perfumer & flavorist®

The Resource for Sensory & Wellness Innovation

July 2025

www.PerfumerFlavorist.com



INTRODUCING THE 2025 FLAVOR LEADERS & NEWSMAKERS

Learn about which innovations and technologies our experts are excited about in the world of Flavor.

Flavor Reports:
US Edition

Ingredient Technology
Highlights

Allured business media



BE *Dependable*

Consistently delivering
a worldwide palette.

Berjé's unwavering commitment to stability and consistency within the world of flavor and fragrance ingredients has driven us to cultivate countless long-term partnerships with growers and producers in more than 100 sourcing locations around the world. These partnerships, combined with our unparalleled supply chain expertise, allow us to provide our customers with an unprecedented level of dependability within an ever-changing market.

BERJÉ

SINCE 1949

The privately-owned flavor and fragrance ingredient source since 1949.
+1 973 748 8980 • www.berjeinc.com

always
inspiring more ...

symrise

Sultanene®

fruit vibrations

FRUITY · PINEAPPLE · PLUM · PEAR · JACKFRUIT

Enhance your products with our biodegradable, High Impact, fruity special fragrance ingredient. Sultanene® represents naturalness, overall juiciness, and richness. It boosts top notes and creates surprising effects in more than just fruity surroundings. Upgrade your creations with Sultanene® by Symrise.



"Sultanene® is a high impact, volatile molecule, giving lift, juiciness and ripe fruit sensation without being butyric to fruity accords like pineapple, strawberry or tropical fruits. It provides surprising effects in white flower fragrances by showing a honey like facet and harmonizes well in oriental woody ambery fragrances. It is really useful in soap at a higher dosage for covering the base note."

Annabel Chmelnyk · Senior Perfumer

CONTENTS

VOL. 50 NO. 7 | JULY 2025



4 **Editor's Note: What's Old is New**

DM1 **Industry News**

6 **Product Roundup: Ingredients**

10 **Introducing the 2025 Flavor Leaders & Newsmakers**

It's time to learn what innovations and technologies our experts are excited about in the world of Flavor.

- **12** **ADM**
- **16** **dsm-firmenich**
- **20** **Givaudan**
- **23** **Kerry**
- **26** **Mane**
- **30** **Sensient**
- **34** **Symrise**
- **38** **T. Hasegawa**
- **42** **Takasago**
- **DM7** **IFF**

41 **Eternis Fine Chemicals Joins Together for Sustainability: A Milestone for Eternis, TfS and Indian Industry**

Sponsored by Eternis

44 **Flavor Report: US Edition**

Our United States-based panel analyzed flavor ingredients such as 2-phenoxyethanol, Galangal root oil and 4-ethyloctanal.

By Cyndie Lipka

48 **Ad Index**

ON THE COVER: Image by sameer at Adobe Stock

perfumer & flavorist

EDITORIAL

Content Director	Emmanuel Henderson | 1-630-344-6020/ehenderson@allured.com
Associate Managing Editor	Emily Little | 1-630-344-6058/elittle@allured.com

ADVERTISING SALES

Group Publisher	Jeb Gleason-Allured | 1-630-344-6069/jallured@allured.com
New Business Development Manager	Maria Zucchero-Denkov | 1-630-344-6060/ mzucchero@allured.com
Advertising Production Manager	Kasia Smialkowski | 1-630-344-6025/ksmialkowski@allured.com
Advertising Production & Business Intelligence Specialist	Ethan Grisham | 1-630-344-6068/egrisham@allured.com

AUDIENCE DEVELOPMENT

Audience Development Manager	Sam Attebery | 1-630-344-6027/sattebery@allured.com
Customer Service	1-847-559-7557/customerservice@perfumerflavorist.com

DESIGN

Assistant Design Manager	James Fergus
Senior Graphic Designer	Hon Bannapradist

CORPORATE

Partner & CEO	George Fox
Partner & President	Janet Ludwig
Marketing & Creative Director	Kim Fry
Digital Products Director	Joe Sarko
Finance Director	Joseph Mumbu

Allured business media

Allured Business Media
1-630-653-2155
336 Gundersen Drive, Suite D
Carol Stream, IL 60188-2403 USA
www.Allured.com

OTHER ALLURED PRODUCTS

Beauty Launchpad magazine
Cosmetics & Toiletries magazine
Global Cosmetic Industry magazine
MedEsthetics magazine
Skin Inc. magazine
Beauty Accelerate
C&T Allē Awards
Flavorcon

SUBSCRIPTIONS

Perfumer & Flavorist+ (ISSN 0272-2666) is published monthly by **Allured Business Media**.

Subscriptions: Subscribe online: *www.PerfumerFlavorist.com/subscribe*

For both the US and internationally, telephone: 1-847-559-7554 (9 AM-5 PM Central, Mon-Fri)
E-mail: customerservice@perfumerflavorist.com
Address: *Perfumer & Flavorist+*, PO Box 3009, Northbrook, IL 60065-3009

Periodicals Postage paid at Carol Stream, Illinois, and additional mailing offices.

Print subscriptions are free to qualified individuals in the United States.
Print subscriptions are not available to those living internationally.

POSTMASTER: Send address changes to *Perfumer & Flavorist+*, PO Box 3009, Northbrook, IL 60065-3009

Change of address: Give both the new and old addresses. Allow two months for a change to become effective.

Missing issues: Claims for missing issues must be made within three months of the date of issue.

Allured Business Media makes all attempts to publish accurate information; however, this publication may contain technical inaccuracies or typographical errors. The reader assumes all risks concerning the suitability and accuracy of the information within this publication. Allured Business Media assumes no responsibility for and disclaims all liability for any such inaccuracies, errors or omissions in this publication and in other documentation referred to within or affiliated with this publication.

Copyright 2025: Authorization to photocopy articles and news is granted by Allured Business Media, provided that the fee of US$6 per copy per item is paid directly to the Copyright Clearance Center Transactional Reporting Service, 21 Congress St., Salem, MA 01970—Publication No. 0272-2666/01/$6.

PRODUCT PORTFOLIO

MISSING SOMETHING?



An incomplete product won't cut it in today's market. Vigon's expansive portfolio provides the expertise needed to turn your ideas into wins.

azelis | VIGON PASSION FOR SIMPLICITY

vigon.com

What's Old is New



Reading this month's flavor Leaders & Newsmakers issue, several companies mentioned this concept of nostalgia and making familiar flavors new again.

Do you have a specific flavor or taste that immediately takes you back to a memory? For me, it's cranberry juice. It was the only juice my grandmother kept in her house when I was growing up, and she had a glass every morning with breakfast, without fail. Now whenever I pour myself a glass, I'm taken back to those summer mornings between school years.

I understand why people feel nostalgic for classic flavors. They want to be reminded of simpler times, maybe a time when they didn't have as many worries or responsibilities. And who doesn't want a little escapism every once in a while? But if we keep looking back and hoping to relive those memories, we miss what's right in front of us (I could go on about the paradox of nostalgia forever. Midnight in Paris is one of my all-time favorite films).

The flavor industry is perfectly riding the line between nostalgia and new innovations. We can take a flavor reminiscent of childhood and put it in a new format that feels fresh and exciting. Take Canada Dry's Fruit Splash cherry ginger ale as an example. This beverage evokes memories of Shirley Temples at fancy restaurants as a child, getting to drink something in a fancy glass like the grown-ups. Now I can enjoy this familiar flavor with only five calories and even a zero-sugar option.

Reading this month's flavor Leaders & Newsmakers issue, several companies mentioned this concept of nostalgia and making familiar flavors new again. There are so many areas of innovation within the flavor industry, from the use of artificial intelligence to functional ingredients to new sensory technologies. This industry is constantly reinventing its own wheel, finding new ways to make flavorful and nutritious products that consumers will love.

I hope you've enjoyed reading our Leaders & Newsmakers issues as much as I have. I can't wait to hear from these experts again next year!

Emily Little



EMILY LITTLE
Associate Managing Editor
elittle@allured.com

Editorial Advisory Board

SCOTT CHAPLAN
SCMC Consulting

DARRYL DO
Perfumer
Delbia Do Fragrances

ALISON FREEDMAN
Senior Flavorist
dsm-firmenich

CYNDIE LIPKA
Principal Flavorist
Bell Flavors & Fragrances

MARK KNITOWSKI
Fragrance Curator

NEHA OKHADE
Perfumer
Agilex

JOHN WRIGHT
Independent Flavorist and Author

KETAN SHAH
President
Esha Flavor Solutions

Image by bit24 at Adobe Stock

INTERNATIONAL
FRAGRANCE
COMPANY

Established in 1961

"for the love of fragrance"



mgfragrances.com

Givaudan Introduces Reimagined Zap Odor Control Platform

Fragrance and beauty company Givaudan announced the launch of its revamped Zap Odor Control Platform. The Zap platform targets specific malodor problems with dedicated technologies based on regions, climate and consumer needs.

"With over 35 years of expertise, our Zap Odor solutions redefine freshness," said Jeremy Compton, global head of science and technology for fragrances. "At our health and Wellbeing Centre of Excellence, based in Ashford, our experts in malodor science collaborate with perfumers globally, enabling the development of scents which help create positive sensorial experiences while at the same time combatting malodors. Our holistic approach combines cutting-edge advancements in malodor understanding, eco-friendly elimination ingredients, AI performance optimization and creativity."



The Zap Odor Control Platform includes four ingredients that target specific malodors.

Collection Highlights

DeoZap: Deodorant odor control solutions to combat sweat and body odors.
YouZap: Personal care odor control solutions for hair, body and intimate care.
FabZap: Odor control solutions for living spaces
PetZap: New platform dedicated to pet care and odor solutions. p&f+

IFF Opens Dubai Creative Center with Perfumery Art Studio

Flavor and fragrance company IFF announced the opening of its Scent Dubai Creative Center. This 2,000-square-meter space is an addition to the company's existing facility in the Dubai Science Park Laboratory Complex.

"The Middle East is a key market for IFF's global growth," said chief executive officer Erik Fyrwald. "It's expected to top $7 billion by 2034, thanks to greater online access, increasing disposable income, strong demand for luxury and long-standing cultural ties to smell. The Dubai Creative Center will strengthen our ability to continue winning with customers by delivering leading innovative solutions for local tastes in fine and consumer fragrance even faster."

The Dubai Creative Center will feature a perfumery art studio for co-creation with customers, a majlis (traditional Middle Eastern sitting room) and an academy for perfumery training. The company hopes that this facility will cater to the region's unique consumer demands and allow accelerated speed to market. Further, the facility is equipped with a semi-industrial production robot and other cutting-edge technology and resources.

"Our new creative center features a significant number of evaluation booths for all scent categories, from fine fragrances to home, fabric and beauty care, along with a full suite of advanced fragrance technologies," said Ana Paula Mendonça, president of IFF Scent. "This enables our experts to craft fragrances that excel in desirability, superiority and performance, ensuring every scent solution perfectly addresses different consumer touchpoints." p&f+



The company hopes that this facility will cater to the region's unique consumer demands and allow accelerated speed to market.

From top: Image by Ivanna Pavliuk at Adobe Stock; courtesy of IFF

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

Kelli Heinz Appointed 2025-2026 Flavor Extract Manufacturers Association President

Kelli Heinz, vice president of marketing and industry affairs at Bell Flavors & Fragrances, was appointed president of the Flavor Extract Manufacturers Association (FEMA) for the 2025-2026 calendar year.

Heinz has over 20 years of experience in the flavor and fragrance industry and has been a member of FEMA since the early days of her career. She chaired the FEMA Program Committee from 2013 to 2019 before joining the board of governors in 2019. She also has served on the board of directors for the Women in Flavor & Fragrance Commerce (WFFC) for the past 13 years.

"The challenges facing our sector are real, but so are the opportunities," Heinz said. "Now is the time for all of us to use our voices, stay informed and advocate together for the future of flavor. Both FEMA and our industry are strongest when we are united and engaged."

Heinz assumed the role of president on May 7, 2025 at the 2025 FEMA Annual Leadership Conference, succeeding previous president Paul Graham. p&f+



Kelli Heinz currently works as the vice president of marketing and industry affairs at Bell Flavors & Fragrances.

Touchland Acquired by Church & Dwight

On May 12, 2025, Church & Dwight signed a definitive agreement to acquire the Touchland brand for a price of $700 million, plus an additional payment up to $180 million contingent on the brand's net sales in 2025.

Touchland is one of the fastest growing brands in the hand sanitizer category in the United States and recently launched its own hair and body fragrance mists. The brand's net sales for the trailing 12 months through March 31 were approximately $130 million.

"We are thrilled to add Touchland as our eighth power brand to our portfolio of market-leading brands," said Rick Dierker, chief executive officer of Church & Dwight. "Touchland has built a loyal consumer base through its differentiated consumer proposition and is driving growth in the hand sanitizer category. The brand skews towards younger consumers and already has a high level of brand loyalty and repeat purchase in line with category leaders."

Founder and chief executive officer of Touchland Andrea Lisbona added, "My vision is to have a Touchland product in the hands of every consumer. I am confident this vision will be accelerated by leveraging Church & Dwight's expertise and scale to introduce Touchland to more consumers globally. Our journey is still in the early innings, and Church & Dwight is the right partner to take Touchland through its next stage of growth."



Company officials at Church & Dwight have confirmed that they will maintain Touchland's Miami location and retain its employees.

The transaction is expected to close in the second quarter of 2025. Company officials at Church & Dwight have confirmed that they will maintain Touchland's Miami location and retain its employees. p&f+

From top: Courtesy of Bell Flavors & Fragrances; Touchland

Penta Fine Ingredients Announces Partnership with Keystone Capital, New CEO



According to the company's press release, Penta will be actively seeking acquisition opportunities in the ingredients and specialty chemical space.

On May 6, 2025, Keystone Capital Management announced an investment partnership with flavor and fragrance company Penta Fine Ingredients. As part of the partnership, Keystone welcomed Mike Size as chief executive officer of Penta.

Penta was founded over four decades ago and is headquartered in West Caldwell, New Jersey. The company operates a 113,000-square-foot facility to manufacture ingredients for the flavor, fragrance and pharmaceutical markets.

