes in on-farm animal care, conducted audits at 173 randomly selected farms to verify the application of FARM program guidelines.

Every three years, the program undergoes second-party evaluations to ensure consistency and integrity of the program and to identify areas for improvement. The results of the 2011 verification showed no significant statistical difference overall between second-party evaluators and third-party verifiers. Learn more about the FARM program at nationaldairyfarm.com.

FARM Program Results	2012	Total
On-farm evaluations conducted through year-end	3,431	7,378
On-farm audits conducted	89	173

Our Employees: Labor Management

A healthy dairy industry depends on the availability and retention of skilled, satisfied and engaged workers around the country and across the value chain, from family-owned farms to regional production facilities. Unlike other agricultural work that tends to follow a seasonal growing cycle, dairy works year-round and around the clock. The provision of safe and healthy workplaces is part of dairy's social contract with its employees and, on a larger scale, part of our broader commitment to communities, consumers, retailers and society in general.

Labor management is an often-tracked sustainability attribute by businesses, both for regulatory compliance purposes and because employee productivity is essential to profitability and business success. Stakeholders are interested in this information to understand how well businesses are managing their employees and associated health and productivity risks. Occupational health and safety, safety trainings, employee benefits and retention rates are attributes regularly communicated to demonstrate safe and healthy workplaces.

Producers and processors are working hard to protect employees and prevent on-the-job illnesses, injuries and fatalities; however, the statistics, such as those tracked by the Department of Labor, show only part of the story. The Sustainability Guide will provide guidance for tracking and voluntarily communicating a fuller, more compelling story through which processors can share their commitment to providing a safe and respectful workplace. Future versions of the Guide may include labor management indicators for dairy producers.

A focus on worker safety

The safety of employees is a top priority within the industry. The continuing trend of farm consolidation and family members seeking off-farm employment means that producers must rely more heavily on nonfamily workers. In some regions of the country, these workers are difficult to find, creating challenges for producers who have much-

needed dairy positions to fill. On the farm, dairy workers operate sophisticated crop equipment and milking machines, manage the daily rhythms of the milking parlor and feed and care for the herd. Managers, staff and professional specialists ensure that the farm is operating smoothly and safely. Dairy work can be challenging. Despite advances in technology, it can still require hands-on, labor-intensive work in all types of weather and at all times of the day.

Dairy producers and processors are committed to ensuring safe working environments for their employees. Dairy producers reduce the potential safety risks tied to operating machinery and equipment and handling large animals with worker safety training to help ensure employee safety, safe animal handling and correct use of equipment. On the processing side, companies are focused on improving ergonomics, increasing breaks and job rotations, and providing safety and ergonomic training to reduce potential safety risks tied to working with specialized equipment and repetitive motions.

Dairy producers with more than 10 employees and dairy product manufacturers report data to the Occupational Safety and Health Administration (OSHA). Based on preliminary 2011 labor statistics, the dairy industry's fatalities remain less than 1 percent of all recorded workplace fatalities in the U.S., with 45 fatalities recorded in 2011. Of these fatalities, 38 occurred on the farm, with a number of fatalities caused by tractor turnovers.

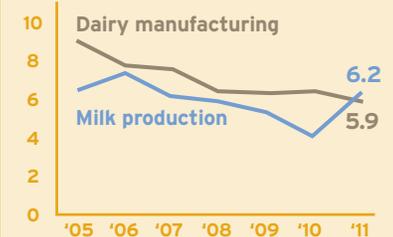


The IDFA Dairy Industry Safety Recognition Awards and Achievement Certificates program highlights outstanding worker safety records of U.S. dairy companies in both processing facilities and trucking operations. In 2012, the program recognized 128 processing facilities and trucking operations for the dairy industry with awards and achievement certificates for their exemplary 2011 safety records. For a full list of 2012 recipients, visit idfa.org.

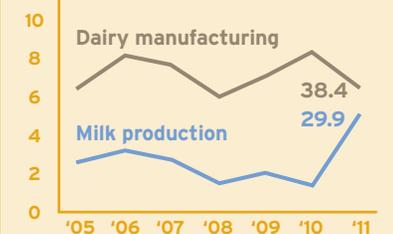
OSHA INCIDENCE RATES

- Dairy cattle and milk production (NAICS code 11212), excludes farms with fewer than 11 employees.
- Dairy product manufacturing (NAICS code 3115).

