
# U.S. Dairy Stewardship Commitment

## *Materiality Assessment and Progress*

May 2019

# U.S. Dairy Stewardship Commitment

Materiality Assessment

## Executive Summary

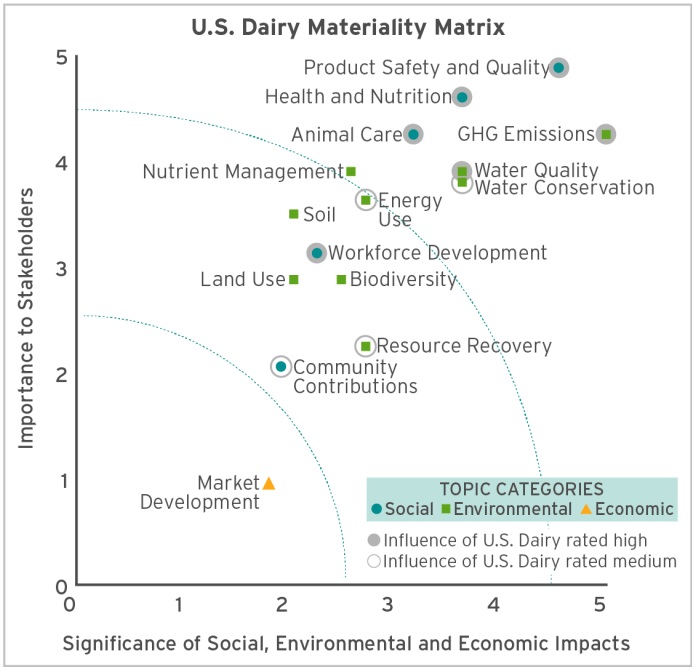
The Innovation Center for U.S. Dairy® (Innovation Center) was established in 2008 under the leadership of America's dairy farmers through Dairy Management Inc.™ (DMI), the nonprofit organization that manages the producer checkoff program. Led by dairy company CEOs and industry leaders representing over 60% of the U.S. milk supply, the Innovation Center provides a pre-competitive forum for the dairy community to develop credible, industry-aligned tools andresources to advance U.S. dairy's longstanding commitment to social responsibility and continuous improvement.

In 2018, Innovation Center Board of Directors approved voluntary, formal adoption terms for the *U.S. Dairy Stewardship Commitment* (Commitment). The Commitment is the affirmation and demonstration of U.S. dairy's longstanding values of responsible production, nourishing communities, and continuous improvement. It defines indicators (what is measured) and metrics (how they are measured) that empower the dairy community to set baselines, document progress, and demonstrate impact. Through the Dairy Sustainability Alliance®, a national initiative for stakeholder engagement, the Commitment allows customers, nonprofits, scientific experts, and others to work directly with farmers, cooperatives, and processors to advance continuous improvement and reporting that provides value to the U.S. industry and endorsement and support in the global marketplace.

The Commitment advances dairy sustainability across many dimensions, and the Innovation Center conducted a materiality assessment to help prioritize these efforts. The Global Reporting Initiative (GRI) provides the methodology for this approach, which involved consultation from internal and external stakeholders. The Commitment priorities are mapped to the 11 high-level Global Criteria (e.g., Animal Care, Greenhouse Gas (GHG) Emissions) of the Dairy Sustainability Framework (DSF). As the U.S. aggregator and convener for national reporting of the DSF, the Innovation Center uses this platform to demonstrate global leadership in sustainable 21st century food systems. In some cases, Commitment priorities have differing terminology or are broader in scope than those outlined in DSF, and where applicable this is noted.

The Innovation Center defines materiality along two dimensions: (1) significance of social, environmental and economic impacts and (2) importance to stakeholders. Topics were evaluated along these two aspects, with the resulting ratings plotted on a materiality matrix, as shown. A third dimension, influence of U.S. dairy, was also included and informs strategies.

To define the material topics, the Innovation Center set two thresholds for materiality (the curves on the matrix). The first is set at 2.5; topics beyond this curve are material for reporting. Topics beyond the upper threshold, which is set at 4.5, represent the highest priorities: Product Safety and Quality, Health and Nutrition, GHG Emissions, Animal Care, Water Quality, Water Conservation and Nutrient Management.



Results from this materiality assessment inform strategy and the allocation of Innovation Center resources across topics. The following topic groupings reflect similar strategies for industry-level initiatives:

- Animal Care, Greenhouse Gas Emissions, Energy Use
  *Strategy to address:* research, guidance materials, metrics, education, software, and evaluation tools.
- Product Safety and Quality, Health and Nutrition, Workforce Development
  *Strategy to address:* research, guidance materials, metrics, education, training.
- Community Contributions, Resource Recovery, Water Conservation, Water Quality, Nutrient Management
  *Strategy to address:* guidance, metrics
- Soil, Biodiversity, Water Conservation, Land Use, Water Quality (Field)
  *Strategy to address*: partnerships to pursue sustainability in feed production.
- Market Development
  *Strategy to address:* foundational to U.S. Dairy, metric(s) TBD.

This document outlines Innovation Center activities and programs, which provide significant resources and serve as the foundation for the materiality assessment. It then summarizes how the Innovation Center prioritizes sustainability topics and how its overall sustainability program continues to evolve. To ensure credibility and recognition, the industry references well-established sustainability standard-setting and reporting frameworks such as the ISEAL Codes of Good Practice, the Greenhouse Gas Protocol, the International Organization for Standardization (ISO), and GRI. The document includes a "U.S. Dairy Stewardship Commitment: Priorities and Progress" appendix that provides updates on industry actions across all the material topics.

# Introduction

Dairy families and businesses have a long legacy of social responsibility: stewardship of the land, caring for cows, and producing nutrient-rich products that promote good health are longstanding values. In recent years, the U.S. dairy community identified the need to build on this legacy and establish an industrywide commitment and shared vision for sustainability. At the same time, the industry recognized that consumers were eager to learn more about the environmental and societal impacts of their food choices. As a result, dairy customers were requesting information about the sustainability performance from their supply chain. Research also pointed to an ever-growing population, placing increased demands on natural resources for agricultural production. These factors motivated the industry to undertake an unprecedented, pre-competitive collaboration to identify and implement a comprehensive sustainability program. Launched in 2007, the Innovation Center for U.S. Dairy is led by a board of 27 dairy company CEOs and industry leaders representing over 60% of the U.S. milk supply. It provides an industry-wide forum for collaboration that has supported the dairy community in pursuing sustainability efforts since its inception.

For U.S. dairy, sustainability means providing consumers with the nutritious 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 Innovation Center is committed to progress across all of these aspects. Efforts to date have occurred in the following main areas:

### Research, Tools and Educational Programs

The Innovation Center's work is grounded in science. For example, in 2008 the industry commissioned peer-reviewed, publicly available life cycle assessment (LCA) research, unprecedented in size and scope, to understand the natural resource impacts along the entire the U.S. dairy value chain. In 2018, the LCA underwent significant updates and an independent, third-party review to account for current management practices and incorporate the latest available data. The research helps build credibility, establish baselines and identify areas for improvement and learning.

The Innovation Center offers guidance materials, software and evaluation tools, education and training programs, and other resources for the industry to pursue a path of continuous improvement. These include a tool for estimating on-farm GHG emissions, guidance materials for dairy processors, food safety workshops and an animal care program reaching over 98% of the U.S. milk supply.

## Stakeholder Engagement

To ensure an inclusive and mutually beneficial approach, the Stewardship Commitment is developed with voices spanning the entire value chain, including dairy farmers, processors, retailers, brands, scientists and nonprofits.

The Innovation Center engages an extensive variety of stakeholders, including:

- Farmers
- Milk Cooperatives
- Processors
- Academics
- Government
- Consultants
- Agriculture equipment and input suppliers
- NGOs
- Scientists
- Trade Associations
- Retailers
- Packagers
- Distributors
- Consumers

Internal stakeholders, including member cooperatives and processors, understand the industry and how sustainability initiatives can create business value. External stakeholders see the industry from a unique, outside perspective and bring subject matter expertise from their respective industries and professions. The Innovation Center for U.S. Dairy first approached stakeholder engagement through a three-day U.S. Dairy Sustainability Summit in June 2008. Over 250 diverse participants – dairy farmers, processors, retailers, scientists, academics, suppliers, and more – shaped the dairy industry's sustainability vision and guiding principles. The Innovation Center continues to foster stakeholder engagement through multiple methods, including formal stakeholder groups, partnerships and affiliations as well as public dialogue and outreach.

### *Innovation Center Operating Committees*

Within the Innovation Center, seven nationally-represented committees inform Stewardship Commitment content and provide valuable industry perspectives into sustainability issue areas. These committees – Animal Care, Environmental Stewardship, People and Community, Food Safety, Sustainable Nutrition, Communications, and Global Insights & Innovation – comprise over 25 organizations and more than 75 dairy farmers, industry leaders and sustainability experts.

### *Dairy Sustainability Alliance®*

The Dairy Sustainability Alliance is a platform for collecting input and sharing information with the broader dairy community and external stakeholders. This multi-stakeholder initiative convenes more than 100 member organizations and over 370 professionals, including more than 40 diverse dairy farmer representatives, to share knowledge and collaborate on issues affecting the industry at large. Members work together pre-competitively to accelerate progress toward the dairy community's social responsibility goals and contribute to the long-term viability of the U.S. dairy industry.

The Dairy Sustainability Alliance gathers in-person twice per year at meetings designed to facilitate information exchange and interaction. Discussion and input sessions are integral to these meetings and allow stakeholders to provide feedback on a variety of proposed Innovation Center social responsibility initiatives. Additional workshops and side meetings surround Dairy Sustainability Alliance meetings to inform continuous improvement across an array of sustainability priorities, including animal care, environmental stewardship, and processing operations. Quarterly newsletters, regular webinars, and day-to-day interaction between the Innovation Center and Alliance members ensure ongoing communication and engagement.

