2014 U.S. Dairy Sustainability Report

U.S. DAIRY SUSTAINABILITY COMMITMENT

INNOVATION CENTER FOR U.S. DAIRY

HEALTHY PEOPLE • HEALTHY PRODUCTS • HEALTHY PLANET

About this report

The *2014 U.S. Dairy Sustainability Report* is the fifth progress report published by the Innovation Center for U.S. Dairy® (Innovation Center) to update stakeholders on the progress of the U.S. Dairy Sustainability Commitment.

The report covers activities in the 2014 calendar year, except where clearly noted. Reporting boundaries are twofold: specific performance and progress of 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 community as a whole, including National Dairy Council® (NDC) health and wellness initiatives under the dairy checkoff program.

The report discusses topics most relevant to areas where the industry can make the most progress, which were identified through scientific research and stakeholder input gathered during the development of the *Stewardship and Sustainability Guide for U.S. Dairy* (the Guide). Highlights in the report are limited to the Innovation Center, NDC and Dairy Management Inc.™ (DMI) partnerships and affiliations, Sustainability Council member organizations and U.S. Dairy Sustainability Award recipients.

The principles in the Global Reporting Initiative's (GRI) G4 Sustainability Reporting Guidelines informed the development of the report. Download this report, the companion executive summary presentation and the 2014 Greenhouse Gas Emissions Reduction Projects Progress Report at **USDairy.com/Sustainability/Reporting**.

We welcome your feedback on this report and the U.S. dairy industry's sustainability efforts. Please contact us at **InnovationCenter@USDairy.com**.

Introduction

Welcome to the *2014 U.S. Dairy Sustainability Report,* our fifth report on the progress of the U.S. Dairy Sustainability Commitment launched in 2007 under the leadership of dairy farmers.

Through this shared commitment, U.S. dairy farmers and businesses work together to provide people with the nutritious dairy products they want, in a way that makes the dairy community, people and planet economically, environmentally and socially better.

Dairy's commitment underscores the vital role of milk and dairy foods within a global food system that supports healthy people, communities, economies and ecosystems. This commitment builds on the 100-year history of National Dairy Council (NDC) to provide scientific research and education about the nutrition and health benefits linked to dairy foods as part of an overall balanced diet and lifestyle. Today the U.S. dairy industry is playing a leading role in building a more sustainable food system and modeling an effective, pre-competitive approach that other food sectors can follow.

America's dairy farmers produce more milk than ever before due to innovations in cow comfort, cow nutrition and health, and breeding. Between 1944 and 2007, milk production has quadrupled but uses 90 percent less cropland, consumes 65 percent less water and emits 63 percent fewer greenhouse gases (GHG).[1] Dairy farmers have always applied the latest science, research, technology and tools to do more with less. No-till farming, water recycling and anaerobic digester systems are some of the adaptive, resource-efficient practices highlighted in this report.

In 2014, partnerships, knowledge sharing and actions from farm to table to community continued to address the complex interconnections among food production, nutrition and health, economics and the environment. Partnering with World Wildlife Fund (WWF) in the *Sustainable Food for the 21st Century* project, working with Feeding America to increase milk donations to local food banks across the country, and collaborating with federal agencies to develop and launch the *Biogas Opportunities Roadmap* are just a few examples.

People are increasingly interested in learning where their food comes from and how it is produced. Dairy farm visitors are often surprised to learn that most farms are family owned, often for multiple generations, and that farmers are deeply connected to their animals and their land. Many are impressed by the sophisticated technology used to run a modern farm. Seeing water conservation in action, visiting a milking parlor or observing content, comfortable cows are memorable experiences that help connect people with hard-working farmers across America.

This report aims to extend that connection, and we invite you to share the story of dairy's progress with your community.

TOM GALLAGHER
CEO, Innovation Center for U.S. Dairy and Dairy Management Inc.™

LARRY JENSEN
Chair, Innovation Center Board of Directors and President (retired), Leprino Foods Company

U.S. Dairy Sustainability Awards

OUTSTANDING DAIRY PROCESSING AND MANUFACTURING SUSTAINABILITY

Feeding the planet — and preserving it, too: Hilmar Cheese Company, Hilmar, Calif.

Though Hilmar Cheese makes about 2 million pounds of cheese each day, the company recovers almost 100 percent of the water from incoming milk. The reclaimed water is treated and used up to three times for processes such as cleaning and crop irrigation. Water conservation is just one part of a comprehensive sustainability effort. Hilmar's new headquarters and innovation center was the first U.S. dairy building to receive LEED® Platinum certification for environmental building design and construction standards.

Learn more at:
USDairy.com/Awards

Front (L to R): Maria Forry, Oregon Dairy Farm; Ken Nobis, Nobis Dairy Farms; Matthew Freund, Freund's Farm; Jan Henderson, Alliance Dairies. Back (L to R): Matt McClelland, Prairie Farms Dairy; Brad Vold, Dorrich Dairy; Stephen Ericson, Northern Illinois Food Bank; Jeffrey Kaneb, HP Hood LLC; Paul Rovey, on behalf of Innovation Center for U.S. Dairy; David Ahlem, Hilmar Cheese Company. Not pictured: Tom Barcellos, T-Bar Dairy and White Gold Dairy.

Now in its fourth year, the U.S. Dairy Sustainability Awards program honors innovative and replicable approaches to sustainable dairy practices. Read award recipient highlights throughout this report and learn more about the awards program at **USDairy.com/Awards**.

Outstanding Achievement in Community Partnerships
WINNERS: **HP Hood, LLC** and **CleanWorld**
HONORABLE MENTION: **Northern Illinois Food Bank and Prairie Farms Dairy**

Outstanding Achievement in Resource Stewardship
WINNER: **Freund's Farm**
HONORABLE MENTION: **T-Bar Dairy** and **White Gold Dairy**

Outstanding Dairy Farm Sustainability
WINNERS: **Dorrich Dairy, Nobis Dairy Farms, Oregon Dairy**
HONORABLE MENTION: **Alliance Dairies**

Outstanding Dairy Processing and Manufacturing Sustainability WINNER: **Hilmar Cheese Company**

SPECIAL THANKS TO AWARD PROGRAM SPONSORS

Academy of Nutrition and Dietetics | ChemTreat | DSM Nutritional Products | HDR, Inc. | McDonald's Corporation | Syngenta

Supporting the U.S. Dairy Sustainability Commitment

Under the leadership of dairy farmers and importers, the U.S. dairy community is working together – from farm to table, table to farm – to continuously improve its contributions to a socially responsible, economically viable and environmentally sound food system for current and future generations.

Dairy farms and businesses have a heritage of stewardship and efficiency. This long-standing ethic of care was formalized in 2008 when dairy farmer leadership worked through the Innovation Center to convene more than 250 dairy stakeholders at the Sustainability Summit for U.S. Dairy. The participants created a shared definition of sustainability, set a sustainability vision and established guiding principles (see current versions below).

Following the 2008 summit, the dairy community undertook a series of ground-breaking life cycle assessment (LCA) studies, committed to a voluntary goal to reduce GHG emissions of fluid milk by 25 percent by 2020 and began developing measurement, decision-making and communication tools and resources.

The U.S. dairy industry's proactive, collaborative and pre-competitive approach to addressing shared sustainability challenges and pursuing opportunities has created a successful model that other agricultural commodities can adapt and follow.

To read more about the U.S. Dairy Sustainability Commitment, visit **USDairy.com/Sustainability**.

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

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.

THE GUIDING PRINCIPLES OF THE U.S. DAIRY SUSTAINABILITY COMMITMENT

The guiding principles structure the industry's approach to meeting the U.S. Dairy Sustainability Commitment by defining six areas of importance that focus our efforts and exemplify our values. Together, these areas define our "triple bottom line" focus of environment, economy and society.

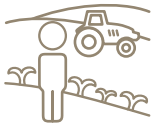
The U.S. dairy industry supports socially responsible, economically viable and environmentally sound dairy food systems that promote the current and future **health and well-being of our consumers, communities, cows, employees, planet and businesses.** We commit to these principles through our shared values of honesty, integrity, inclusiveness and transparency.

View the guiding principles at **USDairy.com/Commitment.**

Tapping the Power of Multiple Perspectives

Collaborative, pre-competitive stakeholder engagement is key to meeting the U.S. Dairy Sustainability Commitment and achieving a resilient, sustainable food system. Our stakeholders include U.S. dairy farmers, businesses, suppliers and trade organizations; food retailers and brands; governmental agencies; academics; nonprofits; and health and wellness professionals.

2014 SUSTAINABILITY COUNCIL MEMBER REPRESENTATION



14%
CROP PRODUCTION & SUPPLIERS

33%
DAIRY FARMERS & COOPERATIVES

23%
PROCESSORS & MANUFACTURERS

6%
RETAIL & QUICK-SERVE RESTAURANTS

24%
ASSOCIATIONS, GOV'T & COMMUNITY

"We're excited to join the Sustainability Council to help bring dietitians and farmers together to explore innovative solutions to sustainable nutrition."

Katie Brown, Ed.D., RDN, LD
National Education Director
Academy of Nutrition and Dietetics Foundation

About the Sustainability Council

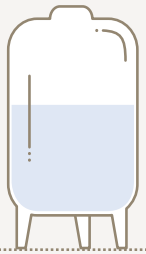
The Sustainability Council guides Innovation Center-led initiatives and actions to support the U.S. Dairy Sustainability Commitment. Membership consists of U.S. dairy stakeholder individuals and groups that support the commitment's guiding principles, sustainability leadership and pre-competitive collaboration. Members regularly attend Sustainability Council meetings and actively contribute their time and expertise to drive innovative solutions to shared sustainability challenges.

In 2014, 113 organizations represented by 180 individuals invested their time and expertise in the Sustainability Council. Twelve new organizations joined the council in 2014: Academy of Nutrition and Dietetics; BASF Corporation; Byrne Dairy, Inc.; California Dairies, Inc.; Chobani, LLC; The Coca-Cola Company; Field to Market: the Alliance for Sustainable Agriculture; Jordan Energy; McCarty Family Farms, LLC; Organic Valley; Saputo Inc.; and the U.S. Dairy Education & Training Consortium.

Learn more about Sustainability Council member organizations at **USDairy.com/Sustainability/Industry-Commitment/Leaders**.

2014 SUSTAINABILITY COUNCIL SNAPSHOT

Council members from dairy farm cooperatives represent:



20,989
COOPERATIVE MEMBERS

56.5%
OF U.S. MILK PRODUCTION

That's 113.7 billion pounds of annual milk production.

Retail council members serve:

2+
BILLION PEOPLE annually at

40,000+
LOCATIONS

In the U.S. market, the annual milk production of dairy cooperative council members translates into:

6B
CUPS OF MILK

52B
SLICES OF CHEESE

4B
SCOOPS OF ICE CREAM

640M
CUPS OF YOGURT

3B
STICKS OF BUTTER

Source: Innovation Center calculations, based on *Dairy Data Highlights*, 2014, NMPF.

Partnerships and affiliations

Collaboration builds consensus, expands knowledge and aligns resources needed to meet shared sustainability objectives. The Innovation Center facilitates work with a range of organizations to advance progress in support of the U.S. Dairy Sustainability Commitment. These partnerships – within and outside the dairy value chain – accelerate the discovery, development and adoption of shared solutions that can benefit the dairy value chain, communities and the planet. Learn more about Innovation Center partnerships and affiliations at **USDairy.com**.

Establishing strategic partnerships

These formal, long-term strategic partnerships with the Innovation Center are vital to our work:

- **World Wildlife Fund (WWF):** Since 2009, WWF and the Innovation Center have partnered to help advance an environmentally sustainable U.S. dairy industry. Read the 2014 WWF-Innovation Center partnership highlight on pg. 7.
- **U.S. Department of Agriculture (USDA):** Now in its sixth year, the USDA Memorandum of Understanding with the Innovation Center supports the dairy industry's sustainability efforts and voluntary goals through access to grant and direct project funding, outreach and collaboration. Read about USDA programs and initiatives throughout the report.
- **Center for Advanced Energy Studies (CAES):** CAES is a partnership between the U.S. Department of Energy (through the Idaho National Laboratory) and Idaho's public research universities. CAES research, scientific and technological expertise helps Innovation Center-led initiatives improve the environmental footprint of the dairy industry. Read more about CAES on pg. 33.

Building dairy supply chain relationships

Supply chain partnerships continued to grow and deepen in 2014. These partnerships leveraged expertise across all points of the dairy supply chain and built knowledge and relationships between customers and dairy suppliers. Our work with retailers and brands enhances supply chain transparency and sustainability. Read about these partnerships throughout the report.

Working toward shared objectives: The Innovation Center and National Dairy Council are affiliated with these organizations to help advance shared sustainability objectives:

Promoting a resilient agricultural system and sustainable dairy production

Field to Market: the Alliance for Sustainable Agriculture

Food and Agriculture Organization of the United Nations

Food Waste Reduction Alliance (pg. 17)

International Dairy Federation

National Initiative for Sustainable Agriculture

Sustainable Agriculture Initiative Platform

The Sustainability Consortium

Advancing sustainability research and reporting

Global Dairy Platform

Global Reporting Initiative

Joint Global Change Research Institute

National Academy of Sciences

USDA Agricultural Research Service

Various leading academic institutions across the U.S.

