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Celebrating Excellence in 2016

Dietary supplement shoppers remain loyal customers, even as critics have put the industry under the microscope these past few years. Overall confidence in the safety, quality, and effectiveness of supplements is high, at 85% of U.S. adults, and continues to hold steady year over year, according to the latest Council for Responsible Nutrition annual consumer survey. (See page 10 for more from this year’s CRN survey.)

But trust, as we know, is earned, not given. Those with a stake in the supplements/natural products industry need to work continually to show that this industry is always looking at ways to improve the transparency, quality, safety, and clear messaging around dietary supplements. The need to demonstrate this has never been higher. It’s not surprising, then, that all four of the award winners Nutritional Outlook’s readers and editors selected as this year’s 2016 Best of the Industry worked in some way during the past year to help boost the industry’s credibility.

Take the Council for Responsible Nutrition, whose new Supplement OWL database aims to increase industry transparency by making available to regulators, as well as to the public, an industry-wide finished-products registry. Another winner this year is the Botanical Adulterants Program, whose valuable resources educate stakeholders about the critical botanical adulteration issues happening around the globe. Similarly, our third winner, ingredient supplier/contract manufacturer Sabinsa Corp., has blazed a trail on carbon-dating curcumin in an effort to expose adulteration in the natural market. Finally, we are recognizing the snacks brand KIND, whose bold petition to FDA led to the agency’s decision this year to redefine the term healthy. Thanks to KIND’s leadership, this common marketing term may ultimately become more meaningful to the consumer.

These four winners are giving industry new ways to maintain consumer trust and perhaps build back any trust that has been lost. More importantly, they demonstrate that this industry is always moving forward to improve. Congratulations to our winners!

Jennifer Grebow
Editor-in-Chief
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Energy Is Number-Two Priority among Supplement Users, 2016 CRN Survey Suggests

The Council for Responsible Nutrition (CRN; Washington, DC) recently released the results of its 2016 Consumer Survey on Dietary Supplements, which indicate that supplement usage is rising. According to the latest survey, 71% of U.S. adults—or 170 million Americans—took supplements in 2016, a slight increase from the 68% of U.S. adults surveyed in 2015 who reported taking supplements. And it’s not the only striking finding from the 2016 data. One of the most surprising results has to do with the top reasons supplement users cite for purchasing supplements.

In years past, the top three reasons given for supplement use among supplement users were “overall health and wellness benefits,” “to fill nutrient gaps in my diet,” and “energy.” In that order. But in 2016, “energy” moved ahead as a reason. It was ranked as a top motivating factor by 30% of supplement users, placing it in the number-two spot ahead of “to fill nutrient gaps in my diet” (28%). “Overall health and wellness benefits” still remained the number-one reason, with 42% ranking it as a reason for supplement use. And while it’s too early to say whether the surge of interest in “energy” as a motivator is a trend, it may be reflective of other demographic shifts taking place within the supplement user base, pointed out Nancy Weindruch, CRN’s senior director of communications, who shared the 2016 survey results at the association’s annual conference this fall in Dana Point, CA.

“What’s interesting about energy is that’s actually the number-one reason why Americans between the ages of 18 and 34 take supplements, Weindruch said. According to the 2016 survey, this younger group of consumers (the millennials) also increased their supplement usage, which may correlate with the increased weight of priorities like “energy” in the survey overall.

Notably, 70% of millennials said they used supplements in 2016, compared to the 65% of millennials who reported taking supplements last year. “It is exciting to see the growth in supplement usage among younger adults, especially after our 2015 survey indicated that increased usage should be anticipated among those aged 18 to 34 over the next five years,” said Judy Blatman, CRN’s senior vice president of communications, in the survey announcement.

The survey also showed a boost in usage among adults aged 35–54 (70% in 2016 versus 68% in 2015), while adults aged 55 and over remained the most avid supplement users at 74%.

Confidence, Trust, and Categories

Overall confidence in the safety, quality, and effectiveness of dietary supplements held steady at 85% in the 2016 survey.

There were some shifts in more specific markers of confidence. The percentage of U.S. adults who said they were “very confident” in the safety, quality, and effectiveness of dietary supplements rose 7% over last year to hit 41% in 2016. The percentage of respondents who said they were “somewhat confident” decreased to 44%. On the low end, those who said they were “not too confident” or “not at all confident” held relatively steady at 10% and 4%, respectively.

In terms of particular supplement categories, the CRN survey suggests Americans have the most confidence in vitamins/minerals (86%), specialty supplements (66%), herbs/botanicals (63%), and sports nutrition/weight management (53%). While all of these categories saw confidence increase over 2015, statistically significant increases occurred in specialty supplements and sports nutrition/weight management, Weindruch noted.

The CRN survey also posed a new question to survey respondents in 2016: “To what extent do you perceive the dietary supplement industry as being trustworthy?” Overall, 73% of respondents said they perceive the industry as “very trustworthy” or “somewhat trustworthy.”

Turning to the most popular supplement categories, multivitamins remained the most popular supplement, with 53% of Americans taking multivitamins, according to the survey. However, the percentage of Americans taking only a multivitamin dropped slightly in 2016, while the percentage of Americans taking a variety of supplements increased.

The next most popular supplements were vitamin D (26%), vitamin C (25%), calcium (21%), vitamin B/B complex (17%), omega-3/fatty acids (14%), vitamin E (11%), fiber, (11%), protein (11%), green tea (10%), magnesium (10%), and probiotics (9%).

The 2016 CRN Consumer Survey on Dietary Supplements was conducted by Ipsos Public Affairs from August 24–30, 2016. It included a national sample of 2007 adults aged 18 and older, and the sample was weighted to reflect the overall U.S. population according to Census data. Additional survey findings will be released throughout the next year, according to CRN.

It’s also worth noting that the 71% of U.S. adults who reported using supplements in the survey includes regular users, occasional users, and seasonal users. Within that group, 54% of U.S. adults reported taking some type of supplement regularly.
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IRI Ranks Top-Selling Nutritional Brands, Retailers of 2016

At the Council for Responsible Nutrition’s recent annual conference, Robert Sanders, executive vice president and practice leader for market researcher Information Resources Inc. (IRI), shared new IRI data on the year’s top-selling U.S. nutritional brands, manufacturers, and retailers.1

### Top-Selling Supplement Brands

At the top of the brand list, Nature Made came in first for total dollar sales with $1043 million in total sales over the course of the 52 weeks ending August 7, 2016, amounting to an 8.1% growth in dollar sales over the previous year. Sanders suggested some of Nature Made’s success may have to do with the “terrific job” it has done building trust with consumers.

“They’re really doing a nice job of creating that trust, that support via a credible source, and really advertising and making the consumer feel as though these products are safe and effective,” Sanders said. “Very, very important.”

Following Nature Made in the number-one spot, the top-selling nutritional brands were:

1. Nature Made ($1043 million total sales; 8.1% growth)
2. Nature’s Bounty ($706 million total sales; 12.4% growth)
3. Clif ($662 million total sales; 10.4% growth)
4. Ensure ($620 million total sales; 2.8% growth)
5. Atkins ($343 million total sales; 3.3% growth)
6. Centrum ($333 million total sales; 6.6% growth)
7. KIND ($318 million total sales; -4.3% growth)
8. Schiff ($314 million total sales; -2.2% growth)
9. One A Day ($308 million total sales; 6.7% growth)
10. Boost ($281 million total sales; 22.4% growth)

### Top Manufacturers

Sanders also shared IRI data on the top nutritional manufacturers over the same time period, with some of the biggest year-over-year dollar-growth percentages coming from food brands Nestlé (30.4%) and Post (29.8%).

Here is the full list of the top-10 nutritional manufacturers:

1. The Carlyle Group ($1541 million total sales; 3.1% growth)
2. Abbott ($1332 million total sales; -1.4% growth)
3. Pharmavite ($1045 million total sales; 8.1% growth)
4. Clif ($662 million total sales; 10.4% growth)
5. Pfizer ($594 million total sales; -2.6% growth)
6. Bayer ($563 million total sales; 0.0% growth)
7. Reckitt Benckiser ($536 million total sales; -3.2% growth)
8. General Mills ($465 million total sales; -8.8% growth)
9. Nestlé ($450 million total sales; 30.4% growth)
10. Church & Dwight ($354 million total sales; 2.0% growth)

Aside from the manufacturers that boasted the most total sales in IRI’s data, some of the other biggest dollar-growth percentages over the year previous came from food brands Nestlé (30.4%), Epic (250.6%), GU (193.0%), Organic Valley (186.5%), and BSN (168.6%).

### Top Retailers

Finally, Sanders reported on the top-selling retailers of nutritional products in the past year. Overall, growth of nutritional supplements well outpaced total store growth in the last year, with 5.8% year-over-year growth to reach a market total of $16 billion. Total store growth, meanwhile, sat at just 1.2% and amounted to a total market size of $757 billion, indicating nutritional supplement sales grew at about five times the rate of total store sales in the last year, Sanders noted.

A closer look at retail channels revealed the biggest year-over-year dollar growth for club stores (10.3%), Walmart (7.3%), grocery stores (6.9%), and drug stores (5.5%), according to IRI. Walmart and grocery stores each had about 21% of the total supplements market, followed by club stores with 19% and drug stores with 17%. Less promising growth figures for supplement sales fell to specialty stores, Target, and dollar stores, which saw sales fall in the last year by -1.4%, -1.3%, and -8%, respectively.

Here are the five highest-selling retailers over the past year:

1. Walmart ($3.7 billion total sales)
2. Costco ($1.8 billion total sales)
3. Walgreens ($1.2 billion total sales)
4. Sam’s Club ($1.1 billion total sales)
5. CVS ($1.1 billion total sales)

Aside from overall market share, the retailers that saw the greatest percent increases to their supplement sales in the past year were H-E-B (17.7%), Sam’s Club (13%), Meijer (13%), Costco (9.3%), and Kroger (8.6%).

Sanders pointed out that while Walmart still leads the pack in terms of supplement sales, the new IRI sales figures speak to the especially strong performance of the club category in general right now.

### Reference

1. IRI Consumer and Shopper Insights Advantage, including total of all U.S. outlets, over the 52 weeks ending August 7, 2016
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Staying Power

Energy drink makers must keep up with today’s consumer trends, including clean-label and healthy.

BY INNOVA MARKET INSIGHTS

The energy drink of today is a healthier, more mature version of its younger self. Just take a look at how the market has changed.

For one, the market is less diversified than it once was. As mainstream soft drink companies moved in with global brands, the number of players in the energy drink space has shrunk considerably, and the number of global new product launches recorded by Innova Market Insights has fallen consistently over the past five years. Whereas energy drinks accounted for 5% of global soft drink launches in June 2010–2011, energy drinks accounted for just 3.2% of soft drink launches in June 2015–2016. Launch activity remains slightly higher in the U.S., where 4.25% of soft drink launches in 2015–2016 were energy drinks.