"Penta has distinguished itself with an exceptional product portfolio and deep customer relationships built over decades," said Chaoran Jin, managing director at Keystone Capital. "We are excited to support Mike and the Penta team as they leverage the company's strengths to expand strategically and continue its growth trajectory."

Prior to joining Penta, Size served as the president of ZoomEssence, and he held senior roles at Balchem Corporation, MANE Flavors, Givaudan, CP Kelco and The NutraSweet Company.

"I'm honored to join Penta at such an exciting time in its journey," said Size. "The company's legacy of excellence, coupled with its recent growth and strong market position, make this a unique opportunity. I look forward to working with the talented team to build on this momentum and drive the next chapter of success."

According to the company's press release, Penta will be actively seeking acquisition opportunities in the ingredients and specialty chemical space.

Image by Tyrah at Adobe Stock

MANE Opens Liquid Flavors Facility in Ohio



The plant will use 30% solar energy for its energy requirements, according to the press release from MANE.

On April 10, 2025, flavor and fragrance supplier MANE opened its new state-of-the-art manufacturing facility in Woodlawn, Ohio. The facility is an expansion of the company's existing Woodlawn campus and will increase the manufacturing capability of the company's liquid flavors.

According to the company's press release, the investment in the new facility exceeded $100 million and will support MANE's growth plans for the next 20 years. The plant is 100,000 square-feet and offers up to 15,000 metric tons of production capability.

"The new Woodlawn facility marks a bold, strategic move aimed at increasing MANE's market share in the liquid flavors category in North America and gives us a significant competitive edge, especially in the beverage market," said Amy McDonald, president of MANE's North American flavor division. "The expansion allows us to uphold MANE's customer-focused manufacturing strategy, ensuring a reliable supply and even greater agility and responsiveness to customer needs."

In alignment with MANE's environmental, social and governance goals, the new facility will utilize advancements in robotic technology to allow for an increase in automated capacity. Further, the facility allows for a threefold increase in large-tank compounding capacity while doubling its current capacity to produce emulsion-based flavor systems. The plant will use 30% solar energy for its energy requirements.

Courtesy of MANE



T. Hasegawa Introduces PLANTREACT Flavor Technology



PLANTREACT flavors are natural, meet clean label guidelines, and are heat stable.

Courtesy of T. Hasegawa

Flavor manufacturer T. Hasegawa USA announced the launch of PLANTREACT, a new flavor technology designed to replicate the savory taste of animal proteins in plant-based foods. This proprietary technology addresses consumer demand for better tasting plant-based proteins.

"Interest in plant-based diets is greater than ever, but the flavor profile of plant-based proteins has been a barrier for many consumers in the past," said director of flavor creation Mary Maier. "We're excited to offer a solution to this problem and change consumer perceptions of plant-based proteins with a natural technology that delivers a more satisfying and authentic taste experience."

PLANTREACT launches include formulations for beef, chicken and pork flavors. Further, the technology has been applied for milk flavors in alternative dairy products. These flavors are natural, meet clean label guidelines, and are heat stable.

The PLANTREACT technology was developed over a six-month period as a part of T. Hasegawa's "Bridge to Tokyo" program, which combines the expertise of the company's Japanese headquarters and American subsidiary.

Axxence Corporation Acquires Purely Natural, Strengthens US Market Presence



The acquisition continues Axxence's expansion in the U.S. market and enhances its commercial capabilities.

On April 23, 2025, natural aroma ingredient supplier Axxence announced the acquisition of Purely Natural, a Florida-based supplier of natural flavor ingredients. The acquisition continues Axxence's expansion in the U.S. market and enhances its commercial capabilities.

According to the company's press release, Bob Kleinhenz, president and chief executive officer of Purely Natural, will join Axxence Corporation as commercial executive vice president. Further, Axxence will take ownership of Purely Natural's shares, operations, intellectual property and customer relationships.

"Joining the Axxence team at this exciting stage of growth is an incredible opportunity," Kleinhenz said. "I've long admired Axxence's market-leading commitment to quality, innovation and sustainability. With Purely Natural becoming part of the group, I look forward to enhancing our customer-centric focus, while helping to unlock the full potential of the Axxence platform."

Ron Honing, group CEO of Axxence, added, "this acquisition marks another milestone in our international growth strategy. With the addition of Purely Natural and Bob Kleinhenz's commercial expertise, we are stronger. This union not only enhances our capabilities in sourcing, production and service, but also extends the value we deliver to our customers across the globe. We are confident that by combining our strengths, we will accelerate innovation, deepen sustainability and expand our portfolio to better serve the evolving needs of the flavor and fragrance industry."



Image by kerdkanno at Adobe Stock

Ingredients



Cedrat Decol Essential Oil

Agrumaria Reggina s.r.l.

https://www.linkedin.com/company/agrumaria/

The terroir of Riviera dei Cedri, in Calabria - Italy, is perfect for cedrat production. The nutrient-rich soils create ideal conditions for high-quality cedrat. Through the distillation process carried out on the cold-pressed oil, we enhance the sweetness of the material while preserving its fruity flavor. This essence has a lower acidity, offering a slightly sweeter and less sharp experience. It provides a sensation of ripe and flavorful fruit, ensuring the signature of cedrat remains identifiable. Cedrat Decol Essential Oil is ideal for fragrant creations where increased sweetness and a floral dimension are desired, adding a more luxurious and elegant dimension to the fragrance.



Methional, Natural

Axxence

www.axxence.com

Natural methional (FEMA #2747, CAS #3268-49-3) brings the comforting taste of baked potato and savory cooked meats. Naturally found in potatoes, chicken, tomato and asparagus, this powerful flavor adds warm, brothy depth and enhances mouthfeel in cheeses, snacks, sauces and soups. A key contributor to the rich, savory character of cheddar cheese, Methional helps build authentic umami and meaty notes even at very low levels.



Phenethyl Propionate

Avant Organics

http://avantorganics.com/

Phenethyl Propionate (FEMA #2867, CAS #122-70-3) delivers a smooth, sweet, and floral-fruity profile that makes it a valuable ingredient in the flavor industry. It opens with a gentle rose-like note balanced by soft green nuances, followed by a juicy, ripe fruit character reminiscent of pear, apricot and apple blossom. This ester is especially effective in enhancing the naturalness and roundness of fruit flavors, particularly in strawberry, tropical and orchard fruit profiles. Its honeyed, slightly waxy sweetness also lends well to confectionery, beverage and baked goods applications, where it can boost aroma complexity without dominating the flavor system. Phenethyl propionate is often used at low concentrations to subtly modify and elevate fruit and floral notes, making it a trusted tool for formulators seeking refined, natural-tasting profiles with excellent stability. Avant Organics provides this material as EU-natural, kosher, non-GMO and halal. For your free sample please email info@avantorganics.com.

Images courtesy of the manufacturers

AVANT ORGANICS

The Flavors of Paradise Await.

SCAN FOR A FULL PRODUCT LIST

DON'T MISS THE CALL!

FOR SAMPLE REQUEST PLEASE CONTACT INFO@AVANTORGANICS.COM
OR VISIT OUR WEBSITE WWW.AVANTORGANICS.COM



AVAILABLE IN DILUTIONS ONLY

GRAPEFRUIT MERCAPTAN (FEMA 3700)

BUCHU MERCAPTAN (FEMA 3177)

2-METHYL-4-PROPYL-1,3-OXATHIANE (FEMA 3578)

3-MERCAPTOHEXANOL (FEMA 3850)



Sublimolide

MANE

https://www.linkedin.com/posts/mane_sublimolide-activity-7302304240037687297-y0pg?utm_source=share&utm_medium=member_desktop&rcm=ACoAABIfCQUBUJ0SUPuakJuo4IYxUD9MO-jmf0w

Sublimolide is a refined macrocyclic musk, echoing natural ambrettolide's elegance found in ambrette seed. This vegan-friendly molecule reveals a soft musk, deepening into a warm, fruity and powdery floral embrace. Its lasting depth creates a magnificent sillage, enhancing every note with a delicate yet captivating presence.



5,7-Dihydro-2-methylthieno(3,4-D) Pyrimidine

Penta Fine Ingredients

http://www.pentafineingredients.com/

5,7-Dihydro-2-methylthieno(3,4-D) pyrimidine (CAS #36267-71-7, FEMA #3338, Flavis #14.014, JECFA 1566) contains a flavor profile of corn, taco, nutty, corn chip and popcorn with roasted nuances. Odor properties include corn, taco and popcorn with roasted notes. Our material is kosher and halal compliant.



Cantryl

Symrise AG

https://www.symrise.com/de/scent-care/aroma-molecules/perfumery-ingredients/

Cantryl, the perfect renewable Symrise ingredient, is taking creations to the next level. With its beautifully clean, airy character and invigorating, piney, aromatic, herbal notes, Cantryl enhances the aromatic, herbal characteristics of compositions, giving them a unique freshness. Cantryl is very stable. The aromatic splash for your creation!



Sotolon Pure

Givaudan

https://www.givaudan.com/taste-wellbeing/segments/givaudan-flavour-ingredients/high-intensity-ingredients

Enhance sweet and savory flavours with Sotolon Pure (FEMA #3634; CAS #28664-35-9). This versatile molecule offers a potent maple-like aroma complementing molasses, caramel, chocolate, coffee, fruity, curry, meats, smoke and more. It's kosher, halal, and non-GMO. Visit our webpage to request samples and our P&F article for more specialties from our Barneveld site.

Images courtesy of the manufacturers

CLEAN LABELS MORE TASTE



GOURMET
INGREDIENTS
Shallots, Onions & Garlic

Our onions, shallots & garlic are natural tastemakers, flavor, color and sweetener. That's why we turn them into 100% plant-based and naturally processed clean label ingredients for a wide range of applications.

USE OUR LIQUID EXTRACTS, OILS, CONCENTRATES, POWDERS AND JUICES to create depth in savor, a pungent note, the right mouthfeel or the naturally sweetened version of your bestseller. Our experts can help you with your formulation goals. Get in touch with us via our website.

Scan me!

Introducing the 2025 FLAVOR LEADERS & NEWSMAKERS

It's time to learn what innovations and technologies our experts are excited about in the world of Flavor.

Welcome to the 2025 Flavor Leaders & Newsmakers issue! Over the last year, *Perfumer & Flavorist+* (*P&F+*) has witnessed industry leaders invest in the growth and development of innovation centers worldwide to address evolving customer needs.

This year, we decided to divide the Leaders & Newsmakers into two parts: fragrance in June and flavor in July. With this split, our experts had more space to get into their innovations and what specific technologies they predict will make their mark in the years to come. In this issue, you will get an inside look at what 11 key players in the industry have marked as influencers for innovation in the flavor industry.

In these interviews, we saw over and over that companies are listening to consumer demands for sustainable, affordable, delicious products. Value is still top of mind for most consumers as prices continue to fluctuate, pls they want natural foods with transparency in ingredient sourcing. Several companies said they are working to ensure their supply chains are as sustainable and transparent as possible. Further, these companies are taking advantage of social listening tools to learn more about the flavors consumers are craving most.

Health and wellness is still a major trend in the flavor space. People don't just want a delicious iced tea; they want an iced tea with a unique flavor that will help them relax or fall asleep. But sensory science will still play an important role in flavor creation, as some functional ingredients can produce unwanted off-notes and textures. The experts we interviewed said they are paying closer attention to their sensory qualities in regards to their formulations.

Similar to the fragrance side of the industry, flavor leaders are using artificial intelligence (AI) to develop flavors at a quicker rate. These technologies can be used to analyze market trends and consumer behaviors to determine what might be the next big flavor.



Health and wellness is still a major trend in the flavor space.

As in previous years, *P&F+* tapped industry leaders and newsmakers to weigh in on their companies' strides over the last 12 months and share their outlook on emerging trends in F&F. Some companies have provided their own introductions to the interview and have chosen a narrative format rather than a standard Q&A. We hope you've enjoyed this new format for the Leaders & Newsmakers issue!

p&f+

Image by sameer at Adobe Stock

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.



Undeniable flavor expertise, delivering citrus excellence

When reliability and consistency are essential, we have the technical expertise and solutions to help your brand develop dependably consistent products with fresh-from-the-grove citrus flavor.

As the largest processor of citrus oils in the industry, we have unique access to natural citrus materials, giving you supply security and traceability, as well as cost-effective solutions to help address market fluctuations.

Our citrus technologies deliver citrus flavors that can be tailored to your application's unique technical requirements. With solutions such as **CitrusFlex,** we'll help you create authentic citrus taste, even while reducing the use of citrus raw materials that are in volatile supply due to crop conditions. Our citrus capabilities can be leveraged across products, including:

- Energy drinks
- Juice
- Alcoholic beverages
- Lifestyle beverages
- Baked goods

Partner with us to develop citrus products bursting with flavor that outshine the competition.

Let's Collaborate.
www.adm.com/citrus

This communication is intended for B2B use and no statements are meant to be perceived as approved by regulatory authorities. Local regulations must be reviewed to confirm permissibility of ingredients and claims for each food category.

ADM

Chicago, Illinois, USA
2024 Sales: $1.8 billion



ADM is helping brands adapt to global and regional changes in dietary habits.

Amid an ever-changing industry, ADM has found ways to create consistent solutions for its customers and counter uncertainties. From vertically-integrated product platforms, transparent sourcing practices and investment in research, the company has used the past year to continue to give its customers the same level of quality service in the face of the challenges of the flavor industry.

Perfumer & Flavorist+ spoke with several subject matter experts at ADM: Calvin McEvoy, president of global flavors and member of the board of governors at Flavor Extract Manufacturers Association; Divya Mohan, director of global food and beverage creation, design and development, health and wellness; Brad Schwan, vice president of marketing; and Marie Wright, president of creation, design and development and chief global flavorist. Each leader gave their own insights into how ADM is meeting consumer demands and incorporating new technologies into its business plan.

Unleashing Innovation and Addressing Evolving Industry Challenges

Calvin McEvoy: An ever-evolving industry calls for flexible innovation and technical prowess, with an eye not only on current trends, but also those emerging across food, beverage and dietary supplement sectors. ADM provides a comprehensive formulation understanding and a robust ingredients pantry, which are rooted in market insights and proprietary consumer research, enabling our customers to anticipate and develop tailored offerings, unleashing what's next in innovation. As a full solutions provider, we help brands navigate a dynamic landscape with ongoing

Courtesy of ADM

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.



