

# Prepared Foods

JUNE 2016  
VOLUME 185, ISSUE 6

## NATURAL ATTRACTION: CLEAN LABEL COLORS

PAGE 90

Beet-Enhanced Mousse Cakes  
with Rich Products' Chocolate  
Un-Iced Brownies and Rich's  
Whipped Topping

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### ALSO INSIDE

Natural, Organic Grows

PAGE 19

Menu Salad Trends

PAGE 29

Protect Kids' Health

PAGE 66

Allergen Controls

PAGE 111

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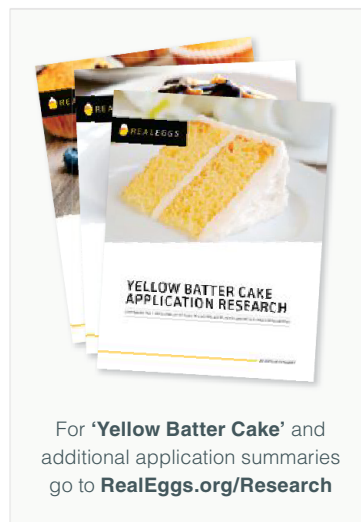
Results revealed differences in visual appearance, texture and taste in traditional yellow batter cake, where eggs outperformed egg replacers. A comprehensive white paper describes the scientific methodology and provides quantitative and sensory data.

You can download a summary of the research at **[RealEggs.org/YellowCake](https://RealEggs.org/YellowCake)**

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## CONTENTS

JUNE 2016  
VOLUME 185, ISSUE 6

90

## COVER STORY

**Natural Attraction**

Clean label concerns are driving widespread change in food, beverage colors.



COVER PHOTO: BEET-ENHANCED MOUSSE CAKES BY  
BRITT-MARIE CULEY, COQUETTE PATISSERIE  
IMAGE COURTESY OF RICH PRODUCTS CORP.

## NEW PRODUCT TRENDS

**11 Hitting the Shelves**

*Prepared Foods* profiles new prepared meal and entrée products. NPD Group data show three main meals are still popular with consumers.

**19 Clearly Growing**

Natural, organic and “free-from” products join the clean label mainstream market.

## CULINARY CREATIONS

**29 On the National Menu**

Technomic finds the right appetizers, mini meals can help restaurants cash in on snack trends.

**31 Plant to Plate**

*PF* profiles new meat, poultry items for restaurants and institutions.

**33 Keep it Simple**

US Foods emphasizes simple ingredients wave of new restaurant products.

**35 Make it with Dairy**

Processors are keeping it real by leveraging dairy’s whole-food “creds.”

**57 Culinary Applications: A Taste for Health**

Product developers tackle a daily mission to make processed foods healthier.

## NUTRASOLUTIONS

**66 Smarter Snacking**

Protein, minerals, vitamins, and nutraceuticals keep snacks healthier—for our kids’ sakes.

**80 Seeds of Change**

As “stealth health” ingredients, nuts and seeds are miniature powerhouses.

**89 Form+Function**

*PF* showcases new functional foods, drinks and supplements.

## INGREDIENT CHALLENGES

**90 Color it Natural**

Where food colorants are concerned, there are unstoppable changes afoot in the industry.

**104 Certified!**

Fast growing non-GMO, organic, and fair trade trends create big opportunities.

## R+D APPLICATIONS

**111 R&D Application Seminars: Allergens**

*Prepared Foods’* R&D Seminar speakers discuss formulating nut-free foods, gluten-free breads.

**114 Abstracts**





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## LATEST NEWS

- Nestlé Targets Lower Sodium
- Dannon to Simplify Ingredients

## SOUPS

- Boulder Organic Introduces Two New Soups
- Asian Inspired Soups & Bone Broths

## SNACKS & APPETIZERS

- Trolli Sour Brite Weird Beards Candy
- Sara Lee Launches Cheesecake Slices

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### OTIS SPUNKMEYER TO CONVERT TO CAGE-FREE EGGS

Otis Spunkmeyer will be introducing cage-free eggs to their sweets starting with their existing retail line in 2018.



### LA BREA BAKERY RESERVE

La Brea Bakery announced La Brea Bakery Reserve: a line of artisan breads made from single origin heirloom grains.



### PROTEIN-PACKED POWERFUL YOGURT

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### NEW PURE FOODS HEADQUARTERS

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# Stay True to the Fruit

**REMEMBER “SUPERFRUITS?”** Before the 2008 economic meltdown, the trendiest ingredients were those exotic produce items called “superfruits.” A formulator could almost bet on success of a product with any colorful and exotic fruit – especially the red, blue, and purple ones – that came loaded with powerful phytochemicals and nutrients like antioxidants, polyphenols, and anthocyanins.

While mainstream fruits such as raspberries and blueberries still held their own, açai, pomegranates and their ilk ruled. Consumers paid a premium for foods and beverages containing vibrant and unpronounceable produce. Then the economy tanked and folks couldn't as readily afford, say, a fruit smoothie made with dragonfruit and goji. And whatever happened to mangosteen?

Whether bellwether of an improved economy or not, recent food and nutrition expos reveal that exotic fruits are coming back. Mintel recently reported a 202% rise in foods and beverages wearing the more general “superfood” moniker in the five years ending in

2015, noting that last year alone saw a 26% jump. Robert Schueller of Melissa's World Variety Produce confirms the trend, noting that passionfruit, dragonfruit, yum berries, rambutan, acerola, aronia berries, pichu berries (also called cape gooseberries, goldenberries and Inca berries), and other exotics are in greater demand than ever. And jackfruit—those spiky green rugby-ball shaped fruits weighing up to 100 lb.—is showing up everywhere.

At last month's Healthy and Natural Show in Chicago, Amafruits LLC was touting those Amazon-sourced nutritional amazons, açai, acerola, cupuaçu, guarana, and graviola. Two months before that, the Natural Products Expo West, in addition to the usual flood of coconut water and chia, exhibited foods and beverages that included pichu, acerola, aronia, and the aforementioned jackfruit (more than half a dozen products, in fact). And, less foreign but just as exotic, the old hippie standbys wheatgrass, bee pollen, and cactus pear are back.



**DAVID  
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For processors, using unusual produce can be a challenge, but the best advice comes from Fiona Poselle, of Produce Communications Inc. (and the genius who almost single-handedly brought pomegranates from esoteric obscurity to appearing in juices, bars, cereals...well, everything short of aluminum siding): “Stay true to the fruit; keep the flavors as pure and authentic as possible; and develop products to enhance its best attributes.”

Oh, and mangosteens? A naturally occurring but harmless yellow discoloration *gamboge* from years of heavy rainfall hampered exports and drove up costs. But the good news, according to Melissa's Schueller, is that a bumper crop of mangosteen and many other fruits (super and otherwise) is hitting the market even now. Developers, it's time to get creative! **PF**

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**Opening Keynote Address**

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A global insights leader, Mintel Group routinely analyzes and reports on new finished product trends and tastes. As an exclusive for Prepared Foods, Mintel Director of Innovation Insights Lynn Dornblaser steps back to look at the actual ingredients + ingredient trends that are driving finished product trends. Why have certain ingredients emerged to take the spotlight? What new ingredients may be driving trends in 2017? Dornblaser uses retail and foodservice and even global research to look at the immediate past, present and future.

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# Hitting the Shelves



## CHEESE MEETS MAC

Cracker Barrel Cheese, a brand honored with more than 280 cheese industry awards, has met its match: macaroni. New Cracker Barrel Macaroni & Cheese is debuting in the boxed dinner aisle and The Kraft Heinz Company, Chicago, is running a creative campaign centered on award-winning taste.

“Cracker Barrel has such a rich history of cheese-making, known and loved for its smooth creaminess and bold sharpness,” says Johnni Rodgers, Kraft Heinz brand manager-Meal Solutions. “A natural next step was to combine our award-winning cheddar with macaroni—bringing a premium and authentic offering to the boxed dinner aisle.”

Cracker Barrel Macaroni & Cheese is available at major retailers in four varieties: Sharp Cheddar Macaroni & Cheese, Sharp White Cheddar Macaroni & Cheese, Cheddar Havarti Macaroni & Cheese and Sharp Cheddar & Bacon Macaroni & Cheese. Cartons note that products are free from artificial flavors and dyes.

The Cracker Barrel Macaroni & Cheese creative campaign, titled “Award Winning,” debuted in April across TV, digital, social, and in-store. The campaign focuses on the idea that Cracker Barrel cheese outranks other awards—from dog shows to spelling bees—and suggests that the most important award is an award worth eating.



## FROZEN GOURMET

After a successful launch of made-from-scratch appetizers, entrees and sauces, Walmart and Chef Jennifer McCullough are introducing two more Chef Jenn shortcuts to convenient cuisine: a Seafood Mac & Cheese and Shrimp & Cheese Grits.

The gourmet frozen food offerings are available in Walmart stores in 17 states.

“Walmart is thrilled to expand the Chef Jenn offering in our stores to provide our customers with even more delicious and convenient mealtime choices featuring their seafood favorites,” says Walmart Senior Seafood Buyer Catherine Johnson.

Officials say Chef Jenn got her start catering elegant dinners and large celebrations and she developed crave-worthy dishes using family recipes and fresh ingredients in her home kitchen in Memphis, Tenn.

“Having my dishes in Walmart stores for households across America to enjoy is a dream come true,” says McCullough. “I was ecstatic to originally be selected as a part of Walmart’s 2013 Open Call event for made in the USA products, and now am overjoyed to roll out additional Chef Jenn products in Walmart stores.”



## MOUTH MEETS SOUTH

Tanya M. Howard, founder & CEO of Mouth Meets South, is introducing a down-home cuisine product to dinner tables. Howard, a former Associated Press reporter and corporate affairs professional in Suffolk, Va., launched an Indiegogo campaign in January.

“I’m very excited to bring Mouth Meets South to consumers who love delicious soul food and Southern cuisine,” says Howard. “Mouth Meets South honors the history of these delectable, savory, satisfying foods, passed down for generations, and representing culture, tradition, comfort, and home.”

The traditions associated with Southern cuisine date back hundreds of years. Familiar recipes – all of which will be featured in Mouth Meets South products – include barbecue ribs, fried chicken, fried catfish, smothered pork chops, macaroni and cheese, corn pudding, steamed cabbage, black-eyed peas and more.

In keeping with its core values, Mouth Meets South says it combines farm-fresh ingredients with the latest in flash-freezing technology to ensure taste and nutritional value are locked in. The company will also be competitively priced and convenient for busy families seeking a way to bring everyone together at the table. Mouth Meets South meals are ready to serve in minutes.



## MEN'S HEALTH

Rodale Inc. says *Men's Health*, the largest men's magazine in the world and best-selling men's magazine in the UK, introduced Men's Health Kitchen, a new line of branded frozen entrees in the UK.

"The *Men's Health* brand is the largest, most trusted lifestyle brand in the world," says Rob Novick, senior vice president, International, Business Development & Partnerships at Rodale Inc. "Our new line of frozen meals and snacks provides men with the tools they need to continue leading healthy, successful and active lifestyles and makes it easy for them to navigate and shop for well-made, nutritious meal options."

The Men's Health Kitchen line, produced in partnership with Kerry Foods, features nine high-protein packed frozen entrée options, including:

- Thai Red Chicken Curry with Spinach & Wild Rice
- Chicken Tikka Breast with Aubergine & Lentil Dahl
- Chicken Tagine & Chickpeas with Bulgur Wheat
- Chickpea & Spinach Dahl with Brown Rice
- Beef Brisket & Beetroot with Brown Rice
- Pulled Beef & Kale with Sweet Potato Hash
- Chilli Beef & Okra with Wild Rice
- Thai Salmon & Edamame Beans with Wholewheat Noodles
- King Prawns & Pomegranate with Persian Rice

"Men's Health Kitchen has been developed closely between the Kerry and the Men's Health UK team. The expertise of both teams has come together to create a truly great tasting range, full of protein and flavour," says Charlotte Bourne, brand manager at Kerry Food.



## GROWING LINE

Already known for its frozen burritos and entrees, EVOL Foods, Boulder, Colo., expanded its product line to include lasagnas and gluten-free enchiladas.

"We pride ourselves on our dedication to innovation here at EVOL," says Philip Anson, EVOL Foods founder. "We strive to provide our customers with delicious food options and unique flavors that don't sacrifice nutrition, flavor or convenience. Our new lasagnas and enchiladas are a natural evolution of that innovation."

New offerings include:

**Lasagna & Meat Sauce:** Lasagna layered with an herbed ricotta cheese blend and garlic and red wine tomato meat sauce topped with mozzarella cheese.

**Butternut Squash Lasagna:** Vegetarian lasagna layered with savory cream sauce, butternut squash, a ricotta cheese blend, spinach, carrots and red bell peppers topped with parmesan and mozzarella cheese.

Both items contain 430 calories and carry a suggested retail of \$3.99 to \$4.99.

**Chicken Enchiladas:** Corn tortillas stuffed with cheddar cheese, tender chicken, rice, black beans, bell peppers, roasted corn, cilantro and lime juice. Covered in a spicy red enchilada sauce

**Vegetable Enchiladas:** Corn tortillas stuffed with black beans, rice, zucchini, cheddar cheese, bell peppers and roasted corn—covered with salsa verde.

EVOL Foods' products have no artificial flavors or coloring. The company says its chicken, beef and pork are raised in the USA without the use of antibiotics or hormones and never fed animal by-products. Eggs come from hens that have not been confined to a cage and cheese is free from added hormone.



## PROTEIN PASTAS

Explore Cuisine, Red Bank N.J., offers three new plant-based pasta lines. They include Pulse Pastas, Bean Pastas and Thai Rice Protein Pastas.

Explore Cuisine Pulse Pastas represent the company's newest line. The pasta is made from organic lentils and organic chickpeas. The pasta is high in protein, a good source of fiber and is certified vegan, organic, and gluten free. Varieties include Red Lentil Penne, Green Lentil Penne, Chickpea Fusilli, Red Lentil Spaghetti, Chickpea Spaghetti, Green Lentil Lasagne Sheets.

Explore Cuisine Bean Pastas are made with organic beans and include 20-25g of protein and 11g of fiber per serving. Varieties include Adzuki Bean Spaghetti, Black Bean Spaghetti, Edamame Spaghetti, Soybean Spaghetti, Edamame and Mung-bean Fettuccine.

Pulse- and Bean-based pastas come in 8oz packages and carry a suggested retail of \$4.99.

Explore Cuisine also introduced Organic Thai Red Rice and Organic Thai Brown Rice pastas. Three short-cut pastas cook up in minutes and each are gluten-free. Varieties include Red Rice Elbows, Brown Rice Rigatoni and Brown Rice Fusilli.



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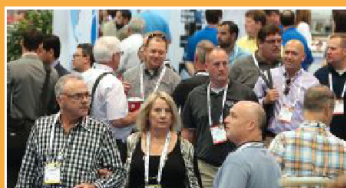
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# Three Meals Still Appeal

It's fact that US consumers snack a lot — between meal snacking accounts for about a third of all eating occasions — but they continue to view the day as generally having three main meal occasions that align with breakfast, lunch, and dinner, according to NPD's daily tracking of eating and snacking behaviors.

“There is a lot of buzz about snacking these days. One headline could talk about how snacking is up and another might say we graze throughout the day instead of eating a main meal,” says Darren Seifer, food and beverage industry analyst and author of *Snacking in America*. “While those headlines are eye grabbing and give people something to talk about, it's important to read past them and dig into the details. The opportunities are uncovered by the details and not the headlines.”

**SNACKING—AND TALKING** about how much US consumers snack—is all the rage. However, contrary to popular belief, Americans still do eat three main meals a day, reports The NPD Group.



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US consumers' adherence to three main meals is primarily culture-based. Daily societal norms in the US are typically scheduled around meal times; going to work and school after breakfast, taking a break for lunch, being home by dinner. This conditioning begins at a young age when kids are held the closest to the standard three meals per day by their parents. As individuals get older, they begin skipping meals with a dip in their hectic twenties and then again later in life. Even though more meals are skipped as people age, the average remains just under three meals per day as consumers try to maintain the practice learned as kids.

Although consumers still hold to three main meals a day, there is a shift in what consumers eat at these meals.

The number of dishes and ingredients used to prepare main meals continues to decline as more consumers rely on "healthy" portable snack foods to be a part of their breakfast, lunch, and dinners. As the sizes of our meals shrink and people continue to incorporate more traditional "snack" foods into main meal menus, the perception is they are grazing or snacking more. These mini-meals, however, are not adding new or additional occasions to the day and consumers continue to eat three main meals each day.

### Breakfast Booming

The consumption of breakfasts and morning snacks, in- and away-from-home, is forecast to grow faster than the US population over the next few years, reports The NPD Group.

In a separate report, NPD says total breakfast occasions, in- and away-from-home, are forecast to grow by 5% through 2019, ahead of the expected population growth of 4%. Annual morning snack occasions per person, in- and away-from-home, have increased by 17% during the past six years, according to NPD's continual tracking of U.S. eating behaviors.

Even with the strong growth of away from home breakfasts, the majority, 70%, of breakfast meals are consumed in the home. The average annual number of breakfast occasions per person in 2015 was 361, up 11 occasions per person from 2010. The motivations behind breakfast are generally convenience, satiation, and healthfulness but these factors can vary by generational group and life stage, according to NPD's recently released NPD generational study. In-home, consumers, particularly young adults, are turning to more involved breakfast foods such as eggs and "traditional" breakfast foods. Better-for you snack foods, like fruit, yogurt, granola bars, are among the top choices for morning snacks. **PF**

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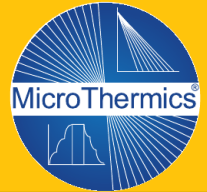




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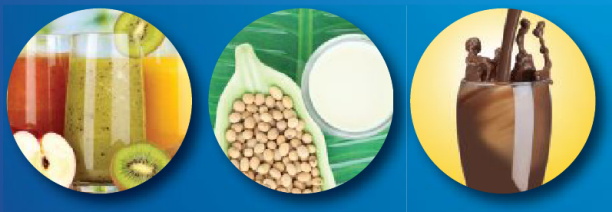
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# Clearly Growing

Natural, organic and “free-from” products join the clean label mainstream market.



**Last year, organic claims featured in more than 50% of new baby/toddler foods, says Innova Market Insights.**

**IT'S BEEN NEARLY 10** years since Innova Market Insights identified interest in natural and organic options as among its top trends. Today, despite concerns over the definition and use of the term “natural” in some quarters, there’s been continued growth in products marketed on natural or clean label platforms.

Nearly 25% of total global new product launches recorded by Innova Market Insights in 2015 used one or more claims relating to “natural,” organic

certification or freedom from additives and preservatives.

Those new product claims are up from fewer than 20% during 2013 and 17% in 2011. Meanwhile, these claims were even more popular in the US during 2015, with more than 31% of new products making one reference or another.

Interest in organic products has risen steadily in recent years, with nearly 9% of global 2015 food and drinks launches recorded by Innova Market Insights

positioned on an organic platform, rising to 11.5% in the US. The global organic foods market is now valued at over US\$80 billion a year, led by the US with a market of over \$35 billion, although estimates vary markedly according to source and definition (particularly as to whether natural foods also are included).

The most significant categories for organic launches in the US are soft drinks with 11% of the 2015 total,

## KEYPOINTS

1. Nearly 25% of total global new product launches recorded by Innova Market Insights in 2015 used one or more claims relating to “natural,” organic certification or freedom from additives and preservatives.
2. Interest in organic products has risen steadily in recent years, with nearly 9% of global 2015 food and drinks launches recorded by Innova Market Insights positioned on an organic platform, rising to 11.5% in the US.
3. The most significant categories for organic launches in the US are soft drinks with 11% of the 2015 total, sauces/seasonings with 10%, cereals with just under 9% and snacks with just over 8%. In terms of importance to their sector, however, it is baby/toddler foods that lead, with over 53% of 2015 launches using an organic positioning.
4. While organic claims were used on 23% of launches overall in 2015, this rises to 29% in juices/juice drinks and to a massive 45%-plus in iced tea, says Innova Market Insights. Clean label claims are generally relatively high in soft drinks, with more than 48% of launches carrying one or more claims relating to naturalness, freedom from additives and preservatives or organic certification.

saucers/seasonings with 10%, cereals with just under 9% and snacks with just over 8%. In terms of importance to their sector, however, it is baby/toddler foods that lead, with over 53% of 2015 launches us-

ing an organic positioning, ahead of cereals, where 26.5% of introductions were organic, soft drinks with just under 23%, hot drinks with just over 21% and fruit and vegetables with over 20%.



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### **Cereals, Bars, Snacks**

Innova Market Insights divides the cereals category into two main areas: breakfast cereals and cereal/energy bars. Cereal/energy bar launches just outstripped breakfast cereals with 51.5% of 2015 introductions using a natural and/or organic claim. Despite concerns over amounts of sugar in some products, both sub-categories have a fairly healthy image and Innova finds a relatively high number of health claims used.

Clean label concerns have been a key focus in recent years. Nearly half of all launches used one or more claims relating to naturalness, freedom from additives and preservatives and organic certification in 2015, rising to nearly 52% for cereal/energy bars. Organic claims play a significant role in this, used on just over 27% of cereal/energy bar introductions and just under 26% of breakfast cereals.

The cereal/energy bars sub-category encompasses a wide range of products, including granola or muesli bars and breakfast bars, as well as nutrition, energy and performance bars. With rising levels of competition, however, many products now seek points of difference by combining features and blurring definitions. A wide range of products now use organic claims, including both specialist and more mainstream lines.

New product activity abounds. Spring 2015 saw Clif Bar & Company, Emeryville, Calif., introduce an entirely new seven-item line of CLIF Organic Trail Mix Bars. Flavors include Coconut Almond Peanut, Cranberry Almond, Dark Chocolate Almond Sea Salt, Dark Chocolate Cherry Almond, Dark Chocolate Peanut Butter, Dark Chocolate Pomegranate Raspberry, and Wild Blueberry Almond.

There also are smaller active players like GoMacro Inc. This Viola, Wis., plant-based foods company specializes in products that are USDA Certified organic, Non-GMO Project Verified, vegan certified, kosher certified, gluten-free certified and soy-free. After an initial three-item launch of new GoMacro Thrive bars in spring 2015, GoMacro came back this year with a repackaged, expanded line of Thrive bars including Caramel Coconut, Chocolate Peanut Butter





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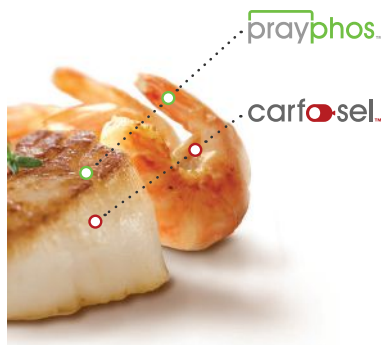
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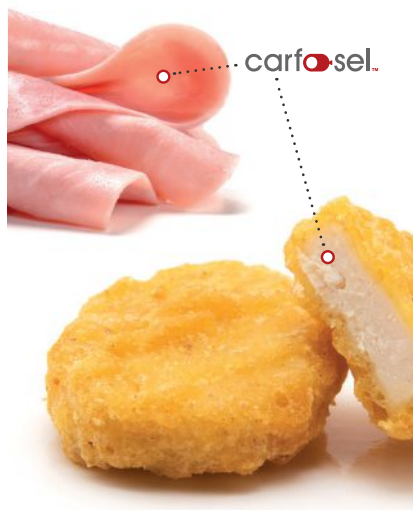
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## NEW PRODUCT TRENDS



While organic claims were used on 23% of launches overall in 2015, this rises to 29% in juices/ juice drinks and to a massive 45%-plus in iced tea, says Innova Market Insights.

Chip, Blueberry Lavender, Ginger Lemon, and Almond Apricot varieties.

Another interesting introduction comes from Manitoba Harvest Hemp Foods, Winnipeg, which created a Hemp Heart Bar extension to its range of hemp-based products. The new bar features vegan and organic claims and touts high levels of omega 3 fatty acids and protein.

In the breakfast cereals market, granola continues to be a key growth area and one that has seen ongoing activity in organic op-

meal solutions for eating on the go. Organic claims were used for 14.5% of US snack launches in 2015, rising to more than 30% for fruit-based snacks and falling to single figures for finger foods/hors d'oeuvres.

Snack nuts and seeds sit around the average figure of 14.5%, just ahead of savory/ salty snacks with just over 13%. Just under 11% of meat snacks launches featured organic claims in 2015, but there was some interesting activity, including Organic Prairie's Mighty Bar, introduced as America's

Organic options also have a relatively high penetration level in the soft drinks category, where health perceptions already are fairly high, particularly for beverages containing fruit and tea.

tions—both from branded producers and retailers. Specialist organic brands such as Cascadian Farm and Nature's Path are being joined by retailer's private label healthy and clean-label offerings. These include Aldi's Simply Nature and Target's Simply Balanced lines, which both include cereal products.

The snacks sector is closely related to the cereal bars market. In fact, both target convenient meal replacement or in-between

first 100% grass-fed organic beef snack. Also marketed as high in protein and gluten- and nut-free, there were two varieties debuting: Uncured Bacon & Apple and Cranberry & Sunflower Seed.

### Juices, Teas

Organic options also have a relatively high penetration level in the soft drinks category, where health perceptions already are fair-



ly high, particularly for beverages containing fruit and tea. While organic claims were used on 23% of launches overall in 2015, this rises to 29% in juices/juice drinks and to a massive 45%-plus in iced tea.

Clean label claims are generally relatively high in soft drinks, with more than 48% of launches carrying one or more claims relating to naturalness, freedom from additives and preservatives or organic certification. Organic claims feature relatively strongly in this, with total numbers well ahead of those for natural claims (15% penetration) and only slightly behind those for no additives/preservatives (just under 24%).

Ongoing concern about soft drink sugar levels has boosted interest in the use of natural sweeteners, such as stevia. Products also are being formulated with organic stevia leaf. It was one of the featured ingredients in Loft Tea's new React, Recharge and Renew tea drinks. Likewise, Honest Tea reformulated its Honest Fizz line of zero-calorie soft drinks with organic stevia and now the offerings—including a new Ginger Ale variety—are entirely organic.


Use of organic ingredients in juices and juice drinks has spread from more common fruit varieties to the more unusual. Other 2015 launches included an organic Beet Juice from Love Beets; a calamansi citrus juice drink with organic cane sugar and organic honey from Vita Mansi; and a range of fruit drinks based on açai from Sambazon. Varieties include Açai Berry, Strawberry Lemon & Açai and Pineapple Coconut & Açai.

Other more unusual ingredients featuring in organic drinks included lettuce in the organic tea drinks from Complex Beverage, Tampa, Fla.; and turmeric in the Orange Turmeric Juice line from Uncle Matt's Organic. The ancient grain chia also continued to find favor as the Mamma Chia range of chia-branded food and drinks was extended with drinks featuring organic chia and greens. The drinks combine chia seeds with green vegetables such as kale, spinach, broccoli, spirulina, barley grass and

wheat grass. With names such as Joyful Greens, Grateful Greens, Love Greens and Soulful Greens, all the drinks are non-GMO, gluten-free, vegan and kosher, as well as organic.

## Dairy Developments

Dairy is another important category where organic new products have a high profile. Innova Market Insights found that 12.5% of 2015 new dairy product



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**Cereals, bars among the most active new product categories with organic and other healthy claims.**

launches were positioned on an organic platform. Yogurt had the largest number of organic launches, with 33% of the total, ahead of cheese with 19%. The share of organic lines in cheese introductions was relatively low, however, at about 6%, compared with just under 16% for yogurt and just over 14% for milk and milk drinks.

There are some very strong and well-established organic brands in the dairy market running alongside newer entrants and organic options under mainstream umbrellas. There are two organic brands in the top 10 suppliers to the milk market through multiple

retailers, for example. Horizon Organic (Whitewave Foods) is the leading branded player in the private-label dominated sector overall, while Organic Valley takes eighth place in low-fat milk and ninth in whole milk.

While the overall milk market is in decline, the relatively small whole milk sub-category has seen a stronger performance in recent years, with volume and value increases in 2015. Both Horizon Organic and Organic Valley saw particularly good growth in their branded whole milk sales, with double-digit volume and value increases for both brands resulting in them

strongly outperforming the category as a whole.

Horizon Organic and Organic Valley also have been extending their product lines. New offerings have included with grass-fed varieties including drinking milks, but also grass-fed organic milk ingredients in butter, cheese and yogurt. Other new offerings have included lactose-free lines, protein shakes, hand-held milk-and-fruit pouches and snacking cheese.