The Innovation Center also holds Customer Forums throughout the year to provide supply chain stakeholders – primarily retailers, brands, and food service – with an opportunity to learn more about the industry and provide valuable feedback. During the 2017 Forums, the Innovation Center met with more than 70 professionals from 35 companies.

*Partnerships*
The Innovation Center relies on valuable third-party partnerships to better understand and benefit from stakeholder perspectives. As described in the "Partnerships" section that follows, the Innovation Center maintains ongoing partnerships with NGOs, government agencies, and numerous academic and scientific organizations.

*Sustainable Agriculture Summit*
Along with the national organizations representing row crops, specialty crops, pork, beef, and poultry, the Innovation Center co-hosts the annual Sustainable Agriculture Summit to jointly advance sustainability across all U.S. production agriculture. More than 500 professionals attended each event in the past two years. The Sustainable Agriculture Summit aims to strengthen the supply chain network of producers, agribusinesses, retailers, and influencers who drive continuous improvement in agricultural sustainability and deliver food, fiber and fuel to a growing world. The event provides opportunities for members of the agricultural supply chain to engage with leading experts and learn more about key sustainability challenges and opportunities.

*Follow-up with Stakeholders*
The Innovation Center follows up with stakeholders after each of its meetings and trainings, including Dairy Sustainability Alliance® meetings and Sustainable Agriculture Summit, to ask for feedback on the effectiveness of the events and on the content of the programming.

The Innovation Center also shares dairy's sustainability progress through publicly available sustainability reports. In each report, the industry invites stakeholder feedback on the sustainability program and report content.

During the metric review cycle (described on page 2), a stakeholder questionnaire includes an open-ended question for respondents to provide feedback. The Innovation Center responds to stakeholder comments and shares this feedback with the commenters and the Dairy Sustainability Alliance®.

## Partnerships

The Innovation Center partners with a variety of organizations, including NGOs, government agencies, and numerous academic and scientific organizations, to improve the economic, social and environmental sustainability of the dairy community. To date, partnerships include:

- Field to Market, to advance the sustainability of animal feed production and harmonize on-farm metrics.
- Environmental Defense Fund (EDF) and World Resources Institute (WRI), to advance GHG measurement and reporting.
- U.S. Department of Agriculture (USDA), to jointly promote and enhance environmental sustainability.
- USDA's Natural Resources Conservation Service (NRCS), to better align NRCS environmental tools and conservation programs with Innovation Center resources.
- World Wildlife Fund, to advance mutual conservation goals and advance sustainable dairy.
- Numerous academic and scientific organizations, to ensure programs reflect the latest available science.

### Development of Metrics

The Innovation Center develops sustainability metrics for reporting by dairy farmers, cooperatives and processors, helping the dairy supply chain measure progress and demonstrate impact. Once approved, these metrics are added to the U.S. Dairy Stewardship Commitment and, where applicable, integrated into industry-aligned measurement tools and resources. The Metrics are developed through industry leadership and cross-sector, multi-stakeholder input based on the principles of the ISEAL Codes of Good Practice, which provide widely-recognized guidance for credible sustainability reporting standards. To date, industry metrics relate to GHG emissions, nutrient management, resource recovery, water quality and quantity, workforce development, community contributions, food safety, traceability and animal care.

## Materiality Assessment

The marketplace increasingly expects dairy companies to not only report sustainability progress, but also disclose how priorities – i.e. material topics – are determined. Materiality assessment is the process of identifying, prioritizing and defining the topics that matter most to an organization and its stakeholders.

For the past decade, the Innovation Center has led efforts to help the dairy community understand and manage its most significant social, environmental and economic impacts. In 2018, the Innovation Center conducted a more formalized materiality assessment to confirm and prioritize the sustainability areas where the U.S. dairy industry should focus its efforts and resources.

The process incorporated the research and insights from past and ongoing efforts along with the stakeholder feedback and perspectives, which are described in the "Introduction" section (page 2). Individuals and organizations active in formal Innovation Center governance and stakeholder groups were selected for more direct involvement in the process, as described in the "Process Overview" section.

### Purpose and Scope

The goal of the materiality assessment for U.S. dairy is to identify sustainability topics where the industry should focus its efforts and resources. Assessment results are not intended to designate any sustainability topic as unimportant – rather, they are used to prioritize those issues where the industry has the strongest potential to amplify positive impacts and demonstrate improvements over time. The national assessment helps substantiate Innovation Center-wide priorities and is designed to aid individual dairy companies in identifying their own.

The scope of this assessment is limited to dairy production and processing within the United States. The industry's materiality assessment comprises the U.S. dairy value chain from farm gate (field for feed production and dairy farm) to the processing of a finished product. At the same time, the assessment did consider where impacts occur all along the dairy value chain.

### Process Overview

A small team of Innovation Center staff led the materiality assessment and coordinated the iterative development and vetting process with internal and external stakeholders (page 3). The materiality assessment process was informed by the Global Reporting Initiative's GRI Sustainability Reporting Standards, the most widely used framework for sustainability reporting worldwide. GRI's guidance provides a principles-based methodology for organizations to identify material issues, consider where impacts occur and actions should be taken, and determine what should be reported. It helped the team establish a simplified, consistent and credible method.

While GRI focuses on determining material topics for reporting, U.S. dairy builds on these findings to inform its overall program strategy and priorities. The following steps outline the high-level approach for this initial

assessment. The "Priorities and Progress" appendix provides more in-depth discussion on the importance and prioritization of the material topics.

1. *Definition of materiality*

The Innovation Center applies GRI's materiality principle to define materiality according to two dimensions: Material topics are those that (1) reflect the U.S. dairy's significant economic, environmental and social impacts or (2) are important to stakeholders for informing their assessments and decisions (GRI 2016, 10). A third aspect, the influence of U.S. dairy, also was considered.

- *Significance of Social, Environmental and Economic Impacts:* Impact refers to the positive or negative effect an organization (in this assessment, dairy production and processing within the United States) has on the economy, the environment and/or society, which can indicate the contribution to sustainable development.

- *Importance to Stakeholders:* Stakeholder involvement has been a core component of the U.S. dairy industry's sustainability efforts from the beginning and continues to drive progress today. Stakeholder input is used to prioritize efforts, direct resources and collaborate on solutions.

- *Influence of U.S. Dairy:* The Innovation Center considered a third dimension, influence of U.S. dairy, for the topics in the materiality assessment. This additional factor helps inform industry-wide strategies to drive progress. U.S. dairy influence is defined as both the degree of operational control that dairy farmers, cooperatives, and processors have over an issue area as well as the impact level of their activities.

2. *Identification of topics for the assessment*

The materiality assessment prioritized the 11 Global Criteria of the Dairy Sustainability Framework along with health and nutrition, energy use and land use as additional relevant topics for U.S. dairy. DSF's water topic was separated into water conservation and water quality. The topics were mapped to corresponding Stewardship Commitment priorities, while noting that some of the priorities have differing terminology or are broader in scope than those in the DSF. In total, the assessment involved the following 15 relevant topics:

| Topics in the Materiality Assessment | DSF Criteria | Stewardship Commitment Priority |
|---|---|---|
| Product Safety and Quality | Product Safety & Quality | Product Safety & Quality |
| Health and Nutrition | *Not included* | Health and Nutrition |
| Animal Care | Animal Care | Animal Care |
| GHG Emissions | Greenhouse Gas Emissions | Greenhouse Gas Emissions |
| Energy Use | *Not included* | Energy Use |
| Water Conservation | Water | Water Conservation |
| Water Quality | Water | Water Quality |
| Nutrient Management | Soil Nutrients | Nutrient Management |
| Resource Recovery | Waste | Resource Recovery |
| Soil | Soil | Feed Impact<br>Includes GHG Emissions, Energy Use, Water, Soil, Biodiversity and Land Use |
| Biodiversity | Biodiversity | |
| Land Use | *Not included* | |
| Workforce Development | Working Conditions | Workforce Development |
| Community Contributions | Rural Economies | Community Contributions |
| Market Development | Market Development | *Not included* |

While the list of topics to prioritize for this assessment was deliberately focused, the intent is that future assessments will broaden the relevant topics considered.

*3. Analysis and evaluation*

The Innovation Center compiled and evaluated information and input from a variety of resources to assess the significance of the impacts for each topic and where the impacts occurred and to gauge the importance of the topics to stakeholders. As noted, the analysis built on the foundation of the Innovation Center's ongoing initiatives and efforts, including the research, sustainability reporting, and stakeholder engagement that shape the U.S. Dairy Stewardship Commitment.

Significance of impacts: Determining significance of social, environmental and economic impacts involved a range of factors drawn from the Materiality GRI Reporting Principle. Efforts to understand and analyze these impacts have occurred through the Innovation Center for the past decade. Significant examples include the findings of the LCA studies and scientific research in areas such as the environment, food safety and health and nutrition commissioned on behalf of the U.S. dairy, as well as work of the operating committees and the analysis involved in the metric development process. Additional resources included the United Nations Sustainable Development Goals (UN SDGs), the GRI Standards, applicable laws and regulations (see note below), dairy industry initiatives, Sustainable Accounting Standards Board (SASB) materiality maps, and academic, government and think tank research and publications.

The review applied weighting to topics that are:

- Recognized subjects of concern for sustainable development, based on the GRI Standards and the UN SDGs;
- Regulated or associated with voluntary standards or agreements;
- Associated with estimable impacts based on the LCA and other scientific research;
- Associated with significant risks, opportunities, core competencies and/or industry efforts;
- Reflect key sector/industry-related environmental, social and governance topics from an investor and financial materiality perspective
- Commonly reported among industry peers

Note on regulatory oversight: U.S. dairy operates in a highly regulated environment. The industry considers the level of regulatory oversight, i.e., whether there are laws or regulations governing a certain topic area, as part of assessing the significance of an impact as well as to help determine the best strategy for approaching a topic area at the industry level. For this later purpose, regulations can serve as a baseline. When there are laws or regulations in place, the dairy industry is assured that farms and processors of all sizes and geographies are working toward certain uniform standards. For example, U.S. milk is tested at multiple times to ensure compliance with drug residue laws. When there is an advanced level of regulation and government oversight in place relating to a sustainability topic, the Innovation Center focuses on providing guidance materials and training, such as antibiotic stewardship resources and food safety workshops.