Calvin McEvoy, President, Global Flavors, ADM, and member of the board of governors at Flavor Extract Manufacturers Association (FEMA)



Divya Mohan, Director, Global Food and Beverage Creation, Design and Development, Health and Wellness, ADM

extensions of our capabilities, technologies and ingredient lines with taste and color at the core of everything we do.

Our enduring commitment to strategic and collaborative support for our customers helps push the boundaries in new product development to address demand for more diverse food and beverage options that are nutritious, taste great and are approachably priced. With the integration of important acquisitions, including Revela Foods, FDL and Totally Natural Solutions (TNS), we're elevating new product introductions with superior sensory experiences. These acquisitions extend our solutions library and target specific growth areas, including dairy and alternative dairy applications, nutrient-dense foods and beverages, and non-alcoholic and alcoholic beverage innovation.

We're deeply vertically integrated in critical product platforms including citrus, vanilla, mint, dairy, botanical extracts, aroma ingredients and colors to provide supply chain resiliency to counter varying supply chain challenges.

This is the key to providing consistent solutions to our customers. Our multi-faceted, full-systems approach – combining transparent sourcing of raw materials, investment in agronomy advancements, and research and in-house formulation expertise – ultimately paves the way for delicious and nutritious products that can feed the growing global population for generations to come.

Bridging the Gap Between Exceptional Taste, Functionality and Dietary Shifts

Divya Mohan: Functionality is now a baseline expectation for consumers. This challenges developers to provide more healthful options while still delivering satisfying sensory experiences across categories. We continue to build upon our decades of technical know-how for flavor and function, putting ADM at the forefront of addressing the rising demand for sensory excellence in convenient, health-forward offerings. We work alongside manufacturers to fortify and reformulate existing products or bring new product development to life, checking the boxes on taste, texture, nutrition, convenience and value.

ADM is helping brands adapt to global and regional changes in dietary habits. Our sophisticated flavor modulation technology advances the possibilities for "healthy indulgence," providing manufacturers with the tools for holistic reformulation that considers all aspects of the consumer experience. Through the expansion of our ingredient portfolios and ongoing research and development, we're supporting brands in delivering reduced sugar, salt and fat content. This scrutiny from consumers comes at a time when potential new guidelines are emerging for voluntary sodium reduction targets and front-of-pack labeling, impacting a range of food categories.



Brad Schwan, Vice President, Marketing, ADM



Marie Wright, President of Creation, Design and Development and Chief Global Flavorist, ADM

Divya Mohan: Specifically, our TasteSpark® Masking technology neutralizes off-notes from functional ingredients so characterizing flavors can be enjoyed unhindered. TasteSpark® Mouthfeel technology builds back richness and indulgence in low- or no-sugar and low- or no-fat applications. Our newest extension to this line is our TasteSpark® Salt Modulation, which rebalances taste loss and supports overall flavor profiles in reduced sodium formulations. These flavor modulation solutions can be labeled as "Natural Flavor," offering clean-label positioning for crucial product differentiation.

Added functionality is also top of mind. Our health and wellness technology platform continues to rapidly expand, presenting novel, resilient gut microbiome-supporting solutions to usher in the next wave of functional food and beverage innovation.

In February 2025, we announced the addition of *Lactobacillus gasseri* CP2305 postbiotic to our portfolio, opening the door to new possibilities in functional food through the gut-brain axis. *L. gasseri* CP2305 targets highly sought-after support for stress, mood and sleep[1,2,3]. Through introductions like *L. gasseri* CP2305, we're reinforcing our leadership in postbiotics. As solutions that can retain functional stability through harsh processing conditions and complex formulations, even in shelf-stable matrices, we foresee postbiotics as a significant force behind appealing, efficacious functional food innovations.

Supporting New Consumer Segments and Needs

Brad Schwan: The industry has witnessed the unique introduction of a new consumer segment – those engaging with anti-obesity medications (AOMs), including GLP-1 receptor agonists. The surge in use of AOMs has created a set of consumers with distinct support needs and consumption behaviors. Among over 1,500 active AOM users in the U.S., 78% report feeling full more quickly[4], which may be a result of the reduction of "food noise" from the use of AOMs. As such, GLP-1 users report snacking less and consuming smaller portion sizes. Many of these consumers also note altered taste and sweetness perceptions.

Each of these compounding factors has driven demand for portion-controlled offerings with balanced flavor profiles and lower sweetness levels, all while being nutrient dense. Our research shows 83% of GLP-1 users find products specifically positioned for people taking AOMs appealing, and 81% are willing to pay a premium for such items[4]. They also state taste and nutritional value are equally important, and they're intentionally looking to increase their intake of plant-based proteins, fiber and probiotics/prebiotics[4].

In October 2024, ADM launched a platform to help food, beverage and dietary supplement producers create products for consumers engaging with AOMs and seize this extraordinary market opportunity. The platform identified five needs and concerns of people currently

taking AOMs (maintaining muscle mass, minimizing gastrointestinal discomfort and supporting hydration) and those reducing or stopping use (promoting satiety and managing weight regain). Built through our foundation of formulation expertise and market understanding, our supportive solutions platform provides over 25 market-ready concepts featuring plant proteins, wholesome ingredients, sweeteners, biotics, flavor modulation technology and more. It is an excellent example of the full systems support we provide to food, beverage and dietary supplement brands, fast-tracking our customers' speed to market to meet evolving consumer needs now and for the years ahead.

Innovating to Navigate Supply Chains and Costs

Marie Wright: The industry is facing distinct challenges while also needing to deliver on exceptional flavor, nutrition, affordability and clean labels. Ingredients derived from natural sources, including flavors, colors and sweetening solutions, are in high demand, particularly as regulatory pressures continue. Environmental concerns and supply chain disruptions also influence crop volumes. ADM is well positioned to solve today's known challenges, as well as those yet to come. Through our global footprint, we help manage risks, address costs and fulfill consumer expectations through elegant flavors.

Citrus fruits and flavors are among the popular ingredients experiencing volatility. Our CitrusFlex citrus solutions enable juice and flavor optimization, leveraging our wide-ranging flavor raw material portfolio to deliver outstanding natural citrus profiles at accessible price points. The introduction of CitrusFlex in 2024 comes from years of technical expertise, coupled with long-standing procurement partnerships, diversifying our supply chains and championing traceability.

Technology is integral to bringing functional and flavorful product development to consumers in regions around the world. The acceleration of artificial intelligence is enabling greater efficiencies by streamlining processes like pinpointing microbial strains for individualized wellness support, as well as combining it (AI) with the vast knowledge of our food scientists, flavorists and chefs for next-generation sensorial experiences.

Essential supply partnerships, novel technologies and science-backed solutions help extend natural resources so formulators can do more with less. These are the keys to our innovation toolbox, which support consumers' nutritional demands with full flavor impact, driving forward the future of food.

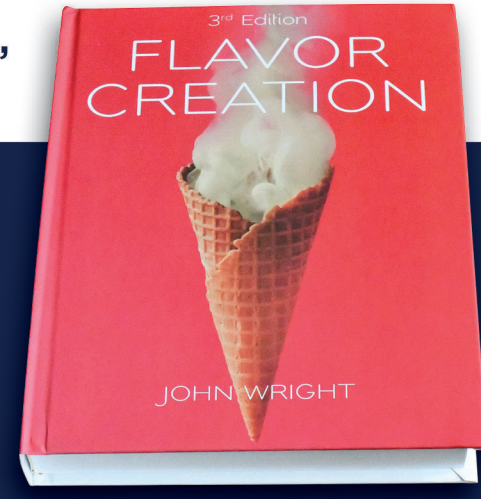
References

1. Nishida, K., et al., (2017) Journal of Applied Microbiology 123:1561-1570
2. Nishida, K., et al., (2017) Journal of Functional Foods 36:112–121
3. Nishida, K., et al., (2019) Nutrients 11:1859
4. ADM Outside Voice

JOHN WRIGHT'S FLAVOR CREATION,
Third Edition is now available!

Order the Third Edition now through Blurb
visit www.johnrwright.com for details

This must-have guide covers everything from flavor creation techniques and raw materials to end products and sensory science. Get your copy today!



dsm-firmenich

Maastricht, Netherlands and Kaiseraugst, Switzerland
2024 Sales: €12.8 billion



By creating products that are both nutritious and environmentally friendly, dsm-firmenich's leadership hopes to contribute to a more sustainable future.

At dsm-firmenich, we believe better taste can help build a better world. As a global leader in nutrition, health, and beauty, we're uniquely positioned to shape the future of food — making it more delicious, nutritious, and sustainable for everyone.

Formed in 2023 through the merger of a Dutch and a Swiss company, dsm-firmenich brings together more than 150 years of scientific excellence and creative innovation. With over €12 billion in combined revenue, 30,000 employees, and operations in more than 60 countries, we're building a company in a category of one — where science meets creativity to serve the evolving needs of people and planet.

By the Numbers

- 88 manufacturing sites across the globe
- 2,000+ scientists and engineers
- €700 million+ invested annually in R&D
- 3 consumer-focused business units:
  - Perfumery & Beauty
  - Taste, Texture & Health
  - Health, Nutrition & Care

Taste, Texture & Health: Rethinking the Future of Food

Our Taste, Texture & Health business is on a mission: to make food better — for people, for communities, and

Courtesy of dsm-firmenich

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

for the planet. We work hand-in-hand with food and beverage companies around the world to create products that are healthier, more sustainable, and great tasting.

From sugar-reduced drinks and creamy dairy alternatives to savory snacks and plant-based proteins, we help brands deliver what consumers crave — without compromise.

Recent innovations include:

- Oat and soy drinks with improved mouthfeel and authentic dairy taste
- Plant-based tuna sandwich fillings that mimic the texture and flavor of the real thing
- Clean-label savory solutions that deliver umami without artificial additives

Our approach is holistic. We support our partners from concept to shelf, offering local insights, global scale, and deep technical expertise across categories like beverages, dairy, bakery, savory, and pet food. Whether it's a multinational brand or a regional innovator, we help our customers bring better food to life.

Driving Growth Through Innovation

We focus on high-growth, high-impact categories — and we're investing to stay ahead of the curve. Our recently opened research center in San Diego and our new innovation hub in Delft in the Netherlands are designed to accelerate product development, unlock new technologies, and drive sustainability breakthroughs.

We're also expanding our regional production footprint to meet local demand more efficiently and reduce environmental impact. This includes investments in flexible manufacturing, agile supply chains, and digital tools that help us respond faster to changing market needs.

Digital Tools That Make a Difference

Artificial intelligence and machine learning are transforming how we create flavor. Our award-winning digital platform helps customers select the right cultures for fermented products with even greater speed and precision.

These tools also help us:

- Predict how a flavor will perform in different applications
- Optimize formulations for taste, nutrition, and cost
- Personalize products for regional preferences and dietary needs

By combining data science with sensory science, we're bringing a whole new level of consumer focus to flavor creation.



Patrick Niels, president, Taste, Texture & Health

Health, Nutrition & Care: Wellness for Every Stage of Life

Our Health, Nutrition & Care business is focused on improving lives — from infancy to healthy aging. We develop science-backed solutions that support immunity, cognitive function, gut health, and more.

We serve a wide range of markets:

- Early life nutrition
- Dietary supplements
- Pharmaceuticals and medical nutrition
- Nutrition improvement for vulnerable populations

Our portfolio includes high-quality vitamins, minerals, probiotics, active pharmaceutical ingredients, and nutritional lipids. We're also advancing infant formula to more closely resemble breastmilk and developing biomedical materials for next-generation therapies.

Preventative Health: A Growing Opportunity

We see enormous potential in preventative health. Today, around 80% of healthcare costs are spent on

treating illness — often in the final decade of life. This model is unsustainable. Governments, insurers, and consumers are increasingly recognizing the value of prevention.

We're helping lead that shift with products that support long-term health and wellness, including:

- resVida® for cardiovascular health
- ALL-Q® and Redivivo® for cellular energy and antioxidant support
- life's®OMEGA — a sustainable, algal-based omega-3
- ampli-D® — a fast-acting form of vitamin D
- Humiome® — our growing portfolio of prebiotics and probiotics for gut health

These solutions are designed to help people live not just longer, but healthier lives.

Sustainable by Design

Sustainability isn't a side-project at dsm-firmenich — it's embedded in everything we do. Recognizing that with capability comes responsibility, the company drives progress for people and the planet with passion and dedication.

We're investing in technologies that reduce environmental impact while enhancing product performance, including:

- Algal-based omega-3s that reduce pressure on marine ecosystems
- Green fermentation processes that use renewable feedstocks
- Clean-label flavor systems that meet consumer demand for transparency and simplicity

In 2024, our emissions reduction plan was validated by the Science Based Targets initiative, committing us to net-zero greenhouse gas emissions across our entire value chain by 2045.

dsm-firmenich in figures:

- 30,000 employees
- 88 manufacturing sites in 60 countries
- 15 research & development centers



Philip Eykerman, president, Health, Nutrition & Care

We also work closely with customers to help them meet their own sustainability goals — from reducing carbon footprints to improving ingredient traceability.

Bringing Progress to Life

At dsm-firmenich, we're not just responding to change — we're driving it. By combining deep scientific expertise with bold creativity, we're helping shape a food system that's healthier, more resilient, and more delicious.

Whether it's a plant-based burger that tastes like the real thing, a sugar-reduced soda that still satisfies, or a supplement that supports healthy aging, we're bringing progress to life — one innovation at a time.

Because when food is better for people and the planet, everyone wins.

perfumer & flavorist
The Resource for Sensory & Wellness Innovation
SUBSCRIBE TODAY!
www.PerfumerFlavorist.com/subscribe





NATURAL FLAVOR

Fully Loaded

Methyl 2 Methyl 3 Furyl Disulfide, Natural
FEMA 3573
~ meaty, roasted, savory

Bis(2-methyl-3-furyl) disulfide, Natural
FEMA 3259
~ beefy, seared meat, onion and garlic

Ethyl Methylthiopropionate, Natural
FEMA 3343
~ pineapple, fruity, sulfurous

3-(Methylthio)butanal, Natural
FEMA 3374
~ vegetative, tomato, fishy

Thialdine, Natural
FEMA 4018
~ roasted brothy, beef-like, cooked shrimp, popcorn

AXXENCE®
NATURAL INGREDIENTS DESIGNER

For sample request, please contact us

customerservice-usa@axxence.com
318-215-1456

www.axxence.com

Givaudan

Geneva, Switzerland

2024 Sales: CHF 7.4 billion



"The sequential improvement in Taste & Wellbeing performance throughout the year highlights the company's resilience and ability to adapt to market dynamics," CEO Gilles Andrier said.