Last year saw Organic Valley introduce what it claimed was the US' first organic adult cheese snacks. New Snack Sticks came in Medium Cheddar and Pepper Jack flavors and are made with organic, non-GMO milk from pasture-raised cows. For its part, Horizon Organic introduced its Shapes cheese bites in Cheddar and Colby flavors. Horizon Organic also has extended its brand further into snacks with a range including fruit snacks and crackers.

Organic yogurt pioneer Stonyfield Farms (now part of the Danone group), also has extended its organic range. It targeted rising interest in whole milk with its 2015 introduction of Oh my

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The Dannon Company, Inc. April 27, 2016

**Dannon pledge includes section dedicated to ingredient sourcing, “naturalness” and wholesomeness.**

Yog!, a whole milk triple-layered yogurt with a layer of fruit on the bottom, honey-sweetened whole milk yogurt in the middle and cream on top. Stonyfield followed this in 2016 with a range of whole milk Organic 100% Grassfed Yogurts in Plain, Vanilla, Strawberry and Blueberry varieties.

It's clear that clean labeling has moved on beyond being a trend and is now regarded as more or less standard in the food industry, with consumers demanding shorter and more recognizable ingredients lists and manufacturers responding by increasingly highlighting the naturalness and origins of their products.

This interest in naturalness has kept organic claims in the spotlight, although rising levels of competition mean that organic claims alone may not now be enough. Many companies are focusing on additional benefits including local ingredients and sourcing, additive- and GM-free formulations, and unusual and premium-style recipes and flavors, including the use of seasonal and limited edition lines. **PF**

*Lu Ann Williams is director of innovation at Innova Market Insights, provider of market research services including the Innova Database. With 20 years' experience in the food industry, Lu Ann is a trend expert and frequent public speaker at events worldwide. She leads a team of analysts and works with global clients. Contact her at [luann.williams@innovadatabase.com](mailto:luann.williams@innovadatabase.com)*





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# Snack Attack

Balance is crucial to meeting diverse needs for snacks.

**SNACKING CONSUMPTION** has been on the rise since 2012, but the most notable growth has come in the past two years. The percentage of consumers snacking on a daily basis grew from 76% in 2014 to 83% in 2016, according to the Technomic “2016 Snacking Occasion Consumer Trend Report.”

The increase in snacking creates an opportunity in foodservice to capture these high-margin occasions. Research shows consumers’ snacking needs vary—from meal replacement to a supplemental, indulgent treat to tide them over until the next meal.

Consumers are most likely to snack in the afternoon while waiting for dinner, and more than half (51%) say healthfulness is important when reaching for a snack. A variety of innovative, healthful snacks at foodservice could help drive snack purchases and increase business in the non-peak hours between lunch and dinner.

Operators can differentiate healthful snack offerings by featuring a greater variety of unique flavorings for nutritious snacks, such as chili lime-seasoned carrots or jalapeño-honey hummus, and by highlighting the added, nutritious aspects of snacks, such as protein-rich items.

Superfood snacks are impacting the foodservice space, with trending items like kale and acai bowls, which feature acai and toppings such as fresh fruit, seeds and nut butter. These items are beginning to infiltrate top chain restaurant menus, but their high prices could be cost-prohibitive for many top chain concepts. As a result, chains will likely simplify these items with a few key ingredient choices, such as bananas, strawberries and granola for acai bowls.

Frozen dessert chain Red Mango recently launched a line of smoothie bowls; they feature a thick smoothie with fruit and other toppings and come in three varieties: Power Berry Protein, Acai Berry Banana and Green Colada. Earlier this year, Chick-fil-A replaced its side of coleslaw with a selection of superfood sides, including a kale and chopped Broccolini salad with dried sour cherries and roasted nut blend in maple-vinaigrette dressing.

Although more consumers seek healthy snacks, more than a third of patrons (35%) also use snack occasions to treat themselves, providing operators a chance to promote indulgent, craveable items. For example, Wienerschnitzel recently rolled out loaded potato tots—including Chili Cheese Po’Taters with potato tots, chili and Cheddar; Blazin’

Po’Taters with chili-cheese potato tots topped with jalapeños and hot sauce; and Meat Lovers Po’Taters with chili-cheese potato tots topped with pepperoni and bacon.

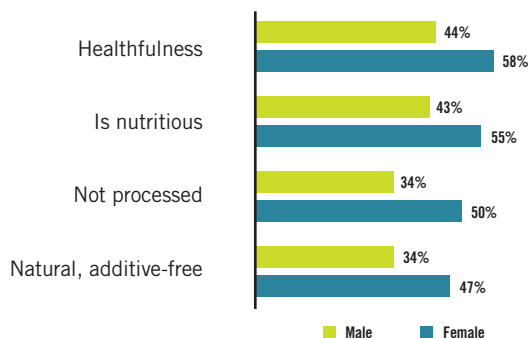
Sweet snacks, like doughnuts and ice cream treats, also could serve as between-meal desserts. Indulgent items with health-halo attributes—such as natural, not processed or additive-free—can be more enticing to consumers. Sonic Drive-In recently launched a line of Creamery Shakes made with slow-churned, hand-mixed ice cream in flavors like Wildberry & Lavender with blackberries, California strawberries and lavender; Bourbon Brown Sugar with oak barrel-aged bourbon flavor; and Vanilla Bean, made with Madagascar vanilla beans.

Balancing healthful and indulgent snacks can be tricky, but offering a mix of these items will go a long way to meeting the diverse needs of consumers. With more consumers seeking snacks, foodservice providers would be wise to offer a variety of healthy, craveable snacks to capture these high-margin occasions. **PF**

*Darren Tristano is president of Technomic Inc., a Chicago-based foodservice consultancy and research firm owned by Winsight. Since 1993, he has led the development of Technomic’s Information Services division and directed multiple aspects of the firm’s operations. For more information on Technomic’s “2016 Snacking Occasion Consumer Trend Report,” visit [www.technomic.com](http://www.technomic.com).*

## Talking Snack

“Please indicate how important the following factors are when choosing snacks.” (Important & extremely important)



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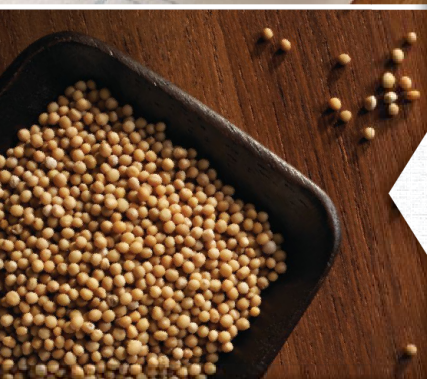
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### ANTIBIOTIC FREE

Perdue Foodservice, Salisbury, Md., says 100% of the Perdue Turkey line will now be part of a “NO ANTIBIOTICS EVER” portfolio. Separately, the company introduced Perdue Harvestland USDA Certified Organic Fresh and Frozen Chicken.

PERDUE Turkey product offerings include a wide range of roasts – from premium pan roasts and raw roasts to oven-roasted turkey breasts – as well as sliced meats (pictured), burgers, franks, sausages and breakfast meats.

Perdue says a recent Technomic survey found that 86% of consumers would like restaurants to be more transparent about what goes into their food, with 72% of consumers reporting being more concerned about food additives than they were two years ago.

With this conversion, the entire Perdue Foodservice turkey portfolio is now NO ANTIBIOTICS EVER. Perdue Foodservice now offers more than 150 NO ANTIBIOTICS EVER chicken and turkey foodservice products to operators nationwide. As with the company's NO ANTIBIOTICS EVER chicken products, the newly converted PERDUE Turkey products are fed an all-vegetarian diet, with no animal by-products.

New Harvestland Organic Frozen Chicken is available nationwide in the following formats: whole bird, boneless skinless breast and boneless skinless thighs. Harvestland Organic Fresh Chicken is available in select Eastern markets in those same formats.



### SOUS VIDE PROTEINS

JTM Food Group, Harrison, Ohio, is expanding its line of clean-label products with new Sous Vide Diced Beef, Pork or Turkey. The single-ingredient products are allergen free, gluten free, naturally lower in fat, and have no added sodium or additives. The fully cooked, diced proteins are prepared using the sous vide method of cooking.

“Today's schools are looking for versatile, minimally processed products that they can use to create a variety of different dishes,” says Executive Chef Robert Lafond, JTM's director of culinary services. “These products are perfect for speed-scratch, or what we like to call, ‘fresh-scratch’ recipes.”

Products come packed frozen in a 30lb master case containing six boilable/steamable bags. All products meet the protein requirements for the school lunch segment and come with a Processor Formulation Statement (PFS Sheet). The line consists of the following:

- Sous Vide Diced Beef (USDA Foods Accepted: 100156 Beef Special Trim)
- Sous Vide Diced Pork (USDA Foods Accepted: 110138 Pork Leg Roasts)
- Sous Vide Diced Turkey (USDA Foods Accepted: 100883 Turkey Thighs)



### PREMIUM HAMS

Butterball Foodservice used the National Restaurant Association convention to introduce a line of premium pork hams for chefs and restaurant operators. Naturally gluten free and 96% fat free, the natural juice hams are made with premium pork cuts, no fillers and no added steroids or hormones.

“Based on our research results, it was clear we had an opportunity to extend our offerings to include more proteins,” says Richie Jenkins, senior director of marketing for Butterball Foodservice.

New varieties include:

**Honey Ham**—The sweetest ham flavor, made with pure honey and crafted with a “honeycomb” pattern

**Black Forest Ham**—A classic favorite, made with the perfect balance of slightly sweet and smoky flavor

**Virginia Baked Ham**—A southern-style ham that's oven baked—instead of smoked—to emphasize the ham flavor

Whether they are used alone or to complement other deli meats in sandwiches, these popular ham varieties can help chefs push flavor boundaries with pork. In addition, Butterball says foodservice operators will find equity in using the Butterball brand on their menus. Butterball ham ranked as the number two most considered brand in consumer surveys before the hams were even available.

Butterball LLC, Garner, N.C., is the US' largest producer of turkey products.

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# Keep it Simple

## US Foods emphasizes simple ingredients wave of new products



**Stacie Sopinka, VP-Product Development & Innovation**  
US Foods

**EVERY SPRING BRINGS** so many seasonal changes that consumers can see outside. It also can mark several changes—inside—to their favorite restaurant menus. This spring saw US Foods, one of the nation's largest food-service distributors, launch 20 new items for customers' spring menus.

The Rosemont, Ill.-based firm offers more than 350,000 products, including its own brands such as Chef's Line, a line of "chef-inspired" scratch-quality products; and Rykoff Sexton, which features premium specialty ingredients. The company's product development team develops these and other exclusive offerings at its headquarters. Leading that effort is Stacie Sopinka, vice president, product development and innovation.

"Our team's mission is to bring chefs and restaurateurs on trend products that can inspire their menus, attract more diners and optimize their operations throughout the year," says Sopinka. "With 82% of operators looking for

products with clean ingredients, we are excited to introduce these 20 items that are bold in flavor and simple in ingredients, so they can create buzzworthy dishes that will keep their diners coming back for more."

### 2016 is "Year of the Veggie."

"In 2016, vegetables are taking center stage, moving from a side dish to center of the plate," says Sopinka. "One of the fastest rising stars that many have dubbed 'the new kale' is cauliflower, which has become a favorite for those looking for alternatives to high-carb, starchy foods."

Cauliflower is a versatile ingredient that can be transformed into everything from pizza crust to no-rice pilaf to fritters, and US Foods introduced its Cross Valley Farms Riced Cauliflower to make it easier for chefs and restaurateurs to cater to diners looking for this trend. The cauliflower is freshly pre-minced, which saves time in the kitchen, loaded with vitamins and minerals and allows



**The New Kale:** US Foods says cauliflower is an up-and-coming ingredient. Here, rice cauliflower forms a healthy pizza crust.

chefs to get creative with the ingredient and make it their own.

### Appetite for Appetizers

Sopinka says patrons also are opting for an array of starters in lieu of entrees. US Foods' new appetizer offerings include a Chef's Line Bavarian Soft Pretzel, as well as two dips and spreads.

Sopinka notes that beer cheese has grown 145% on menus during the past four years. A new Molly's Kitchen Beer Cheese Dip combines craft beer, sharp cheddar and Romano cheese to create a versatile dip, sauce or cheesy topping. Also joining the lineup is Glenview Farms Spreadable Brie, which she describes as "a rich, buttery spread that pairs perfectly with anything from carrots to crackers."

### Beverage Trends Lead to the Bar

US Foods found that it's a challenge for restaurateurs to find higher end bar mixes that are available nationally. As a result, the company introduced its Rykoff Sexton Bloody Mary Mix, which provides a fresh, tomato flavor with a hint of spice. Limeades are also on the uptick. The Rykoff Sexton Watermelon Limeade combines fresh watermelon and Persian limes to create a refreshing tang that can stand alone or be mixed into craft cocktails and sorbets.

"As you can see, simple is really taking center stage in restaurants and uncomplicated, quality ingredients that are fresh and full of flavor are becoming increasingly important to diners," says Sopinka. **PF**





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# Make it with Dairy

Processors are keeping it real by leveraging dairy's whole-food “creds”



SOURCE: DAIRY INSTITUTE OF CALIFORNIA (WWW.DAIRYINSTITUTE.ORG)

**A GENERATION** ago, consumers and food industry professionals alike shied away from real dairy ingredients, such as cheese, cream, and butter, for the likes of processed cheese food, non-dairy creamers, and oleo margarine.

At the time, motivations included the broader functionality and shelf-stability of the ersatz products compared to real dairy. Other factors were their comparative cost advantages and the prevailing nutritional thinking at the time—since disproven—that whole dairy's saturated fat was disproportionately, and perhaps uniquely, responsible for conditions such as obesity, hyperlipidemia, and diabetes.

The current era of exalting everything “real” is turning processors away from the artificial and highly processed ingredients that once were principal tools in food formulators' kits. For dairy, this paradigm shift heralded a revival of the real cheese, cream, butter, and other ingredients once replaced by artificial alternatives.

The popularity of real dairy reflects a broader movement among today's consumers that underscores the extent to which they're “so much more interested in where food comes from, and how it's produced, as compared to the consumers of years ago,” says Barbara O'Brien, president, Innovation Center for US

Dairy. “While taste, convenience, and affordability still are mainstays influencing purchases, several other factors now come into play, including healthfulness, sustainability, an expanded definition of food safety, transparency, and social good.”

That's a tall order for a soup or sauce, but it's increasingly the standard by which shoppers judge their food choices. Sources, such as the 2015 International Food Information Council's “Food and Health Survey” and research from Edelman and Innova Market Insights reveal that for 78% of

## KEYPOINTS

1. Many culinologists are returning to real dairy ingredients as processors recognize the comfort, taste, and health advantages of authentic dairy performance and flavor.
2. Ingredient companies have been hard at work developing full lines of natural dairy flavors that provide a complete range of regions, strengths, sources, and specificity.
3. Lactose-sensitive individuals often are able to enjoy lower lactose, goat dairy products in place of cow's milk-derived ingredients.
4. Keeping textures, colors, and flavors consistent can be a challenge with organic, grass-fed dairy ingredients that change with seasons and regions. Some of these challenges can be addressed through processing techniques and even be turned into a marketing advantage.



consumers, food choice is tantamount to “a statement about who they are;” 70% take into account how the food they purchase is farmed or produced. Overall, 88% “have given thought to the ingredients in

their food,” and 75% believe ingredients on food labels should be “recognizable.”

Yet even as they’re ticking all these boxes, consumers don’t want to give up a great food experience, nor do they want

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to settle for poorer taste. This is why real dairy is the right choice for right now.

“Dairy has a great story to tell,” says Greg Miller, PhD, chief science officer for the National Dairy Council.

“Milk, most cheeses, butter, yogurt, buttermilk, and even whey fractions typically are considered traditional foods with minimal processing,” placing them within consumers’ concepts of what real actually means. “Real dairy equals authentic taste, premium perception, and a clean label,” Miller emphasizes.

Tim Millson, CEO of LaLoo’s Goat Milk Ice Cream LLC, agrees. “The key factor for most of our consumers is maintaining a small ingredient list,” he says. The truth is, precious few cost-effective substitutes adequately replicate the texture, taste, and flavor of real dairy—especially the emerging and highly trendy goat’s milk—without introducing artificial flavors and colors, emulsifiers, sweeteners, or partially

SOURCE: GLANBIA NUTRITIONALS INC. (WWW.GLANBIANUTRITIONALS.COM)



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## CULINARY CREATIONS



SOURCE: MAPLE HILL CREAMERY LLC (WWW.MAPLEHILLCREAMERY.COM)

Risks from properly handled, properly manufactured raw-milk products such as cheeses have proven to be minimal.

hydrogenated oils (GRAS status for which the FDA recently revoked).

As Millson insists, “Real dairy is always better than a long list of substitutes.” He even stressed the financial advantages of real dairy in the long run, noting that the primary ingredient in many dairy substitutes is water, and remarking: “Who likes paying a premium price of \$4-5 per pint for something your city sells you for \$.15 a gallon?”

### Revisionist Thinking

Real dairy’s nutritional advantages also are buffing its healthy shine. As Smári Ásmundsson, founder of yogurt maker Smári Organics Inc., says, “Dairy is enjoying a renaissance, because healthier options higher in protein and lower in sugar are available now. And dairy is now considered among the ‘good’ fats.”

“Evolving science on saturated fat, in general, as well as emerging research on whole-milk dairy products, is helping people look differently at how higher fat foods, that also deliver beneficial nutrients and other attributes, can be part of an overall, nutritionally balanced diet,” says Greg Miller, PhD, chief science officer of the National

Dairy Council. Also, a possible link between reduced or neutral cardiovascular disease risk and whole milk and related ingredients looks “promising,” according to Miller.

Even better, butter now qualifies as a “healthy energy source,” notes Rachel Zemser, MS, CCS, a San Francisco-based food scientist, chef, and industry consultant and frequent contributor to Prepared Foods. “Exhibit A: Bulletproof Coffee, the branded beverage that mixes grass-fed butter with hipster coffee and a blend of coconut-derived, medium-chain triglycerides [MCTs].”

While claims that the drink enhances cognitive performance and weight loss may be debatable—Bulletproof inventor Dave Asprey refers to the product’s MCTs as Brain Octane Oil—its appeal amongst health-conscious consumers isn’t. Adds Zemser, “Butter is often touted as more premium, especially if it’s organic and comes from grass-fed cows.”

Also on-point are dairy proteins, as consumers increasingly lean toward these macronutrients for the purported contributions to improved body composition, muscle growth and repair, satiety, and healthy weight management. (It’s worth noting that milk remains American children’s number one

food source of nine essential nutrients, including calcium, vitamin D, and potassium—three of the four that the newly released 2015 U.S. Dietary Guidelines for Americans (DGAs) list as lacking in US diets.)

### Got Your Goat

Jesse Merrill, co-founder and CEO of Irvine, Calif.-based cottage cheese maker Good Culture LLC, says, “Consumers are looking for nutrient-dense foods that over-deliver on protein and have a clean label. And clean, dairy-based products are nutrient-dense superfoods.”

LaLoo’s Millson certainly thinks they are. “Goat’s milk is the new superfood,” he avers, pointing to “benefits that are overwhelming in terms of nutrition.” It is higher in vitamins A and B, “as well as its carbon ‘hoofprint,’” another issue at the forefront for many of today’s consumers.

There are other advantages to goat’s milk for food and beverage processors. Lower in lactose and higher in lactic acid than cow’s milk, lactose-sensitive people find goat’s milk less troublesome to the tummy. Also, having smaller fat molecules, higher protein, and higher levels of calcium and potassium, goat’s milk is naturally homogenized, allowing it to lend a creamier consistency to some formulations.

Until recently, goat’s milk and products derived from it were a hard sell to the average American consumer. Western cultures typically did not prefer the “goaty” flavor (believed to be derived from the transfer of certain chemical compounds emitted by male goats kept near the milking does). In fact, Millson claims the association between goat’s-milk products and the twangy taste of goat cheese was once so strong, “everyone quit trying to prove that they tasted different and just started making cheese,” he says.

Today’s farmers know several methods of decreasing the flavors in question, from immediate refrigeration and better filtration/pasteurization methods, to the knowledge that better feed leads to better milk. These tricks allow companies to produce goat’s-milk ice

creams and yogurts “free of goaty flavors,” Millson says, referring to it as the “good stuff in, good stuff out” principle.

However, if a twangy goat cheese flavor is no longer a hurdle to formulating with

goat’s milk, other facets of the ingredient are. Millson concedes that goat’s milk’s limited availability makes working with it a challenge, occasionally leading to shortages that “prevent any potential new

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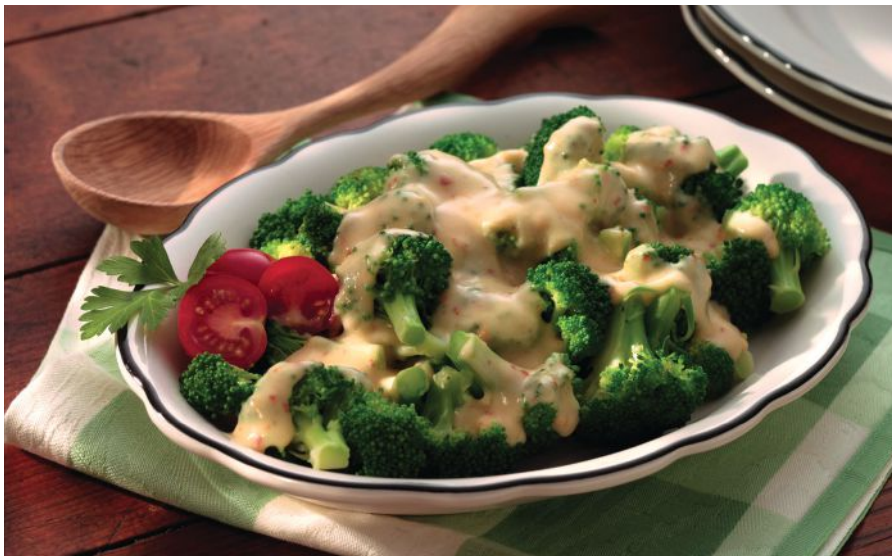


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**To merge true dairy flavor with reliability, ingredient makers expanded their portfolios of natural dairy flavors to include global varieties of cheeses.**

launch from meeting even minimum supply needs.” Its flavor profile also is delicate and more liable to change than the profile of cow’s milk, especially if it’s exposed to temperature and storage stress.

As an unsubsidized commodity, goat’s milk is more expensive. Adds Millson, “The refrigerated and frozen sections are the most expensive ‘real estate’ of any store, and transpor-

tation is equally expensive, making the already-high production costs of goat’s-milk products even higher.”

To counter those challenges, his company is sourcing more “high-quality goat’s milk from humane family farms,” located at sites nearer to the company’s co-packing facilities. “By adding strategic locations,” he adds, “we can provide a fresher option and larger range of products to try.” Reducing

transportation costs and time to market ultimately allows the company to offer better prices to consumers.

Still, it will be a while before goat’s milk makes it into many applications beyond boutique ice cream, yogurt, butter, and cheeses, Millson notes. “Goat’s milk that could be transformed into shelf-stable snacks would be a great idea, without doubt, and offer a ton of future opportunity,” he says. “But the price prevents those types of products from launching, because the consumer demand for cheese is currently outstripping the availability, and the cheese margins are too high to ignore.”

### Cheese, Please

If real goat cheese is flying off the shelves, it’s not alone. “Artisan cheeses are moving to the mainstream,” says Paul Ziemnisky, senior vice president of global innovation partnerships for Dairy Management Inc.

That move is happening fastest in foodservice. Menu transparency and discerning consumers are nudging R&D chefs not just toward artisan ingredients like goat cheese, but to

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natural (that is to say, made from fresh milk, salt, natural cheese cultures, enzymes, and possibly flavorings) and clean label cheeses, too.

“Americans are enjoying more cheese than ever before,” Ziemnisky points out—about 34lb per person per year—“because it enhances so many foods.” Its success at foodservice cuts across all eating occasions and restaurant types, with morning items, like breakfast sandwiches, up 4.1% from August 2015 through the year prior (according to the NPD Group’s CREST database), and servings of Mexican foods up 2.9%.

New products that feature cheese as the hero keep emerging, too. With QSRs such as Yum! Brands Inc.’s franchises spotlighting increased use of real dairy ingredients and less mainstream cheeses. Examples abound, such as the company’s Taco Bell brand Quesalupa—with sour cream, pepper Jack cheese baked right into the shell and more cheese on top. In fact, that particular product contains five times the dairy of a normal Taco Bell taco and became the chain’s biggest product launch ever.

The company’s leading pizza outlet, Pizza Hut (already a major cheese-centered concern), also is pulling out all stops in its use of dairy. Its Triple Cheese Covered Stuffed Crust Pizza uses five different types of cheese, amounting to nearly 1lb of cheese per pie.

While the trend toward using Asiago cheese is popular, cheesy products kicked off a number of years ago, its use is rising again—as is the use of other cheeses that are less mainstream than Cheddar and Jack.

The chain calls out the Asiago, as well as an aged Parmesan, in its Triple Cheese Stuffed Crust Pizza. DMI experts have made note of the same trend in sandwiches and burgers, singling out growth in Asiago, Gouda, and Havarti.

Another up-marketed, cheesy Pizza Hut offering is its Twisted Crust Pizza. The chain makes it not with a traditional marinara, but with cheese sauce. It also recently launched a Stuffed Garlic Knots pizza, a large pie surrounded with 16 hand-rolled, cheese-stuffed garlic knots, adding up to 30% more

cheese than in its regular Hand-Tossed Pizza offering.

Wendy’s International Inc. launched Bacon Fondue Fries, a side dish that comes with a warm sauce of Swiss

Gruyère cheese. Brie and Gouda cheeses accompany Cheddar cheese in Starbucks’ Corp.’s Cheese & Fruit Bistro Box, and new fast-casual chain, The Melt Co., makes its Bacon Florentine Macaroni

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Using an artisanal, natural cheese in a

restaurant item is one thing; weaving such a unique dairy ingredient—or others, such as grass-fed butter or the aforementioned goat's milk—into a formulation for a frozen dinner or dry soup mix is

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**Lactose-sensitive people find goat's milk less troublesome. Plus its smaller fat molecules and higher protein and minerals contribute to its naturally homogenized texture.**

another. Delicate, real dairy ingredients can “go through the ring” in a larger food production process.

“All processes can affect dairy in ways that could make the final product undesirable to consumers,” says Zemser. “Cheeses like blue, brie, and cottage don’t freeze well, unless made into a sauce first, for example. And the heat involved in retorting dairy ingredients can both aggregate proteins—causing unappetizing clumps—and flash off important volatile aromas.”

“Some foods can transition easily from a chef’s menu to industry,” says Bill Graves, senior vice president of product research for the National Dairy Council, citing smoothies as an example.

The transition is even more challenging with “certain multi-textured foods,” Graves notes. “Creating a multi-textured food is a dream for many food companies but requires overcoming food-safety and textural hurdles. Nonetheless, dairy provides a multitude of

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ingredients that go well with different carriers, like taco shells and empanadas, to create unique concepts that can be made to scale, if challenges are appropriately addressed.”

### Fresh Powder

Due to the growth of artisanal cheeses and consumer interest in global market products, the variety of cheeses available has erupted. Profiles of these flavors



SOURCE: DR. KRACKER/CRACKER ENTERPRISES LLC (WWW.DRKRACKER.COM)

**Organic and cultured sources in the dairy toolbox give developers an expansive range for enhancing flavor in crackers, chips, and other baked snacks.**

include international varieties using different cheese-making processes and sources of milk, in addition to combinations using fresh herbs and honey, as well as alcohol. A sample of cheese flavors available include aged Cheddar, feta, manchego, mozzarella, Oaxaca, ricotta, and toasted Parmesan.

To meet the needs for merging true dairy with reliability, consistency, and performance, ingredient makers aggressively have expanded their portfolios of natural dairy flavors with a palette of different versions of cheese, butter, milk, and sour cream flavors.

Developers can deploy flavors as specific as “rich crema,” “freshly whipped butter,” or “evaporated milk.” When made with real dairy ingredients, these items bridge the process-tolerance and shelflife gap that separates fresh-from-the-farm dairy and artificial substitutes made more of flavors and fillers than actual milk, cheese, or butter.

