



IMPACTING  
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# Formulating for Success:

**3 Critical Factors** in Developing High-Protein Dairy  
and Dairy Alternative Product Formulations



**WHETHER YOU'RE DEVELOPING DAIRY OR DAIRY ALTERNATIVE PRODUCTS, this resource can help you confidently navigate the challenges of high-protein formulations. Inside, you'll find insights on current trends and practical strategies to overcome common formulation hurdles so you can bring quality high-protein products to market.**

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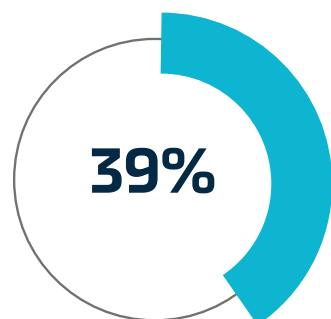


# High Protein is in High Demand

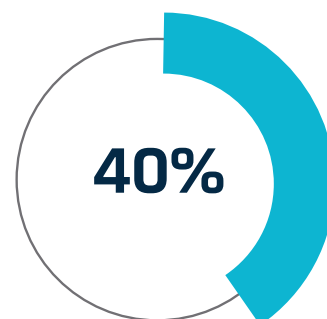
As health and wellness continue to shape consumer choices, demand for high-protein foods and beverages has surged. According to Innova Market Insights, food and beverage launches with **protein ingredients or claims** are growing at a faster pace than overall food and beverage launches.<sup>1</sup>



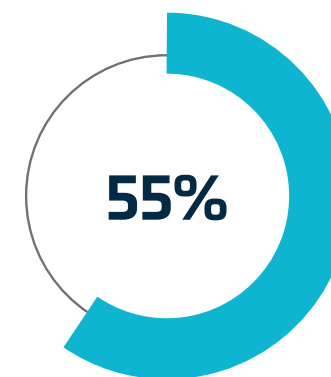
Protein claims are **highly valued by consumers.**



39% of global consumers **prioritize protein content** when reading nutritional labels.<sup>2</sup>



40% of U.S. consumers are **motivated by high-protein claims** when dining out or shopping for packaged foods.<sup>3</sup>



55% of U.S. consumers consider **high protein an essential label claim**, and over half consume nutrition drinks primarily for their protein content.<sup>4</sup>

# Inside the Protein Boom

Understanding the drive for more protein

The growing interest in high-protein products is driven by two goals: weight management and muscle health. These focus areas are shaping protein innovation and driving demand for products.



## WEIGHT MANAGEMENT

Dietary preferences and restrictions, including GLP-1-driven eating plans, are fueling demand for high-protein dairy and dairy alternative foods that promote satiety, support weight management, and deliver nutritional benefits.

**Consumers on weight loss journeys are seeking foods and beverages that are:**

- **High in protein, which supports satiety and preserves muscle mass.<sup>6</sup>**
- **Nutrient dense**
- **Low calorie**



**6 million**

Americans are on popular GLP-1 medications.<sup>5</sup>

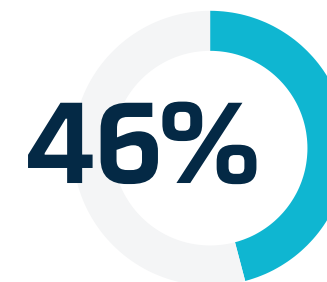


## MUSCLE HEALTH

Maintaining muscle health is essential for strength, mobility, and overall wellness. Protein is central to this, supporting muscle growth, recovery, and long-term preservation across life stages:

- Active lifestyle consumers recognize protein's role in strength, growth, and recovery
- Bodybuilders and athletes continue to rely on high-protein products for performance
- Aging adults require protein to combat age-related muscle loss.<sup>7</sup>

**With the global 65+ population nearly doubling since 1974—and projected to double again by 2074<sup>8</sup>—high-protein applications are becoming increasingly vital to support the needs of a rapidly aging world.**



**46%** of aging adults 51+ fall short of their daily protein recommendations.<sup>7</sup>

# Top Priorities for High-Protein Consumers

Consumers are looking for foods and beverages that combine **high-protein content, good taste, convenience, nutritional balance, quality, and value.**



## SIMPLE CLAIMS

Consumers are drawn to clear, **straightforward claims that highlight recognizable nutrients** like protein.<sup>9</sup> Simple messaging builds trust and makes it easier for shoppers, especially those managing weight, to choose products that fit their needs.



## TASTE AND TEXTURE

Even the healthiest product won't succeed without **great taste and texture**. To keep consumers coming back, high-protein foods and beverages must deliver enjoyable flavor, appealing texture, and a smooth mouthfeel that makes every bite or sip satisfying.



