

U. S. Dairy Sustainability Report

2021/2022





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About This Report

The 2021-2022 U.S. Dairy Sustainability Report is the ninth progress report published by the Innovation Center for U.S. Dairy® (Innovation Center). The reporting period covers calendar years 2021 and 2022, except where clearly noted. The principles in the Global Reporting Initiative's Universal Standards informed report development. Future reporting is expected to continue to occur biennially.

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



Welcome

In 2008, America's dairy farmers and industry leaders came together to create the Innovation Center for U.S. Dairy, a forum for advancing commitment, action and knowledge sharing within pre-competitive social responsibility areas important to customers and consumers here and around the world.

Over the past 15 years, we have seen shifts in what's important to consumers when it comes to sustainability and the role it plays in their purchasing decisions. According to the Hartman Group's latest report, "Sustainability 2023: Making Things Personal," familiarity with the term sustainability is at an all-time high since their tracking began in 2007. In addition, sustainability is now increasingly multi-faceted and personal, intersecting with how people view their own personal health and wellness combined with social, economic and community challenges.

Amid changing expectations and marketplace shifts, the U.S. dairy community maintains its focus on advancing action together and achieving collective progress that reinforces the industry leadership within and contributions to a global and sustainable food system that nourishes people, the planet and local communities.

A spirit of collaboration and learning has catalyzed outcomes that no one company or sector could do alone, and we are excited to share key developments and achievements in the latest U.S. Dairy Sustainability Report.

Serving as the foundation for sustained progress is a refreshed strategic plan identifying three priority areas where U.S. dairy further supports and scales impact: advancing well-being; regenerating the environment through dairy-centric solutions that enhance natural resources and ecosystems; and caring for our animals and the communities where we live and work.

During this reporting cycle, the number of companies that have adopted the U.S. Dairy Stewardship Commitment increased to 35, totaling 75 percent of U.S. milk

production, and we solidified efforts to ensure structures and tools are in place to support transparent reporting of progress.

Notably, this report includes the industry's second and third year of aggregated dairy processor data. More companies are reporting good quality data against the environmental and social metrics defined in the U.S. Dairy Stewardship Commitment and, although three years of data do not indicate a definitive trend, environmental and social indicators appear to be improving.

We also reinforced collaborative research efforts aimed at identifying new technologies and practices that can reduce dairy's environmental impact and optimize resource utilization.

It is our ability to work together and advance measurable impact against common goals combined with the diverse nature and scale of U.S. dairy — from farm through retail — that gives us a unique strength in today's global marketplace.

U.S. dairy's stakeholders have helped define and advance shared sustainability objectives from the start, and we want to extend our gratitude for your active and ongoing support. Your engagement is critical to our success and we look forward to your ongoing partnership as we build a more sustainable future for U.S. dairy.



Barbara S. O'Brien

Barbara O'Brien

President and CEO, Innovation Center for U.S. Dairy

President and CEO, Dairy Management Inc.



Mike Durkin

Mike Durkin

Chair, Innovation Center for U.S. Dairy

President and CEO, Leprino Foods Company

Milestones and Highlights

2021 – 2022

This report marks the Innovation Center for U.S. Dairy's ninth Sustainability Report published since 2010, and the third consecutive year of aggregate data reporting from the U.S. Dairy Stewardship companies.

Contributed to a more sustainable global food system:

U.S. dairy directly or indirectly contributes to all 17 United Nations' Sustainable Development Goals with **particular connection to eleven**

Provided **2.4 million metric tons**, milk solids equivalent of efficiently produced, nutrient dense dairy to international markets in 2022

Celebrated the **11th anniversary of the U.S. Dairy Sustainability Awards** program which has recognized more than 80 winners from nearly 300 nominees.

Marked 14 years of increased membership and multi-stakeholder engagement in the U.S. Dairy Sustainability Alliance[®] with 41 dairy farmer representatives and 179 member companies and organizations in 2022, adding 48 new members in 2021-2022.

Updated the Materiality Assessment for U.S. Dairy to **inform strategy and future dairy community efforts** and published a resource to support dairy companies conducting their own materiality assessment.

Grew the U.S. Dairy Stewardship Commitment to further **define and exhibit sustainability progress:**

Expanded and updated the Terms of Adoption to ensure that these rigorous standards remain current, relevant and aligned with industry values

Recognized as a national program by The Sustainable Agriculture Initiative (SAI) Sustainable Dairy Partnership (SDP), and **Commitment program components have been integrated** into the SDP digital reporting hub

Engaged 35 Commitment adopters representing **75% of U.S. milk production**

Responded to **increased demand for dairy at food banks** during the pandemic by distributing more than **1.17 billion pounds of dairy products over two years** through the Feeding America network.

Received \$10M from the Foundation for Food & Agriculture Research for Dairy Soil & Water Regeneration project to **study dairy's GHG footprint** for feed production, **improve models** and **create new market opportunities** related to carbon, water quality, and soil health.

Initiated research and modeling to begin using a process-based system for the FARM Environmental Stewardship tool, **delivering enhanced environmental and economic insights** to support farmer decision making about the adoption of climate-friendly practices.

Developed biodiversity metrics and released the FARM ES Conservation Practice Questionnaire aligned with the metrics to showcase **on-farm practices that benefit biodiversity.**

Launched new effort to enhance the industry's ability to **anticipate and meet the evolving wellness needs of consumers** by establishing the Health and Well-being Task Force in 2022.

Advanced the **adoption of world class food safety practices**; in 2022, the Innovation Center hosted the 100th in-person food safety workshop for a total of 4,100 people trained since 2011.

Gained significant momentum behind efforts to **make technology and best practices accessible and affordable** to farms of all sizes and geographies.

Through the U.S. Dairy Net Zero Initiative:

26

projects are underway on 338 farms across 19 states

\$37.7M

in funding was committed in 2021 and 2022 by dairy value chain and partner organizations

Continued to support individual dairy company efforts to **reduce their environmental footprint:**

Developed **packaging metrics** to establish a baseline from which to measure and demonstrate improvement

Published **industry guidance for processors** including an updated **Handbook** and a **Sustainability Resource Guide**

U.S. Dairy Snapshot

Milk production and processing occurs in all 50 states

Dairy Farms

OPERATING

37,000+

dairy farmers manage 27,932 dairy farms in the U.S. in 2022²

PRODUCING

226.6B

pounds of milk in the U.S. in 2022³

PROVIDING EMPLOYMENT

105,643

people employed in milk production in 2021⁴

~18%

U.S. milk production exported in 2022, helping to provide important nutrition around the globe¹



Processors

OPERATING

1,201

dairy plants in the U.S. in 2021 and 2022⁵

PROCESSING

2.3M

metric tons of milk solids equivalent⁶

PROVIDING EMPLOYMENT

168,300

people employed in dairy manufacturing in 2021⁷



U.S. dairy contributes to the economy

PROVIDING WAGES

\$41.6B

direct wages in 2021⁸

SUPPORTING

3.3M

total U.S. jobs in 2021



GENERATING

\$67.1B

in federal, state and local taxes in 2021⁹

EXPORTING

\$9.6B

metric tons of milk solids in 2022²

IMPACT

\$753B

in overall economic impact in 2021⁴

About the Innovation Center for U.S. Dairy

The Innovation Center for U.S. Dairy is a voluntary organization that works pre-competitively across the dairy value chain to foster collaboration and progress to build a healthy and sustainable future for the dairy community, the people it serves and the planet we all share.

The Innovation Center was established in 2008 by farmers through the dairy checkoff. It convenes diverse stakeholders and leaders to advance the U.S. dairy community's positive impact on shared social responsibility and sustainability priorities, goals, work and metrics.

The board of directors includes CEOs and chairs of leading dairy cooperatives, farmer organizations, processors and national dairy organizations. In 2022 this group represents 22 organizations supplying approximately 65% of U.S. milk production.

VISION

A future where U.S. dairy unlocks transformative good for people and the planet

MISSION

Collaborate to advance solutions for a more sustainable world and thriving U.S. dairy community

The Innovation Center for U.S. Dairy collaborates with and through the U.S. dairy community and other stakeholders to:

Align on pre-competitive priorities and foster cooperation to collectively address shared objectives.

Advance an industry-wide sustainability and social responsibility platform.

Communicate progress to inspire belief in U.S. dairy as a credible, sustainable solution for the future.

Innovation Center Priorities

To accelerate U.S. Dairy's impact and relevance, the Innovation Center's strategic plan was updated in January 2022. It identified the top areas where the U.S. dairy community can provide value as a solution and demonstrate how it aims to make a positive impact.

Advance Well-being

Deliver dairy nutrition that meets emerging and personalized health needs

- + Enhance nutrition security
- + Benefit the body

Regenerate the Environment

Optimize dairy solutions that enhance natural resources and ecosystems

- + Achieve GHG neutrality
- + Improve ecosystem health
- + Accelerate the circular economy

Care for our Animals and Communities

Ensure healthy animals, a vibrant workforce and safe, high quality dairy foods⁷

- + Provide exceptional care for our cows
- + Empower our people and communities
- + Ensure excellence in food safety and traceability

Learn more at usdairy.com/about-us/innovation-center.

Collaborations and Partnerships

The dairy community has long engaged in pre-competitive collaboration and partnerships across the U.S. dairy value chain and beyond. Partnerships among public, private and nonprofit organizations are vital to address complex sustainability challenges. We can achieve shared objectives by working together and combining resources, assets and expertise.



“

Collaboration is what it takes to tackle the complicated issues of our time. U.S. dairy has shown that when we collaborate across our dairy community and beyond, we can find solutions and make measurable progress towards a healthy and sustainable future.”

— Marilyn Hershey | Pennsylvania dairy farmer | Chair, Dairy Management Inc.

2021-2022 Highlights

- + The U.S. Dairy **Net Zero Initiative (NZI)** and FARM Program were named game-changers by the UN ahead of its inaugural Food Systems Summit.⁸
- + In partnership with Feeding America, the Innovation Center convened the **Dairy Nourishes America Midwest Symposium in 2022** to discuss ways to increase access to dairy for people facing hunger.
- + The Innovation Center is a supporter of **Global Dairy Platform's Pathways to Dairy Net Zero** to mitigate climate change and reduce greenhouse gas (GHG) emissions across the dairy sector. The initiative is supported by organizations representing approximately 30% of global milk production.⁹
- + **Greener Cattle Initiative (GCI)** is a five-year collaboration for new research, providing solutions to mitigate enteric methane emissions. It plans to award \$5 million in research grants for innovative technology solutions to decrease enteric methane in the dairy and beef industries.

Expanded Memorandum of Understanding

USDA and the Innovation Center signed an expanded Memorandum of Understanding (MOU) to signal a shared commitment to the dairy industry's 2050 environmental stewardship goals and consumer demand for food production that benefits the planet. The MOU will leverage USDA programs that help U.S. dairy farmers adopt technologies and practices that have a positive impact on sustainability.¹⁰

U.S. Solutions Highlighted at COP27



Representatives from the agriculture industry in North America and South America joined forces at the 27th Conference of the Parties (COP27) in Egypt in 2022 to highlight ways in which dairy farmers can reduce emissions while providing nutritious food and ensuring farm livelihoods. A presentation by U.S. Dairy Export Council outlined how climate change mitigation and adaptation are essential components of creating global food security.¹¹

Dairy Sustainability Alliance®

The Innovation Center's Dairy Sustainability Alliance® is a multi-stakeholder group consisting of companies and organizations across the dairy community as well as stakeholders who want to contribute to dairy's social responsibility journey. Through in-person meetings, webinars and newsletters, Dairy Sustainability Alliance® members share knowledge and collaborate on challenges and opportunities to accelerate progress toward common sustainability goals, while contributing to the long-term viability of the U.S. dairy industry.

The Dairy Sustainability Alliance® is a key vehicle for convening the broader U.S. dairy value chain and is often the entry point for companies and organizations interested in engaging with Innovation Center initiatives. The pre-competitive forum is essential for the Innovation Center to continue to credibly measure, report on, and support dairy's social responsibility.

Dairy Sustainability Alliance® membership is open to companies and organizations that are committed to being leaders in sustainability.