In order to capture new consumers and retain existing customers, energy drink leaders like Red Bull, Monster, and Rockstar are addressing some of the biggest topline consumer trends today, such as zero-calorie, reduced-sugar, and clean-label.

Companies are also focusing heavily on adding new drink formats and flavors, sometimes with limited or seasonal editions. Recent launches from major players include a new Citron flavor added to the Monster Energy Ultra zero-calorie/zero-sugar line, and a Killer Citrus product in the Rockstar Revolt portfolio. There is also interest in marketing energy drinks that offer the consumer additional health benefits.

### Reduced Sugar

As global concerns over high sugar consumption grow, energy drink makers have introduced more reduced-sugar and sugar-free options. Most of the leading players have at least one zero-sugar or zero-calorie product line within their portfolio.

Based on the U.S. energy drinks launches Innova Market Insights recorded in June 2015–2016, 21% of launches featured sugar-free claims (and up to 29% if low-sugar and no-added-sugar claims are also included).

### Clean Label

Interest in clean labeling has also grown in recent years. Over one-fifth of energy drinks launches we tracked featured claims related to “naturalness” and/or freedom from additives/preservatives; if organic claims are also included, that percentage rises to nearly 30%.

### Natural Ingredients

The use of natural ingredients is also increasing, including options like honey, green tea, and green coffee bean extracts, as well as the traditional favorite, guarana.

The Starbucks Refreshers energy drink line has traditionally featured caffeine from green coffee beans. In 2016, the company extended the brand with two new lines featuring coconut water, an on-trend ingredient with natural isotonic properties.

The Rocky Mountain High energy drinks brand celebrates a more unusual ingredient in energy drinks—hemp. The company recently extended this product line with a Mango flavor, complete with a low-calorie positioning at just 15 calories per can.

### Tea

Consumers are also increasingly interested in the energy benefits other types of drinks offer, evidenced by the claims marketers now make related to energy/alertness. Take tea. After energy drinks themselves, iced tea products feature the most energy-related claims, with 13% of launches using this type of positioning.

In the tea category, an interesting launch in the first half of 2016 was PepsiCo’s extension of its Brisk iced tea brand with Brisk Maté Energizing Iced Tea. This on-trend beverage combines Brisk iced tea and the energizing South American plant yerba maté.
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Ecoteas, also focused on yerba maté and at around the same time introduced Yerba Maté Lemongrass, Mint, and Hibiscus teas.

Juice
Juice drinks are also increasingly making energy claims. Campbell’s V8+ Energy range, for example, focuses on both the fruit and vegetable juice content and the added energy from green tea leaves. The range was extended in early 2016 with three lightly carbonated versions: Blackberry & Cranberry, White Grape & Raspberry, and Orange & Pineapple.

Blurring of Sports, Energy
Within the sports-performance sector, sports and energy products traditionally fulfilled different needs. Today, however, the two categories are now blurring and increasingly compete, particularly as products take a more lifestyle-type positioning, offering convenient refreshment and functionality “on the go.”

The market has opened up whole new areas of opportunity and a focus on other aspects of health, targeting an increasing range of consumers and usage occasions. 

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The votes are in!

*Nutritional Outlook*’s readers and editors highlight these four winners for their standout achievements in 2016.
The Council for Responsible Nutrition

The trade association is stepping up with a new tool to reset the conversation on industry transparency.

BY MICHAEL CRANE, ASSOCIATE EDITOR

No matter how you slice it, launching an initiative to improve the transparency of an entire industry is a tall order. But that’s exactly what the Council for Responsible Nutrition (CRN; Washington, DC) set out to do this year when it proposed, helped develop, and began beta testing the Supplement Online Wellness Library (OWL), an industry-wide, finished-product registry for dietary supplements.

CRN officially announced plans to create its new registry in April, partly in response to the barrage of negative media coverage that hit the industry in 2015. Since then, the trade association worked with Underwriters Laboratories (UL; Northbrook, IL) to build an online database that would be a "one-stop shop" where regulators and retailers can find the full label information—and, in some cases, even more info—of finished supplement products. Consumers will also be able to access the Supplement OWL, although they are not its primary intended audience at this point.

Steve Mister, president and CEO of CRN, tells Nutritional Outlook that while there were already ways for consumers and retailers to locate supplement label information piecemeal, the OWL is meant to help industry move forward on the "continuum" of transparency by putting all of that information in one easily navigable resource. And while FDA has other tools to inform its enforcement actions, the new registry will hopefully make the agency’s work easier too.

“To the extent that we hear FDA saying it doesn’t know which manufacturers use which ingredients at which levels, this is a way to take that argument off the table and say, ‘Well, now you do,’” Mister says. For instance, if FDA had particular concerns about magnesium, it could easily search for all the products in the registry containing magnesium. Mister adds that the agency has indicated to CRN that it already sees the OWL “as a very favorable move.”

Still, the question remains of how many supplement manufacturers will actually use the new registry. CRN member companies will be required to upload their labels to the OWL, but what incentive does the rest of the industry have to participate? It largely hinges on pressure from retailers. If major supplement retailers begin to view participation in the OWL as a factor in store placement, a large swath of the industry would be motivated to participate. CRN is optimistic retailers will get on board in this spirit, Mister says.

But even if the OWL isn’t widely used by the majority of supplement manufacturers, it could still be “a tool in FDA’s own risk management,” Mister explains. For one, the companies that upload their labels to the registry will probably be those more likely to be in compliance with industry regulations. “So if you’re FDA, and you’re seeing some companies in the registry and then you know there are others that are not, maybe that helps direct where your attentions are,” Mister says. For a fee, the OWL also offers companies the option of easily displaying other background documentation, such as GMP certifications, which FDA could use to prioritize where facility inspections are most needed—and where they are not.

Beta testing of the OWL is already well underway, and the site will go live once enough labels from finished-product manufacturers and marketers are in the system—hopefully in the first few months of 2017. Meanwhile, CRN will also be rolling out a marketing campaign to ensure retailers, manufacturers, and media outlets are aware of the registry and its potential to take industry transparency soaring to new heights.

“We spent 2016 developing a product that works,” Mister says. “2017 will be the year that we really start to promote it, first to industry, and then outside the industry.” The OWL may be less than a year into development, but already industry hopes are high that it will help regulators better distinguish between responsible and irresponsible firms, perhaps while also silencing criticisms that the industry is not transparent enough.
An award winning combination that stands the test of time: Sabinsa's Curcumin C3 Complex®, the most clinically studied Curcumin brand, plus BioPerine®, the only standardized Piperine brand with extensive safety and clinical documentation.

A study on the effect of this combination on metabolic syndrome (MS) patients was selected for the Nutritional Ingredients University Research of the Year Award. The authors concluded that this combination is an efficacious adjunctive therapy in patients with MS and can modify serum lipid concentrations beyond what is achieved with standard of care.*†

*Panahi Y, et al. Lipid-modifying effects of adjunctive therapy with curcuminoids-piperine combination in patients with metabolic syndrome: Results of a randomized controlled trial. Complement Ther Med (2014), Mashhad University of Medical Sciences

†These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, mitigate or prevent any disease.
Botanical Adulterants Program

The program’s newest educational tools keep stakeholders up to date on botanical adulteration.

BY JENNIFER GREBOW, EDITOR-IN-CHIEF

Staying a step ahead of fraud can seem nearly impossible at times, given how adroitly cybercriminals and adulterers find new ways—overnight, it seems—to skirt existing detection capabilities. Luckily, there are those devoted to developing tools to help fight adulteration. In the herbal products industry, the Botanical Adulterants Program is one of those champions. Developed five years ago by three U.S.-based nonprofit organizations—the American Botanical Council (ABC; Austin, TX), the American Herbal Pharmacopoeia (AHP; Scotts Valley, CA), and the University of Mississippi’s National Center for Natural Products Research (NCNPR; University, MS)—the ABC-AHP-NCNPR Botanical Adulterants Program is dedicated to spreading awareness and education about how herbs, herbal extracts, essential oils, and other plant-derived ingredients are being adulterated, either deliberately for financial gain or accidentally due to poor quality control.

Over the past five years, the Botanical Adulterants Program has evolved into a “long-term, multiparty coalition” of herbal experts supported by more than 175 U.S. and international underwriters and endorsers. Participants include universities, third-party analytical labs, government agencies, trade associations, and industry companies. Their shared goal is to help prevent botanical adulteration by determining both the scope of adulteration happening in U.S. and global markets, as well as determining whether appropriate tools exist to detect adulteration—and then spreading the word.

The program’s educational arsenal includes the comprehensive Botanical Adulteration Reports published in ABC’s prestigious, peer-reviewed scientific journal, HerbalGram; a Botanical Adulterants Monitor newsletter; plus peer-reviewed Laboratory Guidance Documents, which are developed to help identify the most suitable analytical methods for testing botanicals for adulteration.

Anyone who has read one of the extensive Botanical Adulteration Reports in HerbalGram can attest to the value of these lengthy reports, each focusing in on a specific botanical ingredient and peer-reviewed by experts in the field. This spring, the program added something new: Botanical Adulterants Bulletins. These concise (but still information-packed) reviews of ingredient-specific botanical adulteration are not as in-depth as full-scale Botanical Adulteration Reports, but are still jam-packed with crucial information. Together, “the full papers and the Bulletins provide the background and available data on herbal ingredients where quality problems have been confirmed, give a fairly broad overview of the plant species, and include data on cultivation, harvest and market size, known adulterants, frequency of adulteration (if such data is available), possible therapeutic issues using the adulterating species, and a short review of analytical approaches to detect the adulterant,” says Stefan Gafner, PhD, ABC’s chief science officer and technical director of the Botanical Adulterants Program and editor of the Botanical Adulterants Monitor.

Timeliness, as we know, is key when it comes to fighting adulteration, particularly for certain ingredients. “For ingredients where there are many adulterant options, the adulteration landscape changes frequently,” Gafner says. “An example is bilberry extract, where a number of fruit extracts which contain anthocyanins, the blue pigments giving bilberry its color, are used to fool the analytical test methods for bilberry and for which new adulterants are reported almost on a yearly basis.”

And therein lies the beauty of the Bulletins: because they are concise and in digital form, they can be updated more quickly while still retaining the high quality intrinsic to the Botanical Adulterants Program. “The Bulletins are shorter reviews on current issues of herbal ingredient adulteration, which can be released in a more timely manner,” Gafner says. In a press release, Mark Blumenthal, ABC’s founder and executive director, called the Bulletins “a more rapid means of confirming suspected and/or alleged adulteration.”

So far, the program has published six Bulletins (on bilberry, grape-seed, skullcap, goldenseal, black cohosh, and arnica), with two more set to be published soon on saw palmetto and St. John’s wort and plans for upcoming Bulletins on ashwagandha, ginkgo, and rhodiola.