In 2024, Givaudan delivered strong financial performance through the application of its core strategy of fostering growth alongside customers using tailored, high-value solutions.

Sales Performance

Full year Group sales were CHF 7,412 million, an increase of 12.3% on a like-for-like (LFL) basis and 7.2% in Swiss francs when compared to 2023. Givaudan achieved robust growth across all customer groups, product segments and geographies, with the high-growth markets expanding at 19.5% on a LFL basis and the mature markets at 6.4% LFL. The company posted a record free cash flow of CHF 1,158 million, or 15.6% of sales, an increase of 25.9%.

Sales in Taste & Wellbeing were CHF 3,752 million, an increase of 10.7% on a LFL basis and 4.1% in Swiss francs, against a comparable growth of 1.1% LFL in 2023. Within the product segments, there was strong double-digit growth in snacks, beverages and dairy, as well as solid momentum in sweet goods and savory. "The sequential improvement in Taste & Wellbeing performance throughout the year highlights the company's resilience and ability to adapt to market dynamics," Chief Executive Officer Gilles Andrier said.



Gilles Andrier, Chief Executive Officer

Courtesy of Givaudan

"These numbers reflect positively on our strategic choice to expand the portfolio to more naturals, but also

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

At the end of 2024, Givaudan had:

- Over 16,900 employees
- 162 locations in more than 50 countries
- 62 creation and research centers

to health and wellbeing, which today make up a very significant part of our portfolio," Andrier said. "These unique solutions drive growth beyond traditional flavors, while enabling us to outperform the market."

New Leadership for Taste & Wellbeing

As announced in January, Antoine Khalil took over as President Taste & Wellbeing on 1 April 2025.

With over 21 years of experience at Givaudan, Antoine Khalil has held various roles at the company since starting in Paris in 2004. In 2017, Antoine joined Taste & Wellbeing as Regional Head Africa & Middle East, and later for SAMEA before becoming Commercial Head for T&W North America in October 2023.

"We are proud to have another internally grown talent joining the Executive Committee," Andrier said. "Antoine has 21 years of commercial leadership with Givaudan. He has gathered profound expertise across both our businesses, our customers and regions, and has been successful at every step of his journey."

Khalil succeeds Louie D'Amico, who is retiring after over 35 years at Givaudan, making significant contributions to the company's growth. D'Amico was elected as a new Givaudan Board member and will take office effective 1 October 2025.

Responding to consumer trends

Consumer preferences have shifted significantly, driven by a growing interest in health, wellness, and unique flavor experiences.

Increased awareness about the microbiome means consumers are expecting to see gut benefits in both foods and supplements. With 90% of Americans not meeting fiber intake recommendations[1], we are prioritizing the development of fiber ingredients to satisfy these demands. We recently signed an agreement to distribute Arrabina, a gluten-free wheat fiber extract[2], which offers a unique mix of prebiotics with a microbiome-modulating effect[3] and exceptional tolerability[4]. We are also collaborating with Dole to distribute Green Banana Powder, which offers a clean label texture and mouthfeel



Antoine Khalil, President Taste & Wllbeing

solution while adding fiber and nutritional appeal to products. Both of these new ingredients are upcycled, produced using crop side-streams and discarded fruit, which require no new crop acreage.

We are further strengthening our portfolio of branded ingredients backed by science with the release of new clinical research confirming the benefits of Pacran, our whole cranberry ingredient for urinary health. "We also recently launched Zensera, a new clean-label lemon balm ingredient that has been shown to support mental performance during stressful times.

Evolving with markets and regulations

Givaudan is committed to developing innovative solutions that enhance food experiences in line with consumer expectations and changing worldwide regulations.

Working with our customers, we are able to reduce undesirable ingredients like sugar, salt or fat, in recipes without compromising taste. Using tools such as ATOM (Advanced Tools for Modelling), which employ state-of-the-art AI to optimize food and flavor formulation, along with our extensive portfolio of flavors and masking technologies, we are able to reimagine the taste experience while improving the nutritional profile.

Meanwhile, our Sense Colour business is exploring new natural color sources and further optimizing existing sources to provide vibrant natural colors that perform well in application. These include multiple options for replacing Red 3 as well as a new blue from Galdiera that

is traceable, has low pH stability, and which has just been approved by the FDA for use in the United States.

Innovating for food systems transformation

Givaudan Taste & Wellbeing is transforming food systems through innovation and collaboration, emphasizing sustainability and resilience in the food supply chain in response to climate change.

Fermentation is one such example. By cultivating microbial cells in tanks, fermentation allows for rapid and safe production, achievable in just a few days, regardless of location. This method not only centralizes food production but also mitigates contamination risks, lowers greenhouse gas emissions, and reduces the need for agricultural land. Givaudan is collaborating with start-ups to drive advancements in biomass fermentation through its research and development centers. This includes the recent launch of the Cultured Hub, a partnership with Migros and Bühler Group, which aims to speed up the development and market entry of cellular agriculture products.

We are working diligently to ensure supply chains by using upcycled ingredients, implementing responsible agricultural practices that favor soil health and crop resilience, and developing alternatives for at-risk food supplies such as cocoa, tomato powder and citrus oil. Givaudan has been a pioneer in this area, beginning with our SunThesis range of citrus oil replacers. Made from readily available, cost-conscious natural materials, SunThesis helps our customers to mitigate supply chain risk, stabilize costs and delight consumers.

Anticipating demand with new facilities

Recent expansions in several regions have enhanced our local presence, brought production closer to customers and contributed to local economic development. These initiatives strengthen our ability to meet growing consumer demand and support our strategic goals.

Reinforcing our commitment to Southeast Asia, we broke ground on a new state-of-the-art production facility in Cikarang, Indonesia. The new site will span 24,000 square meters and focus on producing a wide range of savory, sweet and snack powders, as well as infant nutrition solutions. To minimize environmental impact, the facility uses solar power, recycled water systems, enhanced natural and LED lighting with sensors, electricity from certified green energy partners and rainwater harvesting systems.

We are also continuing to grow our presence in North America. At the end of 2024, we confirmed plans to build a 100,000-square-foot liquid compounding facility in Reading, Ohio, near our US headquarters in Cincinnati. Operations are set to begin by 2028. In addition, we collaborated with Bühler to inaugurate a state-of-the-art extrusion hub at the MISTA Innovation Centre in San Francisco. The new facility advances MISTA's capabilities in driving food innovation and highlights our commitment to supporting food systems transformation.

At the end of 2024, Givaudan had:

- A procurement spend of over CHF 4 bn
- Over 2,800 raw material suppliers in more than 100 countries
- 15,400 additional global partners supplying indirect materials and services

Augmenting co-creation through technology and AI

Givaudan is enhancing co-creation processes through advanced technologies and artificial intelligence to gather consumer insights and optimize product development.

Earlier this year we launched Myromi, a handheld aroma delivery and blending device that can be used to co-create concepts and gain consumer insights. Controlled with a smartphone, Myromi allows users to explore, experience and provide feedback on flavors from anywhere.

Meanwhile, our proprietary Customer Foresight platform combines human expertise, big data, and AI to anticipate consumer expectations and industry shifts. Launched in 2023, we have put this futurescaping platform to work with the recent release of a report on Hydration & Refreshment. The report makes insights from the platform come to life by imagining possible future scenarios and avatars.

These initiatives are designed to strengthen our position as the co-creation partner of choice to our customers, supporting them throughout the process with the latest tools and expertise.

References

1. Miketinas, D. et al. (2023). Usual dietary fibre intake according to diabetes status in USA adults – NHANES 2013–2018. British Journal of Nutrition, 1–9.
2. Gluten-free wheat fiber extract refers to wheat that has been processed to allow this food to meet the Food and Drug Administration (FDA) requirements for gluten-free foods.
3. Ex vivo model of intestinal fermentation, Cryptobiotix study, data on file (2024)
4. Chen O et al., The Effect of Arabinoxylan on Gastrointestinal Tolerance in Generally Healthy Adults: A Randomized, Placebo-Controlled, Crossover Study. Curr Dev Nutr. 2021 Jun 7;5(Suppl 2):304.

Kerry Group

Kerry, Ireland

2024 Sales: €8 billion



"The flavor industry has undergone significant change over the past decades to be less dependent on chemicals, and more reliant on taste coming from real food," shared CEO John Savage.

Kerry's leadership knows that flavor development isn't just about the next big trend. It's also about improving nutrition without compromising on taste and finding cost-effective taste solutions for supply shortages.

Perfumer & Flavorist+ probed the company's president and chief executive officer to learn more about Kerry's global initiatives and how they are leveraging technology to provide delicious, cost-effective solutions.

What are some of the most important initiatives Kerry is currently pursuing, and how do they align with the company's long-term goals?

Our 2030 goal is to reach over two billion people with sustainable nutrition solutions.

Our industry is faced with a range of challenges, from inflation to supply insecurity, increased regulation to sustainability targets. Global and national pressures, along with the growing demand for affordable and healthier products, are pushing for reformulation and innovation. However, these challenges must be overcome without compromising on taste.

At Kerry, we are uniquely positioned to help navigate these challenging circumstances. As President and CEO of Taste at Kerry, I am particularly proud of our science-backed taste solutions, which we use to partner with our customers to:

- Improve nutrition by reducing salt, optimizing sweetness or enhancing nutritional value, all while maintaining great taste.
- Create cost-effective taste solutions for predicted supply shortages, like cocoa and orange juice, helping our customers manage costs and supply chain uncertainty.
- Deliver cost effective, more environmentally friendly and healthier alternatives to using traditional smoking methods and dairy-based ingredients, helping customers meet their sustainability targets.

Courtesy of Kerry Group

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

How is Kerry leveraging artificial intelligence and machine learning to enhance product development and improve efficiency in flavor creation?

Kerry leverages artificial intelligence and machine learning to connect customers with innovative food and beverage concepts. Our new, custom-built AI-powered tools enable the creation of tailored recipes backed by market insights and Kerry's expertise in taste and nutrition. We see huge potential in scaling up these technologies, to offer more tailored services, and to get things done better and faster. We'll be excited to share these with our customer base in the months ahead.

Kerry has various innovation hubs and research centers globally. Can you share how these hubs contribute to the development of breakthrough technologies and products?

Our 70+ technology and innovation centers support the development of great tasting and balanced ingredient solutions for our customers who today reach almost 1.4 billion consumers globally.

Focusing specifically on taste, we have dedicated Global Taste Centres of Excellence which develop and optimize the various taste technologies within our offerings. Citrus greening disease and climate change have led to recent supply chain issues for citrus fruits, affecting both quality and availability of related products. At our Centre of Excellence for Citrus in Lakeland Florida, our experts are focused on developing solutions to these issues, ensuring we have the most innovative range of high impact, cost-effective and stable citrus taste solutions on the market. This enables our customers to reformulate using Kerry's Citrus Taste solutions to improve costs and reduce supply chain uncertainty.

As a leader, what is your long-term vision for Kerry? How do you see the company evolving over the next decade in terms of innovation, market leadership, and sustainability?

Kerry continues to innovate to improve the healthfulness, cost and sustainability profile of foods, while maintaining great taste. Our offering in Dairy Taste is a good example of this. Dairy is a favorite ingredient in many markets, but the product can be subject to volatile and fluctuating prices, have a significant impact on a product's nutritional profile, as well as a large carbon footprint.

Kerry have developed a range of sustainable Dairy Taste solutions that can be incorporated into our customers' products, enabling them to reduce and stabilize costs inputs, and achieve an improved nutritional profile and lower carbon footprint for their products, all whilst maintaining the taste of dairy that consumers love.



John Savage, president, chief executive officer, Kerry

Another interesting area is smoke conversion. We all love the smoky, charred taste of open fire cooking, but conventional smoking is a resource intensive process due to the damaging impact of smoke on infrastructure, and its high energy and water requirements. Our smoke technology removes the contaminants often found in conventionally smoked meats, and reduces the volume of inputs required, lower the costs, and reducing the carbon footprint of smoking foods by over 40%. Smoke flavorings are therefore a more cost-effective, healthier and environmentally friendly alternative to conventional smoking while maintaining the great taste we are all familiar with.

How is Kerry adapting to global changes in dietary habits and flavor expectations?

The flavor industry has undergone significant change over the past decades to be less dependent on chemicals, and more reliant on taste coming from real food. Our corporate roots are in the&natural food and agricultural sectors, which gives us an advantage.

Our customers are looking for a taste partner for two reasons. The first is to create an authentic, consumer preferred taste experience, so for example, the best tasting cheese snack for a particular market.

The second reason is when a customer has taste challenges arising from issues that require more than just great taste alone. For example, nutritional enhancement to meet regulatory guidelines or industry body

recommendations, achieving sustainability targets, minimizing costs and volatility in supply constraints etc. Here is where we're different as we can leverage our wider Kerry processing capability, beyond the processes used for traditional flavor creation to support our customers in addressing these needs.

An interesting area in the taste space is the impact of anti-obesity medications on food and beverage formulations. GLP-1 consumers are looking for small, nutrient dense food portions that are packed with high quality calories and ingredients all while tasting great. Protein is integral to these, alongside functional ingredients, vitamins and minerals, but these are generally coupled with unappealing taste profiles. Our customers are coming to us to help them deliver great tasting, nutritionally enhanced products. Our Tastesense masking portfolio expertly masks these off notes, supporting our customers to balance flavor with functionality.

Can you share any recent breakthroughs or innovations that highlight Kerry's contribution to the industry?

Kerry recently introduced Tastesense Salt, a groundbreaking innovation that delivers rich, savory taste without adding sodium. Salt has an up-front, middle and long taste profile but many sodium-reduced crisps on the market were missing the up-front saltiness. Re-creating that initial salty taste impact in crisps, baked goods and other snacks is something that companies have long struggled with. We recognized that gap in the market – an ingredient capable of recreating salt's up-front 'bite' and developed Tastesense Salt. A solution allowing for significant sodium reduction—up to 60% in some applications—while maintaining essential flavor properties, Tastesense™ Salt is designed for both simple and complex formulations, leveraging Kerry's expertise in taste receptor science and proprietary product chemistry.