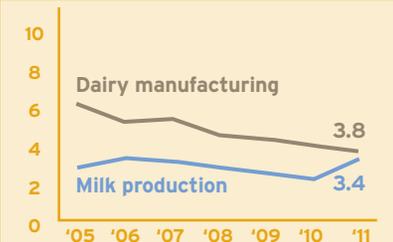
Occupational Injury Rate (injuries per 100 full-time workers)



Illness Incidence Rate (incidents per 10,000 full-time workers)



DART* Rate (days away/restricted or transfers per 100 full-time workers)



*The DART rate is based on trending over 200,000 hours based on those injuries and illnesses severe enough to warrant days away/restricted and job transfers.

Source: U.S. Department of Labor, Bureau of Labor Statistics. Preliminary 2011 data.

Our Consumers: Health and Wellness

With the completion of phase 1 of the Stewardship and Sustainability Guide for U.S. Dairy in 2013, the industry will begin to explore the inclusion of health and wellness indicators in a future version.

INDUSTRY SPOTLIGHT ON RESEARCH AND PRODUCT INNOVATIONS

Dairy processors and food manufacturers are putting research to work to ensure that a range of healthful choices is widely available.

- Glanbia Foods is researching the potential of whey protein, one of the most bio-available sources of protein that aids in muscle development and exercise recovery.
- Quaker is developing innovative, nutrition-focused products with dairy as a key ingredient for rollout over the next several years. It also has developed a "Make It With Milk" campaign, which provides consumers with information on the nutritional benefits of making oatmeal with milk instead of water.
- McDonald's is developing and testing new menu options such as reduced-sodium cheese for sandwich items, new coffee drinks that can contain up to 80 percent milk and new reduced-sugar, fat-free chocolate milk, the featured beverage of the new Happy Meal®.

Each year, Americans broaden their expectations of what constitutes a food that is "good for you." It's no longer enough to simply be nutritious. Expectations in areas such as environmental performance, animal care and social contribution continue to increase. The notion of a food being "good for you" is gradually giving way to being "good for all of us" – with "us" including communities, the planet, even the future global population.

The dairy industry is dedicated to meeting these broadened expectations. It also recognizes the complex relationship between concerns about stewardship of natural resources and economics with ones of public health, well-being and food access.

Dairy's history of continuous improvement prepares us for addressing these current and future challenges. To make lasting, beneficial change, the process starts on the farm, continues with the food manufacturers and marketers, and reaches all the way to those distributing and receiving the food. All the while, the importance of balanced diets, healthy, nutritious foods and making more healthy options available to more people remains at the forefront.

The work of the Innovation Center and its partners National Dairy Council and Dairy Research Institute, all established under the leadership of America's dairy producers, reflects the dairy industry's commitment to discovering new products and educating people about nutrition, product and sustainability research. Several of these efforts are described in this section.

Research and product innovations contribute to a healthy society

Nutrient-rich dairy foods and beverages such as milk, cheese and yogurt help foster health and wellness among people of all ages and all lifestyles. Through scientific research, we seek to further our understanding of the value of dairy, the needs of consumers and the ways dairy can contribute to supporting healthy and vibrant communities. A growing body of evidence indicates that intake of dairy

products is associated with reduced risk of cardiovascular disease and type 2 diabetes and with lower blood pressure in adults, as well as with healthy bones.

As we learn more about the nutritional benefits of dairy, the industry continuously responds by formulating new products that meet consumers' health and wellness needs and preferences for wholesome, nutritious and sustainable products. We also seek opportunities for dairy as an ingredient to deliver health benefits. The Industry Spotlight on Research and Product Innovations section (see left) features a few examples.

Research findings help us determine ways to address public health issues through new product options. For example, lowering sodium intake helps reduce high blood pressure, an ongoing public health concern. Although cheese contributes only 8 percent of the sodium in the U.S. diet, cheesemakers are focused on reducing the sodium content of cheese and developing great-tasting products that meet a range of consumer preferences. Cheese manufacturers and distributors are working together pre-competitively to develop rapid sodium testing technology to quickly and accurately measure and adjust sodium levels in cheese. The technology will help bring more lower-sodium products to market, giving consumers more choices.