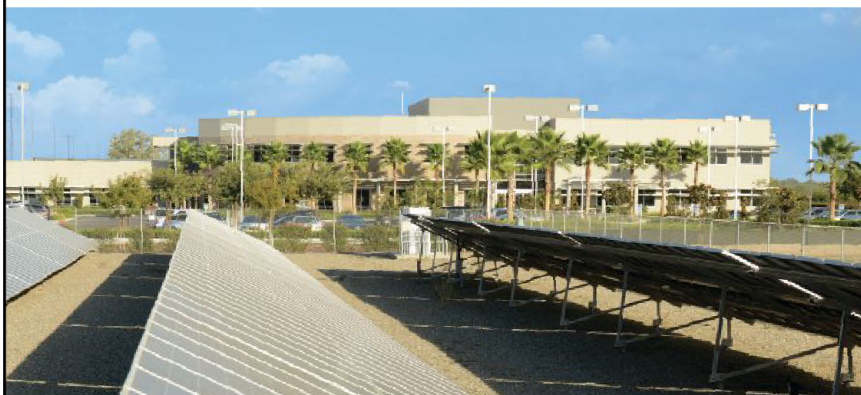
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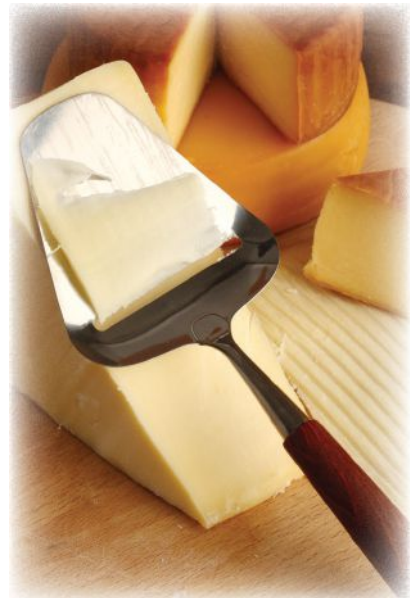
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from fresh to aged cheese flavors; region-specific flavors that include European and Latin American cheeses; cultured milk and cream flavors; and a full spectrum of sheep (feta), goat (chèvre), and cow's milk cheese flavors. Soft-ripened cheese flavors as identifiable as Brie or Camembert, or regional specialty cheeses that include such unique examples as *adobera*, a *ejo*, *Cotija*, *madurado*, manchego, nacho, Oaxaca, or *panela* are on hand for precise customization of dairy formulations that target regional and ethnic culinary attributes.

For example, certain of the blue cheeses can be acquired as naturally derived concentrated flavors in varieties such as Danish, Gorgonzola, Roquefort, and Stilton. Strengths from mild to strong, as well as carrying flavor notes that run from creamy, earthy, and fruity to mushroom-y, musty, and pungent.

Organic and cultured sources increasingly have been added to these dairy toolboxes, allowing product creators an expansive range in creating everything, from fillings and layers for main dishes and side dishes to dressings, dips, and sauces—or for enhancing soups and seasonings or flavors in crackers, chips, and other baked snacks.

Functional, real-dairy powders present challenges of their own. Oxidation and shelflife concerns can plague dried ingredients made with high-butterfat dairy, for instance. And cheese powders formulated with naturally sourced colors can suffer from the development of off-flavors and color changes—especially over the course of long storage or when exposed to high-heat processes, like baking and retort.

Such products can be more expensive, too. That said, spray-dried dairy powders still offer advantages vis-à-vis shelf stability. They don't need tempering in formulations, and they have wider application suitability than fresh dairy.

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Chef Zemser, for one, is bullish on the potential of freeze-drying for bringing real dairy ingredients a broader range of applications. “Snacks are the new dairy carriers on the market,” she says. “But how does one get yogurt, whey protein, or other dairy ingredients into shelf-stable, dry snacks like chips? [The answer is] freeze-drying technology, which opens the door to having shelf-stable, dairy-based snacks.”

The trick to making the process work, Zemser explains, “is to ensure there are enough carbohydrate and protein solids in the mix to allow the freeze-dried dairy melt portion to dissolve easily during rehydration, but not turn to dust in the package.” That makes higher protein dairy inputs, like Greek-style yogurt, preferable to “watery mainstream versions,” she says. Even ice cream and yogurt “lend themselves very well to freeze-drying.”

Although extremely high levels of fat can compromise dairy’s fitness for the process—heavy cream becomes greasy when freeze-dried, for example—once the developer has the precise carbohydrate:fat:protein ratio determined, the “opportunities are endless,” according to Zemser. She’s had success freeze-drying fruity yogurt-based drops for kids and adults—and even cottage cheese. “It just freeze-dries so well,” she enthuses. “There’s a lot of untapped potential.”

### Hidden Functionality

Speaking of untapped potential, National Dairy Council’s Graves encourages product developers not to overlook the utility of “behind-the-scenes” dairy ingredients, like dairy proteins, in clean label applications. While a milk protein concentrate might not look as real on an ingredient label as milk, such concentrates, isolates, and hydrolysates

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## Raw Milk

Most raw products, like nuts, seeds, and HPP juices, have built-in safety measures. The raw dairy industry, however, has not attempted to take advantage of such measures and prides itself on good handling practices (or feeding cows only the best green grass available) to ensure product safety.

Centers for Disease Control (CDC) data confirm outbreaks linked to raw milk are more common in states where raw milk is legal. Common pathogens such as *Listeria*, *E. coli*, *Salmonella*, and *Campylobacter* can be found in raw milk and could pose severe health risks and even death—especially when consumed by the elderly, immunocompromised, or young children. The number of outbreaks in the US caused by non-pasteurized (raw) milk

increased from 30 in 2007-2009 to 51 in 2010-2012. Most of the outbreaks (77%) were caused by *Campylobacter*, and most cases (81%) occurred from consumption of non-pasteurized milk purchased from states where its sale was legal.

Raw-milk cheese, however, is a different story. Risks from properly handled, properly manufactured raw-milk cheeses have proven to be minimal. To be legal in the US, a cheese must be properly aged for at least 60 days. Properly aging cheeses restricts the environment for the growth of harmful bacteria through the production of lactic acid and promotes the flourishing of competing, beneficial bacteria. The CDC has recorded, on average, only a few incidents of illness per year traceable to raw-milk cheeses across the last couple of decades, and many of those cases involved unaged cheeses, such as Mexican *queso fresco*.

are real dairy and can help formulators eliminate ingredients that are not.

Milk protein concentrates (MPCs), for example, can bind water in sauces, soups, dips and processed meats, replacing

modified starches and hydrocolloids, such as xanthan and locust bean gum or carrageenan, typically used as water binders.

Whey protein concentrates (WPCs) can replace hydrocolloids and chemical

emulsifiers in acidic systems like salad dressings, as well as in products subjected to heat. WPCs and MPCs—particularly those manufactured to lower protein levels—supply the lactose necessary for



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browning and can thus offset the need for caramel color. Mineral-rich permeate—the liquid remaining after the ultrafiltration of whey or milk—can substitute for salt in baked products, seasonings, sauces and soups.

Zemser cautions that whey protein isolates (WPIs) with protein contents above 95% can be problematic when used in high rates in bars, as they tend to “dry out the bar and make it crumbly.”

Because they’re popular with consumers, manufacturers may want to turn to hydrolyzed versions that allow them to pack in the protein without compromising product texture. However, formulators should note hydrolysates do have some drawbacks. For example, they taste “grassy,” according to Zemser.

Other issues involved in formulating with dairy proteins include separation and settling, which can unsettle consumers who are not accustomed to seeing sediment at the bottom of their beverage. However, a strategic blend of gums and hydrocolloids can help suspend protein particulates. Or, suggests Zemser, manufacturers could just let things settle and call the effect “natural.”

Graves adds, “All dairy protein products have pH and temperature limits—especially whey proteins. But research has been ongoing to widen those limits.” Research also is improving dairy proteins more generally, with today’s generation of whey and milk products proving to be both functionally and nutritionally superior to those of earlier generations. Milk and whey fractionation and filtration can allow for the use of some proteins to improve emulsification in formulas. Says Graves, “Acid whey easily could be a sports beverage in its own right.”

None of which surprises Zemser. Whether with regard to processing, functionality, or application versatility, she says, “Food scientists have done a good job already of incorporating real dairy into foods and beverages. It’s too soon for dairy to make a ‘comeback’—because it never really left the scene.” **PF**

*Kimberly Decker is a Bay Area food writer with a food science degree from University of California, Davis.*

*She has worked in product development for the frozen sector and written about food, nutrition, and the culinary arts, “getting her hands into everything from cookbook projects for local chefs to corporate communications.” She appears*

*regularly as a guest contributor in the pages of multiple food industry journals, including Prepared Foods magazine’s sister publication, Dairy Foods. Contact her at kim@decker.net or through the BNP family of publications.*

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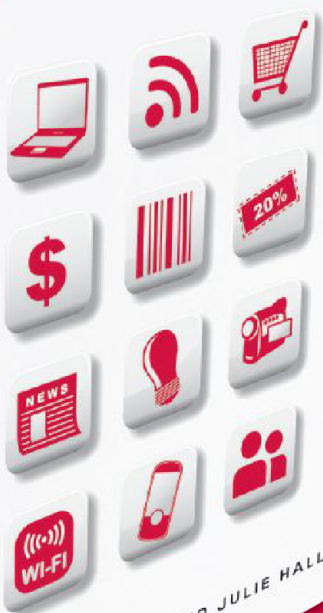
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# A Taste for Health

On a daily basis, product developers tackle the mission to make processed foods healthier.



SOURCE: NATUREX SA/VEGETABLE JUICES INC. (WWW.VEGETABLEJUICES.COM)

**CLEAN LABEL**, multifunctional, intuitive health, and stealth health are some of the many hot concepts today's research chefs and product developers are focusing on.

When proposing new solutions for consumer needs, a common request is to help convert a recipe from one that uses synthetic ingredients to an all-natural formulation. But let's face it, if it doesn't taste good, who's going to eat it? The challenge is to use natural ingredients that taste great and maintain the colors, textures and other organoleptic qualities of the original.

One task that exemplifies these challenges was creating a lower-sodium pasta sauce. For the sauce reformulation, the team studied all the ingredient components, natural and artificial.

Then began culinary experimentation using vegetable-based ingredients and botanical extracts to replace some of the formula's health- or clean label-challenged ingredients. It was determined that precise application of certain herb and spice extracts made it possible to compensate for the reduction of salt.

Texture was the next step: In a previous project—making a salad dressing healthier—an alternative to the high use of soybean oil involved thickening the dressing with micro-cut vegetable purées, maintaining the suspension through xanthan gum or pectin.

This has proven a versatile technique. Roasted red pepper combined with chipotle pepper, onion and garlic completed the flavor notes for the heartily

robust dressing formulation. In other projects, to obtain a Thai-inspired dressing with a delicate flavor profile, the solution was found in micro-cut carrot, ginger, and scallion purée, plus lemongrass.

## Coming Clean

Clean label is a major trending challenge developers are faced with today. With the growth of the Internet and food bloggers, consumers are overloaded with information regarding food ingredients and what is or is not perceived of by the consumer as safe or desirable.

For example, preservatives such as EDTA, used to prevent oxidation, and BHT and BHA, which are used in some oil-containing foods to prevent rancidity and off flavor notes, are categorized GRAS (generally recognized as safe) by the FDA. However, many health organizations have raised concerns about these and others additives commonly found in the food supply, and processors are pressured to meet those demands.

To tackle the challenges of clean label and help clients develop finished products without controversial ingredients, the culinary R&D team turns to ingredients from the NATstabil line of commercial products. For example, StabilEnhance, derived from rosemary and known for its strong antioxidant properties, was able to replace artificial antioxidants and preservatives in the pasta sauce and dressing reformulations.



SOURCE: NATUREX SA/VEGETABLE JUICES INC. (WWW.VEGETABLEJUICES.COM)/SHUTTERSTOCK



Stealth health can be attained through incorporating vegetable juice concentrates or purées into such items as brownies and other baked confections.

The rosemary ingredients work as natural food preservatives, helping to prevent rancidity, off flavors, and color degradation. And, since they are designed to be oil-soluble for such applications, their usage is equally suited to meat, snacks, seasonings, and vegetable oils.

In other formulations, the culinologists used a blend of rosemary extract with natural citric acid or ascorbic acid. These provided for fat stability and are members of the Oxy'Block line of stabilizers. Rosemary extracts also were useful combined with botanical extracts from pomegranate and acerola, (members of the Xtra-Blend line) to help preserve color in a variety of finished products. These also work especially well in meat-based items.

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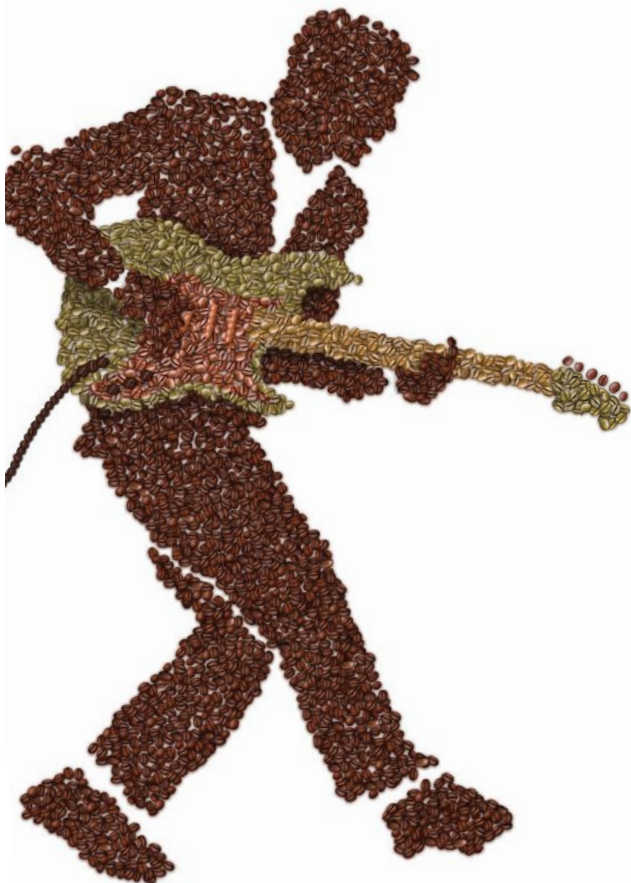


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## CULINARY CREATIONS



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**Vegetable purées can be highly effective and healthful alternatives to oil or gums for thickening and maintaining semi-liquid suspensions such as salad dressings.**

Another formulation the group worked on needed to be both clean label and multifunctional—a protein meat bar for health-conscious exercise enthusiasts. The objective: a healthful, flavorful savory protein snack totally unlike the high-sugar, sweet protein bars on the market. This bar consisted of beef sirloin, to which was added roasted red bell pepper purée, chipotle purée, plus a garlic and Italian herb purée. These then were combined with lime juice powder and powdered spice extracts from the EZ-Caps spice extract line.

The bar was free from sodium nitrite, and naturally cured with a cherry powder cure (from the VegaCure Enhancer line). Then, the StabilEnhance rosemary extract was added to inhibit oxidation and extend shelflife. The end result was a warm, red, savory, and slightly spiced meat bar. It met all the objectives for creating a great tasting, high-protein, naturally cured snack.

### Stealth Health

Beyond making products healthier and cleaning up labels, the team devotes efforts toward products designed for “Intuitive Nutrition Enthusiasts.” Intuitive Nutrition Enthusiasts (INEs) “know” certain foods are “good for them,” without requiring direct evidence, and they seek such foods out throughout the day.

INEs are comfortable with most vegetable taste profiles, and typically enjoy a vast variety of vegetables. Tasks for this demographic involve formulating applications that optimize the nutritional content to suit INE needs and knowing vegetables on a fundamental, detailed level. Foremost for culinolo-

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gists is the ability to blend vegetable components and flavors optimally, while balancing nutrition and taste priorities.

For consumers who aren't enthusiastic about vegetable flavors, but are aware

of the health value of produce, the team has adopted a different approach "Stealth Health" (or "sneaking healthy into tasty"). Adding vegetables to a formulation is a surprisingly easy way to increase the nu-

tritional value of a recipe. For example, when developing a bakery item, it's possible to reduce the fat (whether from butter, oil, or shortening) with a vegetable purée, similar to the approach taken with dressings.

Carrot purée and sweet potato purée are excellent choices because they impart moisture and provide a nice airy texture to the overall structure. With sweet potato juice concentrate, it is possible to reduce the amount of table sugar in some formulations. One example is yeast rolls: A typical yeast roll requires flour, milk, water, oil or butter, eggs, sugar, and yeast. Combine the yeast, but with a 50% reduction of sugar, in a large bowl. Heat the wet ingredients with a 50% reduction of oil or butter to 105°F, mix together with yeast mixture and let rest for 10 minutes or until foamy. Add sweet potato purée (this replaces the fat and gives moisture to the rolls) and sweet potato juice concentrate (this replaces the sugar and adds mild sweetness). Add the eggs and blend in the flour until soft dough forms, then knead on a lightly floured surface and place into a lightly greased bowl. Cover and rest until doubled in size. Once doubled, punch down dough and roll into ¼ sheet, cut dough into strips and roll each strip. Place each roll into greased muffin tins. Cover and let rise 30 minutes. Bake at 375°F for 20 minutes or until golden brown.

The result is a tender flavorful light roll with no "vegetable notes" since the sweet potato in this application has little flavor. Moreover, the addition of sweet potato purée and concentrate increases the nutritional benefits; reduces calories from fat from 60 to 35 for a 57g serving, reduces cholesterol from 20mg to 15mg, and increases potassium from 55mg to 75mg per serving.

In working with beverage applications, single-strength vegetable juice concentrates or micro- purées have proven effective. The formulations developed can be calorie conscious, using single-strength cucumber juice or kale, which have a low brix value. Combined with fruit powders, it's possible to create high-quality, low-calorie 100% juice beverages.

Purple sweet potato juice and purple carrot juice provide natural sweetness and color.



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They also are a good source of vitamins, minerals, and antioxidants that consumers desire. As an added incentive, they are trending hot. For the health-conscious athlete, creating natural pre-, peri-, and post-workout beverages is an excellent way to formulate with these vegetable-derived ingredients. One pre-workout beverage designed to help hydrate and prepare for a workout was made with beet juice concentrate. It's naturally high in nitrates and provides an energy boost that aids in oxygen utilization.

Acerola, as a concentrated natural source of vitamin C, helps support the immune system. Blending acerola or beet ingredients with blueberry and raspberry powder and a touch of hibiscus for high notes gave this particular beverage formulation a subtle tropical flavor. Creating a "during workout" (peri-workout) beverage involved formulating to contain the optimal carbohydrate level to aid hydration and electrolyte absorption during exercise.

For this beverage, sweet potato juice concentrate provided the carbohydrate and cucumber juice concentrate boosted hydration. Coconut provided electrolytes, along with Panax ginseng for energy during exercise.

In the post-workout beverage, the main benefits came from cucumber juice to support hydration and restore antioxidant metabolism and electrolytes. Rosemary leaf extract was included with naturally occurring vitamin C from acerola, as well as magnesium, and potassium. Ginger extract was then added for its benefits in managing inflammatory responses and relieve joint pain.

Formulating with vegetables and fruit can be tricky, but the challenge is exciting and the results rewarding. Natural, plant-derived ingredients and flavors open many doors to building on multiple formulation concepts. They allow the culinologist to create complex, successful new products that taste great and are also good for you, through balancing ingredients and layering flavor profiles. **PF**



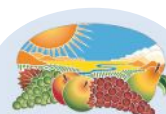
*Lynne Foster is the R&D Chef and applications manager for Vegetable Juices Inc., a division of Naturex SA ([www.naturex.com](http://www.naturex.com)). Foster's extensive experience in R&D includes recipe development, culinary presentations, and troubleshooting formulations, with a strong focus on new culinary trends, ingredient functionality, and health initiatives. She also is a lead expert for coordinating*

*Naturex and Vegetable Juices major food manufacturing customers in the development phases of new products and beverages. Foster has an extensive background in research and development having worked for Whole Foods Market Inc., ConAgra Foods Inc., Haarmann & Reimer GmbH, Givaudan-Roure Corp., CPC Best Foods Corp., and Stouffer's Inc. Additionally, Foster managed her own consulting company, Lynne Foster Inc., where she developed concepts into commercial prototypes. She holds an AOS from The Culinary Institute of America and a BBA in Business Management from the University of Massachusetts at Amherst.*



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# Smarter Snacking

Protein, minerals, vitamins, and nutraceuticals make snacks healthier—for our kids' sakes.

**IT'S BEEN AT LEAST** a generation since having a snack was considered a treat—a nice break from the “three squares a day” Americans see as mandatory. Most kids ate a snack immediately upon coming home from school. Younger kids received snacks to keep them occupied between playtime and naptime. Kids still snack, of course, but there is a difference between how they snack nowadays and how their parents did in the past.

Today, some 75% of kids aged 2-19 snack multiple times per day. There is a disturbing trend among children, however: About a third of children are snacking at least four times daily –

## KEYPOINTS

1. Knowing what to feed growing, active kids was once only a parental concern. Now children themselves are bombarded by a constant stream of confusing food messages.
2. Inspired processors take into account the varying nutritional needs of children throughout their lifespans and combine current nutrition science and sociological insight into healthful-yet-attractive products.
3. Diets for many of today's kids are high-calorie but low nutrition, leading to a dichotomy of simultaneous malnutrition and obesity.
3. Snacks could be said to be the primary “meal” of children (especially teenagers), presenting processors with both challenges and opportunities to feed them with care.



SOURCE: ISTOCK/DAVIDE (WWW.ISTOCKPHOTO.COM)

meaning they're having more snacks than meals. And, in many of those cases, they're not snacking “again”—they're snacking “still”—eating almost constantly, making it difficult to tell when one eating occasion finishes and the next one starts.

It leaves little wonder as to why, despite a very recent plateau, childhood obesity rates rose steadily from the 1990s through 2014, according to a CDC report.

The report also noted the rate of morbid obesity among teens rose from 6% in 1999 to about 10% in 2014. Data from the most recent NHANES survey on nutrition

and health reveal that a third of children in that aforementioned 2-19 age group are overweight, and 17% qualify as obese.

All this eating is causing some nutritionists and registered dietitians to worry. If snacks are still seen as a treat—a break from the usual good, solid, balanced nutrition traditionally provided by meals—and kids are having more such breaks, then snacking isn't a treat anymore. It's a part of a normal, daily lifestyle. As such, snacks need to count nutritionally. They also need to provide taste and enjoyment. The producer who can hit that trifecta has a winner.

## Making Snacks Count

The 2016 US Dietary Guidelines for America (DGA) recommend a number of “eating styles” as appropriate, but the DGA also tallies up what Americans are missing most from their diets. The experts involved cite several “nutrients of concern,” so-called because at least half of Americans fail to get enough of these from their diets.

The following nutrients have been called out as deficient by the DGA: calcium, potassium, vitamin D, fiber, and magnesium. As for whole food groups noted to be lacking, there was, unfortunately, nothing new. Fruits, vegetables, low-fat dairy, and whole-grain items just don’t play as big a part on the daily menu as is necessary for peak health. Moreover, the problem is especially acute among children.

Consumers usually have heard of the Guidelines, but the information is not necessarily top-of-mind when making snacking decisions. Although children are active in making their own food choices, noise from a constant stream of ads on TV and social media platforms make decisions daunting. When in a hurry, such kids’ decisions often fall back to sweets or other low-nutrition options.

While health is an increasing consideration, calories aren’t always a primary focus. However—and this is where manufacturers can have a profound influence—healthful serving sizes can bring the element of caloric control back to the table.

But, while calories still matter, the quality of calories matters more. High-calorie ingredients are fine, but they need to have a strong health component that provides satiety, in order to keep total caloric intake for the day at a healthful level. Foods and ingredients closer to those Mother Nature provides—read “clean label” foods—have



SOURCE: PEAS OF MIND LLC (WWW.PEASOFMIND.COM)

**Strategies like incorporating full servings of veggies in classic foods bridge the gap between what kids should eat and what they want to eat.**

grabbed consumer attention in rapidly increasing numbers.

Nuts of any kind, olive oil, dried fruits and vegetables, whole grains like oats—such items are trusted and becoming more attractive to parents. And, once introduced to these ingredients, most children find they can enjoy such “simple, honest” products just as much (or more) as less healthful choices.

A 2014 study in the *Journal of the American College of Nutrition* found consumers don’t always stop eating when they’re full. One of the main reasons consumers stop eating is because the food is gone. “Portioning out snacks in healthful sizes can be a good tool for learning about healthful portion sizes, especially when preparing child-targeted snacks,” says Marianne Edge, MS, RDN, co-author of the study and senior advisor of science and consumer insights

for the International Food Information Council (IFIC).

Edge cites small, 1oz packs of almonds or other nuts as perfect examples, as are individual portions of real cheese, like Bel Brands USA’s Mini Babybel. Adults like the portion sizes, as well, because they let consumers manage calories without guesswork.

## Making Better Snacks

While such simple snacks as portioned fruits and nuts can be creatively designed, using various flavor components and nutritional enhancements (i.e., yogurt-covered raisins with active probiotics, or almonds lightly dusted with cocoa), processed snacks still are key players in the world of the quick bite.

Ideally speaking, one to two servings of vegetables would be the “perfect” healthy snack. But place a bowl of raw broccoli





**Recreating comfort foods with a better nutrition profile involves more than just adding healthier ingredients; it takes careful reformulating to hit critical flavors and textures.**

in front of a child, and one is likely to get a look of confusion, if not out-and-out rejection. One of the more successful approaches by snack makers has been to transform the ingredients children should be eating into the snacks they want to eat. Also important: doing so while calling for very little parental preparation.

Peas of Mind is a healthy frozen snack company geared towards picky eaters, enticing younger children to eat their daily servings of veggies under the guise

has found national success in high-end foodservice outlets (such as children's museums), due to its similarity to the classic tater tot. The three flavors, Broccotot, Carrotot, and Caulitot, bake up crispy on the outside and creamy on the inside, just like standard tater tots, but they contain 50% non-potato vegetables. Also, each serving provides one whole serving of vegetables.

The company's smoothie kits are another recent development to its lineup.

## Custom pre-mixes help processors hit the right nutrient target per serving, for each age of young consumer.

of classic "kid food" items. This includes products, such as fat-free baked "French fries," that are made from cauliflower, broccoli, and carrots, as well as pizzas with ground vegetables in the crust.

In a similar vein, the company's newest snack food, the "Tot, already

The kits contain naturally flavored fruits and vegetables flavored to taste like classic milkshakes.

Peas of Mind has a specific research and development process. The first phase of R&D begins with a computer, not in the kitchen. The goal for each

item is guided according to servings of vegetables, so formulations are roughed out first to meet USDA guidelines. Then, specific guidelines for the US public school system are created. Once those are set, the formula can be fully created.

After an initial recipe is developed, it is put to the test in a home kitchen, using straight-forward ingredients. The primary objective is then to achieve a wholesome and natural product, similar to what a parent might make from scratch.

Keeping the process simple in the kitchen doesn't necessarily make it easier when a co-packer comes aboard for the scale-up process. For example, developing its tot products presented the Peas of Mind team with some challenges at the factory level.

The most important challenge was having the product stay crispy during the cooling process. The team discovered adding brown rice flour to the formula helped the product maintain its crispy texture at all temperatures. And, most importantly, brown rice flour was in alignment with the company's natural and gluten-free ingredient list.

### Snacks for Breakfast

For growing children, breakfast has never lost status as the most important meal of the day. This is supported by recent research demonstrating that eating breakfast every day gives school children significant academic advantages; is the foundation of better diets overall; and even promotes maintaining healthier weight. But, too many kids are still skipping breakfast, too often. This is especially dire when it is understood that these children typically do not make up those nutrient deficits at other times.

This begs the question: Can breakfast be a snack? While a snack food can definitely be eaten for breakfast, poor health is only compounded if that snack is not

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**Parents are open to serving lunch-like items for breakfast when it gives kids a leg-up on protein needs for the busy day ahead.**

a good one. When developing a handheld, out-the-door breakfast snack, the key for product designers is to make protein and satiety the main objectives.

Protein and satiety (whether from said protein or other ingredients) are big players in weight control, and thus have a significant position when it comes to snacks—including any snack food that wants to do duty as a breakfast food. Most kids do get enough protein, but they often do not get it early enough in the day. That's an important time to get protein, because eating a protein-strong breakfast helps the child feel full throughout the morning.