Another example is cocoa: a beloved flavor worldwide, but an industry under threat. The cocoa market experienced a 26% drop in global supply due to climate change and crop diseases, causing cocoa prices to triple since 2023. Our innovative Cocoa Booster, a groundbreaking taste technology, reduces the need for cocoa raw materials by up to 50%. It helps manage supply risks, ensure price stability, maintain taste consistency and lower the product's overall carbon footprint, making it more cost-efficient and environmentally friendly for our customers to reformulate affordable, great tasting products for their customers.

These innovations highlight Kerry's commitment and contribution to creating sustainable, nutritious products without compromising on taste.

Looking ahead, what are some key areas where Kerry plans to focus its growth and innovation in the coming decade?

Consumers are increasingly concerned about inflation, and the opportunity for growth for both Kerry and for our customers will be centered around innovating and reformulating cost-effectively while maintaining exceptional taste. We will stay agile, proactive, and continuously adapt our portfolio to meet the changing demands of the industry delivering increased value for our customers around costs, sustainability, supply constraints and enhanced nutrition.

We will continuously aim to be our customers' most trusted and valued partner, and the future of sustainable nutrition, delivering a positive impact for people, society, the planet and, crucially, our customers.

p&f+



MANE

Le Bar-sur-Loup, France
2024 Sales: €1,945 million





The Beverage and Sweet businesses at MANE performed exceptionally well, with functional nutrition and dairy leading the charge.

MANE relentless pursuit of excellence leads to transformative flavor solutions that delight consumers and elevate brands. Through pioneering sustainability efforts and innovative approaches, we shape the future of flavor, offering exceptional taste experiences that meet changing consumer demands.

MANE Group's Year of Expansion and Innovation

2024 has marked a year of significant achievements and milestones for MANE. MANE reported sales of €1,945 million, an impressive organic growth of +11.2% vs 2023, on a like-for-like basis. This success is complemented by strategic executive appointments, including new directors for the Americas region, EMEA and ingredients research and production.

The Beverage and Sweet businesses performed exceptionally well, with functional nutrition and dairy leading the charge. MANE's portfolio of encapsulation technologies continues to gain market interest, driving unique consumer experiences.

MANE has expanded its global capabilities, investing in its flavor production facility in Lebanon, Ohio, and enhancing operations and business support. Strong investments aim to increase capacity in the beverage, sweet goods, and culinary segments for the next 20 years. Construction work will begin on the Sablé-sur-Sarthe site, which will feature a new powdered flavor production unit, and new investments in extrusion facilities in Le Bar-sur-Loup, reinforcing our investments in France. In Latin America, investments to expand production capacities in Mexico and Brazil.

MANE received a Supplier Innovation Award from a top global confection CPG, highlighting its ability to attract and retain high-value clients. Our flavor division achieved industry-leading growth by strengthening partnership positions with key accounts and driving revenue from new customers.

The change in Group governance was announced: Samantha Mane succeeded her father, Jean Mane, as

Courtesy of MANE (@TOMATOKI)

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

CEO, becoming the first woman to lead the company, underscoring MANE's commitment to remaining an independent, family-owned and -run business.

Innovating for Evolving Tastes and Dietary Trends

MANE addresses health, sustainability and affordability challenges by adapting to evolving dietary habits and flavor expectations. Consumers prefer natural, transparent food choices with simple labels and view more and more food as functional medicine, incorporating more protein and fiber, even in snacks and confections. Despite these changes, the demand for great taste and authentic profiles remains strong. The focus on protein intake presents flavor challenges related to absorption and undesirable tastes. MANE tackles these by understanding ingredient interactions and using its extensive encapsulation systems portfolio to reduce protein binding, ensuring exceptional taste experiences.

With our SENSE CAPTURE™ Precision Taste Modulation program, we enhance taste perceptions and reduce undesirable ones for complex food and drink products. Our Taste Modulation experts deliver the optimal taste experience consumers demand. Using the Precision Taste Modulation wheel, our experts address nine key dimensions of taste, including mouthfeel and flavor intensity, making it effective for reduced sugar and plant-based products. By leveraging our expertise in taste modulation and encapsulation, MANE adapts to global dietary trends, providing innovative solutions that meet consumers' evolving needs while maintaining our commitment to quality and excellence.

MANE leverages traditional and cutting-edge technologies, from infusions and distillations to supercritical extraction and spinning cone columns, to deliver outstanding natural ingredients with optimized organoleptic profiles. MANE SOURCE™ offers pure, traceable flavors from carefully sourced raw materials, ensuring minimal processing and clear labelling for an authentic taste experience. Our flavor ingredients can be used as such in end-use applications or in our formulations to create complete solutions with complex and culinary profiles. Consumers benefit from transparency and quality, enjoying flavors true to their origins.

Combining aromatic intelligence with advanced analytical technologies and sensory methodologies, MANE leverages its SENSE CAPTURE™ database, in-house and external, and dedicated delivery systems to achieve perfect flavor balance and optimal taste experiences. Our flavorists push boundaries by using sub-threshold compounds and low-volatile molecules to fine-tune taste perception, creating balanced and complex flavors. Discovering new flavor molecules through biofermentation and advanced extraction methods expands



Samantha MANE, chief executive officer, MANE Group

possibilities while ensuring sustainability. Customization is key. By tailoring flavors to specific applications, adding new taste functions, and educating customers on optimized expertise solutions, MANE unlocks new dimensions of enjoyment.

Flavor trends are constantly evolving. At MANE, our TREND CAPTURE platform highlights key shifts redefining consumers' relationship with food and drink. Innovation is driven by consumer insights, helping MANE stay ahead of trends and deliver products that exceed expectations.

Harnessing Sensory Science for Enhanced Flavor and Texture

Food & Beverage producers seek to improve sensory characteristics for better palatability and drinkability. Our sensory teams conduct evaluations across various products to understand off-notes in dairy or meat alternatives and the mouthfeel of sugar-reduced drinks. By understanding human perceptions of taste, smell, and texture, we fine-tune formulations to resonate with consumers. Our expertise in flavor creation and sensory advancements allows us to craft complex, signature flavors that elevate products. Through global collaboration, we gain insights from diverse markets,

creating personalized products that meet local preferences while aligning with sustainability and health trends. This approach drives our commitment to innovation, exceeding consumer expectations.

Leveraging AI for Innovation in Flavor Creation and Market Insights

MANE is at the forefront of integrating artificial intelligence (AI) across various facets of our business, including flavor formulation, consumer insights, trend forecasting and research and development (R&D). AI-driven tools enhance creativity, optimize formulations, and ensure regulatory compliance. AI-powered analytics monitor market trends, predict consumer preferences and support strategic decision-making.

One of our key AI initiatives is TWINS, our digital R&D assistant. Fueled by millions of analytical and sensory datapoints, TWINS enables us to create high-performing flavors faster for our clients. It supports our evaluators in identifying the best flavor solutions, significantly speeding up the development process.

Another innovative tool is TREND CAPTURE™, our global trend monitoring platform. By embedding AI capabilities, TREND CAPTURE™ transforms vast amounts of web data into valuable trend insights and innovative flavor concepts for our customers' brands, allowing us to stay ahead of market trends and deliver cutting-edge solutions.

A notable success story involves our use of AI to optimize research experiments and predict molecular performance. This has accelerated our R&D processes and improved the accuracy and efficiency of our formulations. By leveraging AI, we can anticipate consumer needs and preferences, ensuring our products resonate with the market.

Innovative Approaches to Answer Sourcing Challenges

The flavor industry faces significant sourcing challenges due to climate change, geopolitical instability, regulatory pressures and market volatility. Key ingredients like citrus, spices, vanilla, cocoa, coffee and palm oil are particularly affected by extreme weather, supply chain disruptions and increasing sustainability requirements. For example, the orange market faces long-term concerns due to greening disease, cocoa prices have surged short-term, driving the adoption of replacers to manage costs and availability, coffee beans are impacted by weather conditions, while black pepper is affected by rains in Vietnam and Sri Lanka.

To address these challenges, MANE is investing in innovative solutions and alternative ingredients. This includes using raw material replacers with authentic formulations to ensure flavor quality and supply security or using building blocks and fractions to replace oils while maintaining flavor profiles. We are also diversifying sourcing regions, creating new varietals, and strengthening our regenerative agriculture policy. By multiplying sourcing zones and collaborating with suppliers, we develop cultivation techniques that respect soils, ecosystems and biodiversity.

Thanks to organic chemistry, we have created MAXITRUS, a molecule with a powerful organoleptic profile and a limited impact on the environment. MAXITRUS is a game changer for orange drink applications, offering cost-competitive, stable orange flavors not dependent on citrus raw material. We are also conducting R&D projects on citrus varieties adapted to the devastating HLB disease, in partnership with CIRAD. Our flavorists have developed authentic profile reconstitutions of sensitive agricultural ingredients, reducing dependence on raw materials and providing short-term solutions to supply issues.

At MANE, we are committed to driving innovation and sustainability to navigate these sourcing challenges and continue delivering differentiating, high-quality, responsible flavor solutions to serve our partners' needs.





FLAVOURS
BY CAMILLE
& CHARLOTTE
× MANE

The organoleptic palette crafted for our flavourists is boundless. From universal tastes to those of a single land, we offer gustatory journeys to delight every palate. These sensory experiences spring from a blend of unexpected recipes and innovative solutions delivering authentic, unforgettable tastes, each a symphony of flavour, a feast for the senses.

Camille & Charlotte are the winners of the Capture What Moves photo competition held by MANE.

WE
CAPTURE
WHAT
MOVES
MANE

Sensient Technologies

Milwaukee, Wisconsin

2024 Sales: $1.56 billion (approx)



Sensient proprietary research and industry monitoring help guide customers through the product development decision-making process.

With a stated mission to develop, produce, and supply ingredients for food, pharmaceutical and personal care products in a safe and sustainable way, Sensient Technologies has earned a reputation for operating in a legal, ethical and responsible manner around the world. Sensient's segments include Colors, Asia Pacific and Flavors & Extracts.

Sensient believes in transparency, where honesty and clear communication forms the basis of our interactions with our customers and employees. Our non-negotiable expectations of integrity and professionalism guide our innovative scientists, skilled technologists and experienced product developers in the application and formulation of natural flavors, extracts and colors as the backbone of our progress and continued growth. We have continuously proven to our customers that we are a reliable supplier with a comprehensive and innovative product portfolio.

Sensient prioritizes product safety and aims to sustainably source raw materials as part of our solutions process. Each year brings new challenges and circumstances, and we remain confident in our ability to assist customers with novel concepts and products that offer exceptional quality, optimize resources, and respect the environment.

Finally, our marketing insights empower customers to capture market share by accelerating product development with solutions tailored to consumer demand and market gaps.

Courtesy of Sensient

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

Well-Prepared for Market Changes

Whether within the United States or across the globe, the dietary habits and flavor expectations of consumers are evolving. Consumers have become increasingly aware of the ingredients in their foods and beverages, demanding clean label options that include all-natural ingredients.

Sensient has a global team available to help our customers with these evolving preferences and complex formulation and application challenges.

For example, consumer preferences in the United States are shifting toward natural colors, aligning with a shift that has largely already happened within flavors. Sensient anticipated this potential shift toward natural colors more than a decade ago. This foresight enabled us to invest in R&D, supply chain solutions, and quality control procedures that prepared Sensient to be able to provide a full range of natural flavor and color solutions for the food and beverage markets today.

Another example of shifting consumer preferences is the increased popularity in high-protein diets. Sensient has the expertise to make protein more palatable using flavor masking and enhancing technologies to help food developers and manufacturers meet consumer dietary expectations without compromising on taste.

Advanced Technologies

Sensient Flavors & Extracts offers a wide arsenal of taste and mouthfeel technologies, including:

- TrueBoost – a portfolio of natural flavor enhancement products
- Smoothenol – a line of flavor masking agents that can address a wide variety of issues such as bitterness, astringency, metallic notes, chalkiness, and sourness
- TenderSeal – a technology that can optimize moisture control and deliver a texture that consumers desire in meat and poultry

While we regularly improve our existing technologies, Sensient also works to understand new ways we can help customers apply these technologies in different products to reach new markets.

Sensient flavor scientists and application experts collaborate in our Innovation Labs across multiple regions to rapidly develop customized prototypes, leveraging advanced technologies to address our customers' toughest challenges. Our goal is to simplify the process of formulation or reformulation at every step and stage.

An important trend in sensory science is a focus on multi-sensorial experiences. From finding that perfect characterizing flavor that can help new products stand out to our Sensates and SensaMelts product lines, which can help provide a multi-sensorial experience through



Paul Manning, chair of the board, president and chief executive officer, Sensient Technologies

mouthfeel and color, Sensient can assist customers in creating a more complete experience. Texture and multi-sensorial satisfaction extend into the beverage category as well, with the ability to add cloud emulsion or a foam head that goes beyond simple flavor to include visual, textural, and other sensorial experiences.

Ultimately, we want to help customers create products that appeal on multiple levels and exceed consumer expectations.

Challenges

There are a variety of challenges in formulating products designed to meet consumer expectations without compromising taste, especially with efforts to reduce sugar, salt or fat. All of these ingredients impact taste and texture, so successfully reducing their amounts in formulations requires consideration of function in addition to flavor. Each ingredient also influences mouthfeel in important ways.

Sensient anticipates that, with the ever-changing regulatory landscape and evolution of consumer preferences, more food and beverage manufacturers will begin to explore ways to reformulate to reduce sodium and sugar in their products. We are committed to collaborating with our customers in this effort to help prioritize consumer well-being.

With the food and beverage market becoming more saturated with product offerings than ever before, brands and operators must continue to lean into their product differentiators and stand out in the current

"Sea of Sameness." From our market insights to concepting and developing, Sensient excels at helping products stand out in a crowded market.

Thanks to our flavor enhancing and masking technologies, Sensient is prepared to help customers find the right formulation for their brands. Our flavor experts can also mimic processing conditions and test sample formulations to enhance speed to market.