The need for the Botanical Adulterants Program has never been more urgent, as the herbal-supplements industry is increasingly under scrutiny by the public and regulators. As the Botanical Adulterants Program and its esteemed participants continue the crusade against herbal adulteration, their positive effects are being felt not only within the industry but also where it matters most—consumer health and safety.
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*Synergy protein research has been in collaboration with its parent company, Carbery, a leading manufacturer of whey protein.
Sabinsa Corp.

By leading the charge on carbon-dating curcumin, the supplier is helping to guard the natural-curcumin supply chain from adulteration.

By Jennifer Grebow, Editor-in-Chief

Curcumin is one of the bestselling herbal ingredients in the supplements market today. It is now the top-ranked herb in the U.S. natural channel, with $37 million in sales in that channel alone last year, according to HerbalGram’s annual U.S. herbal-supplement sales report. To some unscrupulous actors, those fortunes are just too big to ignore. As demand for curcumin has increased dramatically in recent years, so have cases of curcumin adulteration—namely, the undetected spiking of natural curcumin with synthetic curcumin for economic gain.

For consumers, this is indeed bad news because there is no evidence to show that synthetic curcumin provides any of the health benefits that researchers ascribe to natural curcumin. And for ingredient suppliers invested in natural curcumin, synthetic curcumin threatens their very business, including the integrity of the supply chain and consumer trust in the ingredient as a whole.

Curcumin expert Sabinsa Corp. (East Windsor, NJ) saw this problem unfolding more than five years ago, and the company did something about it. To start with, Sabinsa began suing others it alleged were adulterating natural curcumin with synthetic. Sabinsa made no secret of these lawsuits either, shining a spotlight on the growing problem of adulteration in the curcumin marketplace, which the company says has now been detected in the U.S., Europe, and Australia.

Then the company turned its attention to testing. Unfortunately, test methods like chromatography (HPLC, etc.) or spectral analysis cannot distinguish synthetic curcumin from natural curcumin. In the case of HPLC, for instance, synthetic curcumin replicates the same chromatogram “peaks” that register with natural curcumin, making it impossible to tell the difference. Radiocarbon dating, however, can distinguish between natural and synthetic materials.

Knowing this, in 2011, Sabinsa reached out to the University of Georgia’s Center for Applied Isotope Studies (CAIS; Athens, GA), which had developed advanced technologies around carbon dating. “As a science-based company with over 100 scientists on staff, we were very much aware of the trailblazing research work done by CAIS on the differences in isotopic composition between natural products and petroleum-based synthetic products,” says N. Kalyanam, PhD, Sabinsa’s president of R&D.

Carbon dating can detect synthetic curcumin where other testing techniques fail because it tests for carbon 14 ($^{14}$C), a radioactive isotope inherent in plants. Plants naturally absorb carbon dioxide from the atmosphere during photosynthesis and thus contain traces of $^{14}$C; ingredients produced in a lab and not in nature, however, will not contain $^{14}$C. By carbon dating, scientists can look for the presence of $^{14}$C to indicate that a sample is of natural origin.

Talk about carbon dating may bring back memories of high school science class, but the technology is actually far more advanced today, Kalyanam explains. For instance, researchers no longer focus on carbon dating by way of measuring the amount of radioactivity using a liquid scintillation counting instrument. Instead, researchers like CAIS use sophisticated mass spectral equipment—namely, an accelerator mass spectrometer (AMS), Kalyanam explains. The AMS is more accurate and works faster than liquid scintillation counters. In fact, he says, the AMS that CAIS uses is so accurate that it can still detect $^{14}$C even if there is actually less $^{14}$C in the atmosphere today compared to years ago. He notes an interesting fact: “If you submit two natural curcuminoids samples, one manufactured in 2011 and one recently in 2016, CAIS will easily distinguish one from the other, even though these two samples will be indistinguishable by every other known analytical method.”

Not only that, he says, but “CAIS can exactly detect the extent of synthetic contamination.” This means that even if there are only trace amounts of synthetic curcumin present in a natural sample (for instance, even a 2:98 ratio of synthetic:natural), the “CAIS method can still unfailingly determine even this low level of contamination,” Kalyanam says.

This summer, Sabinsa announced that it will use carbon testing on all batches of Curcumin C3 Complex, the supplier’s flagship branded and highly studied curcumin ingredient. The company says it is doing this to “safeguard customer and consumer confidence in their product.”

At least one other curcumin-infraiments supplier is now working with CAIS on carbon dating. Kalyanam says Sabinsa welcomes the company. “Sabinsa was the first natural ingredients supplier to seek this testing from [CAIS],” he says. “Sabinsa is proud to be the torchbearer on this important fight against adulteration. We are happy to learn that other companies are following our lead to eradicate synthetic curcumin contamination in this exploding curcuminoids market.”
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How many companies can say they stood at the happy intersection of not one, but two, of the most consequential regulatory developments to hit the food and beverage industry in 2016? From KIND’s role in prompting FDA to reevaluate how it defines the term *healthy* on food labeling, to its early disclosure of the added-sugar content of its products, the snacks brand managed to turn potential regulatory headaches into leadership opportunities and positive press.

It’s a big change from this time last year, when KIND was still embroiled in media scrutiny following an FDA warning letter objecting to the brand’s use of the phrase “healthy and tasty” on several of its snack bars. KIND’s products exceeded the threshold of fat per serving outlined under FDA’s current definition of *healthy* nutrient content claims, the agency said, and therefore had to stop using the term.

KIND shot back with a citizen petition in December of 2015 urging FDA to update its “outdated” food labeling requirements, while also pointing out that the current regulations for “healthy” claims were last updated more than 20 years ago. With its focus on fat, saturated fat, sodium, and cholesterol, FDA’s definition of *healthy* unjustly maligns many ingredients now thought to be nutritious, including nuts, avocados, and salmon, KIND said. Meanwhile, some high-sugar foods can be called “healthy.”

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KIND’s campaign paid off. FDA announced in May that it would be reevaluating the term *healthy* “in light of evolving nutrition research.”

“A revised definition of *healthy* is an important step towards ensuring consumers have the information they need to make informed food choices,” Perruzza tells *Nutritional Outlook*. In the meantime, though, KIND doesn’t intend to place the term back on its product packaging.

Beyond the *healthy* saga, KIND also made headlines this year as one of the first major snacks brands to disclose the added sugar content of its products. FDA released its new Nutrition Facts label for packaged foods and beverages in May, which includes a requirement for large manufacturers to disclose added-sugar content by July 26, 2018. But in August, nearly two years before FDA’s deadline, KIND announced it would be publishing the added-sugar content of more than 60 of its products online.

“Disclosing the added sugar in our products in advance of the 2018 deadline was part of our continued commitment to transparency and providing consumers with information to help them make more informed food choices,” Perruzza notes. She adds that beginning in early 2017, the actual packaging of select KIND products will begin to carry added-sugar listings.

“We were excited to be the first national snack brand to publicly share the added-sugar content across our portfolio and hope to set a positive example within the industry,” Perruzza says.

Sugar reduction was another key priority at KIND in 2016; the brand recently reformulated its fruit and nut bars so they contain between 14% and 56% less sugar. It also debuted Pressed by KIND ingredient bars earlier this year, which are totally free from added sugar. More new KIND products made without added sugar are slated for launch in 2017, according to Perruzza.
Nutritional Outlook’s

People-to-Watch Directory

A Who’s Who of the natural products industry
Lorraine Aboughanam, Vice President of Sales & Marketing
Elite Ingredients, LLC • Clifton, NJ

Since its launch in 2009, Elite Ingredients has managed to implement essential improvements necessary in improving business concepts in the Nutraceutical Industry. Lorraine Aboughanam, Vice President of Sales and Marketing, is the key component in the company's successful growth. Research and Development are continually obtaining exclusive distribution rights for elusive international raw materials. Lorraine and her team perform multiple quality-assurance checks to ensure optimal customer satisfaction. Elite Ingredients continues to build its reputation of optimal quality at the best value in the current market. Company standards and strategies are consistently updated, ensuring smooth and expeditious services in step with current market trends. Elite Ingredients has recently expanded its customer base to include a greater scope of products offering more Organic as well as Conventional Ingredients. They are currently in the process of becoming Organic Certified (February 2017). In addition to being the Vice President of Sales and Marketing, Lorraine has extended her services to a new demographic as a consultant for finished products. Her expertise and proficiency has been recognized by companies around the world. Lorraine Aboughanam and Elite Ingredients strive to raise the bar in the industry year after year with an overall increase of yearly production and sales by over 200%.  

www.elite-ingredients.com

Kevin J. Salerno, President
HORN Human Nutrition • La Mirada, CA

Established in 1961, HORN is North America’s premier distributor of specialty ingredients and raw materials. Earlier this year, the company debuted HORN Human Nutrition, which merged the reputable distribution business units of HORN Nutraceuticals, HORN FoodTech, and manufacturing arm Nutri Granulations. HORN Human Nutrition is the industry source for science-based innovations and best-in-class ingredients.™

Leading this progressive team of technical sales experts and experienced solution providers is Kevin Salerno, president of HORN Human Nutrition. Salerno was initially named president of HORN Nutraceuticals and Nutri Granulations in 2003. Since taking on this leadership position, Salerno has played a key role in developing the company’s nutraceuticals business into the premier choice for distribution partnership throughout North America. He oversees a tenured technical sales team serving specialized markets for both the nutraceuticals and food industries.

Today, HORN Human Nutrition delivers value-added nutritional ingredients and process science to its customers through simplified distribution. A recognized leader for nutritional ingredients distribution, HORN Human Nutrition offers a robust portfolio of science-based innovations and world-class ingredients from top suppliers throughout the globe.

Salerno has been an active industry executive for more than 20 years, supporting trade associations and organizations such as Vitamin Angels, Nutrition Industry Association, and Institute of Food Technologists. He also serves on the Council for Responsible Nutrition board of directors.  

www.ethorn.com, nutra@ethorn.com

Lisa Glymph Lattimore, Technical Manager - Dietary Supplements
NSF International • Ann Arbor, MI

Lisa Glymph Lattimore joined NSF International in June 2016. Lisa oversees the technical aspects of the certification processes to ensure NSF certifications are technically sound and supported. Lisa is revisiting the certification tools used by our auditors to assure compliance with regulatory updates as well as NSF quality, product safety expectations and requirements.

Lisa has over 20 years of experience in quality assurance with strong expertise across high-risk industries including supplements, food and beverage, and pharmaceuticals. Prior to joining NSF, she was the Senior Director of Global Food Safety and Quality Assurance for Roland Foods LLC where she developed, implemented and guided strategic operations in quality management, food safety and regulatory affairs.