Working to end hunger and ensure fit, healthy children

Action for Healthy Kids

American Academy of Pediatrics

Academy of Nutrition and Dietetics

Feeding America (pg. 16)

GENYOUth Foundation (pg. 20)

Great American Milk Drive (pg. 20)

MilkPEP (pg. 16)

School Nutrition Association

Partnering with WWF to Drive Transformative Change

World Wildlife Fund, the world's largest independent conservation organization, partners with leading food and agricultural organizations and companies to help drive transformative change in global commodities that are key to achieving its conservation goals. Dairy is one such commodity.

"Our Innovation Center partnership is pivotal in shaping our thinking about what we can accomplish in partnership with U.S. dairy farmers."

Dr. Jason Clay
Senior Vice President
Market Transformation
World Wildlife Fund

Since 2009, WWF and the Innovation Center have partnered to promote widespread dairy industry adoption of innovative, environmentally sustainable solutions as well as incremental improvements in existing dairy practices and technologies. The partnership supports the dairy industry's drive to meet growing demand for dairy foods while using natural resources more efficiently and reducing waste. In 2014, WWF and the Innovation Center renewed their partnership for another two years. WWF contributed time, expertise and resources through these efforts in 2014:

- Fostering transformation: Continued work on the multiyear *Sustainable Food for the 21st Century project* (discussed to the right and detailed at **worldwildlife.org/sustainablefood**), which aims to foster market transformation toward environmentally sustainable food production.
- Sharing expertise: Participated in the *Stewardship and Sustainability Guide for U.S. Dairy* working groups to help develop performance indicators for biodiversity, water, resource recovery and soil health. Read more about the Guide on pg. 9.
- Supporting scientific research and tools: With support from The Coca-Cola Foundation, began a project to pilot Farm Smart™ on dairy farms in the Rio Grande River Basin to improve the applicability of Farm Smart for Southwestern U.S. farms and document regional best practices for conservation.
- Recognizing innovation: Sponsored the 2014 U.S. Dairy Sustainability Awards and co-produced with the Innovation Center *Dairy's Sustainability Journey*, a series of documentary-style videos about the 2014 award recipients available at **worldwildlife.org/sustainabledairy**.

Sustainable Food for the 21st Century

Since 2013, WWF and the Innovation Center have been working together on the multiyear *Sustainable Food for the 21st Century* project. The project aims to identify and build support for shared solutions that can sustainably and responsibly intensify agricultural production to feed a growing population.

One of the project's 2014 milestones was the release of the *Facing the Challenge Together: Sustainable Food for the 21st Century* paper. The publication shares the insights of 52 thought leaders and experts about how to achieve a sustainable food production system by the year 2050. The paper identifies key issues, consensus points and actions that can achieve scalable change.

WWF and the Innovation Center will convene an advisory panel in 2015 to develop recommendations for scalable, actionable solutions for sustainable food production based on the paper. While the panel will focus on the U.S. dairy value chain, its work and recommendations will be crosscutting and can provide a model for other agricultural sectors to follow.

Learn more about the project at **worldwildlife.org/sustainablefood**.

Building Trust and Confidence

All Innovation Center-led initiatives aim to support a shared overarching objective: to build continued consumer trust and confidence in dairy foods and beverages. Our sustainability strategy brings together the science, tools, resources and partnerships needed to measure, improve and communicate progress across the dairy value chain.

Partnerships play an ever-increasing role in Innovation Center-led initiatives. Collaborations within and beyond the dairy value chain bring together diverse groups to discuss key issues and identify collective strengths and approaches to solving complex challenges such as food waste, hunger and malnutrition. Many collaborations are featured throughout the report. Some examples include the Food in America event (pg. 12), the McDonald's supply chain pilot test (pg. 28) and The Kroger Co. focus on food waste (pg. 17). Innovation Center-led teams of dairy stakeholders also work pre-competitively to develop and test tools and resources that are informed by science and aligned with the guiding principles, including Farm Smart (pg. 28) and the *Stewardship and Sustainability Guide for U.S. Dairy* (pg. 9).

PROMOTING CONTINUOUS IMPROVEMENT & BUILDING TRUST

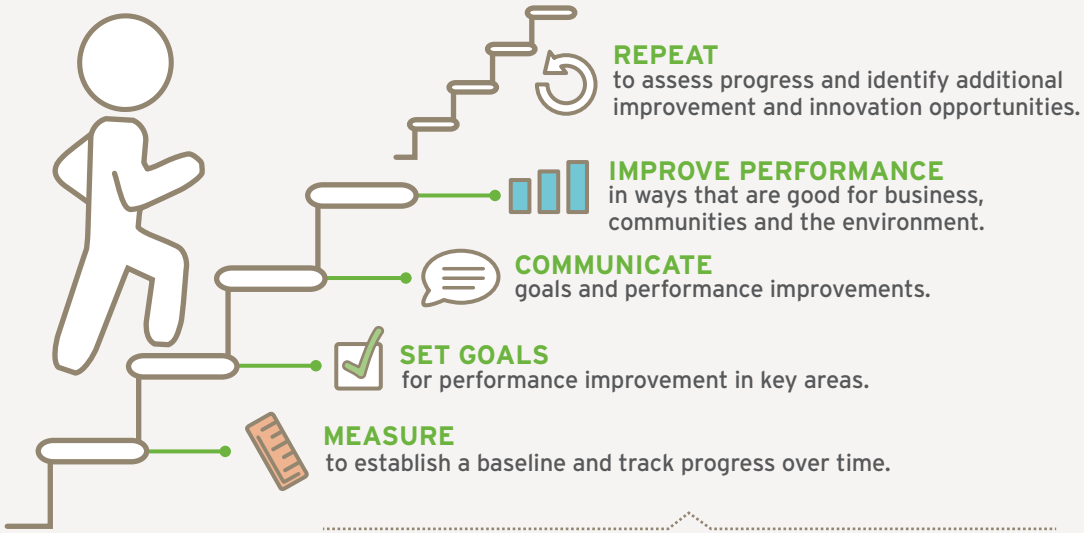
The Innovation Center for U.S. Dairy supports the dairy community's shared sustainability goals through science, tools and partnerships.

SCIENTIFIC RESEARCH
Peer-reviewed scientific research builds credibility and provides a solid foundation for developing tools and resources.

TOOLS & RESOURCES
Tools and resources that are built on science and designed to work together support measurement, communication and improvement.

- Smart Tools
- *Stewardship and Sustainability Guide for U.S. Dairy*
- Resources and best practices

PARTNERSHIPS
Bringing together stakeholders within and beyond the dairy community leverages diverse expertise and resources and accelerates progress.



Dairy farmers, cooperatives and companies are dedicated to continuous improvement. Efforts across the industry add up to increased trust and confidence in nutritious, high-quality dairy foods and beverages.

Measuring and Communicating Progress

People want to know where their food comes from, how it is produced and who produced it. The U.S. dairy community is committed to transparency and is sharing sustainability progress across the dairy value chain.

"The Guide was such a valuable roadmap for us early on. It's dairy focused and you just walk through the process – it's all right there."

Justin Pope
Director of Environmental Health, Safety and Sustainability
Foremost Farms USA

Using the Guide

The *Stewardship and Sustainability Guide for U.S. Dairy* supports the dairy industry's objective to build continued consumer trust and confidence in dairy foods and beverages. The Guide provides a voluntary, credible, industrywide framework for measuring and communicating continuous sustainability improvements with dairy customers and consumers.

In 2011, working groups launched a multiyear collaborative process to develop Guide topics and indicators for farmers and for processors/manufacturers. The Innovation Center first published the Guide in late 2013. Many farms and businesses tested the Guide indicators and companion tools in dairy supply chain pilot tests throughout 2013 and into 2014 (discussed on pg. 28). Others discussed or incorporated the Guide topics and indicators in their annual sustainability reports (shown on pg. 10). Working groups are developing the next set of topics and indicators for the Guide. Current and planned Guide topics are discussed throughout the report.

The Guide was developed through a collaborative multi-stakeholder process that reflects the input of dairy professionals, government agencies, non-governmental organizations, scientists and academics, and food retailers and brands. Guide topics include those that matter most as identified by scientific LCA studies, stakeholder input and the guiding principles of the U.S. Dairy Sustainability Commitment.

The Guide is intended to be a living document that will be revised and expanded over time to incorporate the emerging needs of stakeholders and businesses across the dairy value chain. A portfolio of tools and the Guide are both based on the same science and designed to work together to help dairy farms and businesses measure, communicate and improve sustainability performance.

Many retailers and brands develop sustainability scorecards to understand sustainability performance within their supply chain. Some large retail dairy customers are working with dairy suppliers to align their sustainability scorecards and assessments with the Guide topics and indicators.

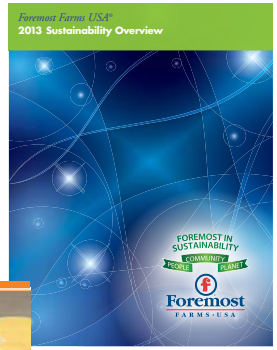
Topics in the Guide: The following table lists the topics with indicators currently available in the Guide (✓) and those that are under development (○).

Topic	Dairy Farmer	Processor/Manufacturer
GHG emissions	✓	✓
Energy	✓	✓
Water quality and quantity	○	✓
Resource recovery and feed management	○	○
Air quality		○
Landscape stewardship and biodiversity	○	
Soil health	○	
Animal care	✓	
Labor management		✓
Community contributions		✓

✓ Indicators available in current version. ○ Topic and indicators under development.

Many organizations across the dairy value chain recognize the importance of sharing their sustainability efforts and performance with customers and people who are interested in sustainably produced milk and dairy foods.

Sustainability reporting: A growing number of dairy businesses are sharing their sustainability practices, performance and goals through sustainability reports (see outer column). To date, 23 Sustainability Council member organizations have published sustainability reports. Of these, 18 have followed or referenced the Global Reporting Initiative's Sustainability Reporting Guidelines, and three have followed or referenced the *Stewardship and Sustainability Guide for U.S. Dairy*.



These reports use the *Stewardship and Sustainability Guide for U.S. Dairy* as a reference.

Connecting people with dairy: The Where Good Comes From initiative connects people with dairy farmers and the wholesome, nutritious benefits of dairy foods and beverages. The DairyGood.org site and pages on Facebook and Twitter share sustainable dairy farming stories, dairy-rich recipes and the latest news and information about America's hard-working dairy farmers. Learn more at **DairyGood.org**.

U.S. dairy industry communications: As part of the dairy industry's commitment to transparency, farmers and businesses can view, download and share sustainability reports, research findings, project updates, case studies and success stories developed by the Innovation Center on behalf of the dairy community. These resources share the U.S. dairy industry's collective sustainability journey and are available at **USDairy.com/Sustainability/Reporting**.

Communication tools: The Innovation Center develops and maintains customizable sustainability communication resources that help dairy farmers and businesses share their sustainability commitment with customers, communities and other key stakeholders. Key messages, infographics, logos, artwork and photographs are available for download at **USDairy.com/Sustainability/Commitment**.

Sustainability Council reporters

- BASF SE (parent of BASF Corporation)
- Bel Brands USA
- Danone (parent of Dannon)
- Darigold, Inc.
- Dean Foods
- DeLaval
- Foremost Farms USA*
- General Mills*
- Glanbia USA
- HDR Inc.
- Hilmar Cheese Company
- Kraft Foods Group, Inc.
- The Kroger Co.
- Land O'Lakes, Inc.
- Leprino Foods Company*
- McDonald's Corporation
- Nestlé S.A.
- PepsiCo, Inc.
- Publix Super Markets, Inc.
- Retail Industry Leaders Association
- Schreiber Foods Inc.
- Syngenta AG
- Tetra Laval Group (formerlyTetra Pak and DeLaval, respectively)
- Wal-Mart

○ Indicates GRI-based report
∗ Indicates use of the *Stewardship and Sustainability Guide for U.S. Dairy*

COMMUNITY IMPACT

The collective impact of the hard work that professionals on dairy farms and businesses show daily is impressive. Through individual actions and industrywide Innovation Center-led initiatives, the U.S. dairy industry is working to make a positive impact in communities across the nation.

FOOD SAFETY

HEALTH & WELLNESS

COMMUNITY SUPPORT

EMPLOYEES

ANIMAL CARE

Dairy's contributions extend well beyond the nutritional value and health benefits of milk and dairy foods and beverages. The highest standards in food safety, animal care, and employee health and safety are natural extensions of the dairy community's long-standing ethic of care.

Dairy professionals across the dairy value chain are working shoulder to shoulder with neighbors, agencies and organizations to develop and implement meaningful solutions to ensure the health of people, communities, the planet and the economy.

Ensuring a Safe Food Supply

Food safety is both a top priority and a shared responsibility for everyone in the food system, from farm to fridge. Dairy farmers and businesses work hard to ensure that dairy foods are safe, wholesome and readily available to help nourish people.

People want to understand how food is grown, prepared, packaged and distributed and who and what is impacted along the way. The entire dairy supply chain works closely with USDA, the U.S. Food and Drug Administration (FDA) and state regulatory officials to establish practices that ensure safe, high-quality products. Regulatory and voluntary food-safety controls help ensure milk and dairy foods meet the highest levels of freshness, purity and taste.

At the federal level, FDA safeguards the nation's milk supply through the Grade "A" Pasteurized Milk Ordinance. Current Good Manufacturing Practices (GMP) and the Hazard Analysis & Critical Control Points (HACCP) are additional guidelines and procedures. These guidelines and procedures provide additional assurances for the quality and safety of milk and dairy foods at all stages of the dairy value chain.[2]

Industry leadership and best practices for food safety

Dairy companies have been focused on food safety for years, with two distinct but related objectives: improve safety and meet regulatory requirements including the pending FDA Food Safety Modernization Act (FSMA) requirements. Passed in 2011, FSMA is a major government initiative to focus on proactive (rather than reactive) approaches to food safety in America. The Innovation Center's Food Safety Committee leads a range of food safety activities including workshops and educational materials that help companies improve food safety practices. Since 2011, about 400 organizations representing more than 1,800 participants have attended the workshops to learn best practices and techniques to control pathogens in dairy plants, artisan/farmstead operations and their supply chains.