In 2012, 5,609 new milk, cheese and yogurt dairy products claims were introduced: 18.7 percent of these new product claims were labeled with health and wellness claims that included low-calorie, low-fat, low-sodium, low-sugar, no trans-fat, no added sugar and/or sugar-free. The number of dairy-based health and wellness claims in 2012 increased by 129 percent from 2011, outpacing the 112 percent increase in total dairy product claims.¹³



Other research initiatives are investigating the links between nutritious diets and sustainable food systems. Findings from these efforts will enable the industry to help ensure that dairy foods are not only healthy and good for people and communities but also good for the planet.

Advancing children's health

The dairy industry has a century-long heritage of dedication to and investment in child nutrition, health and wellness to ensure future generations are well-nourished, healthy and ready to learn and thrive. Over the past 30 years, the country has seen alarming growth in the number of children identified as overweight or obese. Through its well-established research expertise and in-school experience, National Dairy Council helped identify the problem of childhood obesity. In the 12 years since U.S. Surgeon General David Satcher sounded the alarm in his *Call to Action to Prevent and Decrease Overweight and Obesity*, real progress has been made in finding ways to reverse these trends. National Dairy Council has been actively working to help solve childhood overweight and obesity and positively impact child health and wellness through a range of initiatives and partnerships.



Taking action

Companies across the dairy value chain support children's health through the products they provide, research

efforts, educational programs and involvement in collective initiatives that focus on children's health and wellness. One example is Fuel Up to Play 60, a unique in-school nutrition and physical activity program. Founded in 2007 by National Dairy Council and the National Football League® (NFL),



in collaboration with the U.S. Department of Agriculture, the program empowers students to "get active and play" for at least 60 minutes daily and "fuel up" with nutrient-rich foods such as low-fat and fat-free dairy foods, fruits, vegetables, whole grains and lean proteins. U.S. dairy producers and the NFL have pledged \$250 million over five years to this program.

More than 73,000 schools are currently enrolled in Fuel Up to Play 60, which represents three-fourths of all the schools in the United States. And the program has the potential to reach more than 38 million children. The program's 2011-12 nationwide utilization survey shows encouraging results, as highlighted to the right.

Promoting the importance of breakfast

One key focus of Fuel Up to Play 60 and other efforts aimed at children's health is the important role of breakfast to improve both the nutrition and academic performance of our nation's students. There is growing recognition that breakfast plays a vital role in students' alertness, attention, memory and problem-solving.¹⁴ Not surprisingly, increased participation in school breakfast programs is associated with improved academic performance and class participation. Yet more than half of all teens do not eat breakfast each day.¹⁵ Furthermore, 1 in 5 children in the United States struggles with hunger, and many regularly come to school hungry. That's why the dairy industry has long supported school breakfast programs nationwide, and programs such as Fuel Up to Play 60 help encourage the importance of breakfast at school so kids are nourished and ready to learn.

Enhancing nutrition in schools

In addition to supporting specific programs such as Fuel Up to Play 60, dairy companies across the country develop products to meet the specific needs of their regional school districts, such as low-fat yogurt with fiber and probiotic cultures and fat-free chocolate milk with reduced calories and sugar.

"Combining the many benefits of physical activity with good nutrition habits that support healthy weight can have a powerful impact on a child's potential to learn."

Charles H. Hillman, Ph.D.

*Department of Kinesiology and Community Health
College of Applied Health Sciences
University of Illinois
at Urbana-Champaign*

FUEL UP TO PLAY 60: 2011-12 SURVEY HIGHLIGHTS

- More than 11 million students are involved in Fuel Up to Play 60 nationwide.
- Of enrolled educators:
 - 69 percent believe the program is positively influencing their school environment.
 - 65 percent say it helps them achieve their school wellness goals.
 - 70 percent believe the program is helping students make healthier food choices.
 - 66 percent believe the program is increasing opportunities for students to be physically active at school.

“With American kids spending 2,000 hours in school each year, we know in-school wellness policies can help build healthy habits and minds. Breakfast is a key place to start. School breakfast programs offering nutrient-rich foods – such as low-fat and fat-free dairy, whole grains, fruits and vegetables, and lean proteins – may be just as important as books in impacting children’s learning positively.”

Jean H. Ragalie, RD
President
National Dairy Council



National Dairy Council, the Innovation Center, cheese manufacturers and food companies work together to provide school nutrition directors with appealing menu items that meet school nutrition guidelines, often finding ways to enhance the nutritional profile of well-liked menu options, rather

than replacing them altogether. For example, Domino’s® has developed a new line of nutritious, kid-appealing pizzas, which feature a white whole wheat crust, reduced-fat and reduced-sodium cheese and reduced-sodium sauce.