Some studies suggest 20-30g of good-quality protein are needed to help control hunger and provide satiety. That much protein is a lot for younger children and difficult to get into a snack food, but that amount doesn't all have to be in a single item. Snacks that have good-quality protein—from dairy, eggs, meat, or legumes—have been shown to provide a real edge in making up the portion used in a typical snack.

Hip Chick Farms LLC created an exemplary, kid-friendly and breakfast-suitable snack with its natural and organic chicken fingers, meatball, and nugget products. Serafina Pallendech, the company's founder, explains, "Not only do all Hip Chick Farms products contain between 14-20g protein per serving, they also are free of preservatives, antibiotics, hormones, and fillers." Use of natural and organic ingredients follows the company's goal of high quality and full transparency in sourcing its ingredients and for its products in general.

In 2012, Consumer Reports conducted a nationwide survey of 1,000 US residents and found 72% of consumers are "very concerned" about the widespread use of antibiotics. It also was revealed that antibiotic-free meat sales had risen 25% over the three prior years. The trend towards natural, organic, and antibiotic-free meat is still strong, but sourcing such ingredients can still present difficulties.

"There still are few farmers raising organic, free-range chicken," explains

Pallendech. "We consistently are seeking to expand our sourcing base, while ensuring that our suppliers meet our strict standards."

In order to verify that claims made by their suppliers are true, Hip Chick Farms requires a third-party certification. The company also builds strong, long-term relationships with its suppliers, including during its expansion efforts.

### Comforting Combos

Most parents agree that getting enough fruits and vegetables into their kids is the bane of their existence. Brian Wansink, PhD, a nutritional behaviorist at Cornell University, has shown that kids who are given cut vegetables will eat more of them—if they also get some cheese.

Since both foods are excellent nutritionally for kids, together providing calcium, potassium, and fiber, finding ingenious ways of combining them will go a long way towards cleaning up kids' diets. Depending on their age, 60-90% of kids are lacking calcium and vitamin D in their diets. Including dairy foods like milk, cheese, and yogurt for snacks with fruits and vegetables is a solid nutritional "two-fer."

Beans, especially, are great ingredients in combo snacks. There now are many forms that have proven well-accepted by kids. Bean-based chips are extra popular substitutes for potato chips. And schools across the country are putting hummus snacks on their menus; these have been met with unprecedented success.

Snack foods that include various beans of any texture, from puréed to crunchy, are nutritional winners, especially when combined with vegetable-based chips. Beans are high in protein and, thus, promote satiety. They are also naturally loaded with fiber,



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**Including extra nutrients in already nutritious foods can help compensate for those times children don't eat enough of what they should.**

protein, iron, and other minerals and vitamins. Chips, hummus, or crackers are all avenues for getting legumes into kids and can help fill the gaps on those nutrients.

### Gilding the Lily

While plant-based foods are excellent sources of the vitamins, minerals, and other nutrients children need most, for the highly active youth loaded down with homework and extracurricular activities, sometimes nature needs a little help. Fortification is an excellent way to ensure children are eating the nutrients and micronutrients their growing bodies need.

Building up a product with vitamins, minerals, and other nutrients puts worried parents at ease; a parent can look at the nutrition panel on the back of a package and see exact percentages of what their child is getting that day. Custom pre-mixes can be a special boon here for getting just the right nutrient balance per serving, for the right age of young consumer.

Bowman Andros Products LLC's Fruit Me Up on-the-go fruit pouches for kids are real fruit given a boost of nutrients just for kids. Hence their name, BOOST.

"BOOST products are each able to provide their own unique benefits that include good sources of calcium, fiber, omega-3 as alpha-linolenic acid, and antioxidants from real superfruits," says Caroline McTier, R&D manager for the company. She adds that each BOOST product is designed to be "a delicious way to achieve specific nutritional needs" for kids.

Healthy snack foods, like enhanced fruits, allow a parent to customize their child's snack menu based on the child's activity level and specific diet. McTier explains that the development team calculates the correct amount of the "boosted" ingredients for the younger consumer by ensuring each product contains at least a "good source" claim, per FDA regulation, of each added nutrient, depending on the requirements for each ingredient.

Similarly, Little Duck Organics Inc.'s Tiny Gummies line is made from 100% pure fruit purees with added probiotics in the form of *Bacillus coagulans* GBI-30, 6086. The company also sources a variety of premium superfruits, including açai, goji berries, and pomegranate, recognizing that youngsters have the palates to appreciate a greater spectrum of fruit flavors than just bananas, apples, strawberries, and grapes.

Each serving of Little Ducks' gummies contains 1 billion probiotic cultures. The company also cites research that indicates "...86% of parents are more likely to purchase a product for their children, if it is fortified with a probiotic." This chosen probiotic source is especially well-suited to survive in the pectin gelling agent, at a level about 10 times more effective than yogurt cultures.

### Grains of Flavor

Probiotic cultures add the healthy bacteria, in active cultures, to help enhance and regulate the body's digestive health and immune capacity. But even good bugs "gotta eat." Prebiotics, specifically fiber, provide meals for and help grow those healthy bacteria.

With kids, regular food sources of both can ramp up the quality of their diets. Beyond active cultures, however, there are plenty of taste and nutritional reasons for kids to eat probiotic foods like yogurt. Greek yogurt, for example, has twice the protein of other yogurt, and adding it to any smoothie automatically gives kids a high-protein drink.

Nothing is nutritious until it's eaten, and it's not eaten unless it tastes good. This is true for adults and even more so for kids. But kids' tastes have evolved. Today's children are exposed to more ethnic food cultures and open to more global flavors. Hot and spicy need not



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be the rule, but tamer amounts and varieties of herbs and spices can turn a “no” food into a “yes” food.

One big example where this paradigm plays big is with whole-grain snacks.

Since the average intake of whole grains is still less than one serving daily, any snack food that increases that statistic has bragging rights. Adding kid-friendly amounts of spices to both savory and sweet

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Innovation Inspired by Nature



SOURCE: BEECH-NUT NUTRITION CORP. (WWW.BEECHNUT.COM)

Even after decades of nutrition experts pushing increased servings of fruits and vegetables, kids are still lacking in intake of these vital ingredients.

whole-grain snacks makes sense, because they add no calories or weight, leaving more room for more whole grains.

Consumers increasingly are tuned in to looking for whole grains on ingredient labels.

Since the average intake of whole grains is still less than one serving daily, any snack food that increases that statistic has bragging rights.

Snack producers, such as Bitsy's Brain Food LLC, work toward ensuring that the whole grains end up first on the ingredient list.

“Smart snacks are baked with whole grains and vegetables and are nutritionally formulated to support children's growing brains and



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bodies,” says Alexandra Voris, co-founder of Bitsy’s. “We fortify our products with vitamins A, B<sub>12</sub>, B<sub>6</sub>, D<sub>3</sub>, and folic acid.”

Voris says fortifying food without preservatives “is a tricky business, and

there have been challenges along the way, mainly in terms of finding the right vitamin and mineral levels and assessing their reactions to heat and other processing stresses.”

Voris also notes that enticing the company’s younger consumers isn’t all about taste. Visuals are well-known to be crucial, so all of their products are baked in shapes that encourage education and learning to engage little ones while they snack.

Bitsy’s also utilizes marketing and packaging to influence children to not only eat their vegetables, but to enjoy doing so. “Our goal is to demystify veggies for kids by using positive associations, as well as encouraging kids to have positive flavor associations with such ingredients as zucchini, sweet potatoes, spinach, and beets,” she stresses.

No matter how you slice it, children want snacks and parents want those snacks to be nutritionally dense. This is why the best snack foods are developed to hit all those marks, without losing sight of the need to simply taste great. In that regard, processors are able to tap into a wealth of new and emerging ingredient science and support to create tomorrow’s snacks for today’s kids. **PF**

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*In spite of a degree in mathematics from Syracuse University and graduate school at the Fashion Institute of Technology, Jill Litwin went on to become the founder and CEO of San Francisco-based Peas of*

*Mind LLC, makers of all-natural and innovative frozen food for growing kids. She can be reached at [jill@peasofmind.com](mailto:jill@peasofmind.com).*

*For more articles by regular contributors Dr. Ayoob and Ms. Litwin, check out “Food for Kids of All Ages,” “Good to Grow On,” “Foods and Beverages for Infants and Toddlers,” and others at [www.preparedfoods.com](http://www.preparedfoods.com).*



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# R&D Applications Seminar Chicago

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## Face-to-Face Food Science & Formulating

### AGENDA

**TUESDAY, AUGUST 16, 2016**

7:30-8:30 a.m.	BREAKFAST BUFFET				
8:30-9:10 a.m.	<b>KEYNOTE ADDRESS: Ingredients Driving Product Development Trends for 2017</b> <i>Speaker: Lynn Dornblaser, Director, Innovation &amp; Insight, Mintel</i>				
	Track 1	Track 2	Track 3	Track 4	Track 5
9:15-9:55 a.m.	 <b>New Enzymes for Flavor Applications -</b> Enzyme Development Corporation	<b>Including Pulse Flours in Baked Products -</b> Best Cooking Pulses	<b>Why Measure Food Texture? -</b> Texture Technologies	 <b>Taste Improvement Solutions in Sugar Free/Reduced Beverages -</b> Jungbunzlauer	 <b>Dietary Guidelines 2015: Shift to Healthier -</b> Foodscape Group
10:00-10:25 a.m.	REFRESHMENT BREAK				
10:30-11:45 a.m.	Applications Lab A: <b>Hands on Lab Part A featuring Edible Glitter as a Topping and Inclusion</b> - Watson Applications Lab B: <b>The Next Generation, Building the Framework of a Beverage</b> - CP Kelco 				
	Track 1	Track 2	Track 3	Track 4	Track 5
11:50-12:30 p.m.	<b>The Safety of Flavors and Public Perception -</b> Flavor Dynamics	<b>Meeting Label Claims -</b> Watson Inc. 	<b>Sugar Reduction and Sugar-Free Confectionery Applications -</b> Roquette America 	<b>Get Clarity on Your "Who" and A More Streamlined, Accelerated Process -</b> Mother Murphy's Laboratories	<b>Modified Cellulose Ingredients -</b> Ashland Inc.
12:30-1:30 p.m.	LUNCH - Sponsored by American Egg Board				
1:30-2:45 p.m.	Applications Lab A: <b>Iconic Flavor for Every Application</b> - McIlhenny Company / TABASCO® brand  Applications Lab B: <b>Hands on Lab Part B featuring Edible Glitter™ as a Topping and Inclusion</b> - Watson				
	Track 1	Track 2	Track 3	Track 4	Track 5
2:50 - 3:30 p.m.	 <b>Beverages – A Practical Approach to Matching, Calculating and Concentrating -</b> Edgar A. Weber Inc.	<b>New Value Added Functional Ingredients -</b>	<b>Tracking Sriracha's Rise to Popularity and Predicting the Next Trends in Spicy Flavors -</b> Asenzya	 <b>Formulating with Chocolate and Confectionery Coatings for Clean Labels and Product Certifications -</b> Clasen Quality Coatings	<b>Vegan Alternatives for Snacking – The Formulation of Dairy-free Cheese, Egg-free Dressings and Gelatin-free Jelly Sweets with Modified Potato Starches -</b> KMC
3:35 - 4:15 p.m.	<b>Reduce Oil Absorption in Fried Foods -</b> Dow Food Solutions	<b>HPP for Extended Shelf Life Products: Latest Technology, Advantages &amp; Markets -</b> Avure Technologies	<b>Increasing the Nutritional Value of Dairy Based Foods thru Addition of Well Researched Naturally Sourced Ingredients -</b> BASF 	<b>Non GMO: Consumer Preferences, Market Trends, and the Question of Supply -</b> Ingredient	
4:15 - 5:30 p.m.	R&D Applications Seminar Chicago Expo and Happy Hour				

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### AGENDA

WEDNESDAY, AUGUST 17, 2016

7:30-8:30 a.m.	BREAKFAST BUFFET				
	Track 1	Track 2	Track 3	Track 4	Track 5
8:30-9:10 a.m.	<b>Use of Microorganisms in Dairy Products and Flavors</b> - Gamay Foods	<b>Exploring Culinary Destinations</b> - Innova Flavors	 <b>Binding Proteins: Vegetarian &amp; Meat Analogues Texture Enhancement</b> - Dow Food Solutions	 <b>Utilizing Pulse Flours as Egg Replacers for Functional, Economical and Nutritional Advantages</b> - Best Cooking Pulses	 <b>Sensual Nutrition</b> - Tree Top Inc.
9:15-9:55 a.m.	<b>Stretch the Idea of Cheese – Cost-effective Solutions for Imitation Cheese with Modified Potato Starch</b> - KMC	<b>Understanding the Growth Behind Prepared and Specialty Foods</b> - Information Resources Inc.	<b>Quenching Your Thirst for Beverage Innovation</b> - Innophos Inc.	<b>Plant Protein and Prebiotic Fiber to Increase Total Protein, Reduce Sugar and Calorie Content in Coffee Beverage Systems</b> - Roquette America	<b>What is Spray Drying Microencapsulation?</b> - Watson Inc.
10:00-10:25 a.m.	REFRESHMENT BREAK				
10:30-11:45 a.m.	Applications Lab A: <b>Class Is In: GELITA's Collagen Protein College</b> - GELITA 				
	Applications Lab B: <b>The Power of Pulses: Formulating with Pulse Ingredients</b> - Ingredion 				
11:50 - 1:00 p.m.	LUNCH				
	Track 1	Track 2	Track 3	Track 4	Track 5
1:00 - 1:40 p.m.	 <b>Designing Deliciousness – Use of Authentic Cooking Method Flavors</b> - Red Arrow USA	 <b>Replacing FD&amp;C Colors in Beverages and Confections with Beta-carotene and Apocarotenal</b> - BASF	<b>Innovative Probiotic: Pediococcus acidilactici</b> - Imaglin Technologies LLC	<b>Moisture Management in Meat without Sodium Phosphate</b> - Azenzya	 <b>Meeting Market Demand for Healthier Snacks: Higher Protein and Minimally Processed</b> - DuPont Nutrition and Health
1:40 - 2:00 p.m.	REFRESHMENT BREAK				
2:00 - 3:15 p.m.	Applications Lab A:				
	Applications Lab B:				

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As “stealth health” ingredients, nuts and seeds are miniature powerhouses.

**PLANT-SOURCED** ingredients, are becoming increasingly popular because of their sustainability, versatility, and relatively low cost, as well as their well-deserved health halo. Cultures around the world have treated illnesses and ailments using seeds as traditional medicine components. These qualities have opened the door to a jump in the use of less familiar seeds and nuts in food product development.

Focusing first on seeds, some trending varieties in food processing encompass those in the parsley family, and include seeds from celery, carrot, caraway, cumin, dill, lady’s lace, fennel,

## KEYPOINTS

1. Nuts and seeds are nothing less than concentrated packets of nutrition and flavor, replete with vitamins, minerals, protein, healthful fats, and powerful phytochemicals.
2. Until recently, nuts and seeds were used with caution, due to a high caloric value. Once science proved the satiety factor more than balances the caloric load, nuts and seeds became recognized as the superior, natural health ingredient they are.
3. Texture and incredible versatility only add to the status of nuts and seeds as high-value ingredients, suitable as primary components or as inclusions or coatings.
3. Seeds have experienced huge growth in consumer interest as snacks, gluten-free flours, and sources of plant-derived, healthful omega-3 fatty acids.



SOURCE: ALMOND BOARD OF CALIFORNIA (WWW.ALMONDS.COM)

and, of course, parsley itself. The tiny seeds in this family are known for their antibacterial and antimicrobial effects, and research has been supporting some of the claims. Both fennel and lady’s lace (*Ammi majus*) have demonstrated potent properties against *Staphylococcus*, *E. coli*, and other bacteria.

For example, according to a 2015 study, celery seed extract is at least as effective as aspirin and ibuprofen in treating arthritis, and could be applicable to other inflammatory diseases.

Celery seed extract also has been cited as effective in reducing the risk

of ulcers (as have fennel seeds), and some studies found it to be effective against *Helicobacter pylori*, bacteria that cause stomach ulcers. Other evidence supports celery seed extract (ingested) is an effective agent against mosquitos, especially those that carry Dengue fever.

Celery seed has a strong flavor and commonly is used in pickling, sandwich fillings, condiments (such as mustard and chutney), and soups and stews. It also enjoys common use in fish marinades, poaching liquid, vegetable dips, and as an inclusion or sprinkled

topping for bread and rolls. It even has been included in herbal teas. Celery seed extract has been gaining use in food processing as a natural preservative and antimicrobial agent.

Aromatic and anise-like fennel seed is packed with nutrients, including fiber, antioxidants, vitamins, and minerals. It's seen double duty in sweet baked goods, such as cakes and pastries, and in savory formulations, from Italian sausage to Indian curry dishes, as well as in condiments and fish dishes.

Health-wise, fennel seed has long been used as a digestive, and science supports its calming effect on upset stomachs. It has a slightly numbing effect when chewed and traditionally was used to mitigate mouth sore pain and toothaches. In 2010, Nestlé S.A. filed a patent for use of thymoquinone, a compound found in fennel seed that helps reduce allergic reactions to foods.

Cumin has a long and global history in Mexican, Indian, and Middle Eastern dishes, as well as in teas and Indian beverages such as *jeera* water. It is found in some cheeses, French breads, stews, soups, pickles, pastries, salads, and chili powder. It also appears to have antimicrobial properties and may help reduce sensitivity to pain.



SOURCE: PROBAR LLC (WWW.THEPROBAR.COM)

**Nuts and seeds provide the best of both worlds for healthful foods: organoleptic benefits of crunch and flavor and health benefits of protein, micronutrients and phytochemicals.**

### Deli Favorites

A number of seed ingredients that do double duty as flavorants and health components come right out of the classic delicatessen palette. Dill seed is a prime example, ubiquitous in pickles, relishes, vinegars, and slaws, and other mixed salads. It also is found in gravlax (Norwegian cured salmon), borscht, and on top of breads. Dill contains an antibacterial agent that has been added to Egyptian *kareish* soft cheese to combat *Staphylococcus*, often present in that soft, farmer's-style cheese.

Caraway seeds are well-known from their use in rye and pumpernickel breads, sauerkraut, cheese (such as Havarti), and pastrami. A review of scientific literature in 2002, as well as a 2015 study, revealed caraway can relieve indigestion and might also help prevent complications in diabetes.

What's a deli without mustard? There are more than 40 different varieties of mustard seed. All are rich in poly- and mono-unsaturated oil (50%) and protein (44%), plus minerals, *lutein* and — compounds good for eye health. Mustard seeds contain such healthy

## Brownies, Anyone?

Hemp seed—already a popular ingredient for its ALA omega-3 content—is grown in 30 countries around the world and does not contain THC, the hallucinatory element in cannabis. But the burst of interest in cannabis foods has been giving hemp an extra high.

Hemp has been grown around the world for at least 12,000 years. In the US, the 2014 Farm Bill allows universities and state departments of agriculture to research/grow hemp in the 32 states that allow hemp production. However, farmers still risk federal prosecution for growing hemp, even in those states, because hemp is banned by the federal DEA.

Hemp contains all nine essential amino acids, although lysine is limited. Its protein quality is higher than some grains, nuts, and pulses, and it also is high in fiber, the aforementioned omega-3 fatty acids, and several minerals. There even was a study on neurodegenerative diseases, like Alzheimer's, that found hemp to be potentially effective at mitigating symptoms.

Hemp seeds can be eaten raw or toasted, or ground into a meal. Current uses include tofu, ice cream, "milk," and seasoning mixes. Hemp flour also can replace some flour in baking, for items not requiring high volume.





SOURCE: SUNDIACORP. (WWW.SUNDIAFRUIT.COM)

**Chia seed has become a favorite of processors for its versatility as well as its health properties of high protein, omega oils and fiber.**

phytonutrients as *glucosinolates*, studied for their anti-cancer effects. Yellow mustard seed bran has been shown to lower the glycemic response (the rate at which sugar rises in the blood) in soup formulations. One of the most promising functional properties for the food industry is the use of mustard seed as a replacement for nitrites for preventing oxidation in organic, fermented sausages.

Americans are familiar with sesame seeds sprinkled on top of buns, breads,

bagels, bread sticks and crackers; however, they are used in many other foods around the world. Sesame seeds are present in sushi, dim sum, sesame seed balls, soups, salads, cookies, paste, and even a peanut brittle-type candy. And no self-respecting deli would be without halvah or tahini.

The size, form, and color of sesame seeds vary by variety; they are available in white, buff, tan, gold, brown, red, gray, and black. The most common are the

lighter colored. A drawback to sesame is that the seeds become rancid quickly, unless stored in a cool, dry environment.

Some sesame seeds are grown in the US, primarily in Texas; but the majority are imported, usually from the Middle East. Sesame allergies have been reported and are growing. It is estimated, however, that .1-.2% of the worldwide population is allergic to sesame. Canada requires allergenic labeling on sesame products; the US is considering it.

Sesame contains healthful compounds called *lignans*. These include *sesamin* and *sesamolin*, known for their high antioxidant properties and inhibition of browning in fruit pulps. Sesamolin also has been used as an antimicrobial against food-borne pathogens.

### Sun-Sourced

Grapeseed, primarily a byproduct of the wine industry, has experienced strong popularity as a source of cooking oil. It is similar in its properties and flavor to olive oil, alongside which it is typically positioned. Grapeseed, however, has values to food making other than oil. As a nutraceutical, it contains concentrated amounts of antioxidants, vitamin E, and *linoleic* acid.

Grapeseed extract has been used as an antioxidant in a beef-pork sausage. It can successfully retain fresh-cooked flavor and aroma in processed meats, even after four months of storage.

There also is potential for using the extract for cancer and wound-healing. The University of Maryland reports good evidence for treating chronic venous insufficiency (leading to blood pooling in the legs) and edema using grapeseed extract.

Preliminary research shows promising results for lowering total and LDL cholesterol, as well as for lowering blood pressure and preventing the growth of many

## Spitting Image

Usually discarded singly and with gusto by oral propulsion, watermelon seeds actually are quite nutritious. They can be roasted and salted, like in-shell sunflower seeds, as a simple snack, or they can be sprouted, roasted, and shelled for salads and vegetable dishes. They even have been stirred into yogurt. Watermelon seeds also can be ground and made into a flour. They are high in protein, magnesium, iron, zinc, and unsaturated fat. Freeland Foods LLC's Go Raw line of snacks uses sprouted watermelon seeds in its new energy bars. The company also sells sprouted, shelled seeds in snack packages.

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cancers. Grape seed extracts, however, are not recommended for children or pregnant/breast-feeding women.

Sunflower seeds are enjoying renewed popularity as a snack, as well as an inclu-

sion in food formulations. They also were used to develop a dairy milk analog several years ago. The snack choices that once were limited to salted or unsalted, and in the shell or hulled, have expanded to

include numerous flavoring options, including barbeque, bacon, ranch, hot chili pepper, nacho cheese, pickled, and others.

Sunflower seeds are well known for their high level of unsaturated fats, protein, fiber, and a number of vitamins and minerals. They also contain phytosterols, plant cholesterol mimics that can help lower total and LDL blood cholesterol. Sunflower is one of the few native plants to North America and is non-GMO. One of the most successful products in recent years is sunflower seed butter. It was introduced as Sunbutter by SunGold Foods Inc., in 2002, as a replacement for peanut butter for those with peanut allergies.

Pumpkin seeds have a long tradition as pepitas, a snacking seed popular in Mexico and the Southwest. They are high in protein and monounsaturated fats, plus contain a healthy amount of vitamins, minerals, and antioxidants. Pumpkin seeds also contain *squalene*, a sterol that promotes heart health. There also has been some research showing them to be beneficial for treating benign prostatic hyperplasia (BPH), common in older males.

As with sunflower seeds, pumpkin seeds have been bursting out in a variety of flavors, including lime and chili pepper. Long a staple of Mexican molé sauce, today's processors use them liberally in granola mixes, cookies, breads, crackers, casseroles, salads, rice, vegetable dishes, and even desserts. Yoplait USA Inc. makes a flax and pumpkin seed line, and Nature's Path Foods Inc. sold a Pumpkin Raisin Crunch cereal for several years with great success.

While flax seed has enjoyed a healthy and continuing term of popularity, 2015 was chia seed's "coming out" year, and it is still extremely popular. Native to Mexico and Central America, it is high in omega-3 fats, fiber, protein, and numerous vitamins and minerals. It can be found in breakfast cereals, bars, and beverages, and is beginning to claim a place as a type of flour that can replace oil and eggs up to 25% in cakes.

One study found that when chia and buckwheat were combined, they produced a better gluten-free bread than most on the market. Because of its gell-



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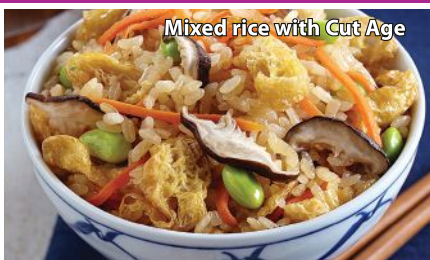


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Once limited to almonds as a source, milk analogs now are made from just about every type of nut and seed available.

ing properties, it also works well for thickened beverages. Chia is not a known allergen, and while sometimes promoted for weight loss, those claims have yet to be proven. Chia also has a number of compounds shown to help prevent heart disease.

“Chia seeds absorb nine times their weight when wet,” says Kathleen Gilbert, vice president of R&D for Sundia Corp.’s True Chia line of puddings. “To get the consistency correct neither too firm nor too runny was not an easy task. We decided to work with premium, white chia seeds, finding them to be consistent in gel formation. We also use fresh coconut milk to balance the texture of chia seeds and enhance the flavors.” Gilbert notes that the goal of True Chia pudding is not only to be appealing but to open opportunities for consumers to gain the benefits of chia in a product they can enjoy on a daily basis.

### Going Nuts

Nut consumption is associated with heart and eye health and improved cog-

nition, as well as decreased incidence of diabetes, gallstones, high blood pressure, and obesity. There seem to be no drawbacks to consuming nuts on a regular basis, except for the rare exception of allergies.

mortality risk than those who ate the least; in Shanghai, it was 17% lower. The authors concluded: “Consumption of nuts, particularly peanuts, given their general affordability, may be considered a cost-effective measure to improve cardiovascular health.”

Because all nuts are so nutritious, there is a qualified health claim that covers nuts, in general. It states: “Scientific evidence suggests, but does not prove, that eating 1.5oz per day of most nuts—as part of a diet low in saturated fat and cholesterol [could help] reduce the risk of heart disease.” Nuts that meet this claim include almonds, hazelnuts, pecans, some pine nuts, pistachios, and walnuts. It also covers some “nut-containing” products, which must meet levels for total and saturated fat, cholesterol, and sodium.

Walnuts have their own qualified health claim for heart disease.

The International Tree Nut Council Nutrition Research & Education Foundation’s website ([www.nuthealth.org](http://www.nuthealth.org)) contains numerous studies to back these health claims. When it comes to new uses for nuts, Maureen Ternus, MS, RD, the council’s executive director, recommends substituting up to 25% of flour in baked goods with a high-protein nut flour or meal.

Nuts add flavor, texture, and nutrients to dairy products, such as ice cream, yogurt, and soft cheeses, but they often need a moisture-barrier to keep them crisp—and chocolate is the perfect go-to solution. Nuts also are gluten-free, making them popular among gluten-free processors, especially since so many gluten-free products are low in nutritional value. Many nuts are known allergens, so it is crucial to take that into consideration.

One of the most common and prevalent uses of nuts today is in the form of



A meta-analysis on tree nuts covering 61 controlled, intervention trials using 2,500 participants was published last spring by Tufts University in its newsletter. Results concluded that intake of tree nuts lowered total and LDL cholesterol, and triglycerides. The nuts most studied were almonds and walnuts, but pistachios, macadamia, pecans, cashews, hazelnuts, and Brazil nuts also were included. Peanuts, being a legume, were not included in this analysis, but similar studies have proven them to be similarly effective as tree nuts in regards to health benefits and satiety.

While hundreds of studies on nuts and peanuts have supported their nutrition value, a 2015 meta-study of more than 200,000 people in the US and China found that those consumers with the highest level of nut consumption had a 21% lower

dairy milk analogs. Almond milk has enjoyed a long run as a soy-free milk analog, along with rice milk and milk substitutes from a number of seeds and grains (including hemp, flax, and, recently, corn and sunflower). Today, cashew milk, hazelnut milk, and pecan milk are staking their claims on the milk-alternative shelf with success.