41

dairy farmer
representatives

179

companies and
organizations

48

new members in
2021 and 2022

300

Members of the Dairy Sustainability Alliance came together six times over two years, with a record 300 attendees at the 2022 Fall meeting.¹²



Stewardship Commitment

TERMS OF ADOPTION

Dairy cooperatives and processors commit to participate in the Dairy Sustainability Alliance®

Learn more at usdairy.com/SustainabilityAlliance.



Panel discussions feature best practices, new ideas, and examples of ways companies are working toward dairy's collective social responsibility commitments.

Sustainable Agriculture Summit

The annual Sustainable Agriculture Summit is the premier sustainability event for agriculture and by agriculture. Co-hosted by the Innovation Center and Field to Market: The Alliance for Sustainable Agriculture in partnership with other national agriculture organizations, the event convenes the collective food and agriculture value chain to learn, develop and advance a shared vision for a sustainable and resilient U.S. food system. In 2022, the Summit hosted a record 750 attendees.

U.S. Dairy Sustainability Awards

The U.S. Dairy Sustainability Awards program recognizes outstanding dairy farms, businesses and partnerships for their socially responsible, economically viable, and environmentally sound practices. These practices, along with countless others across the country, illustrate continuous improvement across the industry and demonstrate how the U.S. dairy industry is committed to building a more sustainable world. Since 2012, more than 80 winners from nearly 300 nominations have been recognized.¹³

An independent panel of judges evaluates nominations on the following criteria:

- + Program or projects measured by social, economic and environmental success
- + Evidence of shared learning, innovation and improvement
- + Potential for adoption by other dairy farms and businesses



Award recipients are highlighted throughout the report.

Outstanding dairy farm sustainability

2021 Winners

MVP Dairy, LLC
Goodrich Farm
Red Sunset Farm

2022 Winners

Bar 20 Dairy
Deer Run Dairy, LLC
Grayhouse Farms, Inc.
Schlangen Dairy Farm

Outstanding supply chain collaboration

2021 Winners

Lafayette Stewardship Alliance,
Farmers for Sustainable Food and
Grande Cheese Company

2022 Winners

Bel Brands, Land O'Lakes and
Boadwine Dairy

Outstanding dairy processing and manufacturing

2021 Winner

Rogue Creamery

2022 Winner

Milk Specialties Global

Outstanding community impact

2021 Winners

Calgren Dairy Fuels, LLC Maas Energy Works, Inc.
and 15 California family dairies

2022 Winners

Maryland and Virginia Milk Producers Cooperative
Association

Outstanding community impact – pandemic response*

2021 Winner

Dairy West

*This category was created in 2021 in response to the COVID-19 pandemic and will not be used in future years.

GENEROUS SUPPORT PROVIDED BY:



Learn more at USDairy.com/Awards.



Dairy's Social Responsibility

The U.S. dairy community takes pride in the contributions that nutrient-rich dairy foods make in people's lives here and around the world. Through the U.S. Dairy Stewardship Commitment, we are also committed to transparently reporting our collective progress in sustainability and social responsibility.

“

Through pre-competitive collaboration and reporting rigor, the Stewardship Commitment created the necessary credibility to promote and advocate for the U.S. dairy community on national and global stages.”

— Adam Wylie | Director of Global Responsibility, Leprino Foods

U.S. Dairy Stewardship Commitment

The U.S. Dairy Stewardship Commitment was developed by the Innovation Center to recognize and support cooperatives and processors that voluntarily choose to follow a rigorous set of standards that demonstrate positive impact. Adopting companies agree to meet defined criteria and use Stewardship Commitment metrics for the areas that are assessed by the company as a priority. Terms of Adoption related to animal care, environmental stewardship, traceability, and community contributions are referenced throughout the Report. Terms of Adoption are reviewed every three to five years in a process approved by the Innovation Center Board of Directors to ensure terms remain current, relevant, and align with industry values.

35

adopting companies represent more than 75% of U.S. milk production¹²

3

new members since 2020¹²

2021-2022 Highlights

- + Stewardship Commitment processor adopters completed **three consecutive years of reporting aggregate U.S. dairy progress**. Refer to Processor Aggregate Data Reports for Environmental and Social indicators on [pages 39-44](#).
- + The Innovation Center Board approved **updates to the Stewardship Commitment Terms of Adoption**, with changes taking effect in 2023. Updates include a new term relating to materiality assessments, clarification on the timing for FARM Environmental Stewardship (FARM ES) evaluations, extension of FARM ES implementation for processors and the addition of a processor food safety plan expectation.¹⁴
- + **Packaging was added as an area of impact** based on the materiality assessment and dairy community input. Three associated metrics were developed for processor reporting starting in 2023. [Learn more on page 30](#).
- + **New biodiversity metrics were developed and incorporated into the FARM Environmental Stewardship (ES) Conservation Practice Questionnaire** to assess the implementation of plans, programs and practices that benefit biodiversity. The metrics will enhance the importance of this topic and recognize current efforts and beneficial practices regarding biodiversity. [Learn more on page 27](#).
- + The **U.S. Dairy Stewardship Commitment was recognized as a national program** by the Sustainable Agriculture Initiative (SAI) Sustainable Dairy Partnership (SDP) and Commitment program components have been integrated into the SDP digital reporting hub.
- + The Innovation Center published an updated version of the **Dairy Processor Handbook**, which integrates the latest Stewardship Commitment developments to adoption terms and metrics.

Read more about the Stewardship Commitment at www.usdairy.com/commitment.

Materiality Assessment

In 2021, the Innovation Center for U.S. Dairy conducted a refresh of the national materiality assessment, originally completed in 2019, and published the results in the [2021 Materiality Assessment for U.S. Dairy](#). The refresh reviewed the topics from the 2019 assessment and ensured that the latest insights and stakeholder interests were reflected. The 2021 assessment has been used as an input to the Innovation Center's Strategic Plan and the Stewardship Commitment. Additionally, the 2022 Materiality Guide for U.S. Dairy is a supporting document that provides guidance for dairy companies seeking to conduct their own materiality assessments based on the national assessment.

Materiality Grid



Impact Areas Environmental | Social | Economic Influence of U.S. dairy rated ● high | ○ medium | ⊙ low

*At a national level, deforestation is not seen as materially impacted by U.S. dairy, but it is noted due to importance to stakeholders.

Key Findings and Observations

The materiality refresh reinforced the importance of existing priorities while identifying additional sustainability topics for consideration.

- + Since the 2019 assessment, investor, marketplace and policy pressures for GHG emissions reduction in agriculture have continued to rise
- + Stakeholder attention on and expectations for disclosure and progress on water (conservation and quality), natural capital and biodiversity have expanded
- + Workforce consistently ranks as an increased priority, with engaged stakeholder groups citing a need for specificity on key areas of focus
- + Food and nutrition security is seen as an area of opportunity for leadership by retailers and the dairy community
- + Sustainable packaging is a key priority for dairy processors and customers, with a particular focus on plastic waste, recycled content and recyclability
- + The protection of human rights remains a foundational priority



Contribution to United Nations' Sustainable Development Goals

The 17 United Nations' Sustainable Development Goals (SDGs) are designed to eradicate poverty, eliminate inequalities and spur the creation of a sustainable and resilient global society. While the U.S. dairy community directly or indirectly connects to all 17 goals, in 2020 we reported that our greatest impacts are related to eight goals.

After examining the U.S. dairy community's alignment with the SDGs, we now recognize efforts supporting three additional goals as described below, bringing the total number of goals to eleven.



Achieve gender equality for all women and girls

The U.S. Dairy Export Council is working to impact SDG 5 through its involvement with the [Committee on World Food Security](#).



Ensure access to affordable, reliable, sustainable and modern energy for all

- + Partnerships expand the use of digesters to utilize waste products to create clean energy that can be delivered to regional users
- + Cross-industry partnerships find new avenues for renewable energy that can be delivered via pipeline to end-users



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss

- + U.S. dairy farmers actively maintain and/or strive to increase nutrients in the soil
- + U.S. dairy farmers actively maintain and/or strive to increase biodiversity in and around farms
- + SDG 15 underscores U.S. dairy farmers' commitment to act as stewards of the land that often is held in families for generations



Advance Well-being

There's a strong body of evidence on the wellness benefits of dairy foods from brain and bone development in childhood, to muscle, bone and digestive health throughout life. Consuming dairy foods is also linked to lower risk of type 2 diabetes and cardiovascular disease. Dairy foods are important to balanced diets and can help people thrive throughout life, offering a host of benefits for overall well-being.

“

There are tens of millions of people in this country whose lives will be made better because of what we — the dairy community and Feeding America — do together.”

— Claire Babineaux-Fontenot | CEO, Feeding America



See 2021-2022 Stewardship Commitment adopter processor Social Aggregate Data on [page 40](#) and [page 43](#).

Dairy Benefits the Body

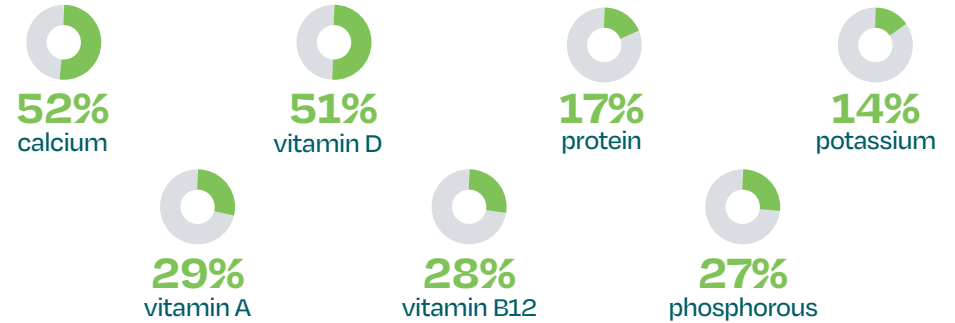
Dairy products like milk, cheese and yogurt promote a healthy and balanced diet and overall wellness for people throughout life.



AFFORDABLE NUTRITION

With **each serving** priced at **approximately 22 cents**, milk is an **affordable source of key nutrients, including protein, vitamins and minerals.**¹⁶

IN THE AVERAGE AMERICAN DIET, MILK, CHEESE AND YOGURT COMBINED SUPPLY:¹⁷



HEALTHY EATING

The 2020-2025 Dietary Guidelines for Americans recognize that **dairy foods play an important role in healthy eating patterns from infancy through adulthood.**¹⁹

DAIRY PRODUCTS PROVIDE HEALTH BENEFITS¹⁸ ASSOCIATED WITH:



EATING YOGURT FOR LOWER DISEASE RISK:

New research suggests that yogurt consumption can lead to a range of health benefits, such as reduced risk of cardiovascular disease and type 2 diabetes.¹⁸

HEART DISEASE PREVENTION

Consuming at least 7 ounces of yogurt per day is **linked with a decreased risk of cardiovascular disease.**

DIABETES PREVENTION

Eating half a serving more of yogurt is **linked to an 11-27% reduced risk of type 2 diabetes.**

BODY WEIGHT MANAGEMENT

Individuals who include yogurt in their diet have a **23 percent lower risk of being overweight or obese.**

The 2020-2025 Dietary Guidelines for Americans recognize that dairy foods play an important role in healthy eating patterns from infancy through adulthood.



Advancing Health and Nutrition

Dairy foods offer vital nutrients crucial for good health and remain an affordable and accessible source of nutrition.

The U.S. dairy community contributes value to society through the wide range of nutritional and wellness benefits that milk, dairy foods and dairy ingredients provide. The dairy community, scientists, health and wellness professionals and administrators of food and nutrition programs recognize the unique role that dairy plays in supporting public health.

Dairy's recognized role in federal nutrition guidance

The 2020-2025 Dietary Guidelines for Americans (DGA) recommends dairy foods in all three of its eating patterns — Healthy U.S., Healthy Mediterranean and Healthy Vegetarian. Many federal nutrition assistance programs align with the DGA, including the National School Meal Program, the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).¹⁹

New Task Force Targets Modern Health and Wellness Needs

As people increasingly prioritize health and wellness, the nutrition and lifestyle sectors are rapidly evolving to meet changing consumer preferences. The Innovation Center for U.S. Dairy launched a Health and Well-being Task Force in July 2022. The Task Force is developing recommendations to advance dairy science, innovation and outreach that will help consumers as they work to achieve their health and well-being goals.²⁰

“

Dairy plays a vital role in modern health and wellness. We are excited to share the story of dairy and how it contributes to superior nutrition.”