GENYOUth
FOUNDATION

Building awareness

The dairy industry strives to build broad coalitions of private and public organizations at both the community and the national level to address child health and wellness. One such effort is the GENYOUth Foundation, a nonprofit organization that brings together leaders in health, education, government and business to help reverse childhood obesity rates and improve child health and wellness. GENYOUth raises awareness of the impact improved nutrition and increased physical activity can have on physical health and academic achievement over the course of the school day. Dozens of food industry leaders have provided key financial support to GENYOUth.

In March 2013, GENYOUth, National Dairy Council, the American College of Sports Medicine and the American School Health Association (ASHA) issued *The Wellness Impact: Enhancing Academic Success Through Healthy School Environments*. Supported by Dr. David Satcher, 16th U.S. Surgeon General and director of The Satcher Health

Leadership Institute, the report reinforces the “learning connection” – the crucial link between quality nutrition, physical activity and academic performance.

Through GENYOUth, more than 3,000 schools have benefited from more than \$10 million in Fuel Up to Play 60 mini-grants to jump-start healthy changes.

Ensuring food security

It’s well-known that the world will need to produce more food than ever to feed coming generations. By 2050, the world’s farmers will be called on to feed a staggering 9 billion people. But food security is not a 2050 challenge, it’s a 2013 challenge, even here in the United States. Although levels of overweight and obesity are at an all-time high, many individuals also are undernourished because they are not getting adequate nutrition from the foods they eat. Still more face the more traditional notion of undernourishment because they simply do not have enough to eat. Globally, nearly 870 million people are undernourished from not getting adequate amounts of food.

Achieving a healthy population involves not only having enough food, but also addressing the quality of the food. Through product development efforts and collaborations with others, we strive to deliver more nutritious options to more people in an affordable, appealing and readily available way. Companies across the dairy industry also contribute to ensuring food security at the local, national and global level through product and monetary donations and volunteering and through participation in broader efforts such as Feeding America, as highlighted in the Community Contributions section.



About the Innovation Center for U.S. Dairy

The Innovation Center for U.S. Dairy provides a forum for the dairy industry to work together pre-competitively to overcome barriers and identify opportunities for long-term, sustainable growth. The Innovation Center aligns the collective resources of the U.S. dairy industry to offer consumers nutritious dairy products and ingredients, and promote the health of people, communities, the planet and the industry.

Founded, funded and supported by dairy producers

In 2008, the Innovation Center was established through Dairy Management Inc. (DMI), the nonprofit organization that manages the national dairy checkoff program on behalf of America's nearly 51,000 dairy producers and dairy importers. The dairy checkoff was put into place by dairy producers to increase sales of and demand for dairy products and ingredients by working proactively, and in partnership with leaders and innovators, to increase and apply knowledge that leverages opportunities to expand dairy markets.

In 2010, the Dairy Research Institute, a 501(c)(3) nonprofit, was established under the leadership of America's dairy producers, serving as the research arm of the Innovation Center to strengthen the dairy industry's access to and investment in the technical research required to drive innovation and demand for dairy products and ingredients globally. The Dairy Research Institute collaborates with industry, academic, government and commercial partners to drive pre-competitive research in nutrition, products and sustainability.

Organizational structure

Dairy Management Inc., headquartered in Rosemont, Ill., staffs the Innovation Center and the Dairy Research Institute. The Innovation Center board of directors represents 29 key U.S. dairy producer organizations, dairy cooperatives, processors, manufacturers, retailers and brands. Innovation Center board members are listed at USDairy.com/BoardofDirectors.



The board, which meets twice annually, has six operating committees that represent strategic focus areas – Sustainability, Health and Wellness, Research and Insights, Food Safety, Consumer Confidence and Globalization. The Sustainability Operating Committee oversees the Sustainability Council, a multistakeholder governing body described on page 6.

“DMI and the Innovation Center have really done a phenomenal job in setting the standard for the industry. There’s a lot of sustainability work already done that you can just tap into – so, don’t just wait around, get going on it.”