## CONVENIENCE AND VERSATILITY

Busy lifestyles drive demand for high-protein products that are easy to prepare or ready to consume. **Ready-to-drink shakes, single-serve yogurts, and portable snacks** provide quick nutrition on the go, a trend especially popular among younger consumers with active schedules.<sup>10, 11</sup>



## NUTRITIONAL BALANCE

Brands are shifting from protein-only claims to a more complete nutritional story—highlighting fiber and healthy fats alongside key micronutrients like calcium, magnesium, and vitamin B12. This **holistic approach** supports overall wellness and resonates strongly with consumers, particularly those managing their weight loss.<sup>9</sup>



## QUALITY AND VALUE

Consumers expect food that delivers on quality, nutrition, and value.<sup>12</sup> Brands that offer **affordable, high-protein options with longer shelf life** not only meet the needs of busy, cost-conscious shoppers but also help reduce waste and increase savings.



# 3 Critical Factors in High-Protein Product Development

Developing successful high-protein dairy and dairy alternative products requires understanding of the intricate balance between viscosity/texture, product stability, and manufacturing efficiency.

#1: Balancing Texture and Viscosity

#2: Maintaining Product Stability

#3: Optimizing Manufacturing Efficiency



# #1: Balancing Texture and Viscosity

Texture, a key driver of consumer satisfaction and repeat purchases, is greatly influenced by viscosity.

## The Role of Viscosity

- In beverages, higher protein levels often increase viscosity, making processing more difficult and leading to shelf-life instability.
- In spoonable products, higher viscosity is desired, but issues like syneresis or excessive gelling can compromise quality.

Maintaining appropriate texture and viscosity is key to ensuring both product quality and processing efficiency.



JOHA® Functional Phosphates can modulate product viscosity and texture to achieve formulation requirements and consumer preferences.



## Mouthfeel Matters

Mouthfeel is directly tied to texture and, ultimately, product quality. This is especially important in high-protein formulations, which can become gritty or gummy if not properly addressed.

## Almond Beverage



BEKAPLUS® Stabilizing Systems deliver exceptional mouthfeel by reducing sedimentation and grittiness.

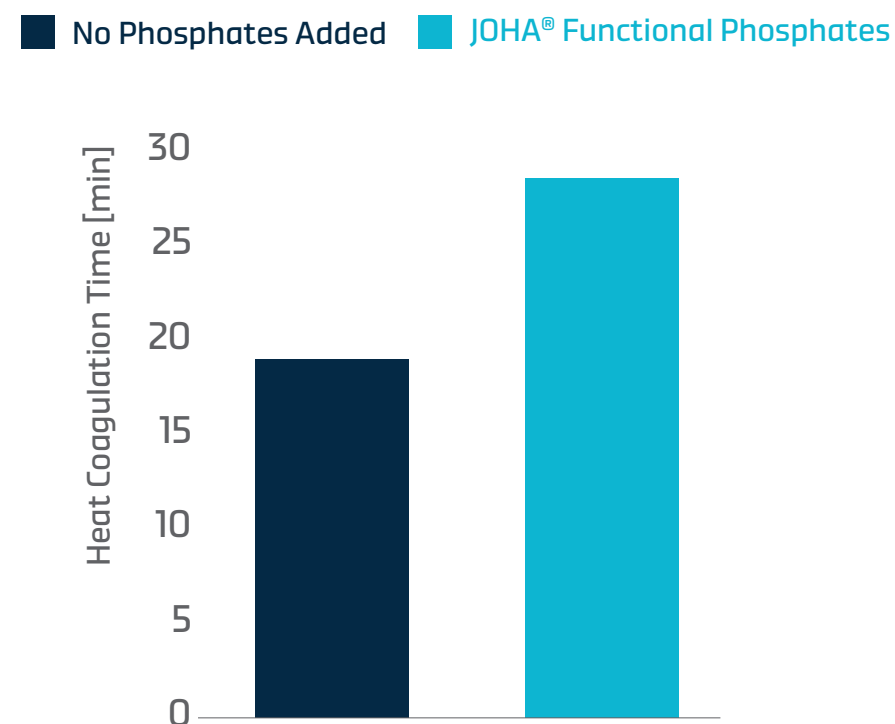
# #2: Maintaining Product Stability



Stability is essential to product integrity and reliable processing, and is influenced by factors such as protein solubility and aggregation.