— David Ahlem | Chair of Health and Well-Being Task Force,
Innovation Center for U.S. Dairy | CEO and President, Hilmar Cheese Company

Dairy Nourishes Network Connects with Health and Food Systems Experts

In 2019, National Dairy Council launched the Dairy Nourishes Network, a voluntary opt-in network connecting sustainable food systems experts, health educators and communicators. In 2021 and 2022, the Network continued to educate and engage on dairy's contributions to health and sustainable food systems.

Advancing Food Security

Dairy's unique benefits can help improve nutrition security in the U.S. and around the world.

Many Americans face food insecurity. Approximately 1 in 10 U.S. adults and 1 in 8 children were food insecure in 2021.²¹ The U.S. dairy community has provided nutritious dairy foods to those who face food insecurity. The pandemic accelerated U.S. dairy's efforts with renewed urgency.

Food Security Task Force Focuses on Expanding Access to Dairy Products

Launched in 2020, the Innovation Center's Food Security Task Force works to increase access to dairy for those facing food insecurity. The task force aims to support Feeding America's goal to increase dairy to 10% of the food distributed across their system by 2025.

EFFORTS INCLUDE:

- + Co-host regional dairy symposia to foster relationships and address barriers to getting dairy in food banks.
- + Promote best practices between food banks and dairy processors.
- + Expand dairy purchasing programs to provide a consistent supply of dairy to people facing food insecurity.

Collaboration and Partnerships

During the pandemic, demand for dairy at food banks surged. In 2021 and 2022, the dairy community and Feeding America distributed over 1.17 billion pounds of dairy products. Generous donations from dairy processors, food companies, and the dairy community helped alleviate food insecurity through the Feeding America Network.

Growth in dairy distribution in the Feeding America Network: Millions of pounds of dairy by fiscal year

Fiscal Year	Million Pounds
'18	275.9
'19	353.0
'20	469.0
'21	664.0
'22	506.0

Note: The 2021 spike is likely due to additional federal commodities made available during the COVID pandemic, such as the USDA Farmers to Families Food Box Program. The amount of dairy in 2022 is 43% higher than the amount distributed before the pandemic in 2019.

Source: Values provided by Feeding America and reported during its fiscal year, July 1 to June 30.

83%

increase in dairy distribution over the past 5 years

1.7B

servings of nutritious milk, cheese and yogurt in 2022

Sources of dairy distributed in the Feeding America Network in 2022:

49%

federal commodities

34%

donations

17%

purchases

Delivering Dairy Goodness

The dairy community is committed to contributing to the well-being of its neighbors.

The dairy community's commitment to well-being starts with providing food that help nourish people at all stages of life. It extends to donations of time, food, funds and expertise. Dairy farmers and business have deep roots in the communities where they live and work and their efforts reach many of their neighbors.

Contributions in Action

Through joint efforts and individual actions, the U.S. dairy community is helping cultivate healthy, vibrant communities across the country. Here are just a few examples:

- + In 2021, Darigold partnered with Girl Scout councils across five western states to raise funds for girls who could not afford to participate in Girl Scouts. In 2022, the program raised an additional \$75,000 to support Girl Scout adventures.²²
- + In 2022, Chobani expanded its Scholars Program by adding a pledge of \$1 million to support students from historically marginalized backgrounds who wish to follow educational pursuits in agriculture.²³
- + In 2022, Land O'Lakes donated nearly 40,000 lbs of Land O'Lakes macaroni & cheese to Second Harvest Food Bank of Central Florida through the Land O'Lakes First Run Program.²⁴



Stewardship Commitment

TERMS OF ADOPTION

Dairy cooperatives and processors use at least one of the metrics for volunteering, monetary and product contributions, or community education to share their community contributions.

See 2021-2022 processor aggregate data on [page 41](#) and [page 44](#).

2021-2022 Progress

- + Feeding America food banks distributed more than 1.17 billion pounds of nutritious milk, cheese and yogurt.

COMMITMENT IN ACTION

Dairy cooperatives boost food security with "The Giving Cow" milks

In December 2021, 17 regional dairy brands owned by Dairy Farmers of America (DFA) donated 2+ million shelf-stable "The Giving Cow" milks to food pantries across the U.S. The single-serve, 8-ounce packs of ultra-high temperature pasteurized milk have a shelf life of up to 12 months and are designed for food pantries and kids' backpack programs. The program was created in response to a shortage of refrigeration space at food pantries and a lack of access to nutrient-rich milk for millions of children.²⁵





Regenerate the Environment

Responsible food production strives to minimize environmental impacts — feeding more people with fewer resources. The dairy community is working together to advance dairy's role in a sustainable future and demonstrate that dairy is an environmental solution.

“

Sustainability on a dairy farm takes all shapes, sizes and forms. It is so important to be open and listen to new ideas, practices and strategies.”

—Chase Goodrich | Goodrich Farm | Salisbury, Vermont
Winner, 2021 Dairy Sustainability Awards



See 2021-2022 processor aggregate data on [page 41](#) and [page 44](#).

Dairy is an Environmental Solution

U.S. dairy provides responsibly produced and nutritious dairy foods that can meet current and future generations' health and well-being needs while contributing to a healthy planet.

U.S. dairy cows are the most efficient in the world.²⁶ **Innovations in animal care, manure management, by-product upcycling, water usage, feed production and management, and biogas production continue to lower the environmental footprint of dairy.**



BYPRODUCT UTILIZATION REDUCES WASTE AND EMISSIONS

Cows consume food byproducts from farms, breweries, restaurants, and other sources that are not suitable for human consumption.

32-41M

tons of byproducts per year are consumed by U.S. dairy cows, representing approximately one-third of their diet.²⁸

49-fold

reduction in methane emissions can be achieved through cow consumption of byproducts, compared to disposing of byproducts in landfills.²⁸

LOW GHG EMISSIONS

In North America, **dairy-related GHG emissions intensity is the lowest globally.**²⁷ The U.S. dairy industry can offer sustainably produced dairy products to address global nutritional needs.

AFFORDABLE CLEAN ENERGY

Cow manure can be turned into electricity and fuel using anaerobic digesters, which break down the manure with microorganisms in oxygen-free tanks to produce methane-rich biogas for energy.

NUTRIENT-RICH FERTILIZER

Nutrient-rich **cow manure can be used as fertilizer for crops** that help feed both humans and animals.



EFFICIENT WATER USE MINIMIZING FOOTPRINT

5.1%

total U.S. water withdrawal is used by U.S. dairy with the majority of the water used for irrigating cow feed fields.²⁹

4x

Dairy farmers employ sustainable water management practices, efficiently reusing it up to four times on their farms.²⁹

Environmental Stewardship

All food production comes with an environmental footprint. U.S. dairy's environmental stewardship is demonstrated through a focus on innovation and efficiency. Thanks to increasingly modern and advanced dairy farming and processing practices, the dairy community has made continual progress and is dedicated to doing more.

“

As a vertically integrated, farmer-owned cooperative, CDI is built on the value of working collaboratively for the greater good. The 2050 environmental goals which were launched in 2020 align with our core values and have enabled us to strengthen practices and accelerate progress toward all our sustainability goals.”

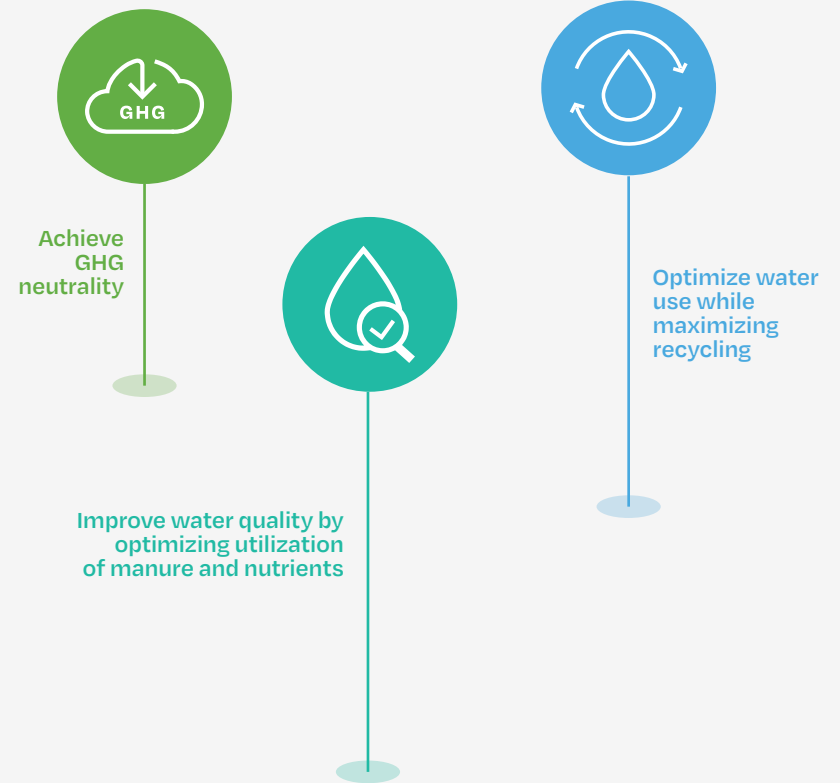
— Brad Anderson | President and CEO, California Dairies Inc.



2050 Environmental Stewardship Goals

The 2050 goals build on a decades-long commitment to producing nutritious dairy foods that can sustainably feed a growing global population. These goals will help U.S. dairy build upon and quantify its vision of dairy as an environmental solution.

Partnership and collaboration on farm, in field and at processing sites are paving the way for the dairy industry to meet its collective 2050 Environmental Stewardship Goals. These goals will help U.S. dairy build upon and quantify progress towards its vision of dairy as an environmental solution. The Innovation Center will publish the environmental stewardship goals progress report in 2025.



GHG Neutrality

The dairy community strives to significantly reduce emissions industry-wide and sequester carbon by scaling climate-smart technologies and agricultural practices.

U.S. dairy is working collectively to achieve GHG neutrality at the farm, field and processor level by balancing GHG emissions with reductions and removals, as defined by the Intergovernmental Panel on Climate Change (IPCC).³⁰ Because there is no one-size-fits-all solution, partnerships, collaborations, committees, forums and industry-wide events encourage the sharing of ideas and information across sectors. In this way, the U.S. dairy industry is addressing climate change by bringing actionable measures to farms, processors, consumer packaged goods companies, retailers and consumers.

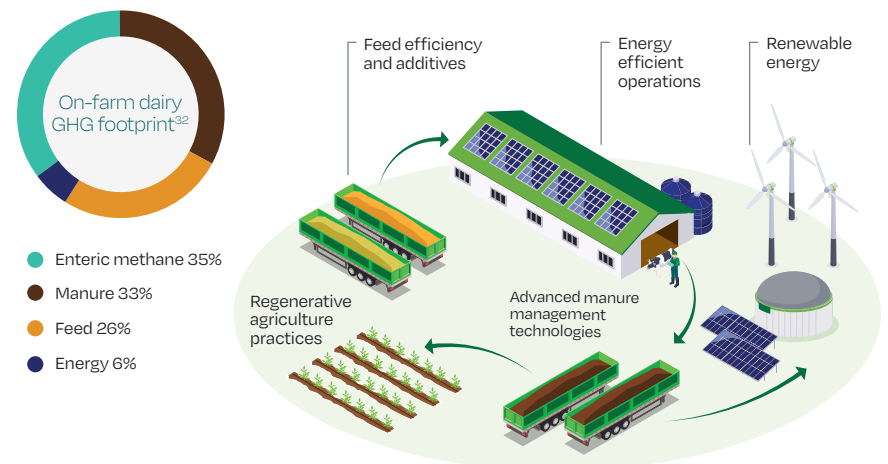
Processor Working Group GHG Team

The Processor Working Group convenes regularly to identify collaborative, industry-wide solutions that support the U.S. Dairy Stewardship Commitment and progress toward the 2050 Environmental Stewardship Goals. The GHG team, one of four environmental teams in the group, works together to develop freely available resources to help dairy processors identify and measure GHG reduction opportunities. For example, the GHG Team developed the [Dairy Processor GHG Reduction Opportunities Guidance](#), which helps processors implement practices and technologies within the plant to increase energy efficiency, and reduce their scope 1 and 2 GHG footprint. It also highlights opportunities to work throughout the supply chain to reduce scope 3 emissions.