The team converted the weighted values to a five-point scale for plotting on the materiality matrix along with importance to stakeholders.

Importance to Stakeholders: The evaluation of the stakeholder perspective used a range of input from the Innovation Center's robust stakeholder engagement methods (page 3), including analysis of the following information:

- Direct feedback from more than 100 dairy farmers, cooperatives, processors, associations, academics and NGOs during a 2015 assessment of issues and opportunities conducted by the Innovation Center Board of Directors
- Input from regular and ongoing meetings and calls with Dairy Sustainability Alliance® members and partners related to stakeholder concerns and priorities

- Primary research to understand the important drivers of consumer trust. For instance, in 2016 the Innovation Center commissioned a survey of more than 3,300 people (ages 17 to 70) to assess consumer beliefs and purchase drivers related to dairy production.
- Secondary research on consumer perceptions, preferences and factors most important to them
- Comments from stakeholders submitted during the Stewardship Commitment's review periods for metrics development
- Key themes gathered from the Innovation Center's ongoing sustainability efforts
- Feedback and listening sessions such as customer forums, salesforce training events, and targeted stakeholder outreach to solicit input

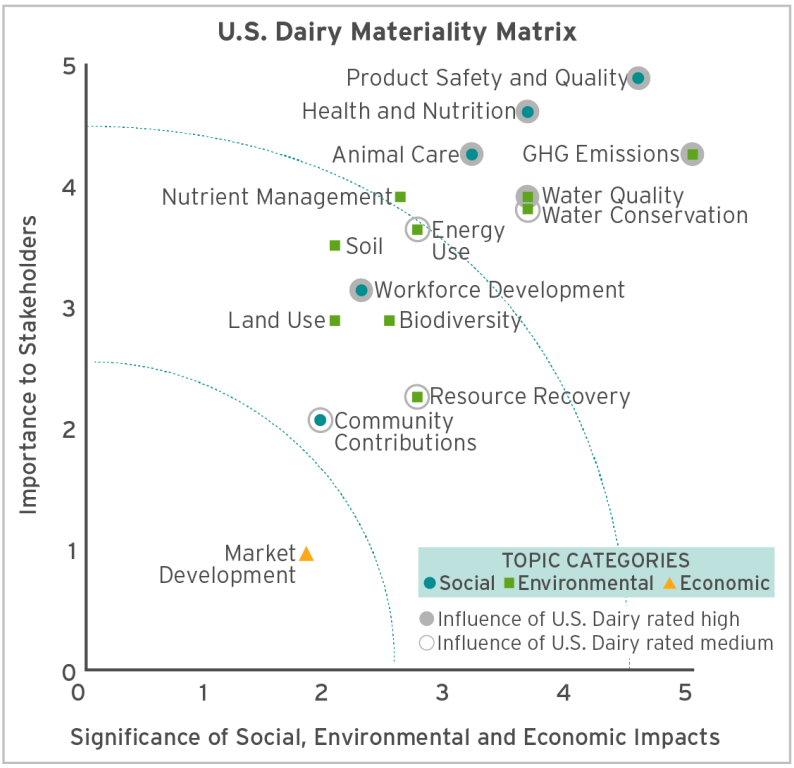
To quantity importance to stakeholders, Innovation Center team members evaluated each topic based on the information collected and rated them according to the following five-point scale:

1. Little to no importance to consumers, retailers/supply chain, and NGOs.
2. Some importance to consumers, retailers/supply chain, and NGOs.
3. Moderate importance to consumers, retailers/supply chain, and NGOs.
4. High importance to consumers, retailers/supply chain, and NGOs.
5. Very high importance to consumers, retailers/supply chain, and NGOs.

Influence of U.S. Dairy: This third dimension, influence of U.S. dairy, was also included to assess the degree of operational control that dairy farmers, cooperatives and processors have in relation to the impact level of their activities and their influence in driving improvements within the dairy value chain. Innovation Center team members rated U.S. dairy's influence as low, medium or high.

*4. Prioritization and definition of material topics*

An initial materiality matrix was developed to visualize the prioritization of the rated topics. Each topic was plotted using the ratings for significance of impacts and importance to stakeholders as the x and y coordinates, respectively. In addition, topics for which U.S dairy influence was rated in the medium to high ranges were designated on the matrix.




To define the material topics, the Innovation Center set two thresholds for materiality (the curves on the matrix). The first is set at 2.5 along both axes; topics beyond this curve are material for reporting. Topics beyond the upper threshold, which is set at 4.5, represent the highest priorities: Product Safety and Quality, Health and Nutrition, GHG Emissions, Animal Care, Water Quality, Water Conservation and Nutrient Management.

5. *Stakeholder review*

   Throughout the process, the team coordinated extensive consultations. The team requested review and input on the initial version of the assessment from a range of cross-sector stakeholders, which informed subsequent revisions. This iterative vetting process included members of the Innovation Center governance bodies and individuals from organizations within and beyond the dairy community that are active in formal Innovation Center stakeholder groups.

   In November 2018, the Board of Directors approved the draft matrix for distribution as an internal and B2B resource and for external review. The targeted third-party review included representatives from the GRI Global Sustainability Standards Board, World Wildlife Fund, Environmental Defense Fund, The Nature Conservancy and the Sustainable Agriculture Initiative (SAI Platform). The team consulted with internal stakeholders on the recommendations received before incorporating agreed-upon changes into the current version.

6. *Validation and approval*

   As the organization's highest governing body, the Innovation Center Board of Directors reviews the results of prioritization efforts. The Executive Operating Committee, a subgroup of the Innovation Center Board of Directors, oversees the efforts of the committees that advance the industry's sustainability efforts and the U.S. Dairy Stewardship Commitment. Operating committee members performed subsequent reviews to validate the updated matrix and ensure that the priorities are aligned with the respective expectations of each team before final review and approval by the Executive Operating Committee and Board of Directors.

7. *Follow-up with stakeholders and application of results*

   The Innovation Center shared the materiality assessment with the U.S. dairy community and its stakeholders. Results inform strategic decisions and help focus attention and resources on what matters most.

   While the Innovation Center for U.S. Dairy's materiality assessment provides a national perspective, it is also intended to inform a participating dairy company's individual assessment. The Innovation Center is preparing guidance for conducting an organization-level materiality assessment, which incorporates this national assessment and other Innovation Center resources where applicable to an individual company's operations.

The Innovation Center plans to reassess materiality on a recurring three-year basis and as needed to consider changes relevant to the industry, marketplace and/or consumer, to respond to shifts in stakeholder interests, and to maintain alignment with the latest available science, standards and expert opinions. Future assessments will build on the current priorities to consider additional current and emerging topics.

## Summary of Priorities Along the Dairy Value Chain

In the analysis of significance of impacts and the influence of U.S. dairy, the team considered where impacts occur along the dairy value chain. While the dairy community supports advances from "grass to glass", the Stewardship Commitment concentrates on topics at the field, dairy farm and processor levels. Some dairy cooperatives and processors directly manage the milk transportation, packaging and/or distribution stages within their operations. The following table highlights where impacts associated with each priority occur (O) and where Stewardship Commitment metrics are also currently in place (●). The first seven priorities are the highest-ranked ones.

| COMMITMENT PRIORITY | FEED PRODUCTION | MILK PRODUCTION | MILK TRANSPORTATION | PROCESSING | PACKAGING | DISTRIBUTION | RETAIL | CONSUMER |
|---|---|---|---|---|---|---|---|---|
| Product Safety & Quality | O | ● | ● | ● | ● | ● | O | O |
| Health and Nutrition | | | | O | | | O | O |
| Animal Care | | ● | | | | | | |
| GHG Emissions | ● | ● | ● | ● | ● | ● | O | O |
| Water Conservation | ● | ● | | ● | ● | | | |
| Water Quality | ● | ● | | ● | ● | | | |
| Nutrient Management | ● | ● | | | | | | |
| Energy Use | ● | ● | ● | ● | ● | ● | O | O |
| Resource Recovery | O | O | | ● | ● | | O | O |
| Feed Impact | ● | | | | | | | |
| Soil | ● | O | | | | | | |
| Land Use | ● | O | | | | | | |
| Biodiversity | ● | O | | | | | | |
| Workforce Development | O | O | ● | ● | ● | ● | O | |
| Community Contributions | O | O | ● | ● | ● | ● | O | O |

**Key:** O Impacts occur at this stage of the value chain | ● Impacts occur and Stewardship Commitment metrics are in place at this stage.

Shaded columns represent the Field, Dairy Farm and Processor levels covered within the Stewardship Commitment. The milk transportation, packaging and distribution stages are covered when they are part of the specific dairy company's operations.

## Strategic Categorization of Commitment Priorities

The results from this materiality assessment inform strategy and the allocation of Innovation Center resources across topics. The following topic groupings reflect similar strategies for industry-level initiatives:

### *Animal Care, Greenhouse Gas Emissions, Energy Use*

Animal care, greenhouse gas emissions, and energy use are areas of importance to stakeholders where the U.S. dairy industry has a high-level of influence. The industry has invested heavily in **research, guidance materials, metrics, education, software, and evaluation tools** to enable dairy producers and processors to

benchmark performance and work toward continuous improvement around animal care, greenhouse gas emissions, and animal care.

***Product Safety & Quality, Health and Nutrition, Workforce Development***
The robust regulatory framework in the United States goes a long way in addressing important sustainability issues. For example, product safety and quality are supported by numerous industry practices and a regulatory landscape, which includes programs to control pathogens, antibiotic residues, and other potential hazards. However, these issues areas are highly material to U.S. dairy, so the dairy community is supporting these criteria through metrics, education, training, and guidance materials.

***Resource Recovery, Community Contributions, Water Conservation, Water Quality, Nutrient Management.***
Criteria that fall within a middle ground of materiality are tackled primarily through the development of guidance materials and metrics that enable dairy farms and processors to track and communicate their commitment to continuous improvement.