The value of nuts and seeds when it comes to nutrition—with high amounts of protein, fiber, healthy fats, vitamins, minerals, and phytonutrients—is exceeded only by their versatility and consumer appeal. These factors continue to make them important additions to the food product developer's tool kit. **PF**

*Consultant and writer Judi Adams, MS, RDN, is recent past president of the Wheat Foods Council, as well as former president of the Grain Foods Foundation. A former assistant professor at North*



SOURCE: READY ROAST NUT CO. (WWW.NATURALLYMORE.COM)

**Nut butters began as replacements for peanut butter for those consumers with peanut allergies but now are favored for their own unique flavors and varieties.**

*Dakota State University, she worked for the North Dakota Wheat Commission and the National Sunflower Assn. Adams has served as marketing director for the Wyoming Dept. of Agriculture and was one of Bakery Management's "Top 20 most*

*influential people in the industry" three years running. She is considered one of the leading experts on grains and whole grains marketing and applications, and can be reached at judiadamsc consulting@gmail.com.*



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### VITAL CUISINE

For individuals battling decreased appetite and energy, unintentional weight loss and fatigue while undergoing cancer treatment, Hormel Foods has introduced the Hormel Vital Cuisine line of packaged Ready to Eat meals, nutrition shakes and whey protein powders.

Developed with support from experts at the Cancer Nutrition Consortium (CNC), an organization comprised of nutritionists, dietitians, oncologists, and physicians from leading cancer research institutions, along with professional chefs, Vital Cuisine products are nutrient- and protein-rich, a huge benefit to patients who often battle a drastic loss of energy and muscle mass while going through cancer treatment. Product developers also worked alongside some of the country's top chefs including chefs from the Culinary Institute of America.

Hormel Ready to Eat Meals feature three high-protein varieties: Chicken and Dumpling, Vegetarian Stew, and Beef and Mushroom Gravy. Also included are Protein Nutrition Shakes and 100% Whey Protein Drink Mix.

Hormel Health Labs is a subsidiary of Hormel Foods Corporation and offers foods, beverages and specialty items to the healthcare market both to facilities and now to those at home.



### POWER PACKED

Post Holdings' PowerBar business, Emeryville, Calif., marks its 30-year anniversary in 2016 with a massive brand relaunch including new products, packaging, web site, promotions and more.

The brand's new products include:

**PowerBar Protein Shakes:** Made with 30g of high quality protein, 2g of sugar and 160 calories, PowerBar shakes help rebuild muscle, replace a meal or can be used as a healthy and great tasting snack on the go. Available in Chocolate and Vanilla flavors.

**Reduced Sugar PowerBar ProteinPlus 20g bars:** Made with 20g of high quality protein, 3g of sugar and 200 calories, these bars can be used after a workout or as a satisfying snack throughout the day. Available in flavorful Lemon Poppy Seed or Chocolate Peanut Butter flavors.

**PowerBar Simple Fruit Energy Food:** Made with a welcome dose of real fruit and MAX-ENERGY\* blend for fast energy to muscles while exercising, these delicious gel purees are gluten free and 100 calories. Available in Apple Mixed Berry, Apple Pear Raspberry, and Apple Orange Lemon.

\*A 2:1 glucose-to-fructose blend found to deliver 20-50% more energy to muscles than glucose alone and improve endurance performance by 8%.



### KIDS GUMMIES

This spring saw OLLY Public Benefit Corporation, San Francisco, extend its line of functional food gummies with four new kids varieties: Growing Bones, Mighty Immunity, Super Brainy, and Happy Tummy.

OLLY says it partnered with an ingredient supplier, Kerry, for OLLY Kids Mighty Immunity, which combines Kerry's Wellmune natural immune ingredient along with acerola cherry, elderberry and zinc.

Says Taryn Forrelli, OLLY's resident nutritionist and vice president of innovation, "Kids Mighty Immunity is part of OLLY's new gummy collection formulated to meet the ever-changing needs of little ones' and easily delivers daily immune health benefits through an expertly blended gummy containing clinically-proven Wellmune."

OLLY Kids Mighty Immunity is available in a flavorful Cherry Berry gummy, and can be purchased at US Target stores nationwide and online at OLLY.com. The company offers a broad line of gummy multivitamins, focused "wellness boosts," and kids vitamins and supplements.

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# CO



Where food colorants are concerned, there are unstoppable changes afoot in the industry.

**Winston Boyd, PhD**, Contributing Editor

## THE “NATURAL COLORS ONLY”

movement resulted in sweeping reductions in the use of synthetic colorants and, understandably, a concurrent rise in interest in naturally derived food colorants. It also has driven a move to a new regulatory distinction currently undergoing formalization in the EU: “coloring foods.” These are food colorants derived from natural sources but processed in ways that retain the more natural identity of the colorant. Colorants that meet this definition are being presented as a marketing advantage in developed markets around the world.

Today’s food manufacturer is faced with, what is for some, a substantial dichotomy. There is a great deal of information to evaluate regarding consumer preferences, on the one hand, and

JUNE 2016

# L O R

## IT NATURAL

technical feasibility and economics on the other. The challenge becomes making a sound decision about what colorants to choose to meet current demands for clean labels, while maintaining as much as possible the quality, safety, appearance, shelflife, and profitability of existing product formulations.

Decades of experience with synthetic food colorants trained food manufacturers to expect ease of use, broad application, good stability, consistent performance, and low cost from their food colorants. Nature, on the other hand, developed coloring substances for specific applications and that are designed to degrade in relatively short order. The challenges vary, however, depending on what natural colorant is chosen.

### I Am Curious Yellow

Naturally derived food colorants come from many sources, and the coloring principals—the molecules that provide the coloring effect—belong (mostly) to relatively well-understood classes of substances. Most carotenoids



SOURCE: SENSIENT COLORS LLC (WWW.SENSIENTFOODCOLORS.COM)

**Ingredient technologists are becoming expert at recreating naturally vibrant primary and secondary colors formerly available only artificially.**

(annatto, *beta-carotene*, oleoresin paprika, carrot extract, *lycopene*, *lutein*, *apocarotenal*, *astaxanthin*, *canthaxanthin*, and others) are, as a rule, oil-sol-

uble substances with limited water solubility. The notable exceptions are saffron, gardenia extract (permitted in Asia), annatto extract (in the form of





SOURCE: NATUREX USA (WWW.NATUREX.COM)

**Naturally red and purple carrots have extended the root's use as a colorant source beyond the traditional orange and yellow tones.**

*norbixin*), and safflower extract (permitted in the EU).

The strongly oil-soluble members of this family can be rendered water-dispersible with the use of compatible food-grade surface active agents (surfactants). In the past, surfactants, such as polysorbate-80 and monoglyceride preparations, have been successfully used, but these can

run afoul of current expectations for clean ingredient statements.

From a regulatory perspective, this is not an issue as, according to current regulations in the US, it is not necessary for diluents (dilutant) and processing aids in these preparations to be declared on the final food product label.

The color shades of these carotenoids vary from the characteristic orange of

annatto and the orange-red of paprika, to the yellow and yellow-orange of lutein and saffron. Given the differences in solubility, care must be taken to select the correct formulation of these colorants to suit a given application.

Turmeric, and its coloring principle *curcumin*, have become highly popular, as more and more health-related information is disclosed about the vivid yellow-gold antioxidant. Among its many interesting properties is its color impact. Curcumin is an excellent color match for FD&C Yellow #5. Performance is quite another issue, however, due to its light sensitivity.

Food products colored with turmeric oleoresin fade quickly in direct light. (It would be useful to have a food-grade “sunscreen” that would protect the color, but so far none is known to exist.) This has limited the use of turmeric as a food colorant to those applications where the finished product is not exposed to direct light.

Contrast this with safflower extract. This product has long been permitted for use in the EU, but it is not currently permitted in the US. But it produces a vivid lemon-yellow color that is quite stable to both heat and light. It would fill a substantial performance gap as a natural replacement for FD&C Yellow #5, if it was permitted in the US.

## Along the Supply Chain

The pace of adoption of some natural colorants can result in unforeseen supply-chain hurdles.

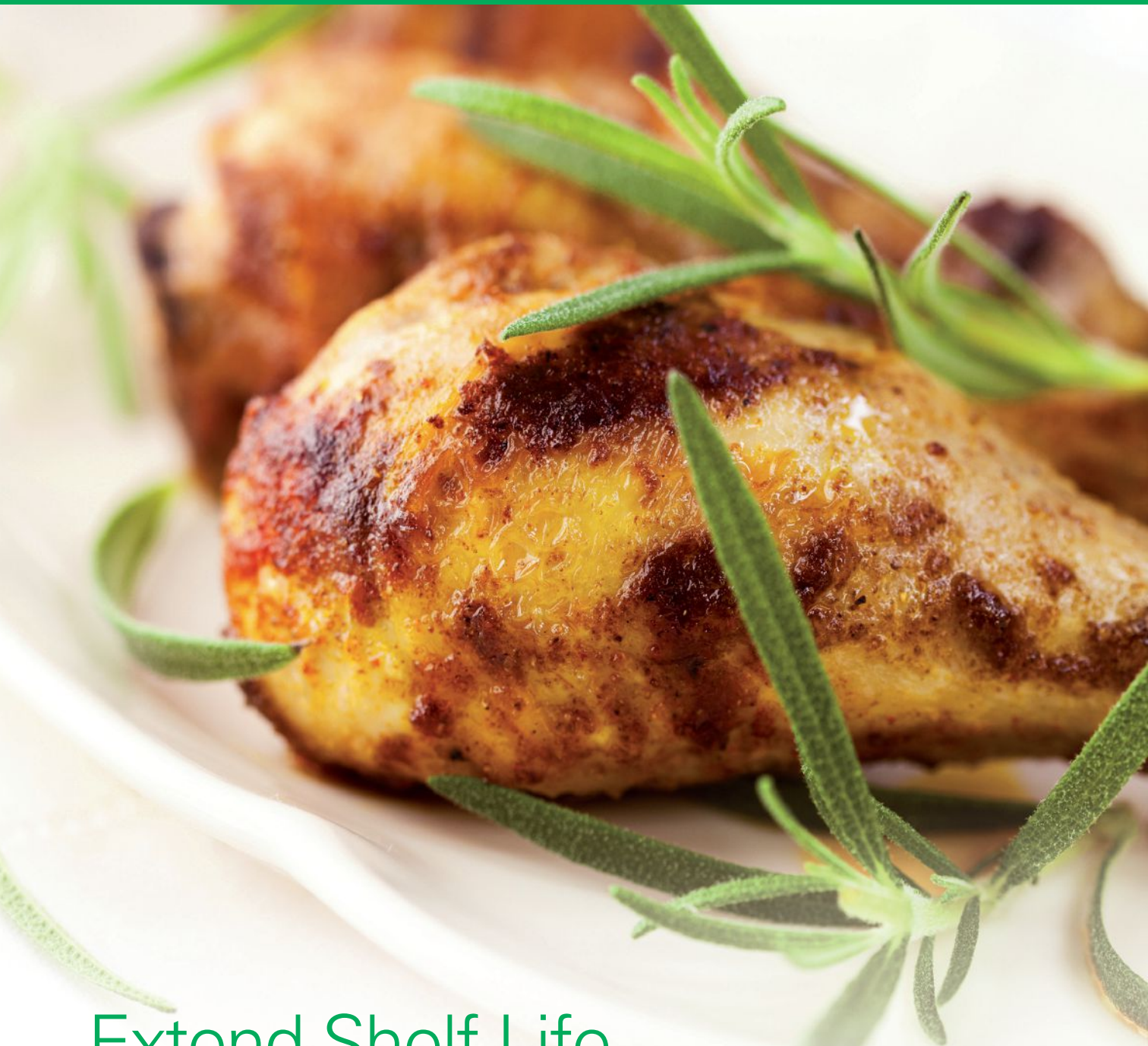
As an example, FD&C Red 40 is one of the most used synthetic food dyes. Red beet juice is one natural colorant that is an approximate shade match. Red beet juice has certain performance issues, but demand is still increasing, as replacements are sought for Red 40. The problem then becomes one of supply.

Obtaining red beet juice concentrate requires planting and growing necessary acreage of beets; successful harvests; and specific processing capabilities. And, with only one crop per year, it is necessary to plan well

in advance to have the right amount of product to meet demand. Rapid fluctuations in demand create substantial headaches for the growers and processors attempting to fill the need.

Economic forces could restrict the supply of colorant raw materials in some cases. For example, the raw material for carmine production must be harvested by hand and dried before it can be transported and processed. Given the relatively remote areas where most production occurs, consolidation and transportation to processing facilities can complicate the process. If the supply becomes too large and prices become too low, then workers move to harvest other crops, and the supply of the raw material becomes constricted.

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## Rainbow of Opportunity

In the search for FD&C Red #40 replacements, many developers have turned to extracts of red vegetables, especially red beet juice. It provides a vivid red color

with blue tones and historically has been used to mimic berry shades in applications such as yogurt. It performs less well in high water activity formulations where there is substantial exposure to heat. The

beet extract colorant, *betanin*, degrades more rapidly in high water activity environments with exposure to heat. Exposure to heat also drives a browning reaction between other components of the ingredient.

Ultimately, these two factors can cause color fade or cause browning in the food product. As scientists have developed a better understanding of the degradation mechanism(s), it has been possible to identify some ways to mitigate these negative effects. These generally involve minimizing exposure to unfavorable conditions by controlling where and when the colorant is added to the process.

The need to extend the palette of natural green, natural blue, and natural black colors has food manufacturers seeking replacements for synthetic colorants. This is because they quickly find natural blues and greens are difficult to achieve in many food applications. The most commonly recommended natural green is chlorophyll. It can be found readily in spinach, other green leafy vegetables, and some herbs.

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SOURCE: FMC CORP. (WWW.FMCBIOPOLYMER.COM);

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GROWING COLOURS **GNT**



SOURCE: SETHNESS PRODUCTS CO. (WWW.SETHNESS.COM)

Red-toned caramel colors now are available to provide a range of tones from rust to red velvet in food and beverage applications.

Natural greens also have been obtained through extraction from alfalfa. Some of the commercially available products have flavor and aroma issues that could present a challenge, depending on the application. There are some issues with solubility and pH stability, as well. In the US, the challenge is that the range of permissible uses is limited by current regulations.

Spirulina has been approved for limited use as a natural blue food color. Its use at present is uncommon, due to performance and stability issues, limited availability, and cost in use. It is reported to work well in cake decoration and frosting, where the pH is near neutral, and water activity is limited. Acidity and high water activity, along with the application of heat, cause rapid fading. It can find use in certain types of dry mix formulations, such as gelatin desserts. At present, spirulina extracts are not finding significant application in beverages or where there is high heat during processing.

In the US, there is no natural black colorant currently allowed. In the EU, carbon black (vegetable carbon) is permitted for

limited use, but there is no present prospect for approval by the FDA. Squid ink is mentioned from time to time in conversation, and it currently is used in highly limited quantity in traditional black squid ink pasta. But squid ink is an allergen and also cannot be used in kosher- or vegetarian/vegan-certified items. It is not approved for use as a food colorant in the US or the EU.

Carmine continues to be heavily criticized in the press, because of its origin. It is extracted from the dried bodies and eggs of an aphid-like insect that lives on a certain species of cactus. Peru and the Canary Islands are the primary sources, although the raw material can be found in Chile and Mexico. Because of its insectoid origin, the product is not kosher, nor is it suitable for use in vegan or vegetarian products.

It has also been discovered that a small percentage of the population might have an allergic reaction to carmine because of the natural protein content that is necessary to its functionality as a color. As the supply constricts and prices rise, it becomes more economical to harvest the raw material again.

These fluctuations in raw material supply historically have led to dramatic fluctuations in the cost of carmine and *carminic acid*.

There have been ongoing efforts to find a natural red color that can function as well as carmine, while avoiding the issues mentioned above. Various tomato-derived reds and other natural sources are coming forward, with functionality coming close to carmine and artificial reds. Colorant technology is helping these substitutes perform at least well enough that marketing teams can take over and make products that use such natural reds desirable to a concerned consumer base.

### Color Me Dairy

Annatto color has been a mainstay of the global natural cheese production industry for decades. The uniquely favorable characteristic of annatto extract is its ability to selectively bind to milk proteins. This ensures that most of the color winds up in the cheese curd. The unfortunate drawback is that a small proportion stays with the whey.

For whey producers, however, this presents a problem, as the commercially desirable whey protein powders are ideally white—not orange. Whey processors traditionally have been required to treat the supply stream to eliminate the residual annatto presence in whey powder.

It always has been possible to achieve the color effect of annatto in Cheddar and Colby cheeses with other coloring materials, such as combinations of oleoresin paprika with other carotenoids. However, these combinations do not readily bind effectively to the milk proteins, so much of the color is lost to the whey.

Recent technological advances have led to formulations that color the curd effectively and leave no residual color in the whey. This eases the demands on the whey processors. The result is that access to this cleaner whey is expected to reduce the value of whey from annatto-colored cheeses.

### Caramel Dreams

Caramel food colorants have been a mainstay in the food and beverage industry for decades. It is difficult to imagine a cola without the now-characteristic caramel coloring. (In fact, it was tried once and was a complete debacle. Pepsi Clear, anyone?) Caramel colorants are used throughout the food industry, especially in beverages and baked goods, to provide light yellow-brown (tan) colors to very dark, almost black colors.

Caramels are produced by the controlled heating of liquid reducing sugars. The caramelization reaction is a browning reaction similar to that observed when bread is baked or toasted, coffee is roasted, meat is cooked, and potatoes are fried. Industrial production of food-grade caramel colorants is catalyzed by the use of certain types of food-grade chemical additives (acid, alkali, sulfur dioxide) that drive the caramelization reaction to completion and influence the characteristics of the final product.

The type of catalyst used determines the class of caramel (I, II, III, or IV). The class of caramel determines in which application it is best used. For example, class IV caramels are used most commonly in beverage applications like colas.

A substance called *4-methyl imidazole* (4-MeI) is produced in a side reaction of the caramelization process in some situations. Several years ago, the presence of this substance raised concerns about the safety of caramel food colorants. A fact sheet published by the California Office of Environmental Health states: “Products that potentially contain 4-MeI include certain colas, beers, soy sauces, breads, coffee, and other products,” and “cooking, roasting, or other food processing, such as the roasting of coffee beans, could also lead to formation of 4-MeI.”

Toxicology studies in animals have found some effects at extremely high doses (comparable to a human consuming hundreds of cans of cola per day), and both the FDA and EFSA have taken the position that



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## INGREDIENT CHALLENGES



SOURCE: SOURCE: IFC SOLUTIONS INC. (WWW.IFC-SOLUTIONS.COM)

**New sources of non-artificial colors can now be used in formulations requiring extremes of temperature, such as high-heat baking.**

caramel food colorants are safe at current levels of consumption. In 2011, California chose to place 4-Mel on its list of probable carcinogens and established a “no significant risk level” of 29µg per day.

The total replacement of caramel food colorants would require attention to several issues. Caramel colors are inexpensive to use in comparison with other potential replacements. They also are uniquely well-suited to applications, such as beverages and baked goods, where they are simple to use, highly functional, and stable.

Most importantly, caramel colors typically are natural, clean label ingredients that resonate well with consumers. Unlike many colorants, they have an added psychological aspect of “comfort indulgence,” in addition to their versatility, low cost, and ease of use. Even with the 4-Mel scare, few consumers balked at enjoying foods with caramel colors. This was especially true once it was perceived that it was, at best, a tempest in a teapot.

### The Money of Color

Potential replacements of artificial colorants generally carry a much higher cost-in-use and cannot provide the level of functionality across a wide range of applications. Carmine, for example, is the aluminum lake of carminic acid. Carmine and carminic acid historically are significant food, cosmetic, and fabric colorants that are as stable as almost any synthetic colorant in most food systems. They are highly resistant to heat and light. They also are quite stable toward oxidative conditions. However, carmine is expensive in comparison to synthetic colorants, costing

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as much as 10-20+ times as much on a cost-in-use basis.

Most synthetic dyes can be obtained at levels of 88-90% purity or higher. Synthetic lakes are produced in three color strengths: low (10-12%), medium (20-24%), and high (30-34%) dye content. Carminic acid can be obtained in 95% purity, and carmine contains a relatively high coloring component content (~52% by regulatory definition).

Preparations of carminic acid or carmine in liquid form generally are much lower in colorant content, which then requires a higher dosage to achieve the desired coloring effect. The higher per-unit cost, plus the potentially significantly lower color content conspire to drive up the relative cost of using these natural colorants.

Since natural colorants typically are less economical on a cost-in-use basis, it is desirable to find ways to minimize the cost impact. One factor that leads to the higher cost is the relatively low concentration of color in the raw material and, frequently, in the finished color preparation. There are two ways to address the issue.

The first and most obvious is to increase the color content of the raw material. This is a challenge, because it

requires the development of special cultivars or alternative methods for the production of the color. Selective breeding can lead to special cultivars that produce higher yields of a selected colorant.

These gains generally are small, because the starting concentration of the colorant is often very small (a few percent at best). The economic impact can be favorable, but it is not a game-changer in terms of reducing cost-in-use.

The second method is to find alternative ways to produce the color. Beta-carotene occurs naturally in many plants. The orange carrot is most commonly thought of in this context. However, the majority of the beta-carotene produced and consumed in the US is a nature-identical product made by a synthetic chemical process which was developed decades ago.

Natural beta-carotene can be readily sourced from salt-tolerant algae or extracted from red palm oil. However, palm oil carotene does not meet the standard of identity for beta-carotene in the US, because it is a mixture of beta-carotene with other related carotenoids. The standard of identity requires that the carotenoid content be 95% beta-carotene.

Efforts at selective breeding to obtain higher color yields seem to be

limited. Alternative production methods could hold more promise, but they also carry risks. For example, it's possible to use genetic modification to achieve a higher producing cultivar or a modified microbe that over-produces color. However, it then ceases to be "natural" by many definitions. (NB: There still is no legal definition of the term "natural.")

Selective extraction methods can be extremely efficient at isolating and concentrating coloring substances. Then the question must be asked, does the production method lead to a finished good that is no longer natural by the definition prevalent at the time? Solvent extractions and genetic modification are both triggers for discussion of the natural origin of any food product these days.

Titanium dioxide (TiO<sub>2</sub>) is the world's best food-grade whitening and opacifying agent. It is made through a chemical process involving titanium-containing ore that is processed and purified to achieve the bright white and chemically highly inert powder. It has been used for decades as a white colorant in many applications, including some foods.

Because of the chemical name, TiO<sub>2</sub> is on a hit list of colorants for which replacements are being sought. The food industry has been searching for years for a suitable replacement, and, in a limited number of applications, alternatives have been found. Still, the unique performance of TiO<sub>2</sub> has proven highly difficult to duplicate with other, more consumer-friendly ingredients.

As a solution, some companies have developed natural white colorants that can fill the bill. Microencapsulated calcium carbonate has been used in this manner to good effect. It is resistant to low pH, oxidation, and light.

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## Synthetic Myths

Since the 1970s, there has been a growing perception that permitted, certified (read: "synthetic") colorants cause health problems. The most recent driver of this thinking is the 2011 "Southampton Study." Produced by a team in the UK, the study purports to show a connection between certain health concerns and the consumption of foods and beverages containing a combination of ingredients, including some synthetic food colorants.

The study has been criticized by experts in the field, but it has become part of a body of thought finding resonance among those increasingly suspicious of the quality and safety of processed foods. This suspicion remains, in spite of the fact that the current set of permitted synthetic food colorants is among the most tested of any food additives. Extensive testing of the toxicology and safety of these ingredients supports the current FDA position that usage within the recommended guidelines is safe.

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### Regulatory Framework

Colorants permitted for use in food are regulated by the FDA. Food colorants must appear on a positive list of permitted substances. (The governing regulations are found in 21 CFR, Parts 73 and 74 at <http://1.usa.gov/1pLgdtw>.) Similarly, permitted food colorants in the EU are governed by food-safety regulations and must appear on a positive list (<http://bit.ly/1N3RGer>).

EU regulations include numerical designations for ingredients and additives for use on food labels. These

beled as a food rather than as a colorant with an E-number.

The regulatory definition is now being finalized via the European Commission with input from NATCOL, EFSA, and other interested parties. The result has been the issuance of guidance notes on the classification of foods with coloring properties.

A key point is the establishment of an enrichment factor. The content of the coloring component in the food is compared to a nutritive component, such as carbohydrate, protein, or fat,

Previous mention had been made of safflower extract and its long history of successful use as a natural colorant in the EU. It is prepared using a solvent extraction process, which produces a concentrated coloring preparation. It provides a bright lemon-yellow color. To comply with the “coloring food” designation, it would have to be extracted using a modified process where the organic solvent is replaced with water.

This process produces a less-vivid colorant, so some of the aesthetic value of the color would be sacrificed to achieve the “coloring food” designation. If coloring preparations of red beet juice that meet the coloring food definition also contain higher amounts of other plant materials, such as fibers or other carbohydrate fractions, it should be expected that browning could be a greater problem.

Consumer demand for cleaner labels and natural ingredients favor the replacement of synthetic food colorants with colorants derived from natural sources. The inherent differences between synthetic and natural food colorants present challenges for the food manufacturer, where performance and cost are concerned. These challenges also represent substantial opportunity as consumer preferences evolve. **PF**



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## Caramel colors have a cachet of “comfort indulgence” in addition to their versatility, low cost, and ease of use.

numbers are preceded by the letter “E” and thus referred to as E-numbers. As an example, red beet root juice is E162. Because of their association with additives and unfamiliar food components, such as preservatives, synthetic food colorants, and additives, E-numbers are negatively perceived by consumers in the EU.

In the US, consumers are more familiar with the standard designations provided in the CFR. For the most part, these designations do not raise the level of concern that E-numbers have in the EU.

At least partly due to a backlash by consumers concerned about chemicals in food, there is a relatively new trend in the EU of “coloring foods” or “foods that color.” The concept is that certain foods have coloring capabilities, as well as value as a food. If these products are minimally processed or processed only by the most natural of methods, they can be thought to retain their identity as foods. As such, they should be la-

and that occurs with the colorant in the source. To conform with the EU guidance, the relative content of the coloring factor and the nutritive constituent should remain roughly the same. An enrichment factor of “6” has been determined to be the control point, and selective concentration of the coloring component is not permitted to occur beyond the enrichment factor limit.

Food colorant preparations based on spinach and nettle (green, chlorophyll), carrot and paprika (orange), carrot, turmeric and safflower (lemon yellow) all have a long history of successful use in the EU. It has been accepted that they represent foods that provide color, but they no longer meet the definition of a coloring food, as it is currently set forth. While adjustments in processing methods to achieve a “coloring food” designation could result in a marketing advantage, there may also be complications that arise that might reduce the color impact or functionality.

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# Certified!

Fast growing non-GMO, organic, and fair trade trends create big opportunities.

**FOODS LABELED** “Non-GMO,” “Organic,” and “Fair Trade,” once found only in natural food stores, are proliferating in mainstream supermarkets. Consumers want foods made with fewer, more simple, and natural ingredients—and without genetically modified organisms, pesticides, and difficult-to-pronounce ingredients.

Products with third-party certified labeling claims continue to see strong consumer demand. However, certification requires commitment and



SOURCE: ISTOCK/OLIVIER LE MOAL (WWW.ISTOCK.COM)

## KEYPOINTS

1. Getting certified for regulatory reasons or marketing can involve red tape and even formulation challenges, but it pays off several-fold in benefits to both the eco-social environment and the manufacturer's bottom line.
2. Most products today have some call-out on the label to reflect a unique state of processing or ingredient, yet consumers show no signs of “label fatigue,” when it comes to purchase choices.
3. Organic and GMO-free continue to be top interests in the certification of ingredients in formulations, after religious certifications, such as kosher assurance.
4. Some claims, such as “natural,” have no certification, oversight, or even legal definition, yet still resonate strongly with consumers (although less so as time goes by). Careful marketing is needed to cut through such unwanted “noise” that keeps consumers from recognizing legally certified products.

documented traceability, while ingredient sourcing can involve long-term planning to ensure steady and consistent supplies. Sourcing challenges for ingredients that are organic, natural, sustainable, fair trade, GMO-free, etc., are being addressed by suppliers with unprecedented speed.

Market data confirm the rise of non-GMO, organic, and other certification trends. Mintel's Global New Product Database (GNPD) finds that 15.7% of new product introduced in 2015 made “Non-GMO” or “GMO-free” claims—an increase from 10.7% in 2014 and 2.8% in 2012. This makes non-GMO the fastest growing food label claim. Similar strong growth is seen in organic products, with 13.5% of new products making organic claims in 2015, up from 10.7% in 2014. New products with ethical claims, such as fair trade, also are increasing, although a little more

slowly; 7.9% of new products featured such ethical claims in 2015 compared with 6.7% in 2014.

