GLOBAL DAIRY PLATFORM

Perspective Paper

Sustainable Food for Global Health: Dairy in the Spotlight at the International Congress of Nutrition

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KEY TAKEAWAYS:

- The dairy sector continues to lead by spotlighting its contribution to healthy, sustainable diets, such as at the International Congress of Nutrition, a forum for researchers, policymakers, and the private sector to turn evidence into action in advancing sustainable diets.
- Presentations on least-cost nutritionally adequate diets, the dairy matrix, protein quality, and diet optimization tools that help inform dietary guidance demonstrate dairy sector leadership in nutrition research and activation.
- Science shows that dairy foods remain vital components of least-cost, nutritionally adequate, healthy and sustainable diets.

It takes consistent effort over time to influence how scientific research is translated into policy. Long-held beliefs grounded in outdated or misunderstood science can shape decisions in ways that hinder society's ability to meet global nutritional needs.

One of the most effective ways to reach influential scientific audiences is through well-designed convenings that align priorities across research, policy, and the private sector - stress-testing evidence, setting shared targets and metrics, and turning insights into action. In short, these events play a pivotal role in bridging the gap between science and policy, translating ideas and catalyzing momentum.

The **International Union of Nutritional Sciences-International Congress of Nutrition** (IUNS-ICN), held once every four years, is one such platform. The 2025 IUNS-ICN, convened in August in Paris under the theme **Sustainable Food for Global Health,** brought together a dynamic international community of researchers, practitioners, and policymakers to exchange knowledge and ideas on critical global nutrition challenges - from preventing childhood malnutrition to strengthening science-to-policy pathways for food-system transformation, and clarifying the role of diverse foods, including dairy, in sustainable diets.

At this year's congress, the dairy sector demonstrated its leadership by ensuring that research highlighting dairy's contribution to healthy, sustainable diets was prominently featured and delivered to the more than 3,800 participants from 117 countries.

What follows is a look at key dairy-focused areas presented at the Congress – dairy's essential role in least-cost diets; the underappreciated power of the dairy matrix; protein quality; and the link between diet optimization and sustainability.

Nutrition Comes at a Cost – Dairy Can Help

Foods derived from animals, such as dairy, meat and fish, are essential in diets in low- and middle-income countries to achieve the greatest nutritional value at the lowest cost.

That was a key finding presented in the session, *The Respective Roles of Animal- and Plant-Sourced Foods for Sustainable Lowest-Cost Nutrient Security in Developing Low- and Middle-Income Countries.* Using an innovative linear programming model that analyzed diets in Indonesia, the Philippines, Tanzania, and Kenya, experts from New Zealand demonstrated that including animal protein in diets is economically sound. Their research, co-funded by Global Dairy Platform (GDP) and **United States Dairy Export Council** (USDEC), showed that animal-source foods are indispensable in forming least-cost diets, the most affordable way to meet all nutrient requirements for healthy adults.

The Dairy Matrix – There is No Alternative

A scientific symposium hosted by the **International Dairy Federation** (IDF), **From Nutrients to Food Matrix: Unveiling the Dairy Matrix's Role in Health**, highlighted how dairy foods possess unique and complex matrices that can positively influence human health, beyond the presence or absence of individual nutrients. The symposium showcased a paradigm shift in nutrition science, moving from a reductionist focus on isolated nutrients to a more holistic, food-based perspective.

Experts from South Africa, the United States, Canada, and Ireland presented evidence showing how the dairy matrix affects nutrient absorption and health outcomes. They emphasized that nutrition scientists, policy makers and health authorities should account for the matrix-driven effects of whole foods, which extend beyond what is captured on nutrition labels. For example, yogurt consumption has been linked to a reduced risk for type 2 diabetes,[1, 2] - a relationship that has been recognized with a **qualified health claim** in the United States. The claim acknowledges that yogurt's health benefits arise from its overall food matrix rather than any single nutrient or compound and are therefore independent of fat or sugar content.

Researchers also questioned whether recommending low-fat over regular-fat dairy foods offers any clear health advantage. Data presented at the symposium showed no significant difference between low-fat and regular-fat dairy consumption in relation to risk factors for type 2 diabetes and heart disease.[3] Speakers reminded attendees that nutrient profiles alone cannot capture the effects of the matrix. Indeed, multiple meta-analyses indicate that cheese consumption is associated with neutral or even beneficial effects on cardiometabolic health, despite containing saturated fat and sodium.[4]

The take-home message was clear: we eat foods, not nutrients. Therefore, dietary guidance should remain simple to promote public health. Evidence consistently shows that dairy foods - milk, cheese, and yogurt – are integral components of healthy dietary patterns.

Balancing Nutrient Adequacy and Planetary Health

In the session titled *"Protein in the human diet – Balance between adequacy and sustainability"*, sponsored by the Dairy Research Consortium (DRC)*, speakers utilized **evidence** on human protein requirements and sustainability metrics to argue that debates on "less animal protein" need to account for protein quality, bioavailability, and equity.[5] Speakers drew on research demonstrating that current protein recommendations likely underestimate population needs and that high-quality protein, providing all the essential amino acids the body needs in a form that is easily digested, absorbed, and utilized is of importance across life stages.[5]

Speakers then linked this concept to **sustainability metrics**, emphasizing that sustainable foods must be nutrient-rich, affordable and culturally acceptable, and showed that when measured per unit of protein, indispensable amino acid, or other key nutrients rather than per kilogram of food, milk and other dairy products compare favorably to many plant alternatives in nutrient density and protein cost, even as their environmental footprint must continue to be reduced.[6] From a food-systems and equity lens, animal-source foods, including dairy, are both nutritionally valuable and socially important in many low- and middle-income settings, and transitions toward lower-impact diets must not undermine access for vulnerable groups.

