2016 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 *2016 U.S. Dairy Sustainability Report* is the sixth 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 reporting period covers calendar years 2015 and 2016, except where clearly noted, which reflects a change from past annual reporting. Reporting boundaries are twofold: specific performance and progress of efforts led by the Innovation Center to support the U.S. Dairy Sustainability Commitment and National Dairy Council® (NDC) health and wellness initiatives under the dairy checkoff program.

Highlights in the report are limited to the Innovation Center, NDC and Dairy Management Inc.™ partnerships and affiliations; organizations with members on the Innovation Center Board of Directors and its operating committees; Dairy Sustainability Alliance member organizations; and U.S. Dairy Sustainability Award recipients.

The principles in the Global Reporting Initiative (GRI) Standards informed the development of the report.

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

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Welcome

Welcome to the *2016 U.S. Dairy Sustainability Report*, our sixth report on the progress of the U.S. Dairy Sustainability Commitment launched in 2007 under the leadership of dairy farmers.

The Innovation Center for U.S. Dairy brings together dairy farmers, dairy cooperative leaders, dairy companies and other organizations to work on issues and opportunities that no one entity can address alone.

The companies of the Innovation Center have made significant progress in the eight years since its inception in providing people with the nutritious dairy products they want, in ways that make people, the planet and the dairy community economically, environmentally and socially better. This report highlights a few of the shared accomplishments that exemplify the power of collective action.

Looking to the future, the consumer landscape and business environment will be more complex and more competitive and will impose greater pressures around health, environmental impacts and ethical practices. In anticipation of this, during the 2015–2016 report period the Innovation Center expanded our collective focus to create and implement our first-ever strategic plan focused on social responsibility.

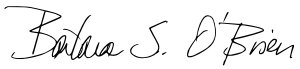
Enhancing consumer trust in dairy is the core focus of the plan and is reflected in the plan's vision that people trust dairy as essential to their lives.

As part of that process, we gathered insights to better understand current and future issues and opportunities facing the dairy community. One consistent takeaway is that people want to purchase food from those they know operate in ways consistent with their personal values and expectations. And they are holding all of us accountable – from the farm to the processing plant to the grocery store – for transparency about how their food is produced.

While we are proud of our heritage and progress in animal care, environmental stewardship and food safety, there is still much to accomplish.

- We are advancing research and dialogue on dairy's role in sustainable food systems, which encompass not only our environmental footprint but also our nutritional, economic, social and public health contributions. A clear understanding of these interrelationships is critical as we work to fulfill our highest priority of ensuring dairy's relevance and dairy's responsibility for a successful future.
- We are leveraging U.S. dairy's strengths at a global level, where the dairy sector has a significant role to play producing foods and beverages that are beneficial to human health, aligned with the United Nations Sustainable Development Goals (pg. 24) and compatible with sustainable food systems.
- We are actively engaged in examining and better understanding how segmentation and marketing decisions made by consumer packaged goods companies impact farmers' ability to use safe and proven technologies that improve their environmental footprint and economic viability. As consumers want to know more about where their food comes from, it's important that they have accurate, science-based information to ensure they understand the impact of their decisions.

In closing, we are dedicated to continuing to earn and strengthen the public's trust in dairy, and we remain steadfast in our commitment to transparency and continuous improvement. We appreciate your interest in this report and look forward to hearing your feedback.



Barbara O'Brien

President, Innovation Center for U.S. Dairy, and Dairy Management Inc.

Chris Policinski

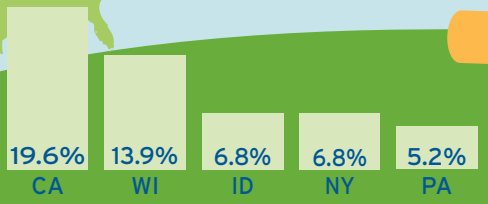
Chair, Innovation Center Board of Directors, and President/CEO, Land O'Lakes, Inc.

U.S. Dairy Farm-to-Table Snapshot

The U.S. dairy community – from dairy farmers to processors to local grocers – has long played a significant role in our nation's food system, communities and economy by providing wholesome, nutrient-rich products that promote good health. Many farmers recycle food scraps and yard trimmings from nearby communities, converting them into rich fertilizer to grow more food.

97% family owned

Milk production occurs in all 50 states. The top 5 dairy states produce more than half of all milk in the U.S.



43,583 licensed dairy farms with
9.2 million dairy cows produce
208.6 billion pounds of milk.

Milk is used to produce a wide variety of nutrient-rich dairy foods and beverages, which are enjoyed domestically and around the world.

1,267 dairy plants produce
212.2 billion pounds of dairy products.

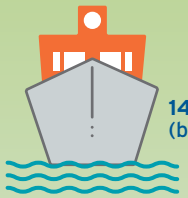
The average distance from farm to processing plant is **275 miles.**

How all that milk gets used:

includes: butter 8%, nonfat dry milk 7%, frozen products 5%

Widely available at schools and retail outlets across the U.S., milk and dairy foods contribute nutrients that are essential for health.

Milk and dairy foods supply **50% of the calcium** and **15% of the protein** in the average American diet.



14% of dairy products (by weight) were exported.

Dairy products made up just over **10% of Americans' grocery purchases.**

Figures reflect data as of 2015. Sources Milk production, dairy processing and commercial usage data: National Milk Producers Federation. (2016). *Dairy data highlights*; Family farms stat: USDA ERS; Miles stat: Ulrich, R., Thoma, G., Nutter, D., Wilson, J. (2013). Tailpipe greenhouse gas emissions from tank trucks transporting raw milk from farms to processing plants. *International Dairy Journal*, 31(1):S50-S56; Export stat: U.S. Dairy Export Council; Consumer spending stat: In 2015, American consumers spent an average of $4,015 on grocery purchases, and of this amount, $421, or 10.5 percent, was spent on dairy products. (Consumer Expenditure Survey, Table 1300, 2015, BLS); Nutritional stats: Americans ages 2+ years (NHANES 2009-2010). Auestad, N., Fulgoni, V. L., 3rd, & Houchins, J. (2015). Contribution of dairy foods to nutrient intakes by Americans. National Dairy Council Data Brief No. 151.

About the Innovation Center for U.S. Dairy

Under the leadership of dairy farmers, the U.S. dairy community is working together to continuously improve its economic, environmental and social contributions to responsible and resilient food systems for current and future generations.

Working Together

The Innovation Center is a forum for dairy farmers, cooperatives and companies to collaborate pre-competitively on industrywide efforts to offer nutritious dairy foods and ingredients, and to help promote the health of people, communities, the planet and the industry.

Mission: To work together to ensure an economically viable and socially responsible U.S. dairy community from farm to table

By aligning and leveraging the collective resources and widespread know-how of the dairy community, we proactively work on important opportunities and issues that impact the entire industry, but that no one company or sector can address alone. Since 2008, the Innovation Center has helped the dairy community demonstrate that by working side by side – establishing best practices, developing training and research, sharing our progress – we can promote continuous improvement and build trust.

Funded & 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 43,000 dairy farmers as well as dairy importers.

The Innovation Center receives funding from dairy farmers through the checkoff program and supplemental funding from strategic partnerships and sponsorships to help advance resilient, sustainable food systems that include nutritious milk and dairy foods. Staffing is through Dairy Management Inc., headquartered in Rosemont, Illinois.

Governance structure

The Innovation Center Board of Directors sets priorities and serves as the organization's highest governing body. The Executive Operating Committee, a subgroup of the board, oversees the efforts of seven operating committees: Food Safety, Animal Care, Environmental Stewardship, Sustainable Nutrition, People and Community, Global Insights and Innovation, and Communications. The committee structure reflects the priorities of the Innovation Center's first-ever social responsibility plan, described further on pg. 5.

Leaders from U.S. dairy farms, dairy cooperatives, processors, manufacturers, retailers and brands serve on the board and its committees. Board companies agree to act as champions of the Innovation Center's work. They help put the Innovation Center's strategies into action by providing project funding, subject matter expertise and in-kind services.

Uniting to build trust through transparency

In view of marketplace trends and changing consumer expectations, in 2015 the Innovation Center Board of Directors undertook an assessment of issues and opportunities facing the dairy community to help set priorities.

Taking a Comprehensive Approach

The assessment's broad, multistakeholder approach brought a wide range of voices, research and other input into the process:

- Results of a consumer research survey of more than 3,300 people (ages 17 to 70) and analysis of secondary research on consumer perceptions, preferences and factors most important to them
- Direct feedback from more than 100 dairy farmers, cooperatives, manufacturers and associations, and academics and nongovernmental organizations (NGOs)
- Interviews with retailers and foodservice companies
- Dairy value chain analyses from crop production through the marketplace

In addition, the review was informed by the guiding principles of the U.S. Dairy Sustainability Commitment (pg. 21) and built on earlier Innovation Center work, including the *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23).

Key Consumer Insights

People are increasingly interested in learning more about their food and its journey from farm to table. The insights gathered through the situation assessment helped identify what matters most to consumers and deepened our understanding of the range of preferences and perceptions people have about dairy and food in general.