Sourcing and Sustainability

Sensient's sustainability strategy is built on five pillars:

1. Decarbonization
2. Water Stewardship
3. Waste Reduction
4. Sustainable Supply Chain
5. Sustainable Product Design

Sensient's sourcing practices fall under this umbrella, prioritizing the replenishment of the lands that supply the ingredients and technologies we depend on.

Environmental changes and various supply chain disruptions have created unique challenges to sourcing. In response, we are continuing to develop proactive programs for assessing risks, mitigating impacts, and sharing solutions that respect both the farms and the farmers.

Some of the newest products in development in response to sourcing issues include:

- Creating flavors through biotransformation
- Products and technology addressing ongoing crop disease, like citrus issues
- Introducing a Cocoa Booster in the EU and Latin America, called TrueBoost Cocoa

In addition to our continued innovation for addressing product gaps and sourcing challenges, Sensient has also instituted a sustainable design principles checklist for all innovation projects to ensure we minimize risks within the supply chain and optimize our resource use, including the resources required to source raw materials.

Consumer Trends that Influence Flavor Trends

Shifts in consumer beliefs and behaviors can help define direction for product development. Sensient proprietary research and industry monitoring help us guide customers through the product development decision-making process.

Generational preferences can influence purchasing motivations. For example, younger generations tend to want diverse flavors, more connection, an opportunity for adventure, total authenticity, a multi-sensorial experience and alcohol in moderation.

The desire for authenticity has wide-reaching implications, from extracts with true-to-source flavor profiles and clear claims to connecting to the story behind food and the field that it comes from. Today's consumers want to align their purchases with their value systems.

Increasingly, consumers want to travel through taste with diverse food choices and connections to a food or beverage's humble origins, whether those are regional specialties, out-of-the-ordinary exotic foods, or global cuisines that tap memories or spur future adventure.

Conclusion

Events and conditions over the past year have reinforced that Sensient continues to be a valuable partner in the industries we serve. Our ability to anticipate challenges and adequately align our product portfolio with evolving consumer preferences and regulatory demands only adds to our arsenal of tools and technologies in support of our customers.



SENSIENT®

TOGETHER, WE'LL CONQUER EVERY TASTE CHALLENGE

Discover our unique blend of art, science and innovation

At Sensient, we take a collaborative approach—bringing together expertise, insight and technologies to creatively solve your toughest taste challenges and get you to market faster.



Let's be taste buds!
sensientflavorsandextracts.com

© 2024 Sensient Technologies Corporation

Symrise

Holzminden, Germany
2024 Sales: €5 billion



Givaudan's leaders said that collaboration with customers helps them develop tailored strategies that capitalize on opportunities in established markets.

Over the last 12 months, Symrise has focused on enhancing health and well-being in all aspects of its business. On the flavor side, this means transforming its traditional flavor house into an augmented flavor house that creates extra value and focuses on solutions for both taste and nutrition.

Symrise's chief executive officer Dr Jean-Yves Parisot and member of the board for Taste, Nutrition & Health Walter Ribeiro outline how the company is using several different technologies to address consumer preferences and stay ahead of supply chain shortages.

Can you give a brief overview of some key highlights and milestones that the Symrise Taste, Nutrition & Health segment reached over the last 12 months?

In 2024, Symrise's Taste, Nutrition & Health segment achieved a turnover of approximately €3.0 billion (of close to €5.0 billion in total for the Symrise Group), representing 63% of the company's total revenue, with a growth rate of 7.5% driven by strategic initiatives and innovative product launches.

One of these strategic initiatives relates to the transformation of our Taste, Nutrition & Health segment from a traditional flavor house into an augmented flavor house that creates extra value along the entire value chain. It focuses on solutions with natural taste, solutions for nutrition as well as health solutions. Its combined expertise in taste, nutrition and health has thus led to integrated solutions that leverage our unique capabilities in an efficient and sustainable way.

Symrise focused on enhancing health, well-being and beauty for the entire family and leveraged its global scale and active portfolio management to drive growth and efficiency. Key strategic areas included sustainable processes and products, taste optimization and sensory optimization of preparations with a varied protein matrix to meet the evolving needs of consumers seeking healthier and more sustainable food options.

Courtesy of Symrise

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

Symrise advanced its taste balancing technologies to enhance the flavor profiles of products with diverse proteins, addressing the rising global demand for foods with various protein sources. The company's proprietery AI technology, Symvision AI, played a crucial role in flavor trend forecasting and ingredient predictions, keeping Symrise ahead of market trends and consumer preferences.

Sustainable, resource-saving manufacturing processes were emphasized, including regenerative agriculture practices to reduce environmental impact. Symrise's projects in Madagascar focused on sustainable cultivation, optimizing vanilla yield, and reforestation to prevent soil erosion.

Facility expansions supported growth and innovation, with investments in capacity expansions, research and development centers, and efficient energy supply. Notable expansions included a Sales and R&D hub in Beijing, the Digital Immersion Co-Creation Centre in Singapore, and application laboratories in Lagos, Nigeria. Symrise also strengthened cooperation in Pakistan, focusing on innovative solutions and market expansion.

On the pet food/care side, we have also achieved a few considerable milestones. We have increased our footprint with a new plant in China dedicated to the processing of egg products for pet food. This allows us to offer high-quality ingredients manufactured using a circular economy approach. To help meet our ambitious sustainability goals Symrise Pet Food has worked on its 2030 product portfolio to reach the Scope 3 target that Symrise wants to meet by then.

How is the Symrise Taste, Nutrition & Health segment adapting to global changes in dietary habits and flavor expectations?

Symrise is actively addressing the evolving dietary habits and flavor expectations of consumers worldwide by focusing on enhancing health, well-being, and beauty for the entire family. The company leverages its global scale and active portfolio management to drive growth and efficiency. Symrise has developed new taste balancing technologies that enhance the flavor profiles of various protein matrixes, which is significant given the rising global demand for foods with diverse proteins. For example, Symrise's Protein Center of Excellence in Holzminden, Germany, and Plant Protein Works labs in Teterboro, US, are dedicated to creating meat's taste, texture, and visual appeal in products containing less or no meat.

Symrise offers sophisticated ingredients that ensure consumers have holistic, authentic, and intense taste experiences across various product categories,



Dr. Jean-Yves Parisot, chief executive officer, Symrise

including beverages, sweets, savory foods, and plant-based dairy alternatives.

Symrise's longstanding expertise in vanilla remains strong, with expert teams crafting vanilla solutions for sweet applications tailored to specific customer needs. The company's health-oriented solutions include ingredients that improve the nutritional profile of final recipes and promote health. Symrise's Trendscope and Symvision AI™ play a crucial role in understanding and predicting market trends, using data from over ten years of trend research to better understand markets, consumer preferences, and trends. This multi-source, data-driven approach enables Symrise to predict taste trends and how they will develop across different regions of the world. Trendscope webinars and promotions further support Symrise's efforts to stay ahead of market trends and consumer preferences.

What recent innovations in taste and mouthfeel technology are driving the industry forward from the perspective of the Symrise Taste, Nutrition & Health segment?

Symrise is at the forefront of developing advanced taste and mouthfeel technologies to cater to evolving

consumer preferences. A key innovation is taste balancing technologies that enhance the flavor profiles of varied protein matrixes, which is significant given the rising global demand for foods with diverse protein sources. Our expertise in understanding different protein types allows the creation of authentic flavors, textures and mouthfeel in matrices with diverse protein sources, addressing challenges like off notes, lacking mouthfeel, texture, appearance and reduced flavor impact. Proprietary tools like ProtiScan™ help identify protein-inherent off notes and select effective maskers efficiently. The company's circular economy approach upcycles chicken and egg byproducts into valuable ingredients, aligning with its sustainability commitment.

How is the Symrise Taste, Nutrition & Health segment utilizing advancements in sensory science to improve flavor and texture experiences?

Symrise Taste, Nutrition & Health leverages advancements in sensory science to enhance flavor and texture experiences. Using Molecular Listening, Symrise analyzes molecule interactions in real time, identifying key drivers of taste, smell, and sensory perception. This allows for precise formulation adjustments, creating a deeper connection between the product and the consumer.

The Digital Immersion Co-Creation Centre in Singapore is a high-tech space where Symrise collaborates with customers to co-create innovative solutions using digital tools and technologies. The center's capabilities include real-time data analysis, virtual prototyping, and interactive workshops, enabling rapid product development based on sensory feedback and market trends. Symrise integrates digital technologies with sensory science to enhance flavor and texture experiences.

What does the Symrise Taste, Nutrition & Health segment see as the primary obstacles in formulating products that meet consumers' desires for reduced sugar, salt, or fat without compromising taste?

Formulating products with reduced sugar, salt, or fat presents significant challenges in maintaining the desired taste and mouthfeel that consumers expect. Reducing these components often alters flavor profiles and texture, negatively impacting the overall sensory experience. For instance, sugar provides sweetness and also contributes to texture and mouthfeel, while salt enhances flavor and acts as a preservative, and fat adds creaminess and richness.

Replacing these components with alternative ingredients that replicate their sensory properties is complex.



Walter Ribeiro, member of the board, Taste, Nutrition & Health

Artificial sweeteners may have off-notes or aftertastes, salt substitutes may lack flavor-enhancing properties, and fat replacers may not provide the same mouthfeel. Additionally, consumer acceptance is a hurdle, as healthier products may deliver a different taste experience. Ensuring these products meet consumer expectations in terms of taste and texture is crucial for their success in the market.

How is artificial intelligence currently being implemented in the Symrise Taste, Nutrition & Health segment's flavor creation and business operations?

Symrise utilizes its proprietary AI technology, Symvision AI, to forecast flavor trends and predict ingredient preferences by analyzing data from market research and consumer insights. This helps us stay ahead of market trends and develop flavors that resonate with consumers, particularly for a broad range of proteins. AI-driven analytics optimize supply chain, production processes, and resource management, enhancing efficiency and sustainability.

Symrise's AI tools support strategic planning by providing insights into market trends, consumer behavior,

and competitive landscape. AI accelerates innovation from idea generation to product development, ensuring rapid market introduction of new products. AI-powered platforms enhance customer engagement by providing personalized recommendations and improving overall customer experience.

What are some of the current obstacles the flavor industry is facing in terms of sourcing from the Symrise Taste, Nutrition & Health segment's perspective? We've seen an influx in citrus oil replacers as well as cocoa, can you share how the market is adjusting to these technologies? Are there other segments affected by low yields of raw materials you can speak to?

The industry faces challenges with fluctuating availability and high costs of natural citrus oils, leading to an influx of citrus oil alternatives. Symrise has introduced sustainable natural citrus taste solutions to reduce reliance on traditional citrus oils, ensuring cost-effectiveness and authentic taste profiles.

Cocoa is also affected by low yields and high demand, prompting the industry to explore alternatives. Symrise develops sustainable and innovative taste solutions for high-quality cocoa products, leveraging advanced technologies and sustainable sourcing practices. Other natural raw materials face challenges due to climate changes, which Symrise addresses through regenerative agriculture practices, focusing on sustainable cultivation and optimizing yields.

What key consumer trends do you believe will shape the future of flavor preferences and development?

Consumers are increasingly prioritizing health and wellness, seeking products that offer functional benefits and support their overall well-being. This trend drives demand for taste solutions derived from natural ingredients, superfoods, and botanicals. Symrise responds by developing health-oriented solutions that improve the nutritional profile of recipes and promote health.

Sustainability is also a major focus, with consumers looking for environmentally friendly and ethically sourced products. Symrise commits to sustainability through regenerative agriculture practices and resource-saving manufacturing processes.

The rise of diets with a broad range of protein sources shapes flavor preferences, with consumers seeking flavors that enhance products with diverse protein sources. Symrise develops taste balancing technologies to improve taste in varied protein matrixes. Consumers seek indulgent flavors that provide comfort and evoke nostalgic memories. Personalization is increasingly important, with consumers looking for customized flavors. Tools like Symrise's Trendscope and Symvision AI help decode consumer trends and predict flavor trends and ingredient preferences, creating personalized flavor solutions.

p&f+



T. Hasegawa

Tokyo, Japan

2024 Sales: ¥ 71,645M



This past year has seen both a leadership change at the headquarters in Japan and a full renovation of the innovation center in California.

This year's T. Hasegawa Leaders & Newsmakers feature is jointly answered by T. Hasegawa Co. Ltd. president and COO, Takao Umino, alongside T. Hasegawa USA, Inc., chief executive officer, Tom Damiano.

Can you share three company highlights for the last 12 months?

T. Hasegawa's global business has continued to thrive over the past 12 months, supported by strategic investments, technical expansion, innovative flavor technologies and a key acquisition that has diversified our flavor offerings.

For the fiscal year ending September 2024, we achieved record-breaking consolidated sales, with revenue and substantial profit growth across all regions. We delivered these strong results despite macroeconomic headwinds, including concerns over global supply chain disruptions, raw material inflation and a slowing global economy. We successfully adapted by expanding flavor and fragrance sales, securing profitability in Japan and accelerating growth in North America and Asia. Our performance marked the fourth consecutive year of record global consolidated sales, driven in part by growth in non-consolidated and U.S. operations. Sales from subsidiaries outside Japan increased from 46.5% to 48.5% year-over-year, supported by yen depreciation and continued strength in China.

This year also brought significant leadership change at our headquarters in Japan with the appointment of a new Representative Director, President in October. This transition supports our evolving organizational culture and aligns with our global expansion and steady performance. While our core growth strategies remain unchanged, the new leadership positions us well for long-term success.

Courtesy of T. Hasegawa

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.



Takao Umino, president, chief operating officer, T. Hasegawa Co. Ltd.



Tom Damiano, chief executive officer, T. Hasegawa USA, Inc.

We remain focused on efficiently managing resources and expanding our global footprint, particularly in the U.S., China and Southeast Asia. In the U.S., T. Hasegawa continues to grow both organically and through acquisition. In September 2024, we acquired Abelei Flavors, Inc., a Midwest-based U.S. manufacturer founded in 1981 that specializes in high-quality flavors across applications including food, beverage, confectionery, dairy, health, and nutrition. This acquisition expands our geographic reach and enhances our flavor portfolio and technical capabilities in North America.