Lisa earned her Bachelor of Science degree in chemical engineering from Syracuse University, a Master of Science in food engineering from Cornell University and an MBA from The College of William & Mary.

www.nsf.org
**Steve Holtby, President and CEO**  
*Soft Gel Technologies, Inc. • Los Angeles, CA*

Steve Holtby has been involved in the natural products industry for over 21 years. In August 2008, Steve took over the role of President and CEO for Soft Gel Technologies, Inc. (SGTI). He formerly held the position of National Sales Director for SGTI and Vice President of Sales of OptiPure. Steve has been with the company since 1998.

Prior to joining Soft Gel Technologies, Steve worked in Marketing as a Brand Manager for Nature’s Way. While there he oversaw the introduction of their vitamin line. The Nature’s Way vitamin line was the first entire line of products in the natural products marketplace to carry the newly introduced structure/function claims and was a bold entry into that segment for the company who had previously focused on the herbal segment of the market.

[www.soft-gel.com](http://www.soft-gel.com)

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**Katie Watts, Vice President Supply Chain**  
*Vit-Best Nutrition Inc. • Tustin, CA*

When Katie Watts joined the Vit-Best management team as Vice President of Supply Chain in May 2016, she immediately put her 13+ years of experience in nutrition and cosmetic manufacturing to work. In addition to overseeing Planning, Procurement and Inventory Control, Katie’s responsibilities at Vit-Best also include sourcing and costing for all new products (including raw materials), tracking cost variances and managing vendor relationships, to name a few.

Before joining Vit-Best, Katie fulfilled a similar role as Director of Supply Chain for Doctor’s Best Inc., where her accomplishments included developing and implementing a Skip Lot Testing program, improving customer service, developing better reporting systems, and taking an active role in the New Product Development Team. Prior to this, Katie was a Senior Buyer at Natural Alternatives International, where she excelled by reducing raw material lead time by 10%, reduced packaging component costs by 9% and also managed supplier performance.

Additional highlights of Katie’s career include procuring raw materials and handling a range of accounting tasks as Purchasing Agent/Junior Accountant at Life Solutions; and purchasing all cosmetic raw materials as Senior Buyer at BioNutritional Laboratories. Her experiences enrich Vit-Best’s executive team.

[www.vit-best.com](http://www.vit-best.com)

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**Thomas Mooy, President, CEO**  
*Vit-Best Nutrition Inc. • Tustin, CA*

Starting January 1, 2017, Thomas Mooy will become President and CEO of Vit-Best Nutrition. Thomas joined Vit-Best in August 2016, bringing with him the broad expertise gained over his 27 years in the consumer healthcare and pharmaceutical industries. Widely respected for driving contract manufacturing growth for global businesses, he oversees Vit-Best’s global trade relations, new customers, and customer relationships. Most recently, Thomas served as CEO of Natrol LLC, where he implemented changes that resulted in significant revenue and EBITDA growth in less than one year. Prior to that, he was President of Arizona Nutritional Supplements, where he delivered revenue growth in three consecutive years, and COO of Legacy Pharmaceuticals International, where he led all business functions and managed two offshore manufacturing facilities.

Tom’s other career accomplishments include serving as a key contributor to Leiner Health Products Inc.’s restructuring, and leading the turnaround of Nutramax Products Inc. as Senior Vice President, Sales and Marketing.

Tom earned his Pharmacist and Drs Pharmacy (MS equivalent) degrees, as well as his Business Administration Degree, from Leiden University in The Netherlands. He is fluent in English, Dutch, and German and conversant in Portuguese, Spanish, and French.

[www.vit-best.com](http://www.vit-best.com)
John Altenberg, Vice President, Sales
Vit-Best Nutrition Inc. • Tustin, CA

John Altenberg joined the Vit-Best Nutrition management team as Vice President of Sales in October 2015. Prior to Vit-Best, John was with NBTY where he served as Vice President/General Manager of Contract Manufacturing. At NBTY, John successfully merged Leiner Contract Manufacturing into the NBTY portfolio. With complete profit and loss management responsibility for the entire $100MM+ division, John was able to raise profit margins with all major customers.

From 1989 to 2008, John was with Leiner Health Products. As Vice President/General Manager of Contract Manufacturing, his efforts to grow the business within the pharmaceutical industry were so successful that Contract Manufacturing was noted as a “primary growth engine” in the company’s 10-Q press releases.

John’s other accomplishments at Leiner include developing trade marketing programs for Wal-Mart and Sam’s Club, starting the Category Management department to provide the data needed to develop opportunity gaps and merchandising recommendations for retailers, and developing an icon-based system to classify nutritional supplements according to their specific benefit. John earned his B.S. in Business Administration from San Diego State University and his MBA from Pepperdine University.

John leads the Vit-Best sales operation, focusing on customer development and service.

www.vit-best.com

Brian Jordan, Certified for Sport® Technical Manager
NSF International • Ann Arbor, MI

Brian Jordan CSCS, RSCC*D is the Technical Manager for NSF International’s Certified for Sport® program and a former MLB strength and conditioning coach. For nearly 20 years, Brian has been working with professional athletes and organizations in the field of strength and conditioning. In his role at NSF International, he continues to work with professional and amateur sports leagues as an educator on dietary supplements and the NSF Certified for Sport® certification program. Brian’s diverse background in athletics, sports science and dietary supplements makes for a unique perspective that he conveys in his many speaking engagements.

www.nsfsport.com

Tomo Kirimoto, General Manager/VP of Operations and QA
Soft Gel Technologies, Inc. • Los Angeles, CA

Tomo Kirimoto was hired at Soft Gel Technologies, Inc. as assistant plant manager in 2001. Prior to joining Soft Gel, Tomo worked at its parent company, Japan-based Kenko Corporation. Tomo now serves as the General Manager and the Vice President of Operations and QA. He is responsible for quality control in the plant as well as overseeing engineering improvements of the factory and machinery. He is also in charge of all aspects of plant management, including overseeing the mechanical facilities and improving the efficiency of the plant. Tomo graduated from the Tokyo Institute of Technology and has a master’s degree in Material Science. He is an avid golfer and enjoys spending time with his wife and two children.

www.soft-gel.com

Carol Cheow
CEO
Cactus Botanics
Irvine, CA

Carol Cheow, CEO of Cactus Botanics, is a Biochemistry expert with more than 15 years’ experience in Phytochemistry. She has been concentrated on extraction from marine plants and developed ingredients such as Fucoidan and Fucoxanthin from Laminaria japonica/Fucus vesiculosus/ Undaria pinnatifida, Astaxanthin from Haematococcus pluvialis, Omega-3 from Schizochytrium sp, etc.

In 2016, she invented a new branded ingredient: Fucosea™, which is a glorious gift from sea.

www.cactusbotanics.com

Cheryl A. Luther, DC, MS, CCSP, CCEP, CSSC, PES
General Manager of Dietary Supplements and Beverage Quality Programs
NSF
Ann Arbor, MI

Dr. Cheryl Luther, DC, has joined NSF as General Manager of NSF’s global dietary supplements program. Her role will include leading NSF’s Good Manufacturing Practices (GMP) facility registration program, NSF’s dietary supplement and Certified for Sport® certification programs, the NSF Beverage Quality program and the training courses associated with these programs.

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Source: AAM Digital Audit, June 2015
WASTE NOT, WANT NOT

These neglected ingredient by-products have newly discovered nutrition potential.

BY ROBBY GARDNER

Food wastage is a critical concern. An estimated one-third of all food produced today is either lost in the supply chain or wasted outright, and the ramifications for the planet are cumulatively destructive. While consumers’ over-purchasing habits are partly to blame, growers and manufacturers share an equal burden. Poor transport and storage of food items contribute to food wastage. Perhaps an even more glaring issue is the amount of edible and otherwise useful plant material that gets thrown out by growers and processors every day.

Diverting undesirable plant parts to compost can be a positive business practice. Other approaches, however, may let firms turn a profit from plant and other waste. Thanks to the leadership of responsible businesses, as well as research breakthroughs, we’re finding new human uses for these plant parts at an increasing rate.

**Grape**

For all of the wine and grape juice in production, there’s a whole lot of grape seed and pomace potentially going to waste. To redirect these materials to commerce, dietary supplement ingredient companies turn them into grape seed extracts and grape skin extracts. The sizable market for grape seed and grape skin extracts is well established. The ingredient suppliers that participate in this space include companies such as Polyphenolics Inc. (Madera, CA) with its water-extracted grape products, and Draco Natural Products (San Jose, CA), a company that supplies numerous seed- and pomace-based plant extracts (not just from grapes) to domestic and international customers.

Independent researchers, as well as companies with vested interest in grape extracts, have published positive studies on human consumption of these extracts for uses such as helping to lower blood pressure. Their research continues, with recent findings supporting the use of grape pomace in brewed coffee drinks as a potential free radical scavenger, as well as a characterization of the bioactive compounds in wine grape skins, including, but not limited to, phenolic compounds, anthocyanins, flavonoids, and polyunsaturated fatty acids.

**Avocado**

Fresh avocado can fetch a high price, but what of the hard pit left over from every fruit? Seeing a potential missed opportunity—in the guacamole industry, perhaps?—interested parties are giving avocado seeds a closer look.

Earlier this year, researchers in Mexico proposed that avocado seeds may contain useful starch. After extracting the starch and comparing it to cornstarch, the researchers determined that avocado seed starch has potential for thickening and gelling of foodstuffs. The same qualities may one day even make this starch useful for pharmaceutical delivery (into the body) and as a component of food packaging.

Avocado seeds have additional potential human uses. A research team years ago discovered the seeds’ potential (when crushed) as an orange food colorant. Ingredients firm Ecuadorian Rainforest LLC (Belleville, NJ), which sells an avocado seed powder to food and dietary supplement manufacturers (alongside other seed powders, such as pumpkin), says avocado seeds are particularly rich in antioxidants.

**Chocolate and Coffee**

During production of chocolate and coffee for the masses, the unused pods and grounds of these luxury commodities are often repurposed for compost or garden mulch, or they are simply discarded (which can spread cocoa crop disease). But there are ways of redirecting discards to benefit human health.
In the case of cocoa, extracts sourced from cocoa pods recently showed promise as an experimental antiwrinkle gel for human skin. Within three weeks, gel users experienced reduced skin wrinkles and increased skin hydration.\(^7\)

Available in more plentiful supply, coffee grounds and other byproducts seem to have several novel uses that researchers are now learning about. Coffee grounds can be added to baked goods as a source of insoluble fiber, essential amino acids, and low-glycemic sugars. These properties, along with a resistance to thermal food processing, made coffee grounds seem like a sensible addition to biscuits in a recent study.\(^8\) In addition, silver skin—a thin skin layer left on coffee beans after they are hulled—is showing potential as a useful additive for skin-hydration creams.\(^9,10\)

**Coffee grounds are a source of insoluble fiber and were recently tested as a food ingredient in biscuits.**

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**Omega-3s**

In the giant market for omega-3 oils, we’ve already witnessed a growing diversity of resources (marine species) being used. Aside from popular anchovy and cod, other fish species are processed into oils, and so are numerous crustacean species.