Committing to dairy traceability best practices

Traceability is the ability to track food through all stages of production, processing and distribution. In the rare event of a safety issue, it is vital to quickly isolate impacted foods to protect public health. Rapid responses also reduce the risk of reputational damage to U.S. dairy farms and businesses and, by extension, to all agricultural food providers in the U.S.

In the fall of 2013, the Innovation Center released voluntary best practices for enhanced dairy traceability and announced a voluntary goal to have 80 percent of the country's dairy processors adopt these practices by pledging to the U.S. Dairy Traceability Commitment. By the end of 2014, dairy businesses that represent 73 percent of the U.S. milk supply committed to adopt these voluntary best practices for enhanced dairy traceability. In 2015, efforts to meet the goal will continue.

Many dairy companies have had effective tracking systems in place for years, and the best practices enhance those programs while helping satisfy future requirements of the FDA Food Safety Modernization Act.

73% OF U.S. MILK PRODUCTION

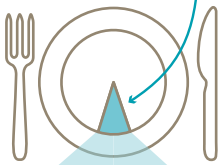
These 22 U.S. dairy companies, accounting for 73% of U.S. milk production, have committed to adopt the voluntary dairy traceability best practices:

Agri-Mark
AMPI
California Dairies, Inc.
Continental Dairy Facilities, LLC
Dairy Farmers of America, Inc. and Dairylea Cooperative, Inc.[3]
Darigold, Inc./Northwest Dairy Association
fairlife, LLC
Foremost Farms USA
Glanbia Foods
High Desert Milk, Inc.
Hilmar Cheese Company
HP Hood, LLC
Idaho Milk Products
Land O'Lakes, Inc.
Leprino Foods Company
Michigan Milk Producers Association
Schreiber Foods
Select Milk Producers, Inc.
St. Albans Cooperative Creamery, Inc.
Swiss Valley Farms
Tillamook County Creamery Association
United Dairymen of Arizona

Fostering Health and Wellness

Eating nutrient-rich foods coupled with regular physical activity helps foster health and wellness throughout life – and sustainable practices from farm to table can contribute to productive, vibrant communities and a thriving planet to be enjoyed by generations to come.

MILK, CHEESE AND YOGURT CONTRIBUTE JUST **10%** OF CALORIES IN THE U.S. DIET...



WHILE CONTRIBUTING:

58% VITAMIN D
51% CALCIUM
28% PHOSPHORUS
28% VITAMIN A
26% VITAMIN B12
25% RIBOFLAVIN
18% PROTEIN
16% POTASSIUM
16% ZINC
13% MAGNESIUM

Note: Milk, cheese and yogurt also contribute 11% of total fat (26% of saturated fat) and 11% of sodium in the U.S. diet.

Source: Auestad, N., Fulgoni, V. L., 3rd, & Houchins, J. (2015, February). Contribution of dairy foods to nutrient intakes by Americans. National Dairy Council Data Brief No. 1501. Rosemont, IL: National Dairy Council.

For nearly 100 years, National Dairy Council has worked on behalf of dairy farmers and the dairy community to provide science-based education about the nutrition and health benefits linked to dairy foods within a balanced diet. In fact, NDC was founded on the groundbreaking research of Dr. E.V. McCollum, who first made the scientific connection between dairy foods and good health in 1917. Since then, a growing body of research continues to support the nutrition and health benefits of dairy foods.[4]

Powerhouse of nutrients

Dairy foods such as milk, cheese and yogurt bring nutritional benefits and great taste to millions. The dairy group contains calcium, potassium, phosphorus, protein and vitamins A, D, B12, riboflavin and niacin (as niacin equivalents).

Dairy proteins are high-quality proteins that can help build and repair muscles following a hard workout. Diets higher in protein have been shown to help slow muscle loss that occurs with age, help curb hunger and help maintain a healthy weight.[5] Dairy foods such as milk, cheese, cottage cheese and yogurt – and increasingly popular Greek-style yogurt – offer convenient sources of high-quality protein.

Health benefits

According to the 2010 Dietary Guidelines for Americans (DGA), "Moderate evidence shows that intake of milk and milk products is linked to improved bone health, especially in children and adolescents."[6]

Additionally, the DGA and subsequent studies indicate intake of milk and milk products is linked to a reduced risk of cardiovascular disease and type 2 diabetes and lower blood pressure in adults.[7,8,9]

Closing the nutrient gap

The DGA recommends three daily servings of low-fat and fat-free milk and dairy foods for people 9 years and older.[10] However, on average, Americans eat under two servings daily.[11]

At the same time, many Americans are falling short on key nutrients[12,13] that could put their health at risk. Of the four nutrients identified by the DGA as under-consumed (and at low enough levels to be of public health concern[14]), milk is the No. 1 food source of three.[15]

Milk is the No. 1 U.S. food source of calcium, potassium and vitamin D.

Adding just one more daily serving of dairy while staying within individual calorie needs can help Americans achieve recommended dairy intakes, and help close nutrient gaps and potentially displace other less-nutritious options in the diet.[16]

Three daily servings of milk cost less than $1 a day

Accessible, affordable and versatile

Accessible, affordable and versatile: A variety of milk and dairy foods are readily available at a wide range of locations at affordable prices.

Flexible

Low-fat and fat-free milk, yogurt and cheese can fit many healthy lifestyles as well as a variety of eating plans (e.g., Dietary Approaches to Stop Hypertension (DASH) and Mediterranean diets, and vegetarian and low-lactose preferences).

Making wellness the easy choice

Taste, nutrition and health are top of mind for people today. Through individual and joint efforts, food companies and retailers invest in nutrition research and product development to meet a range of needs and preferences for accessible, affordable and versatile food and beverages.

Collaborations with food and retail partners

NDC and Dairy Management Inc. collaborate with the Innovation Center to share expertise with food and retail partners to bring the wellness benefits of dairy to people. Here are a few 2014 highlights:

- **Oats and dairy:** Making oatmeal with low-fat milk rather than water provides a nutritious and convenient option for families. Combining these foods delivers two and a half times the protein of oats made with water, plus fiber and nine key vitamins and minerals.[17] In 2014, NDC and Quaker Oats Company shared the benefits of oats and dairy with an estimated 141,000 health and wellness professionals (and by extension their more than 7.5 million weekly clients).
- **Whey protein:** Once discarded after making cheese, whey is a high-quality protein from milk that is now widely used as a valuable ingredient to boost the nutritional quality of cereals, granola bars, sports performance foods and beverages, and other higher-protein foods. Quaker Protein Instant Oatmeal and the Quaker Protein Bar are two on-the-go options launched in 2014 with support from DMI that incorporate whey protein to provide 10 grams of protein per serving.[18]
- **Cheese and sour cream:** DMI worked with Taco Bell to help develop balanced lifestyle menu options highlighting protein, including natural Cheddar cheese and reduced-fat sour cream. Launched in 2014, the Cantina Power Menu™ features bowls and burritos that have more than 20 grams of lean protein, nutrient-rich produce, all less than 500 calories.[19]

- **Yogurt and milk:** DMI worked with McDonald's Corporation and General Mills to develop Go-GURT® Low-Fat Strawberry Yogurt. Made exclusively for McDonald's and launched nationwide in 2014 as a Happy Meal side item, Go-GURT® contains 50 calories, has 25 percent less sugar than the leading kids' yogurt and is made with natural flavor.[20] Also in 2014, McDonald's made low-fat and fat-free milk the default beverages with the Happy Meal.
- **Lactose-free:** Lactose-free cow's milk provides the same nutritional benefits as regular milk, because it is regular milk, just without the lactose. In 2014, HP Hood LLC (maker of LACTAID®) and NDC collaborated to raise awareness about the availability of lactose-free dairy options as well as the nutrition benefits of lactose-free cow's milk and other lactose intolerance-friendly dairy foods. The outreach efforts helped increase lactose-free cow's milk sales by 7 percent.[21]

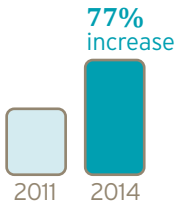
Making oatmeal with low-fat milk rather than water delivers two and a half times the protein of oats made with water, plus fiber and nine key vitamins and minerals.

Source: Quaker Oats Company and NDC. (2014). *Oats and dairy: A powerful combo for you and your family*.

Health and wellness claims

An increasing number of milk and dairy foods are available to meet peoples' health needs and taste preferences.

In 2014, **6,943 new milk, cheese and yogurt dairy product claims** were introduced. Of these, **11.7% were low-calorie, low-fat, no trans fat, low-sodium, low-sugar, no added sugar and/or sugar-free claims**.



The number of these dairy-based health and wellness claims in 2014 **increased 77 percent from 2011**.

Source: Strategic Insights and Planning Dept., Dairy Management, Inc., Innova database custom query, Market Insights Into Milk, Cheese and Yogurt Claims in 2011-2014. Accessed Feb. 23, 2015. Milk is defined as milk and other dairy drinks; cheese is defined as natural/processed cheese, ricotta cheese, cream cheese, cottage cheese and goat cheese; yogurt is defined as yogurt cups and drinking yogurt/fermented beverages.

Commitments for healthier options

People are increasingly interested in healthier options that meet a range of taste, nutritional and lifestyle preferences. Many companies are responding to this interest through healthy profiling – enhancing the nutritional profile of their dairy foods and beverages by developing new and reformulated products.

Several Sustainability Council member organizations are sharing their healthy profiling initiatives through sustainability and nutrition reports that discuss their commitments, benchmarks, goals and progress related to healthy profiling of dairy food and beverage product lines and menu offerings.

Sustainability Council members Bel Brands USA, Dannon, General Mills, Kraft Foods Group, Inc., Land O' Lakes, Inc., McDonald's Corporation, Nestlé S.A. and Unilever have shared their improvement approaches for reducing sodium, sugar and fat; increasing protein, fiber and the nutritional density of foods; and promoting healthy choices.

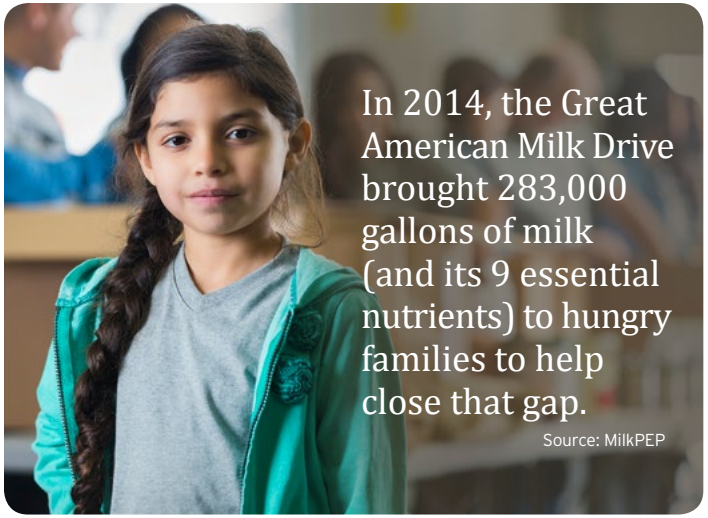
Innovative approaches to cheese and sodium

Salt is a preservative that plays a key role in ensuring that cheese is safe. Salt also influences the taste, texture and melting of cheese. Although cheese accounts for only 8 percent of the sodium of the average American's diet,[22] the dairy community is responding to people's increased interest in lower-sodium foods.

Through the Innovation Center and NDC, U.S. cheesemakers are working precompetitvely to test technology that will allow real-time sodium content measurements and adjustments during the cheesemaking process to help control sodium content variability. In a separate project, U.S. cheesemakers also are working with the University of Wisconsin to help develop food safety parameters that will enable more rapid formulation of lower-sodium process type cheeses.

Hunger and access to dairy

Dairy is an important component of a healthy, sustainable diet, but not everyone has access to nutrient-rich foods such as dairy foods. While milk is one of the most highly requested foods by food banks, 95 percent of food banks don't receive enough milk to meet clients' needs.[23]



Logistical barriers to milk and dairy food donations, for both donors and food banks, include transportation, perishability, storage and refrigeration. Dairy farmers and milk companies, alongside community members and others, are working to increase donations to local food banks across the country through efforts such as these:

- **Future of Food partnership:** Feeding America, a nationwide food bank network, feeds more than 46 million Americans each year, including 12 million children and 7 million seniors.[24] In 2012, Feeding America, National Dairy Council and the Academy of Nutrition and Dietetics formed the Future of Food partnership to increase donations of nutrient-rich foods, including dairy, to neighbors in need.
- **Great American Milk Drive (GAMD):** Launched in April 2014, the Great American Milk Drive is a national multiyear initiative of the Milk Processor Education Program (MilkPEP), NDC and Feeding America. GAMD brings together dairy farmers and milk companies, retailers, health and wellness professionals, and community members to help inspire people to donate milk to hungry families. GAMD enables donors to purchase milk-donation vouchers online, via text messaging and in retail stores (including more than 2,000 Kroger stores). In the first nine months, GAMD brought an estimated 283,000 gallons of milk to local food banks around the nation.[25] To learn more, visit **milklife.com/give**.
- **Pour It Forward:** The Kroger Co. brought the Great American Milk Drive to life through the Pour It Forward campaign. In September 2014, Kroger customers, affiliates and employees purchased milk-donation vouchers at Kroger checkout stands across the country. Local Feeding America food pantries provide those vouchers to their clients, who can redeem them for fresh milk when needed. Learn more about Kroger's efforts to address hunger and reduce food waste on pg. 20.