- **The way people think about food is evolving.** Consumer definitions of safe and healthy food used to concentrate on food being free of contaminants and having a good amount of nutrients but not too many calories. Over the years, concepts of safe and healthy food have been expanding and interconnecting; people now want to know what is in food, where it was grown or made, who produced it and how – and whether it is good for us.
- **The public is more interested than ever in their food, and people expect more transparency.** People want to learn more about their food and the steps from farm to plate. They have access to more information more quickly, and they create, not just receive, information through diverse social networks. The need for the entire food chain to provide evidence-based information and proactively share dairy's practices, progress and commitments has never been stronger or more important.
- **A number of social and environmental factors are increasing in importance for consumers in relation to trust and sales, with food safety remaining at the top of their list.** While people's perspectives are diverse, their interests about topics such as animal care, labor practices, economic impact and environmental practices including resource conservation and water quality correspond with our sustainability priorities identified through scientific research and broad stakeholder input. This alignment reinforces the significance of the dairy community's efforts in these areas.
- **Overall, people have trust in dairy.** People recognize dairy farmers as authentic sources of information, underscoring the importance of being open and telling our stories. This also represents a pivotal opportunity to deepen the dialogue between farmers and those who have questions.

Establishing focus areas

Based on our comprehensive assessment, the Innovation Center developed a social responsibility plan with seven focus areas to benefit the entire dairy community, its customers and consumers, and the greater good.

Collectively, these areas reflect the dairy community's joint efforts going forward to promote social responsibility, deliver shared value, encourage continuous improvement and strengthen trust with consumers and stakeholders.

To best support progress within each of the focus areas and bring together the right resources, a new operating committee structure was implemented (pg. 3). The committees are working to set goals and align efforts on best and next practices. Each is planning to conduct detailed assessments in 2017 on priority topics within the areas of focus.

The focus areas of five operating committees – Sustainable Nutrition, Food Safety, People and Community, Animal Care and Environmental Stewardship – are discussed next in this report.

The Global Insights and Innovation and Communications Committees play crosscutting roles to inform and support efforts in each area.

In addition, several Innovation Center-led initiatives contribute to and benefit from efforts across multiple focus areas, including the Dairy Sustainability Alliance (pg. 21), the *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23) and the U.S. Dairy Sustainability Awards (pg. 25).

SUSTAINABLE NUTRITION

Sustainable food systems are complex and about more than a carbon footprint. They are about nourishing people and making positive contributions to improve health and well-being, foster community vitality, conserve natural resources and protect the planet.

Sustainable nutrition is an emerging field within the broader discipline of sustainability. It is the intersection of agriculture, food production and nutrition – it is how foods contribute to social (e.g., nourishment, health and well-being), economic (e.g., affordable food, job creation) and environmental (e.g., reducing food waste and minimizing water, land and air impacts) outcomes.

By definition, sustainable nutrition is protective and respectful of biodiversity and ecosystems, culturally acceptable, economically fair, nutritionally adequate, affordable, accessible, safe and healthy – while optimizing natural and human resources (FAO 2010).

Building Sustainable Food Systems

National Dairy Council (NDC) celebrated its centennial in 2015. For over 100 years, NDC has worked on behalf of dairy farmers and the dairy community to provide science-based education about the nutrition and health benefits dairy provides in a balanced meal plan.

As it moves into its second century, NDC is expanding its efforts not only to support the health and well-being of Americans through nutrition but also to educate on the intersection of food, nutrition and agriculture. The intent is to demonstrate how dairy contributes to responsible and sustainable food systems, helping lead to healthier people, vibrant communities and a better planet.

NDC will continue to build and share its combined approach of research, science-based education and collaboration to help foster dialogue and the exchange of evidence-based information on dairy's role in nutrition, health and sustainable food systems.

Research on dairy's contributions & benefits to public health

Dairy foods and ingredients can be part of the solution to address the domestic and worldwide nutrition demands of a growing population. Dairy foods are fundamental to the healthy eating patterns recommended by the *2015-2020 Dietary Guidelines for Americans* (2015 DGA). They make significant nutrient contributions, and dairy consumption is associated with reduced risk for key chronic diseases, including leading public health concerns such as cardiovascular disease and type 2 diabetes. Scientific evidence links consumption of dairy foods with improved bone health, especially among children, and healthy eating patterns containing low-fat or fat-free dairy foods are associated with reduced risk for cardiovascular disease and type 2 diabetes.[1] This research is foundational to dairy's contributions to sustainable meal patterns. There simply is not the same evidence on alternatives to milk.

Since the 2015 DGA was released, research continues to build and has been published in peer-reviewed journals supporting the role of whole milk and whole-milk dairy foods on health outcomes. The original DASH (Dietary Approaches to Stop Hypertension) eating plan included three servings of lower-fat dairy. More recently, a study spearheaded by NDC and published in 2016 showed that whole-milk dairy foods (milk, cheese and yogurt) can be a part of DASH, while providing the same blood pressure benefits associated with the original DASH dietary pattern.[2] In addition, the whole-milk DASH plan resulted in an even better overall cholesterol profile. As this emerging research progresses, it may lead to recommendations incorporating more flexibility so people can tailor dairy food choices to their wellness needs.

Bone benefits prevail

In 2016, the National Osteoporosis Foundation and the American Society for Nutrition published a joint scientific position statement indicating that getting enough calcium, physical activity, dairy foods (i.e., milk, cheese and yogurt) and vitamin D during youth are key diet and lifestyle factors important for building peak bone mass.[3]

Collaboration & education

Joint efforts stimulate evidence-based conversations about dairy, health and sustainability

NDC and the Innovation Center collaborate with the thought leader community to translate research shared through symposia, webinars, conferences, briefings, peer-reviewed journals and communications channels. NDC also convenes health and wellness organizations such as the Academy of Nutrition and Dietetics, the American Academy of Pediatrics, the School Nutrition Association, Feeding America and others to share science and discuss the role of dairy as part of nutritionally balanced eating plans for the health of people and the planet. For example, NDC's 2016 Honor the Harvest summit brought together diverse national and local thought leaders to discuss dairy's commitment to nutrient-rich, sustainable food systems from farm to table. As a result, they will be better equipped to contribute to the conversations about dairy's role in a sustainable diet.

The dairy community continues its research and educational commitments through the Future of Food partnership with the Academy of Nutrition and Dietetics and Feeding America, which helped lead to other initiatives like The Great American Milk Drive with Feeding America and Milk Processor Education Program (MilkPEP), discussed on pg. 11.

Joslin Diabetes Center recognizes importance of dairy

Joslin Diabetes Center (JDC), an independent, nonprofit institution affiliated with Harvard Medical School, is a leader when it comes to diabetes research and treatment. NDC collaborates with JDC to further research on dairy's role in diabetes management. As part of revisions to the Joslin 2016 Clinical Nutrition Guideline for Overweight and Obese Adults with Type 2 Diabetes and Prediabetes, the guideline states that dairy foods (milk and yogurt) are recommended sources of protein and fat.[4]

The new guideline recognizes recent scientific evidence showing dairy consumption (yogurt and dairy products), as part of a healthy diet, can be associated with reduced risk of type 2 diabetes. The guideline also recognizes saturated fat from dairy foods (milk, cheese and yogurt) may be acceptable within total daily caloric intake. JDC is the first diabetes research, care and education center to recognize this evolving evidence on dairy foods in nutrition guidelines.

Reducing food waste to fight hunger

Food waste is part of the challenge to meet the nutritional needs of people – and to conserve precious resources and protect the climate – today and for future generations. While millions go without enough food, 40 percent of all food produced in the United States is never eaten.[6]

A focus on using food for its highest purpose involves feeding people first, then feeding animals and finally returning the nutrients to the land that grows our food. This keeps food out of landfills where it decomposes and produces methane, a potent greenhouse gas.

In 2016 the Innovation Center convened thought leader groups from diverse sectors, including the Academy of Nutrition and Dietetics, Feeding America, the Grocery Manufacturers Association, The Rockefeller Foundation, the World Resources Institute and World Wildlife Fund, to increase awareness of solutions that reduce food waste. Learn more at **furtherwithfood.org**.

Research on nutrition & environment

A new framework evaluates dual impacts of nutrition and environment

Research on sustainable nutrition should consider both environmental (e.g., water, land, air) and nutritional (e.g., nutrients, associated health benefits, affordability, accessibility) impacts of foods and particular eating patterns. While food-related life cycle assessments have examined the environmental impact of certain foods or diets, evaluations that include both dimensions have been limited. Such research is critical to help identify science-based solutions to support healthy and sustainable food systems.

A novel Combined Nutritional and Environmental Life Cycle Assessment (CONE-LCA) framework was sponsored by NDC in 2016. This framework assessed human health impacts, expressed in Disability-Adjusted Life Years (DALYs), in a proof-of-concept case study that investigated the environmental and nutritional human health effects associated with adding one serving of milk to the average U.S. adult diet.[5] This study provided the first quantitative estimate of the complements and trade-offs between nutrition and environment that should be considered to foster a more balanced and accurate approach to food-related LCAs. Additional research, including further testing of the CONE-LCA approach, will help inform recommendations on food choices and improvements to support sustainable food systems.

Additionally, research on the protein quality of dairy as well as unintended consequences of excluding animal-sourced foods is ongoing. Early results indicate that healthy eating styles containing a mix of dairy foods and plant-based foods can help close nutrient gaps. This research is foundational to dairy's contributions to sustainable meal patterns.