***Soil, Biodiversity, Water Conservation, Water Quality, Nutrient Management (Field Level)***
Soil and Biodiversity, and to some extent Water and Nutrient Management, are most relevant to crop production. However, only 35% of U.S. dairy feed is produced by dairy farmers – the remaining 65% is purchased off-farm. This means that dairy farmers have only limited operational control over much of their feed sustainability. The Innovation Center is addressing these criteria through key partnerships so that we can extend our influence beyond dairy farmers to encompass a broader range of feed producers.

***Market Development***
The U.S. market is highly developed. Thanks to robust contract law and other regulations that govern product sales and distributions, farms and processors already have the opportunity to build viable businesses. U.S. dairy continues to explore how it can apply this DSF criterion within the context of the U.S. market.

# APPENDIX: U.S. Dairy Stewardship Commitment Priorities and Progress

The following pages summarize U.S. dairy's progress to date, as well as its commitment to moving forward in each dimension of sustainability. The Appendix includes an overview of the priorities, their prioritization, associated strategies and progress.



## Stewardship Commitment Overview

The U.S. Dairy Stewardship Commitment (Stewardship Commitment) demonstrates dairy's longstanding values through a transparent, multi-stakeholder, and pre-competitive process. The Stewardship Commitment defines indicators (what is measured) and metrics (how they are measured) that empower the dairy community to holistically document progress. Through the Dairy Sustainability Alliance® and the Innovation Center committees, customers, nonprofits, scientific experts, and other key influencers work directly with farmers, cooperatives, and processors to advance continuous improvement and reporting. That sustainability reporting adds value to the U.S. industry as well as endorsement and support in the global marketplace.

### Governance Structure

The Innovation Center Board of Directors, comprised of 27 dairy company CEOs and industry leaders, 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 industry-led committees that inform the Stewardship Commitment. The Executive Operating Committee also oversees a Commitment Stewardship Task Force of 16 dairy cooperative and farmer sustainability leaders – including three Innovation Center Board CEOs – tasked with advancing the adoption, reporting, and credibility of the Stewardship Commitment.

### Stewardship Commitment Metrics

The Stewardship Commitment defines indicators (what is measured) and metrics (how they are measured) that empower the dairy community to set baselines, document progress, and demonstrate impact. The Stewardship

Commitment metrics were developed by the Innovation Center with U.S. dairy industry input to support dairy cooperatives and processors that choose to voluntarily track and communicate sustainability progress.

### Metric Review and Approval Cycle

Stewardship Commitment metrics and measurement tools are updated regularly to reflect the latest science, insights, and priorities. A formalized process for metric and goal approval is essential to advance credibility and support for the U.S. Dairy Stewardship Commitment. The metric approval cycle includes industry leadership, as well as cross-sector, multi-stakeholder input based on the principles of the ISEAL Codes of Good Practice for Setting Social and Environmental Standards, which provide widely-recognized guidance for credible sustainability reporting standards:

- 60 days for submission of comments
- Interested parties have equal opportunity to participate
- Parties directly affected, such as farmers and processors, will be adequately represented
- All comments will be considered but not necessarily incorporated
- Written summary of how issues were addressed will be made available
- Procedures will be established and documented to guide decision making
- All approved standards (i.e. metrics) will be published promptly

Through this metric review and approval process, the Innovation Center advances industry-wide adoption, recognition from engaged consumers, and the endorsement and advocacy of customers and third-party stakeholders.

1. Innovation Center (IC) committees propose metrics
2. Executive Operating Committee (EOC) and Stewardship Task Force receive proposed metrics for 14-day consultation
3. IC committees review feedback (if any) and choose to withdraw, modify, or advance proposed metrics; the IC Board is then provided notification of proposed metrics and 7-day opportunity for review
4. Dairy Sustainability Alliance® members and targeted experts review proposed metrics and submit comments within a 60-day review period
5. IC committees consider and respond to comments, then submit final metrics to the EOC and Stewardship Task Force
6. IC Board notification and EOC approval of final metrics
7. Approved metrics are incorporated in the next version of the Stewardship Commitment

# Animal Care

U.S. dairy farmers are committed to ensuring the well-being of animals in their care. Striving to meet the highest standards and making sound decisions for animal care are not only ethical obligations, but essential for a productive herd and critical to the farm's profitability and success.

## Prioritization

Animal care has always been a priority of the U.S. dairy industry. The industry has further elevated animal care in its sustainability efforts because it is important to stakeholders and dairy farms have a high level of influence.

- *Importance to Stakeholders*: **High –** Dairy customers and consumers place a high value on ethical animal care in all agricultural sectors.
- *Significance of Impacts*: **High –** Quality animal care is an upmost social responsibility and essential to a productive and profitable farm.

The industry has worked together with stakeholders since 2010 to develop a robust animal care program, the National Dairy Farmers Assuring Responsible Management (FARM) Animal Care Program. U.S. dairy farmers demonstrate their shared commitment to animal care through their voluntary participation. The program is administered by the National Milk Producers Federation (NMPF).

## Stewardship Commitment Metrics

- Dairy Farms
  - Do you participate in FARM Animal Care? Yes/No

## Strategy and Progress

The U.S. dairy industry has developed a leading animal care program to establish guidelines and standards for cow care and create a culture of continuous improvement. The FARM Animal Care Program, administered by NMPF, establishes welfare management guidelines, which are verified by both second- and third-party evaluators. Second-party evaluations are completed by trained individuals on every participating dairy at least once every three years, while third-party evaluations occur on a random, statistically significant sample of farms annually. Over 98% of the U.S. milk supply participates in the FARM Animal Care Program.

*Multi-stakeholder Process*

Standards are reviewed and updated every three years with significant stakeholder involvement. At its core, the program relies on scientific evidence and findings to develop standards. A Technical Writing Group with representation from dairy farmers, veterinarians, cooperatives, processors, dairy organizations, and university animal care experts reviews, revises and ultimately establishes the standards that will move the industry forward in a progressive manner. The program also benefits from input from NMPF's Animal Health and Well-Being Committee, NMPF's Board of Directors and recommendations received through a public comment period. This stakeholder input ensures that the program evolves with the latest research on animal welfare. The program is currently in Version 3.0 and working towards revisions for Version 4.0, which will begin implementation in January 2020.

*Continuous Improvement*

The program emphasizes continuous improvement for both the participating dairy farms as well as its own standards. Following an evaluation, the dairy farm is required to develop an action plan with the second-party evaluator, herd veterinarian, or other qualified professional for those areas identified as needing improvement. The action plan identifies areas for improving animal care, specific methods to be implemented, and a timeline for completion. The FARM Animal Care Program has also identified 'Phase One Priority Areas' that are minimum

criteria for participation in the program. These priority areas include having a current, signed Veterinarian-Client Patient Relationship form, training for all individuals with animal care responsibilities on proper animal handling and care, and the elimination of routine tail docking. Farms that do not satisfactorily meet these areas have a Mandatory Corrective Action Plan established that needs to be resolved and verified by a follow-up evaluation within 12 months. If the issue is not resolved within 12 months, the farm risks probation and eventual suspension.

*Accomplishments*

- The FARM Animal Care program is the first livestock animal care program in the world to be recognized internationally for its industry-leading animal welfare standards. In 2018, USDA affirmed that FARM Animal Care is compliant with the International Organization for Standardization (ISO) technical specification on Animal Welfare Management – General Requirements and Guidance for Organizations in the Food Supply Chain (ISO/TS 34700:2016).
- 98% of the U.S. milk supply comes from farms participating in the FARM Animal Care Program. This is a dramatic increase in uptake since 2011, when about 50% of the nation's milk supply came from participating producers.
- Over 350 trained and certified second-party evaluators have conducted more than 7,000 on-farm evaluations for Version 3.0 of the program. To date, over 50,000 on-farm evaluations have been conducted.
- The FARM Program initiated three animal care task forces to cultivate data, discuss priorities, and establish recommendations for FARM Animal Care Version 4.0: Hygiene, Locomotion, and Tie-Stalls.
- The U.S. dairy industry also partners with the U.S. beef industry to develop joint resources that promote high-quality cattle care. For example, FARM Animal Care and the National Beef Quality Assurance program partnered to create a Dairy Stockmanship Training series that includes videos and quizzes.

## Greenhouse Gas Emissions

Concern over climate change makes reducing greenhouse gas (GHG) emissions a global priority, and the agricultural sector can play an important role in efforts to mitigate its emissions. Moreover, reducing GHG on the farm can contribute to improved performance for other environmental attributes such as energy and fuel use, as well as economic benefits through improved efficiency.

### Prioritization

- *Importance to Stakeholders*: **High –** U.S. dairy prioritized GHG emissions reductions in 2008 in part because retailers and brands were asking their suppliers to provide quantifiable information on how they are working to reduce their carbon footprint. The dairy community also felt it was important to participate in scientifically-sound research to better understand the GHG emissions footprint associated with dairy production in the U.S. This was largely due to findings of the 2006 FAO report, *Livestock's Long Shadow* which raised concerns about global livestock's environmental footprint. The FAO report suggests that livestock is responsible for 18 percent of total global anthropogenic GHG. The U.S. dairy LCA findings established that U.S. dairy accounts for 2 percent of total U.S. greenhouse gas emissions.
- *Significance of Impacts*: **High –** Climate change is a forefront issue on the global stage due to projected environmental, societal, and economic impacts. While Goal 13 of the UN SDGs specifically addresses action to reduce climate change, 12 of the 16 other goals include climate-related action. Every step of the dairy value chain contributes GHG emissions. Agriculture can play a significant role advancing climate-smart practices to reduce GHG emissions.

## Stewardship Commitment Metrics

- Dairy Farms
    - Total GHG emissions (lb. $CO_2e$)/lb. of fat and protein corrected milk (FPCM) produced
- Processors
    - Total GHG emissions (lbs. $CO_2e$, Scope 1 and 2)/lb. of production output

The U.S. dairy industry has developed several tools and guidance materials to help dairy farms and processors report on the above Stewardship Commitment Metrics. Dairy farms can use the FARM Environmental Stewardship module to estimate annual emissions (described in more detail below). Dairy processors can refer to the Processor Handbook for guidance and helpful resources.