The Strengthening our Communities section on pg. 17 highlights additional ways Sustainability Council member organizations help raise awareness about hunger and ensure that those in need have access to wholesome milk and dairy foods.

HONORABLE MENTION

OUTSTANDING ACHIEVEMENT IN COMMUNITY PARTNERSHIPS

Partnering to provide needed nutrition: Northern Illinois Food Bank and Prairie Farms Dairy, Geneva, Ill.

This food bank and dairy partnered to create the Milk 2 My Plate program, which ensures a fresh supply of milk is available to the families who rely on food pantries to make ends meet. The community-based program serves as a model for food banks across the country. So far, it has distributed more than 194,000 gallons of milk – 3.1 million servings – to 34 food pantries in the network.

Learn more at:
USDairy.com/Awards

Promoting food recovery

OUTSTANDING ACHIEVEMENT IN COMMUNITY PARTNERSHIPS

Putting waste to good use: HP Hood, LLC and CleanWorld, Sacramento, Calif.

HP Hood and CleanWorld found a way to collect and combine Hood's 35 tons per week of waste with food waste from dozens of local restaurants and retailers in a nearby anaerobic digester. The digester converts the waste into valuable products for their urban and agricultural neighbors including renewable fuel to power public and private fleets of trucks, rich liquid fertilizer for nearby farms, and power for the digester and local waste management facilities.

Learn more at:
USDairy.com/Awards

The dairy community is working to promote food recovery as an important approach for addressing hunger, safeguarding the environment and reducing costs, which can help bring added benefits to communities worldwide.

The Innovation Center and National Dairy Council partner with organizations to help reduce the sources of wasted food and get food to people in need. When food waste is unavoidable, the focus is on capturing and reusing the valuable nutrients and energy in uneaten food, instead of sending it to landfills.

Food Waste Reduction Alliance: In 2011, three food-sector trade associations – the Grocery Manufacturers Association, the Food Marketing Institute and the National Restaurant Association – formed the Food Waste Reduction Alliance (FWRA). Its strategic goals are to reduce the amount of food waste generated; increase the amount of safe, nutritious food donated to those in need; and recycle unavoidable food waste, diverting it from landfills.

The FWRA's work focuses on U.S. manufacturing, retail and foodservice operations. Sustainability Council members General Mills, The Kroger Co., Nestlé S.A. and Unilever have joined the FWRA.

In 2014, the FWRA convened an advisory board led by The Kroger Co. and consisting of the Innovation Center, Feeding America, World Resources Institute and other private and public entities. The board shares expertise, ideas and practices to help advance its missions.

National food waste reduction programs: Dairy farms and businesses, including the following Sustainability Council members, are making public commitments to measure, reduce, recover and recycle food waste through initiatives such as these EPA and USDA programs.

EPA Food Recovery Challenge
EPA.gov/foodrecoverychallenge

USDA/EPA U.S. Food Waste Challenge
USDA.gov/oce/foodwaste/join.htm

Crystal Creamery

General Mills

Nestle USA

Unilever

Fighting hunger and reducing food waste at The Kroger Co.

Sustainability Council member The Kroger Co., a leading grocery retailer, is committed to helping end hunger and reduce food waste. In its food waste reduction strategy, Kroger prioritizes food bank donations and then works to find uses for food that is inedible.

One such use is anaerobic digesters, which convert food waste to energy, fertilizer and fiber. Kroger's pilot anaerobic digester system in Compton, Calif., digests 150 tons of food waste daily. The pilot is expected to expand to other locations and support Kroger's 2011 "zero waste" goal for its plants and its 70 percent waste diversion rate goal for its stores.

Kroger works with the Innovation Center to explore opportunities for food waste partnerships with dairy farms. In 2015, an Innovation Center sustainability manager will work with The Kroger Co. to identify on-farm digester partnerships that can help divert Kroger's food waste. The manager will also work with Kroger to help assess the potential for broader adoption of digesters through Kroger's leadership role on the Food Waste Reduction Alliance advisory board (discussed above).

Strengthening Communities

Dairy farmers and businesses have deep, multigenerational roots in their communities. Dairy employees, businesses and families across the country work to strengthen their communities, help those in need and connect their neighbors and stakeholders with the people who provide milk and dairy foods.

Here are just a few of many examples.

Helping those in need

- **Oakhurst Dairy** donates 5 cents from every container of holiday eggnog it sells to help provide meals, after-school activities and shelter for those in need. Sales from the 2014 holiday season resulted in a $21,257 donation to the Salvation Army of Northern New England.[26]
- **Dairy Farmers of America (DFA)** co-sponsored the fourth annual Kids Against Hunger of Central Indiana Million Meal Marathon held at the Indianapolis Colts' football stadium in October 2014. Nearly 400 employees and farmer-members of DFA joined other volunteer groups to package 1 million meals for distribution to food banks.[27]
- **Prairie Farms Dairy** donated 10,500 gallons of milk to 20 Feeding America food banks as part of the 2014 Great American Milk Drive.[28]

Supporting local communities

- **General Mills** encourages employees to make a positive impact through volunteering. Eighty-three percent of its U.S.-based employees reported volunteering locally in 2014.[29]
- **Starbucks Coffee** designates the month of April as its Global Month of Service. In April 2014, Starbucks employees, customers and nonprofit groups logged 232,244 volunteer hours working on 1,691 projects that impacted an estimated 1.4 million people.[30]

Connecting people to the source of their food

- The education staff at **Hilmar Cheese Company's** Visitor Center guides thousands of school children and tour groups through the cheesemaking process, teaching them about the California dairy community and the importance of agricultural sustainability.[31]
- **Bel Brands USA** supports the Chicago-based Gary Comer Youth Center Rooftop Garden program, which teaches city youth how to plan, plant, maintain, harvest, package, market and sell their crops to local chefs and urban farmers' markets.[32]

OUTSTANDING DAIRY FARM SUSTAINABILITY

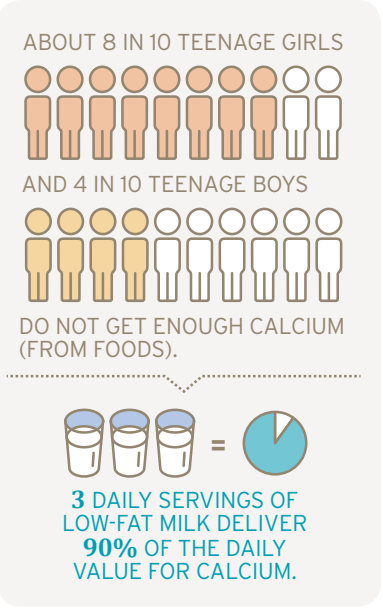
Farm-to-fork experience put on display: Oregon Dairy, Lititz, Pa.

There aren't many places where you can buy milk just yards away from the cows that made it. Oregon Dairy is such a place due to its onsite pasteurization facility. Since 1952, the Hurst family has grown its 450-cow operation into a vibrant farm-to-fork experience. Its ice cream parlor, grocery store and award-winning restaurant are at the heart of community life. Oregon Dairy also is stewarding the earth with practices that protect air, land and water, including no-till farming, large-scale composting and on-site renewable energy generation.

Learn more at:
USDairy.com/Awards

Working together to fuel the future

Children should be growing, playing and learning, not wondering about their next meal. Access to nutritious foods and opportunities for daily physical activity support children who are healthy and ready to learn. This is crucial not only for them, but also for our nation's future.



Sources: (Teenage calcium) The 2015 Dietary Guidelines Advisory Committee. (Feb. 2015). *2015 DGAC Report*, Appendix E-2.1: Usual Intake Distributions, 2007-2010, by Age/Gender Groups. 38. (Calcium daily value) Drewnowski, A. (2010). *Am J Clin Nutr*, USDA National Nutrient Database for Standard Reference SR25.

History of caring

Grounded in nutrition research, education and partnerships, National Dairy Council, on behalf of dairy farmers and the dairy community, has collaborated with health and wellness professionals, parents and educators to champion the health and well-being of children for nearly 100 years. To learn more about NDC's history, visit **nationaldairycouncil.org**.

Milk and dairy foods in schools

School meals have always been planned to help students achieve the most current nutritional goals, and milk has been a cornerstone of that effort. For the greater part of a century, milk has been an integral part of school meals in the United States – first in lunch, later in breakfast and through summer meal programs, and more recently in supper programs. In fact, NDC's 1929 nutrition education program led to USDA's National School Lunch Program. The central role that milk plays in school nutrition is a consequence of the unique nutrient contributions it makes to children's diets.

Milk is the No. 1 food source of nine essential nutrients. Supporting research shows that three of these – calcium, vitamin D and potassium – are not consumed in the recommended amounts (see pg. 12 to learn more about milk's nutritional value). High-quality protein, which can help build and repair muscle, is one of these nutrients found in milk and dairy foods such as cheese and yogurt.[35]

Cheese may also play an important role in nourishing students. According to a 2010 study, adding visible amounts of cheese to school meal offerings may help increase the amount of fruits, vegetables and whole grains kids eat compared to meals without cheese.[36] Pairing foods with cheese – for example, cheese sticks and apple slices or steamed broccoli topped with grated cheese – can potentially increase total nutrient intake to improve diet quality.

Four years of impressive progress

Since FUTP 60 expanded nationally in 2010:

38 million students are reached by the program, with **13 million eating better** and nearly **16 million becoming more active**.

More than **$17 million in grants**, funding programs at more than **4,500 schools**, have brought greater access to healthy whole grains, fruits, vegetables and low-fat and fat-free dairy foods to schools around the nation.

Partnerships to help children

NDC partners with leading organizations to build recognition of and support for dairy's essential role in a healthy diet and to develop solutions to challenges such as child obesity, hunger and malnutrition to help improve children's health and wellness.

Fuel Up to Play 60 (FUTP 60):
Formed in partnership with NDC and the National Football League (NFL) in collaboration with USDA in 2009, FUTP 60 is the nation's largest in-school health and wellness program. FUTP 60 empowers students to lead their schools toward a culture of wellness that combines nutrient-rich food choices with at least 60 minutes of physical activity every day. NDC and FUTP 60 worked with USDA, state education departments, regional dairy councils and the NFL to serve more than 11 million incremental summer meals that included nutritious milk and dairy foods to food-insecure children, increasing the total number of meals served from 176 million to 187 million. To learn more about FUTP 60, visit **fueluptoplay60.com**.

GENYOUth Foundation:
Founded through a public-private partnership with NDC and the NFL, GENYOUth brings leaders in health and wellness, education, government and business together in a movement to empower America's youth to achieve a healthier future by uniting partners, raising funds and uplifting the student voice. GENYOUth has established itself as a thought leader, collaborating with its partners to convene experts, conduct research, publish perspective reports and build programs that make a lasting difference. GENYOUth received a $3 million grant from SAP to support student entrepreneurs, a half-million-dollar grant from PepsiCo Foundation to launch FUTP60 en Español, and engaged the support of community leaders in cities across the country through town hall meetings. Learn more at **genyouthfoundation.org**.

Healthy meals in schools:
Students need a nutritious breakfast to be ready for a day of learning. The Innovation Center and NDC collaborated with health and wellness professionals and dairy and other food companies to develop new, kid-appealing school breakfast items that include nutritious dairy foods. NDC also supported partners Domino's and Pizza Hut in their development and testing of healthier, kid-friendly pizzas that are delivered fresh to schools. The pizzas use 51 percent whole-wheat flour with lite cheese and nutritious toppings and deliver 16–18 grams of whole grains and 20 grams of protein per serving.

See pg. 16 to learn about NDC's other partnerships to address the issue of hunger in America.

"Effective leadership is best exemplified when we collaborate together, and GENYOUth continues to demonstrate that type of leadership."

From *GENYOUth Foundation Progress Report 2014: The Quest for Healthy, High-Achieving Schools*

Dr. David Satcher
16th U.S. Surgeon General
GENYOUth Foundation Board Member

Focusing on Employees

Every glass of milk and serving of dairy foods contributes jobs, income and vitality to hundreds of communities across the nation. Fresh dairy products are supplied by thousands of dairy farms across the country, most of which are family owned.

