



U.S. dairy's role in a sustainable food system

Introduction

As governments and stakeholders around the world grapple with a changing climate, growing populations, and shifting prospects for food security, U.S. dairy is leading the way in farmer-led and evidence-based innovation to achieve all aspects of sustainability - social, economic, and environmental - while providing more nutrient-dense dairy foods and protecting natural resources.

Advancing environmental innovation

In 2020, the U.S. dairy industry set aggressive new environmental stewardship goals to achieve greenhouse gas (GHG) neutrality or better, optimize water usage and improve water quality by 2050.

To reach these goals, the U.S. Net Zero Initiative (NZI) brings together corporate partners, research institutions, nongovernmental organizations and other stakeholders to work together to spur new technology and incentivize science-based research and data collection while expanding practices, resources and tools to support all farmers, cooperatives and processors.

According to the FAO, North America, where the United States is the primary dairy producer, was the only region in the world to increase milk production from 2005 to 2015 while also reducing absolute emissions, making the region's GHG intensity for dairy products the lowest in the world.¹

To set an accurate and transparent baseline to verify progress against, U.S. dairy conducted in 2008 the first national level full life cycle assessment (LCA) for an agricultural sector. The LCA found that U.S. dairy accounts for just 2% of total U.S. greenhouse

gas (GHG) emissions, 5.1% of water use and 3.7% of farmland.² Additional research found that producing milk in 2007 compared to 1994 required 21% fewer cows, 35% less water, 10% less land, and had a 37% lower carbon footprint.³

U.S. dairy's prioritization of environmental sustainability has advanced even further since the LCA was completed and has yielded significant additional achievements. In a 2020 study published in the *Journal of Animal Science*, leading experts from Virginia Polytechnic Institute and State University found that U.S. dairy's environmental footprint continued to shrink significantly. By 2017, producing a gallon of milk required 30% less water, 21% less land, and had a 19% smaller carbon footprint than in 2007.⁴

Further achievements are within reach. For example, through a combination of innovative practices and technologies - such as adding methane-reducing ingredients to cows' diets and turning captured methane from manure into clean biogas - California dairy farms have reduced their annual methane emissions by 2.2 million metric tons of carbon dioxide equivalent since 2015.⁵

Delivering nutrient-dense foods

Achieving U.S. dairy's environmental stewardship goals while producing nutrient-dense foods makes U.S. dairy critical to food and nutrition security in the United States and around the world. In the face of crises like the COVID-19 pandemic, hunger is once again on the rise. Compared to 2019, nearly 120 million more people faced hunger in 2020,⁶ and experts fear the consequences of Russia's invasion of Ukraine will further decrease food availability and increase food prices.

Milk contributes 5% of the global population's energy and 10% of protein requirements.⁷ The vast majority of food-based dietary guidelines recommend consuming dairy foods due to their role in delivering critical nutrients, particularly for women, children, and aging and vulnerable populations.

In low- and middle-income countries where popula-

tions consume mostly plant-based diets, widespread nutrient deficiencies (e.g., iron, calcium, zinc, and vitamin B12)⁸ can be addressed by consuming nutrient-dense dairy products. Dairy foods are associated with better growth, cognitive performance and motor development among children in low-income countries.⁹ These positive contributions demonstrate the role of dairy foods in achieving many of the UN Sustainable Development Goals.

In the United States, milk, cheese, and yogurt are the top sources of nine essential nutrients in children's diets: protein, calcium, phosphorus, magnesium, potassium, vitamins A, B12, D and riboflavin. Dairy foods are included in the U.S. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and are recommended by the U.S. dietary guidelines for Americans because of the high-quality nutrients they deliver.



Supporting Farmers' Livelihoods

Globally, one billion people rely on the dairy sector for their livelihoods, and the FAO has said dairy carries "particular promise to [Sustainable Development Goal] 1" (ending poverty). Almost 150 million farm households, i.e. more than 750 million people, are engaged in milk production worldwide, the majority in developing countries.¹⁰

In the United States, the dairy sector supports more than 3 million jobs. Of the United States' more than 30,000 dairy farms, 95% are family-owned and operated, and many are multigenerational. Dairy farms in the United States and around the world are critical contributors to rural communities and to the U.S. economy. U.S. dairy exports reached \$6.6 billion in 2020, providing nutrient-dense contributions to diets around the world.

Conclusion

The U.S. dairy sector plays a critical role in sustainable food systems and global food security. Efficiency and innovation in U.S. dairy produce nutrient-dense, high quality foods that nourish people and support farmers' livelihoods.



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