**Tomato**

For many years now, tomatoes have been used not just as whole and mechanically processed cooking ingredients, but also for the extraction of their pigments and nutritional compounds such as beta-carotene and lycopene. Lycored Corp. (Orange, NJ) is at the forefront of this tomato science, as the company has, with its various colorants and other sophisticated tomato ingredients, already carved out a nice space in the dietary supplement, food, and beverage industries.

Ongoing research indicates that the reuse of tomato byproducts has continuous potential beyond even today’s more advanced applications. Most recently, dry tomato waste was successfully added to wheat flour at 6%.\(^11\) At this low level of replacement, tomato waste yielded increased moisture and crumb elasticity in bread.

**Pineapple**

Lots of fibrous plant materials can, once ingested, impart a prebiotic effect on their consumers. This appears to be the case with pineapple waste. Thanks to pineapple waste’s prebiotic properties, it increased the presence of probiotics in yogurt in a recent study.\(^12\)

Reporting in the *Journal of Food Science and Technology*, Australian researchers say that mixing a fine powder of pineapple peel and pomace into yogurt resulted in yogurt with higher amounts of *Lactobacillus* bacteria than a control yogurt had. The friendly addition didn’t just boost probiotic growth; it also increased antioxidant activity in the product, they said.
Although some marine animals are caught and harvested primarily to be used as oil, shrimp is an exception. Shrimp is primarily sold for its meat, but shrimp's undesirable parts that are removed prior to sale can be of use for their oil. A new study on an extract of shrimp waste found that it contained ample amounts of astaxanthin and fatty acids, as well as smaller amounts of vitamin E and cholesterol. The ingredient proved shelf stable for up to 120 days, so it may have significant potential as a food or dietary supplement ingredient, used for nutrition and/or color.

Animal Feed
Reusing food byproducts as livestock feed is an old tradition, but it's one that still makes sense today. Take pickled radish, which conventionally involves a lot of waste. According to a team of researchers in South Korea, 30% of the radish plant is discarded in the production of pickled radish, but this waste product can be reused in livestock feed. Because radish waste is especially high in soluble fiber, ruminants such as cattle can use it for energy throughout the day. If refrigerated, radish waste may keep for up to 21 days, but its high amount of sodium means it should only be used as a component of ruminant livestock feed—not as the primary ingredient.

Exotic Commodities
Since many commercial food ingredients travel significant distances before reaching consumers, it’s good business to make sure that all parts of these plants are used. Fortunately, the opportunities are plentiful, regardless of the plant. Jabuticaba (Plinia cauliflora) is a specialty Brazilian fruit grown for its juice and flesh. Jabuticaba’s pomace was just revealed to have significant nutritional contents, including tocopherols, polyunsaturated fatty acids, tannins, and anthocyanins.

In another example, palm fruits (Borassus aethiopum Mart) are harvested for oil in millions of tons each year, yet a new study found that the leftover fruit contains lots of cheap and usable pectin, making palm fruit waste “an inexpensive raw material to extract pectin in [an] environmentally friendly and economical way.”

More to Come
As food waste products continue to prove their uses, ingredient suppliers and product manufacturers alike can increase their profits by embracing these materials. Hopefully, one or more of these examples is a fit for your company, or will inspire new ways in which you can tackle your particular waste streams.

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Robby Gardner is the former associate editor of Nutritional Outlook magazine.
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11. Nour V et al., "Bread enriched in lycopene and other bioactive compounds by addition of dry tomato waste," *Journal of Food Science and Technology*, vol. 52, no. 12 (December 2015): 8260–8267


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Food and Drink

Dairy-Free in High Demand

Brands big and small see opportunities in dairy-free food and drinks.

BY ROBBY GARDNER

There’s no denying the substantial global market for dairy products, but there’s also no denying that there are many consumers who now prefer to avoid dairy altogether. These shoppers are now finding a new—and steadily growing—supply of alternative dairy products that weren’t previously available. In fact, the market potential for dairy-free has increased so much that even established dairy companies want in on the action. Dairy giant Danone, which owns more than a dozen brands around the world, recently agreed to purchase WhiteWave Foods for $10.4 billion. The latter company owns several successful dairy-free brands, including Silk, So Delicious, and Vega.

Market research firms are confirming all of this dairy-free interest, too. Earlier this year, Grand View Research predicted that global dairy alternatives will amass over $35 billion in sales by 2024. While much of that growth will likely be in plant-based milks, dairy-free opportunities go well beyond just a cup of soy milk. Today, consumers can find dairy-free options for many products, including snacks, desserts, and even dietary supplements. Much of what once contained dairy can now be made without it.

Milk

Plant-based milks are the champions of the dairy-free food trend, and this leading dairy-free category still has room to grow. For even as soy milk declines somewhat in popularity, demand for almond, coconut, and other alternatives is on the rise.

After years of buzz, pea-milk launches are finally happening, including this summer’s release of Ripple, a line of sweetened and unsweetened protein-rich pea milks. Royal Hawaiian Orchards, known for its many macadamia nut snacks, is getting in on the profits, too, with macadamia nut milks.

Flavored milks are all the rage now, too, and go way beyond chocolate and strawberry. Examples include Los Angeles–based beverage company Califia Farms’ new Matcha Almondmilk and Ginger Almondmilk products—two trending flavors in the market today. And while flavored options are undeniably intriguing, some market researchers predict that original and unsweetened versions—enjoyed by many and often preferred in household cooking—will still maintain equal or greater interest.

Lattés, Creamers, and More

Creamers and milk-containing coffees are a natural extension of milk and, as such, the next step for dairy-free alternatives. Califia Farms stepped in this year with a host of new vegan launches, including cold-brew, plant-
The right ingredient to help support heart healthy cholesterol levels.*

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milk lattés and coffees. These products join the company’s existing line of plant-based creamers and milks.

**Ice Cream**

A handful of companies are dedicated to entirely-dairy-free ice cream. So Delicious, for example, is best known for its collection of ice creams made from coconut milk, and has expanded with other desserts based on soy, almond, and now cashew milk.

Dairy-based dessert brands are also heeding the call. Ben & Jerry’s recently announced new vegan options for its customers, including two adaptations of popular existing flavors, and two flavors only available in the dairy-free format.

**Cheese**

Dairy foods are beloved not only for their taste and nutrition, but also for their functional properties like texture so integral to many of the world’s favorite dishes. Cheese is one example. Now, dairy-free-cheese producers are debuting products that can still achieve the functionality needed from dairy cheeses.

The dairy-free cheese company Daiya recently announced a reformulation of its dairy-free cheese blocks. The new version,
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* 2016 MSC Consumer Perceptions Survey of 1600 U.S. Seafood Consumers

To find out more, visit www.msc.org
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the firm says, imparts improved milky flavors and firmer texture compared to other alternative cheeses. The products are made in part from tapioca, pea protein, and vegan natural flavors. They’re intended to be consumed as is or incorporated into other foods.

Chocolate and Cookies
More often than not, chocolate is sold to the masses as milk chocolate. But there are ways to manufacture chocolate products without the dairy additive. One of the latest such examples comes from Free2B, a sweets company devoted to ensuring its products are free of all major allergens. For some time, the company’s products were free of 7 of 8 leading food allergens. By the end of this year, it plans to make its entire portfolio free of the final allergen, dairy.

Other dessert makers are also eliminating the dairy to help consumers avoid allergies or simply to appeal to personal preferences. Enjoy Life is one of those companies, and its extensive line of dairy-free bars, cookies, and other sweet temptations is a testament to its success. The company’s latest launch is a line of mini cookies.

Energy Bars
Being dairy-free isn’t necessarily a primary marketing point for superfoods brand Amazing Grass, which offers whole-green nutritional powders; still, many of the firm’s new launches naturally drift into dairy-free recipes. Several of its new organic superfood bars draw from the sweetness of chocolate, minus the milk. It’s a reminder that dairy-free doesn’t always have to be a product’s focal point.

Probiotics
Although dairy ingredients are less often found in dietary supplements than they are in food, they are prevalent in some dietary supplement categories, such as probiotics. Depending on the probiotic strain, these friendly bacteria are sometimes produced from fermented milk.

Recognizing growing demand for dairy-free probiotics, VSL Pharmaceuticals recently relocated its probiotic production site to a facility where probiotics can be made without risk of dairy contamination. The move should especially help the company’s VSL#3 product, marketed as a medical food for people with irritable bowel syndrome and ulcerative colitis who are often likely to be lactose-intolerant. The company says the switch to a dairy-free process will have no negative implications for its existing bacterial formulas.

Robby Gardner is the former associate editor of Nutritional Outlook magazine.
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Superfruits may not be as trendy as they were ten years ago, but market experts share five key strategies for keeping the category ripe.

BY KIMBERLY J. DECKER

It’s hard to find fault with anything as virtuous as fruit. But the relentless buzz surrounding the “superfruit” phenomenon has left some observers surveying the category with jaundiced eyes. Julian Mellentin, director for New Nutrition Business (London), even goes so far as to rank superfruit a “term we recommend companies don’t use.” Is it really that bad?

Well, “it’s certainly not as trendy as it was ten years ago,” says Hope Lee, senior beverages analyst, Euromonitor International (Chicago). Even POM Wonderful, the iconic superfruit brand, suffered a sharp slowdown in growth globally, “with value growth at 2.5% in 2012 to 2013,” she says, citing data from Euromonitor’s Health and Wellness database.

The backlash has several sources. For one, the term “likely began losing some of its luster as a byproduct of mainstreaming,” says June Hope Lanners, natural products researcher for SPINS (Chicago), a leading information provider for the natural and specialty products industry.

For another, the heavy presence of superfruits in the beverage sector left the concept vulnerable to stiff competition from “alternative
plant-based beverages,” surmises Lee. Given that recent concerns about sugar have weighed down beverage sales generally, she adds, it’s only natural that sales of superfruit beverages would flag, as well. And new beverage technologies, like high-pressure processing (HPP) and cold-pressing, also “distract consumer attention from the superfruit concept itself,” Lee says, “with the processing and technology that keep the juice fresh and preserve its nutrients mattering more” than the fruit getting juiced.

But perhaps the biggest beef with superfruits lies in the difficulty consumers—not to mention the rest of us—have had understanding just what makes them super. Per Mellentin, it all boils down to “health benefits that have some basis in science and that consumers find credible.” A fruit needn’t secure an FDA-approved health claim; it merely need capture the attention of science or health journalists “who love writing about naturally healthy foods.” Having done that, he says, “social media will do the rest.”

That said, Mellentin still advises companies to “let the media and journalists decide whether a fruit is super or not.” The marketer’s job, by contrast, is to “focus on convenience, taste, and making sure that news about health benefits gets out to people.”

