



White Paper

How food & beverage companies gain competitive advantage

The importance of implementing a least-cost formulation strategy

Executive summary.

In the food & beverage (F&B) industry, you're only as good as your formulas. While that's been true for a long time, what constituted a winning formula strategy in the past no longer makes the grade. F&B companies face greater business pressures today than they did just a few years ago. The new environment is characterized by rising commodity costs, retailer price pressure, and tighter regulations. Consumers are playing a role, too, as they demand more nutritional value and the use of ingredients they deem safer and better for the environment.

In this context, it's no longer enough to formulate products that just meet basic requirements. Today, F&B companies need a more structured and disciplined formulation strategy, one that goes beyond simply creating products consumers will buy. According to a recent study by Aberdeen Group, process companies that developed formulas in a structured manner with a view toward optimization delivered significantly better business results, including 15% greater net change in year-over-year revenue growth and 3% greater margin advantage on new products.¹

For F&B companies, the new standard of excellence is least-cost formulation, a new methodology that makes it possible to better respond to constraints that are both onerous and fast-changing. With the greater agility enabled by least-cost formulation, F&B companies are better able to optimize their operating margins by increasing revenues and reducing costs.

In this white paper, we delve into what makes least-cost formulation an ideal way for F&B companies to overcome their major business challenges. We offer an overview of what a least-cost formulation strategy could look like. And we provide an overview of how Infor™ is integrating capabilities in product lifecycle management and supply chain planning to give F&B companies an industry-leading option for implementing least-cost formulation.



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¹ Chad Jackson, The State of PLM for Process Goods, Aberdeen Group, February 2010, p. 2.

For food & beverage, the squeeze is on.

As an F&B company, you know there's no room for slack in your operations. Every constituency in your value chain is expecting more from your company. For example:

Consumers want more variety, as well as healthier and better tasting foods, and they want these higher-value products for the same price or less. They're backing up these demands with a greater interest in learning more about the foods and beverages they consume. In response, some grocery store chains are buying the services of food-rating companies that offer solutions to rate the nutritional value of products on the shelf. According to a January 2012 article in USA Today, two of the largest companies, NuVal and Guiding Stars, have licensed their scoring systems to more than 3,000 stores in the US. In keeping with this trend, the Institute of Medicine is recommending that the US government develop a nutritional rating system that would appear on the front of food packages.²

The demand for healthier, higher quality foods isn't limited to consumers with the most discretionary income. Writing in January 2012, Mark Anthony, PhD, a technical editor for FoodProcessing.com, noted that European Union discount supermarket chain, Lidl, has asked its suppliers to remove synthetic beta-carotene from products and instead use stevia, a natural sugar substitute. Anthony quotes Thierry Gay, vice president of food enhancement systems for Vitiva, a Slovenian ingredient supplier, who suggests that retailers and food manufacturers can use stevia to make a positive statement about food products by explaining the reasons why they reformulated with a natural-origin sweetener.³

Retailers also want F&B companies to deliver more for less. Feeling squeezed by consumers and competitors alike, they want lower wholesale prices and faster delivery of products. They also want to transfer as much risk to their F&B suppliers as possible, as well as gain efficiencies by reducing the number of vendors supplying a given product. This leads to even more pressure on a food and beverage company to outperform its competitors.

Retailers are also putting margin and price pressure on F&B companies by creating more private label products. According to the Private Label Manufacturers Association (PLMA), sales of private label products have increased 40% in supermarkets and 96% in drugstore chains in the past decade. The PLMA reports that the sale of store brands increased 2% in 2011 to \$88.5 billion in the US, an all-time high.⁴

Shareholders want what they always want—more revenue, profit, and a better return on their investment.

2 Jonathan Ellis, "Groceries hire companies to score foods' nutritional value," USA Today, January 11, 2012 (<http://www.usatoday.com/money/industries/food/story/2012-01-09/grocery-stores-rate-foods-nutritional-value/52473432/1>).

3 Mark Anthony, PhD, "What flavors will entice consumers in 2012? Think ethnic fusions, 'authentic' spice blends and exotic fruits," FoodProcessing.com, (<http://www.foodprocessing.com/articles/2012/12/flavor-trends-for-new-year.html>), January 4, 2012.