Looking ahead

The long-lens goal is to ensure dairy's ability to help nourish people through nutritionally secure and sustainable food systems. This includes optimizing systems to help get dairy's nutrition to the public in an accessible, affordable way to provide nourishment for all. Work to support this goal will concentrate on three key areas:

- **Dairy across life stages and lifestyles** focuses on better understanding why dairy foods are essential (and hard to replace or do without) for diverse populations and lifestyles.
- **Nourish with dairy** includes nourishing people, especially the food and nutrition insecure, by helping provide nutrient-rich, accessible and affordable options, while minimizing food loss and food waste across the supply chain to lessen the burden on the environment.
- **Dairy as a driver of food systems** involves the potential for broader solutions due to the uniqueness of dairy cows, which not only provide dairy foods but also help make other foods and products possible (e.g., manure to fertilize crops). Dairy cows also are natural recyclers of parts of foods/plants that people can't eat – unlocking their nutrition and turning it into nutrient-rich milk.

➜ LEARN MORE

National Dairy Council: **nationaldairycouncil.org**

WORKING TOGETHER WE CAN HONOR THE HARVEST AND NOURISH PEOPLE

Honoring the Harvest is about using food for its highest purpose – to nourish people – and moving nutrients through the food system from people, to animals and back to the land to grow more food rather than going to waste in a landfill.

In a typical week, an average American family of four purchases approximately 96 lbs. of food, and of that **22 lbs. (about 23%) go to waste in the home.**

That's almost like buying four bags of groceries and tossing one in the trash!

BECOME A FOOD WASTE WARRIOR

Take these simple steps:

- Start with meal planning
- Buy and eat just what you need
- Make the most of leftovers
- Master food storage
- If you do have extra food, donate it to those in need in your local community

PEOPLE FACE FOOD INSECURITY IN EVERY COMMUNITY IN THE COUNTRY

1 in 6
CHILDREN IN THE U.S. LIVED IN FOOD-INSECURE HOUSEHOLDS IN 2015

Pay it forward:

A family of four that buys and eats just what they need would save approximately **$4.06 a day,** which adds up to **$1,484 per year**

The savings can be put to good use for your family or your community.

Just half the annual savings would be enough to provide food-insecure neighbors with up to **8,162 meals** through food banks.

20 families working together in the same way

Help the planet, too:

Reducing food waste keeps food out of landfills, conserving valuable resources and reducing methane emissions.

A family of four that buys and eats just what they need could reduce its annual carbon footprint by **4,587** LBS

That's like driving
4,987
FEWER MILES PER YEAR

LEARN MORE AT FURTHERWITHFOOD.ORG

 | Figures have been rounded. Sources by section: **Introduction** Food purchase and waste estimates from Buzby, J. C., Wells, H. F., & Hyman, J. (2014). *The estimated amount, value, and calories of postharvest food losses at the retail and consumer levels in the United States*. EIB-121, ERS, USDA. **Take these simple steps** "Food waste warrior" and steps: Gunders, D. (2015). *Waste free kitchen handbook*. San Francisco: Chronicle Books. Food insecurity in every community: Feeding America, Mind the Meal Gap, map.feedingamerica.org. Data for children: Coleman-Jensen, A., Rabbitt, M., Gregory, C., & Singh, A. (2016). *Household food security in the United States in 2015*. ERS, USDA. **Pay it forward** Savings from Buzby, Wells, Hyman (2014). Meals provided is based on donation to Feeding America (www.feedingamerica.org/ways-to-give/); number of meals can vary by location. **Help the planet** Reduction in carbon footprint is based on EPA WARM report, 2016, www.epa.gov/sites/production/files/2016-03/documents/warm_v14_organic_materials.pdf. Equivalence calculation: www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

PEOPLE & COMMUNITY

Dairy farmers and businesses have deep roots in the communities where they live and work. Through joint efforts and individual actions, the U.S. dairy community is helping cultivate healthy, vibrant communities across the country.

Doing Our Part to Strengthen Communities

With more than 43,000 farms and 1,200 dairy companies making wholesome dairy foods and beverages, the dairy community has a significant impact on thousands of communities and millions of people across the country. Our commitment to strengthening communities starts with providing foods that help nourish people at all stages of life and supporting science-based nutrition information and programs that improve youth wellness. It also includes economic contributions, such as providing jobs and spending, and working on solutions to overcome food insecurity.

Efforts to ensure food & nutrition security

Food insecurity is a major issue. Although a reduction in domestic food security occurred between 2014 and 2015, more than 42 million Americans lived in food-insecure U.S. households in 2015.[7] This includes more than 13 million, or one in six, children. Furthermore, 22 million students rely on free and reduced price meals, and 75 percent of educators say that students regularly come to school hungry.[8]

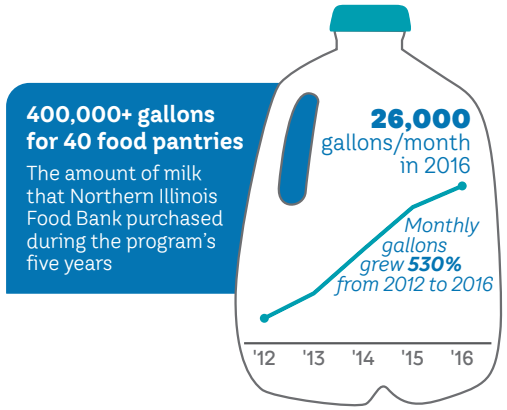
In addressing this challenge, it is vital that those in need receive the nutrient-rich foods recommended in the *2015-2020 Dietary Guidelines for Americans* as foods to encourage: fruits, vegetables, lean protein, whole grains and low-fat or fat-free milk and milk products.

Food banks across the country value milk for its powerhouse of nutrients, especially protein, which is considered an expensive nutrient. Also, milk complements many of the foods that are typically on food pantry shelves, like dry cereal, peanut butter and macaroni and cheese. Despite the strong need, milk is one of the least-donated items to food banks, primarily due to its perishability, which requires refrigerated transport and storage. Developing creative solutions to this challenge is a top priority for dairy farmers and milk companies, and they are working alongside community members and partner organizations to increase donations of milk and dairy foods. One example is the site **hungerandhealth.feedingamerica.org**, which showcases recipes that can be made with food pantry items, including dairy foods, that fit within an affordable, accessible – and nutritious – budget.

The Great American Milk Drive: Feeding America, NDC and MilkPEP launched The Great American Milk Drive in 2014. In less than two years, more than 1 million gallons of milk were provided to food bank clients through this voucher program. Donated vouchers for a gallon of milk are given to clients, who can "purchase" a gallon of milk at any retail store. Retailers across the country are promoting the donation of milk to customers in their stores and online.

Total servings of milk donated through 2016: 16,158,932

Milk2MyPlate in Northern Illinois



Milk2MyPlate: In 2012, Northern Illinois Food Bank (NIFB) launched the Milk2MyPlate program to provide fresh milk to local food pantry clients. Beginning as a small pilot with six food pantries, Milk2MyPlate grew into an opportunity for the dairy community to provide more than 400,000 gallons of milk to 40 NIFB food pantries during the program's first five years. Following the model developed by NIFB, eight additional food banks representing 174 food pantries are now purchasing milk at discounted rates from the dairy community, and 13 more are in the queue to start pilots in 2017.

Youth health & wellness initiatives

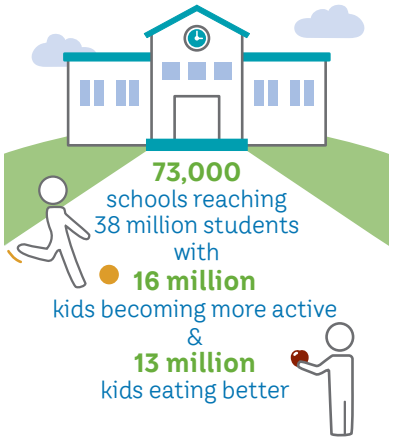
Working with and through community partners, NDC, GENYOUth and the Innovation Center champion the health and well-being of children and deliver crucial resources to school communities. Partnerships with leading education, health, government and business organizations support solutions to challenges such as child obesity, food insecurity and malnutrition, while building recognition of and support for dairy's essential role in healthy meal patterns.

A unique partnership between NDC and the National Football League, Fuel Up to Play 60 empowers students to create positive changes in their schools and communities, including increasing access to nutrient-rich foods such as milk, cheese and yogurt, and increasing opportunities for physical activity. A leading in-school program, Fuel Up to Play 60 has been committed to youth wellness since its launch in 2009. As a result, 13 million students are eating healthier, and 16 million are more physically active.

Additionally, since the program's launch and through the efforts of GENYOUth, more partners are joining to help support the program's goals and objectives by providing millions of dollars in funds and in-kind resources. GENYOUth brings leaders in health, education, government and business together in a movement to help America's youth achieve a healthier future. Most of its funding goes to underserved school communities.

FUEL UP TO PLAY 60 RESULTS

Since expanding nationally in 2010, Fuel Up to Play 60 has engaged:



Working with numerous partners & supporters, GENYOUth has helped secure resources, including over **$30 million in grants & equipment**, to jump-start healthy changes.