### Non-GMO Mainstream

Foods with non-GMO claims are now common, found on major food brands. These include General Mills Inc.'s Cheerios cereal, Post Holdings, Inc.'s Grape Nuts cereal, Unilever N.V.'s Ben & Jerry's brand ice cream and Hellmann's brand mayonnaise, The Hershey Co.'s chocolate syrup, Del Monte Foods Inc.'s full line of canned vegetables, J. M. Smucker Co.'s Smucker's brand of natural jams, and even Abbott Laboratories' Similac infant formula. And the list continues to grow.

According to a 2015 Market Research Group LLC's Packaged Facts consumer survey, 39% of respondents reported actively buying grocery products with “GMO-free” on the labels.

Ingredient suppliers confirm strong demand for non-GMO ingredients. What once was associated with grains and produce has extended to encompass the widest swath of larger companies and brands.

The aforementioned Ben & Jerry's transitioned to non-GMO ingredients in its ice creams from 2012- 2014. Most of the company's core ingredients had no GMO risk. But a big exception was the frozen novelty maker's inclusions portfolio—the candies, nuts, baked goods, and other items incorporated into the ice creams. But some of the core ingredients were affected.

Both Ben & Jerry's and its suppliers had to switch from using GMO-risk maltodextrin, soy lecithin, corn syrup, and starches to non-GMO alternatives. Even the sweeteners used in cherries for the company's big-selling Cherry Garcia ice cream were switched from GMO beet sugar to cane sugar. Heath Bar inclusions containing GMO ingredients were replaced by non-GMO, butter toffee crunch bars.

For Ben & Jerry's, switching to non-GMO ingredients aligned with the company's social mission values. "It's about 'walking our talk' through supporting small family farms and sustainable agriculture," says Cheryl Pinto, the company's global values-led sourcing manager. "It re-emphasizes that we act on our values."

According to Pinto, it is becoming easier for companies to switch to non-GMO ingredients. "As more and more big companies offer non-GMO products, the availability of non-GMO ingredients is increasing," she acknowledges.

To increase the supply of non-GMO grains and ingredients, Ben & Jerry's teamed up with the non-profit cooperative Green America to create

a Non-GMO Working Group. The group comprises members from the length of the supply chain, from seed producers and farmers to large food manufacturers and retailers.

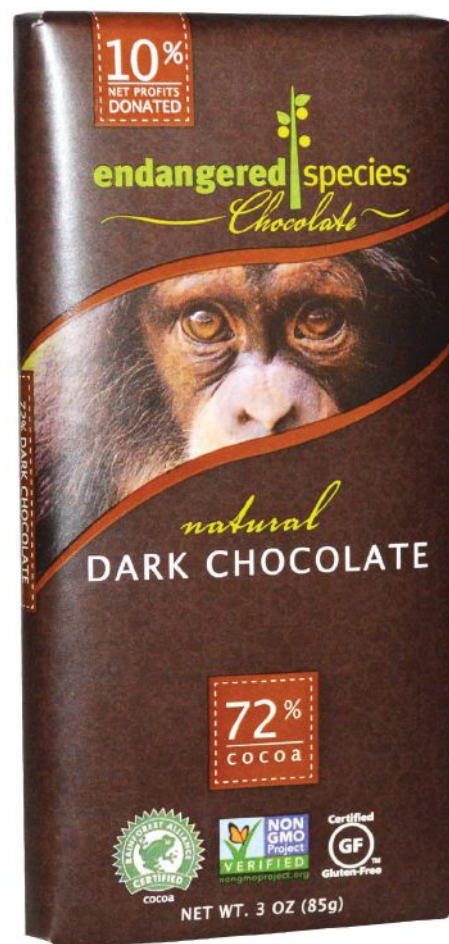
### Proof Positive

An increasing number of ingredient suppliers are having their products Non-GMO Project-verified, which also makes it easier for food companies to become verified. However, adequate supplies of ingredients also depend on the types of those ingredients. Sourcing high-risk ingredients, such as corn and soy, is the most challenging. (It should be noted that, although GMO wheat is in development, it is not commercially available in the US.)

Today's farmers are availing themselves of increased education and awareness opportunities about what's needed to produce non-GMO products, although ingredient experts recognize that grain handling infrastructure remains to be fully developed in some areas.

Increasingly, non-GMO and organic ingredient suppliers are having their products third-party verified by the Non-GMO Project. The verification procedure is rigorous and necessarily must be comprehensive, especially in light of some slip-ups in the early years. The process involves audits, traceability, documentation, and, of course, thorough testing of all ingredients.

Unlike organic certification, which has a national, uniform standard for qualification, non-GMO still has no



SOURCE: ENDANGERED SPECIES CHOCOLATE LLC (WWW.CHOCOLATEBAR.COM)

Consumers have demonstrated that multiple label designations enhance point-of-purchase decision-making rather than confusion, as long as those badges resonate with their ideals.

such national standard. The Non-GMO Project, which launched in 2007, has emerged as the leading non-GMO standard, as evidenced by the 35,000 products that the Project has verified. With the rapid growth of the non-GMO market, other non-GMO certification programs have emerged. The two most

### Fast Fact

Organic farmers cannot knowingly plant GMO seeds. That is the basis of genetic engineering being classified as an "excluded method" in the National Organic Program rules.



SOURCE: FAIRTRADE AMERICA/TOBIAS THIELE (WWW.FAIRTRADEAMERICA.ORG)



**Skillful marketing helps processors break through barriers keeping consumers from recognizing and seeking out legally certified products.**

notable competing programs are NSF International's Non-GMO True North certification and the USDA's Process Verified Program.

### Organic Challenges

As with non-GMO, the organic market is experiencing phenomenal growth, with sales of organic products now above \$40 billion annually. Large companies are increasing organic of-

ferings, as well as snapping up small and medium organic brands, such as General Mills did in 2014, with Annie's Homegrown Inc., for a reported sum of \$820 million.

Ingredient suppliers have noted that many non-GMO ingredient seekers also demand the ingredients be organic. And, while organic ingredients by certification cannot be GMO, the opposite is still possible. The combination of

the two qualifications, coupled with the demand stress created when large food manufacturers get on board with these programs, periodically has caused supply-demand strain. This is especially difficult for ingredients such as soy and corn that, until very recently, were about 80-90% GMO sourced in the US, unlike in the rest of the world.

Luckily, enough ingredient growers and suppliers recognized the coming tide and began planning for the dramatic increase, removing some of that strain. Still, challenges can occur. For example, one supplier pointed to a shortage of organic yeast just a few years ago, but noted how at least four companies stepped into the void to provide a more reliable supply of organic yeast.

To address the shortages, organic food companies have launched initiatives to increase organic acres. A collaboration among leading organic food companies, including Annie's, Clif Bar & Co., Stonyfield Farm Inc., the Organic Valley cooperative, Whole Foods Market Inc., and others launched last year to increase acres of organic grains, pulses, and oil seeds.

Careful scrutiny still is in order, as

## Organic and Non-GMO Report

From obscure grain industry terms to household words, organic and non-GMO are now the most popular label claims on the food scene. Market data confirm the non-GMO market's growth as the fastest growing food labeling claim in the US, with annual growth of 50% per year—even faster than gluten-free, fair trade, and other categories. According to the Natural Marketing Institute, 59% of consumers are using non-GMO products. The Non-GMO Project, the leading non-GMO verification organization, already has verified nearly 35,000 products that produce a combined \$16 billion in annual sales.

The group's Organic & Non-GMO Report currently is the only publication tracking this fast growing market, along with the equally strong

market for organic foods. Now in its 16th year of publication, the report is designed to help food manufacturers locate sources for non-GMO grains and ingredients and keep them up-to-date on issues, such as GMO labeling, non-GMO certification and testing, and other topics that impact their businesses.

The Non-GMO Project also provides the world's only "farm to fork" directory of non-GM products in its Non-GMO Sourcebook. Published annually, the sourcebook features more than 800 suppliers of non-GMO products, including seeds, grains, ingredients, animal feed, and food products.

For more information about The Organic & Non-GMO Report and The Non-GMO Sourcebook, visit [www.non-gmoreport.com](http://www.non-gmoreport.com).



**The first ingredients and products to stress the importance of fair trade practices chocolate, bananas, coffee, vanilla, and tea are sourced from countries most vulnerable to exploitation.**

consumers still express confusion over what the specifics of an organic label on a product actually means. According to a 2014 study published in the International Food and Agribusiness Management Review, 17% of US and Canadian consumers think organic food is also locally grown, while another 23% believe locally grown food is automatically organic.

“Despite organic sales and accessibility at all-time highs, consumer confusion about organic benefits remains significant,” noted Laura Batcha, CEO of the Organic Trade Association, via Danielle Nierenberg’s Food Tank non-profit think tank. “Consumers need to know the facts about organic, so they can make the smartest choices for themselves and their families.”

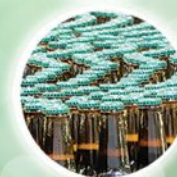
### Worth the Wait

Supply shortages still crop up, especially for those ingredients in the organic market that take longer to establish supplies for—such as grains and produce. Organic food accounts for about 5% of all food sales in the US, but organic farming acres total less than 1% of US farmland. These items require three years of crop rotations before produce from the land they’re grown on can be considered organic. And some fields can never qualify.



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**Cereal makers adapted to the non-GMO shift with relative speed, bringing a comprehensive offering of the top brands into the GMO-free fold in short order.**

The Organic Trade Association is working with the USDA to create a Certified Transition label program that will help farmers market their crops during the three-year transition to organic, since this is one of the biggest challenges to increasing organic farming.

The key to sourcing organic ingredients, as in the non-GMO supply chain, is long-term planning, particularly for bigger companies that need greater quantities of ingredients. A company wishing to make the switch to organic must take long-range thinking and

long-term contracts into account. In this manner, it can pay to work in tandem with suppliers and growers.

One example is Clif Bar, which makes organic nutrition bars. One of Clif Bar's main organic ingredients is figs. Faced with a supply shortage a few years ago, Clif Bar approached its main fig supplier and proposed a seven-year contract to encourage a transition to 300 more organic acres. Clif Bar guaranteed the purchase of all the figs grown on the 300 acres during the three-year transition—and for four more years when the figs were certified organic.

The grower happily accepted the proposal, as it would make up all the transition costs in the first four years after going organic. Other large food companies, including Chipotle Mexican Grill Inc. and the huge Hain Celestial Group, are offering farmers similar long-term contracts to secure organic supply.

### All's Fair

Fair trade certification is another growing trend among food manufacturers. Fair trade standards focus on social, economic, environmental, and sustainability factors. These include safe working conditions; no forced or child labor; elimination or reduction of harmful chemicals and pesticides; and no GMOs.

"Fair trade encompasses not only the health and sustainability of the

## Natural Risks

Ironically, the "natural" label claim could be falling into disfavor in the natural food industry. Mintel Group's GNPD survey found that new products with natural claims were 11% in 2015, after dropping 12.6% in 2014, and 13.8% in 2013.

There are several reasons for the declining use of natural claims,

according to Carl Jorgensen, director, global consumer strategy and wellness, for consulting group Daymon Worldwide. "Lawsuits targeting companies making natural claims have made the use of the term too risky, and the decision by FDA to not create a defined standard for 'natural' further depressed new product launches using the term."

FDA is taking public comments on use of the term and announced it will "thoroughly review all public comments and information before determining its next steps."

environment, but also the health of people working in that environment,” says Jenna Larson, a senior manager at Fair Trade USA, the leading third-party certifier of fair trade products in the US.

Fair Trade USA certifies products from 30 different categories, including coffee, tea, cocoa, sugar, fruits and vegetables, beans and grains, spices, nuts, and seafood. Coffee accounts for one half of the fair trade-certification volume. About 1,000 US companies offer fair trade-certified products.

Fair Trade USA works with food manufacturers to help them locate sources for certified ingredients, which include cocoa, sugar, coconut, spices, vanilla, agave, and sweeteners. And more certified ingredients are becoming available, according to Larson. “We work with brand companies to find the right quantity, quality, and

flavor profile to meet the needs of their formulations,” she says. “There are more

Along with fair trade, there are a number of sustainability certification programs for

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According to Mintel’s Global New Product Database, 15.7% of new products in 2015 made “Non-GMO” or “GMO-free” claims.

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opportunities to integrate sustainability into recipes and packaged foods.”

Larson adds that fair trade certification strengthens and increases transparency in supply chains and invests in the long-term sustainability of producing farmers and communities. “It also is a way of communicating a company’s sustainability story to customers,” she says.

farming and food production. These include Rain Forest Alliance, Food Alliance, and SCS Global Services’ “Sustainably Grown” certification. These programs have standards that address sustainability, environmental and social responsibility, and economic stability.

Critics say that such certification programs are “organic lite” and not as rigorous



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as organic standards, and their eco labels create more confusion for consumers already inundated with labeling claims. Others say that sustainable certification provides farmers a viable middle option between conventional and organic farming. However, consumers

Although GMO wheat is in development, it never has been commercially available in the US.

continue to show strong acceptance for anything that indicates greater-than-average care has gone into selecting the ingredients that appear in foods and beverages.

### Growing Trends

Food and beverage manufacturers are considering organic and non-GMO-verified sweetener options to replace GMO-risk beet sugar and high-fructose corn syrup in their products. These alternatives include agave, stevia, honey, cane sugar, rice and tapioca syrups, and erythritol, among others. Tapioca syrup, especially, is enjoying

closer looks by manufacturers, due to the ease of substitution it allows processors in formulations.

Demand for alternative sweeteners and oils also is driven by the industry trend toward clean labels with simpler, fewer, and non-GMO ingredients. Ingredients made from sunflowers, such as oil and lecithin, are becoming popular, because they are non-GMO and perceived as healthier options.

“Food manufacturers are adding sunflower oil, because it has an exceptional fat profile with less than 10% unhealthy saturated fat, no trans fat, and over 90% healthy unsaturated fat,” says John Sandbakken, executive director of the National Sunflower Association.

Other suppliers see strong demand for pea and other vegetable-based proteins. Such vegetable-derived protein is becoming more popular due to multiple qualities, from not only the organic and non-GMO standpoints, but also the reduced risk of allergens and the gluten-free aspects. Moreover, pea proteins carry a sustainability advantage, because peas are a good rotational crop for farmers and add nitrogen to the soil.

Ingredients from seeds, such as chia, hemp, and flax, as well as from more envelope-pushing sources like fungi, algae, duckweed, and similar new sources, are growing fast for the same cluster of advantages.

The combination of sustainability, ease of non-GMO certification, and low carbon footprint these healthful ingredients carry is taking them from the fringe to the mainstream much more quickly than traditionally occurred when a new ingredient came on the scene.

While it might seem that every product these days carries some sort of marketing claim, certifiable ingredients, and thus the products made from them, are unlikely to fade in popularity. For formulators, the marketing challenge is becoming minimal, as such products effectively sell themselves. The challenges of sourcing still are out there, but the energy from suppliers is bearing fruit, as shortages become fewer and farther between. **PF**

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*Ken Roseboro is editor and publisher of The Organic & Non-GMO Report, the leading publication focusing on the fast growing markets for non-GMO and organic foods, ([www.non-gmoreport.com](http://www.non-gmoreport.com)). Roseboro also is the editor and publisher of The Non-GMO Sourcebook, the world's only “farm to fork” directory of suppliers of non-GMO seeds, grains, ingredients, animal feed, and food products [www.nongmosourcebook.com](http://www.nongmosourcebook.com)).*

*Roseboro's articles have appeared in leading food and agriculture publications and websites, including Civil Eats, New Hope 360, Organic Connections, World Grain, Natural Foods Merchandiser, the pages of Prepared Foods, and other journals. He is on the board of directors of the Iowa Organic Association and a founding member of the Non-GMO Supply Working Group ([www.centerforsustainabilitysolutions.org/non-gmo-supply-working-group](http://www.centerforsustainabilitysolutions.org/non-gmo-supply-working-group)).*

# Food Allergies: Formulation Challenges

Formulations for those affected with food allergies is a growing concern for all aspects of the food/beverage industry. *Prepared Foods'* R&D Seminar speakers discussed two of the biggest challenges: formulating nut-free foods and formulating for gluten-free.

## Formulating Nut-free Foods

Nuts are an important source of nutrients for both humans and wildlife. Because of their high oil and protein content, they are a highly prized food and energy source. Applications for nuts are countless; they include bakery products and mixes, confectionery, snacks, trail mixes, dairy and ice cream, and much more.

Nuts have many features that are appealing for foods, such as wide variety, eye appeal, flavor, texture, convenience, nutrition and availability—and they can be somewhat inexpensive. Nutritionally, nuts provide healthy fat, protein and fiber, as well as a number of vitamins and minerals.

Overall, per capita consumption of tree nuts has increased steadily over the years, going from 1.82lbs in 1981 to over 4lbs in 2014 (not including peanuts). However, the nut market can be volatile, due to weather, water, disease, crop yields, grades, demand and government intervention.

“Nuts are one of the largest users of water in California, and most are exported,” noted Dennis Reid, vice president of business development, Inclusion Technologies, in his *Prepared Foods'* R&D Seminar presentation titled “Formulating Nut-free Foods.”



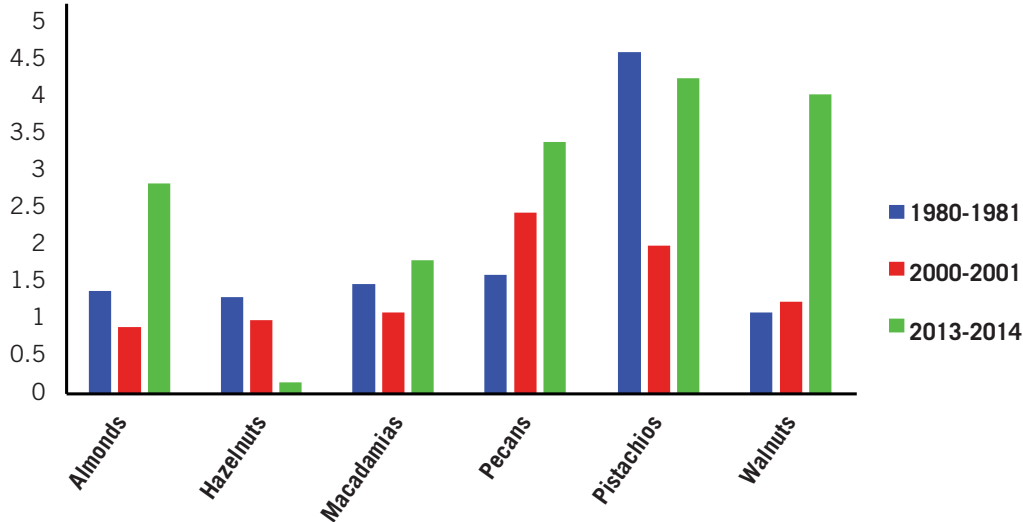
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Nut allergies have contributed to the market for allergy and intolerance products, worth \$3.9 billion in 2015 according to Packaged Facts. Because of allergies, schools and restaurants have been forced to react to this growing and sometimes fatal concern. People with allergies can call some airlines the day before and have peanuts removed from their flight.

Often, foods carry a warning that they have been produced in a facility that contains nuts, making their consumption a big risk to those with nut allergies. Some nut-allergic individuals carry a “Dining Safely Card” explaining their allergies and asking restaurant staff to check ingredient statements and help ensure they do not consume even



## US Grower Pricing History – Tree Nuts



SOURCE: USDA, NATIONAL AGRICULTURAL STATISTICS SERVICES

Nut prices have fluctuated over the years, due to many factors including weather, water, disease, crop yields, grades, demand and government intervention. Prices below are what growers receive; consumer prices would be much higher. Currently, the pecan market is very tight, and prices are very high now. Almonds have come down slightly, and walnuts have come down significantly, continuing to show the extreme volatility in pricing for all nuts.

a minute amount of nuts. The card also asks that if the person does accidentally consume any nuts, to please have someone call 911, as they will require immediate medical attention.

According to Reid, “Formulation approaches for replacing or extend-

characteristics of tree nuts, including appearance, taste and texture. They can function similarly in food systems, as well, as do nuts themselves.

Nut analogs are economical versus tree nuts, and there is a consistent supply, allowing for 100% nut-free

Elizabeth Pelofske, Contributing Editor

### Gluten-free Bread Solutions with HPMC

Today’s estimates are that 1% of the population has celiac disease; 0.4% have a life-threatening wheat allergy; 18 million people have a non-celiac wheat sensitivity; and 30% of the population currently uses gluten-free products. Global gluten-free introductions continue to show strong growth, according to the Natural Marketing Institute.

Since 1999, gluten-free food and beverage launches have grown each year to a total of over 17,000 products in the US by 2014; globally, that’s more than 79,000 gluten-free product launches. Gluten-free product launches have been seen in many categories—with the most in snacks, dairy, sauces and seasonings, and bakery.

cerns (as nuts sometimes do).

In summary, Reid adds, “Nuts are excellent food ingredients, but are getting very expensive, and nut allergies are not going away. There are solutions for food scientists’ consideration in nut extension or replacement. And functionality does not have to be lost.”

*“Formulating Nut-free Foods,” Dennis Reid, vice president of business development, Inclusion Technologies, 913-370-8070, dreid@inclusiontech.com*

—Summary by

Nut analogs are economical versus tree nuts, and there is a consistent supply, allowing for 100% nut-free products with similar compositions to nut-containing counterparts.

ing nuts include avoiding nut-based recipes, using fewer nuts, adding nut flavors, or using nut extenders or nut replacers.” Nut alternatives or formulated nut analogs can have the sensory

products with similar compositions to nut-containing counterparts. Nut analogs are easily digested; have a wide range of nut flavors; various sizes and shapes; and no micro con-

Gluten is the protein fraction in wheat, made up of two proteins, glutenin and gliadin. They function in baked goods to provide extensibility (the ability of dough to stretch); gas-holding ability, giving bread an open structure, rise and volume; and structure (the ability to retain a three-dimensional network).

“Gluten-free or wheat-free baked goods are difficult to formulate and to achieve the properties of their wheat-based counterparts,” stated Jo Anna Popielarski, scientist, Food R&D & Technical, Ashland Specialty Ingredients, in her *PF* R&D Seminar titled “Gluten-free Bread Solutions with HPMC.”

Formulation challenges include poor height and volume, poor texture and eating properties, inconsistent crumb structure and short shelflife. Typically, bakers will use one or more hydrocolloid to help achieve the desired characteristics in gluten-free baked goods. Xanthan gum, guar gum, sodium carboxymethylcellulose (typically labeled as “cellulose gum”), locust bean gum or hydroxypropylmethylcellulose (HPMC, typically labeled as “modified cellulose”) are common.

“HPMC is the preferred hydrocolloid for gluten-free bread in Europe and North America. HPMC has been established in the scientific literature, with more than 44 citations, most in the last five years,” added Popielarski.

HPMC possesses unique properties that benefit gluten-free bread. When thermally induced gelation of HPMC in a bakery formulation occurs, the liquid transitions to a solid gel at baking temperatures, and its surface activity

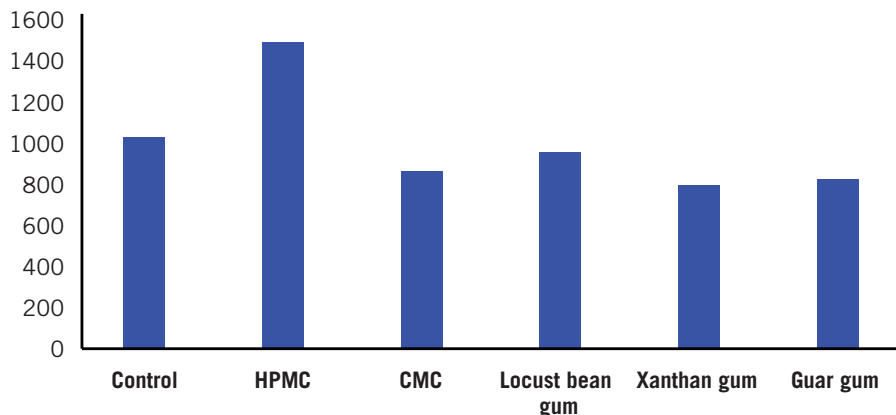
promotes gas cell formation. Support in scientific literature for HPMC functions in gluten-free bread include its increased water absorption, gas retention and specific volumes. Softness, finer

crumb structure and reduced freeze-thaw damage also are advantages provided by HPMC. HPMC also is highly effective in egg-free formulations.

Popielarski explained that, in the US, HPMC is identified on an ingredient statement as “modified cellulose.” There are many different grades of HPMC, including a 4,000cps viscosity and a 15,000cps viscosity—which have been the most researched for gluten-free applications. These HPMC ingredients have been tested internally in rice-flour formulations and blends of rice/tapioca/buckwheat at

2 and 4% levels. Bread volume, softness and appearance were tested. Results showed that HPMC (4,000cps) showed higher volume, increased softness and better appearance than the

## Volume, ml of Gluten-free Bread Tested with 4% Hydrocolloids



SOURCE: ASHLAND SPECIALTY INGREDIENTS

**HPMC both showed better volume than other hydrocolloids or the control at 4% use level.**

## “HPMC is the preferred hydrocolloid for gluten-free bread in Europe and North America.”

control and other hydrocolloids, at both 2% and 4% levels.