2013 EMPLOYMENT AND WAGES

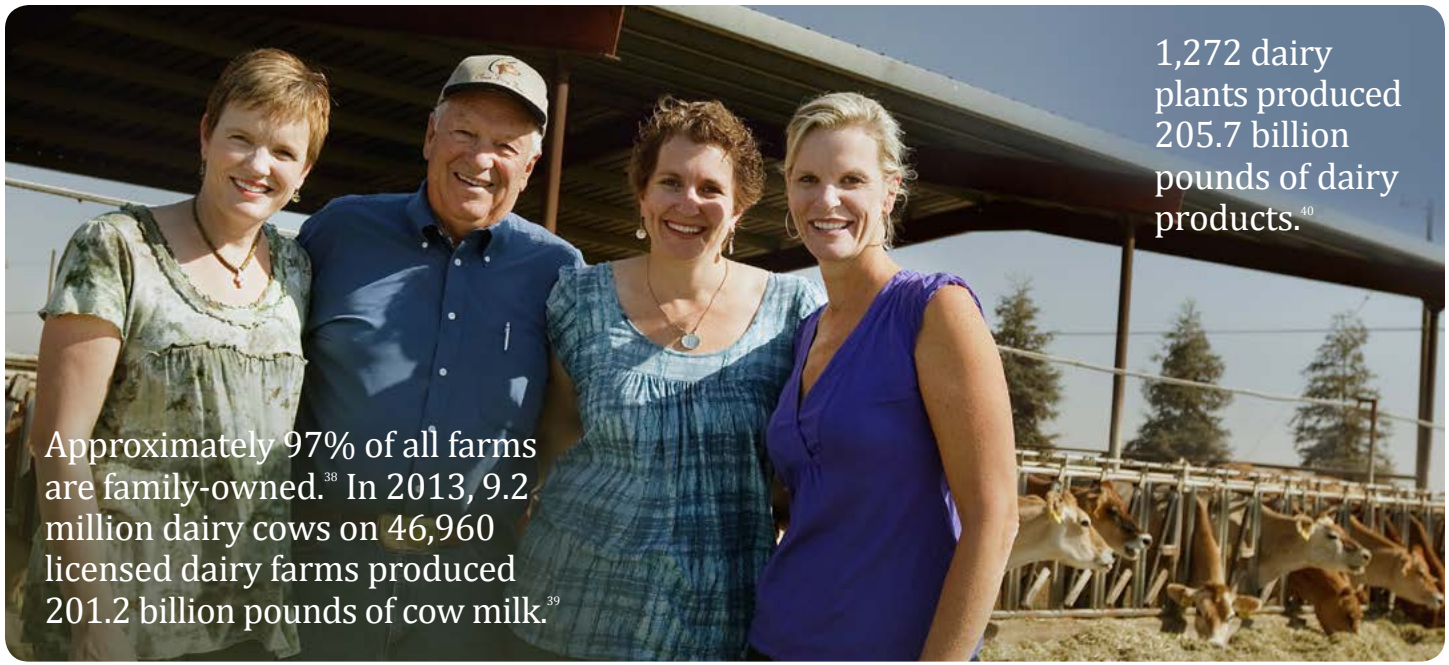
MILK PRODUCTION

95,515 JOBS
$2.8 BILLION IN WAGES

DAIRY PRODUCT MANUFACTURING

133,846 JOBS
$7.2 BILLION IN WAGES

Source: U.S. Department of Labor, Bureau of Labor Statistics, Quarterly Census of Employment and Wages (2013).



Understanding dairy's economic impacts

U.S. dairy farms and businesses strengthen our nation's economy through direct and indirect jobs, support services, tourism, and local, state, federal and payroll taxes. Milk production occurs in all 50 states, with the top five dairy states – California, Wisconsin, New York, Idaho and Pennsylvania, respectively – producing more than half of all milk in the U.S.[41]

Sharing workplace performance

Strong workforce management that promotes a culture of safety and fosters employee productivity and engagement is vital to profitability and long-term business success. Dairy farms and companies recognize that shared success depends on attracting and retaining loyal employees.

Dairy operations regularly track employee benefits and training, worker safety, and other aspects of workforce management for compliance and business purposes. Many dairy businesses demonstrate their commitment to transparency by sharing their workplace performance measures in public responsibility and sustainability reports that are read by consumers and other stakeholders (see pg. 10).

The *Stewardship and Sustainability Guide for U.S. Dairy* provides a shared approach to help dairy processors and manufacturers measure and voluntarily communicate their labor management practices and performance. Topics such as employee benefits, retention rates and safety statistics (discussed on the next page) help dairy businesses share their workplace performance with customers and other key stakeholders.

Ensuring safe and healthy workplaces

Maintaining safe work environments and protecting employees are top priorities for dairy farmers and companies. Workplace risks vary between farms and milk and dairy companies. Heavy equipment operation and animal handling pose the greatest safety risks to workers on dairy farms. Proper training and education for on-farm equipment and machinery can lower on-farm safety risks. Ensuring that all dairy employees are well-versed in understanding and identifying cow behavior and proper animal handling creates a safe and productive workplace for humans and animals alike.

Employees in dairy plants face different safety concerns. Plant employees often perform repetitive tasks, such as sorting, packaging and lifting, which can lead to overuse injuries. Workplace safety training and safety committees and teams are instrumental to maintaining a safety-conscious culture in the plant.

Dairy farms with 11 or more employees and all dairy facilities report data to the Occupational Safety and Health Administration (OSHA). According to preliminary 2013 OSHA statistics, the rates of injuries on dairy farms and in dairy plants declined for a second year in 2013. Days Away, Restrictions and Transfers (DART) rates, which reflect the number of days that workers are unable to perform their core job function because of an accident or illness, were also down slightly for a second year.

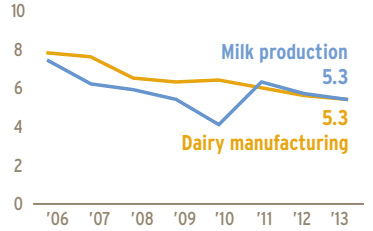
Workplace fatalities are always tragic, and the dairy industry does its best to safeguard its employees. In 2013, there were 36 fatalities on dairy farms and five dairy plant fatalities, according to labor statistics (revised April 2014). Dairy industry fatalities continued to account for less than 1 percent of the total recorded fatalities in U.S. workplaces in 2013.

OSHA Incidence Rates

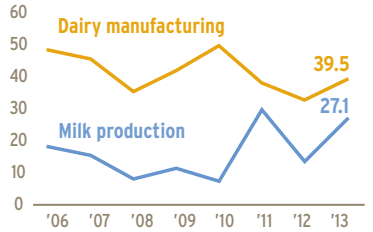
— Dairy cattle and milk production (NAICS code 11212), excludes farms with fewer than 11 employees.

— Dairy product manufacturing (NAICS code 3115).

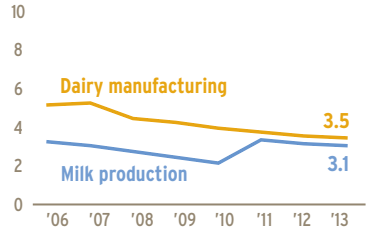
Occupational Injury Incidence Rate
(injuries per 100 full-time workers)



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 2013 data.

Recognizing exemplary safety: 11th annual IDFA Dairy Industry Safety Awards

The International Dairy Foods Association (IDFA) Dairy Industry Safety Recognition Awards and Achievement Certificates program highlights dairy facilities and transporters for outstanding worker safety based on OSHA performance measures. Of the 100 recipients recognized in 2014, 92 are facilities and locations owned by these seven Sustainability Council member organizations: Darigold, Inc.; Dairy Farmers of America; Dean Foods Company; Foremost Farms USA; HP Hood, LLC; Leprino Foods Company; and The Kroger Co.

For a full list of 2014 recipients, visit **idfa.org**.

Caring for Animals

America's dairy farmers have a long history of providing the highest levels of animal care. It's not just the right thing to do – it makes good business sense. Comfortable, healthy cows are productive cows that provide high-quality milk, and dairy farmers' livelihoods depend on that milk.

OUTSTANDING DAIRY FARM SUSTAINABILITY

Dairy establishes new practices for cow comfort and sustainability: Nobis Dairy Farms, St. Johns, Mich.

The Nobis brothers take pride in their practical approach to sustainable practices on their farm. For example, when they transitioned to sand bedding for cow comfort and health in 1974, they had to figure out how to clean and separate the sand from manure. Today, the system they have in place, thanks to research from Michigan State University and McLanahan Corporation, not only solves the problem of sand-laden manure, but it also maximizes nutrient management and eliminates excessive use of fresh water.

Learn more at:
USDairy.com/Awards

"We have a responsibility to communicate to consumers about what we do. Dairy farmers are proud of the hard work they do to care for their animals."
Chuck Ahlem, *Dairy farmer, Hilmar Jerseys*

Since the first dairy farms were established in America (and long before animal care standards were defined), the vast majority of dairy farmers have placed a high value on animal care. These shared values and high standards serve as the foundation by which the dairy community has held – and continues to hold – itself accountable.

Today's modern dairy farmer uses the latest research in animal psychology to ensure the comfort and health of dairy cows. Automated milking parlors, rotary barns, compost bedding, sand bedding and even waterbeds are just a few of the innovative approaches to animal comfort.

Communicating good animal stewardship

People are increasingly interested in the sources of their food, including the role of animals in food production. A recent survey of consumer attitudes about health and sustainability showed that 43 percent of respondents were interested in learning more about on-farm animal care practices.[42]

Dairy farmers and businesses are responding to growing consumer interest by sharing their animal care commitments and practices that ensure healthy, productive and comfortable cows on farms across the country. The Innovation Center and the National Milk Producers Federation provide several resources to help dairy professionals communicate their long-standing animal care commitment to customers and consumers:

The Innovation Center Animal Care Committee formed in late 2014 to provide communication resources that help dairy farmers share information about their animal care practices. In 2015, the committee will be working to develop resources, which will be released at a future date.

- The voluntary *Stewardship and Sustainability Guide for U.S. Dairy*, developed by and for the dairy industry, provides a unified framework and voice for farmers to share their approaches to animal well-being, veterinary care and herd health with customers and consumers. Read more about the Guide on pg. 9.
- The National Dairy FARM (Farmers Assuring Responsible Management™) Program is a verifiable animal care program that provides consistency and uniformity to best practices in dairy animal care and has been broadly adopted on U.S. dairy farms.

National Dairy FARM Program™

The National Dairy FARM Program provides a set of consistent standards for on-farm animal care best practices. The program uses second- and third-party verification to assure dairy customers and consumers of the program's objectivity and integrity.

At year-end 2014, more than 85 percent of the nation's milk supply came from farms that follow the FARM Program guidelines. Program representatives anticipate even higher participation in 2015. Dairy industry representatives used the FARM Program as a basis for contributing comments and recommendations to global animal care standards development by the World Organisation for Animal Health (OIE) and ISO (the International Organization for Standardization) in 2014. FARM Program standards also informed animal care dialogue with the Food and Agriculture Organization of the United Nations and the International Dairy Federation. To learn more about the program, visit **NationalDairyFARM.com**.

2014 National Dairy FARM Program results

Second-party evaluators completed nearly **10,000 on-farm evaluations** in 2014, and more than **35,000 on-farm evaluations** since the program's fall 2010 launch.

Participants in the National Dairy FARM Program produced more than **85 percent of the U.S. milk supply** at year-end 2014, up from approximately 70 percent at the end of 2013.

Addressing allegations of animal mistreatment

The dairy industry and the National Dairy FARM Program treat seriously all allegations of the willful mistreatment of animals – acts that maliciously cause pain, injury or suffering to animals. Although extremely rare, credible allegations must be addressed swiftly and consistently to ensure the integrity of the program and the protection of farm animals, workers and dairy farmers.

The 2014 FARM Program Protocol Following Allegations of Willful Mistreatment of Animals outlines the program's approach to addressing credible allegations of willful mistreatment of animals. FARM Program representatives determine credibility by assessing evidence, performing third-party on-site audits and investigations, and interviewing program participants and their affiliated cooperative or proprietary processors.

The FARM Program places farms with confirmed incidents on probation, working with their affiliated cooperative and proprietary processors. Prior to reinstatement in the program, probationary farms must take immediate actions that include employee training, working with a third-party verifier to develop an animal care action plan and undergoing a second on-farm evaluation to ensure all corrective actions have been completed. Compliant farms are fully reinstated; non-compliant farms are removed from the FARM Program.

Reporting mistreatment

The "See It? Stop It! Animal care starts with you" initiative of the Center for Food Integrity and the U.S. pork and dairy industries educates farmers and their employees about identifying and reporting animal mistreatment.

To learn more visit **seeitstopit.org**.

ENVIRONMENTAL STEWARDSHIP

Continuous environmental improvement is an inherent part of the dairy community. For generations, dairy farms and businesses have endeavored to increase milk production cost-effectively while preserving resources for future generations.

Innovation Center-led scientific life cycle assessments and stakeholder input identified GHG emissions, energy use and water quality and quantity as the U.S. dairy industry's initial environmental priorities to address, followed by resource recovery, land stewardship and biodiversity, soil health and air quality. Since 2009, multistakeholder project teams have been working to develop dynamic tools and resources that help dairy professionals measure, track, improve and communicate their ongoing improvements in these areas.

Tomorrow's milk production can be even more efficient and sustainable than today's. This section shows what dairy farms and businesses across the U.S. dairy value chain are doing through Innovation Center-led initiatives to get there.

Addressing Climate Change, Creating Business Value

The Innovation Center and key stakeholders developed a portfolio of greenhouse gas reduction projects in 2009, when key findings from the 2008 Greenhouse Gas LCA for Fluid Milk helped identify opportunities to reduce GHG emissions and other environmental impacts along the dairy value chain.

The LCA found that U.S. dairy could reduce a significant amount of its GHG emissions by focusing on a few key areas, which guided the projects' objectives and informed ongoing development.

The projects support the U.S. dairy industry's voluntary goal to reduce GHG emissions for fluid milk by 25 percent by 2020. Collectively, the projects were estimated to create at least $238 million in business value while reducing GHG emissions for fluid milk by 11 percent – nearly half of the industry's 2020 reduction goal.

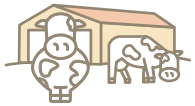
Since their 2009 launch, the projects have evolved, informed by subsequent dairy LCA research and stakeholder input. Some projects have concluded, some are poised for industry innovators to carry them forward, and others have expanded in scope.

The following table summarizes the status and progress of the original GHG reduction projects since their 2009 launch. For a more detailed update of the projects, see the *2014 Greenhouse Gas Reduction Projects Progress Report*, available at **USDairy.com/Sustainability/Reporting**.