2021-2022 Highlights

- + The Innovation Center commissioned a working group comprised of farmers, cooperatives, processors, customers and industry advisors to develop and submit feedback on the [GHG Protocol Land Sector and Removals Guidance](#). The guidance will be finalized and published in 2024.³¹
- + A new CEO-level Task Force on **GHG Accounting works with the Environmental Stewardship Committee** to broaden industry alignment and external support for a GHG accounting approach that enables climate action, increases transparency and reduces complexity.
- + **Pathways to Dairy Net Zero (P2DNZ)** is an initiative of Global Dairy Platform (GDP) that convenes dairy farms of every size and type, as well as organizations throughout the global dairy supply chain. Launched in 2021 during Climate Week, this growing movement aims to reduce dairy's GHG emissions over the next 30 years. The Innovation Center is a proud member of P2DNZ.
- + **Dairy Scale for Good** is an ongoing pilot project that partners with commercially operated dairies to demonstrate the ability to significantly reduce GHG emissions and improve water quality and quantity, while increasing the diversification of on-farm revenue.

Key focus areas to reduce GHG footprint on farms



U.S. Dairy Net Zero Initiative

NZI is building a critical pathway for mitigating dairy's on-farm environmental footprint.



The U.S. Dairy Net Zero Initiative (NZI) is a major step in a learning journey that further supports dairy farmers as they collectively work to achieve GHG neutrality and improvements in water use efficiency and water quality on farm and in field. NZI is helping the dairy industry to meet climate and environmental challenges through a holistic approach for responsible stewardship of our natural resources.

Research, Pilots and Scaling Impact

NZI foundational tracks of work reflect U.S. dairy's commitment to sound science and economic viability for farmers by focusing industry collaborative efforts on making technology and best practices accessible and affordable to farms of all sizes and geographies. These include research, analysis and modeling, on-farm pilots and scaling impact through network-building and information-sharing.³³

\$37.7M
grants and partnerships

338
farms participate in NZI programs since 2020³⁴

NZI is an industry-wide collaboration led by these national dairy organizations



COMMITMENT IN ACTION

Framework Helps Wisconsin Industry Identify Proof Points

Wisconsin dairy farmer Jim Winn is part of Edge Dairy Farmer Cooperative. He believes that industry-wide collaboration is the key to demonstrating dairy's commitment to environmental stewardship. This belief inspired the launch of the Framework for Farm-Level Sustainability Projects.

The Lafayette Ag Stewardship Alliance (LASA), Farmers for Sustainable Food and Grande Cheese Company — with support from The Nature Conservancy and others — created and are testing the framework. The accompanying handbook will help farmers determine conservation practices that are most effective for their farms and provide tools to document economic and sustainability benefits. The Innovation Center supported the extension of the project through 2022 as part of NZI.



“

The Framework for Farm-Level Sustainability Projects gives dairy farmers a tool to demonstrate the value of innovation on farms and in the field. Having processors and others in the supply chain support our efforts is pretty powerful.”

— Jim Winn | Dairy farmer | President, Lafayette Ag Stewardship Alliance
Winner, 2021 U.S. Dairy Sustainability Awards

National Dairy FARM Environmental Stewardship

The Farmers Assuring Responsible Management (FARM) Environmental Stewardship (ES) program provides tools and resources for farmers to track, assess and communicate environmental achievements and future progress. FARM ES estimates farm-level GHG emissions and energy intensity by using a scientific, peer-reviewed model.

FARM ES Version 3.0

National Milk Producers Federation and the Innovation Center are collaborating to update the model that powers the FARM ES program. In 2024, the program will start using a process-based, next-generation, open-source whole-farm model called Ruminant Farm Systems (RuFaS), that simulates dairy farm production and environmental impact.

The new FARM ES, powered by RuFaS, will provide sophisticated farm-level environmental and economic insights that support informed decision-making about the adoption of climate-friendly practices and technology. The model is being tested on over 30 farms across the U.S. to ensure it is effective for farms of all sizes, management systems and regions.



Stewardship Commitment

TERMS OF ADOPTION

Dairy cooperatives use the FARM ES Sampling Protocol to report on-farm GHG, energy and nutrient management metrics, OR have a time-bound goal in place to measure and report these metrics through this protocol.

See 2021-2022 processor aggregate data on [page 40](#) and [page 43](#).

2021-2022 Highlights

- + **3,000+ assessments completed since program inception** on farms in 42 states ranging in size from 10 to more than 35,000 lactating cows.³⁵
- + **Tailored, state-specific materials on nutrient management plans** released in 2022.³⁶
- + **GHG Fact Sheet Series** covering GHG emissions basics, energy use, feed production and enteric emissions was released in 2022.³⁷



COMMITMENT IN ACTION

FARM ES Provides Valuable Tools for Farmers

Michigan Milk Producers Association (MMPA) understands the importance of farmer input when it comes to tools that measure the environmental footprint of their dairies.

A key tool to helping MMPA and other U.S. dairy cooperatives respond to supply chain reporting demands is the FARM ES program.

Kris Wardin, a sixth-generation Michigan dairy farmer who serves on the MMPA Board of Directors, said FARM ES is critical as supply chain expectations continue to grow.

“These expectations are here to stay,” Wardin said. “Fewer people understand what we do on the farm, yet more and more are concerned with the environment. We need tools that can help us be even better at what we have been doing for generations to protect the environment. Programs such as FARM ES are effective in helping assure our social license to operate can continue.”

Healthy Ecosystems

Dairy farmers conserve water, ensure soil health and protect and restore biodiversity on farm.

U.S. dairy farmers have long known that management practices are the first line of defense for healthy soils, efficient use of water, water quality protection, increased biodiversity and enhanced nutrient management.

Through collaborative partnerships, the dairy community optimizes solutions that enhance natural resources and ecosystems.

Collaboration and Partnerships

Dairy Feed in Focus is a shared effort to help incentivize and implement best practices in feed production and efficiency. Partners for this project – [Syngenta](#), [The Nature Conservancy](#), [Foremost Farms](#), Michigan Rotary, [Nestlé](#) and the [Michigan Milk Producers Association](#) – have helped enroll 32 farmers and 9,889 acres in Wisconsin and Michigan. The ultimate objective is to develop a replicable program and toolset to facilitate the adoption of feed management best practices across dairy farms of all sizes throughout the U.S.³⁸

32

farmers enrolled

9,889

acres in Wisconsin and Michigan

>\$2.5M

funding provided by project partners³⁸



“

We fully believe that all farmers – regardless of size or geography — are already doing something that contributes to progress and will help our industry reach our environmental stewardship goals.”

— Karen Scanlon | Executive Vice President of Environmental Stewardship Dairy Management Inc.

COMMITMENT IN ACTION

Wisconsin Farm Pioneering a New Phase of Dairy Farming

Theo Scholze is a fourth-generation dairy farmer. He and his brother own and operate Scholze Family Farms in Humbird, Wisconsin. They are one of a group of farmers participating in the Dairy Feed in Focus program, a collaboration between the Innovation Center for U.S. Dairy, Syngenta and The Nature Conservancy (TNC).

Participating farmers like Scholze are pioneering a new phase of dairy farming. They are helping to create scientifically verified examples of the best agronomic and farm management practices that will serve as models for dairy farms of all sizes through the U.S. and beyond.

The Scholze family grows crops on approximately 2000 acres. One of the practices they are testing is the use of Italian ryegrass. Ryegrass has a number of sustainability benefits. It can be used as a very digestible feed for their cows; it needs no commercial fertilizer or pesticides; and it can be used as a cover crop to reduce soil erosion.

“We’re trying to emulate nature in how we farm,” says Scholze. “If we all contribute a little bit, we can move in a direction that is positive for the environment and positive for our industry.”

Water Quantity and Quality

The dairy community's dedication to water management concentrates on water efficiency and water quality.

Water is a finite resource under increasing pressure from human activities as well as a changing climate. While management approaches are tailored to individual operations and locations throughout the U.S., practices such as water reuse and recycling are common on dairy farms and in processing plants.

Dairy farmers across the country have demonstrated that field practices, manure handling and nutrient management technology can reduce runoff and protect the quality of the water that leaves the farm. Techniques include:

- + Nutrient management plans to identify and document opportunities to reduce runoff
- + No-till farming to reduce soil erosion and increase water filtration and soil retention of organic matter
- + Planting cover crops to optimize feed production and retain soil nutrients for better health
- + Installation of buffer strips to minimize runoff into waterways
- + Sub-surface application of manure to incorporate nutrients into the soil with minimal exposure to water runoff
- + Using precision agriculture techniques to preserve soil nutrients and water quality

Processor Working Group Water Team

The Processor Working Group Water Team shares mutual challenges, opportunities, and best practices related to in-plant water stewardship and develops pre-competitive resources to help processors improve their water management practices. For example, the Water Team developed the [Dairy Processing Water Definitions and Reuse Opportunities guidance](#) to help processors apply common definitions to water stewardship, and optimize water recovery and reuse opportunities in operations.



Stewardship Commitment

TERMS OF ADOPTION

Dairy processors report on sustainability metrics identified in the Stewardship Commitment and Processor Handbook through the Processor Stewardship Reporting Tool.

See 2021-2022 processor aggregate data on [page 40](#) and [page 43](#).

2021-2022 Highlights

- + **Aligned Stewardship Commitment processor water metrics** with globally accepted sustainability reporting standards.
- + Produced **Dairy Processing Water Definitions and Reuse Opportunities** guidance to improve water stewardship in processing operations.

COMMITMENT IN ACTION

Trinkler Dairy Farm Joins Dairy Scale for Good

Trinkler Dairy Farm serves as a pilot farm in the Dairy Scale for Good (DS4G) program, which is designed to identify and test best practices on dairy farms in various regions across the country. The DS4G team worked with Trinkler, Sustainable Conservation, Netafim and Nestle to install a Subsurface Drip Irrigation system, with estimated impacts to include increased crop yield, a 36% reduction in water use, a 45% reduction in nitrogen use and a 70-90% reduction in irrigation-related GHGs.

Use of Agricultural Byproducts Reduces Water Consumption

Byproducts from California crops like almond hulls, citrus pulp and grape pomace supply about 40% of the diet of cows on California Dairies Incorporated (CDI) farms. University of California Davis research determined that feeding byproducts to cows instead of growing more feed crops reduce dairies' water consumption by up to 1.3 trillion gallons annually.

Foremost Farms USA Optimizes Water Use

In 2021, Foremost Farms USA set a cooperative-wide goal to reduce net water use and established a Water Conservation team to conduct a water assessment at each plant. The team identified 120 opportunities to reduce or reuse water. Projects were implemented and tracked for water savings. By the end of 2021, Foremost Farms USA achieved a 12% reduction in total water consumption and realized a 4% water reduction in gallons of water used per pound of product sold.³⁹

Soil Health

Healthy soil is essential for dairy farms to minimize wind and water erosion; store and cycle water, carbon and nutrients; and host biodiversity necessary for plants and animals to thrive.⁴⁰

Dairy farmers can improve soil health through the addition of organic matter from manure-based products, adoption of no-till practices and planting cover crops. Through these practices, dairy farmers can reduce GHG emissions and improve water quality.⁴⁰

Collaboration and Partnerships

The [Foundation for Food & Agriculture Research](#) (FFAR) awarded \$10 million to support the [Dairy Soil and Water Regeneration](#) (DSWR) project, a key component of NZI. The DSWR project will address research gaps in feed production and manure-based products that are foundational to creating markets, incentives and investments in dairy sustainability. In task one of the six-year project, dozens of dairies in the common soil types in the major production regions of the U.S. will participate in a baseline survey of soil health and carbon stocks.³³ After the survey is complete, field research will measure the environmental benefits of field manure use and soil health practices. The results of this work will inform communications with farmers and engagement with modelers, researchers, NGOs and the general public.