## Strategy and Progress

U.S. dairy farms have the lowest average GHG intensity of milk production globally.[1] The U.S. dairy industry's commitment to reducing GHG emissions was formalized in 2008. More than 250 stakeholders came together to craft the U.S. dairy industry's *Roadmap to Reduce Greenhouse Gas Emissions and Increase Business Value*. The industry committed to a 2020 goal of reducing GHG emissions intensity for fluid milk by 25%. Stakeholder involvement continues to play a role in driving U.S. dairy's work in GHG emission reductions.

*Research and Leadership*

The U.S. dairy industry commissioned life cycle assessment (LCA) studies to better understand dairy's environmental impact across the value chain. The peer-reviewed research entailed detailed surveys of 536 individual farms, 50+ processing plants, and 200,000-plus transportation trips, as well as secondary sources of data. The results developed the industry's understanding of where dairy farmers and processors have the most potential to impact natural resource use. For example, about 51.5% of the dairy supply chain's carbon footprint occurs during milk production at the dairy farm, while 96% of the land use and 93.5% of the water use occurs during animal feed production. The April 2013 issue of the *International Dairy Journal* features 10 peer-reviewed articles highlighting findings from the fluid milk life cycle assessments commissioned by the Innovation Center. The dairy industry continues to be leaders in environmental research. For example, the Innovation Center's Director of Sustainability Research, Dr. Ying Wang, co-leads the large ruminant Technical Advisory Group of the United Nations Food and Agriculture Organization Livestock Effects Assessment Program (UN FAO LEAP). The LEAP Partnership works toward developing clear guidelines for environmental performance assessments based on international best practices. The FARM Environmental Stewardship module (see below) is the only known on-farm greenhouse gas calculator that was developed using peer-reviewed science from a life cycle assessment (LCA) methodology that has been officially recognized by the UN FAO LEAP.

*Completed Projects*

- Dairy Farm Smart™ - The Dairy Farm Smart project aimed to provide farmers with science-based decision support tools to assess their environmental footprint, mitigate and track improvements, and communicate their progress. The project was completed in 2016, but the methodology and science that lie within the tool became the foundation for the Environmental Stewardship module within the National Dairy FARM Program (see page 14).
- Dairy Plant Smart™ – The Dairy Plant Smart project focused on helping processors measure the energy and GHG emissions intensity of fluid milk production. With the development and availability of widely adopted resources to measure the metrics defined in the U.S. Dairy Stewardship Commitment, the Dairy Plant Smart tool and project were completed in 2016. In 2016, a processor-led team of Dairy

[1] Livestock Primary Production, Food and Agriculture Organization. Accessed on May 2019 *http://faostat3.fao.org/home/E*

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 Stewardship Commitment Metrics.

- 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 and ended at the Innovation Center in 2015 with the creation of Newtrient, a company 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. Newtrient was founded by leading dairy cooperatives from across the U.S. representing nearly 20,000 dairy farmers – and producing one-half of the nation's milk supply – as well as the Innovation Center for U.S. Dairy (through Dairy Management Inc.) and NMPF. These organizations recognize the need to bring manure management technologies and providers together with dairy farmers, researchers, and other stakeholders in order to seize the opportunities from manure, while supporting environmental sustainability and bringing economic return to the farmers.

*Ongoing Projects*

- Cow of the Future® – One of the original GHG reduction projects, Cow of the Future® provides research and analysis of technologies that have the potential to improve dairy cow feeding and management, while considering 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. The project developed a guidance manual for dairy farmers and other professionals to reduce enteric methane emissions through feed and animal management: *Considerations and Resources on Feed and Animal Management*. The resource has been incorporated into materials for FARM Environmental Stewardship.
- FARM Environmental Stewardship – The National Dairy FARM Program, administered and managed by NMPF launched the FARM Environmental Stewardship (FARM ES) program in 2017. The program provides dairy producers, cooperatives and companies with a streamlined, single source for voluntary on-farm assessment and communication of GHG emissions and energy use on dairy farms. It fully integrates the methodology and science that resided in Farm Smart ™, which was developed by the Innovation Center over the last several years. The FARM Program worked with World Wildlife Fund to assemble an Independent Technical Review Panel of academics, farmers, NGOs, and industry specialists to create and review an Environmental Stewardship Continuous Improvement Reference Manual (ES Reference Manual). The ES Reference Manual lays out management practices, technologies, and other considerations that can help reduce on-farm GHG emissions and energy use in a way that makes business sense. Since its launch, over 900 FARM ES assessments have been conducted by more than 20 participating organizations. As additional farms undergo evaluations in the coming years, the number of completed assessments is expected to increase substantially.
- Ongoing Revisions to FARM ES – The FARM Program and the Innovation Center are working together to develop a transparent process for bringing new science into the FARM ES model over time. The process will outline how science is considered and reviewed by outside academia. The first science to be vetted through this process will likely be from the Sustainable Dairy Project which is one of several USDA -

National Institute for Food and Agriculture (NIFA), Coordinated Agricultural Projects (CAP). Project leads are based at the University of Wisconsin-Madison with collaborators at several other institutions, primarily The Pennsylvania State University and Cornell University. This project has focused on greenhouse gas emissions in dairy and is working to look at key updates to the FARM ES model.

- GHG On-Farm Reporting – To enhance dairy's ability to demonstrate positive impact, NMPF and the Innovation Center, in partnership with the Environmental Defense Fund (EDF) Climate Corps program, have collaborated to ensure FARM ES and accompanying resources can provide recognized Scope 3 CDP (formerly Carbon Disclosure Project) reporting to credibly track progress against Science-Based Targets (SBTs) and other GHG reduction goals. External stakeholder and expert input are essential to this process.
- GHG Processor Reporting – Comprehensive cooperative and processor guidance to prepare GHG Protocol-aligned Scope 1, 2, and 3 inventories and quantify emissions was completed in 2019. Input and expertise to develop this resource was provided by more than 12 leading dairy processors and industry leaders, as well as through consultation with leading dairy customers and environmental nonprofits. This guidance has been recognized as best-in-class by many dairy processors community and will be integrated in an updated Processor Handbook due for release in November 2019.

# Energy Use

The environmental impacts of energy use vary depending on the source. Regardless, reductions in energy use directly correlate to lowered costs of production. As an industry, dairy processors spend over $1 billion annually on energy use related to milk production. Dependent on farm size, dairy producers spend from $5000 to more than $250,000 on energy use annually. As such, energy use efficiency often serves as an entry point to advance sustainable practices and provides one of the easiest wins to quantify return on investment.

## Prioritization

- *Importance to Stakeholders*: **Medium** – Energy use efficiency often ranks as a priority for dairy farmers, cooperatives, and processors. Many dairy customers expect their suppliers to optimize energy usage and reduce operating costs throughout the value chain, including on-farm, processing and transportation.
- *Significance of Impacts*: **Medium** – Environmental and economic impacts in energy use depend on a variety of factors such as allocations of renewal energy vs. fossil fuels. As such, energy use is often an input factor for other environmental impact areas such as GHG emissions. Based on U.S. dairy LCA data, ~36.6% of GHG emissions for fluid milk comes from energy use across the dairy value chain. When economically viable, dairy farmers and processors have a high degree of influence through investing in energy-efficient equipment and advancing energy efficiency practices.

## Stewardship Commitment Metrics

- Dairy Farms
  - Total energy use converted to MMBTU/ lb. of fat and protein corrected milk (FPCM) produced
- Processors
  - Total energy use (converted to MMBTU)/lb. production output

*Ongoing Projects*

- FARM Environmental Stewardship – The National Dairy FARM Program, administered and managed by NMPF, launched the FARM Environmental Stewardship (FARM ES) program in 2017. The program provides dairy producers, cooperatives and companies with a streamlined, single source for voluntary on-farm assessment and communication of GHG emissions and energy use on dairy farms. The complementary Environmental Stewardship Continuous Improvement Reference Manual lays out

management practices, technologies, and other considerations that can help reduce on-farm GHG emissions and energy use in a way that makes business sense.

- Farm Energy Efficiency – The Innovation Center collaborates with the EnSave program to provide dairy producers with links to informational resources, including a Best Practice Guide, fact sheets for energy efficient equipment upgrades, and case studies illustrating the value of energy audits and energy efficiency best practices.
- Energy Use Processor Reporting – The Processor Handbook provides step-by-step guidance for dairy processors to measure and track performance against the Stewardship Commitment's processor energy use metrics.

# Health and Nutrition

Dairy's role as a nutritious source of enjoyable, affordable food is foundational in dairy's contribution to sustainable food systems. Through the National Dairy Council's Nutrition Research program, registered dieticians, academics, scientists, and other key stakeholders advance health and nutrition research across two main areas of study: public health and consumer-focused benefits. Across both areas, the Nutrition Research program positions dairy's health and nutritional contributions within the broader scope of environmental and socially responsible dairy.

## Prioritization

- *Importance to Stakeholders*: **High** – The health and nutritional attributes of dairy consistently ranks as one of the highest priorities for consumers and stakeholders overall.
- *Significance of Impacts*: **High** – Malnutrition in all forms – undernutrition, micronutrient deficiency and overweight and obesity – is a globally recognized priority and core to the UN Sustainable Development Goals.

## Strategy and Progress

The Innovation Center's health and nutrition initiatives are largely focused on research, guidance materials, and education. Stewardship Commitment metrics to quantify progress across dairy health and nutrition are currently in development. To advance and inform these efforts, the Nutrition Research program studies the role of full-fat dairy products on health; how dairy contributes to childhood growth and development; the impact of dairy foods on health care and consumer cost; how high-quality dairy protein supports muscle function and performance, especially during aging; and how dairy as a component of healthy eating patterns can reduce risk for chronic, non-communicable diseases. Primary areas of interest are inflammation/cardiovascular disease, milkfat, childhood nutrition, protein and gut health.