Starting with science

Dairy sustainability starts with open-source, peer-reviewed science about the environmental impacts of dairy products. The Innovation Center for U.S. Dairy® has completed studies for fluid milk and cheese, which provide an accurate estimate of where we are and identify areas for improvement.

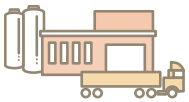
Learn more at **USDairy.com/Sustainability/Environmental-Research**.



ON-THE-FARM GREENHOUSE GAS REDUCTION PROJECTS

PROJECT AND 2020 GOALS	PROJECT HIGHLIGHTS	KEY RESULTS	NEXT STEPS
Dairy Power™/Biogas Capture and Transport | Support widespread adoption of anaerobic digester technology.			
2020 GOALS Reduce GHG emissions by 1.8M metric tons of carbon dioxide equivalent ($mtCO_2e$). Increase business value by $38M. Increase the number of anaerobic methane digesters by 1,300.	Addressed barriers to adoption by demonstrating business cases, publishing $3B market potential economic impact study and providing information to the White House and U.S. agencies to publish the *Biogas Opportunities Roadmap*. Learn more on pg. 30.	Since 2011, dairy digesters have generated more than 11.7M million British thermal units of renewable energy. In 2014, the number of operating anaerobic digesters reached a record total of 247 on-farm systems with 82% located on dairy farms. EPA estimates the total GHG reduction from digester methane sequestration and destruction is 3.4M $mtCO_2e$ per year.[43]	Support implementation of *Biogas Opportunities Roadmap* strategies to promote widespread adoption. Advance nutrient-recovery potential of technology including anaerobic digesters.
Farm Smart™ | Provide an online tool for farmers, cooperatives and regional milk marketing organizations to benchmark and communicate sustainability performance.			
2020 GOALS Reduce nitrogen fertilizer use by 10%. Reduce feed costs by $8M. Reduce GHG emissions by 230K $mtCO_2e$.	Developed, tested and released a robust and continually evolving tool, grounded in science, that supports on-farm efficiencies for energy, GHG emissions and feed management. Learn more on pg. 28.	From 2013–2014, the Innovation Center and the dairy industry tested Farm Smart with farms and companies representing 1.6% of total U.S. milk production.	Test and release new features in 2015 and support widespread adoption of Farm Smart.
Cow of the Future® | Reduce enteric GHG emissions through improvements in dairy cow nutrition, genetics and health.			
2020 GOALS Reduce GHG emissions by 600K $mtCO_2e$. Create $20M to $250M in business value.	Identified eight major research areas for the development of new strategies and technologies. Released the *Considerations & Resources on Feed and Animal Management* publication, a paper that provides practical information on animal and feed management practices that can improve productivity and profitability while reducing enteric emissions. Learn more on pg. 29.	Since the project was launched in 2009, Cow of the Future has contributed to a better understanding of enteric methane mitigation and improved understanding of the net contribution by dairy cows to sustainable food systems.	Continue enteric emissions research, collaboration and outreach efforts. Advance understanding of the dairy cow's role in sustainable food systems.
Farm Energy Efficiency™ | Reduce on-farm energy use and costs.			
2020 GOALS Reduce GHG emissions by 500K $mtCO_2e$. Complete 7,200 energy audits. Reduce energy use by 10% to 35% for annual per-farm savings of $400 to $42,000.	Promoted energy efficiency by training auditors to perform on-farm audits in key dairy states and by developing a web-based portal for farmers to identify energy efficiency programs, incentives and resources.	Since 2011, the Farm Energy Efficiency program has helped promote nearly 900 on-farm energy audits, resulting in more than $2M in potential cost savings.	Incorporate elements of Farm Energy Efficiency into the Farm Smart tool. Support state-based and utility cooperative-led energy efficiency programs.

Notes: Dairy Power: Innovation Center calculations based on EPA Anaerobic Digester Database; EPA AgSTAR Digest, Feb. 2015.
Farm Farm Energy Efficiency: Estimated audit results are updated as historical program data becomes available. The 2011–2014 audit results and potential savings are based on available audit data at the time of publication.



BEYOND-THE-FARM GREENHOUSE GAS REDUCTION PROJECTS

PROJECT AND 2020 GOALS	PROJECT HIGHLIGHTS	KEY RESULTS	NEXT STEPS
Dairy Plant Smart™ | Reduce dairy plant GHGs, energy and costs; promote dairy industry participation in the U.S. EPA ENERGY STAR® Challenge for Industry program.			
2020 GOALS Reduce GHG emissions by 160K $mtCO_2e$. Save $45M to $50M in energy costs. Increase system reliability and cost control.	Promoted participation in the U.S. EPA ENERGY STAR Challenge for Industry through the Dairy Processing focus project, a partnership between the ENERGY STAR program and the International Dairy Foods Association. Developed LCA-based carbon footprinting and fluid milk plant simulation and modeling tool for plant managers and pilot-tested Dairy Plant Smart with cooperatives, retailers and brands in 2013 and 2014.	Since the ENERGY STAR Challenge for Industry began in 2010, participating dairy plants have reduced their energy intensity by 14% – enough energy to power almost 30,000 homes.	Dairy Plant Smart tool is available for use by the industry at **USDairy.com/DairyPlantSmart**.
Dairy Fleet Smart™ | Encourage transportation and distribution practices that reduce fuel, costs and GHGs.			
2020 GOALS Reduce GHG emissions by 542K $mtCO_2e$. Save $58M in fuel costs.	Promoted the U.S. EPA SmartWay program for better fleet management practices, increased fuel efficiency and reduced fuel costs. Team developed online benchmarking and modeling tool for dairy fleets and pilot tested Dairy Fleet Smart in 2013 and 2014.	EPA's 2012–2013 SmartWay Affiliate Challenge recognized the project for its exceptional efforts to promote sustainable transit.	Dairy Fleet Smart tool is available for use by the industry at **USDairy.com/DairyFleetSmart**.
Processing and Packaging LCA | Evaluate environmental impacts of fluid milk packaging and delivery options.			
2020 GOALS Develop data that is grounded in science for improved decision-making.	Completed the first combined processing-packaging LCA in any industry, which contributed valuable information on the impacts of various packaging alternatives.		LCA project concluded in 2012.
Next Generation Cleaning™ | Explore reduced-temperature cleaning technologies to reduce energy and costs.			
2020 GOALS Reduce GHG emissions by 65K $mtCO_2e$. Reduce cleaning-specific energy use by 15%. Save $40K per plant and $12M industrywide from reduced energy costs.	Tested the use of cleaning chemicals that reduced the amount of energy used for cleaning and sterilizing plant equipment, but the efficacy was inconclusive.		Test concluded in 2011.
Next Generation Processing: UV™ | Research, develop and test ultraviolet (UV) illumination technologies to lower energy used in pasteurization process.			
Reduce GHG emissions by 285K $mtCO_2e$. Save $30M to $35M in energy costs.	First-round testing showed promise, with as much as 50% energy reductions, but U.S. FDA approval is still pending. Applications for water treatment do exist.		First-round testing concluded in 2011. The project is available for industry champion to steward through FDA approval process and sponsor second-round testing of UV illumination technologies.

"The dairy industry's efforts are important to our customers. They want to know where their food comes from and that it's responsibly produced."

Susan Forsell
Vice President, Sustainability
McDonald's Corporation

Thanks to these Sustainability Council member organizations that contributed to the Farm Smart pilot and tool development between 2013 and 2014:

Agri-Mark
Cabot Creamery Cooperative
Dairy Farmers of America, Inc.
General Mills
Land O'Lakes, Inc.
Maryland & Virginia Milk Producers Cooperative Association, Inc.
McDonald's Corporation
Michigan Milk Producers Association
Prairie Farms Dairy
Starbucks Coffee
United Dairymen of Arizona

Farm Smart™

Farm Smart is an online system that supports both sustainability reporting for dairy cooperatives and milk marketing organizations, and continuous improvement for dairy farmers. Farm Smart can be used solely for on-farm performance measurements or aggregated with other farms' data to assess sustainability performance relative to regional and national averages. Farmers have complete control and security of their own farm's performance data.

Farm Smart helps farmers:

- Learn their farm's environmental footprint and understand how it is interrelated with the farm's financial performance and efficiency
- Explore the estimated financial and environmental value that different practice options could have on their farms
- Innovate by identifying areas for potential improvement
- Track year-over-year progress in a secure, confidential platform

Using feedback from independent farmers, cooperatives and retailers who participated in a pilot test of the tool's capabilities in 2013 and early 2014, the team developed a new feed module that will help farmers make economically sound decisions on the harvest and storage of feed. A new energy module provides farmers a detailed understanding of their energy use and alternative practices to lower energy-related operating costs.

The Farm Smart team will continue refining the tool and incorporating expanded capabilities to meet the evolving needs of dairy buyers, dairy cooperatives and U.S. dairy farmers.

To learn more about Farm Smart, visit **USDairy.com/FarmSmart**.

McDonald's and farmers working together

Prairie Farms Dairy and McDonald's Corporation put Farm Smart and Guide indicators to the test in a groundbreaking pilot to assess how well Farm Smart tracks and measures environmental impacts from feed to farm to plant. This was McDonald's first U.S. dairy sustainability pilot, and one of the first ever conducted in animal agriculture to measure environmental impacts across the supply chain. The pilot contributed to broader Farm Smart pilot and testing efforts across the U.S. that measured the environmental footprint of 370 million gallons of milk – 1.6 percent of total U.S. milk production.

The pilot fostered a deep sense of partnership. Farmers had a first-hand opportunity to learn about emerging sustainable supply expectations from McDonald's. McDonald's staff had the opportunity to visit a working dairy farm, meet with farmers and see how milk is produced. These interactions fostered a sense of shared commitment for providing a quality, sustainable product to customers. The pilot showed that a collaborative approach can achieve real progress toward meeting mutual sustainability goals, and avoid negative trade-offs for another part of the supply chain. All play a vital a role in reducing the industry's environmental footprint.

To learn more about the pilot test, visit **http://bit.ly/1eXnjWJ**

Cow of the Future®

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

In 2014, the Cow of the Future team contributed to research that concluded enteric methane can be more effectively reduced by improving livestock productivity than through the use of feed additives and helped provide a better understanding of the extent of dairy's contribution to the food supply.

Improving feed and animal management practices: The team also released the *Considerations and Resources on Feed and Animal Management* report. It gives dairy farmers a comprehensive, easy-to-use resource with more than 200 considerations for feed and animal management practice improvements. The quick-reference guide empowers farmers by giving them links to solutions grounded in science that can increase business value and reduce dairy enteric emissions.

Nutritionists, veterinarians and others who influence on-farm feed and herd management decisions can also use the free online report for guidance on ration formulation and feeding, forage and concentrate management, and cow-calf care. Industry experts and academic researchers joined Innovation Center contributors to develop the report with financial support from the David and Lucile Packard Foundation. Download the *Considerations and Resources* guide at **USDairy.com/CowOfTheFuture**.

HIGHLIGHT

EPA's energy efficiency resources help save energy and reduce GHGs

For Dairy Processors: Dairy Plant Smart promotes participation in the U.S. EPA ENERGY STAR Challenge for Industry, a partnership between the ENERGY STAR program and the International Dairy Foods Association.

Since the challenge launched in 2010, participating plants have reduced their energy intensity by 14 percent – enough energy to power almost 30,000 homes.

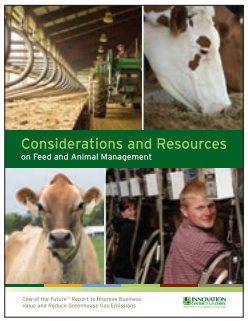
Learn more about the program at **energystar.gov**.

For Fleets: Dairy Fleet Smart encourages dairy transportation and distribution fleet participation in the U.S. EPA SmartWay program. SmartWay complements Dairy Fleet Smart by promoting tools, resources and fuel-efficient driving practices that help reduce fuel consumption and air emissions.

Learn more about SmartWay at **epa.gov/smartway**.

"Don't be put off by the academic sounding title. It is very user friendly and offers such basic information…And just because it offers basic information, it should not be viewed as simplistic."

Jim Dickrell
Editor
Dairy Today



Recovering and Reusing Nutrients and Resources

A viable bioeconomy optimizes a food system's nutrients and resources in a closed-loop system. Resource recovery captures and recycles organic material and converts it into bio-based products and energy through innovative and efficient technologies.

OUTSTANDING ACHIEVEMENT IN RESOURCE STEWARDSHIP

Harnessing nutrients creates path for the next generation: Freund's Farm, East Canaan, Conn.

Through the Freunds' successful side business of biodegradable gardening containers made of composted manure from their herd of 275 dairy cows, they are: selling CowPots® internationally, reducing phosphorus buildup in their soil, employing 11 full-time and 15 seasonal personnel, and investing $2 million back into the local community. Their commitment does not end there – the farm's solar panel system produces 100 percent of its electricity needs.