Looking ahead

The Innovation Center for U.S. Dairy is working to further its deep-rooted commitment to people and communities through programs that rally constituents across the dairy community. Focus areas will include societal contributions (including food and nutrition security and youth wellness), economic impact and future workforce development. In 2017, the Innovation Center and NDC will lead initiatives that include:

- **Hunger initiatives:** The Innovation Center will continue to facilitate partnerships and initiatives aimed at reducing hunger among the most vulnerable populations.
- **School Meals Summit:** In collaboration with the Urban School Food Alliance, NDC and the Innovation Center will convene a national summit on school meals, with goals to identify pilot projects to speed innovation; grow meal participation; and create a long-term school meal system that is economically, ecologically and socially sustainable.

➔ LEARN MORE
National Dairy Council: **nationaldairycouncil.org**
The Great American Milk Drive: **milklife.com/give**
GENYOUth: **genyouthnow.org**
Fuel Up to Play 60: **fueluptoplay60.com**

Summit connects students to the farm

At the 2016 Fuel Up to Play 60 Student Ambassador Summit, Land O'Lakes sponsored 200 students and educators from across the country at Fair Oaks Farms, where the two companies helped tell the story of food – from seed to plate. In addition to the dairy farm tour and story session, Land O'Lakes sponsored a "Farm to School" grant competition, which provided students with the opportunity to present ideas in front of a panel of judges, including Land O'Lakes CEO Chris Policinski. Students showcased how they would implement farm-to-school initiatives at their school. The ten selected winners each received $1,500 to implement their ideas.

To conclude the Summit experience, students were invited to participate in the Making Your Mark panel session, which helped them understand the opportunity they have to create change today – and in the future.

FOOD SAFETY

People trust wholesome milk and dairy foods to nourish their families. Ensuring food safety and high quality is a top priority and shared responsibility for everyone in the dairy value chain, from farm to fridge.

Working Together to Promote Food Safety

U.S. milk and dairy foods are among the safest, most regulated foods in the nation. The U.S. Food and Drug Administration (FDA) safeguards the nation's milk supply through the Grade "A" Pasteurized Milk Ordinance. In addition, the dairy community's voluntary best practices and collaborative approach provide additional assurances that all dairy foods meet the highest level of food safety.

More than 25 leading dairy companies are working together through the Innovation Center, investing extensive human and financial resources toward a shared commitment to food safety. This broad dairy community engagement is focused on sharing best practices and advancing science-based tools. Dozens of additional experts serve in an advisory capacity.

To stay abreast of emerging opportunities to continuously improve safe food production practices, the dairy community also works closely with state and federal regulators, including FDA's Center for Food Safety and Applied Nutrition.

Food safety education

Since 2011, leading experts from dairy companies have written and delivered a series of workshops designed to help the entire dairy industry. Through year-end 2016, more than 2,500 people have been educated at workshops to learn best practices to control pathogens in dairy plants, artisan/farmstead operations and their supply chains.

The workshops are hosted and funded by dairy companies; hosts in 2016 and 2017 include California Dairies, Chobani, Darigold, Foremost Farms USA, Glanbia Nutritionals, Great Lakes Cheese Company, Hilmar Cheese Company, HP Hood, Land O'Lakes, Leprino Foods Company, Prairie Farms Dairy, Saputo Dairy Foods USA, Sargento Foods and the Tillamook County Creamery Association.

Focus on artisan cheesemaking: The production of artisan and farmstead cheese, made in small batches using traditional methods, continues to grow rapidly. These unique cheese products are sold at retail outlets, restaurants and farmers markets around the country. The U.S. artisan dairy manufacturing community is quite large, with more than 1,000 companies located from coast to coast.

To develop the most effective methods to reach and support this community, in 2016 the Innovation Center convened an Artisan Advisory Team in partnership with the American Cheese Society, academics, retailers and small dairy manufacturers. In 2017, the group is set to launch an online artisan food safety workshop and new website, **safecheesemaking.org**, which consolidates self-study resources, guides and tools. The group also plans to develop a nationwide workshop where artisans will receive hands-on training and coaching while they write their own food safety plans.

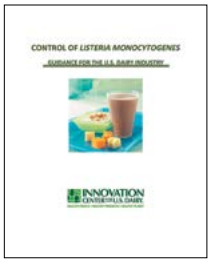
U.S. DAIRY TRACEABILITY
Pinpoint and Protect

The following processors have made the pledge:

- Agri-Mark
- Associated Milk Producers Inc.
- Bongards
- California Dairies, Inc.
- Continental Dairy Facilities/ Select Milk Producers, Inc.
- Dairy Farmers of America
- Darigold/Northwest Dairy Association
- Dean Foods Company
- fairlife
- First District Association
- Foremost Farms USA
- Glanbia Nutritionals
- High Desert Milk
- Hilmar Cheese Company, Inc.
- HP Hood
- Idaho Milk Products
- Land O'Lakes, Inc.
- Leprino Foods Company
- Michigan Milk Producers Association
- Prairie Farms Dairy
- Schreiber Foods, Inc.
- St. Albans Cooperative Creamery, Inc.
- Swiss Valley Farms
- Tillamook County Creamery Association
- United Dairymen of Arizona
- Upstate Niagara Cooperative, Inc.

Listeria controls

A priority for the Innovation Center's food safety research is controlling *Listeria* (*Listeria monocytogenes*). While today's dairy products are among the safest foods produced, *Listeria*, a disease-causing bacterium that can grow under refrigerated conditions, represents a serious risk to the U.S. food supply and to dairy's strong safety record. The Innovation Center and the dairy community initiated the following two efforts with the goal of making dairy even safer by identifying new tools and best practices for effective pathogen control and by advancing research.



Listeria Controls Guide: Published in October 2015 and broadly distributed in 2016, this comprehensive resource guide provides food safety best practices for dairy processing plants. It is available in print and **online** and has averaged 50 downloads per month. In 2017, the guide will be published in Spanish to help more plant workers in their native language.

Listeria Research Consortium: This dairy community-funded effort launched in 2015 to advance food safety science, catalyze dairy-focused research and initiate research projects. Core investor organizations provided funding and experts to steer the research. Projects from Cornell University, the University of Wisconsin-Madison's Food Research Institute, Cork Institute of Technology and Iowa State University were started in 2016, and four more are starting in 2017.

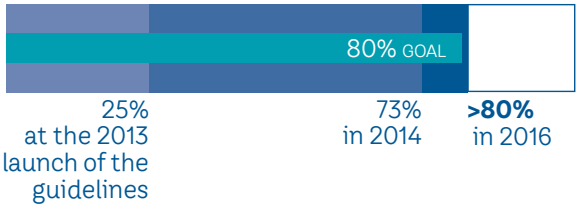
U.S. Dairy Traceability Commitment

In 2013, the Innovation Center released voluntary best practices for enhanced dairy traceability. Simply defined, traceability is the ability to track a product through all stages of production, processing and distribution. The industry guidelines focus on product flows, labeling, record keeping, data collection and other protocols.

The Innovation Center considers enhanced traceability guidelines a priority not only for improving global competitiveness, but also for supporting customer and consumer confidence.

TRACEABILITY GOAL ACHIEVED!

More than 80% of the U.S. milk supply is covered by voluntary dairy traceability guidelines.



As of year-end 2016, more than 26 dairy processors (listed at left) representing more than 80 percent of the U.S. milk supply have voluntarily pledged to adopt these practices. The committee is continuing outreach and education to encourage additional participation.

Looking ahead

Food safety efforts in 2017 will continue to progress along these three pathways:

- **Education and best practices sharing:** Eight workshops are planned for 2017.
- **Research-based guidance documents and tools:** In 2017, a Spanish version of the Listeria Controls Guide will be published.
- **Listeria Research Consortium:** Four new research projects will begin in 2017.

➔ LEARN MORE

Website focused on artisan food safety: **safecheesemaking.org**

Listeria Controls Guide: **USDairy.com/FoodSafety**

Guidance for Dairy Product Enhanced Traceability: **USDairy/TraceabilityChecklist**

Dairy companies initiate unified approach to promote food safety

The Food Safety Committee was not in place when the Innovation Center for U.S. Dairy was created. That quickly changed thanks to the leadership of Schreiber Foods.

Schreiber CEO Mike Haddad and Larry Jensen of Leprino Foods felt that food safety collaboration should become a core Innovation Center focus. Both recognized that sharing knowledge and leading efforts as an industry would help protect public confidence in all dairy products.

They asked Tom Hedge, Schreiber senior vice president of enterprise quality and food safety, to lead the committee. Hedge quickly rallied support from companies across the industry, including many that saw each other as competitors. These members soon realized the benefits of combining resources and working in a collaborative spirit to address food safety challenges.

The committee concentrates on identifying and promoting best practices across the dairy community through guidance documents, tools and workshops. In addition, the group created the Listeria Research Consortium (described on the previous page) to identify new science-based tools to promote food safety and further strengthen consumer confidence.

"Consumers should be confident that the products they eat are safe," Hedge said. "The collaboration among competing companies that stand shoulder to shoulder can make a real difference for the greater good."

ANIMAL CARE

America's dairy farmers have a long history of providing the highest levels of animal care to their cows. High-quality milk and dairy foods that nourish families begin with healthy cows that are comfortable and well cared for.

NATIONAL DAIRY FARM ANIMAL CARE PROGRAM RESULTS THROUGH 2016

is from program participants

105 participating co-ops and/or proprietary processors in 48 states

370 trained FARM evaluators

45K second-party evaluations completed

Uniting on Animal Care Practices

U.S. dairy farmers demonstrate their shared commitment to animal care through their voluntary participation in the National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program. The program, which is administered by the National Milk Producers Federation (NMPF), sets the highest standards for animal care and encourages a culture of continuous improvement to inspire dairy farmers to do things even better every day.