The primary Nutrition Research platforms are:

- Inflammation/Cardiovascular health: Explores how dairy foods, regardless of fat content, reduce chronic inflammation, improve gut barrier function, and help improve vascular function.
- Milk fat: Better position full-fat dairy foods in health eating patterns to reduce the risk for chronic diseases, such as cardiovascular disease and type 2 diabetes.
- Childhood nutrition and health: Continuing to build on the legacy of NDC by showing that milk and dairy foods are essential for normal growth and development throughout childhood.
- Protein Quality: Spearheading research to evaluate the best methods for determining protein quality while also investigating the impact of high-quality dairy proteins to support health across the lifespan
- Gut health: Actively participate in key third party health professional organizations to understand the role of the microbiome on health to help guide future research.

*Accomplishments*

The research findings of the Nutrition Research program have been key to establishing U.S. dairy's essential role as a sustainable and nutritious food source. Among other accomplishments, the research, publications, and educational efforts of the Nutrition Research program support the following:

- Protect and promote 3 servings of dairy per day recommendation in the Dietary Guidelines for Americans
- Gaining recognition for the inclusion of full-fat dairy products in healthy eating patterns
- Demonstration of higher quality of dairy protein compared to plant-protein alternatives
- Recognition of the importance of dairy in childhood growth and development, including cognitive function
- Recognition of dairy products to reduce the risk of chronic disease
- Demonstration of the positive economic impact to both consumer and healthcare costs through meeting dairy recommendations

### Stewardship Commitment Metrics

- Metrics under development for this priority.

## Product Safety & Quality

The dairy community understands and values the confidence consumers place in the safety and wholesomeness of dairy foods. Every day, from farmer to veterinarian to nutritionist to processor, the industry strives to be responsible in each step it takes to make sure dairy products are safe for all consumers.

### Prioritization

- *Importance to Stakeholders*: **High** – Food safety consistently ranks as the highest priority for consumers.
- *Significance of Impacts*: **High** – Food safety is critical to the economic viability of dairy and an upmost and foundational social responsibility priority. The U.S. dairy has long treated food safety as a pre-competitive area and worked together to diminish food safety risks and help ensure that dairy products are safe.

Food safety standards are highly regulated through both state and federal programs. For example, dairy milk is tested for drug residues at least twice. Samples are taken when a milk truck comes to pick up the dairy farm's milk and again when the driver arrives at the milk plant. Farmers have strong incentives to keep their milk free of antibiotics. In the rare instance of a positive test at the milk plant, the milk is rejected and the entire tanker discarded. The farmer is financially liable for the entire truckload (which could be in excess of $15,000). If a farm were to have more than one violation, state regulators would apply additional penalties, such as fines and/or revoking a farmer's license to sell milk. The Food and Drug Administration (FDA) has primary responsibility for regulating most foods, including milk, shipped in interstate commerce. The Pasteurized Milk Ordinance sets minimum standards and requirements for the production, processing, and packaging of Grade A milk.

### Stewardship Commitment Metrics

- Processors
    - Food safety:
        - Do you have validated, verifiable food safety programs and management systems in place?
        - Do you frequently reassess your food safety programs to ensure efficacy and to reflect new food safety tools/practices and ensure continuous improvement?
    - Traceability:
        - Commitment to voluntary U.S. Dairy Traceability Guidelines

## Strategy and Progress

Protecting consumers and their confidence in dairy requires constant diligence and investment by the industry. Because of this, the industry regularly updates the FDA's Pasteurized Milk Ordinance through the National Conference on Interstate Milk Shipments (NCIMS) process and the Innovation Center focuses on freely sharing guidance, best practice training, research, and issue-specific initiatives. These efforts rely heavily on the expertise of dairy cooperatives and processors that are Innovation Center members, as well as academics across DMI-sponsored National Dairy Foods research centers. Currently, more than 80 active volunteers from over 30 dairy companies contribute to these efforts.

*Ongoing Projects*

- Workshops – Focused on controlling pathogens in plants and cross the supply chain, the goal of the Innovation Center's Food Safety Committee is to develop and encourage industry adoption of pathogen control programs. By offering several Dairy Plant Food Safety Workshops each year and providing tools and templates, industry members can gain food safety fundamentals and receive hands-on experience on techniques and standard operating procedures. Since 2011, the Innovation Center has more than 75 sessions, with over 3,000 individuals trained. The Supplier Food Safety Management Workshops focus on risk identification and mitigation tools – since 2011, there have been 12 sessions training approximately 200 individuals.
- Online Training: The Innovation Center for US Dairy, as part of the Artisan Dairy Safety Advisory Group, created a 10 hour, online safe cheesemaking certificate course tailored to those working at small farmstead and artisan cheese facilities. The course is intended to be an introduction to controlling food safety hazards through good management practices, sanitation, good design, and environmental monitoring. To date, more than 250 participants have completed the course. A complementary course is currently in development for artisan and regional ice cream producers.
- English and Spanish Language Resources – the Innovation Center develops and maintains comprehensive bilingual food safety materials including listeria control guidance, dairy equipment and facility checklists, and an example of a Sanitation Standard Operating Procedure (SSOP). These materials are also available from the American Cheese Society along with a number of additional Food Safety resources co-developed with the Innovation Center.
- Traceability Guidelines – Traceability is the ability to track a product through all stages of production, processing and distribution. The industry guidelines focus on product flows, labeling, recordkeeping, data collection, and other protocols from the plant through the supply chain to end-product manufacturers. The U.S. dairy traceability guidelines help companies isolate products to protect public health and prevent brand damage in the event of a food safety issue.
- Antibiotic Stewardship – The National Dairy FARM Program Milk and Dairy Beef Drug Residue Prevention Manual is the primary educational tool for dairy farm managers throughout the country on the judicious and responsible use of antibiotics, including avoidance of drug residues in milk and meat. The manual is a quick resource to review those antibiotics approved for dairy animals and can also be used as an educational tool and resource for farm managers as they develop on-farm best management practices necessary to avoid milk and meat residues. Additionally, the FARM Animal Care program requires the establishment of a Veterinarian-Client-Patient-Relationship (VCPR) where the dairy farmer consults with a veterinarian on development of treatment protocols that address proper antibiotic use. These treatment protocols are part of a comprehensive written Herd Health Plan which emphasizes prevention, rapid diagnosis and quick decision-making on necessary treatment of all sick or injured dairy cattle on the farm. Adherence to these standards is assessed on each dairy farm on a three-year basis.

- Listeria Research Consortium – The Innovation Center initiated an industry-funded research consortium to advance science with the ultimate goal of protecting consumers and developing new tools for use in dairy plants and products. In 2015, the industry released targeted guidance on Listeria, including The Control of *Listeria Monocytogenes*: Guidance for the U.S. Dairy Industry. It represented an industry-wide effort with 13 primary authors and expert reviewers form industry, academia, and government. A broader 'Pathogen Control' guidance document is currently being drafted.

*Accomplishments*

- More than 80% of the U.S. milk supply is covered by the industry's voluntary traceability guidelines.
- Under a comprehensive program overseen by the FDA and implemented by individual state regulatory authorities, the U.S. dairy community conducts nearly 4 million tests annually on all milk that enters dairy plants to ensure that antibiotics are kept out of the nation's milk supply.
- Efforts to reduce antibiotics and residues in bulk milk tankers have been successful. Since 1995, there has been a 90% decrease in bulk milk tanker antibiotic residues, with the lowest ever incidence in 2018: 99.99% of the nearly 3.6 million bulk milk tankers tested free of antibiotics.[2] (National Milk Drug Residue Data Base reports can be found online).
- In 2017, no antibiotic residues were found in more than 33,511 random samples of post-pasteurized fluid milk and milk products tested before leaving the processing plant, as has been the case since 2011. In 2018, 4 positive samples were identified in a total of 32,847 samples.[3] Dairy's goal is zero incidence, and the dairy community continually works to strengthen the system to reach and maintain this goal.
- Any milk that tests positive for antibiotic residues is destroyed and cannot be sold for human consumption.
- Through the Innovation Center Food Safety Committee, companies freely share their best practices and allow their internal experts to train the entire industry.

# Workforce Development

In the U.S., the dairy industry directly employs nearly 1 million individuals, and indirectly supports almost 2 million additional jobs.[4] As such, the sustainability of the dairy industry depends upon the availability and retention of quality employees. Creating positive and safe work environments helps to further that goal.

## Prioritization

- *Importance to Stakeholders*: Medium – Labor management is closely watched by external stakeholders to help ensure employee safety and worker livelihoods. Retailers and other dairy customers are becoming interested in the working conditions associated with their supply chain. Consumers want to know that the products they purchase are made by workers treated respectfully.
- *Significance of Impacts*: Medium – Dairy farming and processing has a strong contribution to the workforce and economy, often in rural and less-developed areas. The safety and well-being of the dairy workforce is key to successful operations and a core social responsibility.

Employment conditions and safety are highly regulated through both state and federal laws. While coverage varies by business, the following laws and regulations address labor, wages, and working conditions:

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[2] National Milk Drug Residue Data Base Fiscal Year 2018 Annual Report: October 1, 2017 – September 30, 2018. https://www.nmdrd.com/fy-18.pdf.

[3] Ibid.

[4] Dairy Delivers: The Economic Impact of Dairy Products. International Dairy Foods Association. https://www.idfa.org/resource-center/dairy-delivers.

- The Fair Labor Standards Act establishes Federal minimum wage, overtime pay, recordkeeping, and youth employment standards affecting employees in the private sector. States and localities may adopt their own requirements that exceed federal law.
- The Occupational Safety and Health Act addresses safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education, and assistance. States may adopt their own OSHA plan that must be at least as effective as federal law.
- Workers' Compensation regulations and requirements vary by state. Workers' comp protects workers who are injured on the job and provides disability payments for those unable to work due to such injuries.
- Employment discrimination laws (e.g. the Civil Rights Act of 1964) prohibit discrimination based on certain characteristics/protected categories like race, sex, religion, disability, national origin, and more. States and localities may adopt their own requirements that exceed federal law.
- The Immigration and Nationality Act has labor standards provisions that apply to aliens authorized to work in the U.S.