We also completed a full renovation of our R&D flavor innovation center in Cerritos, California. This year-long project expanded our dedicated R&D space by more than 50%, added new chemist labs and introduced state-of-the-art equipment and pilot scale capabilities to support advanced flavor development in the U.S. This builds on our 2022 opening of a 60,000-square-foot manufacturing facility in Rancho Cucamonga, California, which significantly expanded our sweet flavor production capacity with liquid and powder flavor blending, and the planned addition of spray dry, and extraction flavor technology. This facility supports strong top-line growth since launch and remains a key part of our long-term vision for expanded U.S. production.

Our talented team remains the heart of T. Hasegawa. Our synergy with T. Hasegawa's R&D center in Japan enhances research by enabling the exchange of technical knowledge and aligning innovation with global trends. Beyond R&D, our sales, production, and customer service teams play a vital role in maintaining close customer partnerships and driving practical flavor solutions. One of our greatest strengths is collaboration — our employees are passionate about solving challenges, communicating openly, and building lasting value with our customers.

What are the major influencers for innovation in 2024 leading into 2025?

In October 2024, we introduced a new global corporate message: to be "a company that generates value and excitement to enrich lives, utilizing a broad range of technologies extending beyond flavors and fragrances." Technology continues to drive our innovation, and our R&D efforts are increasingly focused on solving complex challenges such as supply volatility and material cost fluctuations.

For example, in response to a sharp increase in cocoa prices — driven by global shortages and droughts in West Africa — T. Hasegawa USA developed Cocoa Powder Replacer flavors that can lessen the dependence on the volatility of traditional cocoa powders. This innovation enables food and beverage manufacturers to reduce raw material usage without compromising taste.

We also introduced Orange Juice Replacer flavors in North America — natural flavors that replicate and boost orange juice flavor notes while reducing the need for traditional from-concentrate and not-from-concentrate orange juice in formulations. These flavor innovations were developed in response to citrus greening (HLB), a bacterial disease that has significantly impacted

citrus supply by producing bitter, juice-incompatible fruit. Available in both powdered and liquid forms, T. Hasegawa's Orange Juice Replacer flavors support a wide range of beverage and sweet good applications.

Both T. Hasegawa's Cocoa Powder Replacer flavors and Orange Juice Replacer flavors represent "no-compromise" solutions that help brands maintain taste consistency while navigating agricultural supply challenges and price pressures.

Our "Bridge to Tokyo" program continues to be a cornerstone of innovation. In this initiative, our R&D team in Japan creates novel technologies and flavor profiles, which are then refined by T. Hasegawa USA for Western markets. This collaboration has led to several advanced flavor technologies:

- BOOSTRACT – a kokumi-enhancing flavor modifier that increases richness and mouthfeel while balancing flavor complexity.
- EmulsiTRACT – a proprietary fat mimetic that mimics the texture of dairy milk by combining edible oils with flavor-enhancing components. This clean-label technology also helps reduce reliance on palm oil.
- HASEAROMA – a sensory-based research and enhancement platform that isolates and amplifies flavor molecules to recreate authentic sweet and savory profiles, replicating the "first-bite" or "first-sip" experience.
- ChefAroma – a culinary flavor-base system designed for foodservice and industrial applications. Using real ingredients and reaction flavor technology, ChefAroma adds layered, chef-inspired taste to products like soups, broths, condiments, and ready meals—reducing prep time while delivering restaurant-quality flavor.
- PLANTREACT - A targeted reaction technology designed to mimic the complex flavor profiles of animal proteins for vegan based products. By targeting the unique molecules of these proteins, the flavors are both authentic and satisfying.
- HASECITRUS - A citrus fruit flavor technology that ensures high stability in both ready-to-drink and powder beverage formulations, while preventing off-notes from oxidation.

These innovations provide relevant solutions to today's formulation challenges and continue to drive consumer satisfaction across categories.

What are your main company focuses and/or goals for the next 12 months?

Our company's goal is always to provide lasting value to our customers by solving their food and beverage manufacturing challenges with best-in-class flavor solutions that delight the senses and "make life taste better." We approach this goal by strengthening our global operations, expanding our compounded flavor and fragrance products and investing in our capabilities, R&D and production to introduce innovative new flavor and modulation technologies.

Throughout our business operations in Japan, we are working to expand our market share and address product categories that are expected to grow in the future. The key to expanding our market share in Japan is the "Business Solutions Division", which oversees sales, R&D, and marketing. We are enhancing our proposal capabilities by leveraging inter-departmental collaboration. In areas where growth is expected, we are focusing on proposals for health and medical foods amid a backdrop of a declining birthrate and aging population, as well as addressing masking needs for household odors. Overall, we aim to contribute to a richer lifestyle through a wide range of technologies beyond just flavors and fragrances. Within the Japanese market, we also plan to strengthen our production capabilities by investing approximately 6 billion yen in our Fukaya plant (Fukaya City, Saitama Prefecture) by the end of the fiscal year ending September 2026, addressing aging infrastructure and promoting labor-saving measures.

Regarding our global business, the proportion of overseas sales has been increasing annually, despite rising uncertainties in the global economy. In addition to our expanded footprint in the U.S., we are actively investing in facilities in China, and Malaysia. In China, we plan to construct a new plant in Pinghu, Zhejiang Province, to meet the growing demand for beverage flavors, with operations expected to commence after December 2026. In Malaysia, to accommodate local demand expansion, we are planning to build a new plant in the Enstek Industrial Park, aiming for operations to start in December 2026.

Over the next year, we want to sharpen our competitive edge by becoming the fastest and most efficient flavor manufacturer in the market — bringing innovative new products to market quicker, accelerating our operational timelines and providing flavor solutions to our customers more quickly than ever before. Accomplishing this requires a culture of innovation and agility within our teams. We encourage creative problem-solving and cross-functional collaboration to keep our processes lean and our products cutting-edge. This agility helps us respond swiftly to market changes and customer needs, while improvements in our operational efficiency and delivery metrics help ensure that products reach our customers on time and in full – exceeding their expectations and earning their loyalty to T. Hasegawa.

Eternis Fine Chemicals Joins Together for Sustainability: A Milestone for Eternis, TfS and Indian Industry

Membership with TfS will help Eternis strengthen supplier engagement, enhance transparency and accelerate innovation.

SPONSORED BY eternis Enriching lives with care

Eternis Fine Chemicals has taken a bold step towards a greener future by joining **Together for Sustainability (TfS)**, a global initiative dedicated to advancing sustainability across the chemical industry. This marks a historic moment, as Eternis becomes the **first Indian company** to be part of this prestigious network, reinforcing its commitment to responsible business practices and environmental stewardship.



Together for Sustainability is a joint initiative of chemical companies focusesdon the promotion of sustainability practices in the chemical industry's supply chain.

A Commitment to Sustainable Growth

Eternis, a leading manufacturer of fragrance and flavor ingredients, has long championed sustainability through eco-friendly operations, responsible sourcing and innovative waste management. By joining TfS, Eternis strengthens its ability to drive positive change, leveraging the collective expertise of **57 global companies** united in the mission to create a more sustainable chemical supply chain.

How TfS Will Help Eternis Achieve Its Sustainability Goals

TfS provides a **structured framework** for assessing and improving sustainability performance across the supply chain. Through **collaborative audits, benchmarking and best practice sharing**, Eternis will gain valuable insights to support in delivering its goals of assessing 80% of its suppliers on sustainability metrics by 2028 and reducing its absolute scope 3 emissions by 37.5% by 2034.

Additionally, TfS membership will enable Eternis to:

- **Strengthen supplier engagement** by ensuring adherence to sustainability standards.
- **Enhance transparency** in environmental and social governance.
- **Accelerate innovation** in sustainable fragrance and flavor ingredient production.

Driving Change, Together

In an era of rising expectations around climate action and regulatory shifts, Eternis' inclusion in TfS underscores its **dedication to long-term resilience and responsible growth.** As the first Indian member, Eternis sets a precedent for other companies in the region, proving that sustainability is not just an aspiration—it's a business imperative.

With TfS, Eternis is not just adapting to change—it's leading it.

On joining TfS Wilfrid Gambade, CEO of Eternis said, "This is a proud and historical moment for Eternis to join TfS and become the first Indian company member in TfS. It means a lot for us and it reflects all the efforts deployed with our Sustainability agenda over the last decades. The journey is on and will accelerate with the support of TfS."

Image by CreativeSuburb at Adobe Stock

Takasago International Corp.

Tokyo, Japan

2024 Flavor Sales: ¥119,834 million



CEO Satoshi Masumura shared, "Our recent consumer pulse study, conducted by our Global Consumer Insights team across 18 countries, reveals that consumers are increasingly interested in food and beverage products containing natural ingredients."

Over the past year, Takasago has been paying attention to consumer behavior and preferences, using these insights to inform its R&D efforts. Their global consumer insights team has seen the demand for natural but flavorful foods, and the team responded with an expanded natural flavor technology portfolio. Company leaders outline how Takasago is adapting to global changes in diet, emerging technologies and what they believe is next on the flavor horizon.

Can you give a brief overview of some key highlights of milestones the company reached over the last 12 months?

In 2024, Takasago flavor business is showing steady growth globally in the first year of NGP-2 (Takasago New Global Management Plan), in spite of global resource uncertainty and the prolonged conflicts between nations in the Middle East and Ukraine/Russia. With global supply chain initiatives, the second site of GSAP implementation has been completed in the USA, and will move to Europe in 2025. We have also seen strong business expansion for Africa.

In addition, we have established the Asia Flavor Strategy department, deployed in Singapore, to enhance Asia-Focus strategy (as a key initiative for Global Flavor NGP-2) to organize collective strategies across the region.

How is your company adapting to global changes in dietary habits and flavor expectations?

Takasago is committed to staying ahead of changes in consumer behavior and preferences. Our recent consumer pulse study, conducted by our Global Consumer Insights team across 18 countries, reveals

Courtesy of Takasago

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

that consumers are increasingly interested in food and beverage products containing natural ingredients. They seek wholesome products that provide essential nutrients, such as protein, fiber, vitamins and minerals, while avoiding those high in calories, sugar, salt and fat. However, consumers are not willing to compromise on taste. Despite the health benefits of a product, it must taste good for consumers to purchase it.

These insights have been integrated into our Global Flavor R&D pipeline. We are expanding our natural flavor technology portfolio and establishing an innovation program aimed at enhancing the overall taste experience to meet consumer expectations.

How is artificial intelligence currently being implemented in your flavor creation and business operations?

Takasago has integrated Artificial Intelligence (AI) at various stages of our innovation program. At the front end, our Global Consumer Insights team utilizes cutting-edge AI technology to gain comprehensive consumer and market intelligence from big data sources worldwide, enabling us to stay ahead of consumer trends. Additionally, we leverage AI to uncover emerging flavors and flavor combinations that appeal to consumers across different regions. With the numerous new flavor ideas we discover, our goal is to integrate AI in the flavor creation process, selecting flavor combinations that create taste synergy based on their chemical compounds. We are also considering how we shall utilize AI technology for efficient process for the flavor creation and optimizing technology information to support the flavorists.

What key consumer trends do you believe will shape the future of flavor preferences and development?

Our Global Consumer Insights and Marketing team has identified seven key macro trends for 2025 and beyond. We believe these trends will shape the future of flavor preferences and development. Among the trends that are in the spotlight, two stand out: "My Body, My Needs" and "Inner Balance." These trends reflect the growing consumer focus on using food to enhance both physical and emotional wellbeing. Takasago has conducted in-depth consumer research to better understand flavor expectations in the wellness area, helping to guide the future of flavor innovation.

The other trend which continues to grow is "Planet Positive". Consumers are becoming more concerned about climate change impacts and are starting to take actions toward sustainability. This is another area where Takasago has invested in flavor technology to address future scenarios when natural materials and ingredients become scarce or unavailable due to climate changes.



Satoshi Masumura, president and chief executive officer, Takasago

In response to these trends, we keep developing our products and new solutions in flavor technology, ensuring that they support both the wellbeing of individuals and the planet in accordance with our Vision 2040: Care for People, Respect the Environment.

IFF

New York, New York

2024 Sales: $11.5 billion



IFF is committed to staying ahead of the curve in response to evolving global dietary habits and flavor expectations.

As consumer demand continue to evolve when it comes to taste and flavor, IFF's Taste division is adapting with them. The company has invested in innovative technologies, such as sensory science and artificial intelligence to stay on the forefront of the flavor industry. President of the taste division and chief commercial officer Yuvraj Arora outlines key highlights from IFF's flavor side over the past year and how they are using sensory science to improve the overall taste experience for consumers.

Can you share your key company highlights for the last 12 months?

The past year has been an exciting journey for IFF, as we've taken significant strides in enhancing our ability to drive innovation for our customers. Our new co-creation center in Wageningen, located in the renowned Food Valley of the Netherlands, is already making waves by enabling the development of new flavors for culinary and sweet applications. On the other side of the world, we proudly inaugurated the state-of-the-art Shanghai Creative Center, setting new benchmarks for innovation in Asia.

We have also leveraged our expertise in consumer research to identify emerging opportunities, tapping into valuable insights through social listening and text analytics. For example, we examined evolving consumer perceptions around weight management and anti-obesity medications. These insights have inspired us to develop solutions that address the rising demand for nutrient-rich and delicious options for people at various stages of their weight management journey.

Our commitment to cutting-edge technology remains central to our growth. We've invigorated our flagship innovation programs, RE-IMAGINE and RE-MASTER. Through initiatives like RE-IMAGINE WELLNESS, we're paving the way for a healthier future with innovative solutions such as flavor modulation in high-protein products. It's been great to see some of our innovative solutions getting industry recognition. For instance, IFF NEO, our range of natural flavors that deliver authentic citrus taste without citrus oil, received the prestigious Best Non-functional Ingredient of the Decade award at Gulfood Manufacturing.

Courtesy of IFF

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

Sustainability continues to be at the heart of our operations. We've made progress on our Net Zero roadmap, reinforcing our commitment to sourcing 100% of our electricity from renewable sources by 2030. This milestone is a testament to our mission of doing more good while creating business value.

It's been a remarkable year, and we're energized to continue shaping the future of food and beverage together.

How is your company adapting to global changes in dietary habits and flavor expectations?

