



GLOBAL DAIRY PLATFORM

Perspective Paper

Beyond Individual Metrics: Integrated Evidence for Food System Optimization

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KEY TAKEAWAYS:

- **Food policy is being shaped by simple metrics while food systems are inherently multidimensional.** Carbon footprint, nutrient profiling, and food-formulation classifications provide insights, but none fully capture the nutritional, environmental, economic, and societal contributions of food.
- **The science has moved beyond single-metric evaluation.** Advances in dietary optimization and systems modelling now allow multiple objectives including nutrition, health, affordability, environmental sustainability, and consumer acceptability to be evaluated together. The challenge is no longer proving food is multidimensional; it is applying this science to decision-making.
- **The opportunity lies in collaborating to make better food system decisions.** Industry, researchers, and policymakers should work together to develop and apply integrated frameworks that help optimize food systems.

Every generation has developed new ways to evaluate food. Calories helped address hunger. Nutrient profiling improved our understanding of diet quality. More recently environmental footprint and food processing classifications have broadened the conversation around healthy, sustainable diets.

Each of these advances has improved our understanding of food systems. Yet none was designed to answer the question now confronting governments, businesses, and society: how do we build food systems that are nutritious, environmentally sustainable, affordable, resilient, and capable of feeding a growing and aging global population?

Despite growing recognition that food systems are complex, many policy decisions continue to rely on simplified metrics that evaluate one dimension of food at a time. This creates a disconnect. Evidence demonstrates food value is multidimensional, yet policy often continues to optimize single objectives.

The challenge is no longer a lack of science, but translating that evidence into decision-making that reflects the complexity of real food systems.

Good Metrics Don't Guarantee Good Decisions

Every metric is developed to answer a particular question, and every metric has limitations beyond that purpose. Carbon footprint estimates are meant to measure greenhouse gas emissions, nutrient profiling to assess nutritional quality, and food processing classifications to describe manufacturing characteristics. Each of these metrics has value. **Problems arise** when a metric designed to answer a single question is used to address a complex system.¹

For example, **optimizing diets** solely for greenhouse gas emissions might eventually reduce environmental impact but overlooks nutrient adequacy, affordability and consumer acceptance.² Likewise, classifying foods according to **processing** would not consider how foods contribute differentially to nutritional status across life stages and populations.³ In other words, the limitation doesn't lie simply in the metric itself, but also in the expectation that it can be used to optimize a diet, eating pattern, or food system.

From Better Metrics to Better Outcomes

Fortunately, over the past decade, nutrition science has steadily moved **beyond reductionist thinking**.⁴ Researchers increasingly recognize the importance of dietary patterns rather than individual nutrients; protein quality rather than quantity, nutrient bioavailability rather than content; and food matrices rather than isolated components.

The same evolution is occurring within sustainable food systems research. Rather than evaluating foods through independent nutritional, environmental, or economic lenses, researchers are developing approaches that integrate these dimensions into analytical frameworks. The next frontier is not another metric, but decision-support tools that help policymakers and businesses evaluate trade-offs across multiple objectives simultaneously.

Emerging frameworks demonstrate that this is now possible. Dietary optimization models using systems-based approaches, such as the **iOTA Model®**, illustrate how nutrient adequacy, affordability, environmental performance, consumer acceptability, and cultural context can be evaluated together rather than in isolation.⁵

These models do not eliminate trade-offs. Instead, they make them transparent, allowing policymakers to test alternative scenarios, understand unintended consequences and identify solutions that improve multiple outcomes rather than optimizing just one.

This represents a fundamental shift in thinking. The objective is no longer to identify the "best" food according to a single metric, but to make better decisions using integrated evidence that reflects the complexity of real-world food systems.

A Leadership Opportunity for Industry

For food companies, this evolution changes the nature of leadership. The question is no longer how individual products perform against isolated metrics. It is how businesses contribute to healthier, more sustainable and more resilient food systems. That requires demonstrating contributions to nutrient adequacy, dietary quality, affordability, environmental stewardship, consumer acceptance, and resilient livelihoods.

Leadership also means helping governments access, interpret, and apply the best available science when making food policy. Industry's role is not to advocate for one metric over another, but to support decision making that reflects the best available evidence across nutrition, sustainability, affordability, resilience, and consumer needs.

The next decade should not be defined by debates over the right metric. Each contributes valuable information. The greater opportunity lies in integrating these metrics into decision-

support frameworks that help governments, businesses, and investors to make better decisions for healthier, more sustainable, and more resilient food systems.

DAIRY LEADERSHIP: A CALL TO ACTION

The dairy sector has an opportunity to help shift the conversation from defending individual foods toward improving how food system decisions are made. Rather than debating each new metric, industry can invest in the research and partnerships necessary to strengthen integrated decision-support frameworks that evaluate nutrition, environmental sustainability, affordability, resilience and consumer needs together. By contributing robust evidence, sharing data and supporting transparent modelling, dairy can help ensure that emerging policy reflects the complexity of real-world food systems rather than the simplicity of individual indicators.

Equally important, industry should work collaboratively with researchers, governments, and international organizations to demonstrate how these approaches can be applied in practice. The objective is not to replace one metric with another, but to equip decision-makers with better tools so the future of food policy is guided by science that supports better outcomes.

For more information on the Global Dairy Platform's Perspective Papers, please reach out to Dr. Beth Bradley at beth.bradley@globaldairyplatform.com.

References

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