### Stewardship Commitment Metrics

- Processors
    - Employment opportunities: Total number of jobs supplied
    - Employee benefits: List or indicate direct and non-monetary benefits available to employees
    - Employee retention: Total number employed during the past year and percentage of employees who have been employed for 5, 10, and 20 years
    - Employee engagement in health and safety management: Number of opportunities for workers to participate in, and percentage of employees who participated in developing, implementing and managing health and safety initiatives; also, the levels in the corporation at which these programs operate
    - Days of restricted work activity or job transfer: Days of restricted work activity or job transfer (DART) rate

### Strategy and Progress

Because employment conditions, including safety, are well-regulated in the U.S., the dairy industry is focused on providing guidance materials to help farmers and processors go above and beyond. Dairy farms employ an estimated total of more than 150,000 workers, 76% of which are full-time employees.[5] Ensuring workers' safety and well-being is a key focus of the dairy industry and has led to the creation of the National Dairy FARM Workforce Development program. FARM Workforce Development provides resources and guidance for dairy owners and managers to maintain thriving work environments. For processors, U.S. dairy has developed Stewardship Commitment Metrics to help companies communicate their commitment to their employees to the public.

*Ongoing Projects*

- FARM Workforce Development –This new initiative provides dairies across the country with guidance and best management practices around human resources (hiring, training, and supervision) and worker health and safety. The expanded suite of educational materials will help farmers who want basic human resources tools and safety practices for their employees, enabling farm owners to increase worker engagement, reduce employee turnover, and manage liabilities from the safety risks of dairy farming. Expert and stakeholder input is essential for ensuring a robust program. The FARM Program has put

[5] Labor on U.S. Dairy Farms. National Dairy FARM Program. https://nationaldairyfarm.com/wp-content/uploads/2018/11/Labor-on-U.S.-Dairy-Farms.pdf

together a Workforce Development Committee comprised of farmers, cooperative staff, academics, subject matter experts, and customer representatives. Members from the Committee participate in Working Groups tasked with reviewing, recommending, and providing counsel on program materials. There are currently three Working Groups: Human Resources, Safety, and Survey.

- Human Resources Legal Fact Sheets – These state-by-state and federal legal fact sheets are part of FARM Workforce Development. They summarize state laws and regulations on a variety of human resource issues for dairy farms, including wages, paystubs, deductions, youth employment, and more. Each fact sheet provides an overview of select issues and a high-level explanation of key requirements for each one, with links to more information and resources throughout the document. Being legally compliant is an important baseline for achieving sustainability progress.
- FARM Safety Reference Manual – The FARM Safety Reference Manual is a collaboration between National Milk Producers Federation and the Idaho Dairymen's Association. The FARM Safety Reference Manual introduces dairy owners and managers to components of safety management, including both legal considerations and best practices. It will also cover on-farm hazards and strategies for addressing them to promote a safe work environment, including how to develop and implement a training program. Finally, the Manual contains a self-assessment for dairies to identify areas for improvement.
- FARM Human Resources Reference Manual – The Human Resources Reference Manual is a dairy-specific guide for owners and managers to learn best practices around hiring, communication, training and management, wages/payroll, benefits, performance management, and more. Self-Assessment questions correspond to each chapter that can be combined into a stand-alone checklist. The self-assessment helps dairies understand their areas of strength and opportunity. Additionally, the Human Resources Reference Manual is accompanied by a set of fill-in-the-blank templates that dairies can tailor for use on their individual operations.

## Water Conservation and Water Quality (Dairy Farm)

U.S. dairy continues to explore opportunities to measure and report water impacts, and this has become a core priority of the Innovation Center's Environmental Stewardship Committee. Over 90% of water use in the U.S. dairy value chain occurs during feed production. Since dairy farmers only grow 35% of their own feed, dairy's directly influence over water use in the dairy value chain can be limited for feed grown on-farm. Dairy farms have direct operational control over manure management, which affects water quality (see the following section on Nutrient Management).

### Prioritization

- *Importance to Stakeholders*: High – Customers and supply chain partners place a great level of emphasis on water stewardship, including both quality and quantity.
- *Significance of Impacts*: High – Water is a finite resource under increasing pressure from human activities. Water use is directly linked to other local, regional, and national sustainability concerns. For example, water availability and quality have implications to human health, the economy, food security, and ecosystem health. LCA research finds that ~5.1% of total U.S. water withdrawal is from dairy-related water use. Over 90% of that is used for feed production.

### Stewardship Commitment Metrics

- Dairy Farms
  - Water conservation: Gallons of water/lb. of fat and protein corrected milk (FPCM)
- Processors
  - Water use: Percentage of total water withdrawn and consumed by source

- Water conservation: Gallons of water consumed/lb. of production output
- Water quality: Do you have a policy, program, or monitoring system that ensures routine compliance with industrial or storm water permit parameters?
- Water recycling and reuse: Percentage and total volume of water that is recycled and reused

### Strategy and Progress

The Innovation Center supports dairy farmers and processors in their pursuit of continuous improvement with metrics for tracking water conservation and quality.

Water availability and sensitivity differs throughout the U.S. so management approaches must be tailored to each individual business and location. Water recycling is one of several strategies dairy processors and farmers can use to reduce their impact on stressed water sources. Processing plants often extract water from milk when making foods like cheese or milk powder. That water, known as 'cow water' can be used for industrial purposes within the plant.

At the farm-level, dairy farmers use water responsibly and generally recycle it multiple times. Clean water is used as cow drinking water, to wash cows, to clean the milking parlor and milking equipment, and to cool milk storage tanks. That water can be reused to flush manure from barn floors and then recycled and blended with irrigation water to nourish crops grown to feed cows.

Water quality is another important dimension of dairy's commitment to water stewardship. At the farm, nutrient management, including manure management, contributes to water quality stewardship. And water quality monitoring is typical at dairy plants. For example, wastewater is assessed for various organic pollutants through tests for Biological Oxygen Demand (BOD), Total Organic Carbon (TOC), Chemical Oxygen Demand (COD), and more. Companies tackle their wastewater in a variety of manners, like the use of filtration and ultrafiltration.

Ongoing Projects:

- Farm-Level Water Quality – Farm-level water quality is impacted by many factors, including farm nutrient management. Refer to the Nutrient Management section that follows for more information about how U.S. dairy is approaching nutrient management.
- Processor Handbook – The Processor Handbook provides guidance for dairy processors to measure and track performance against the Stewardship Commitment's processor water metrics.
- Innovation Center Environmental Stewardship Committee – Water is a key focus area for the Innovation Center Environmental Stewardship Committee. Since 95% of dairy's water use is allocated to growing feed and 65% of feed is purchased from off the farm, the Committee relies on the partnership with Field to Market to address on-field water use. The Committee is also forming a Water Task Force to more closely examine water use and water quality on the dairy farm itself. Additionally, the Committee works closely with Newtrient and NMPF to address on-farm practices related to water quality.

## Nutrient Management (Dairy Farm)

Fertilizer, manure, and compost are used to enrich the soil in which crops are grown. The proper nutrients should be applied at the right rate, time and location to achieve optimal forage and crop productivity. Due to productivity improvements, in 2007 U.S. dairy used 65 percent less cropland to produce a gallon of milk than it did in 1944.[6]

[6] Source: Capper JL, Cady RA, Bauman D. The environmental impact of dairy production: 1944 compared with 2007. J Anim Sci. 2009;87(6):2160-2167.

### Prioritization

- *Importance to Stakeholders*: **High** – Customers and supply chain partners have placed a great level of emphasis on nutrient stewardship, especially as it relates to water quality.
- *Significance of Impacts*: **High** – Appropriate management of nutrients and manure application are strongly connected to managing environmental priorities including water quality, soil health and GHG emissions, which can impact ecosystems. Moreover, nutrient management has social and economic implications that contribute to its significance.

### Stewardship Commitment Metrics

- Dairy Farms
    - Do you implement and maintain a written nutrient management plan?

### Strategy and Progress

The Innovation Center supports dairy farmers in their pursuit of continuous improvement in nutrient management. A nutrient management plan (NMP) helps guide management decisions to ensure nutrients are applied in an efficient and environmentally sound manner. For example, an NMP includes steps for testing soil nutrient levels before applying manure or fertilizer to help guide the proper source, rate, timing, and placement of additional nutrients.

*Ongoing Projects*

- Newtrient – Through DMI, the Innovation Center for U.S. Dairy is a board member and stakeholder in Newtrient. Founded in 2015, 14 companies representing nearly 20,000 dairy farmers – and producing half of the nation's milk supply – supported the creation of Newtrient. The company is 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. To date, the company has provided technology insights and evaluations to more than 4,000 farmers, technology vendors, researchers, and policy makers. They have created a trusted 9-point scale to universally evaluate and rate all technologies, of which they have currently reviewed over 260. The Newtrient Technology Catalog provides a comprehensive review of manure management and resource recovery technologies.
- FARM Environmental Stewardship – The FARM Environmental Stewardship (FARM ES) program will integrate the Stewardship Commitment metrics related to nutrient management. The FARM ES module will allow for voluntary, on-farm collection of yes/no data on the nutrient management plan Stewardship Metric.

## Resource Recovery

The Innovation Center approaches waste from the angle of resource recovery. Resource recovery is the selective extraction of disposed materials (waste) for a specific next use, such as production of new materials, compost, or energy. The aim of resource recovery is to extract the maximum practical benefits from products, delay the consumption of virgin natural resources, and generate the minimum amount of waste. Additionally, dairy processing plants can implement waste management plans, which help reduce waste before it is ever created (avoided waste). Resource recovery may also be extended from processing to the dairy farm through opportunities such as using by-products from food processing as animal feed and sending organic food waste to on-farm anaerobic digesters.