\$10M
grant funding

6 years
pilot project timeframe

COMMITMENT IN ACTION

Tillamook Dairy Farms Measure Carbon Stored in the Soil

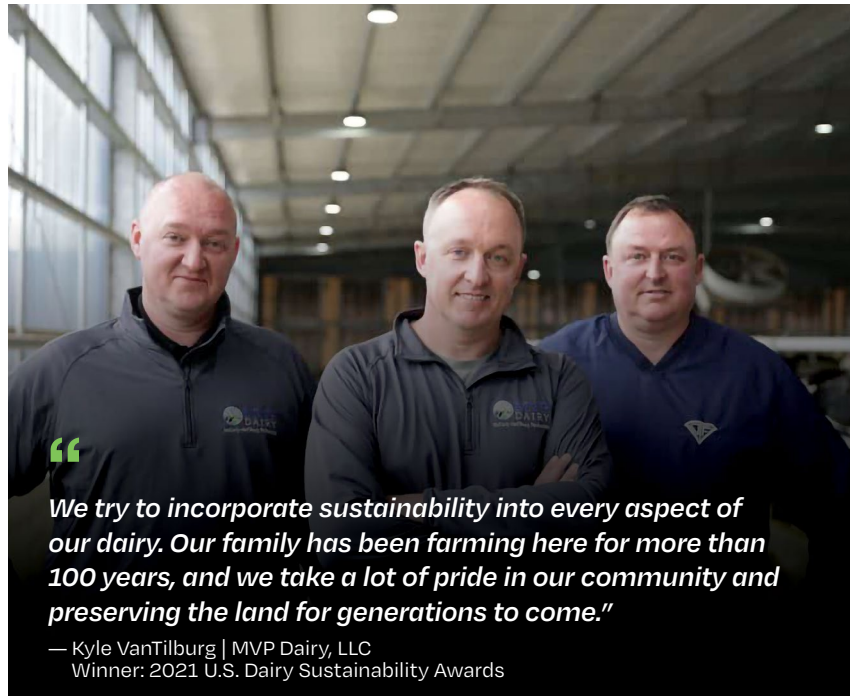
The unique climate of Tillamook County, Oregon, combined with the climate-smart practices of farmer-owners, has resulted in fields that store an immense amount of carbon. In 2022, half of Tillamook County Creamery Association member farms opted into a benchmarking program to measure how much carbon is stored in the soil. Using soil sampling tools refurbished by the welding class at Tillamook High School, an expert soil sampling company measured the total carbon stored in the soil at participating farms. Results showed that participating member farms had an average of 53 metric tons per acre of carbon in the soil depths, some of the highest carbon storage among all land use across the U.S. and Mexico.⁴¹



Biodiversity

U.S. dairy farms create unique solutions to protect and enhance biodiversity.

U.S. dairy's environmental efforts can benefit biodiversity by conserving natural resources and expanding native species. The Innovation Center Environmental Stewardship Committee's Biodiversity Task Force, created in 2020, includes dairy farmers, cooperatives, processors and advisors. The task force supports advancements to understand, measure and improve U.S. dairy's impacts on biodiversity through research, stakeholder engagement and metric development.



2021-2022 Highlights

- + **U.S. Dairy Stewardship Commitment** resource was updated to address biodiversity with additional optional metrics.
- + FARM ES released the **Conservation Practice Questionnaire (CPQ) in 2022** which includes the Commitment's biodiversity metrics to capture on-farm practices that benefit biodiversity.⁴²
 - Piloted on 31 dairy farms through nine organizations in winter 2022.
 - 10 participants have added CPQ to their FARM ES evaluations so far.



COMMITMENT IN ACTION

Unique Family Partnership Takes Multi-Faceted Approach to Sustainability

In Celina, Ohio, the MVP Dairy team manages regenerative farming practices that promote biodiversity, recharge the soil, enhance carbon sequestration and efficiently use natural resources.

The biodiversity program includes pollinator habitats, dedicated wetland areas and 137 acres of buffers. The dairy farm is home to more than 20 wildlife boxes, including owl, bird, duck, insect and bat boxes. More than 700 trees have been planted on site since 2019.

These biodiversity practices have saved 5,499 tons of soil from erosion and resulted in an annual reduction of 6,755 tons of CO₂e.⁴³

137
acres of buffer

700
trees planted

5,499
tons of soil saved from erosion

6,755
tons of CO₂e saved annually

Circular Economy

U.S. dairy aspires to generate and increase value through resource efficiency, waste reduction and renewable resource and energy production.

From using manure as fertilizer on farm to identifying ways to reuse packaging material, turning food waste and manure into energy and upcycling byproducts into animal feed, U.S. dairy farmers and processors engage in a circular economy.

Opportunity Areas

Renewable Energy

Dairy farms and processors use solar and wind energy

Energy Production

Would-be food waste and cow manure can be converted into energy

Waste Reduction

Recycle and reuse materials on farm and in processing

Resource Efficiency

Resources are used optimally and as many times as possible

2021-2022 Highlights

- + Analyzed **packaging legislative landscape, material sustainability and emerging technologies.**
- + **Developed Stewardship Commitment metrics** to measure packaging sustainability baseline and progress over time.

Anaerobic digesters are one of many ways the U.S. dairy community engages in a circular economy.

The use of dairy renewable energy can bring environmental and economic benefits to farmers, surrounding communities and the renewable transportation fuel industry.⁴⁴

221

digesters on dairy farms in 2021

9.47

MMTCO₂e direct methane reductions in 2022

.96

potential MMTCO₂e emissions avoided

In the future, as much as 10% of renewable natural gas (RNG) in the U.S. pipeline could come from dairy digesters.⁴⁴

~16M MWh

of energy per year could potentially be generated



Nutrient Management

U.S. dairy farmers ensure efficient use of the proper nutrients to help maximize crop growth and safeguard ecosystems.

The nutrients in fertilizer, manure and compost enrich soil and increase crop productivity. New technologies are emerging to help dairy farmers manage manure and maximize the value of its nutrients.

Responsible approaches to nutrient management also contribute to efforts to ensure water quality.

Nutrient management plans (NMPs) are often the first step toward improving nutrient management on farms.



2021-2022 Highlights

- + On-farm pilot programs through NZI's **Dairy Scale for Good** (DS4G) demonstrate how a dairy farm can recover nutrients, become a source of renewable and organic fertilizer and improve water use efficiency while significantly reducing GHG emissions.
- + Newtrient received funding from the **New York Farm Viability Institute** to study an **N2 Applied** unit on a New York dairy for its ability to retain ammonia and nitrates, maintain usable nutrients and reduce GHG emissions released from manure storage.



COMMITMENT IN ACTION

Nutrient Management on Smaller Farms

Steve and Cheryl Schlangen's mindset of continuous improvement is a way of life on their 60-cow, 200-acre farm in Stearns County, Minnesota.

When they started farming in the late 1980s, the Schlangens began their conservation journey with the basics: crop rotation and applying manure as fertilizer. Over the years, they have tested and tried many things in an ongoing effort to improve production, reduce costs, care for their cows and steward their land.

The Schlangens use grid sampling to understand how nutrients are dispersed so they can apply nutrients only where they are needed. Most recently, the Schlangens installed a manure-stacking slab to prevent nutrient leaching into the water and a manure injection system that uses less time, less fuel and has virtually eliminated the need for commercial fertilizer on their crops.⁴⁵

90%

reduction of nitrogen used per bushel of corn produced

7,500 lbs

of forage for the herd produced from 70 acres of cover crops

Sustainable Packaging and Materials

The dairy industry is committed to using more renewable materials and recycled content in packaging than ever before.

Companies are innovating the way packaging is made so it can be reused, recycled or composted. While individual company goals differ, the dairy industry is working pre-competitively to reduce materials used in packaging, maximize recyclability of product packaging and integrate recyclable material into new packaging.

Processor Working Group Packaging Team

Packaging was identified as a material issue in the 2021 U.S. Dairy Materiality Assessment update and aligns with the Innovation Center's Strategic Plan priority to accelerate the circular economy. In response to the identification of packaging as a material issue, the Packaging Team developed and launched new processor packaging metrics to establish a baseline to measure and demonstrate improvement and equip processors to address customer demands, consumer expectations, regulatory requirements and more.



Packaging Measurement

Maximize Recyclability

Measures efforts to integrate recyclable material into product packaging

Material Optimization

Measures efforts to integrate recycled materials and reduce material content in product packaging

Material Utilization

Measures material types used in product packaging

COMMITMENT IN ACTION

Toward Greener Packaging: NE-DBIC Grant

The Northeast Dairy Business Innovation Center (NE-DBIC) promotes the production, marketing and distribution of dairy products through investment and project strategies that support innovation in dairy business. The Dairy Packaging Innovation Grant was presented to Agri-Mark by the NE-DBIC in 2022 to support climate-forward dairy packaging initiatives addressing the full life cycle of packaging. In partnership with Agri-Mark's primary flexible film supplier, three approaches for packaging consumer-size (8 oz.) cheese will be tested:⁴⁶

30%

Post-Consumer Recycled (PCR): material made from 30% recycled polyethylene

Recyclable

Recycle Ready (RR): fully recyclable polyethylene

Compostable

BPI certified for industrial composting



Resource Recovery

Dairy processors aim to maximize practical benefits from products, reduce resource consumption and minimize waste.

The dairy community recognizes the need to do more with less while reducing waste. Efforts seek to strengthen dairy processors' resource recovery practices through research, guidance materials and investments in food waste reduction initiatives. Processors pursue strategies for zero waste to landfill in line with the [U.S. EPA's Waste Management and Food Recovery Hierarchies](#), which provide the basis for the resource recovery metrics.⁴⁷

Processor Working Group Waste Team

The Waste Team developed industry guidance for processors to conduct waste audits and identify waste reduction and resource recovery opportunities. The [Dairy Processor Waste Audit Guidance](#), published in 2022 by the Innovation Center, helps processors survey their facility's waste streams.

Zero Waste Good Practices



Identify the Waste



Develop Waste Diversion Plans



Find New Outlets for Materials



Create Policies



Employee Training



Certify Improvements



Market Achievements



Stewardship Commitment

TERMS OF ADOPTION

Dairy processors report on sustainability metrics identified in the Stewardship Commitment and Processor Handbook through the Processor Stewardship Reporting Tool.

See 2021-2022 processor aggregate data on [page 40](#) and [page 43](#).

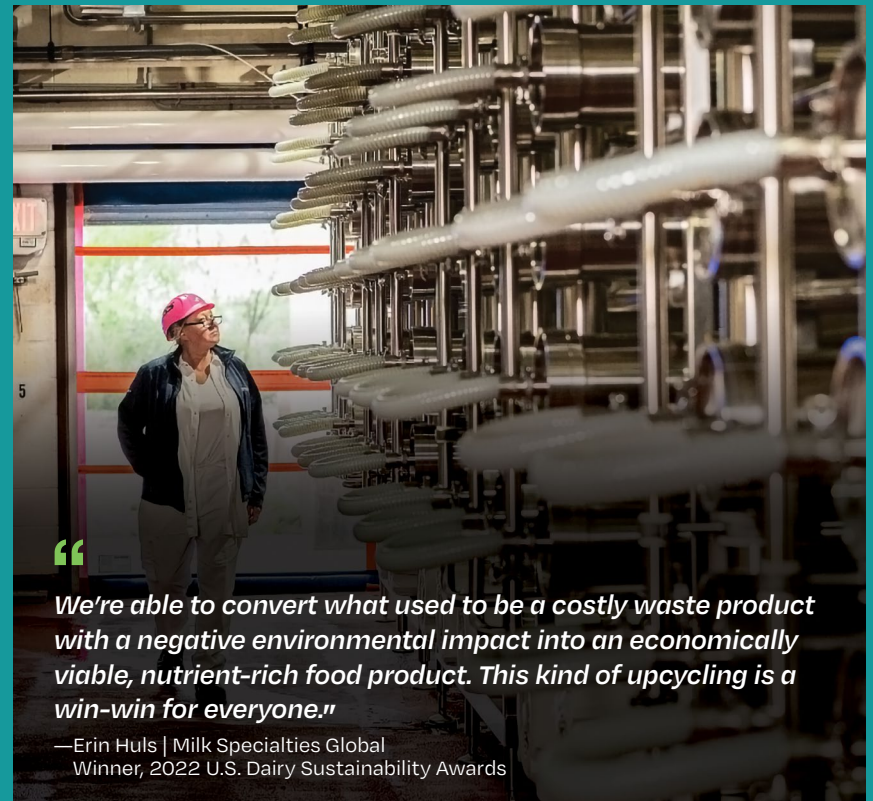


COMMITMENT IN ACTION

A Winning Solution for Farmers, Cheesemakers, Consumers and the Community

Milk Specialties Global (MSG) acquired an old cheese plant in Monroe, Wisconsin in a hub of award-winning small- and medium-sized artisan cheese producers.