And if consumers respond well, perhaps it’s proof they haven’t gone sour on superfruits after all. Lanners certainly doesn’t view the current backlash as signaling superfruits’ demise. “On the contrary,” she says, “superfruit and superfood ingredients continue to make their way into products spanning all channels. If anything, we’ve witnessed a sort of leveling-off phase and could very well begin to see the popularity pendulum swing in favor of newer superfruits presently making their way to market.” And if you’re looking for an upside to the fad, look no further than “the massive media coverage” that, says Lee, “helped educate consumers as to the health benefits of specific plants and fruits.”

What’s not to like? According to Maider Gutierrez, marketing manager for Frutarom Health (Ede, Netherlands), “The superfruit trend is very dynamic and fast-paced. Every season there’s something new. They add freshness to an industry that sometimes can be a bit slow to innovate.” So take advantage of superfruits’ second wave with these expert suggestions for superfruit success.

**Science Counts**

For a superfruit to succeed, its superiority has to be believable. Unfortunately, says Frutarom’s Gutierrez, “superfruits have sometimes seemed too good to be true. As consumers grow more demanding and get schooled in the basics of nutrition, she explains, “they no longer will believe in ingredients that can ‘cure’ everything. More and more, consumers will want proof of efficacy, and to see the science and studies that prove a superfruit’s claimed benefits.”

New Nutrition Business’s Mellentin agrees. Moreover, he notes, “there’s a positive relationship between the number of scientific studies published about a fruit’s health benefits and its superfruit status. In the future, it’ll become more important to offer a demonstrable benefit to achieve differentiation from all the superfruit ‘wannabes.”
Tell Me a Story

“Superfruits are made, not born,” New Nutrition Business’s Mellentin says. “They’re the product of a deliberate strategy, and not the produce you find growing on a tree.”

You can say that again. As SPINS’ Lanners puts it, “consumers aren’t captivated exclusively by the nutritional makeup of superfruits, but are smitten with their stories, as well.” A finely tuned narrative, she says, “facilitates consumer trust and generates buzz. And when you can assign a legendary value to a product, it becomes even more enticing.”

In other words, backstory counts. “When a consumer learns the backstory of a product like goji,” she says, “they tend to gravitate toward testing it.”

This almost makes superfruits edible ambassadors of culture. “The trend gives us interesting glances at different cultures and regions with local or forgotten fruits that become accessible and known to everyday consumers,” Frutarom’s Gutierrez says. And with the functional food industry “heading toward a more local, traditional, and cultural approach,” she says, “superfruits fit right in.”

Convenience Is King

It’s no coincidence that many superfruits rose to stardom thanks to beverages. “Superfruit beverages,” New Nutrition Business’s Mellentin says, “are fruits at their most convenient.” And if a superfruit’s not convenient, he warns, “you’d better make it so.” Consider the pomegranate. There’s no denying the ingenuity that POM Wonderful put into turning an unwieldy, husky Mediterranean fruit into a wildly popular ready-to-drink beverage and snack-pack of seeds.

With consumers “drinking less volume and looking for functional, healthy, fresh stuff,” Euromonitor’s Lee adds, superfruit beverages need to be convenient and efficient in delivering the nutrition consumers seek. A new formulation trend she’s noticed is “the blending of fruits and vegetables—spinach, pumpkin, sweet potato, etcetera—which naturally reduces the sugar content. This is called the ‘drinkable salad bowl.’”

Stepping away from beverages, Mellentin notes that it’s also helpful when a superfruit is naturally snackable, like blueberries. “That makes it easier for people to try it,” he says. “Blueberries’ massive convenience advantage over apples and their more consumer-friendly packaging—small 150-g packs—coupled with widely communicated high-antioxidant health benefits, enables them to achieve super-premium prices.”

Targeted Appeal

Another “modern trend” that favors the superfruit, Lee says, is consumers’ penchant for choosing foods “specific to their individual health needs.” And with those health needs so divergent, “specific superfruits should be targeted to different consumer segments.”

Alas, consumers’ understanding of superfruit benefits varies just as widely. “Some fruits are better than others,” Frutarom’s Gutierrez points out. “Some have more of ‘this,’ others more of ‘that’—but it’s all about balance.”

That puts the onus on marketers to fine-tune formulations when targeting superfruits to a specific audience. Further, Gutierrez notes, “Whenever a supplier attempts to transform superfruits into powders or extracts, they need to deliver ingredients
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**What’s New?**

Finally, New Nutrition Business’s Mellentin advises, keep it novel. A superfruit “doesn’t have to be a totally new fruit,” he says, “but it helps to have something that’s not so ‘everyday.’ When a fruit’s already a commodity, it’s hard to make it special.”

Marketers have apparently gotten the picture. In the beverage space alone, “there are lots of ideas coming out,” Lee says, and “lots of venture capital firms investing, encouraging startups. Entrepreneurs are looking for the next coconut water.” As for what that’ll be, “it’s hard to tell,” she says. “A wide range of fruit or grain beverages are emerging,” as are plant waters from maple, birch, and *Aloe vera*. She’s even seen chia and mushroom drinks.

SPINS’ Lanners wagers that some of the superfruits that got the trend started are ready for a revival, as goji, açai, and golden berries all “still carry weight with consumers. But we can look forward to seeing more use of guanabana, dragon fruit, and baobab this coming year in everything from supplements and functional beverages to bars, snacks, and body care.” One of the more exciting up-and-comers is the jackfruit, she adds, which can function as a meat substitute, “and will be valuable to the plant-based movement currently gaining momentum.”

**Kimberly J. Decker** writes for the food and nutrition industries from her base in the San Francisco area, where she enjoys eating food as much as she does writing about it.
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Hungry for Healthy

Strong investment from China and private equity drove 2016’s health & wellness M&As.

BY KIMBERLY J. DECKER

The health & wellness (H&W) arena is a very attractive space for investors, given all of the interest and innovation surrounding today’s nutritional, functional, and natural brands. As David T. Thibodeau, managing director, Wellvest Capital (Boston), sees it, the healthy-living segment is on track to top last year’s transaction total by year’s end, with 120 M&As already on the books through Q2 of 2016, compared to 154 in 2015’s entirety.

“Will we get as high as 2014’s?” he asks. The total transactions in 2014—168, to be exact—mark the peak of activity in the past half-decade. Whether 2016 can top that depends on how markets respond to recent events—like this year’s U.S. presidential election. But no matter how investors react, “there are some strong valuations” buoying the health-and-wellness world, Thibodeau concludes. “So sellers have incentive to sell, and buyers that are able to pay premiums are able to buy.”

East Buys West

A growing number of those buyers now hail from China. Thibodeau isn’t alone in citing Chinese investors’ “voracious” appetite for North American, European, and even Australian H&W companies as an underlying motif of 2016’s investment activity. That underlying motif somewhat upends a dominant theme of America’s recent election—namely, that domestic manufacturers are drowning on a floodtide of foreign (read: Chinese) imports.

But “while many lament the unfavorable China–U.S. trade deficit that the U.S. maintains by mainly importing goods,” the situation is reversed when it comes to dietary supplements, says Scott Steinford, executive director/president, CoQ10 Association and Natural Algae Astaxanthin Association (Salt Lake City, UT). China has a strong demand for American-made supplements. “Few products are as readily accepted by Chinese consumers as U.S.-made dietary supplements,” Steinford says. “So the impetus to invest in these products is higher.”

Also encouraging Chinese investment? The fact that the nation’s emerging affluence and aging population bode well for the category’s future success. Euromonitor reports that the Chinese dietary supplement market will increase 53% to $28.7 billion by 2021; no wonder, then, that key players in 2016’s M&As include Chinese investors and American targets.

The Private-Equity Stable

But they’re not alone. Another driving force behind this year’s H&W investment activity is the willingness of private-equity groups to fatten up fledgling companies—and then unite them with eager buyers when they reach a respectable weight.

As Thibodeau explains, “The companies in our space are the innovation labs for many of the larger companies.” Absent a critical mass of financial support for their explorations, private equity steps in as the de facto capital supplier, shepherding the startups until they’re “a size that’s really attractive to the strategics,” he says.

Some of those strategic investors are even forming investment vehicles of their own to nurture early-stage companies and “watch them more closely as they grow,” Thibodeau adds. “That’s how it’s working today, and that’s a much different model from it was 15 years ago.”

Ahead, Thibodeau and Steinford point to just a few examples of 2016 M&A deals that exemplify this changing model.

Xiwang Buys Iovate

An impressive $730 billion was the estimated purchase price that Xiwang Foodstuffs Company, Ltd., a Shandong Province–based leader in healthful edible oils, paid for Iovate Health Sciences International this past June.

In purchasing Iovate, Xiwang got a nutritional-product company known for its brands MuscleTech, Six Star Pro Nutrition, and Hydroxycut. And what did Iovate get? To hear the company’s executives tell it, Iovate got hastened immersion in China, where its MuscleTech brand is already a presence, not to mention a firmer grounding in a market that “we believe will deliver significant growth in a reasonably short period of time,” the executive team said in a company statement.

Even so, Iovate isn’t pulling up stakes and heading East; the company pledges to maintain its North American headquarters in Oakville, Canada, where all executives and senior leaders plus 330 current employees will stay.
**IVC Buys Perrigo’s U.S. Supplements**

Little more than a week after the ink dried on the Iovate deal, China’s International Vitamin Corporation (IVC), a vertically integrated consortium of nutritional ingredient suppliers and contract manufacturers, bought the U.S. supplements division of Dublin, Ireland–based Perrigo, adding $40 million in revenue to its books, along with 300 additional employees, says Steinford.

Notably, IVC retained Perrigo’s existing U.S. management and hired locally to fill open positions, which Steinford claims is a “hallmark” of recent IVC and other Chinese acquisitions. “In addition to the new jobs created in the nutritional industry,” he says, “the U.S.-manufactured products provided by IVC and other U.S. acquisitions are finding their way back into China.”

**Swander Pace Sells Renew Life to Clorox**

For a glimpse at how private equity plays matchmaker to an old-line consumer packaged goods company interested in a fresh-faced upstart (if almost 20 years in the digestive-health space still qualifies as “fresh”), look no further than Swander Pace Capital’s May 2016 sale of gut-health innovator Renew Life (Palm Harbor, FL) to the Clorox Company (Oakland, CA) for $290 million.

As Thibodeau describes the deal, “You have an old standby CPG company that buys another company in our space—so that was a big transaction.” What’s more, Swander Pace’s setup of the two lovebirds is a perfect illustration of what happens when “private equity invests and ultimately sells to a strategic,” he says.

Finally, Renew Life’s reputation as a probiotic leader underscores the fact that “there’s been a lot of interest in probiotics this year,” Thibodeau adds. “It’s gonna be a hot category.”

**Swander Pace Swallows Big**

The Renew Life sale wasn’t Swander Pace’s only big deal of the year. The PE firm “made significant acquisitions in 2016 that together form an entity far greater than they were individually,” Steinford says.