## Prioritization

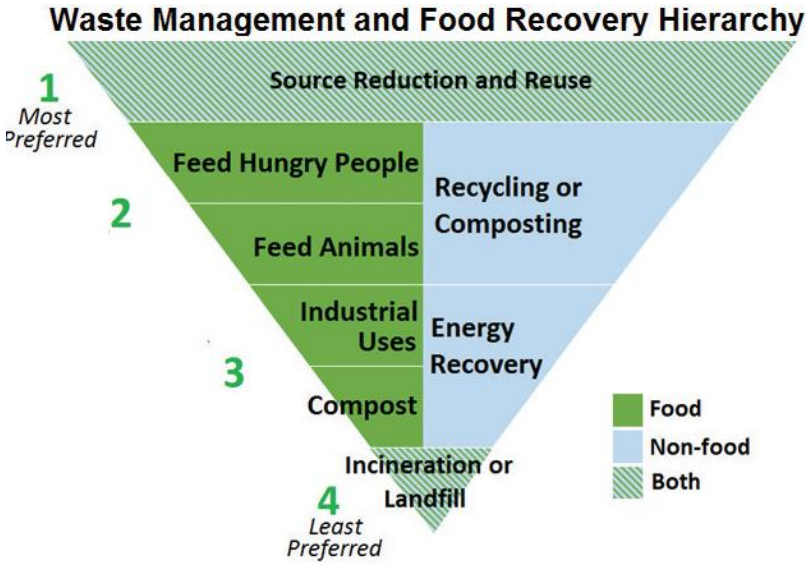
- *Importance to Stakeholders*: Mid – Customers and supply chain partners place a moderate level of emphasis on waste management. The subtopic of food waste is of particular interest to internal and external stakeholders, including governmental agencies, nonprofits, retail and foodservice customers, and consumers.
- *Significance of Impacts*: Mid – Repurposing byproducts and other disposed materials for their best possible use has strong environmental, societal, and economic impacts. Through minimizing waste and identifying opportunities for resource recovery, U.S. dairy can improve efficiencies in the U.S. food system and help minimize waste in the journey to consumers' plates. In addition, food and other organic waste contribute to GHG emissions, prompting national food waste reduction initiatives.

## Stewardship Commitment Metrics

- Processors
  - Waste diversion: Percent by weight total waste stream (lbs.) diverted from landfill OR incineration without recapturing energy
  - Throughput efficiency: Total waste stream/lb. of production output (lbs.)
  - Resource utilization:
    - Food donated or repurposed as animal feed AND non-food recycled or composted/total waste stream
    - Food repurposed for industrial uses or compost AND non-food repurposed for energy recovery/total waste stream
    - Waste sent to landfill or incineration without recapturing energy/total waste steam

## Strategy and Progress

The Innovation Center addresses resource recovery through research, metrics, providing guidance material, and significantly investing in efforts to reduce food waste.




*Ongoing Projects*

- Research – The Cow of the Future® project has been instrumental in conducting research to demonstrate the dairy cow's role in a sustainable food system. At a national level, 19% of a dairy cow's dry matter intake is composed of by-products. 80% of what cows eat cannot be eaten by people.
- Metrics and Guidance Materials – U.S. dairy supports processors on their continuous improvement path as it relates to resource recovery by developing Stewardship Commitment Metrics and creating guidance materials outlined in the Processor Handbook. The industry merged the EPA Waste Management and Food Recovery Hierarchies to provide unique guidance to the dairy value chain. The merged hierarchy helps dairy companies prioritize actions to prevent and reduce waste.
- Curbing Food Waste – 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. The group created a website where everyone can learn how to take action on food waste. The website was launched in 2017 and populated with case studies that are useful for a broad audience, from kindergarten teachers to corporate CSR professionals.

# Community Contributions

Dairy companies and their employees contribute to local communities and regions (both urban and rural) in ways that can be visible to consumers and stakeholders, such as direct economic support, local taxes paid, and employment opportunities. Other impacts may be less obvious, including involvement by employers and volunteering by employees in service organizations, churches and schools; charitable and general contributions; and capacity building to support the overall vitality of rural and urban communities.

## Prioritization

- *Importance to Stakeholders*: Mid – Stakeholders are interested in learning about the dairy community's contributions to the communities where they live and work, although to a lesser degree compared to other priorities.
- *Significance of Impacts*: Mid – The Community Contributions topic covers both direct and indirect economic impacts of the dairy industry along with philanthropic activities. Dairy farms and processors contribute to local communities by creating jobs, purchasing services and supplies, and paying local taxes. Through a demonstration of longstanding values, they often engage in outreach efforts such as community volunteering, production donations, and charitable giving. Such community support activities, while valuable and important demonstrations of social responsibility, do not directly address the impacts associated with dairy companies' core business and operations, which is essential for promoting sustainable development. This consideration resulted in a lower assessment on the significance of impacts compared to other priorities.

## Stewardship Commitment Metrics

- Processors
    - Community volunteering and capacity building: Volunteer activities performed by employees
    - Monetary and product donations: Monetary and product donation activities. Provide a narrative description of product donations for the past year
    - Educational opportunities: Describe community educational events per year and the total number of participants

## Strategy and Progress

The U.S. dairy products industry directly supports nearly 1 million jobs, and nearly 2 million more jobs indirectly through suppliers and the indirect impact of the industry's expenditures.[7] The industry's overall economic impact is valued at $628 billion, more than 1% of U.S. GDP. Much of the milk production and dairy product manufacturing occurs in rural communities.

The industry has addressed this criterion through the creation of metrics that companies can use to track their community impacts. The metrics for community contributions focus on the impact dairy processors have on

[7] Dairy Delivers: The Economic Impact of Dairy Products. International Dairy Foods Association. https://www.idfa.org/resource-center/dairy-delivers

sustaining vibrant local communities. They include time and financial contributions, such as volunteering, donations, and educational opportunities, which are provided in the form of tours and informational events. The Processor Handbook provides guidance for dairy processors to measure and track performance using the Stewardship Commitment's Community Contribution metrics.

# Soil, Biodiversity, Water Quality & Quantity, Land Use, Nutrient Management (Field Level)

By the nature of the marketplace, dairy farmers generally know the sourcing region for their feed but often cannot trace feed production practices directly to the field. Therefore the Innovation Center is committed to working with dairy stakeholders and feed and crop-focused initiatives to advance the sustainability of feed crop production.

## Prioritization

- *Importance to Stakeholders*: Mid– Customers and supply chain partners have placed a great level of emphasis on agricultural water use, quality, and soil health. Some also pursue biodiversity initiatives.
- *Significance of Impacts*: Mid – On average, dairy farmers only grow 35% of their cattle feed. They are, therefore, limited in their ability to collect primary data on two-thirds of the feed supply. Regardless, societal concerns over field and feed-level environmental impacts are significant. To address this, the Innovation Center has a formal partnership with Field to Market and participates in all of Field to Market's standing committees, and is further exploring opportunities to collaborate with Field to Market to find opportunities to address feed grown on-farm.

## Stewardship Commitment Metrics

- Field to Market quantitative outcomes for land use, irrigation water use, and soil conservation in development for corn silage and alfalfa – the two largest components of U.S. dairy feed. See https://fieldtomarket.org/ for more details.

## Strategy and Progress

The dairy industry's influence over feed production is limited by the fact that only 35% of feed is grown by dairy farmers. To address feed supply sustainability, therefore, it is necessary to reach the farmers that grow the other 65%. The industry has approached field-level sustainability by pursuing a collaborative partnership with Field to Market. Through the partnership with Field to Market, the Innovation Center is helping to provide tools and information to individual growers, both dairy farmers and others, to assess feed crop sustainability.

*Ongoing Projects*

- Sustainable Agriculture Summit –Partnership with Field to Market has resulted in the creation of a national forum for advancing agricultural sustainability in the U.S. The Sustainable Agriculture Summit – hosted by the Innovation Center, Field to Market, and convening partners the National Pork Board, Stewardship Index for Specialty Crops, U.S. Poultry & Egg Association, and U.S. Roundtable for Sustainable Beef – brings together attendees from across the production agriculture value chain, including farmers, agribusiness, processors, retailers, academics, NGOs, government agencies, and more. More than 500 industry professionals have attended each of the past two years. The fourth annual Sustainable Agriculture Summit will be held in November 2018.

- Field to Market Standing Committees – The Innovation Center participates in the Grower sector of Field to Market to provide a voice for dairy farmers. The dairy industry as a whole has devoted significant staff time to sit on all four of Field to Market's Standing Committees: Verification, Metrics, Education and Outreach, and Awards and Recognition.

- Dairy Feed Crop Sustainability – The partnership with Field to Market has focused a great deal on how to bring two essential dairy feed crops, corn silage and alfalfa, into Field to Market's existing sustainability measurement tool, the Fieldprint Calculator. The newest version of the tool, which integrates dairy feed crops was completed in 2018 and field tests of this new functionality are underway. Further, the Innovation Center has partnered with USDA's Natural Resources Conservation Service (NRCS), to better align NRCS feed and field environmental tools and conservation programs with Innovation Center resources.
- Additional Partnerships – The Innovation Center partners across a variety of organizations to improve the economic, social and environmental sustainability of U.S. dairy.

# Market Development

Robust contract law in the U.S. across states, which govern product sales and distributions, means that farms, and processors have the opportunity to build viable businesses. Rather than developing in-house programs, the Innovation Center relies on the country's system of transparent and effective markets to align with this global criterion within the DSF.

## Prioritization

- *Importance to Stakeholders*: Low – Customers and supply chain partners rely on the existence of transparent and effective markets in order to participate in the dairy industry. However, market development is not a focus area because the U.S. already benefits from an effective market structure.
- *Significance of Impacts*: Low–The DSF criterion for the topic states, "Participants along the dairy value chain are able to build economically viable businesses through the development of transparent and effective markets". While dairy companies have direct influence on the sale of their products, the existence of a U.S. market structure that enables these sales is already in place and largely outside the control of the industry.

## Strategy and Progress

Market development is foundational to U.S. dairy. The Innovation Center continues to explore how to implement the Market Development DSF Criterion in the context of the U.S. market.