## Protein Solubility and Stability

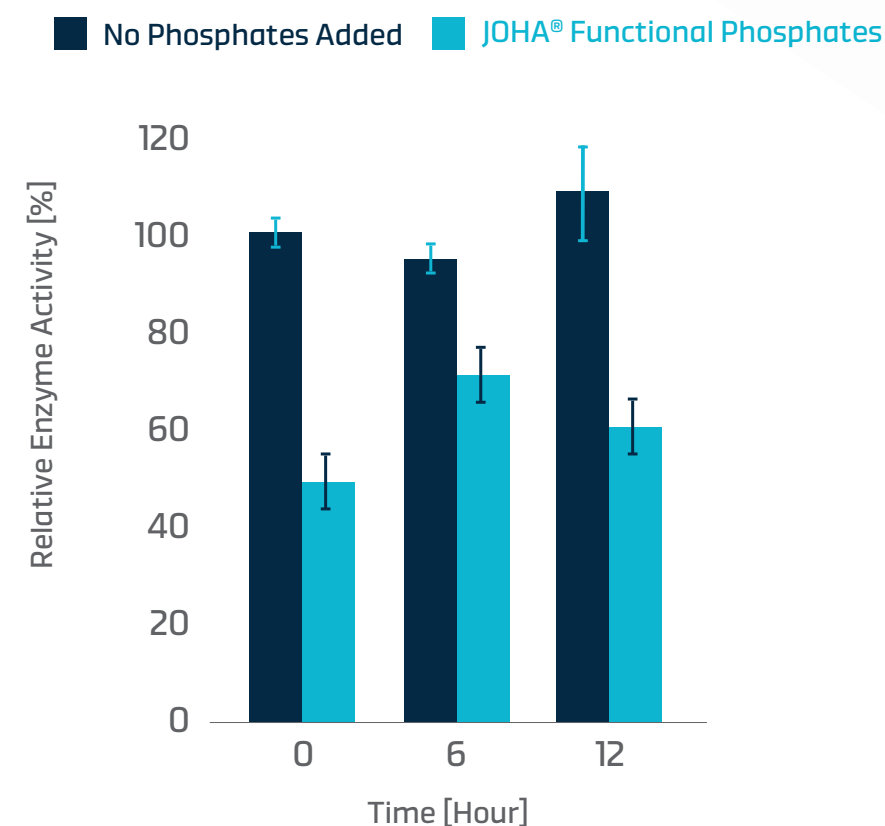
- Poor solubility can lead to sedimentation and grittiness, while proper dispersion supports **smooth mouthfeel and consistent texture**.
- Thermal stability of proteins is fundamental to successful formulation, ensuring both **manufacturing efficiency** and long-term **product performance**. Heat-induced instability can increase product viscosity, disrupting flow dynamics and interfering with filling and packaging operations.



Functional phosphates enhance heat stability (increased heat coagulation time) in **plant-based beverages**, reducing thermal aggregation and improving processing performance.

## Protein Aggregation

In high-protein systems, protein aggregation over time contributes to age gelation, leading to undesirable thickening and texture changes.



Functional phosphates can reduce the enzyme activity in **UHT milk** linked to age gelation, helping prevent unwanted thickening or gel formation during storage.

# #3: Optimizing Manufacturing Efficiency

Manufacturing efficiency depends on stable pH and consistent product uniformity to minimize variation and maintain quality.

In high-protein systems, excessive viscosity can obstruct flow, leading to line blockages, pump failures, and costly production downtime.