The program also provides assurance to people that their milk and dairy products come from farms that take excellent care of their animals. Therefore, participation in FARM is the industry's metric for animal care as outlined in the *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23). At the end of 2016, 98 percent of the U.S. milk supply came from dairy farms and cooperatives enrolled in the FARM Animal Care Program.

Elements of the FARM Animal Care Program

A comprehensive approach helps assure dairy customers and consumers of the program's objectivity and integrity:

- The FARM Animal Care Reference Manual outlines rigorous animal care guidelines, which are regularly updated to reflect the latest research on quality animal care.
- On-farm evaluations occur at least once every three years. Qualified and trained evaluators – usually veterinarians, extension educators, university personnel or co-op field staff – provide dairy farmers with feedback on how they are doing and discuss opportunities for improvement.
- The integrity of the program is validated through third-party verification, which is completed by outside experts who inspect a representative percentage of farms each year.
- A three-year revision cycle promotes ongoing improvement. The FARM Program Technical Writing Group, NMPF Animal Health and Wellbeing Committee and NMPF board of directors, which are composed of dairy veterinarians, academics, co-op/processor staff and farmers, provide input and revise the guidelines.

Improvement & engagement efforts

Overall program results demonstrate continued strong performance in 2015 and 2016 (see sidebar). Additional efforts in 2015 and 2016 concentrated on preparing for FARM Version 3.0 and engaging with more people about FARM Animal Care.

- Preparations for rolling out FARM Version 3.0 in January 2017 included four training sessions for evaluators. An updated manual and customizable materials will help dairy farmers and cooperatives implement the new guidelines and management practices on their farms.
- Additionally, for the first time, the FARM Animal Care Program hosted a full day at the American Association of Bovine Practitioners (AABP) to further engage with the veterinary community. Veterinarians have always played, and will continue to play, an integral role in ensuring excellent animal care on dairy farms. With a heightened focus on the veterinarian-client-patient relationship and the herd health plan in FARM Version 3.0, AABP was an excellent venue to reinforce the importance of veterinary involvement.
- FARM also held its first-ever evaluator conference as a professional development and networking opportunity for nearly 70 evaluators. Topics included the latest research related to animal welfare as well as how to become leaders in the industry on behalf of FARM Animal Care and how to help farmers embrace the program. Bringing together evaluators from all over the country sparked conversations about successes and challenges, fostering peer-to-peer learning.

The importance of telling our story

People want to know more about animal care on farms. In a 2014 national survey conducted by American Humane Association, 94.9 percent of respondents indicated they were "very concerned about farm animal welfare," up from 89 percent in the 2013 study.[9]

The FARM Animal Care Program launched a blog to share the stories of dairy farmers, co-ops and processors that participate in the program and to post program updates. The FARM Program also uses its social media accounts to connect with dairy customers and consumers, answering their questions and showing how the entire dairy industry is #FARMProud.

Looking ahead

Shortly after the January 2017 launch of FARM Version 3.0, the FARM Program will include the new Environmental Stewardship module, discussed on pg. 18.

Efforts to broaden understanding and awareness of the value of the program to dairy farmers and dairy customers will continue. Outreach will also target allied dairy community stakeholders, such as businesses and animal care advisers that dairy farmers turn to for expertise and counsel.

→ LEARN MORE

National Dairy FARM website: **nationaldairyfarm.com**

National Dairy FARM Resource Library: **nationaldairyfarm.com/resource-library**

The FARM Program demonstrates DFA's commitment

Dairy Farmers of America (DFA) recognizes FARM as the animal care module of its Gold Standard Dairy Program. The Gold Standard and FARM Programs measure best practices associated with dairy production, such as nutrition, animal health, management, handling, and housing and facilities.

"The FARM Program has become the cornerstone with how we communicate with customers," said Fabian Bernal, manager of dairy science and farm practices for DFA. "The dairy industry always had an excellent story to tell, but now we have the data to back up that story and confirm good farming practices are being utilized. And, record keeping has improved because of FARM."

Bernal said 100 percent of DFA's farms are compliant with FARM 2.0. In 2017, DFA will incorporate updates in FARM 3.0 and collect data across the co-op's membership.

He said dairy farmers understand how important FARM is to their businesses.

"At the end of the day, this is about continuous improvement and reducing risk for the dairy farmer," Bernal said. "This gives our customers a better understanding of the industry and when they have questions, the FARM Program allows us to say, 'We do things the right way and this is how!'"

ENVIRONMENTAL STEWARDSHIP

The U.S. dairy community draws on its deep legacy of environmental stewardship, innovation and efficiency to produce dairy products for a growing population in ways that enhance and protect our natural resources.

Addressing Environmental Priorities

Dairy sustainability starts with open-source, peer-reviewed science about the environmental impacts of dairy products. The Innovation Center has completed studies for fluid milk and cheese, which provide an accurate baseline of impacts and identify areas for improvement. The scientific life cycle assessments, along with stakeholder input, identified greenhouse gas (GHG) emissions, energy use and water quality and quantity as the U.S. dairy industry's initial environmental priorities to address.

INITIAL INDUSTRY PRIORITIES

GHG emissions

Voluntary goal to reduce GHG emissions per gallon of milk by 25 percent by 2020

Energy use

Water quality & quantity

Projects to reduce emissions & energy use

In 2009, the Innovation Center launched a portfolio of projects to reduce GHG emissions across the dairy supply chain, along with a goal to reduce GHG emissions by 25 percent from a 2007 baseline by 2020. As reported in the 2014 sustainability report, three of those projects were concluded in 2014. The following six projects have since been completed. The one open project, Cow of the Future®, is discussed on the next page.

Farm Smart™ The methodology and science that lie within the Farm Smart tool became the foundation for a new Environmental Stewardship module within the National Dairy FARM Program, discussed on pg. 16. The module, available to FARM program participants in early 2017, integrates Farm Smart's science-based models to provide dairy producers, cooperatives and companies with a more streamlined, single source for voluntary on-farm assessment and communication of GHG emissions and energy use on dairy farms.

Farm Energy Efficiency™ Elements of this program were incorporated into Farm Smart as part of the Environmental Stewardship module described above.

Dairy Plant Smart™ The Dairy Plant Smart project focused on helping processors and manufacturers measure the energy and GHG emissions intensity of fluid milk production. With the development and availability of widely adopted resources to measure the indicators defined in the *Stewardship and Sustainability Framework for U.S. Dairy,* the Dairy Plant Smart tool and project were completed in 2016.

In 2016, a processor-led team of Dairy Sustainability Alliance members worked with the Innovation Center and the International Dairy Foods Association to develop a Processor Handbook with guidance on consistently calculating and reporting metrics within the Framework.

Dairy Fleet Smart™ The goal of the Dairy Fleet Smart project was to accelerate the adoption of transportation and distribution practices that reduce fuel consumption, costs and GHG emissions. The project built on the Environmental Protection Agency's SmartWay program by providing recommended management practices and improvement strategies for dairy. As the SmartWay program continued to evolve, a dairy-specific version was no longer needed; therefore, the Dairy Fleet Smart project concluded in 2015.

Dairy Power™/Biogas Capture and Transport These projects concentrated on lowering the barriers to adoption of anaerobic digester technologies, resulting in the creation in 2015 of Newtrient, an organization focused on assessing and advancing manure management technologies, acting as a business incubator for manure-based products and actively designing and implementing market mechanisms to allow dairy farmers to recover economic value for voluntarily assisting others in achieving their pollution prevention obligations.

Historical data and details on the GHG reduction projects can be found in previous **U.S. Dairy Sustainability Reports and Greenhouse Gas Reduction Project Progress Reports**.

Dairy cows' role in sustainable food systems

The Cow of the Future® project, one of the original GHG reduction projects, remains active. It provides research and analysis of technologies that have the potential to improve dairy cow feeding and management, with consideration of critical success factors such as environmental and economic impact as well as social factors such as safety and consumer acceptance.

The project's mission has expanded to include research on the dairy cow's role in and contribution to sustainable food systems. In 2016, the Cow of the Future team presented research showing that 80 percent of what cows eat cannot be eaten by people. Of the remaining 20 percent of cow feed, only 2.2 percent is made up of ingredients that people would want to eat.[10] The dairy cow's ruminant stomach enables it to recycle nutrients from the parts of plants and food that humans can't eat, like unused citrus pulp or almond hulls, and convert them into nutritious milk, thus making a net positive contribution to the food supply in the United States.

Contributions to national & global environmental science initiatives

Innovation Center staff scientists contribute valuable expertise to a number of leading governmental, agricultural and scientific organizations and initiatives focused on environmental sustainability, as highlighted in the list to the right. Additional partnerships and affiliations are listed on pg. 22.

Partnerships to improve dairy's footprint

The Innovation Center has held long-standing collaborations with organizations such as World Wildlife Fund and U.S. Department of Agriculture (USDA) as a way to advance dairy sustainability efforts and accelerate progress toward common environmental stewardship goals. The partnership strategy expanded in 2015 with the signing of a formal memorandum of understanding between the Innovation Center and Field to Market: The Alliance for Sustainable Agriculture. Field to Market is a leader in driving sustainable outcomes for U.S. agriculture at the crop production level.