Learn more at:
USDairy.com/Awards

Anaerobic digesters and the bioeconomy

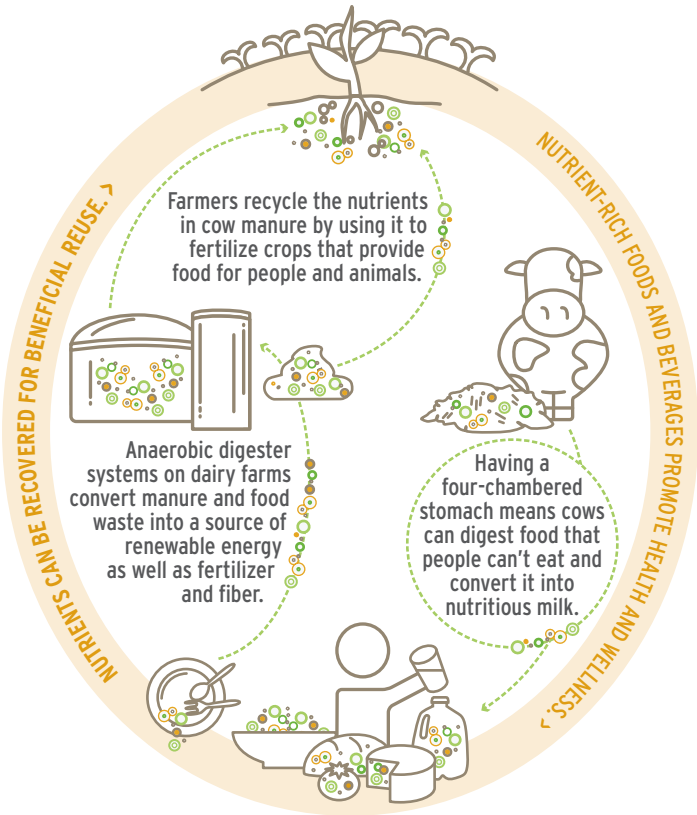
Anaerobic digesters combine organic waste in an oxygen-free environment. The digestion process releases methane gas, which is converted to energy that provides a clean, renewable alternative to fossil fuels. The system recovers the embedded nutrients in the food and manure and creates a nutrient-rich liquid that can fertilize crops. Digesters also create a sterile, dry fibrous material for use as a soil amendment or cow bedding. The multiple benefits of these systems place digesters at the heart of the new bioeconomy.

Combining food waste and animal waste increases digester-based energy production; therefore, fostering partnerships between dairy farms, food companies and retailers is a long-term strategy for digester system advocates.

The next version of the *Stewardship and Sustainability Guide for U.S. Dairy*, expected for release in late 2015, will include indicators to help dairy businesses share their approaches to diverting and recovering resources from their waste streams.

NUTRIENT CYCLE

Dairy cows make many contributions to our food system beyond the wholesome milk they produce. Here's a look at how they help keep nutrients moving through the food system.



Dairy Power™

Dairy Power is focused on resource recovery – harvesting the value of manure and creating viable business models that will lead to a more sustainable food system and a strong bioeconomy. The project promotes the widespread adoption of anaerobic digester systems across the country.

Anaerobic digester systems recover nutrients from food and manure that would otherwise have gone to waste, and they create valuable co-products such as renewable energy, fertilizer, separated nutrients and cow bedding.

When a 2013 Innovation Center-commissioned study showed there was a $3 billion potential market for digesters on 2,647 dairy operations across the country, the White House interest in digesters grew.[44] In 2014, USDA, EPA and the U.S. Department of Energy (DOE) worked in conjunction with the dairy industry to produce the *Biogas Opportunities Roadmap*, discussed in the highlight on the right.

Visit online resources to learn more about Dairy Power (**USDairy.com/DairyPower**), read the *Greenhouse Gas Reduction Projects 2014 Progress Report* (**USDairy.com/Sustainability/Reporting**), or download the *Biogas Opportunities Roadmap* (**energy.gov/downloads/biogas-opportunities-roadmap**).

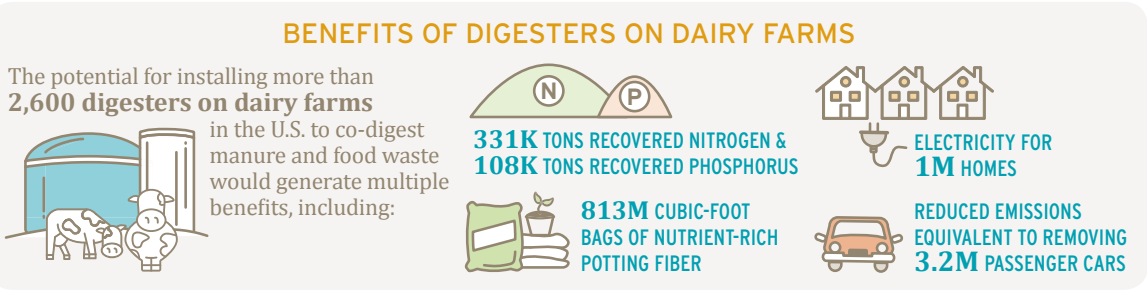
HIGHLIGHT

Biogas Opportunities Roadmap

As part of federal efforts to address climate change and reduce GHG emissions, USDA, EPA and DOE worked with the dairy industry to develop the *Biogas Opportunities Roadmap* (**energy.gov/downloads/biogas-opportunities-roadmap**). This Roadmap is also a result of the USDA commitment to support the dairy industry's voluntary goal to reduce GHG emissions by 25 percent by 2020.

Released in August 2014, the roadmap outlines voluntary strategies to reduce methane emissions and develop a robust biogas industry. Dairy Power initiatives helped inform the Roadmap, including the landmark 2013 research that identifies a $3 billion market potential for anaerobic digester systems that co-digest dairy cow manure and food waste.[45]

The Roadmap highlights the potential of biogas systems for generating revenue, growing jobs and boosting economic development. In the report, the federal government commits to taking several steps to increase the use of biogas and reduce methane emissions through existing agency programs, leveraging $10 million in research funding, fostering investment in biogas and strengthening markets for biogas systems and products.



Source: National Market Value of Anaerobic Digester Products

Conserving and Safeguarding Water Supplies

Clean, plentiful water is a critical resource for sustainable agricultural production. A changing climate, ongoing drought, growing populations and competing water needs heighten the necessity for innovative approaches to ensuring water quality and supply.

HONORABLE MENTION

OUTSTANDING ACHIEVEMENT IN RESOURCE STEWARDSHIP

Overcoming obstacles to conserve water: T-Bar Dairy and White Gold Dairy, Tulare, Calif.

Tom Barcellos was the first dairy farmer in drought-ridden Central Valley, California, to successfully implement conservation tillage. A combination of no-till and strip-till methods has helped Barcellos manage for water scarcity while allowing him to dramatically reduce chemical use, fuel use and the amount of dust particles in the air.

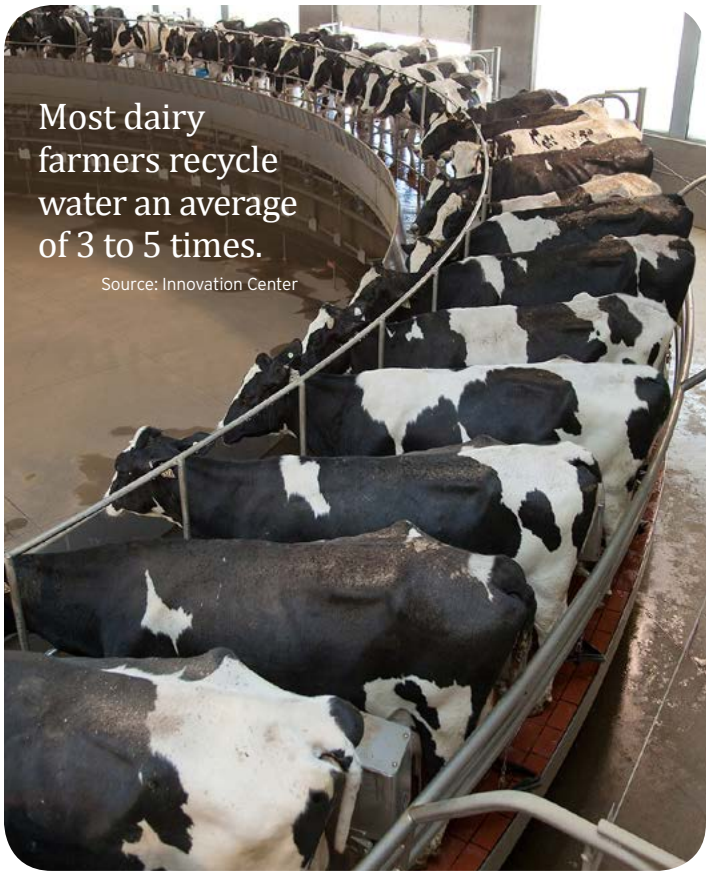
Learn more at:
USDairy.com/Awards

Scientific LCA study findings show that water is a local issue and challenges vary based on regional water supply and watershed characteristics. Generally, dairy farms in the western states are challenged by recurring and increasingly severe drought conditions. Dairy farms east of the Mississippi tend to have secure water supplies and focus on practices to preserve water quality.

Dairy farms use water to keep cows hydrated and healthy so they can produce nutrient-rich milk, which is about 90 percent water. Water is also used to cool cows and milk, clean and sanitize equipment and flush manure to digesters or holding lagoons. The majority is used to irrigate feed crops. Conservation practices on modern dairy farms include the use of heat exchangers that help cool milk as cold water flows past the milk in a separate tube. Water from heat exchangers is then collected and used as drinking water for cows.

Using manure to meet crop nutrient requirements also can improve the productivity and water-holding capacity of the soil, which can minimize the amount of ground water needed to grow crops.[46]

The 2015 release of the *Stewardship and Sustainability Guide for U.S. Dairy* is expected to incorporate on-farm water indicators. Dairy businesses can already use the Guide to track and communicate their water use, efficiency, discharge and quality, and recycling and reuse efforts.



Several of the Sustainability Council members with reports listed on pg. 9 have shared their progress toward reducing water consumption, as highlighted in these examples:

- **The Coca-Cola Company** set a goal to replenish 100 percent of the water used in its finished products and production process. Between 2005 and 2013, it replenished approximately 68 percent of the water used worldwide.[47]
- **Foremost Farms USA** exceeded its 2 percent water-intensity reduction goal by lowering its per-gallon production intensity by 2.9 percent in 2013.[48]
- **BASF Corporation** aims to reduce the amount of drinking water used in its production process by half. In 2013, the company decreased withdrawal of drinking water by 25.3 percent from 2010 levels.[49]

Exploring solutions for sustainable dairy farming in the western U.S.

Innovation Center's strategic partner, the Center for Advanced Energy Studies (CAES), contributes research, technical and scientific expertise in support of the U.S. dairy industry's Sustainability Commitment. CAES is a partnership between DOE (through the Idaho National Laboratory) and Idaho's public research universities: Boise State University, Idaho State University and the University of Idaho.

CAES hosted the 2014 Sustainable Western Dairy and Related Industries Workshop. The workshop convened western dairy farmers, businesses and other agricultural stakeholders to identify and overcome the complex challenges of sustainably intensifying dairy production in Idaho and the arid western U.S. The workshop centered around four aspects of sustainability: financial, social, community and environmental.

Participants discussed sustainable intensification and food security, community resiliency, and the need for planning tools that are grounded in science, such as Farm Smart. In 2015, post-conference focus groups will continue the dialogue by exploring the potential of digesters as an eventual path to net-zero waste and identifying approaches to responsibly scaling production.

To learn more about the conference outcomes, see *Proceedings from Sustainable Western Dairy and Related Industries Workshop*, available for download at **uidaho.edu**.

HONORABLE MENTION
OUTSTANDING DAIRY FARM SUSTAINABILITY

Dairy pursues success through sustainability: Alliance Dairies, Trenton, Fla.

Situated in the highly sensitive Suwannee River Basin and Manatee Springs region, Alliance Dairies has a comprehensive water management plan which led them to install a first-of-its-kind methane digester specifically designed for a freestall barn flush system. Water conservation is also a top priority: The only fresh water used on the farm is for cooling, drinking and cleaning – all other water is recycled; and a computer "base station" provides the ability to turn the irrigation system on and off in response to weather conditions.

Learn more at:
USDairy.com/Awards

Addressing Additional Environmental Priorities

Innovation Center-led working groups, science and technology partners, and dairy stakeholders are utilizing peer-reviewed scientific research to understand and develop tools, resources and performance measures related to additional environmental areas.

OUTSTANDING DAIRY FARM SUSTAINABILITY

Small solution has big impact on cow comfort, dairy success: Dorrich Dairy, Glenwood, Minn.

The Volds, fourth-generation dairy farmers, are doing a lot of little things to ensure they can pass Dorrich Dairy to their children. One of those things could even be called tiny, but it has had a big impact. They dramatically reduced chemical insecticides to control flies – and reduced fly control costs by 85 percent – when they introduced wasp larvae. This is one part of an integrated pest management system and overall commitment to cow health that contributes to making their operation financially strong and environmentally sound, now and for future generations.

Learn more at:
USDairy.com/Awards

Landscape stewardship and biodiversity

Farmland holds significant historical and cultural value to communities, and landscape stewardship practices resonate with key stakeholders who share dairy farmers' love of the land. Protecting the biological diversity of living organisms on working lands and open spaces supports a thriving ecosystem that can support people, economies and productive habitats.

Soil health

Healthy soils contribute to a healthy food system by providing several benefits. No till farming, crop rotation and other practices help ensure healthy soil that can sequester carbon, prevent runoff and erosion and retain water and nutrients in the land. Healthy soils also provide a home for microorganisms and a thriving habitat for native wildlife.

Air quality

Good air quality is important for everyone. Like other food processing operations, dairy food processing and manufacturing facilities can generate a range of air emissions that can impact air quality. Working groups for the Guide are developing indicators to measure this important aspect of dairy food production.

Future releases of the Guide will incorporate these topics, along with resource recovery and feed management and on-farm water indicators.