Getting things off to a strong start, Swander Pace bought Fargo, North Dakota–based Swanson Health Products in late January, acquiring what Steinford describes as “a top-five U.S. nutritional supplement e-commerce/catalog retailer offering over 27,000 products comprising both own-label and third-party offerings to consumers in five countries.” And though the exact terms remain undisclosed, Steinford says that the deal “has been widely rumored to approach $700 million.”

Not more than a month prior, the company targeted its investment sights on Captek Softgel International (Cerritos, CA), a softgel contract manufacturer that “adds to the existing Swanson manufacturing, which previously lacked softgel capability,” Steinford says. Speaking about the deal to BusinessWire, Mark Poff, a managing director at Swander Pace, put it this way: “While the VMS category has strong growth, softgels are growing even faster due to their multiple end-use applications, high potency, and ease of swallowing, and we see Captek on the leading edge of that opportunity.”

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“Few products are as readily accepted by Chinese consumers as U.S.-made dietary supplements,” says Scott Steinford.
Dickens may have had the French Revolution in mind when he wrote, "It was the best of times, it was the worst of times." But he just as easily could have been describing the state of play for 21st-century dietary-supplement retailers. For despite posting current value growth of 5%, per a recent Euromonitor International report, the supplement sector—and the retailers who undergird it—face challenges, whether from regulation, fickle consumers, or an increasingly complex and fragmented marketplace.

Just ask Robert Craven, CEO, MegaFood (Manchester, NH). His company hosted its first ZingMojo summit in September, gathering retailers and thought leaders in the natural and health-and-wellness (H&W) communities for the express purpose of hashing out these and other issues, including “mass slippage,” online competition, price pressures, and transparency. And if the summit confirmed anything, Craven says, it’s that the accelerating pace of technological change creates an “incredible force that no one’s experienced before, but that’s affecting every retailer, and not just natural ones.”

One manifestation of this force is what Craven calls the “ubiquitous shopper.” This nascent species “wants to buy whatever they want, wherever they are and with whatever tools are available,” he says. The upshot is that as the tools of technology increase shopping’s ubiquity (“I can tell my watch to order something for me now,” Craven notes), supplement retailers will face an existential question: “How do we compete in this environment?”

They could take a cue from other retail sectors by emphasizing category management, doubling down on e-commerce, or making hay out of the data that accrue every time a consumer makes a purchase. But the natural and H&W communities being “very right-brain,” as Craven characterizes them, may not...er, take naturally to such left-brain thinking. “They didn’t get into this business to make money or analyze data,” he notes. “They got into it to improve lives.” And they can keep doing just that, even as they wrestle with the challenges that attend
operating in an uncharted shopping ecosystem. For navigating today’s H&W landscape needn’t require ditching the mission that brought retailers here in the first place. “It’s not about doing a pendulum swing from the right brain to the left,” Craven insists. “It’s about adding to those passions as a way to understand the retailer’s differentiation, and then really ringing that bell to play to that strength.”

The flipside of every challenge is an opportunity, so we asked H&W retailing experts what top challenges—and opportunities—they see facing the community today.

**Be Yourself**

As more H&W brands find a home in mass retail—and as more consumers grow comfortable buying their supplements online—H&W retailers need to dive headfirst into e-commerce, right? Not necessarily.

“One of the biggest issues that natural retail faces is that they’re too outwardly focused on trying to do what others do instead of focusing in on what they do well,” says Craven. After all, “ubiquitous shoppers” do still want to visit retail; they just need a “value-added incentive” to motivate them.

That incentive might involve receiving one-on-one education, choosing from a curated product set, or engaging with the mission orientation of the sector itself—to name a few. “So what I’ve been trying to preach,” Craven says, “is, ‘How do we better understand why the ubiquitous shopper wants to shop at natural retail, and what advantages does natural retail have?’ Then we can beat that drum to create even more reasons for consumers to put down their phones and come shop.”

Loren Masalski, natural products research associate at SPINS (Chicago), agrees. Retailers, she says, “need to keep distinguishing what sets them apart: the standards they uphold, why they’re the best with what they offer. It’s such a bear because if the consumer can’t perceive, feel, or know the difference, they’ll invariably go the less-expensive route.” Which leads us to our next challenge—and opportunity.
Beware the Price Play

"I see a ton of natural retailers getting in trouble by trying to compete on price," Craven laments. And their price play doesn’t work “because it doesn’t fit the model very well, and it’s not the reason most people come to natural retail.”

So how should a H&W retailer gain control over the game if price isn’t the strongest play in its book? Craven wagers that “the big revolution” in successful retailing to come will revolve around “monetizing our services beyond just product.” That could involve deploying subscription-based models, charging for education that staff previously shared for free—even offering ready-to-eat meals.

And while ubiquitous shopping invariably applies downward pressure on prices, Craven advises against cutting inventory or staff hours—“the two most expensive things”—to maintain margins, as it erodes the very assets that draw consumers into stores in the first place. Going forward, he concludes, “Natural retailers will have to figure out how to make more margin from services than they currently do with product.”

Food for Thought

In the coming years, Karen Howard, CEO and executive director, Organic & Natural Health Association (Washington, DC), believes that “retailers seeking a unique value proposition—especially independent retailers—will be stocking shelves with food-based supplements.” In fact, she adds, industry “underestimates the impact of food trends on supplement sales.” And it does so at its peril.

Look no further than the success of buzzy “superfoods” in reminding consumers that we really do what we eat—not what we swallow at the kitchen sink with a glass of water each morning. As Masalski says, “Consumers want to eat more ‘whole-food’ products, as opposed to taking a bunch of pills.” She predicts that a focus on consuming isolated nutrients will fade into the background “as consumers realize that many nutrients need to work together for optimal benefits.”

Thus, she recommends that retailers “expand food supplement offerings, as well as protein offerings,” to start. She’s already noticed “more gummies, chocolates, and liquids” on shelves, as well. “And consumers are starting to understand that they need quality over quantity.”

Clean Up Our Acts

Speaking of quality...When Howard considers the challenges facing H&W retailers, she sees three standouts: “Bad players, bad regulatory enforcement, bad press.” Their cumulative effect has dragged consumer confidence in supplements to “dangerously low levels,” which she says “is one more hurdle for independent retailers as they work to determine what defines quality in the marketplace.”

Fortunately for them—and, ultimately, for consumers—they’ll get some help in determining, defining, and monitoring that quality once new ANSI-approved dietary supplement GMP standards go live in early 2017.

According to Casey Coy, program manager, NSF International (Ann Arbor, MI), “The Global Retailer and Manufacturer Alliance—GRMA—and its members have been working since 2014 to develop a single, industry-accepted standard and auditing program using the ANSI consensus-based standard-development process.” By combining regulatory GMP and retailer requirements into a single standard and auditing program for dietary supplements, she says, the move “will help ensure consistency and proper training of auditors while also reducing the number of audits and strengthening safety, quality, and trust throughout the supply chain.”

Even so, Dr. Cheryl Luther, general manager of dietary supplements and functional beverages at NSF International, is quick to remind retailers that they “need to continue their vigilance in ensuring that Good Manufacturing Practices are in place, along with proper testing of ingredients to mitigate risks throughout the supply chain.”

Come Together

Tackling these challenges—and realizing the opportunities—is a heavy lift for any supplement retailer to attempt on their own. So it’s comforting to know they don’t have to.

“A lot of natural retailers feel like they’re out on an island,” Craven says. But he encourages them to view themselves not as a group of competitors, but as “an ecosystem.” That may break with the status quo, in which natural retail remains “very fragmented versus mass,” he continues, “but I think there’s got to be some way to pull everybody together to share in the collective experience of growing best practices.”

MegaFood’s ZingMojo summit was a first shot at doing just that, particularly in its attempt to identify “why shoppers choose the shopping platforms they do,” he says. And it likely won’t be the last.

Also, Craven thinks that retailers need to “up their game” in working with the partner brands that fill their shelves. For example, his company has an IMAP (Internet minimum advertised pricing) policy that maintains “an even playing field from a pricing standpoint” for its brand at retail, so that a shopper can’t browse product in a store and then find it at 40% off on Amazon.

“Teaching the natural retailer how to cultivate that product set and partner with those brands that recognize their place in the ecosystem is not necessarily how a lot of natural retailers think,” Craven says. But it should be.
Flint Families Need Our Help

You’ve likely seen the news coverage – Flint’s change of water source in 2014 to the Flint River corroded plumbing, allowing lead to leach into tap water. With an estimated $1.5 billion price tag and 30-year time frame for pipe replacement, there simply is no quick or easy fix. But for affected adults and children, life goes on.

_Nutritional Outlook_ wants to team up with the nutraceutical industry to come together in support of the Flint community. Can you help? Your generous tax-deductible donation to the **Flint Child Health & Development Fund, established by the Community Foundation of Greater Flint**, is an investment in the chance for Flint’s children to enjoy healthier lives. _Nutritional Outlook_’s parent company, UBM, and their nonprofit arm will match the funds that we raise together, according to the scale of our response.

For more information, to donate, and to learn about other ways to help the Flint community, visit www.nutritionaloutlook.com/helpflint.

Please be sure to enter the term **NO2016** where the donation form asks “How did you learn about the fund?” so that UBM/Nutritional Outlook can match your donation.
Lycopene, Lutein May Defend Skin against UV Radiation

Grether-Beck S et al., “Molecular evidence that oral supplementation with lycopene or lutein protects human skin against ultraviolet radiation: results from a double-blinded, placebo-controlled, cross-over study.” British Journal of Dermatology. Published online September 23, 2016.

New study results shared by carotenoid ingredients supplier Lycored (Be’er Sheva, Israel) suggest that oral supplementation with lutein or a lycopene-rich tomato nutrient complex (TNC) may provide skin protection against ultraviolet (UV) radiation at a molecular level.

Writing in the British Journal of Dermatology, researchers report that healthy adult volunteers aged 18–60 who supplemented with TNC or lutein for 12 weeks experienced “complete inhibition” of several genes that can be upregulated by UVA1 and UVA/B-radiation, including heme oxygenase-1 (HO-1), intercellular adhesion molecule-1 (ICAM-1), and matrix metalloproteinase-1 (MMP-1).

Lycored, which funded the study, hailed the findings as evidence that its lycopene-rich tomato complex “provides protection against solar radiation–induced health damage.”

“This study suggests that we are slowing down the aging process, because it prevents the damages caused by UV exposure, including expressions of genes that are biomarkers for skin photo-aging, and oxidative stress on the skin,” says Karin Hermoni, PhD, category manager for Lycored, in the study announcement. “On top of that, as part of the photo-aging process we have evidence of the effect of our ingredients on the levels of expression of genes involved in collagen degradation, suggesting a link not only to skin health but also to skin appearance.”