4 "Store Brands Achieving New Heights of Consumer Popularity and Growth," Private Label Manufacturers Association (<http://plma.com/storeBrands/sbt11.html>), February 2012.

5 The State of Food Insecurity in the World, Food and Agriculture Organization of the United Nations, 2011, pp. 11-12 (<http://www.fao.org/docrep/014/i2330e/i2330e03.pdf>).

Suppliers add to the pressure on F&B companies with higher prices and fluctuations in quality and chemical makeup of the ingredients they deliver. Food commodity pricing appears to be on an upward trend, according to numerous reports, including a report from the Food and Agriculture Organization of the United Nations. The 2011 report, “The State of Food Insecurity in the World;” analyzes food commodity prices, adjusted for inflation, from 1961 to 2010. It found that for most of the period, food commodity prices trended down, but that prices began increasing in 2003 and surged upwards from 2006 to 2008. After a brief retreat in 2008, food commodity prices began to increase rapidly in the middle of 2010. The report predicts repeated food commodity price fluctuations in the years to come.⁵

Regulators are responding to food product safety concerns and environmental concerns with greater oversight and tighter regulations. In recent years, there have been numerous high-profile food recalls, consumer illnesses, and deaths caused by contaminated foods. One in six Americans gets sick from foodborne illnesses each year. In response, the Food Safety Modernization Act was passed by the US Congress in 2011. Considered by the US Food and Drug Administration as the most sweeping reform of food safety in 70 years, the act aims to ensure the US food supply is safe by shifting the focus from responding to contamination to preventing it.⁶

How F&B companies can respond.

With this added pressure from key stakeholders, F&B companies can only succeed if they find a way to deliver more value, faster, and for less cost. A successful response to the current business environment will invariably include more effective management of operational constraints made possible in part by an improved formulation strategy. Food and beverage companies can meet their operational challenges if they:

- **Deliver products with more nutritional value and fewer allergens.** With consumers more focused on quality, including caloric content and allergens like wheat gluten, F&B companies have to reformulate many of their products to increase nutritional value or eliminate undesirable ingredients. Doing this while maintaining existing product attributes for flavor and price can be a formulation challenge.
- **Create more formula agility.** Ingredients like beef, chicken, milk, and even potatoes have inconsistent quality and chemical makeup, and companies have always had to adjust formulation to maintain consistency in their final products. Likewise, disruptions caused by weather and geopolitical issues are not new. What’s different today is the business context. Consumers and retailers have higher expectations for product quality, availability, and price performance. The onus is on the F&B company to create formulas that better mitigate the issues of ingredient variability and availability based on seasonality and unpredicted disruptions. Formulas also have to address the need for products to maintain their nutrition and taste over a longer shelf life.
- **Continually drive down costs.** With the upward trends of food commodity, production, and distribution costs and the downward pressure on pricing from retailers, F&B companies can turn to formulation to produce greater efficiency and lower costs.
- **Minimize environment impact.** More intelligent formulation has a role to play in complying with the growing focus on food safety as well as the need to comply with environmental regulations like minimizing water usage and discharge.

⁵ The State of Food Insecurity in the World, Food and Agriculture Organization of the United Nations, 2011, pp. 11-12 (<http://www.fao.org/docrep/014/i2330e/i2330e03.pdf>).

⁶ US Food and Drug Administration, “FSMA One Year Later,” January 4, 2012, press release (<http://www.fda.gov/Food/FoodSafety/FSMA/ucm285635.htm>).

Least-cost formulation: The view in your business.

Making incremental improvements to existing business processes may help better manage constraints, but this approach is unlikely to do enough. To truly overcome the adverse impact of onerous and fast-changing constraints, F&B companies need a way to work smarter. Adopting least-cost formulation is one of the most promising strategies.

With least-cost formulation, F&B companies can deliver a new, higher level of value to their internal and external stakeholders. Instead of just delivering the basic products that consumers will purchase, least-cost formulation can help F&B companies deliver more product value at the same time they optimize operations to increase revenue and reduce costs.