Niahm Kelly
Vice President of Strategy
Glanbia USA

“Since signing our landmark Memo of Understanding with the Innovation Center for U.S. Dairy in 2009, the Department of Agriculture and the dairy industry have worked closely to help the industry advance its voluntary goal of reducing greenhouse gas emission levels by 25 percent by 2020. Under this partnership, USDA has worked with dairy farmers to increase use of methane digesters, to develop tools that help farmers track their environmental footprint, to improve energy efficiency on farms and to undertake new research that will help dairy farmers make further gains. The dairy industry has proven to be a leader in agriculture, demonstrating that stewardship and profitable farming can go hand in hand.”

Tom Vilsack
 Secretary of Agriculture
 U.S. Department of Agriculture

Funding

Funding from investors continues to augment dairy producer support from the checkoff program. Direct funding through partnerships, sponsorships and the in-kind contributions of more than 700 industry stakeholders supported our

sustainability efforts. In 2012, direct funding combined with indirect funding for institutions whose work enhances Innovation Center-led sustainability projects exceeded \$5.5 million.

2012 FINANCIAL SUPORT	
DIRECT FUNDING	\$4,732,305
Partnerships	\$525,000
USDA NRCS	200,000
USDA Rural Development	200,000
World Wildlife Fund	125,000
Sponsorships	\$253,892
CAES, DeLaval USA, Dolphin WaterCare, DVO Anaerobic Digesters, Elanco, MilkPEP, quasar energy group, Ruan Transport Corporation, Syngenta, the U.S. Dairy Export Council, U.S. EPA, WWF and Zoetis Inc.	
In-kind Contributions	\$3,953,413
Value of formal stakeholder participation (34,378 hours valued at \$115/hour)	
INDIRECT FUNDING	\$840,000
<i>Grants and awards given to external organizations that support efforts to advance a sustainable dairy industry</i>	
USDA National Institute of Food and Agriculture grant awarded to CAES for GHG reduction, renewable power generation and algal biomass carbon sequestration and bioplastics production	680,000
USDA Sustainable Agriculture Research and Education Sustainable Agriculture awarded to Pennsylvania State University to develop education and decision-support strategy for farm-level economic and environmental assessment of dairy best management practices	160,000
TOTAL DIRECT AND INDIRECT FUNDING	\$5,572,305

Acknowledgements

The Innovation Center would like to acknowledge the organizations that contributed to the development and production of this report: Concept Green LLC for report development and information graphics with support by Rogue Element and DSO Creative, Irish Design for report design, and The Schiele Group for printing services. Background cover photo by John Henley Photography. We also would like to thank our stakeholders, the Sustainability Council, Innovation Center team members and report reviewers for their valuable contributions in 2012.

Endnotes

1. In 2012, the Innovation Center implemented a new stakeholder tracking system. The 2012 figure reported is lower than the 2011 estimate due to a more accurate participation estimation methodology, rather than lower participation.
2. Farm Income and Wealth Statistics. U.S. farm sector cash receipts from sales of agricultural commodities, 2008-2012F. USDA Economic Research Service. Available at: www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.aspx. Last updated January 29, 2013. Accessed February 9, 2013.
3. Estimated business value to producers in 2012 assumes electricity value of \$48,373,922 (calculated as 636,498,972 kWh generated times an average power purchase agreement price of \$.076/kWh) and carbon offset value of \$8,327,683 (calculated based on an average offset price of \$10 per metric tonne of carbon dioxide equivalents). Average pricing is based on Informa Economics findings in the report *National Market Value of Anaerobic Digester Products* available at USDairy.com/DairyPower.
4. Estimated gigawatt-hour generation for 2012 assumes 80,733 kilowatt-installed capacity U.S. digester fleet running at 90 percent capacity 24 hours per day, 365 days per year.
5. Ruan Earns U.S. EPA 2012 SmartWay Excellence Award - October 10, 2012. Ruan website. Available at: <http://www.ruan.com/article.aspx?id=1290>. Accessed January 22, 2013.
6. Environmental Sustainability: Greenhouse Gases. Dean Foods website. Available at: <http://responsibility.deanfoods.com/environmental-sustainability/carbon-and-energy/greenhouse-gases/>. Accessed February 6, 2013.
7. Internal USDA digester status report; figure is based on 600 cows and 959 mtCO₂e estimated annual reduction.
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Report feedback

We welcome your feedback on this report and the industry's sustainability efforts. Please contact us at **InnovationCenter@USDairy.com** or follow the link at **USDairy.com/SustainabilityReport** to take a brief survey.

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