The placebo-controlled, double-blind, crossover study included 65 volunteers who were randomized to four treatment groups, with each group consuming either oral TNC or lutein supplements for 12 weeks and a placebo for a separate 12 weeks. Two of the groups started with the active treatment (TNC or lutein) and then switched to the placebo for the second treatment phase, while the other two groups started with placebo and then switched to the active treatment for the second phase. A two-week washout period preceded each treatment phase.

Participant skin was irradiated at the beginning and end of each treatment phase, with researchers taking biopsies 24 hours after irradiation from each participant’s untreated, irradiated skin. RT-PCR analysis of gene expression performed on the biopsies revealed that both TNC and lutein inhibited gene upregulation that can be induced by UVA1 or UVA/B-radiation, although lutein was found to be significantly less effective than TNC at producing these effects in the second treatment phase of the study.

B420 Probiotic May Offer Weight-Management Benefits to Overweight Adults

Stenman LK et al., “Probiotic with or without fiber controls body fat mass, associated with serum zonulin, and obese adults—randomized controlled trial,” EBioMedicine. Published online October 26, 2016.

New research results from Finland suggest DuPont Nutrition & Health’s (Madison, WI) probiotic strain Bifidobacterium animalis ssp. Lactis 420 (B420) may reduce body fat mass, waist circumference, and energy intake in overweight adults when taken alone or in combination with a prebiotic. While previous animal studies have found similar effects of B420 consumption, DuPont says this is the first human study on this strain to offer such promising weight-management results.

Writing in the journal EBioMedicine, researchers report that the double-blind, placebo-controlled study included 225 healthy, overweight or obese (BMI 28.0–34.9) individuals between the ages of 18 and 65. For six months, participants were randomized to consume one of four treatment administrations: 12 g/day of placebo, 10¹⁰ CFU/day of B420 probiotic, 12 g/day of prebiotic dietary fiber Litesse Ultra polydextrose, or 10¹⁰ CFU/day of B420 probiotic plus 12 g/day of the prebiotic fiber. Researchers compared baseline measurements of body fat mass and energy intake with the same measurements assessed at the end of the administration period.

At the end of the study period, both the probiotic and the synbiotic (probiotic plus prebiotic) groups experienced reduced waist circumference and reduced energy intake from baseline, compared to the control group. The synbiotic group lost an average 1.4 kg in relative body fat mass compared to the placebo group over the course of the study, while a post-hoc factorial analysis revealed the group consuming probiotic alone also experienced a significant reduction to body fat mass.

“This clinical trial demonstrates that a probiotic product with or without dietary fiber controls body fat mass,” researchers concluded.

Additionally, in the group consuming both the probiotic and the prebiotic fiber, participants experienced improvements in lean body mass, DuPont pointed out. Meanwhile, the group that only consumed the prebiotic did not show improvements in the measured outcomes.
“This is the first study to translate findings from studies of the probiotic strain Bifidobacterium lactis 420 done in animal models in which it was shown the probiotic can improve metabolic health in mice by strengthening gut barrier function,” says Lotta Stenman, PhD, lead investigator on the preclinical and clinical trials for DuPont Nutrition & Health, in the study announcement. “There is a long history of research on this particular probiotic strain, starting from initial findings from cell culture studies published in 2008. It is exciting to see the extensive preclinical and mechanistic work paved the way for identifying a benefit to human health.”

Palatinose May Enhance Memory, Mood in Children

Palatinose, a disaccharide carbohydrate composed of glucose and fructose from Beneo (Morris Plains, NJ), may improve several markers of cognitive health in school-aged children, according to recent study results. Compared to a control breakfast prepared with glucose, children who consumed an identical breakfast prepared with Palatinose experienced significant improvements to memory and mood several hours after the meal.

The double-blind, repeated-measure study, published in the European Journal of Nutrition, included 75 children aged 5–11 who consumed two separate breakfasts, each including milk, yogurt, cornflakes, jam, and orange juice. The meals were identical in calorie count and macronutrient composition, but one meal was sweetened with Palatinose while the other meal was sweetened with glucose. At least one week separated consumption of the two breakfasts, and after each meal researchers assessed participant verbal memory, spatial memory, sustained attention, reaction times, speed of information processing, and mood at both one hour after eating and three hours after eating.

While the measures of cognition and mood did not appear to differ at one hour after eating, the Palatinose group showed improvements to performance in memory tests and self-reported scores for mood at three hours after the meal. Both markers for mood and memory were found to be significantly better at three hours after consuming the Palatinose breakfast, compared to the glucose breakfast. What’s more, in the group of children who consumed the Palatinose meal on the second day of testing, information processing was also found to be faster and spatial memory was improved at three hours after ingestion.

“We know that children around the age of 4 to 10 years have a much higher rate of brain glucose utilization than adults and seem to be particularly susceptible to the differing effects of glucose release,” says Anke Sentko, vice president of regulatory affairs and nutrition communication for Beneo, in the study announcement. “Accordingly, children’s cognitive functions benefit most from the replacement of fast glucose release carbohydrates with the slow and sustained glucose supply of Palatinose. The study highlights that starting the day with the right choice of carbohydrates can make all the difference to performance.”

Synthetic Vitamin K2 MK-7 Bioequivalent to Fermentation-Derived MK-7, Study Suggests

Synthetically produced vitamin K2 as MK-7 has been in commercial use for several years now, but fermentation-derived MK-7 continues to be at the center of the market, perhaps due in part to a lack of proof establishing the bioequivalence of synthesized MK-7 and fermentation-derived MK-7. But now, new study results shared by Kappa Bioscience (Oslo, Norway) suggest its synthetic MK-7 ingredient, marketed under the brand K2Vital, is bioequivalent to fermentation-derived MK-7, both in activity and biological function.

“This is an important development for the supplements industry because production by batch fermentation restricts MK-7 manufacturing scalability, and supply restrictions create obstacles to overall growth of the vitamin K2 market,” Kappa Bioscience explained in a study announcement. “A synthesis-based MK-7 production process allows for greater scalability and a secure supply chain, and continual improvements in the synthesis process will drive ingredient price reductions.”

The study involved two components. In the first piece of the study, a single-blind, two-way, crossover design trial, 16 healthy adults aged 20–66 were randomized to consume a single, 180-μg dose of synthetic MK-7 or fermentation-derived MK-7, with researchers monitoring serum MK-7 for the subsequent 72 hours to calculate AUC and Cmax levels. With a 90% confidence interval, researchers found that the ratio of AUC values from baseline to 72 hours after baseline for both synthetic and fermentation-derived MK-7 was 83–111, therefore “indicating bioequivalence.”

Additionally, a second piece of the study randomized 43 healthy adults aged 20–60 to consume either 90 μg of fermentation-derived MK-7, one of three doses of synthetic MK-7 (45 μg, 90 μg, or 180 μg), or a placebo daily for 43 days as part of a double-blinded parallel trial design. By comparing blood serum samples at baseline with those taken at the end of the supplementation period, researchers found that synthetic MK-7 and fermentation-derived MK-7 equally influenced serum carboxylated osteocalcin (cOC) and uncarboxylated osteocalcin (ucOC), “a primary biological action of vitamin K2,” Kappa Bioscience explained.

Based on the findings, researchers concluded that there was “evidence that the tested synthetic form of MK-7 is bioequivalent to fermentation-derived MK-7, exhibits vitamin K activity, and is well tolerated in healthy subjects.”

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Part-Time Lovers

Full-fledged vegetarians may be the most loyal consumers of meat-replacement products, but part-time vegetarians, or flexitarians, offer huge opportunities for market growth.

BY MICHAEL CRANE, ASSOCIATE EDITOR

Many of us have at least one vegetarian friend or family member, but what about the flexitarians, or part-time vegetarians, in our lives? While this class of consumers may not always be as easy to identify, it is quickly becoming a top-priority group for firms specializing in meat-replacer ingredients.

According to recent data shared by Innova Market Insights, 38% of Americans report eating meatless meals once a week or more, which amounts to more than 120 million U.S. consumers who can be considered flexitarians. That’s a huge market for plant-based foods, and it may even present a more promising segment for meat-alternative growth than the fully committed vegetarians.

“While the number of people committing to a vegetarian or vegan lifestyle increases every day, it’s still a small percentage of the population overall,” says Tara Rhein, marketing manager for plant-based foods manufacturer Atlantic Natural Foods. “The bigger opportunity is the flexitarian group.”

The challenge with reaching flexitarians, though, is that expectations for meat-like non-meat products can be especially high. Replicating the texture and overall appearance of meat are among the toughest obstacles in many meat-replacer applications, Rhein explains, but they aren’t the only considerations. Some consumers may prioritize high protein content in their plant-based meat products, while others most want that convincing meat-like taste.

“Many vegetarian consumers, and in particular flexitarians, want the ‘total package’—products that look like, eat like, and taste like meat,” says Arno Sandoval, principal applications scientist for meat at DuPont Nutrition & Health (St. Louis). Meeting those expectations is absolutely a challenge, but meat-substitute formulators have a few tricks up their sleeves.

All About Imitating Meat, or Offering Something New?

As far as the most popular applications for meat replacers, the majority of the market remains centered around traditional meat forms, including patties, nuggets, and sausages, Sandoval says. He adds that meals where plant-based meat pieces are used in combination with other food types, such as rice or pasta, are especially “ideal targets” for meat substitutes.

But aside from veggie burgers and other conventional American food types, there may also be advantages to incorporating meat replacers in dishes consumers are less familiar with, especially when it comes to flexitarians. Plant-based foods brand Sweet Earth Natural Foods, for instance, offers several lines of “culturally diverse” packaged meals, including its Chipotle Seitan, Moroccan Tagine, Spanish Paella, and Peruvian Burrito. Rather than just positioning its products as imitations of popular meat products, Sweet Earth focuses on offering exotic dishes that consumers will find “interesting,” says Kelly Swette, owner and CEO of Sweet Earth. And in many cases, these kinds of recipes also happen to be easy applications for meat substitutes.

“The globally inspired recipes we feature represent cultures that traditionally use very little meat, which is perfect for us,” Swette explains.

Clean-Label Challenges

Unfortunately, despite how “clean” plant-based ingredients might seem compared to many animal-based ingredients, it can be challenging to create clean-label products with meat replacers. Meat products usually require just a few meat particulates, fibers, and proteins to create texture and bind the food together, DuPont’s Sandoval says. Vegetarian foods, on the other hand, often need additional particulates, binders, gums, or flavors that may work against a product’s clean-label image.

That may be starting to change, though. While various soy ingredients were long the bedrock of the meat-replacer industry, meat-substitute formulators are learning how to use the wider variety of the plant-based ingredients that are now readily available to them, including lentils, beans, legumes, quinoa, jackfruit, nuts, seitan, and more.

“There are many non-meat alternatives out there, and they’re all great substitutes for meat,” says Atlantic Natural Foods’ Rhein. “It’s quite shocking how far we have come!”
Best wishes for the year ahead from Orgenetics.

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