With this type of business promise, F&B companies need to take a serious look at least-cost formulation. In considering adopting a least-cost formulation solution, F&B companies should look for the following attributes:

- **Analysis.** Does the solution have the ability to quickly analyze complex and variable supply, production, and demand constraints as well as financial considerations to produce quality data on which to make a formulation decision?
- **Automation.** Can formulas be automatically optimized against constraints to save time, avoid disruptions, and increase information clarity and consistency across the enterprise?
- **R&D agility.** Is new product research and development supported by direct access to better internal and supply chain information? Are there capabilities to streamline formulation steps so that new products and reformulations are faster and more responsive to demands?
- **Manufacturing efficiency.** Does the solution give you certainty about your required production levels based on supply, demand, and capacity so that you can minimize manufacturing costs?
- **Supplier visibility.** Does the solution have specific capabilities to facilitate visibility into suppliers' systems to give a true picture of material availability and constraints so that you can procure the right materials at the most advantageous cost and delivery schedule?
- **Distribution.** Does the solution offer specific capabilities to properly cost finished products and optimize warehouse efficiency?

What least-cost formulation is doing for one company.

A large dairy producer is working with Infor to develop and implement a least-cost formulation strategy to optimize its production line. Like any dairy producer, the company must contend with a lot of variability in its raw material supply. In addition to fluctuations in the amount of milk available and where it comes from, there are wide variations in the nutritional content of the raw material. The amount of fat, calcium, and vitamin D in the milk supply varies because the diet of cows varies. But the dairy producer has to maintain consistency in its cheese, ice cream, and yogurt products, and must therefore frequently alter formulas to compensate for raw material variation.

The company is implementing a least-cost formulation strategy designed to optimize formulas for production across multiple constraints, including product specification, cost, inventory, and batch process scheduling. As a result, the company can analyze complex variables and create a least-cost formula in less than five minutes.

For example, the company has a contract to make flavored frozen yogurt according to precise requirements for taste and nutritional content. They are using least-cost formulation to meet these requirements as well as their own cost constraint. Using least-cost formulation to take a holistic approach that includes product criteria and cost, the company is able to produce the frozen yogurt profitably.

The Infor-based least-cost formulation solution allows the dairy company to:

- Optimize production for highest margin formulas.
- Improve collaboration across the enterprise and with supply chain partners.
- Reduce time to market for new products that meet specific customer requirements.

Infor offers a unique approach to least-cost formulation.

Infor has developed a unique approach to helping F&B companies implement a formulation strategy that differentiates their products and helps them gain market share. The innovative new strategy builds on Infor's 30 years of support to the F&B industry and current support for 20 of the world's largest F&B companies.

By integrating capabilities from the Infor Optiva and Infor Advanced Planning solutions, Infor has created a holistic approach to F&B formulation. The Infor least-cost formulation strategy helps F&B companies better understand their operational constraints, analyze the constraints, and automatically create a least-cost formula that also meets all other product requirements.

In Infor's least-cost formulation approach, F&B companies use Infor Optiva to create the product specification based on a customer's requirements. They send the specification to the Infor Planning solution, which creates the optimized formula. Formula information is sent back to the PLM solution, where labels and other packaging information are created. Then they send information to the enterprise resource planning solution for manufacturing.

With Infor's least-cost formulation capabilities, F&B companies can:

- Streamline product development processes. They can simulate and model product formulas to ensure final product attributes meet business objectives and comply with regulations, and precisely manage product specifications.
- Streamline supply chain management process. They can use specially developed constraint-based algorithms to holistically analyze constraints, easily model and compare different strategies and formulations, and calculate the implications of decision options.
- Quickly adapt to changing requirements. Infor least-cost formulation capabilities are easily configurable, making it easy to quickly adapt and change formulas as business needs dictate.

Conclusion.

The business environment today makes it imperative for F&B companies to continually improve their responsiveness to the dictates of consumers, retailers, government regulators, shareholders, and suppliers. Infor believes there is a compelling case for F&B companies to implement a least-cost formulation strategy that optimizes the process for creating new formulas and the quality of every formula. Least-cost formulation can help F&B companies:

- Deliver new products to market faster.
- Better respond to changing consumer demands, meeting or exceeding taste and ingredient requirements.
- Lower production costs.
- Easily meet all food safety and other regulatory requirements.



641 Avenue of the Americas
New York, NY 10011
800-260-2640
infor.com

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