IUFoST | International Union of Food Science and Technology
Strengthening Global Food Science and Technology for Humanity

Introducing the PRISM Framework:

A Comprehensive Multi-Faceted Food Quality Assessment System

From NOURISH to PRISM: Expanding Beyond Nutrition

The International Union of Food Science and Technology (IUFoST) task force has developed a revolutionary approach to food quality assessment that builds upon their successful nutrition-focused system /1/. Originally known as the IF&PC (IUFoST Formulation & Processing Classification) scheme, this groundbreaking methodology has been renamed **NOURISH** (**N**utritional **O**ptimization **U**nder **R**esponsible **I**ngredient **S**election and **H**andling) to better communicate its purpose and accessibility.

However, recognizing that real-world food choices involve much more than nutrition alone, the IUFoST task force has now expanded this foundation into the comprehensive **PRISM** (**P**roduct **R**ating **I**ntegration **S**ystem for **M**ulti-characteristics) framework. Like a prism that breaks white light into its component colors, PRISM breaks down complex food quality into six essential characteristics, with NOURISH serving as its nutritional cornerstone.

Strategic Evolution: How NOURISH became PRISM's Foundation

The original IF&PC system successfully addressed nutritional value by separating formulation and processing impacts - a breakthrough that replaced vague terms like "ultra-processed" with clear, quantitative scores. By renaming this system NOURISH, the task force created a more accessible identity while maintaining the scientific rigor that separates formulation (what ingredients are included) from processing (what happens during manufacturing).

NOURISH's proven methodology of using the Nutrient Rich Food Index (NRF) to measure formulation quality and calculating processing impact through ΔNRF differences, culminating in the Formulation and Processing Food Index (FPFI) score, now serves as the template for PRISM's comprehensive approach.

The PRISM Framework: Six Specialized Assessment Facets

PRISM extends the NOURISH methodology across six essential food quality characteristics, with each facet applying the same rigorous formulation-processing separation and quantification approach:

Facet 1: Nutrition Value – NOURISH

Nutritional **O**ptimization **U**nder **R**efined **I**ngredient **S**election and **H**andling

As the foundational facet of PRISM, NOURISH maintains its established methodology while ser-ving as the nutritional assessment component. It continues to provide clear, numerical scores indi-cating both ingredient nutritional quality (formulation, by NRF) and processing effects (ΔNRF), which can be combined into the FPFI score when needed for labeling or comparative purposes.

Facet 2: Sustainability – EARTH

Environmental **A**ssessment of **R**esource **T**hroughput and **H**andling

EARTH applies NOURISH's formulation-processing principle to environmental impact. Formu-lation establishes baseline environmental footprint through ingredient selection, while processing creates measurable changes quantified through Global Warming Potential differences (ΔGWP).

Facet 3: Safety/Shelf-Life – SHIELD

Safety **H**azard **I**dentification and **E**limination through **L**ifecycle **D**esign

SHIELD follows NOURISH's methodology for comprehensive safety assessment. The facet applies the formulation-processing separation approach to evaluate how ingredient selection determines initial safety state and how processing interventions create measurable improvement in safety characteristics. Research is ongoing to establish standardized metrics that account for both beneficial effects (such as pathogen reduction) and potential negative impacts (including contaminant concentration or formation of processing-induced compounds). The development of validated a broad set of measurement protocols for this facet remains under active exploration by the task force.

Facet 4: Affordability – VALUE

Viable **A**ffordable **L**ifecycle **U**tilization **E**valuation

VALUE applies NOURISH's dual-factor approach to affordability assessment, examining how ingredient selection affects baseline costs and how processing impacts overall value proposition. The task force is currently exploring methodologies to quantify formulation and processing effects on affordability that extend beyond simple cost analysis to include accessibility, nutritional value per dollar, and cost-effectiveness considerations. Standardized metrics and measurement proto-cols for this facet are under development.

Facet 5: Convenience – EASE

Efficiency **A**ssessment of **S**implified **E**xperience

EASE follows the formulation-processing separation methodology to evaluate practical usability factors. While the conceptual framework applies NOURISH's approach to convenience assessment, the task force is actively exploring appropriate metrics to quantify how ingredient selection affects baseline convenience and how processing impacts overall user experience. Development of standardized measurement protocols for preparation time, storage requirements, and ease of use parameters remains under investigation.