In conclusion, 2-4% with the 4,000cps HPMC is the best option for simplified rice-flour formulations and also provide some benefits to the flour blend. **PF**

*“Gluten-free Bread Solutions with HPMC,” Jo Anna Popielarski, scientist, Food R&D & Technical, Ashland Specialty Ingredients, 302-995-3286, [japopielarski@ashland.com](mailto:japopielarski@ashland.com)*

—Summary by Elizabeth Pelofske,  
Contributing Editor





### Latin Flavors, Seasonings

Fuchs North America introduces the “Latin Action Collection,” a new 10-item line of seasonings, bases and flavors. New offerings include Chimichurri Argentino, Chipotle Adobo Seasoning Blend, Chorizo Sausage Seasoning, Cracked Coriander & Green Chili Rub, Elote Street Corn Snack Seasoning, Mayan Hot Chocolate, Spicy Guacamole Snack Seasoning, Tomatillo Seasoning Blend, Valencia Style Rice Seasoning Blend and a Yucatán Chicken & Lime Soup Base. “We focus on ever-evolving consumer taste preferences,” notes Patrick Laughlin, director of marketing and taste trend research. “Our goal is to help food companies come up with new taste sensations they can claim as their own – offerings that are distinctively different, not ‘more of the same.’”—*Fuchs North America*, [www.fuchsna.com](http://www.fuchsna.com)

### Cheese, Dairy Flavors

Bell Flavors & Fragrances has expanded its dairy portfolio with new flavors ranging from cheese to butter, milk and sour cream. With the growth of artisanal cheeses and consumer interest in global market products, the variety of cheeses available has erupted. Bell’s cheese flavors include aged cheddar, feta, manchego, mozzarella, oaxacan, ricotta and toasted parmesan. Along with cheese flavors, Bell has remastered its dairy flavors –ranging from rich crema to freshly whipped butter to evaporated milk. Bell will continue to add cheese and dairy flavors as they are tested and developed for additional applications.—*Bell Flavors & Fragrances*, [www.bellff.com](http://www.bellff.com)

### Clean Label Starches

Ingredion’s new clean label starches NOVATION PRIMA 340 and 350 provide extended cold shelf life stability in refrigerated, frozen and instant foods. NOVATION PRIMA 340 and 350 are the first functional clean label starches to deliver instant viscosity and excellent process tolerance while they provide high stability under

cold temperature storage. This gives manufacturers the ability to extend the shelf life of cold-processed or instant products in the freezer or refrigerator. Manufacturers can now deliver the same shelf life stability and functionality as traditional modified starches or other stabilizers with NOVATION PRIMA 340 and 350, but with a simple, consumer-friendly starch label. In addition to high freeze/thaw stability, the starches offer high stability to heat, acid and shear during processing, a clean flavor profile and smooth textures.—*Ingredion Incorporated*, [www.ingredion.com](http://www.ingredion.com)

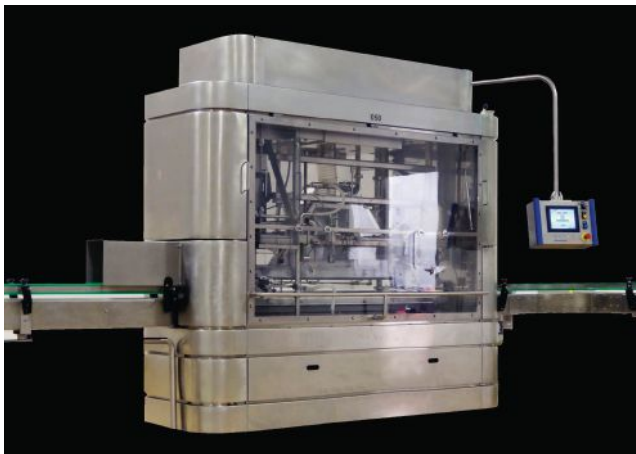


### Sustainable Solutions

As a global player with production facilities, application centers and offices around the world, sustainability has been at the heart of Palsgaard’s strategy since its creation. Palsgaard holds RSPO (Roundtable on Sustainable Palm Oil) Supply Chain Certificates on MB (Mass Balance) and SG (Segregated) levels, making it able to provide a wide range of sustainable solutions to meet its customers’ needs. Palsgaard will use its IFT 2016 Booth #434 to showcase sustainable emulsifiers that help food formulators remove trans fats in for multiple applications, such as bakery and margarine. Palsgaard also will introduce three highly functional products in its series of powdered cake emulsifiers.—*Palsgaard Incorporated*, [www.palsgaard.com](http://www.palsgaard.com)

### Non-GMO Dietary Fiber

Taiyo’s all-natural Sunfiber has been Non-GMO Project Verified. Sunfiber, a galactomannan-based fiber, is also 100% gluten-free, certified organic, kosher and halal and suitable for vegetarians. Sunfiber is a soluble, transparent and tasteless dietary fiber with strong prebiotic characteristics. A true regulating fiber, Sunfiber helps reduce occasional constipation and diarrhea, and return stool to a normal healthy state. Sunfiber also offers a comfortable, healthy satiety effect by slowing gastric transit time.—*Taiyo International*, [www.sunfiber.com](http://www.sunfiber.com)



### Aseptic R&D Lab Filler

MicroThermics introduces the first truly automated aseptic fillers for R&D laboratory use. Providing a high level of assurance, they fill bottles at a rate of 250 or 500 bottles per hour (model dependent). Just as in production, they automatically sterilize the filling chamber while the processor goes through its SIP process, which also sterilizes the filler's product lines. Once the SIP process is complete, and product is ready, the filler then continuously sterilizes the bottles and caps, then fills and seals the bottles under sterile conditions. These new fillers can be paired with MicroThermics' laboratory UHT/HTST processors, or with its new Custom Series UHT/HTST/Aseptic Processors to create a complete laboratory processing and packaging line.—*MicroThermics Inc.*, [www.microthermics.com](http://www.microthermics.com)

### Cut Saturated Fats

Using starches, vegetable waxes and emulsions, Cargill scientists have created fat systems that lower saturated fat by as much as 40% in shortenings, without compromising finished product attributes. Before tackling the challenge of reducing saturated fat levels in bakery shortenings, Cargill researchers gained a comprehensive understanding of how fat behaves at a molecular level. They analyzed its structure at each stage of the production process, from mixing to the end of a product's shelf life. Then, they created bakery models to predict the specific application performance of each reduced-saturated-fat alternative. In the end, the researchers landed on three promising approaches to lower saturated fat levels.

In one method, Cargill researchers replaced some of the traditional saturated fat with a blend of canola oil, a product lower in saturated fat, and starch. In a separate study, Cargill researchers focused on controlling how fat solidifies. A final approach explored using emulsions to dilute saturated fat levels. While water and fat naturally separate, Cargill researchers devised a method of encas-

ing water droplets in shells made of monoglycerides and hard fats.

"We continue to invest in industry-leading research with a goal of developing healthier fats and oils without compromising the flavor, texture, shelf life or consistency of the end products," says Bob Wainwright, innovation lead, Cargill. "While we're still several years away from introducing commercial products based on this research, each of these approaches offers a promising avenue toward achieving high performance, lower saturated fat bakery products."—*Cargill*, [www.CargillFoods.com](http://www.CargillFoods.com)

### Replace Carmine

Considering higher prices and price volatility—not to mention growing consumer demand for naturalness—is it worth using carmine in food and drinks? There is a stable and vibrant solution: EXBERRY Colouring Foods, made exclusively from fruit, vegetables and edible plants. It is a common misconception that there are issues with color match and stability involving true natural color solutions. GNT can provide a wide spectrum of shades that offer excellent stability and match those obtained with carmine. In fact, GNT Coloring Foods can replace carmine in any application with the additional benefit of long-term price stability.—*GNT Group*, [www.gnt-group.com](http://www.gnt-group.com).

### Allergen-Free Flakes

Inclusion Technologies LLC will use its IFT Booth #2852 to showcase new allergen-free Bits-O-Flavor Flakes. These customized flakes are flavor and color delivery systems formulated without any of the major food allergens. Bits-O-Flavor Flakes are available in a wide range of colors and flavors including: apple cinnamon, cinnamon, maple, orange, lemon, apple, bacon, blueberry, peach, banana, cherry, raspberry and strawberry. "Our newly refurbished SQF Level 3 facility is already a dedicated nut-free facility, so making this new line of allergen-free flavor flakes is a natural extension for our business in offering customized ingredients that address the needs of the ever expanding food allergy and intolerance market," says Dennis Reid, vice president of marketing and business development.—*Inclusion Technologies LLC*, [www.inclusiontech.com](http://www.inclusiontech.com)

### Hot, Chile-Based Sauces

With Paradise hot sauces, it's easy to add a kick to dishes by mixing in a hearty hot sauce. The possibilities are endless with varying heat levels (Scoville levels of 100 to 6,000+) and tastes (savory, smoky, spicy or buttery). Paradise can match an existing sauce or help processors create a custom signature sauce. Paradise also provides ingredients for finished sauces. Paradise bulk sizes include totes, drums and tankers. Pouches from 4oz to 160oz also are available for meal kits and retail packs. Paradise offers several items includ-



ing an Aji Amarillo Concentrate, Buffalo Sauce, Cayenne Pepper Sauce, Chipotle, Habanero Mango Glaze, Harissa, Mexican Hot Sauce, Sambal and Sriracha.—*Paradise Tomato Kitchens Inc.*, [www.paradisetomato.com/industrial/](http://www.paradisetomato.com/industrial/)



### Clean Label Options

BENEO, one of the leading manufacturers of functional ingredients, will focus on natural solutions at this year's IFT Booth #231. BENEO will introduce Remypure, the company's first high-performing native rice starch, which qualifies for natural and clean label status worldwide. Remypure enables manufacturers to leverage the trend for "all natural," while ensuring high functionality and stability even under demanding processing conditions such as low pH, high temperature or high shear. These characteristics make it suitable for applications such as retorted sauces, fruit preparations, dairy desserts and baby food jars. Remypure is similar in performance to chemically modified starches. It provides good product stability during the entire shelf-life, excellent freeze-thaw stability, all combined with delicate texture and pure taste.

With digestive health evolving from a strictly medically driven topic to a health and wellness issue, BENEO also will highlight benefits of its all-natural and non-GMO chicory root fibers inulin and oligofructose. Both prebiotic, these natural fibers contribute to well-being by promoting a regular and balanced digestive system, in a mild and natural way.

Proving that indulgence and healthy lifestyle are indeed a winning formula with a smart choice of ingredients, visitors to BENEO's booth will have the opportunity to enjoy freshly made Belgian waffles with a sugar-reduced chocolate topping. BENEO's next generation sugar Palatinose (isomaltulose) and chicory root fiber

provide a natural sugar-like sweet taste, and an attractive texture, while improving the nutritional profile of the waffles.—*BENEO*, [www.beneo.com](http://www.beneo.com)

### New Fruit Flavor

Move over strawberry, there's a new player in town. Pineberry also known as Hula berry is a reverse strawberry, which is white in color with red seeds. In addition to the well-loved strawberry flavor, the Pineberry has subtle citrus hints of pineapple. "Strawberry is a popular flavor across markets and we know younger consumers are experimental and seek new fruit flavors in alcoholic beverages. Recognizing this opportunity, Comax Flavors developed a natural Pineberry flavor for alcoholic beverages," says Catherine Armstrong, Comax vice president of corporate communications. "Our Pineberry flavor engages consumers by combining expected and unexpected flavors."—*Comax Flavors*, [www.ComaxFlavors.com](http://www.ComaxFlavors.com)



### Gluten Free Grows

Bay State Milling (BSM) has expanded gluten-free capabilities at its Bolingbrook, Ill., facility to build on the synergy of the company's supply chain relationships with its custom development expertise. The addition of blend and mix capabilities enhances Bolingbrook's existing ancient grain flour business within one dedicated production area. With the strength of Bay State Milling's position in certified gluten-free, plant-based ingredients and the support of its GrainEssentials Center applications team, customers have a distinct advantage in bringing gluten-free products to market. The ingredients are sold under the Bakers Elements and Gluten Free Essentials brand names. BSM also manufactures gluten-free brown and white rice flours as well as ancient grain flours out of its Woodland, Calif., location.—*Bay State Milling Company*, [www.baystatemilling.com](http://www.baystatemilling.com) **PF**

## AB Mauri North America



AB Mauri® is a relationship-oriented, technology-driven company that supplies the baking industry with best-in-class yeast and bakery ingredients. Commercial bakers – in need of a total resource for quality ingredients, process optimization, and custom solutions – rely on AB Mauri, which produces the iconic Fleischmann's® Yeast brand. For more information, visit [www.ABMNA.com](http://www.ABMNA.com).



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## ADM

As a leading food ingredient provider, we take our global responsibility seriously. Food is at the center of culture, the center of conversation, and the center of everything we do at ADM. Our ingredients and flavors are formulated to meet consumer demand across virtually every market segment including Baking, Cereals, Confection, Dairy, Beverage, Meats and Meals, and Snacks. Our team of technical specialists, product developers and food marketers look forward to innovating and formulating your next food or beverage solution with you. Innovation is how we feed your food business. Learn more at [www.adm.com/food](http://www.adm.com/food).



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## ADM/Matsutani LLC

### ADM/Matsutani LLC, IFT booth #2602

ADM/Matsutani LLC has much to celebrate at IFT16. Attendees can stop by booth #2602 and learn more about their great tasting, on-trend prototypes that include a 'Fiber Shot' beverage, 'Fiber Gummies', and a delicious, 'Sugar-Free Whipped Slushy'. All prototypes feature Fibersol®, the premier line of soluble dietary fiber ingredients.

ADM/Matsutani LLC will also be celebrating the ten-year anniversary of their joint venture. The partnership between ADM, Matsutani Chemical Industry Co., Ltd, and Matsutani America, Inc. supports the worldwide sales and marketing of Fibersol.

Fibersol offers solutions to many of today's formulation challenges. Whether formulators are seeking ways to reduce sugar and calories, meet clean label goals, create products that help promote digestive tract health or use a well tolerated fiber to boost the fiber content of a food or beverage, Fibersol has a solution.

Fibersol®-2L, a liquid version of Fibersol®-2, is a new product that makes it very easy for manufacturers to incorporate fiber into formulations, while delivering the same lower calorie content and same level of fiber quality as Fibersol-2 with 90 percent soluble dietary fiber (dsb). And because it's liquid, Fibersol-2L allows for bulk handling and ease of incorporation, saving the manufacturer time by eliminating the need to hydrate a powder ingredient.



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Web: [www.fibersol.com](http://www.fibersol.com)

## Ajinomoto North America Inc.

With a rich history in innovative food solutions, Ajinomoto's ingredient portfolio delivers successful taste enhancement to your brands. Ajinomoto is the expert in harvesting the power of umami & kokumi, and showcases this with the Savorboost Yeast Extract & Yeastock product lines. Ajinomoto's new ingredient, Advantame, is a clean tasting and cost effective sweetener that delivers excellent sweet taste. Additionally, the San-J sauces & seasonings line meets your organic, gluten-free, & non GMO needs! Throughout the show Ajinomoto will be presenting valuable information on Umami, Kokumi, and Sweet Innovation inside booth #1237. Stop by the booth or check the IFT app for presentation times!

Eat Well, Live Well.  
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[ajiusafood.com](http://ajiusafood.com)

## American Egg Board



Aeration, emulsification, coagulation, binding—these are just a few of the 20-plus unique functional properties REAL egg ingredients supply to food manufacturers. With one simple ingredient capable of multiple

functions, often within a single application, the egg's incredible benefits are difficult to replace. In fact, there is no single ingredient that can replicate the numerous benefits and great taste REAL egg ingredients bring to the formulator. Food scientists also appreciate the elusive, synergistic properties present when REAL egg ingredients interact with other proven formulary staples.

REAL egg ingredient forms include:

- Dried
- Liquid
- Frozen
- Precooked patties
- Precooked scrambles

Varieties available:

- Whole eggs
- Egg whites
- Egg yolks

Manufacturers looking to take advantage of the booming breakfast market with frozen handheld sandwiches or breakfast bowls will find precooked egg patties or scrambled egg products easy to incorporate into a processing line. Manufacturers can work with their egg suppliers for custom products or blends. All further processed egg ingredients are pasteurized for food safety and can boast an unbroken forty-five year safety record.

American Egg Board offers an extensive library of sample formulations and background information about egg ingredients, as well as a Buyers' Guide to locate US egg product suppliers at [www.aeb.org](http://www.aeb.org).



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1460 Renaissance Drive, Park Ridge, IL 60068  
847-296-7043  
[www.aeb.org](http://www.aeb.org)  
IFT BOOTH #2801

## Ardent Mills

Ardent Mills, the premier flour-milling and ingredient company, offers the industry's broadest range of traditional and organic flours, whole grains, customized blends, and innovative specialty products. Our ingredients are backed by unrivaled technical support, food safety solutions, and the supply assurance of a network of 40+ community mills and blending facilities, an artisan commercial bakery and our Mobile Innovation Center.

Ardent Mills is behind the most trusted brands of premium white and whole wheat flours in the industry – from Kyrol® and Hummer® to American Beauty®. And we're pioneering *what's next*, with value-added, on-trend grain solutions:

- **Ultragrain®:** Whole grain nutrition with white flour appeal, Ultragrain is the whole wheat flour to replace white flour in mainstream applications.
- **Organic Flour:** High quality, consistent flours with reliable supply to help you grow your brands.
- **Sprouted Wheat Flour:** Our Sprouted White Spring Whole Wheat Flour is functional and convenient, working anywhere whole wheat flour is used.
- **Sustagrain®:** Proprietary barley variety has the highest dietary fiber of any whole grain—3 times the fiber of oats and corn flour and 10 that of brown rice.
- **Ancient Grains:** Millet, quinoa, amaranth, sorghum, teff, buckwheat in grains, seeds and customized blends.
- **Innovative Bakery Resources:** IBR is our state-of-the-art commercial bakery in Portland, Oregon, where cutting-edge concepts meet high-touch craftsmanship to help you quickly commercialize your creations.

**Visit us at the IFT Show, BOOTH 1241.**



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## Better For You Foods LLC



Best known for award-winning frozen pizza products, the company responsible for the success of Better4U Foods is setting its sights on creating winning products for private label

partners. With an in-house R&D team with decades of experience, Better For You Foods creates an array of products including those that are **USDA Certified Organic and Certified Gluten Free**.

Our focus is on innovative products that best serve the needs of consumers. To satisfy a growing number of health-oriented natural food consumers, we created the first supermarket frozen pizzas made with **sprouted grains** and **ancient grains** – and a line made with **sprouted ancient grains**. Products made with sprouted grains are higher in fiber, easier to digest and have an increased bioavailability of vitamins, nutrients and antioxidants. They also have a lower glycemic index, which is helpful for people managing diabetes.

Our Certified Organic, **Certified Gluten Free 40,000 square foot facility** is Located in London, Ontario and is *free from* nuts and soy. We are a *one-stop solution* for manufacturing, storage and distribution needs.

If you're interested in putting your brand on great-tasting, healthy pizzas or other innovative frozen foods, such as edible bread bowls (our newest private label product line), contact us!



### For further information, contact:

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Better For You Foods LLC  
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## Brenntag North America



Brenntag has Clean Label Solutions!

Brenntag has provided world-class expertise in clean label reformulation to Food Scientists, Research and Development Teams, and Strategic Procurement Professionals for decades in the Food and Nutraceutical marketplace. We know consumers are demanding fewer and more recognizable ingredients in their food and beverage products. It's estimated that 80% of consumers feel a short and simple ingredient list is important or very important to their purchasing decision.

Formulators and marketing teams are spending countless hours searching for alternative technologies.

Our partnerships with leading manufacturers bring alternative technologies and naturally derived, GMO-Free and certified organic ingredients to help solve the clean ingredient challenge.

Contact Brenntag today to learn how we can be your trusted partner in delivering quality ingredients safely, and on time.



### For further information, contact:

Brenntag North America  
brenntag@brenntag.com  
www.brenntagnorthamerica.com

## Deosen USA

Since 1991, Deosen has grown to be the world's leading producer of xanthan gum, meeting the most stringent standards for quality, consistency, service and value of many of the largest and most demanding companies.

Our singular focus on xanthan gum has enabled us to build the industry's most complete and sophisticated production, innovation and supply chain capabilities:

- State-of-the-art plants in Zibo, Shandong Province, China and the Inner Mongolia Autonomous Region
- Strategically located production facilities to provide the lowest cost xanthan gum products
- Modern technology and efficient equipment to provide the highest quality xanthan gums products
- Extensive experience in xanthan research, manufacturing and applications
- Warehousing and logistics support in all of the world's major markets
- Traceability from raw material to finished product
- Dedicated, responsive service and expert technical support
- World-class standards for corporate responsibility and environmental protection

For more information on Deosen Ziboxan® Xanthan Gum, please visit us at [www.deosenusa.com](http://www.deosenusa.com)



**For further information, contact:**

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[www.deosenusa.com](http://www.deosenusa.com)

## Enzyme Development Corporation



**AT EDC – Enzymes Are Our Business.™**

Established in 1953, Enzyme Development Corporation has been providing a wide range of enzymes to the food industry for over 60 years. EDC's extensive product line includes enzymes for Baking, Beverages, Brewing & Distilling, Cheese, Dairy Processing, Dietary Supplement, Flavor Development, Lactose Removal, Meat Tenderizing, Pet Foods, Protein and Starch Processing, and much more.

EDC is headquartered in New York City and its manufacturing and laboratory facilities are in Scranton, PA. EDC is the only producer of Papain in the western hemisphere.

Whether you are looking for enzymes to use as a processing aid in food production or as an active ingredient in a functional food, EDC will be there to help with their extensive product line and technical support.



**Enzyme Development Corporation®**  
**At EDC - Enzymes Are Our Business**

**For further information, contact:**

Enzyme Development Corporation  
Phone: 212.736.1580 x 247  
Email: [info@enzymedevelopment.com](mailto:info@enzymedevelopment.com)



## Essentia Protein Solutions



**Essentia Protein Solutions** – Proliant Meat Ingredients, Proliant Health and BHJ Ingredients, have joined forces to form Essentia Protein Solutions, a strategic provider of protein solutions to the food, beverage, health and nutrition industries.

All three companies are owned by the Lauridsen Group Incorporated (LGI) and by combining our global expertise as Essentia, we are able to bring you immediate access to the world's largest range of high quality solutions.

In addition to the market leading functional meat proteins, stocks, broths, fats and cutting edge sports nutrition proteins you've come to expect from us, we are now able to bring you an outstanding variety of innovative products such as our new range of flavors and hydrolyzed chicken protein isolates. With Essentia you have access to nearly twice as many global experts and a worldwide network of state-of-the-art production and application facilities.



To learn more about our innovative protein solutions, contact us at:

**Essentia Protein Solutions**

2425 SE Oak Tree Court

Ankeny, IA 50021

515-289-5100

[essentiaproteins.com](http://essentiaproteins.com)

## Fonterra Co-operative Group



Fonterra is a global, co-operatively-owned dairy company, unlocking the natural goodness of milk to provide high quality products to our customers and consumers globally.

We have 16,000 passionate people in New Zealand and around the world working to make dairy available to millions of consumers in 140 countries every day.



**NZMP - ingredients by Fonterra**

NZMP is the dairy ingredients brand of Fonterra the

world's largest dairy exporter, delivering a combination of unmatched expertise and world-leading processes.

Renowned for our pure New Zealand goodness, stringent quality assurance systems and expertise in agri-science, our dairy ingredients are at the heart of some of the world's most famous brands.

With hundreds of ingredients, NZMP offers the broadest range in the industry. This gives you more flexibility to fine-tune your ingredient selection whether it's from core ingredients such as milk powders and butter, or specialized proteins for sports and nutritional applications.

We're here with the products, skills and expertise to help grow your business. To discuss how we can partner with you, contact us or visit us at **IFT stand #4777**, we look forward to being the vital ingredient in your success.



**Dairy for life**

**For further information, contact:**

Fonterra (USA) Inc

+1 847 928 1600

[www.nzmp.com](http://www.nzmp.com)

## French's Flavor Ingredients



The French's Food Company, based in Chester, N.J., has been bringing great flavor to people for more than 100 years. It's how we choose to make our days richer, sweeter, spicier and bolder.

### Snacking Occasions.

At the 2016 IFT, we will serve small bites with bold flavors every day. Our menu includes the following and more:

- **Buffalo Blue Cheese Seasoned French's® Potato Sticks:** America's popular potato stick snack since 1935. Made with 100% real potatoes. Special cooking process that results in products that stay fresh and crisp. Distinctive shape, great flavor and crunch.
- **French's® Jalapeño & Potato Bar Mix:** Made with real Jalapeños, new French's® Crispy Jalapeños fire up the crunchy crave-ability of any dish with a whole new kind of heat.
- **Buffalo Chicken Dip with Chips:** A blend of rich, creamy flavor with the signature surge of Frank's RedHot® Buffalo Wing Sauce.

French's Flavor Ingredients delivers flavor solutions that have built leading brands with the strength of more than a century of expertise.

For more information or samples, e-mail: [ffiTechInfo@rb.com](mailto:ffiTechInfo@rb.com) or visit [FrenchsFlavorIngredients.com](http://FrenchsFlavorIngredients.com). Visit us at IFT Booth #2436.



### For further information, contact:

French's Flavor Ingredients

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## Fuchs North America



At Fuchs North America, we're your dependable ally in creating sensational food products consumers will crave, while delivering more sales and profits to your bottom line.

We do it in four important ways:

always developing the right taste solution ... quick response times so your development projects run easily and without delays ... giving you access to the latest consumer taste trend information and insights ... and having a true customer-first commitment at all times.

In addition to working closely with our customers' own research chefs and new product specialists to develop unique, signature flavor solutions, we've also introduced Fuchs seasoning collections based on important trending flavors. They include our Latin Action, World Barbecue, Ethnic Inspirations, Tastes of America and Fall Harvest Collections, as well as the Quick & Casual Collection aimed at the foodservice segment.

With solid credentials plus more than 75 years of manufacturing experience, we have what it takes to deliver support that focused, flexible and fast. Let us help you create your next winning food product!



### For further information, contact:

Fuchs North America

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Website: [www.fuchсна.com](http://www.fuchсна.com)



## Gamay® Foods



For more than 25 years, Gamay® has been a leader in flavor innovation and product customization for manufacturers and marketers in industries all around the world.

Utilizing unique flavor manufacturing practices and a keen insight for natural and

process cheese production, Gamay® Foods manufactures and markets innovative dairy flavors for the food industry at large. These flavors today can be seen in process cheeses, cheese sauces, savory and salty snacks, soups and dips.

Gamay®'s product offerings also include shelf stable portion control cheese sauce pouches and cups. With a manufacturing facility located in Colby, Wisconsin, Gamay manufactures hot-fill flexible pouches ranging from 1-9 oz for shelf stable, refrigerated and frozen meal applications – as well as large flexible pouches, 40-80oz, for foodservice applications. Gamay® more recently has added dipping cups to its product line offerings, available from 1.25oz – 3.5oz sizes – great for school, airline and anytime snack occasions.

Gamay® has also expanded its offerings to include dry seasonings and sauce mixes for the retail, private label and food service industries. Our facility in Beecher, Illinois offers custom dry blends of high quality and practical solutions to both food manufacturers and foodservice companies including rice and potato dinners, savory snack manufacturers and restaurant chains across the country.

**We pride ourselves in offering high quality, practical solutions to both food manufacturers and foodservice companies.**



*Taste you'll treasure™*

### For further information, contact:

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## GNT Group B.V.



The GNT Group is the leading global manufacturer of cutting edge food and beverage ingredients made exclusively from fruits, vegetables and edible plants. With a focus on

natural color solutions, GNT stands as the industry authority, providing innovative and versatile color solutions to food and beverage brands.

GNT's coloring concentrates are sold worldwide under the brand name EXBERRY®. All GNT products are GMO-free, Allergen free, and Kosher certified. Processing for GNT products consists of physical techniques and food preparation processes. No synthetic additives or organic solvents are used.

As an independent, family run company, long-term focus is in three key areas: growing high quality raw materials, optimizing the physical processing technology and application know-how. A devotion to providing customers with the highest quality ingredients and solutions has always been GNT's driving force. With this in mind, GNT continues to offer innovative solutions that are crucial to the rapidly developing global food and beverage industry.

The GNT Group operates worldwide with various facilities around the globe including: Germany, the Netherlands, France, Spain, Italy, Poland, the United Kingdom, Singapore, Brazil and the United States. Our experts assist in strategic product development and in regulatory questions related to the food industry.



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**GNT Group B.V.**

**Head of Marketing**

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## Gold Coast Ingredients



During IFT16 in Chicago, stop by booth 2417 to taste Gold Coast Ingredients' flavors in **savory ice cream!**

### CHICKEN & WAFFLES ICE

**CREAM:** fried chicken ice cream topped with maple sauce, butter pecan whipped cream and rosemary waffle pieces

### THAI COCONUT CURRY ICE

**CREAM:** Thai coconut curry ice cream topped with sweet Thai chili sauce, lemongrass whipped cream and chopped peanuts

**JAPANESE MISO ICE CREAM:** miso - green onion ice cream topped with soy - orange sauce, ginger whipped cream and candied furikake (Japanese seasoning)

Gold Coast Ingredients is a privately held and operated, wholesale flavor and color manufacturer that has been satisfying taste since 1985. We are a GFSI and AIB certified company capable of serving all types of industries from food and beverages to animal treats and oral care. With us you will find Organic, Natural, Non-GMO, Allergen-Free and other Clean Label flavors that take your most delicious ideas and translate them into a universal language for the world to enjoy.

Our flavors are available as liquids, powders, powder encapsulations, emulsions and advanced extractions to be compatible with any product requirements. GCI also supplies custom, QAI Certified Organic, ISA Certified Halal, OU Certified or KOF-K Certified Kosher flavors upon request.

**GOLD COAST**  
*ingredients, inc.*

#### For further information, contact:

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**IFT16 BOOTH #2417**  
www.goldcoastinc.com  
Tel: 323-724-8935  
Contact: info@goldcoastinc.com

## Golden Peanut and Tree Nuts



A global peanut industry leader since 1986, Golden Peanut and Tree Nuts' mission is to help businesses grow from the ground up. To that end, we share world-class practices in operations, applications, innovation and more with growers, manufacturers and product developers around the world.

While most consider us a trusted industry ambassador, our capabilities as a reliable, value-added ingredient supplier are truly second to none.

From high protein, low-fat roasted peanut flours to aromatic roasted peanut oils, Golden offers consumers the non-GMO, gluten-free, plant-based protein options they seek, with the roasted peanut flavor they love! Peanut flour helps bind fat in confections and baked goods, for a great, lower-fat way to add flavor. Peanut extract, a highly aromatic, 100% dark roasted peanut oil, provides intense flavor and aroma at very low usage rates. Both are made with high oleic peanuts, for extended shelf life and stability. Whether you need to add roasted peanut flavor to nutrition bars, sauces, icings, fillings, coatings or confections, Golden's specialty products can help meet your needs.



#### For further information, contact:

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www.goldenpeanut.com



## Grain Processing Corporation (GPC)

Grain Processing Corporation (GPC) – Booth 2812  
GPC Showcases Food Science Student Competition  
Winner at IFT'16

Grain Processing Corporation proudly announces an exciting collaboration with Iowa State University that provided food science students a hands-on product development learning experience. The **GPC Ingredient Application Challenge** required student teams to conceptualize and execute a product demo featuring GPC's premier MALTRIN® maltodextrins and specialty starches. The six-week challenge culminated at a finale event held on-campus late March. Judging criteria included appropriate use of industrial ingredients, formulation details and what was learned from the process, creativity, presentation and, of course, taste.