As the first step in the dairy value chain, feed production is part of dairy's overall environmental footprint. The Innovation Center-led comprehensive life cycle assessment for fluid milk found that most of the water use and the majority of land used for milk production occur at the crop production stage.

- 93.5 percent of total water use occurs during the feed production stage.[11]
- 96 percent of land use is at the feed production stage.[12]

An estimated 65 percent of dairy cow feed is purchased by dairy farmers from other crop farmers.[13] Even though dairy farmers often do not control feed production, the dairy community is working to find ways to collaborate with feed groups and help drive improvements and efficiencies in these areas. For example, the *Stewardship and Sustainability Framework for U.S. Dairy* integrates Field to Market indicators and metrics in its chapter on field-level topics, as described on the following page.

Participation in environmental science initiatives

- American Center for Life Cycle Assessment Industry Committee
- American Dairy Science Association DISCOVER Conference Steering Committee
- American Feed Industry Association: Nutrition Member Interest Group and Sustainability Oversight Committee
- Council for Agricultural Science and Technology
- Council on Dairy Cattle Breeding
- Dairy Sustainability Project
- European Commission Product Environmental Footprint: Dairy Review Panel
- FAO Livestock Environmental Assessment and Performance (LEAP) Partnership: Large Ruminant and Nutrient Technical Advisory Groups
- International Dairy Federation Standing Committee on Environment
- NMPF FARM Environmental Stewardship Task Force
- Soil Science Society of America
- U.S. Dairy Forage Research Center Stakeholder Committee
- USDA Agricultural Air Quality Task Force, Agricultural Research Service Dairy Agroecosystem Work Group and National Institute of Food and Agriculture

Milk helps in an unexpected way

Farmers have a natural desire to help neighbors in need. That's why they didn't hesitate to lend a helping hand to residents of Flint, Michigan, who were struggling with a water quality crisis.

The water supply had elevated lead levels, putting the residents of this impoverished city at risk. However, a way to help was discovered that caught the attention of the Michigan Milk Producers Association (MMPA) cooperative. Research shared by the Michigan State University Extension office showed that calcium can help block lead absorption in people.

That's when the dairy farmers took action. Within 96 hours, the dairy cooperative made plans to donate milk to Flint residents, enlisting support from partner organizations including Kroger, Quickway Carriers, the Food Bank of Eastern Michigan and the United Dairy Industry of Michigan. The MMPA board of directors voted in January 2016 to donate milk to Flint residents via the Food Bank of Eastern Michigan.

"There was no hesitation on the part of any board member about this donation," said Ken Nobis, dairy farmer and MMPA president. "They knew it was the right thing to do."

Not long after, the first of three donations of 12,000 gallons made its way to the food bank for distribution to those in need.

"Their reaction reminded me why I love agriculture and why I am so honored to have the opportunity to serve Michigan agriculture," said Jamie Clover Adams, director of the Michigan Department of Agriculture and Rural Development. "Agriculture is made up of the most genuine, down-to-earth, caring people."

Indicators to measure progress

Dairy's environmental priorities, informed by scientific life cycle assessment (LCA) findings and stakeholder input, are addressed in the *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23). The following environmental indicators were added to the Framework in 2016:

- **On the field:** Land use, irrigation water use, soil erosion, water quality, soil carbon and biodiversity (aligned with Field to Market indicators and metrics)
- **On the dairy farm:** Nutrient management plan and by-products in feed
- **In the dairy processing/manufacturing facility:** Waste diversion, throughput efficiency and resource utilization

Dairy farms and companies can use the Framework to establish performance baselines, and to measure and communicate improvements over time. Dozens of cooperatives and processors incorporate the Framework into customer-focused sustainability reporting.

Looking ahead

Efforts to work with dairy farmers on their continuous improvement journeys are ongoing. The Innovation Center will continue in 2017 to engage with the Dairy Sustainability Alliance, forge collaborations with USDA and NGOs, and work with dairy customers to align their sourcing goals with the science-based *Stewardship and Sustainability Framework for U.S. Dairy*.

Ongoing work on the research front will advance the science and understanding of dairy's environmental impact, particularly in relation to other factors such as nutritional quality, as discussed on pg. 8. Research on tracking progress toward the GHG reduction goal is also planned for 2017.

➔ LEARN MORE

Stewardship and Sustainability Framework for U.S. Dairy:
USDairy.com/Sustainability/Reporting

Dairy's environmental footprint:
USDairy.com/Sustainability/Environmental-Research

Best practices for energy efficiency in plants:
energystar.gov and **USDairy.com/Sustainability/For-Community/At-the-Plant**

Information on increasing transportation efficiency: **epa.gov/smartway** and **USDairy.com/Sustainability/For-Community/On-The-Road**

Working together

Collaboration is foundational to the Innovation Center. It has long been a powerful strategy for the dairy community and our stakeholders to address shared challenges and accelerate progress.

Dairy Sustainability Alliance

The Innovation Center's Dairy Sustainability Alliance is a multistakeholder group with representatives from across the dairy community who are committed to advancing dairy sustainability and social responsibility through the U.S. Dairy Sustainability Commitment. Members include crop and dairy farmers, processors, manufacturers, retailers, suppliers, and representatives from nonprofits, trade organizations, government and academia. During 2015 and 2016, the Innovation Center evolved the Sustainability Council into the Dairy Sustainability Alliance to align more closely with the priorities of the Innovation Center strategic plan.

The goal of the Dairy Sustainability Alliance is to provide a forum where member organizations can convene to share knowledge, collaborate on issues affecting the industry at large and accelerate progress toward our common objectives. All outcomes of the Dairy Sustainability Alliance's work are made available to the entire dairy community.

Dairy Sustainability Alliance members have the opportunity to meet in person twice a year. The Dairy Sustainability Forum, held each spring in conjunction with the U.S. Dairy Sustainability Awards ceremony (pg. 25), focuses solely on dairy sustainability topics. The **Sustainable Agriculture Summit**, held each fall, convenes leaders from across the agricultural value chain for the premier sustainability event in production agriculture. Members also connect throughout the year through webinars and participation in committees, project working groups and other Innovation Center initiatives.

In 2016, the Dairy Sustainability Alliance represented 108 member organizations (see sidebar). Eight new organizations joined the alliance in 2015 and 2016: Albertsons, Associated Milk Producers Inc., Dairy Business Milk Marketing Cooperative, DSM Nutritional Products, Lucerne Foods, Newtrient, Scott Brothers Dairy and The Nature Conservancy.

Shared commitment

The U.S. Dairy Sustainability Commitment builds on the legacy of dairy farm families and businesses. Today, we are working together to provide people with the nutritious, responsibly produced products they want, while developing more sustainable food systems for the 21st century and beyond.

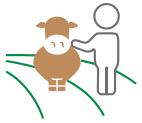
Drafted and endorsed by the Dairy Sustainability Alliance, and also endorsed by the Innovation Center, the guiding principles steer our work. The principles convey our values and ensure that our efforts represent our "triple bottom line" emphasis on environment, economy and society.

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**.

2016 DAIRY SUSTAINABILITY ALLIANCE MEMBER REPRESENTATION
(108 MEMBER ORGANIZATIONS)

15%
CROP PRODUCTION & SUPPLIERS



30%
DAIRY FARMERS & COOPERATIVES

20%
PROCESSORS & MANUFACTURERS

7%
RETAIL & QUICK-SERVE RESTAURANTS

28%
ASSOCIATIONS, GOVERNMENT & COMMUNITY

JOINING FORCES

The Innovation Center and National Dairy Council are affiliated with the following organizations to help advance shared sustainability objectives:

SUSTAINABLE AGRICULTURE

American Association of Bovine Practitioners
American Veterinarian Medical Association
Coalition on Agricultural Greenhouse Gases
Conservation Technology Information Center
Dairy Strong Sustainability Alliance
Field to Market: The Alliance for Sustainable Agriculture (pg. 19)
Food and Agriculture Organization of the United Nations
Food Waste Reduction Alliance
Further With Food
International Dairy Federation
International Dairy Foods Association
National Milk Producers Federation
Soil and Water Conservation Society
World Wildlife Fund (pg. 19)

RESEARCH & REPORTING

Global Dairy Platform (pg. 24)
Joint Global Change Research Institute
National Academy of Sciences
USDA Agricultural Research Service
Various leading academic institutions and research organizations (pg. 19)

FOOD SECURITY & YOUTH WELLNESS

Academy of Nutrition and Dietetics (pg. 7)
Action for Healthy Kids
American Academy of Pediatrics (pg. 7)
Feeding America (pg. 7, 11)
GENYOUth (pg. 11)
The Great American Milk Drive (pg. 11)
Milk Processor Education Program (pg. 11)
School Nutrition Association (pg. 7)

Stakeholder Engagement & Collaboration

Meaningful stakeholder engagement within and outside the dairy community is key to achieving a resilient, sustainable food system. Strong collaboration builds momentum and accelerates progress by leveraging the talent, experience and resources of a wide range of individuals and organizations. Together, we are developing practical and effective solutions to shared challenges.

Our stakeholders include U.S. dairy farmers, businesses, suppliers and trade organizations; agricultural producers and companies in other sectors; food retailers and brands; governmental agencies; academics; NGOs; health and wellness professionals; and consumers. Our inclusive and proactive approach positions the U.S. dairy community as a national leader in sustainable agriculture.