MSG modified the plant's filtration system and added surface area to the liquid processing equipment to double capacity without increasing the facility's footprint. Now, the liquid whey is concentrated, and the facility produces more than 53,000 pounds of whey protein isolate annually for use in high-protein products. What used to be a waste product turned into a new revenue stream and nutritious food.



“

We're able to convert what used to be a costly waste product with a negative environmental impact into an economically viable, nutrient-rich food product. This kind of upcycling is a win-win for everyone.”

—Erin Huls | Milk Specialties Global
Winner, 2022 U.S. Dairy Sustainability Awards



Care for Our Animals and Communities

Dairy's social responsibility includes ensuring healthy animals, fostering a vibrant workforce and producing safe, high-quality dairy foods.

“

America's dairy industry supports more than 3 million jobs that generate nearly \$41.6 billion in direct wages and \$753 billion in overall economic impact.”

— 2022 IDFA Dairy Delivers Study⁴



See 2021-2022 processor aggregate data on [page 40](#) and [page 43](#).

Animal Care

U.S. dairy is committed to providing exceptional care for cows while advancing best practices for animal well-being and health.

Dairy farmers prioritize cow care, leading to healthy animals and premium quality milk. This commitment contributes to farm success and production of nutritious dairy products. The FARM Animal Care, Antibiotic Stewardship, and Biosecurity programs promote best practices and build consumer confidence in the industry's commitment to animal care excellence.

FARM Animal Care Program

The FARM Animal Care program, administered by the National Milk Producers Federation and supported by the Innovation Center's Animal Care Committee, establishes and maintains science-based animal care standards for the U.S. dairy industry. The program provides evaluations, training and guidelines for best practices in animal care and promotes continuous learning and improvement. Program standards are updated every three years; Version 5 will be implemented in 2024.

99% of the U.S. milk supply comes from farms participating in FARM Animal Care program³⁵

FARM Biosecurity Program

The FARM Biosecurity program, established in 2021 by National Milk Producers Federation through a cooperative agreement with the USDA National Animal Disease Preparedness and Response Program, aims to reduce the risk of disease transmission within a dairy herd. The program outlines science-based best practices for safeguarding herd and employee health by helping farms implement regular practices and enhanced biosecurity measures.



Stewardship Commitment

TERMS OF ADOPTION

Dairy cooperatives participate in the FARM Animal Care Program.

Dairy processors source 100% of purchased milk from FARM-enrolled programs.

2021-2022 Highlights

- + FARM Animal Care program **trained 411 new and experienced evaluators** in 2022.³⁵
- + FARM Animal Care program **received Professional Animal Auditor Certification Organization (PAACO) recertification** in 2021 and 2022.³⁵
- + In 2021, the first **calf-specific reference manual** was developed under the Calf Care and Quality Assurance (CCQA) program. The manual was published online in 2022 with in-person calf caretaker certification training and self-assessments for facilities.
- + In 2022, the FARM Biosecurity program was launched with the publication of the **Everyday Biosecurity Reference Manual** and other reference materials.

COMMITMENT IN ACTION

Borst Dairy LLC: Practicing Best-in-Class Animal Care

Borst Family Dairy LLC, a third and fourth generation family-owned dairy in Minnesota, emphasizes cow care as a critical component of their success. They prioritize disease prevention, cow comfort, and responsible antibiotic use, and have implemented protocols to ensure consistency in their animal care practices.

Through their participation in the FARM Animal Care program, the Borsts have created strong protocols to help with consistency on the dairy. Together with their families, the Borsts know how important cow care is for the dairy to continue to thrive.⁴⁹



Borst Family Dairy LLC.

FARM Antibiotic Stewardship

Antibiotics need to be used responsibly and judiciously to protect the health of cows and ensure the safety of dairy products. The FARM Antibiotic Stewardship program area, administered by NMPF and reinforced through the FARM Animal Care Program, provides ongoing education on the responsible use of antibiotics.

The Milk and Dairy Beef Drug Residue Prevention manual is one of the program's signature offerings and provides guidance to dairy farm managers on responsible antibiotic use. The 2022-2023 edition of the manual includes an accompanying pocket guide for quick reference and on-farm use. The manual is updated on a regular basis to account for the latest science and best practice.



Collaborating with veterinarians and dairy professionals to advance animal health and welfare and ensure the responsible use of antibiotics is at the core of our partnership with the FARM program."

– Mike Lormore, DVM, MS, MBA | Head of U.S. Cattle Technical Services, Zoetis

Results show responsible practices

99.95% Since 1995, over 99.95% of bulk milk tanker samples tested free of antibiotics

90% Since 1995, bulk milk tanker antibiotic residues decreased by more than 90%, with the lowest ever incidence in 2021 and 2022

99.99% In 2022, 99.99% of 3.3M bulk milk tanker samples tested free of antibiotics

Any milk that tests positive for antibiotic residues cannot be sold for human consumption and is destroyed.

Sources: National Milk Drug Residue Database fiscal year 2022 annual report. (Table 1). nmdrd.com/fy-22.pdf; National Milk Drug Residue Database fiscal year 2021 annual report. (Table 1). nmdrd.com/fy-21.pdf; National Milk Drug Residue Data Base fiscal year 1995 annual report. (Table 1). nmdrd.com/fy-95.pdf.



Workforce Development

U.S. dairy prioritizes safe, enriching and positive work environments for the people who make dairy possible.

The success of the dairy industry depends on a skilled, motivated and engaged workforce. The dairy industry prioritizes workplace health and safety, employee retention and diversity, equity and inclusion (DEI) programs to support workers and communities.



"We try to keep up with the highest technology at the dairy, and our goal is to get the students the most exposure and get them ready for the industry – whether that's industry work or teaching."

— Corey Burgess | Unit Coordinator, North Carolina Agricultural and Technical State University

North Carolina Agricultural and Technical State University

2021-2022 Highlights

- + In 2021, **IDFA and the Occupational Health and Safety Administration (OSHA) formed an alliance** to advance best practices in food and worker safety in dairy processing through guidance and training resources.⁵⁰
- + The **IDFA Dairy Industry Safety Recognition Awards** program honored 34 dairy processing facilities and trucking operations in 2021 and 36 in 2022 for outstanding worker safety records. Almost half of the 20 companies recognized are adopters of the U.S. Dairy Stewardship Commitment.
- + Since the tool launched in 2020, **300+ FARM Workforce Development evaluations have been completed** on farms with a collective 6,300 employees.³⁵
- + **17 organizations representing 60% of the U.S. milk supply** participate in FARM Workforce Development.⁵¹

COMMITMENT IN ACTION

Investing in the Next Generation of Dairy Professionals

North Carolina Agricultural and Technical State University (N.C. A&T) is the largest historically black college and university in the U.S. and boasts a 27.5-acre pasture-based dairy unit. Since 2006, the unit has been a member of the Maryland & Virginia Milk Producers Cooperative Association. The N.C. A&T dairy program trains 1,100 agriculture and environmental sciences students in dairy farm management, animal health and disease prevention and milking.⁵²

FARM Workforce Development

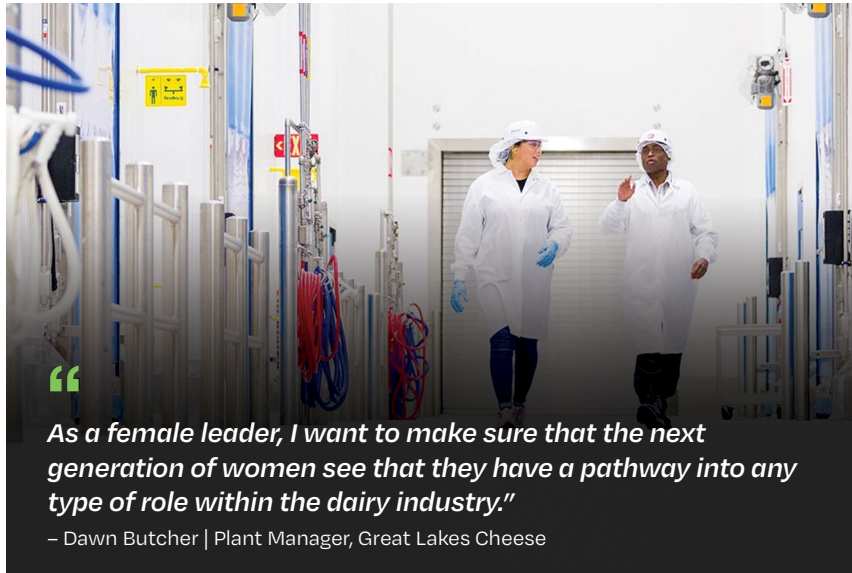
The FARM Workforce Development (WFD) program, administered by NMPF, provides resources, training, and guides to help dairy farms enhance safety management practices, increase worker engagement, and reduce employee turnover. FARM WFD evaluators assess on-farm human resources and safety practices that support continuous improvement. In 2022, 300 evaluations showed dairy farmers' commitment to employee safety and well-being and identified areas for improvement and insights for program evolution.

100%

of evaluated farms provide employee training*

96%

of evaluated farms have an established process for employees to report safety concerns*



Geat Lakes Cheese Plant

IDFA People Strategy

IDFA's People Strategy ensures that dairy processors have the knowledge, tools and talent to develop a stable, well-supported workforce through five signature programs:

- + **The NextGen Leadership Program** helps mid-senior level dairy professionals achieve their goals, with over 100 alums since its inception in 2019.
- + **The Dairy Diversity Coalition**, launched in 2021, fosters cross-industry collaboration to increase diversity, equity and inclusion.
- + **Women in Dairy** connects experienced female mentors with younger women working in dairy. With over 700 members, the network provides opportunities for mentorship and community.
- + **HR Leaders in Dairy**, created in 2020 to help Human Resource leaders connect and learn from one another, has 70 members. The group meets monthly to discuss topics such as employee health, safety and workforce development.
- + **The Power of People Conference** brings together HR professionals and workforce leaders to share best practices around talent recruitment, retention, succession planning, DEI and more. The conference was hosted in-person for the first time in 2022.

According to IDFA's Dairy Delivers 2022 study⁴, U.S. dairy generates:

3.3M

total jobs

\$753B

total economic impact

\$67.1B

federal, state and local tax contributions

\$41.6B

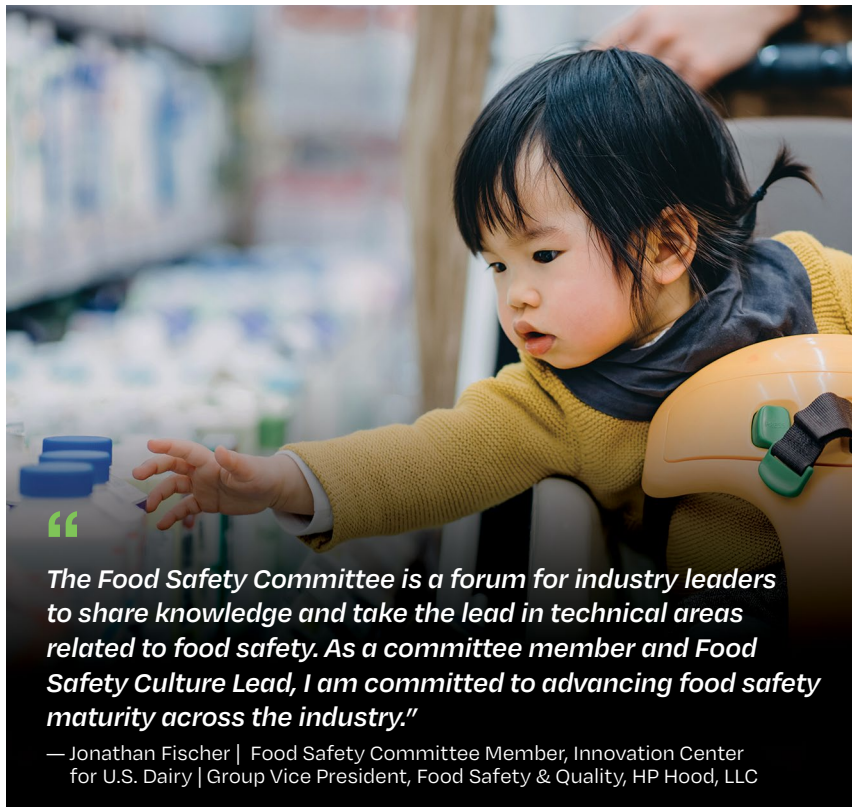
direct wages

*Data only reflects the evaluations completed through 2022 and is not nationally representative. Farms with only family employees (zero non-family employees) are not required to respond to every question.