For the dairy sector, the overarching implication is how the evidence demonstrates dairy's role as a high-quality, affordable source of protein within healthier and lower-emission diets, with continued and ongoing improvements in production sustainability, communicating benefits in terms of nutrient density per unit environmental impact, and positioning dairy as part of a diversified, protein-adequate food system rather than a simple "animal vs plant" binary.

Diet Optimization Drives Global Sustainability

Among the agenda's most actionable levers was diet optimization – aligning cost with nutrient adequacy, cultural acceptability and environmental goals. This was a central theme of the scientific session organized by **The Riddet Institute**, Massey University with support from GDP titled **Diet Optimization to Nourish a Healthy, Sustainable World**.

Dr. Barbara Burlingame, nutrition scientist, professor of nutrition and food systems, policy advisor, and former Chief of Nutrition at the Food and Agriculture Organization of the United Nations (FAO), emphasized that as pressure mounts to meet the 2030 Sustainable Development Goals, the protein quality of global diets - the delivery of sufficient amino acids to support optimal growth and health - is of critical importance. She noted that while the majority of high-quality protein globally is derived from animal-source foods, their production can place pressure on the environment. Therefore, providing affordable and accessible nourishment for a growing

* The DRC is a partnership of six dairy organizations that accelerate pre-competitive research on the role of dairy products in nutrition and health. The founding partners include Centre national interprofessionnel de l'économie latiére (Cniel; France), Dairy Australia, Dairy Farmers of Canada, National Dairy Council (USA), NZO Dutch Dairy Association, and MejeriForeningen Danish Dairy Board.

population within planetary boundaries demands a holistic approach to designing optimized diets for sustainable global health.

Dr. Stella Nordhagen from the **Global Alliance for Improved Nutrition** (GAIN) underscored the shortfalls of the global food system, which currently fails to deliver adequate nutrition for all. Around one billion people worldwide do not consume enough protein – and even fewer access high-quality protein.[7] In addition, 1.6 billion pre-school aged children and women of reproductive age suffer from deficiencies in one or more micronutrients, including in high-income countries where "hidden hunger" - micronutrient deficiency despite adequate caloric intake - persists.[8] In many developed countries, the displacement of nutritious foods by unhealthy alternatives has resulted in the coexistence of overweight, obesity, and micronutrient deficiency, compounding the risk for noncommunicable diseases.

Dr. Nordhagen also identified animal-source foods and dark leafy greens as leading sources of micronutrients most commonly lacking in diets, reinforcing the need for food systems to deliver diversity - encompassing both plant and animal foods.[9] Until access to healthier diets improves globally, a combination of interventions, including food fortification and supplementation, remains necessary to achieve healthy and sustainable nutrition for all.

Dr. Nick Smith from the **Sustainable Nutrition Initiative®**, Massey University, New Zealand, presented findings from the **iOTA model®**, a diet optimization tool designed to generate country, age, and gender-specific nutritionally adequate diets that meet cost, acceptability, and environmental criteria. The model integrates data on food composition, nutrient bioavailability, environmental impact, baseline diets, and food prices using a mixed-integer linear programming framework to identify population-level diets that satisfy nutritional needs, cost, and environmental conditions without deviating substantially from existing dietary patterns.

Session Chair, Distinguished Professor, Paul Moughan, Riddet Institute, Massey University concluded by emphasizing that dairy sits at the crossroads of the interconnected components of sustainable diets: nutrition and health, the environment, the economy, and culture. When these interconnected dimensions are considered together, dairy emerges as an essential component of a sustainable global food system.

Dairy Is Vital to Healthy, Sustainable Diets

Global scientific convenings such as the IUNS-ICN serve as a powerful reminder of our collective responsibility to build a more sustainable food system capable of nourishing a growing population. When science, policy, and industry align, collaboration accelerates, driving meaningful and lasting change. By showcasing new research and practical tools to a diverse range of stakeholders, the dairy sector used the 2025 IUNS-ICN platform to reaffirm its essential role in healthy, sustainable diets – and its commitment to contributing solutions on a global stage.

DAIRY LEADERSHIP: A CALL TO ACTION

- Actively engage in collaborative science and policy events globally to ensure the benefits of dairy are recognized in global food systems dialogues.
- Ensure dairy foods are viewed for what they are –vital to the global food system, as unique foods that that promote sustainable nutrition and health for minimal cost.
- Leverage evidence-based tools such as the iOTA model® to demonstrate that dairy fits into sustainable nutrition goals.

For more information on the Global Dairy Platform's Perspective Papers or our Quarterly Webinar Series, please reach out to Dr. Beth Bradley at Beth.Bradley@GlobalDairyPlatform.com

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