Establishing formal partnerships

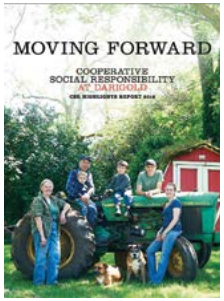
These formal, long-term partnerships with the Innovation Center are vital to our sustainability efforts and progress:

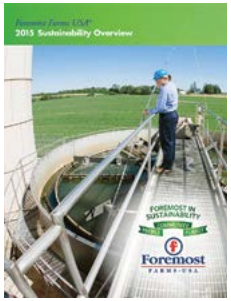
- **World Wildlife Fund (WWF)** is the world's largest independent conservation organization. Since 2009, WWF and the Innovation Center have worked together to advance a more environmentally sustainable U.S. dairy industry through scientific research, enabling industrywide change and enhancing the public dialogue about dairy's role in a sustainable food system.
- **U.S. Department of Agriculture** and the Innovation Center partner through a memorandum of understanding to support the dairy industry's voluntary environmental goals and efforts through collaborative research, outreach and communication.
- **Field to Market: The Alliance for Sustainable Agriculture** and the Innovation Center in 2015 signed a formal memorandum of understanding to advance common sustainability goals.

Learn more about these three partnerships on pg. 19.

Building dairy supply chain relationships

Supply chain partnerships play a vital role in leveraging expertise across the dairy supply chain and in strengthening relationships between customers and dairy suppliers. Ongoing collaboration with retailers and brands such as General Mills, Kroger, McDonald's and Walmart supports sustainable sourcing initiatives and enhances supply chain transparency.





A Voluntary Framework for Communicating Progress

The *Stewardship and Sustainability Framework for U.S. Dairy* (the Framework) supports the dairy industry's objective of building continued consumer trust and confidence in dairy foods and beverages. The Framework provides voluntary, credible, industrywide guidance for measuring and communicating environmental stewardship, social responsibility and a commitment to continuous improvement.

Dairy farms and companies can use the Framework to:

- Establish performance baselines for key sustainability metrics
- Demonstrate improvements over time
- Engage with retailers, consumers and other interested stakeholders to strengthen confidence in dairy foods

The Framework is the result of a collaborative, multistakeholder process involving input from dairy professionals, governmental agencies, NGOs, scientists and academics, and food retailers and brands. Framework topics include those that matter most as identified by scientific life cycle assessments, stakeholder input and the guiding principles of the U.S. Dairy Sustainability Commitment.

The Innovation Center, in partnership with our stakeholders, updates the Framework on a regular basis to reflect the latest scientific information and generally accepted best practices. In July 2016, the Innovation Center released an updated version of the Framework and published a Processor Handbook designed to help dairy processors credibly and consistently report performance using the Framework metrics.

Sustainability reporting

A growing number of dairy businesses are sharing their sustainability goals, practices and performance through sustainability reports. To date, 31 Innovation Center board organizations and Dairy Sustainability Alliance member organizations, listed to the right, have published sustainability reports. Many of these organizations report against metrics from the *Sustainability and Stewardship Framework for U.S. Dairy*, and six reference the Framework in public reports. In addition, 21 follow or reference the Global Reporting Initiative's *Sustainability Reporting Guidelines*.

FRAMEWORK TOPICS

FIELD
- Feed impact

DAIRY FARM
- Energy use
- Greenhouse gas emissions
- Water quantity
- Resource recovery and feed management
- Animal care

PROCESSOR/ MANUFACTURER
- Energy use
- Greenhouse gas emissions
- Water quantity and quality
- Resource recovery
- Employee engagement
- Community contributions

The *Stewardship and Sustainability Framework for U.S. Dairy* provides guidance on specific metrics for each topic to help establish baselines and measure improvements over time. An update is planned for June 2017.

SUSTAINABILITY REPORTERS

The following Innovation Center board organizations and Dairy Sustainability Alliance member organizations have published sustainability reports:

- BASF Corporation
- California Dairies, Inc.*
  Center for Advanced Energy Studies
- The Coca-Cola Company
  Dairy Cares
- The Dannon Company, Inc.
- Darigold, Inc.*
  Dean Foods Company
- DeLaval, Inc.
- DSM Nutritional Products
- Foremost Farms USA*
- General Mills Inc.*
- Glanbia USA
- HDR Engineering Inc.
- Hilmar Cheese Company, Inc.*
  The Kraft Heinz Company
- The Kroger Co.
  Land O'Lakes, Inc.
- Leprino Foods Company*
- McDonald's Corporation
- Nestlé
- PepsiCo, Inc.
  Publix Super Markets, Inc.
  Retail Industry Leaders Association
  Sargento Foods Inc.
  Schreiber Foods Inc.
  Starbucks Coffee Company
- Syngenta
- Tetra Pak
- Unilever
- Walmart

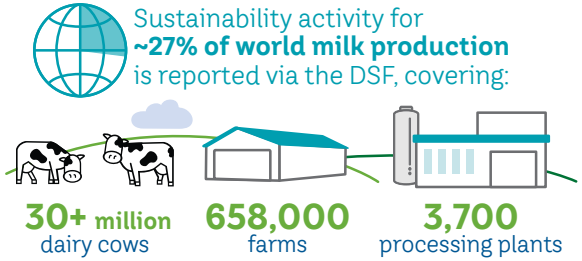
- Indicates GRI-based report
* Indicates use of the *Stewardship and Sustainability Framework for U.S. Dairy*

Global Dairy Efforts

Throughout the world, milk and milk products nourish more than 6 billion people, the majority of them in developing countries.[14] Furthermore, the livelihoods of approximately 1 billion people are connected to dairy.[15] At the same time, the dairy industry recognizes the importance of its broader social and environmental responsibilities.

At a global level, the dairy sector has a significant role to play in contributing positive outcomes to address the world's most pressing challenges, such as nutritional security, global health, poverty reduction, resource scarcity and climate action. This wider context fuels the Innovation Center's work with leading global dairy organizations to support shared efforts for sustainable dairy.

Global Dairy Platform (GDP) leads the development of a collaborative, unified approach on dairy's vital contribution toward nutritional security and a more sustainable global food system. GDP was among seven organizations in 2009 to sign the Global Dairy Agenda for Action (GDAA) on Climate Change. Since then, the GDAA has widened its focus to encompass the economic, environmental and social dimensions of sustainability and to provide governance for the global dairy sector's sustainability efforts.



A global sustainability framework

The Dairy Sustainability Framework (DSF), developed by the GDAA, provides a global framework for a holistic approach to sustainability in the dairy value chain. The DSF supports a common language about sustainability by aligning international activity on 11 key criteria, which cover environmental, economic and social factors such as water, rural economies and working conditions. The DSF helps recognize dairy's role and quantify the sector's contributions and impacts. It also sets overarching goals for the global sector on its path toward sustainability.

GDP is working with the GDAA to drive implementation of the DSF, and the Innovation Center serves in a governance role and as the aggregating member for the U.S. dairy industry. The *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23) provides the national platform for aggregate reporting. Sustainability activity for approximately 27 percent of world milk production is reported via the DSF, covering over 30 million cows, 658,000 farms and 3,700 processing plants worldwide.

Learn more at **globaldairyplatform.com** and **dairysustainabilityframework.org**.

Dairy's contribution to achieving global goals

The Sustainable Development Goals (SDGs), adopted in September 2015 as part of the United Nations (UN) 2030 Agenda for Sustainable Development, are a clarion call to end poverty, protect the environment and ensure peace and prosperity for all. Mapping the DSF criteria to the SDGs has helped evaluate how the criteria can be used to quantify and communicate the dairy community's contribution and to identify opportunities toward the advancement of the SDGs. The clear links and multiple synergies between the DSF criteria and the SDGs indicate that the dairy sector has a key role in achieving positive outcomes – from providing nutrition (Goal 2. Zero hunger) to generating income (Goal 1. No poverty) and supporting open working landscapes (Goal 13. Life on land).

Learn more in the ***Dairy and the Sustainable Development Goals*** report.

SPOTLIGHT ON GOAL 2. ZERO HUNGER:

Ending hunger and all forms of malnutrition is the aim of SDG Goal 2. The United Nations and the World Health Organization also declared the next 10 years the "Decade of Action on Nutrition," calling for action to eradicate malnutrition worldwide and ensure universal access to healthier, more sustainable diets.

Greg Miller, PhD, NDC chief science officer, is a member of the UN's High Level Panel of Experts on Food Security and Nutrition , which is writing a report to be considered by the Committee on World Food Security. This work underscores the need to work globally in how we share science and to move forward with science-based dietary guidance without unintended consequences.

Pictured 2016 winners, from left to right: Joe Arthur, Central Pennsylvania Food Bank; Linda Jennissen, Jer-Lindy Farms; Brian Houin, Homestead Dairy; Wayne Bateman, Bateman's Mosida Farms; Steve Barstow, Barstow's Longview Farm (part of the Cabot nomination); Phil Lempert, SupermarketGuru.com (host); Dan Siemers, Siemers Holsteins; Jeff Endres, Yahara Pride Farms Conservation Board; Chris Noble, Noblehurst Farms; Colleen Geurts, Schreiber Foods.

2016 U.S. Dairy Sustainability Awards

Launched in 2011, the U.S. Dairy Sustainability Awards program honors innovative and replicable approaches to sustainable dairy practices. The dairy farms, companies and partnerships recognized each year have made improvements to benefit the environment, their businesses and the communities in which they work and live.