Food Safety and Product Quality

The dairy industry is proactive in protecting consumers and ensuring the safety and quality of its products.

Food safety and product quality are paramount in the dairy industry. Strict regulations govern all aspects of production, processing, and distribution, and the industry emphasizes excellence through knowledge-sharing, guidance, training, research and community support. The U.S. dairy industry is a leader in global dairy in the way it provides safe, nutritious and responsibly produced dairy foods to consumers.



“
The Food Safety Committee is a forum for industry leaders to share knowledge and take the lead in technical areas related to food safety. As a committee member and Food Safety Culture Lead, I am committed to advancing food safety maturity across the industry.”

— Jonathan Fischer | Food Safety Committee Member, Innovation Center for U.S. Dairy | Group Vice President, Food Safety & Quality, HP Hood, LLC

Food Safety Culture

64

plants across 10 companies joined the Food Safety Culture Program in 2021 and 2022 to assess and improve their food safety cultures. The program, launched in 2020, helps U.S. dairy companies elevate a culture of food safety through information sharing, resource pooling and best practices.⁵³

Training and Education⁵³

100th

in-person food safety workshop hosted in 2022

278

people trained at six Innovation Center food safety workshops in 2021 and 2022

4,100

people trained in food safety best practices since 2011

500

additional people completed online food safety courses for artisan dairy products

100+ volunteers from 55 different organizations participated in industry-wide food safety efforts in 2022.⁵³

Food Safety for Processors

The Innovation Center's Food Safety Committee advances world-class food safety practices and promotes broad adoption of advanced risk mitigation practices. The committee provides resources, training and guidance on food safety, traceability and quality and serves as a collaborative space for processors to learn from each other.

The Artisan Ice Cream Food Safety Advisory Team was established in 2019 to support artisanal ice cream manufacturers. The Artisan Cheese Food Safety Team was created in partnership with the American Cheese Society to support the rapidly growing artisanal and farmstead cheese market.

Resources:

- + [Growing Your Business Safely Checklist](#) is available through www.safeicecream.org
- + The [Innovation Center's Artisan page](#) provides the latest research, guidance, and tools in English and Spanish
- + [Supplier Risk Guidance](#) and additional resources for small processors and the [50 States Online](#) interactive tool
- + [Framework for Establishing Hygienic Separation in Continuous Dairy Powder Systems in the Event of a Pathogen Positive in Finished Product](#) for exporters and dairy processors going into pharmaceutical products and infant formula



Stewardship Commitment

TERMS OF ADOPTION

Dairy processors adopt and apply the U.S. Dairy Traceability Guidelines.

See 2021-2022 processor aggregate data on [page 41](#) and [page 44](#).

COMMITMENT IN ACTION

2021-2022 IDFA Food Safety Leadership Awards

The IDFA Food Safety Leadership Award acknowledges individuals, groups or organizations that have made exceptional efforts toward enhancing food safety.

- + The Dairy Farmers of America's DFA Dairy Brands Division Food Safety and Quality Assurance Team was recognized for its commitment to food safety, traceability and continued product quality through the COVID-19 pandemic.⁵⁴
- + Hilmar Cheese Co. was recognized for elevating stringent food safety measures to ensure high-quality cheese and dairy products for customers in over 50 countries. Their enhanced quality management system ensures consistency, traceability and responsiveness at every step of the production.⁵⁵
- + [LEARN MORE](#) at the [Food Safety page](#) at usdairy.com.



2021 Processor Aggregate Data Report

Metric Reporting

The Processor Stewardship Reporting Tool provides a credible, consistent and cost-effective way to collect, calculate and report processor sustainability data within the Stewardship Commitment.

Processors enter their data into the reporting tool, by facility or for the company as a whole, for calculation and aggregation. Refer to the Dairy Processor Handbook for details on metrics and calculation methodology. Submission of data was not required within all social categories for the 2021 reporting period. Harbor Environmental and Safety, which developed and supports the tool, performed a quality review for data consistency and calculation accuracy. Harbor did not verify the data submitted by each processor.

This report presents the second and third years of aggregated data from the processor adopters of the U.S. Dairy Stewardship Commitment (adopting companies) demonstrating the industry's continued collective focus on measurement and accountability. For more information on inaugural reporting, details can be found in the 2020 U.S. Dairy Sustainability Report.

The data as reported in aggregate does not enable like-for-like comparisons between annual results. In addition to annual differences in the aggregate base, the production profiles of processors also can change from year to year. Nonetheless, the intensity measures enable general assessments of changes in collective performance.

Reporting Entity Aggregation

Results, updated in August 2023, cover processing locations for the 31 processors that adopted the Stewardship Commitment and reported 2021 calendar year data.

Aggregate Intensity Metrics

The intensity-based metrics report amounts per pound of dairy production at the processing level.

The Stewardship Commitment processors participating in 2021 reporting:

Agri-Mark | Agropur, Inc. | Associated Milk Producers Inc. | Bel Brands USA | California Dairies, Inc. | Cayuga Milk Ingredients (incl: Spruce, formerly Pursue Happiness) | Chobani | Dairy Farmers of America (incl: Cumberland Dairy) | Darigold | First District Association | Foremost Farms USA | Franklin Foods | General Mills, Inc. | Glanbia Nutritionals | Grande Cheese Company | Great Lakes Cheese Company, Inc. | Hilmar Cheese Company, Inc. | HP Hood LLC | Idaho Milk Products | The Kroger Co. | Land O'Lakes, Inc. | Leprino Foods Company | Maryland & Virginia Milk Producers Cooperative Association, Inc. | Michigan Milk Producers Association | Milk Specialties Global | Prairie Farms Dairy, Inc. | Schrieber Foods Inc. | Select Milk Producers, Inc. | Tillamook County Creamery Association | United Dairywomen of Arizona | Valley Queen

Adopting companies represent >75% of U.S. milk production*

2021 Dairy Product Production & Distribution

47.5% increase in total pounds of dairy production by reporting processors from 2020 to 2021

The following table presents dairy product categories reported as a percentage of 2021 U.S. production by weight. Product categories align with production categories for dairy used by the U.S. Department of Agriculture and in USDA Economic Research Service data sources.

Product Category	% of U.S. Production
Cheese	98
Milk Powder	95
Condensed Milk	86
Frozen Dairy	84
Whey Powder	75
Butter	73
Fluid Milk	70
Whey Permeate Powder	70
Yogurt	41
Sour Cream/Cottage Cheese	24
Cream	-
Dairy Consumer Beverage	-
Liquid Whey Permeate	-
Puddings and Custards	-

The dash (-) designates categories where comparison data was unavailable.

* Source: Calculations provided by The McCully Group using the **USDA National Agricultural Statistics Service 2021 Dairy Products Annual Summary** (published April 2022) and the **American Dairy Products Institute 2021 Production & Utilization Trends Report** (published 2022) for milk powder and whey permeate powder.



2021 Processor Aggregate Data Report: Environmental Indicators

Energy & GHG Emissions

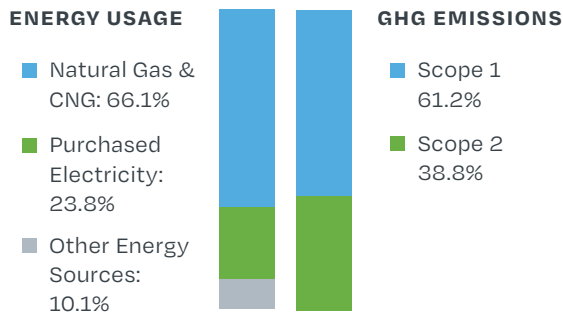
96.8% of processors reported data for all their processing facilities.

3.2% of processors partially reported.

Metric	2021
ENERGY USE INTENSITY	
kWh per pound of production output	0.308
MMBtu per pound of production output	0.001
GHG EMISSIONS INTENSITY (SCOPES 1 AND 2) (kg CO ₂ e per pound of production output)	
GHG Emissions Intensity (Location-Based)	0.073
GHG Emissions Intensity (Market-Based)	0.074

Energy and GHG Emissions By Source

The main sources of GHG emissions are natural gas (Scope 1) and purchased electricity (Scope 2).



30.2% of grid electricity is generated from renewable sources.

Water Quantity

93.5% of processors reported data for all their processing facilities.

6.5% of processors partially reported.

Metric (gal. per pounds of production output)	2021
WATER WITHDRAWAL INTENSITY	
	0.543
Water Withdrawal by Source	
Municipal/third-party source	61% 0.332
Groundwater	19% 0.104
Surface water	1% 0.006
Produced water/milk water ¹	19% 0.101
WATER RECYCLED INTENSITY	
	0.049
WATER DISCHARGED INTENSITY	
	0.491
SURPLUS WATER²	
	0.049

1. Milk water is water extracted from milk during processing.
2. Surplus water (Discharge - Withdrawal) excludes milk water.

By treating and using water from milk, processors return more water to the environment than they withdraw from other sources.

Resource Recovery

87.1% of processors reported data for all their processing facilities.

12.9% of processors partially reported.

Processors pursue strategies for zero waste to landfill in line with the U.S. EPA's Waste Management and Food Recovery Hierarchies, which provide the basis for the resource recovery metrics.



- Surplus food provided to feed hungry people: 10%
- Food/organics repurposed to feed animals: 47%
- Food/organics repurposed for industrial purposes: 10%
- Food/organics sent to compost: 8%
- Non-food sent to recycling/composting: 8%
- Non-food repurposed for energy recovery: 12%
- Waste sent to landfill: 6%

94% of resources put to beneficial use.

2021 Processor Aggregate Data Report: Social Indicators

Product Quality And Safety

100% of processors reported data for all their processing facilities.

Traceability

100% of adopters have committed to voluntary U.S. Dairy Traceability Guidelines

Food Safety

100% of reporting processors have validated, verifiable food safety programs and management systems

100% of reporting processors frequently reassess food safety programs to ensure efficacy and updates

Workforce Development

100% of processors reported data for all their processing facilities.

Human Resources

Total number of jobs supplied

(As of Dec. 31, 2021)

51,164

98% of jobs are full-time (FT).

Benefits

Frequently reported benefits offered to employees by reporting processors include 401(k)/retirement plans and health insurance with employer contribution. Additionally, companies may provide discounted and/or free products, tuition reimbursement, company-provided vehicles, company-provided housing and other benefits. Processors may report on multiple aspects of benefits and totals do not equal 100%.

Benefit	% of Processors Offering to FT
Health Insurance with Employer Contribution	93.5
401K/Retirement Plan	90.3
Other Benefit	74.2
Produced/Processed Products (Milk/Produce)	22.6
Health Insurance without Employer Contribution	13

Notes: Benefits provided to part-time employees are also tracked; however, only 2% of employees work part time. Other benefits include tuition/education reimbursement, company-provided vehicles, life insurance, wellness program/incentives, financial advisory services and company-provided housing.

Worker Safety

Days of restricted work activity or job transfer (DART) rate

3.51

Metric reports incident rates of days away from work, job transfer, or restriction cases, as reported to the U.S. Occupational Safety and Health Administration (OSHA). DART rate is reported for the aggregate: Total number of DART incidents / total employee hours worked * 200,000.

87% of reporting processors use leading indicators to measure and encourage safe worker behavior.

Leading indicators are predictive measures reflecting the effectiveness of an organization's health and safety activities. They can prompt proactive, preventative action to address a failure or hazard before it leads to an incident (OSHA 2019).