The winning appetizer concept from the GPC Ingredient Application Challenge will be showcased at IFT'16. The winner – a **Coconut Curry Chicken Rice Cup** – features PURE-GEL® modified starch in the filling for stabilized viscosity. PURE-GEL® starches provide superior stability in refrigeration, freeze/thaw, high heat, acid and shear conditions.

A second entry from the challenge will also be featured to demonstrate the coating properties of INSTANT PURE-COTE® film-forming starch. These **Chickpea Fries** will be accompanied by a Sriracha Pineapple Dipping Sauce.

Toast the tasty appetizers with a **Mocktail** utilizing MALTRIN QD® (quick dispersing) maltodextrin. This premium, agglomerated maltodextrin quickly disperses to add body and build mouthfeel in the beverage.



**For further information, contact:**  
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Phone: 563.264.4265 • Fax: 563.264.4289

## Hawkins, Inc.

### IMPROVE SHELF LIFE & ENHANCE FLAVORS!



Hawkins' Food Ingredients Group brings shelf-life science innovation with Ingredients Works; providing functional blends, flavors and antimicrobials that address the overall challenges surrounding shelf-life. Hawkins' Ingredients Works supports your needs with solutions for:

- Yield and moisture management
- Color stability and flavor protection
- Food safety, pathogen control and microbial suppression
- Texture modification

We invite you to explore what our Food Ingredients Group will bring to your product development and food safety needs:

- Custom and unique dry blends to include our new dry vinegar – e(Lm)inate – DV
- Scientifically proven liquid antimicrobials – e(Lm)inate low inclusion technology product line
- Wide range of functional liquid food ingredients
- Clean label options
- Our listeria growth prediction model using e(Lm)inate-LAD



FOOD INGREDIENTS  
GROUP

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[www.hawkinsinc.com](http://www.hawkinsinc.com)  
IFT Booth 2057

## Hormel Ingredients

Pure. Clean. Protein. Hormel Ingredients is your ingredient partner if you are looking for protein. All natural soup stocks, savory fats, premium meat ingredients and dairy powders are just a few of the proteins Hormel has to offer. This year, Hormel Ingredients has launched Chicken Bone Broth! This pure, clean, bone broth will give you the edge over competition, delivering a clean label protein. If the recipe calls for something different, Hormel Ingredients is the difference. Hormel Ingredient: Honest Ingredients, Pure Trust.



**For further information, contact:**

Hormel Ingredients  
1 Hormel Place  
Austin, MN 55912  
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hsp@hormel.com

## IDF

All-natural, clean-label comfort drinks—create yours with IDF® Chicken Broths!

Now it's easier than ever to deliver the nutrition and flavor of real chicken in trending savory beverages, when you start with IDF® Chicken Broths. Imagine what you can create with these all-natural, savory protein broths:

SIP™ (Savory Instant Protein) Bone Broth Powder offers 9 grams of protein per 8-ounce serving, with a savory, slightly roasted flavor. This fat-free, concentrated source of collagen has only 2 grams of carbohydrates per serving—and it comes in a convenient, shelf-stable powder form.

Our line of frozen-concentrated products includes savory bone broth and meat broth rich in umami flavor, with appealing colors that reflect the delicious characteristics of each profile. And IDF® Frozen Concentrated Broths are gently cooked to retain the natural goodness of genuine chicken broth—the closest you'll get to homemade!

As consumers demand more and better choices in natural, clean-label foods and beverages, IDF is working to bring you the real chicken nutrition and flavor your applications deserve. To learn more about our all-natural chicken broths, call 417-881-7820 or visit [idf.com](http://idf.com).



**For further information, contact:**

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## Jungbunzlauer

First choice for food experts worldwide



Jungbunzlauer transforms nature's plants into useful products and efficient solutions for the food, beverage and numerous other industries around the globe. Jungbunzlauer is one of the world's leading producers of biodegradable ingredients of natural origin. Jungbunzlauer uses renewable carbohydrate raw materials mainly derived from corn and transforms them through the natural process of fermentation into readily biodegradable and ecologically safe ingredients.

Please visit us at this year's IFT tradeshow, Booth #1008 in Chicago.

# Jungbunzlauer

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## Kalsec®



Learn to make your brand look better, taste better and last longer... naturally.

Our spice and herb flavor extract product line includes Expeller Pressed extracts, HeatSync® Heat management Systems,

Isofresh® products and a wide range of Regional Ethnic Flavor Blends. Our expeller pressed extracts feature our specialty pepper extracts such as Aji Amarillo, Habanero, Ghost, Guajillo and Pasilla. The Kalsec® Regional Flavor Blends range from Indian Curries, to Mediterranean, to Latin American and Asian.

Kalsec® naturally sourced colors range in hue from yellow to orange to pink to red and we can assist you in determining the best product for your application.

Our line of rosemary based natural antioxidants (Herbalox® Rosemary Extract) provides an effective alternative to the synthetic antioxidants traditionally used in the food industry.



# kalsec®

For further information, contact:

Kalsec®

Phone: 269.349.9711 or 800.323.9320

info@kalsec.com

kalsec.com

## Mane Inc

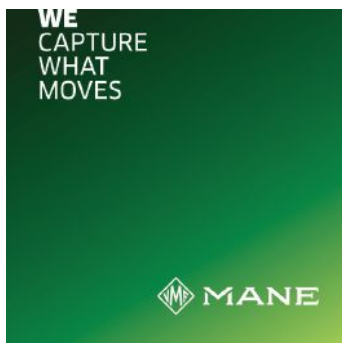


At MANE we are firm believers that with great progress comes great rewards. It is this belief in action that has transformed us into the 6th largest flavor and fragrance manufacturer in the world. As a fifth generation, privately held company headquartered out of Le Bar Sur Loup, France, Mane has established itself as a multinational company with global operations that span over 22 manufacturing sites.

Mane's U.S. Flavor Division Development Center is headquartered in Lebanon, Ohio with manufacturing in Milford and Lebanon, Ohio.

MANE's Flavor Division provides leaders of the food and beverage industry with cutting-edge solutions to a wide spectrum of taste challenges: from creating unique organoleptic experiences to enhancing taste perceptions for the design of applications to meet consumer demands.

To learn more about Mane's capabilities, visit our website [www.mane.com](http://www.mane.com) or send us an email at [request@mane.com](mailto:request@mane.com).



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## McIlhenny Company / TABASCO® brand



Industrial Ingredients from the TABASCO® brand offer the unique flavor profile of TABASCO® brand Original Red Sauce in a variety of convenient forms to fit most

food processing environments. TABASCO® brand Pepper Sauce flavors, intermediate moisture and dry formulations can be used to develop new flavor profiles or enhance existing flavors of sweet and savory food and beverage products.

McIlhenny Company's newest industrial ingredient product, TABASCO® brand Spray Dry Flavoring, brings dynamic new dimensions to a wide variety of applications without adding moisture. Made with tabasco pepper mash, premium distilled vinegar, salt and maltodextrin, this intensely flavorful and easy-to-use powder provides the authentic taste of TABASCO® brand Original Red Sauce.

Contact your local TABASCO® Ingredients Broker for more information or visit our website at [www.TABASCOingredients.com](http://www.TABASCOingredients.com).

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## MGP Ingredients, Inc.

Celebrating its 75th anniversary, MGP is the largest U.S. supplier of specialty wheat proteins and starches. Made from non-GMO wheat, the company's ingredients enhance health and wellness benefits, while providing processing advantages and desirable sensory appeal.

**Fibersym® RW** resistant wheat starch is a convenient, rich source of dietary fiber (minimum 85% total dietary fiber content). Fibersym can boost the fiber content of a diverse line of products while also providing clean flavor, smooth texture and low water-holding properties.

**Arise®** wheat protein isolates increase protein levels, while also delivering processing benefits including, high extensibility and improved processing tolerance; enhanced finished product qualities; outstanding film-forming properties; and improved moisture management capabilities.

**Optein®**, a lightly hydrolyzed wheat protein, has greater than 90% protein content and is rich in peptide-bonded glutamine. Optein can act as a suitable replacement for L-cysteine in reducing dough mixing time and in improving dough extensibility in bakery applications. Additionally, Optein possesses good solubility, as well as a non-bitter flavor profile compared to soy protein

**TruTex®** textured wheat proteins possess unique textural properties, as well as firmness and mouthfeel. TruTex is a rich source of protein with no unpleasant aftertaste that is suited for use in vegetarian applications.



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## MicroThermics, Inc.



MicroThermics is the world leader in small-scale UHT & HTST processing. Our relentless commitment to innovation brings you the next generation of technology,

& easy, affordable, process accuracy. We also offer homogenizers, custom hold tubes, Ultra-Clean Fill Hoods and now Fillers! Investing in our equipment pays for itself repeatedly through the elimination of failed plant trials, dramatic reduction of R&D time, increases in efficiency, and even reduction of staffing needs. Leading companies' worldwide use us for; Juices, Milks, Dairy Beverages, Soymilk, Yogurts, Puddings and More! Industrial Achievement Award Winner.

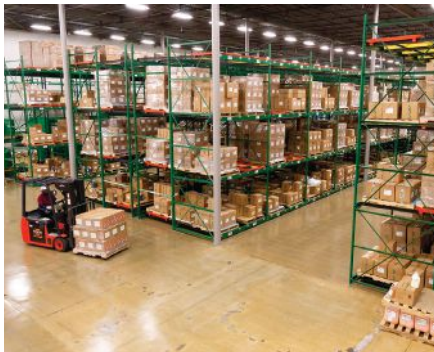
New for 2016: **Aseptic Laboratory Fillers**-automatically sterilize the filling chamber, continuously sterilize the bottles and caps, then fill & seal the bottles under sterile conditions. **Intuitive Operator Interface**-Features simplified navigation and operation, while providing controls, process data, and displays to satisfy even the most data driven professional. Available in virtually any language! **Microwave and Custom Processors**-New Aseptiwave® microwave processors provide rapid controlled heating. No heated surfaces, and no product damaging shear means no burn-on, and the freshest tasting products retaining the highest levels of nutrients. Finally, our new Custom Processors are ideal for special needs like small-scale PMO, USDA, or cGMP processor requirements.



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## Mother Murphy's Flavors



This year Mother Murphy's is celebrating 70 years in the flavors and extract business. What started with inspiration and hard work in a small backroom of a

drugstore has evolved into an entire portfolio of exciting possibilities. Our symphony of flavors number in the tens of thousands and their uses are just as universal. Each of our 20,000-plus formulations are perfectly tuned to the needs of the bakery, beverage, cereal & grain, confectionery, dairy, nutraceutical, pet food, pharmaceutical, and tobacco industries. Throughout our development and expansion, Mother Murphy's is at heart a family business that spans three generations. Large enough to meet the needs of global players and small enough to be responsive to each and every one of our customers, no matter their size. Mother Murphy's is a one-stop shopping source for new and existing flavors.

Mother Murphy's would like to say thank you to all of our loyal customers over the past 70 years. We look forward to growing these relationships while also attracting new ones for many years to come. If you are interested in sampling some of the flavors in our expansive library or learning more about our company, please contact us using the information below.

*Mother Murphy's*  
EXPERIENCE THE FLAVORS

### For further information, contact:

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www.mothermurphys.com

## Naturex Inc.

Naturex sources, manufactures and markets natural specialty ingredients for the food, health and cosmetic industries. As the *Natural Maker*, the company actively supports the global shift to natural by directly addressing key consumer expectations through an offer built on two main focus areas: My Natural Food and My Natural Selfcare. Naturex's portfolio includes colors, antioxidants, specialty fruits & vegetables, phytoactives, and numerous other plant-based natural ingredients, designed to help its customers create healthy, authentic and effective products.

The Group's strong commitment to sustainability, continuous innovation process, and the talent of its people are at the heart of its success.

**NATUREX** 

### For further information, contact:

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## PLMA (Private Label Manufacturers Association)



For over 30 years, PLMA's private label trade show has been the place where retailers and suppliers come together to build their private label business. Among the visitors who attend year after year are buyers and executives from virtually every major US supermarket, drug chain,

mass merchandiser, club, convenience, and specialty retailer.

PLMA's 2016 show will be its largest ever, presenting more than 2,700 exhibit booths from US manufacturers in virtually every food and beverage category – including prepared foods, snacks and beverages, gourmet, specialty, refrigerated and frozen, as well as nonfoods. Exhibitors range from large, well-known corporations to small and medium-size companies. International exhibitors and special pavilions offer products from Italy, France, Spain, Portugal, Denmark, Germany, Belgium, The Netherlands, Greece, Turkey, India, South Korea, Vietnam, China and Taiwan, as well as Canada, Mexico, Ecuador, Peru, Columbia, Chile, Brazil and more.

To help buyers navigate the vast assortment of product offerings on the show floor, PLMA's New Product Expo turns a spotlight on the newest products being featured by exhibitors, while PLMA's Idea Supermarket® showcases store brands programs, products and packaging from over 50 leading retailers across North America, Europe, Asia and Latin America. To attend or exhibit, visit [www.plma.com](http://www.plma.com) or email [info@plma.com](mailto:info@plma.com).



**For further information, contact:**  
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## PLT Health Solutions

PLT Health Solutions (Morristown, NJ) is a discoverer, developer, and marketer of high-quality, scientifically-supported ingredient solutions for the natural products, food & beverage and cosmeceuticals markets. Our goal is to bring innovative and impactful solutions that help our consumer products customers develop new concepts, new products and grow successful brands. Today, we deliver solutions across a number of health & wellness platforms that respond to existing and emerging consumer demand. Delivering these solutions includes marketing over 20 proprietary branded ingredients that are considered either market or scientific leaders in their categories – as well as the supply of high quality botanicals, extracts, raw materials and functional materials that support the development of our customers' formulated products.



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## QUALISOY



QUALISOY® is an independent, third-party collaboration that promotes the development of and helps build the market for the latest enhanced soybean oils, including high oleic soybean oil. High oleic soybean oil delivers extended shelf life, increased stability and a neutral flavor profile, making it ideal for frying, sautéing, baked goods and snack foods. In food applications that require high stability oils, high oleic soybean oil performs and functions similarly to partially hydrogenated oil and oils high in saturated fat, and outperforms most other high stability oils – without contributing trans fat. Visit [QUALISOY.com](http://QUALISOY.com) to test high oleic soybean oil, and for the latest information on soybean oil innovations.

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Peptan® is the world's leading collagen peptides brand. Produced and marketed by Rousselot® in France and Brazil, Peptan collagen peptides – a unique bioactive protein – have been specifically developed to deliver multiple health benefits.

Numerous scientific studies, including in vitro, in-vivo and clinical research, have demonstrated Peptan's ability to promote healthy living and its benefits in key areas:

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- Appetite regulation.

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Offering a unique combination of technology, products and service, we support you in every aspect of your business. As a Peptan customer, you will benefit from our operational expertise, coupled with extensive knowledge of local and global markets. We are committed to delivering value-added solutions and to delivering only the best.

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## S&D Coffee & Tea



In addition to being the nation's largest custom coffee roaster and supplier of iced tea to the foodservice industry, S&D Coffee & Tea is also a leading producer of liquid extracts.

S&D responds to the needs of its customers with custom products and solutions and applies that same philosophy to its Extracts and Ingredients division — with significant resources employed to quickly develop and formulate custom coffee, tea and botanical extracts and concentrates from a wide array of raw materials.

No matter the finished product, S&D can create a custom formulation using its extracts as a building block. With flavor bases and variegates for cocktails, ice cream, sauces, baked goods and more, product developers in the food and beverage industry can count on S&D's flavor ingredients to make the perfect blend for a variety of popular items.



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## SaltWorks, Inc.



As the leader of the gourmet salt industry, SaltWorks® is truly passionate about salt—from the purity of the water sources and harvesting practices to exclusive packaging and full-service shipping

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With our award-winning customer service, superior products and extensive capabilities, SaltWorks is the only salt supplier you will need. Guaranteed.



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## Sethness Products Company

IFT Booth #3763



Sethness is the world's leading manufacturer of liquid and powdered Caramel Color for the food industry. Used in all types of foods and

beverages, Sethness Caramel Color is available in a wide range of strengths and hues to achieve food colors from light yellows to deep browns. Sethness offers flexible, stable, economical coloring solutions to food processors around the globe.

Sethness produces the largest selection of liquid and powdered Caramel Colors in the market today. From our minimally-processed Class I Caramel Colors, to our cola-friendly Class IV Caramel Colors, to Organic and Non-GMO products, Sethness provides an extensive line of Caramel Colors to fit every application need. To address 4-MeI concerns, all of Sethness' Class I and Class II Caramel Colors are formulated to contain *no* 4-MeI. Sethness also offers a line of Class III and Class IV Low 4-MeI Caramel Colors.

### Non-GMO Project Verified Caramel Colors

As part of its ongoing campaign to offer Non-GMO Project Verified products to its customers, Sethness now has *eleven* of its Caramel Colors and Caramelized Sugar Syrups verified by the Non-GMO Project.

### Introducing Breakthrough Class I Powdered Caramel Color

In response to the demand for cleaner labels and the growing popularity of minimally-processed colors, Sethness introduces its darkest Class I Powdered Caramel Color – **SB245**. It is significantly darker than traditional Class I Powders, and offers a Class I brown-toned option for food and beverage manufacturers. SB245 is Non-GMO, low in sulfite, gluten free, Kosher and no 4-MeI is created during its production.



### For further information, contact:

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Phone: 847-329-2080  
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## Solvaira Specialties



Solvaira is your source for innovative fiber products and solutions. As the leading supplier of fiber products to the food industry we have a wide range of products to help you meet your goals. Whether you want to add fiber for its many functional benefits or for the value added health benefits that fiber provides, we have a solution for you. Our flavorless and odorless products provide anti-caking in dairy products and dry spice mixes; add texture and fiber enrichment to baked goods without any additional calories; and increase moisture retention and yield in meat products. Our full-line of fiber products includes non GMO, Gluten Free and Organic options. Contact us today for the fiber solution to make your product a success.



### For further information, contact:

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Email: info@solvaira.com  
Website: www.solvaira.com

## Synergy Flavors™



Synergy Flavors™ is a leading international supplier of flavors, extracts and essences for the global food and beverage industry. With over 130 years of flavoring expertise, Synergy combines a long heritage of flavor development with targeted investments in research and technology—blending art and science in creating an exceptional array of tastes.

### Nature created it. We captured it.™

Synergy's passion for flavor is exhibited by the state-of-the-art processing for our Synergy Pure™ product line. Our broad portfolio of botanical, herbal, vegetable, tea, coffee and pure vanilla essences and extracts effectively maximize natural flavor impressions of horticultural products delivering only the freshest, highest impact tastes you'd expect from nature.

### Sports Nutrition

Synergy is making advancements in the Sports Nutrition Market through research and collaboration with parent company Carbery, a leading innovator in the manufacture of whey protein. The collective knowledge and capabilities provide formulators an unrivaled ability to develop nutritional bars, beverages, and powders that strike the perfect balance of exceptional taste and performance.

### Global Expertise

With facilities in US, Europe, Asia and South America, Synergy flavor experts are globally positioned to deliver market understanding and customer collaboration to develop flavor solutions for the Bakery, Beverage, Confection, Dairy and Nutrition industries.



### For further information, contact:

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Synergy Flavors  
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Phone: 847-487-1011  
[synergytaste.com](http://synergytaste.com)

## TIC Gums



Whether based on rice, nuts, grain or soy (RNGS), beverages made from dairy-alternatives are susceptible to a variety of possible issues including particulate suspension, emulsification and mouthfeel characteristics.

Boasting fewer calories and fat than dairy-based beverages, drinks made with non-dairy alternatives can offer viable substitutions for consumers looking for a dairy free option with similar indulgent texture attributes.

Moreover, the clean label movement continues to drive the food and beverage industry, placing additional constraints on manufacturers seeking to introduce label-friendly products.

Ticaloid Pro 181 AG satisfies clean label requirements, improves processing efficiencies and addresses RNGS beverage formulation challenges.

The Gum Gurus from TIC Gums will work with you to analyze and deliver the best solution for your specific formulation. You can chat live online at [ticgums.com/chat](http://ticgums.com/chat) or call our technical support hotline at (800) 899-3953 / +1(410) 273-7300 to discuss your texture and stability needs.



### For further information, contact:

TIC Gums  
(800) 899-3953 / +1(410) 273-7300  
[www.ticgums.com](http://www.ticgums.com)



## Virginia Dare



Virginia Dare is a Brooklyn, New York based flavor and extract company that was originally founded in 1835. The company evolved into the Virginia Dare Extract Company in 1923, with a focus on creating and supplying flavors for the food and beverage, health and wellness, nutritional product, sweet goods, dairy, and pharmaceutical and oral care industries.

Virginia Dare is well known for its much sought after range of high quality vanilla products. It has an established sustainable vanilla initiative in Madagascar that greatly benefits the farmers that grow the Company's supply of the best vanilla beans.

The ProSweet™ line of masking flavors makes beverages and nutritional products fortified with pea, whey, soy, rice and other proteins taste great. Virginia Dare can help product developers in "Making Good for You Taste Great.™"

Virginia Dare has a full range of tea offerings including organic green and black tea concentrates and powders, roibos concentrate and powder, and matcha powder.

The Company's sales, business development and marketing teams understand the importance of speed-to-market product development, and offer guidance in trend tracking and consumer insights.

Virginia Dare is proud of its long heritage, respectful of the social and natural environment in which it operates, supportive of its employees and customers and passionate about success.



**VIRGINIA DARE**  
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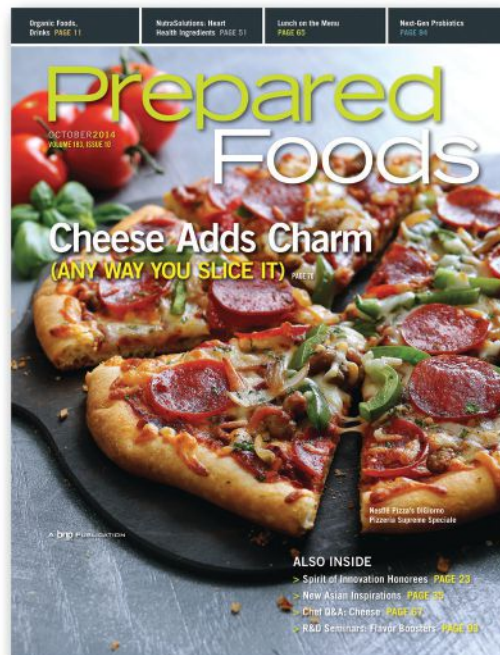
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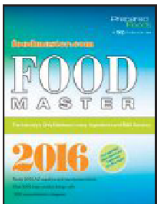
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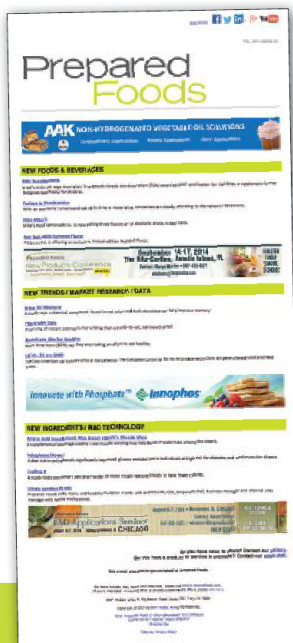
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COMPANY	URL	PAGE	COMPANY	URL	PAGE
AB Mauri North America	abmna.com	56, 117	Innophos, Inc.	Innophos.com	42
ADM/Archer Daniels Midland Company	ADM.com	OFC, 117	Islamic Food and Nutrition Council of America	ifanca.org	110
ADM/Matsutani LLC	fibersol.com	3, 118	Jungbunzlauer	jungbunzlauer.com	18, 128
Advanced Food Systems	afsnj.com	14	Kalsec, Inc.	kalsec.com	93, 128
Air Products and Chemicals, Inc.	airproducts.com/freeze/efast	38	L.V. Lomas, CP Kelco	lvlomas.com/food	39
Ajinomoto	ajiusafood.com	51, 118	Lactalis Culinary	516-527-6466	43
American Egg Board	aeb.org; RealEggs.org	1, 119, IBC	MANE	mane.com	10, 129
American Key Food Products	akfponline.com	40	Marshfield Food Safety	mfslabs.com	47
Ardent Mills	ArdentMills.com	27, 119	MGP Ingredients	mgpingredients.com/trutex	101, 130
Batory Foods	batoryfoods.com	41	MicroThermics, Inc.	microthermics.com	17, 130
Bay State Milling Company	baystatemilling.com	20	Mother Murphy's Flavors	MotherMurphys.com	131
Bell Flavors & Fragrances	bellff.com	2	Munzing	magrabar.com	107
Better4U Foods	better4ufoods.com	69, 120	Naturex	naturex.com	95, 131
Brenntag North America, Inc.	brenntagnorthamerica.com	IFC, 120	Nexira, Inc.	nexira.com	74
C.W. Brabender	cwbrabender.com	58	Packaging That Sells Conference	packagingthatsells.com	46
Deosen	deosenusa.com	32, 121	PLT Health Solutions	PLTHealth.com	25, 132
Embassy Flavours	info@embassyflavours.com	62	PMMI/PACK EXPO International	packexpointernational.com	13
Enzyme Development Corporation	EnzymeDevelopment.com	34, 121	Prayon	prayon.com	22
Essentia Protein Solutions	essentiaproteins.com	73, 122	PFs' New Products Conference	NewProductsConference.com	52-53
First Choice Ingredients	fcingredients.com	48	PFs' R&D Applications Seminar Chicago	RDSeminarChicago.com	78-79
Flavor Dynamics, Inc.	flavordynamics.com	24	Private Label Manufacturers Association/PLMA	plma.com	85, 132
Fonterra Ingredients	www.nzmp.com	75, 122	Qualisoy	QUALISOY.com	5, 133
Food Ingredient Solutions, LLC.	foodcolor.com	94	Riviana Foods, Inc.	RivianaIndustrial.com	77, 133
French's Food Company LLC	FrenchsFlavorIngredients.com	30, 123	ROHA USA, LLC	ROHA.com	98
Fuchs North America	fuchсна.com	16, 123	Rousselot/Peptan	peptan.com	61, 134
Gamay Foods	gamayfoods.com	45, 124	S&D Coffee & Tea	sdcoffeetea.com/extracts-ingredients	60, 134
Garlic Company, The	thegarliccompany.com	23	SaltWorks	seasalt.com	37, 135
GNT USA, Inc.	gnt-group.com	96-97, 124	San Joaquin Valley Concentrates	sjvconc.com	65
Gold Coast Ingredients	goldcoastinc.com	99, 125	Savoury Systems International, Inc.	savourysystems.com	26
Golden Peanut and Tree Nuts	goldenpeanut.com	83, 125	Senspire, LLC	flavorstudio.com	71, 135
Graceland Fruit	gracelandfruit.com	87	Sensus America Inc.	inspiredbyinulin.com	50
Grain Processing Corp.	grainprocessing.com/starch	15, 126	Sethness Caramel Color	sethness.com	136
Hawkins Food Ingredients Group	hawkinsinc.com	63, 126	Siemer Specialty Ingredients	siemersi.com	109
Hilmar Ingredients	hilmaringredients.com	44	Solvaira Specialties	solvaira.com	136
Hormel Foods	hormelspecialtyproducts.com	103, 127	Synergy Flavors	synergystaste.com	8, 137
House Foods	house-foods.com	84	TABASCO Brand Ingredients	TABASCOingredients.com	7, 129
ICL Performance Products	iclfood.com	76	TIC Gums	ticgums.com	28, 137
IDF	idf.com	127, OBC	Virginia Dare	virginiadare.com	21, 138
IFT16	ift.org/IFT16	64	Wacker Chemical Corp.	wacker.com/socialmedia	49
Ingredients Solutions, Inc.	isi.us.com	36			

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REAL Eggs for Functionality.



American Egg Board



Texture



Emulsification



Structure



Color



Sponge Cake  
Chocolate Mousse Trio

## REAL Eggs Make a REAL Difference

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\*American Egg Board. *REAL Eggs Make a Real Difference*. 2015. [AEB.org/RealEggsWP.pdf](http://AEB.org/RealEggsWP.pdf)

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For the Sponge Cake Chocolate  
Mousse Trio formulation go to  
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