An independent panel of judges evaluates nominations based on measurable results and the potential for other dairy farms and businesses to adopt the practices. Since 2011, more than 50 dairy farms and companies have been selected from hundreds of nominations from across the country. Their stories have been featured through video, social media, print and in-person communications. Learn more about the awards program and past winners at **USDairy.com/Awards**.

SPECIAL THANKS TO OUR AWARD PROGRAM SPONSORS

GOLD LEVEL

DeLaval

Elanco

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WWF

SILVER LEVEL

Academy of Nutrition and Dietetics

Conservation Technology Information Center

DSM

Milk Processor Education Program

National Council of Farmer Cooperatives

Syngenta

2016 U.S. DAIRY SUSTAINABILITY AWARD WINNERS & HONORABLE MENTIONS

Outstanding Dairy Farm Sustainability

Bateman's Mosida Farms
Elberta, Utah

Bateman's Mosida Farms not only safeguards the health of its animals – a new maternity barn has enhanced both maternal and calf health – but also continuously improves the operation's sustainability for the next generation of Bateman dairy farmers. A water reuse program, lighting upgrades and a sand reclamation system minimize environmental impacts while maximizing efficiency.

Jer-Lindy Farms LLC
Brooten, Minnesota

Jerry and Linda Jennissen are committed to combining sustainability and profitability at their 200-cow farm. They fertilize their cropland with manure instead of commercial fertilizer and maintain buffer strips to protect the nearby Crow River. With an eye on the future, the Jennissens partnered with their daughter and her husband to add a creamery to their operation.

Siemers Holsteins
Newton, Wisconsin

Third-generation dairy farmer Dan Siemers takes a data-driven approach to sustainability – one that has paid off for his cows, the operation's productivity and the environment. Intensive field management practices have reduced greenhouse gas emissions and boosted corn and alfalfa production, and the farm's cow nutrition program has optimized herd health and increased milk yields.

HONORABLE MENTION

Homestead Dairy
Plymouth, Indiana

Homestead Dairy's growth is fueled by a comprehensive set of sustainable practices. The farm's methane digester produces 800 kilowatts of energy per day, and the byproducts are converted into natural, renewable bedding, eliminating the need for sand. A good neighbor, Homestead Dairy hosts tours of the farm and uses its digester to help other businesses decrease their carbon footprint.

Outstanding Dairy Processing & Manufacturing Sustainability

Agri-Mark and
Cabot Creamery Cooperative /
Waitsfield, Vermont

The dairy farm families of Agri-Mark dairy cooperative, owner of Cabot Creamery Cooperative, take a closed-loop approach to renewable energy, recycling cow manure, food scraps and food processing byproducts to produce energy. Highlights include thermal energy recapture programs and anaerobic digester technology, along with strategic partnerships among the farms, Cabot and other companies.

HONORABLE MENTION

Foremost Farms USA and
Schreiber Foods Inc.
Richland Center, Wisconsin

Foremost Farms USA and Schreiber Foods Inc.'s state-of-the-art water treatment facility generates renewable energy from the dairy plants' wastewater and results in business, community and environmental benefits. Efficient waste management and renewable energy production boost the plants' sustainability, protects the environment, and reduces stress on the community's municipal wastewater infrastructure.

Outstanding Achievement in Resource Stewardship

Yahara Pride Farms Inc.
Brooklyn, Wisconsin

Yahara Pride Farms Inc. is an innovative, farmer-led conservation partnership to preserve soil and water quality through effective manure and agricultural management practices, such as cover crops. Yahara Pride Farms also implements a cost-sharing program that enables farmers to test innovative technologies with minimum financial risk.

Outstanding Achievement in Community Partnership

Noblehurst Farms Inc.
Linwood, New York

Noblehurst Farms Inc.'s food waste cooperative brings local organizations' food waste and scraps to the dairy farm's digester, limiting greenhouse gases and diverting 100 tons of food waste each week from local landfills. The digester produces enough reliable, renewable energy to power the dairy, making it easier for seventh-generation farmer Chris Noble to plan for the farm's future.

HONORABLE MENTION

Central Pennsylvania Food Bank
Harrisburg, Pennsylvania

With the help of several dairy industry partners, Central Pennsylvania Food Bank provides 20,000 servings of fresh, nutritious milk per week to families in need through a replicable milk distribution model. The program, which has expanded statewide, addresses the challenge of providing much-needed fresh milk to those who depend on food assistance.

Looking ahead

Through the Innovation Center, the dairy community continues to demonstrate the power of working together, and we recognize the work ahead to further strengthen dairy's role in sustainable foods systems.

Collective Action

United efforts such as the Enhanced Traceability Guidelines, the *Stewardship and Sustainability Framework for U.S. Dairy* and the National Dairy FARM Program described earlier provide strong examples of efforts that promote the health of people, communities, the planet and the industry.

Looking forward, the Innovation Center operating committees (pg. 3) will continue to align efforts and set goals on best and next practices. Detailed assessments will inform specific strategies for the priority topics moving forward. The strategic goal to build long-term trust in dairy will connect the work across each committee.

To achieve a socially responsible and economically viable dairy community requires participation from the full dairy community, including farmers, cooperatives, food companies, suppliers, grocers and other stakeholders.

There are many ways to get involved:

- Become a member of the Dairy Sustainability Alliance
- Join the Common Voice Network to coordinate and plan communication efforts
- Participate in the National Dairy FARM Program
- Adopt the Enhanced Traceability Guidelines for U.S. Dairy
- Use the *Stewardship and Sustainability Framework for U.S. Dairy* to benchmark, improve and share progress
- Serve on Innovation Center committees or task forces
- Provide data, resources or funding for Innovation Center-related research and training
- Learn more about Reintroduction to Dairy (page 28) and join the initiative

As described at right, Leprino Foods exemplifies active engagement in the mission of the Innovation Center, through dedicated resources, knowledge sharing and investment. Leprino's commitment to collaboration and sharing its global responsibility progress will enable and inspire other members of the dairy community to adopt more sustainable practices.

Leprino Foods Company leads by example

Being a member of the Innovation Center is more than a casual industry association for Leprino Foods Company. The objectives of the Innovation Center align with Leprino Foods' core values – Quality, Service, Competitive Price and Ethics.

Leprino Foods has been committed to collaborating with the Innovation Center from the start with its former president Larry Jensen having served as the first chair of the Innovation Center's Board of Directors. Since then, more than 15 employees have served on the board, committees, the Dairy Sustainability Alliance and the Common Voice network.

Taking a leadership role in promoting positive change throughout the dairy value chain is a vital aspect of its approach to global responsibility. Contributions in food safety, traceability, sustainability and animal care enable Leprino Foods to leverage its expertise, energy and resources for the greater good of the industry. Areas of active support include the *Stewardship and Sustainability Framework for U.S. Dairy* (pg. 23), LCA research, Dairy Plant Smart (pg. 18) and the Innovation Center's Food Safety Committee (pg. 13).

In 2017, dairy farmers, companies and brands will come together to bring these narratives to life, reaching interested people where they are, using influencers and media they deem credible and relevant.

RESPONSIBLY PRODUCED

Innovation and technology have dramatically transformed our lives for the better, helping the dairy community deliver exceptional animal care, sustainable nutrition, and a better, fresher product.

NUTRIENT RICH

Fresh, whole, real foods are easy to find – right down the dairy aisle.

LOCALLY DRIVEN

There are dairy farms in all 50 states, and dairy farmers and the people who make dairy foods and beverages are telling their stories to those who have questions.

REAL ENJOYMENT

Dairy is the milk in your morning cereal and the cheese on your pizza. It's part of all the things people love to eat and are present at some of the most special moments in life.

Reintroduction to Dairy

Bringing our strategy to life includes a loud and proud, multiyear, multistakeholder initiative that aims to increase consumer trust and dairy's relevance over time. In 2016, the Innovation Center began laying the foundation for a national communications program to reintroduce dairy known as "Undeniably Dairy."

The initiative, which will kick off among consumers on World Milk Day (June 1, 2017), will spotlight all the good that is dairy, from the farm to the table. The campaign will serve as a rallying cry for the industry and remind people of dairy's presence in things they love while reshaping perceptions with dairy turning up in unexpected ways and places.

It will elevate brands and products, and surprise and delight consumers, by proudly identifying what dairy really is: extra-foam lattes and toasty grilled cheese sandwiches and an industry that employs millions of Americans, can power communities and has a passion for doing what's right to preserve the land for future generations.

Over the course of three years, the multimedia campaign will continue to dive deeper into the undeniable taste and enjoyment of dairy, as well as the undeniable commitment that the dairy industry has made to being a relevant and socially responsible part of local communities across the country.

Put simply, we live by our values. That's something people care about. They are eager to learn more about where their food comes from as well as get to know the farmers and people who are producing their food.

That's our call to action as we move forward: to authentically and transparently let consumers know who we are, what we stand for and how we work.

Acknowledgments

We would like to thank our stakeholders, members of the Dairy Sustainability Alliance, Innovation Center team members and report reviewers for their valuable contributions in 2015 and 2016. Report design by Irish Design. Photograph on page 13 courtesy of ANR Communications at Michigan State University.

Report feedback

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

Download the report at **USDairy.com/Report**.

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