100% of adopters have completed all metrics related to Product Quality and Safety.

Community Contributions

100% of processors reported data for all their processing facilities.

Processors are only required to report one Community Contribution metric; therefore, the volunteering and donations data represent what was reported rather than a sum of actual activity

See [page 16](#) and [page 17](#) for a more representative reach of U.S. dairy's efforts to contribute to hunger channels.

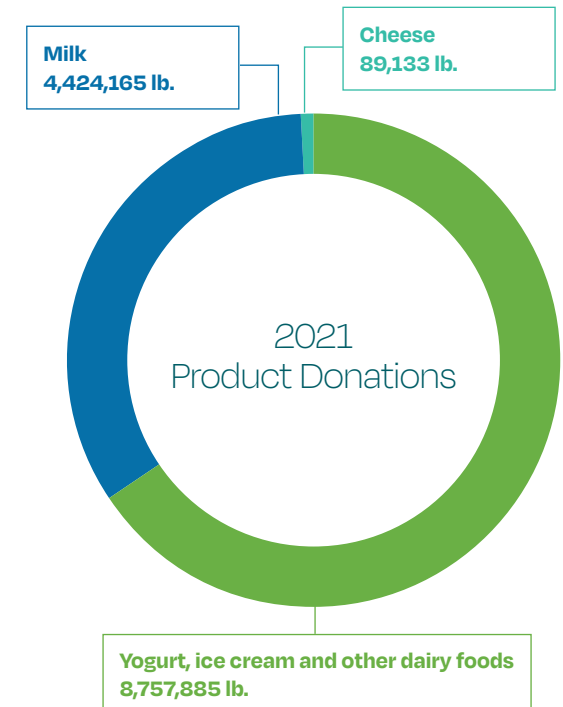
Community Volunteering

35,662 total hours of employee volunteer activities

Monetary And Product Donations

\$17,957,226 in financial contributions

13,271,184 pounds of product donated



2022 Processor Aggregate Data Report

Metric Reporting

The Processor Stewardship Reporting Tool provides a credible, consistent and cost-effective way to collect, calculate and report processor sustainability data within the Stewardship Commitment.

Processors enter their data into the reporting tool, by facility or for the company as a whole, for calculation and aggregation. Refer to the Dairy Processor Handbook for details on metrics and calculation methodology. Submission of data was not required within all social categories for the 2022 reporting period. Harbor Environmental and Safety, which developed and supports the tool, performed a quality review for data consistency and calculation accuracy. Harbor did not verify the data submitted by each processor.

This report presents the second and third years of aggregated data from the processor adopters of the U.S. Dairy Stewardship Commitment (adopting companies) demonstrating the industry's continued collective focus on measurement and accountability. For more information on inaugural reporting, details can be found in the 2020 U.S. Dairy Sustainability Report.

The data as reported in aggregate does not enable like-for-like comparisons between annual results. In addition to annual differences in the aggregate base, the production profiles of processors also can change from year to year. Nonetheless, the intensity measures do enable general assessments of changes in collective performance.

Reporting Entity Aggregation

Results, updated in August 2023, cover processing locations for the 31 processors that adopted the Stewardship Commitment and reported 2022 calendar year data.

Aggregate Intensity Metrics

The intensity-based metrics report amounts per pound of dairy production at the processing level.

The Stewardship Commitment processors participating in 2022 reporting:

Agri-Mark | Agropur, Inc. | Associated Milk Producers Inc. | Bel Brands USA | California Dairies, Inc. | Cayuga Milk Ingredients (incl: Spruce, formerly Pursue Happiness) | Chobani | Dairy Farmers of America (incl: Cumberland Dairy) | Darigold | First District Association | Foremost Farms USA | Franklin Foods | General Mills Inc. | Glanbia Nutritionals | Grande Cheese Company | Great Lakes Cheese Company, Inc. | Hilmar Cheese Company, Inc. | HP Hood LLC | Idaho Milk Products | The Kroger Co. | Land O'Lakes, Inc. | Leprino Foods Company | Maryland & Virginia Milk Producers Cooperative Association, Inc. | Michigan Milk Producers Association | Milk Specialties Global | Prairie Farms Dairy, Inc. | Schrieber Foods Inc. | Select Milk Producers, Inc. | Tillamook County Creamery Association | United Dairywomen of Arizona | Valley Queen

Adopting companies represent >75% of U.S. milk production*

2022 Dairy Product Production & Distribution

5.5% increase in total pounds of dairy production by reporting processors from 2021 to 2022

The following table presents dairy product categories reported as a percentage of 2022 U.S. production by weight. Product categories align with production categories for dairy used by the U.S. Department of Agriculture and in USDA Economic Research Service data sources.

Product Category	% of U.S. Production
Cheese	100
Frozen Dairy	99
Milk Powder	99
Condensed Milk	97
Fluid Milk	79
Butter	79
Whey Permeate Powder	77
Whey Powder	73
Yogurt	47
Sour Cream/Cottage Cheese	26
Cream	-
Dairy Consumer Beverage	-
Liquid Whey Permeate	-
Puddings and Custards	-

The dash (-) designates categories where comparison data was unavailable.

*Source: Calculations provided by The McCully Group using the USDA **National Agricultural Statistics Service 2022 Dairy Products Annual Summary** (published April 2023) and the **American Dairy Products Institute 2022 Production & Utilization Trends Report** (published 2023) for milk powder and whey permeate powder.

2022 Processor Aggregate Data Report: Environmental Indicators

Energy & GHG Emissions

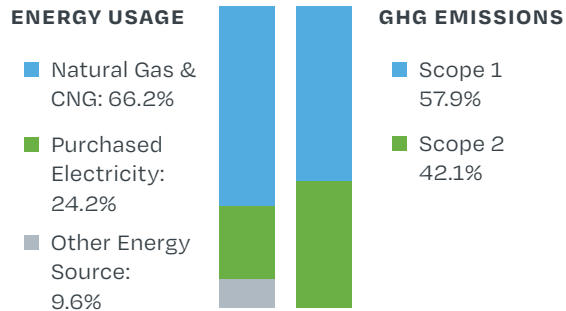
96.8% of processors reported data for all their processing facilities.

3.2% of processors partially reported.

Metric	2022
ENERGY USE INTENSITY	
kWh per pound of production output	0.299
MMBtu per pound of production output	0.001
GHG EMISSIONS INTENSITY (SCOPES 1 AND 2) (kg CO ₂ e per pound of production output)	
GHG Emissions Intensity (Location-Based)	0.072
GHG Emissions Intensity (Market-Based)	0.075

Energy and GHG Emissions By Source

The main sources of GHG emissions are natural gas (Scope 1) and purchased electricity (Scope 2).



31.2% of grid electricity is generated from renewable sources.

Water Quantity

93.5% of processors reported data for all their processing facilities.

6.5% of processors partially reported.

Metric (gal. per pounds of production output)	2022
WATER WITHDRAWAL INTENSITY	
Water Withdrawal by Source	
Municipal/third-party source	59% 0.275
Groundwater	20% 0.096
Surface water	1% 0.003
Produced water/milk water ¹	20% 0.096
WATER RECYCLED INTENSITY	0.017
WATER DISCHARGED INTENSITY	0.435
SURPLUS WATER²	0.062

1. Milk water is water extracted from milk during processing.
2. Surplus water (Discharge - Withdrawal) excludes milk water.

By treating and using water from milk, processors return more water to the environment than they withdraw from other sources.

Resource Recovery

87.1% of processors reported data for all their processing facilities.

12.9% of processors partially reported.

Processors pursue strategies for zero waste to landfill in line with the U.S. EPA's Waste Management and Food Recovery Hierarchies, which provide the basis for the resource recovery metrics.



- Surplus food provided to feed hungry people^{*}: 1%
- Food/organics repurposed to feed animals: 52%
- Food/organics repurposed for industrial purposes: 4%
- Food/organics sent to compost: 5%
- Non-food sent to recycling/composting: 22%
- Non-food repurposed for energy recovery: 11%
- Waste sent to landfill: 5%

^{*}Due to updated reporting guidance, surplus food provided is now being tracked as a community contribution.

95% of resources put to beneficial use.

2022 Processor Aggregate Data Report: Social Indicators

Product Quality And Safety

100% of processors reported data for all their processing facilities.

Traceability

100% of adopters have committed to voluntary U.S. Dairy Traceability Guidelines

Food Safety

100% of reporting processors have validated, verifiable food safety programs and management systems

100% of reporting processors frequently reassess food safety programs to ensure efficacy and updates

Workforce Development

100% of processors reported data for all their processing facilities.

Human Resources

Total number of jobs supplied **62,228**
(As of Dec. 31, 2021)

97.5% of jobs are full-time (FT).

Benefits

Frequently reported benefits offered to employees by reporting processors include 401(k)/retirement plans and health insurance with employer contribution. Additionally, companies may provide discounted and/or free products, tuition reimbursement, company-provided vehicles, company-provided housing and other benefits. Processors may report on multiple aspects of benefits and totals do not equal 100%.

Benefit	% of Processors Offering to FT
Health Insurance with Employer Contribution	96.8
401K/Retirement Plan	93.5
Other Benefit	74.2
Produced/Processed Products (Milk/Produce)	22.6
Health Insurance without Employer Contribution	6.5

Notes: Benefits provided to part-time employees are also tracked; however, only 2% of employees work part time. Other benefits include tuition/education reimbursement, company-provided vehicles, life insurance, wellness program/incentives, financial advisory services and company-provided housing.

Worker Safety

Days of restricted work activity or job transfer (DART) rate **2.74**

Metric reports incident rates of days away from work, job transfer, or restriction cases, as reported to the U.S. Occupational Safety and Health Administration (OSHA). DART rate is reported for the aggregate: Total number of DART incidents / total employee hours worked* 200,000.

92% of reporting processors use leading indicators to measure and encourage safe worker behavior.

Leading indicators are predictive measures reflecting the effectiveness of an organization's health and safety activities. They can prompt proactive, preventative action to address a failure or hazard before it leads to an incident (OSHA 2019).

100% of adopters have completed all metrics related to Product Quality and Safety.

Community Contributions

100% of processors reported data for all their processing facilities.

Processors are only required to report one Community Contribution metric; therefore, the volunteering and donations data represent what was reported rather than a sum of actual activity.

See [page 16](#) and [page 17](#) for a more representative reach of U.S. dairy's efforts to contribute to hunger channels.

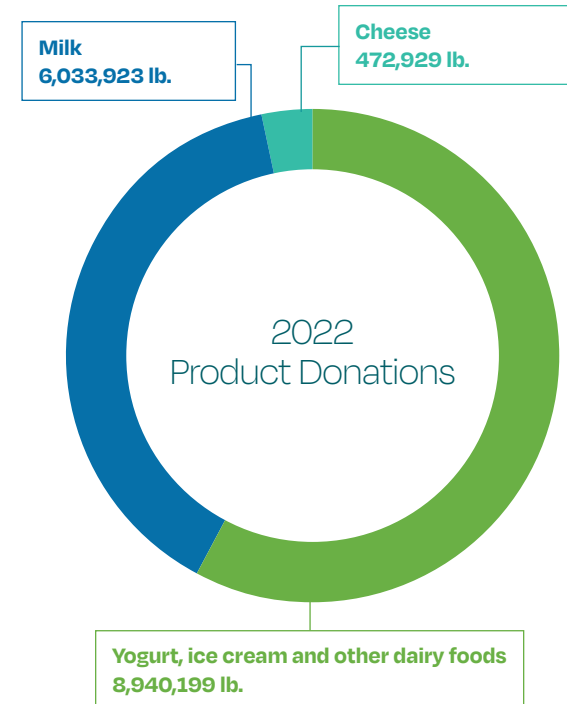
Community Volunteering

41,066 total hours of employee volunteer activities

Monetary And Product Donations

\$17,344,124 in financial contributions

15,447,050 pounds of product donated



Endnotes

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Bel Brands USA	Great Lakes Milk Products, Inc.	Select Milk Producers, Inc.
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Cayuga Milk Ingredients	HP Hood LLC	Southeast Milk, Inc.
Chobani	Idaho Milk Products	Spruce
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Dairy Farmers of America	Land O'Lakes, Inc.	United Dairymen of Arizona
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