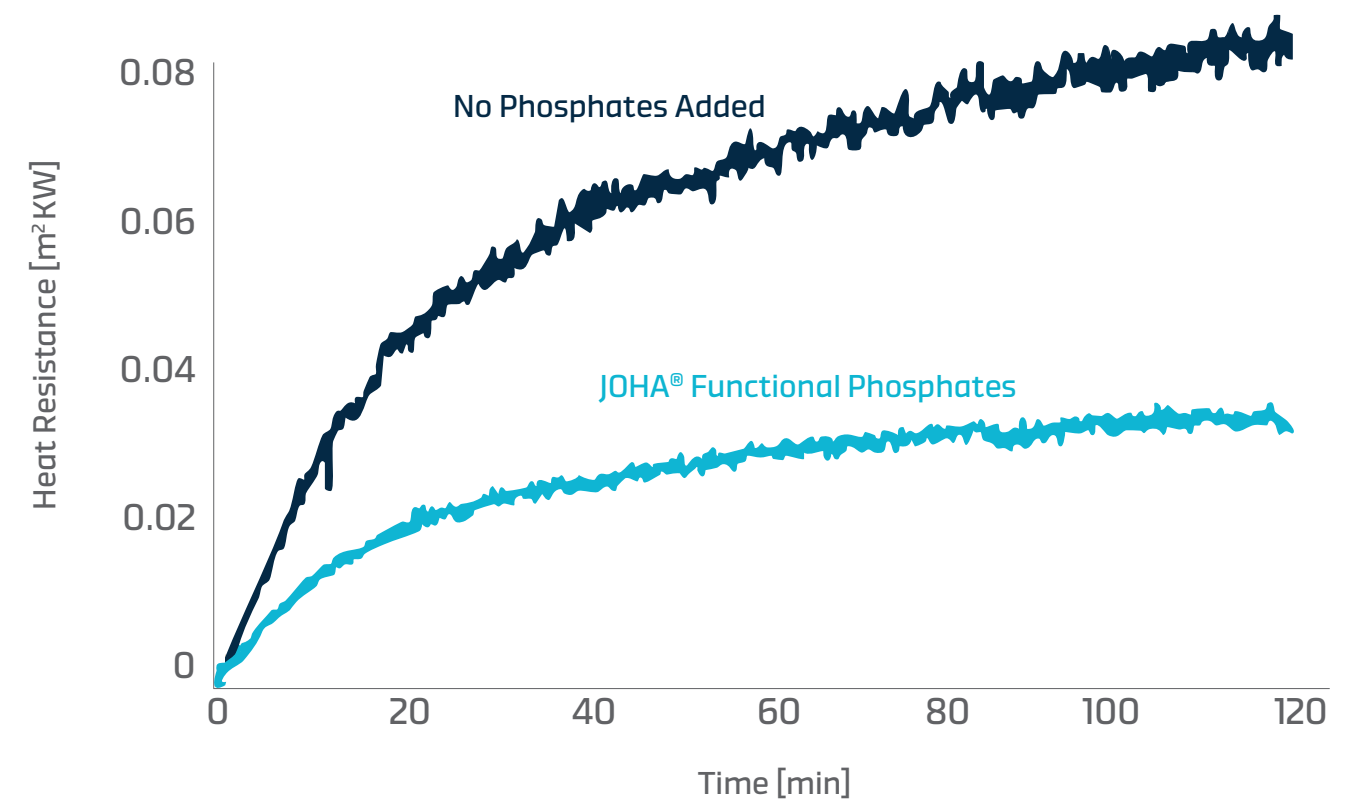
## Controlling Fouling

Fouling, the buildup of unwanted deposits on processing equipment, creates significant challenges in high-protein systems:

- More frequent cleaning cycles
- Shorter production runs
- Increased consumption of utilities, cleaning agents, and water

Together, these disruptions raise operational costs and reduce line efficiency and productivity.

## High-Protein Dairy Beverage



Functional phosphates reduce deposit formation on equipment surfaces, improving heat transfer efficiency and supporting consistent operational performance and extended run times.

# High-Protein Food and Beverage Challenges Solved



Ready-to-drink beverages/shakes

## JOHA® Functional Phosphates

- Stability/age gelation
- Protein dispersion
- Protein and mineral sedimentation
- Fouling control
- Buffering/pH control
- Viscosity control

## BEKAPLUS® Stabilizing Systems

- Viscosity increase
- Suspension of insoluble particles



Coffees/tea lattes

## JOHA® Functional Phosphates

- Neutralization of free organic acid
- Buffering/pH control
- Stability/age gelation
- Fouling control
- Protein dispersion



Desserts/puddings

## JOHA® Functional Phosphates

- Protein dispersion
- Buffering/pH control
- Viscosity

## BEKAPLUS® Stabilizing Systems

- Texture
- Mouthfeel



Processed cheese/spreads

## JOHA® Functional Phosphates

- Protein dispersion
- Buffering/pH control
- Viscosity
- Texture
- Mouthfeel



Frozen desserts

## JOHA® Functional Phosphates

- Protein dispersion
- Fouling control
- Buffering/pH control
- Viscosity

## BEKAPLUS® Stabilizing Systems

- Texture
- Mouthfeel

# Partnering for **Success**

**Choosing the right partner makes a difference.** For dairy and dairy alternative product success, delivering the right taste and texture ensures consumers have an enjoyable eating and drinking experience. Optimizing product stability keeps quality consistent from production through shelf life, while improving manufacturing efficiencies helps reduce cost, waste, and energy use.

**Partnering with a team that understands ingredient functionality, formulation challenges, and market trends will help bring success in the high-protein market.**



## Team Up with the **Right Partner**

With more than 80 years of experience in the food and beverage industry, ICL Food Specialties offers solutions and support for high-protein applications.

ICL Food Specialties combines the **power of a global leader** with the passion of an agile team of local experts to help you find success in the high-protein market.



Partnering with ICL Food Specialties goes beyond our products. Within our innovation facilities, we provide comprehensive support, including **new product development, formulation troubleshooting, production scale-up, and more.**

**You gain access to:**

- **Industry experts and innovators**
- **Technical, regulatory, and manufacturing support**
- **A team that understands your needs, challenges, and local markets**



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Let's make an  
impact, **together.**



Contact us  
to get started.



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- <sup>8</sup> United Nations Population Fund. <https://www.unfpa.org/ageing>
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- <sup>13</sup> Mintel. Consumer Approach to Breakfast – U.S. – 2025

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