LOOKING AHEAD

Working together, dairy farms and businesses are finding shared solutions to today's most pressing challenge: increasing food production in a manner that supports healthy people, healthy communities and a healthy environment.

Every day in communities across the country, farmers and dairy professionals are working to bring the goodness of dairy to families all around the world.

Healthy people: People are increasingly interested in nutrition, health and sustainability. This interest begins with the individual and expands outward to family, community, the environment and the planet.

Growing expectations of transparency – especially from the millennial generation – provide an opportunity for the dairy community to connect people with dairy farms and businesses through education, culinary approaches and stories about where food comes from with a unified, consistent voice based on shared tools and resources.

Resilient global food system: To prepare for and respond successfully to changes in climate, population and markets, a sustainable food system will need to embrace a holistic approach and cultivate innovation. The good work of today's dairy professionals rests upon a legacy of continuous improvements across the dairy value chain.

This legacy strengthens and unites the dairy community in its efforts to move beyond just reducing our impacts and adapting to a changing climate. Working together, we can develop a restorative food system that ensures tomorrow's generations enjoy healthy, productive lives in a thriving, vibrant world.

The innovations and improvements discussed in this report are just the beginning. Every step, every improvement and every connection within and beyond the dairy community brings us closer to delivering sustainable food's fundamental purpose of nourishing people with good food produced in good ways.

"The world is changing in profound ways. Transformations in nutrition, health and sustainability are converging in a way that means the future of food and how we think and talk about food will change dramatically."

Jean Ragalie-Carr
RDN, LDN, FAND
President, National Dairy Council

About the Innovation Center for U.S. Dairy

The Innovation Center provides a forum for the dairy industry to work pre-competitively to address barriers to and opportunities for innovation and sales growth. The Innovation Center aligns the collective resources of the industry to offer nutritious dairy foods and ingredients, and promote the health of people, communities, the planet and the industry.

The Innovation Center for U.S. Dairy is supported by America's dairy farmers and dairy importers, who have identified the following priorities:

Globalization
Sustainability
Animal Care
Consumer Confidence
Health and Wellness
Food Safety
Research and Insights

Founded, funded and supported by dairy farmers

In 2008, the Innovation Center was established through Dairy Management Inc., the nonprofit organization that manages the national dairy checkoff program on behalf of America's more than 45,000 dairy farmers as well as dairy importers. The dairy checkoff was put into place by dairy farmers 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.

Dairy Management Inc., headquartered in Rosemont, Ill., staffs the Innovation Center. The Innovation Center board of directors represents U.S. dairy farmers, dairy cooperatives, processors, manufacturers, retailers and brands.

2014 supplemental funding

The Innovation Center receives funding from dairy farmers and importers through the checkoff program and from strategic partnerships and sponsorships. In 2014, our partners and sponsors provided supplemental funding to help advance a resilient, sustainable food system that includes nutritious milk and dairy foods.

Special thanks to these 2014 partners and sponsors:

- U.S. Department of Agriculture: Natural Resources Conservation Service and Rural Economic Development Loan & Grant Program
- World Wildlife Fund
- U.S. Dairy Sustainability Award Sponsors

  Gold sponsors:
  The Center for Advanced Energy Studies (CAES) | DeLaval | DVO, Inc., Anaerobic Digesters | Elanco Animal Health | InSinkErator | Tetra Pak | U.S. Environmental Protection Agency | World Wildlife Fund | Zoetis Inc.

  Silver sponsors:
  Academy of Nutrition and Dietetics | ChemTreat | DSM Nutritional Products | HDR, Inc. | McDonald's Corporation | Syngenta

Companion publications

Visit USDairy.com/Sustainability/Reporting to download or share an electronic version of the *2014 U.S. Dairy Sustainability Report* and the *2014 Greenhouse Gas Reduction Projects Progress Report*, which provides more detailed information about the GHG projects.

Report feedback

We welcome your feedback on this report and the industry's sustainability efforts. Please contact us at **InnovationCenter@USDairy.com**.

Endnotes

Refer to the PDF report version of this report, available at **U.S.Dairy.com/Sustainability/Reporting**, for the list of endnotes.

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 graphics and Irish Design for report design. Cover photographs courtesy of Michigan State University ANR Communications.

We would also like to thank our stakeholders, the Sustainability Council, Innovation Center team members and report reviewers for their valuable contributions in 2014.

Endnotes

1. Capper, J. L., Cady, R. A., & Bauman, D. (2009). The environmental impact of dairy production: 1944 compared with 2007. *J Anim Sci*. 87(6):2160-2167.
2. National Dairy Council. (2011). Ensuring dairy food quality & safety from farm to fridge. Dairy Council Digest Archives. 82(1). Retrieved from www.drink-milk.com/media/32325/ensuringfoodqualityandsafety.pdf. Accessed April 7, 2015.
3. Dairylea Cooperative, Inc. merged with Dairy Farmers of America April 1, 2014.
4. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2015). *Scientific report of the 2015 Dietary Guidelines Advisory Committee: Advisory report to the Secretary of Health and Human Services and the Secretary of Agriculture*: 31-33. See also: nationaldairycouncil.org/Research/Pages/ResearchHome.aspx for science summaries and scientific status reports on the latest research and findings about the nutrition and health benefits of milk and dairy foods.
5. National Dairy Council. (n.d.). *Protein: Understanding the basics*: 2. Retrieved from http://www.nationaldairycouncil.org. Accessed March 13, 2015.
6. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2010, December). *Dietary Guidelines for Americans, 2010*. 7th Edition, Washington, D.C.: U.S. Government Printing Office. 42. DGA also recommends 2.5 servings of dairy for 4- to 8-year-olds and 2 servings daily for 2- to 3-year-olds.
7. Ibid. 38.
8. Rice, B. H. (2014). Dairy and cardiovascular disease: a review of recent observational research. *Curr Nutr Rep* 2014;3:130-138.
9. Rice, B. H., Quann, E. E., & Miller, G. D. (2013). Meeting and exceeding dairy recommendations: effects of dairy consumption on nutrient intakes and risk of chronic disease. *Nutr Rev* 2013;71(4):209-23.
10. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2010, December). *Dietary Guidelines for Americans*, 2010. 7th Edition, Washington, D.C.: U.S. Government Printing Office. 42. DGA also recommends 2.5 servings of dairy for 4- to 8-year-olds and 2 servings daily for 2- to 3-year-olds.
11. Auestad, N., Fulgoni, V. L., 3rd, & Houchins, J. (2015, February). *Contribution of dairy foods to nutrient intakes by Americans*. National Dairy Council Data Brief No. 1501. Rosemont, IL: National Dairy Council. 1. Americans 2 years and older consume an average of 1.8 cup equivalents of dairy products per day.
12. Ibid.
13. U.S. Department of Agriculture and U.S. Department of Health and Human Services. (2010, December). *Dietary Guidelines for Americans*, 2010. 7th Edition, Washington, D.C.: U.S. Government Printing Office. 9.
14. Ibid. 40.
15. Auestad, N., Fulgoni, V. L., 3rd, & Houchins, J. (2015, February). *Contribution of dairy foods to nutrient intakes by Americans*. National Dairy Council Data Brief No. 1501. Rosemont, IL: National Dairy Council. 5.
16. Ibid. 2.
17. Quaker Oats Company and NDC. (2014). *Oats and dairy: A powerful combo for you and your family*. Retrieved from nationaldairycouncil.org/SiteCollectionDocuments/education_materials/dietary_guidance/Oats_Dairy_Consumer_handout_FINAL.pdf. Accessed March 27, 2015. Protein comparison assumes a 1 cup serving of dry oats made with 1 cup of water compared to 1 cup of low-fat milk.
18. Quaker Oats Company. Start & recharge with Quaker protein. Retrieved from quakeroats.com. Accessed April 7, 2015.
19. Taco Bell, Menu calories and nutrition information. Retrieved from tacobell.com/nutrition/information. Accessed April 7, 2015.
20. Go-GURT® at McDonald's has 6 grams of sugar per 2.25 ounces. The leading kids' yogurt has 9 grams of sugar per 2.25 ounces.
21. IRi Custom DMI database. (2014, February). 2008-09 Combined Food, Drug, Mass excluding Walmart and 2010-14 Multi-outlet including food, drug, mass, supercenters (with Walmart estimate), Club 2014 YTD through 2/23/2014.
22. Hentges, E. (2009). Sources of sodium in the food supply. Paper presented at: Institute of Medicine Committee on Strategies to Reduce Sodium Intake, Information-Gathering Workshop; Washington, D.C.
23. Survey of 87 food banks in the Feeding America network.
24. Feeding America. (2014). *Bringing hope to 46 million people: 2014 annual report*: Inside front cover. Retrieved from http://www.feedingamerica.org/about-us/about-feeding-america/annual-report/2014-annual-report.pdf. Accessed Feb. 3, 2015.
25. Data provided by MilkPEP (data tracked via milklife.com/give, March 30, 2015).
26. Oakhurst Dairy. (2015, January 29). Oakhurst makes its largest donation to the Salvation Army yet! Retrieved from https://www.oakhurstdairy.com/about/release.php?nID=1218. Accessed Feb 23, 2015.
27. Dairy Farmers of America. (2014, November 18). DFA volunteers help feed hungry families. Retrieved from http://www.dfamilk.com/newsroom/press-releases/dfa-volunteers-help-feed-hungry-families. Accessed March 21, 2015.
28. Prairie Farms. (2014, June 30). Prairie Farms donates over 10,000 gallons of milk to local Feeding America food banks to help families in need! [Press release] Retrieved from http://www.prairiefarms.com/6-30-14-DAIRY-MONTH-RELEASE-FINAL.pdf. Accessed Jan. 17, 2015.
29. General Mills. (n.d.). Volunteerism. Retrieved from https://generalmills.com/Responsibility/Communities/volunteerism. Accessed April 2, 2015.
30. Starbucks Coffee. (2014, May 29). Starbucks partners contribute almost a quarter-million volunteer hours in one month. Retrieved from https://news.starbucks.com/news/starbucks-partners-contribute-almost-a-quarter-million-volunteer-hours-in-o. Accessed April 7, 2015.

31. Hilmar Cheese Company. (n.d.). "Cheesemaking University" school tours. Retrieved from https://www.hilmarcheese.com/Visitor_Center/Tour/School_Tours/. Accessed April 7, 2015.
32. Bel Brands USA. (n.d.). Teens learn about more than gardening with Rooftop Crops. Retrieved from http://www.belbrandsusa.com/gary-comer-youth-center.asp. Accessed April 9, 2015.
33. Centers for Disease Control and Prevention. (2014, December 11). Childhood obesity facts. Retrieved from http://www.cdc.gov/healthyyouth/obesity/facts.htm. Accessed April 9, 2015.
34. Children who face hunger live in households where members are unable to consistently access enough nutritious food because the household lacks money and other resources for food. Coleman-Jensen, A., Nord, M., & Singh, A. (2014, September). Household food security in the United States in 2013, ERR-173, U.S. Department of Agriculture, Economic Research Service.
35. National Dairy Council. (n.d.). *Protein: Understanding the basics*. 2. Retrieved from http://www.nationaldairycouncil.org/SiteCollectionDocuments/education_materials/protein/Protein_Understanding%20the%20Basics_FINAL.pdf. Accessed April 5, 2015.
36. Donnelly, J. E., Sullivan, D. K., & Smith, B. K., et al. (2010). The effects of visible cheese on the selection and consumption of food groups to encourage in middle school students. *J Child Nutr Manag*. 34(1).
37. USDA Food and Nutrition Service. (2015, June 5). School breakfast program participation and meals served (data as of June 5, 2015). Retrieved from http://www.fns.usda.gov/sites/default/files/pd/sbsummar.pdf. Accessed June 22, 2015.
38. Hoppe, Robert A. (2014, December). S*tructure and finances of U.S. farms: family farm report*, 2014 Edition, EIB-132, U.S. Department of Agriculture, Economic Research Service.
39. National Milk Producers Federation. (2014, October) *Dairy Data Highlights*.
40. Ibid.
41. USDA NASS. Milk Production Disposition and Income; Bureau of Census.
42. Innovation Center for U.S. Dairy. (2013, April). Consumer views on sustainability. Consumer view data is based on National Marketing Institute's LOHAS Consumer Trends Database™ of opinions collected from NMI annual survey on health and sustainability, corporate social responsibility, environmentalism, and social issues, released December 2012.
43. EPA. AgSTAR: An EPA Partnership Program website, 2014 program results, available at epa.gov/agstar/projects. Accessed March 15, 2014.
44. To read more about the $3 billion market potential of anaerobic digester systems, download the National Market Value of Anaerobic Digester Products report at USDairy.com/DairyPower.
45. Ibid.
46. Fulhage, C. D. (n.d.). Reduce environmental problems with proper land application of animal manure. Department of Biological and Agricultural Engineering, University of Missouri; EQ201 Web.
47. The Coca Cola Company. (2014). *Coca Cola 2013/2014 sustainability report*: 42. Retrieved from http://assets.coca-colacompany.com/77/4c/2a44a5234a3ca65d449d174a0ded/2013-2014-coca-cola-sustainability-report-pdf.pdf. Accessed Feb. 15, 2015.
48. Foremost Farms. (2013). *Foremost Farms USA 2013 sustainability overview*: 4. Retrieved from http://www.foremostfarms.com/pdf/Sustainability_Overview.pdf. (2013). Accessed Feb. 15, 2015.
49. *BASF report 2013: Economic, environmental and social performance*: 103. Retrieved from https://www.basf.com/documents/corp/en/about-us/publications/reports/2014/BASF_Report_2013.pdf. Accessed Feb. 15, 2015.

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