Facet 6: Palatability – TASTE

Textural **A**nd **S**ensory **T**rait **E**valuation

TASTE applies NOURISH's formulation-processing separation approach to sensory evaluation, examining how ingredient selection provides baseline sensory properties and how processing affects palatability characteristics. The task force is currently exploring methodologies to establish quantitative metrics for sensory assessment that can reliably measure both formulation and processing impacts on consumer satisfaction and satiation efficiency. Standardized protocols for this facet are under active development.

Figure 1 illustrates the PRISM framework approach with its six PRISM-facets and deposited assessment schemes reprecented by the facets.

Implementation and Visualization

The PRISM framework employs NOURISH's proven scientific rigor as the foundation for all six facets while introducing sophisticated visualization tools including multi-layer QR codes, quanti-tative radar charts,

AI-assisted databases, and flexible weighting systems that allow consumers to prioritize characteristics most important to them. As methodologies for the developing facets are finalized, they will be integrated into the comprehensive PRISM assessment system.

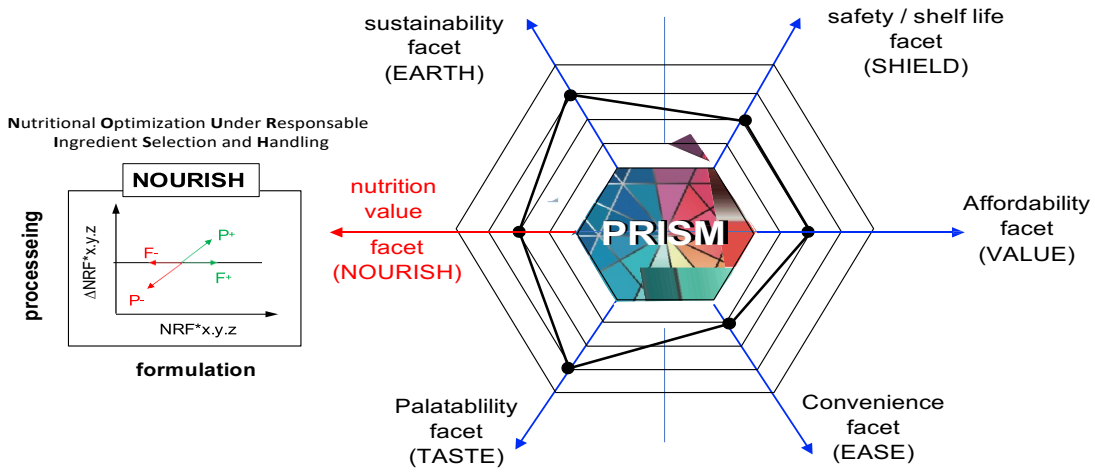


Figure 1: PRISM framework with six PRISM-facets representing assessment schemes for the designated key food product property characteristics analyzed with respect to quantified formulation and processing impacts

Global Impact: From NOURISH to PRISM

By establishing NOURISH as the proven nutritional foundation and expanding it into the comprehensive PRISM framework, the IUFoST task force has created a system that can qualitatively and quantitatively assess the full spectrum of food quality considerations. This evolution from the original IF&PC system through NOURISH to the complete PRISM framework represents a significant advancement in food classification science, providing tools for evidence-based food policy, improved product development, informed consumer choices across diverse global contexts and aiding industry development.

The framework's discussions with UNIDO for global food security initiatives demonstrate how NOURISH's proven methodology, now embedded within PRISM's comprehensive approach, can establish international standards for holistic food quality assessment as the remaining facets reach methodological maturity.

Related Publications:

/1/ Ahrné, L., Chen, H., Henry, C.J., Kim H-S., Schneeman B. & Windhab E.J.(2025). Defining the role of processing in food classification systems - the IUFoST formulation & processing approach. ***npj Science of Food* 9, 56 (2025).** https://doi.org/10.1038/s41538-025-00395-x/
2/ Windhab E.J., Ahrné, L., Chen, H., Henry, C.J., Kim H-S., Schneeman B. (2025); "The PRISM framework for food quality assessment", IUFoST Scientific Information Bulletin (SIB) / task force,; available online September 2025 https://iufost.org/scientific-council/iufost-scientific-information-bulletins-sibs

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