IFF is committed to staying ahead of the curve in response to evolving global dietary habits and flavor expectations. Our approach is multifaceted, drawing on our consumer insights and deep category expertise to meet the diverse needs of today's consumers.

At the heart of this is our IFF Panoptic Framework, a sophisticated tool designed to organize trend intelligence in a comprehensive and actionable way. It identifies long-term macro trends, lifestyle trends, and global sensorial trends, and explores how they play out locally across different categories. Paired with our collection of AI-powered digital tools, it allows us to anticipate global shifts in consumer behavior and adapt proactively to changing consumer needs.

Some examples include our work in the adult beverage category as more consumers are choosing to decrease their alcohol consumption, helping our customers in the U.S. create for a multicultural demographic, and crafting more sensorial and adventurous flavor profiles for consumers looking for new taste experiences in snacks.

What recent innovations in taste and mouthfeel technology are driving the industry forward?

In today's dynamic market landscape, consumers' tastes and preferences are constantly evolving. FLAVORFIT, fit for every taste, transforms these challenges through innovative taste and mouthfeel technology, serving as a bridge between health-conscious consumers and their desire for satisfying taste experiences. These modulation technologies help manufacturers create healthier products with natural flavors. For example, the suite of high-impact top notes and consumer-preferred tonalities improves perceptions of sweetness and saltiness, enhances mouthfeel, and masks undesirable off-notes such as bitterness or astringency in high-protein products. It can also bring juiciness and freshness to applications such as healthier protein bars and aid dryness reduction.



Yuvraj Arora, chief operating officer, president, Taste

What sets our approach apart is the ability to deliver holistic taste transformation. By combining advanced taste modulation capabilities with deep market insights, we're helping manufacturers anticipate and shape future taste experiences. This forward-thinking approach ensures our partners stay ahead of evolving consumer preferences.

How is your company utilizing advancements in sensory science to improve flavor and texture experiences?

[YA]: For several decades, the only way to understand consumer perception and preferences was to ask consumers directly. However, advancements in neuroscience and data are revolutionizing sensory science. Through our Beyond Hedonics program, IFF has been leading the way in this transformation.

We use cutting-edge physiological and brain scanning techniques, supported with proprietary models to interpret the signals they provide, and leverage significant datasets to guide flavor creation. Unlike traditional neuromarketing, which often focuses on storytelling without delivering actionable insights, our approach is deeply rooted in science. By analyzing actual brain activity, we can uncover the potential emotional or cognitive benefits that food and beverage products provide. This innovative method enables us to craft flavors that go beyond taste, delivering one-of-a-kind experiences to consumers.

What do you see as the primary obstacles in formulating products that meet consumers' desires for reduced sugar, salt, or fat without compromising taste?

Humans are hard-wired to crave sugar, salt, and fat, but we now live in a world of abundance, where consumers are trying to moderate their sugar, salt, and fat intake. The primary challenge is that sugar, salt, and fat not only possess distinct tastes but also act as taste enhancers. They also generate a specific mouthfeel that's often lacking from reduced sugar, salt, and fat products. IFF's unrivaled modulation capabilities can help overcome these challenges. Perfect for sodium and sugar reduction, they offer the potential to create unique sensory experiences and fine-tune flavors and textures to deliver delicious better-for-you options.

In some cases, replicating the complete taste experience of original sugar, salt, and fat content may not be achievable. However, we can help manufacturers design new products that don't attempt to mimic the full sugar, salt, and fat versions but still deliver on consumer expectations in terms of taste, indulgence, wellness, and authenticity. Achieving this is only possible when supported by in-depth consumer insights and our proprietary approach, IFF Magic Moments, which helps identify the key sensory features consumers truly value.

How is artificial intelligence currently being implemented in your flavor creation and business operations?

Artificial intelligence (AI) is revolutionizing the way we deliver value to our customers by driving innovation at every stage—from ideation to product delivery. Across our business, AI supports us in gathering consumer insights, developing new flavors and products, and optimizing manufacturing processes.

When it comes to taste, AI helps identify flavor and sensory properties, predict consumer preferences for untested products, and leverage our vast knowledge base. Additionally, AI empowers us to anticipate emerging consumer trends, enhance product-concept development, and streamline processes like compliance, sustainability checks, and error detection. This allows us to stay ahead of the curve while delivering precision and excellence across all aspects.

Can you share any success stories where AI has enhanced your approach to formulation, trend prediction, or consumer insight?

While we've made significant progress, it's exciting to acknowledge that we're only beginning to unlock the vast potential of AI. Recently, generative AI has proven to be a powerful tool for white-space identification, enhancing our co-creation process and bringing our consumer understanding to life through various creative expressions, including persona development and data storytelling.

AI also plays a significant role in our flavor evaluation process by expanding both the quantity and quality of data used. It helps us streamline formulas, making them more accessible while preserving their essential qualities, and breaks down formula creation into modular components for quicker development. In 2025, we plan to further leverage AI across formulation, trend prediction, concept creation, and consumer insights, unlocking more of its transformative potential.

What are some of the current obstacles the flavor industry is facing in terms of sourcing? We've seen an influx in citrus oil replacers as well as cocoa, can you share how the market is adjusting to these technologies?

Climate change, economic shifts, and geopolitical tensions are creating a perpetual state of raw-material unpredictability. To navigate this complex landscape, we've developed IFF CURE, a package of Core and Uncommon Replacements and Extenders. Our portfolio is engineered to transform disruptions into opportunities. IFF CURE provides consistent quality and supply stability, eliminating uncertainties tied to fluctuating prices. Each solution can be customized to meet specific recipe needs, considering end-use, market demands, and regional preferences and regulations.

In the citrus category, IFF CURE enables customers to offset challenges from disease and crop shortages, achieving an identical citrus taste with sustainable flavor ingredients sourced from natural-alternative channels and bio-derived technology.

For cocoa, our flavor extenders and replacements enable up to 30% cocoa reduction while maintaining or enhancing the overall flavor profile. Similarly, in dairy applications, IFF CURE facilitates the substitution of milk protein or dairy fat. For snack and premix seasonings, our tomato powder extenders allow for up to 30% replacement without compromising taste, ensuring innovative and cost-effective solutions across a wide range of applications.

p&f+

perfumer & flavorist®

The Resource for Sensory & Wellness Innovation

Tune In!



Perfumer & Flavorist+

Multimedia

www.perfumerflavorist.com/multimedia



Our United States-based panel analyzed flavor ingredients such as 2-phenoxyethanol, Galangal root oil and 4-ethyloctanal.



BY CYNDIE LIPKA
Principal flavorist,
Bell Flavors and Fragrances

Flavor Reports: US Edition

Our United States-based panel analyzed flavor ingredients such as 2-phenoxyethanol, Galangal root oil and 4-ethyloctanal.

(+/-)-6-Methoxy-2,6-dimethylheptanal

Source: Bedoukian
FEMA #4745, CAS #62439-41-2
Not naturally occurring.
Odor 1%: Sweet, light, floral, pulpy, green, fruity, rindy, honeydew, fresh, crisp, watermelon bubble gum, fatty soapy.
Taste @ 1 ppm: Light, floral, pulpy, green, cucumber skin, fatty, waxy, soapy.
Taste @ 3 ppm: Green, floral, pulpy, fresh, waxy, rindy, watery, candy watermelon.
Possible Applications: This aldehyde goes by so many different names. The FEMA GRAS one, the shortened version of methoxymelonal and Bedoukian's trade name for it: Aquaflor. All of those sort of conjure up profiles which really fit with the descriptors and subsequent profiles the panel chose. We can see this in all the melons, especially honeydew and watermelon. Other fruit profiles include dragonfruit, kiwi, raspberry, apricot, pear, apple, peach, nectarine. The green floral finish would help cilantro, bell pepper, jalapeno, and pickles and soften up the harshness of bell peppers and green chilis. It also might be a nice touch for floral profiles such as rose and citronella.

Image by Daniel at Adobe Stock

Reproduction in English or any other language of all or part of this article is strictly prohibited. © 2025 Allured Business Media.

ε-Decalactone

Source: Millipore Sigma
FEMA #3613, CAS #5579-78-2
Not naturally occurring.
Odor @ 1%: Sweet, coumarinic, creamy, vanillic, slightly caraway, dill, celery, cardboard, lovage, brown, waxy, nutty, slight coconut, butter, slightly burnt caramel, smokey.
Taste @ 1 ppm: Creamy, green, dill, slight mouthfeel, coconut, mild, powdery, waxy, celery, brown earthy.
Taste @ 3 ppm: Creamy, mouth-coating, goat's milk, waxy, celery, brown, dried leaves, butter, creamy, slightly dairy, mint, sweet, coconut, cheesy, peach fuzz finish.
Possible Applications: This is an unusual lactone with a 7-membered ring, and the panel fell into different camps here. There was the creamy, coconut, dairy, cheesy group with suggestions of caramel, maple, cooked milk, butter, peanut butter, goat's milk and cheese, marshmallow, crème brulee and tiramisu, toasted coconut and tropical profiles. But then there was the more savory direction with thoughts of celery, dill, caraway seeds and bread, spice blends, chicken and beef. All agreed this would be a fine addition to mouthfeel flavors.

2-Phenoxyethanol

Source: Vigon
FEMA #4620, CAS #122-99-6
Naturally occurring in: Apple, avocado, cocoa, mango, pea, rice, tea.
Odor @ neat: Rich floral, dark berry, heavy, fatty, green, powdery, vanillic, mild, cinnamic, phenolic, smokey, balsamic.
Taste @ 0.5 ppm: Low, light floral, sweet, powdery, rose, cinnamic.
Taste @ 1 ppm: Mild floral, creamy, dairy, bitter, soapy, cinnamic, vanillic, powdery, waxy.
Possible Applications: Vigon refers to this as Rose ether and there is some directional floral aspect to this ingredient. There were some light floral notes which reminded me of actual blossoms – so think orange blossom, or cherry blossom, or a pansy profile or jasmine tea. Fruit profiles mentioned included grape, dark berry blends and black cherry, raspberry, apricot, blueberry and blackberry. Other profiles mentioned were pickle, cucumber and balsamic. Sort of late in the profile is that cinnamic aspect for use in profiles where you want to have cinnamon spice notes. Think of things like cinnamon rolls, apple spice blends or pie, chai, mulled wine, horchata, spiced whiskey and gingerbread.

Hydroxy-(4-hydroxy-3-methoxyphenyl) acetic acid

Source: Millipore Sigma
FEMA #4660, CAS #55-10-7
Not naturally occurring.
Odor @ neat: Vanillic, woody, smokey, phenolic, sweet, brown, earthy, cocoa, bourbon vanilla, creamy.
Taste @ 5 ppm: Brown, vanilla, smokey, harsh after-taste, mild vanilla, cardboard, sweet, weak.
Taste @ 10 ppm: Weak, sweet, dark coffee, brown smokey, delayed vanilla impact.
Possible Applications: Another name for this mouthful is vanilmendalic acid. What a cool name. It is a low impact material. Certainly there are some vanillic aspects to this but also coffee and chocolate notes as well. In addition to those sweet brown profiles, the panel thought of marshmallow, caramel, toffee, dulce de leche, milk tea, root beer and smoke profiles. A few panelists found this to have a trigeminal effect. You can almost feel like you know what this will be like before even tasting it!

Galangal root oil

Source: Berjé
FEMA #32500, CAS #8024-40-6
Odor @ 1%: Earthy, dusty, brown, spicy, rooty, ginger, fruity, herbal, citrus, sweet, floral, green, black pepper, fresh, basil, animalic.
Taste @ 0.1 ppm: Earthy, rooty, dusty, brown, green, herbal, ginger, heat, black pepper, cardamom, trigeminal bite, sweet, terpenic, spicy, camphoraceous.
Taste @ 0.2 ppm: Earthy, rooty, dusty, brown, cinnamic, ginger, nutmeg, black pepper, terpenic, fresh, cardamom, basil.
Possible Applications: Lots of spices were mentioned above so those all would get lumped in this part: black pepper, ginger, cardamom, cinnamic, nutmeg/mace,



2-phenoxyethanol reminded the panel of cherry blossoms.

Image by ksena32 at Adobe Stock

Szechuan pepper, curry, turmeric and really anything needing fresh terpenic notes. And then think of all the blends which would use those things such as cola, chai and of course pizza spice blends. The earthiness would fit into root vegetables such as turnips, parsnips, carrots, radish and maybe a sweet potato. It doesn't end there because we thought of blueberry and blackberry. There was some dissent on adding to ginger, as some panelists love ginger and didn't want to muddy it up. I think it is worth a shot to try at least. And the one that made us all hungry: Tom Yum Soup!



The panel discussed using γ-jasmolactone in cream cheese, cottage cheese, butter, milk and ice cream applications.

γ-Jasmolactone

Source: Bedoukian
FEMA #4439, CAS #67114-38-9
Not naturally occurring.

Odor @ 1%: Creamy, dairy, buttery, oily, sweet, fruity, peach, heavy, coconut, apricot.

Taste @ 0.2 ppm: Lactonic, waxy, slightly floral, buttery, slightly fruity, peach.

Taste @ 0.5 ppm: Peach fuzz, creamy, juicy, buttery, dairy, fruity, apricot.

Possible Applications: Like some other lactones, we can slide this one into fruity and dairy camps. Peach, apricot, mango, raisin, papaya, fig, plum, strawberry and nectarine would all benefit from this. For dairy, we thought of cream cheese, cottage cheese, butter, milk and ice cream. Now, who doesn't love that?

6-Methyl-5-hepten-2-one-propylene glycol acetal

Source: Endeavour/Treatt
FEMA #4400, CAS#68258-95-7

Odor @ 1%: Very floral, citral, plastic, green, fresh, citronella, watermelon rind, herbal, citrus, slightly woody, slightly anise-like.

Taste @ 0.2 ppm: Weak, green, floral, citrus, slightly woody finish.

Taste @ 0.5 ppm: Fruity, tropical, skin notes, slightly woody, floral, green, citrus, watermelon, rindy.

Possible Applications: Almost all comments centered around fruit and fruity profiles. I thought this might be very useful in tropical profiles such as mango, papaya, passionfruit and guava. Others thought this would be fun in watermelon, fruit punch and orange and other citrus profiles. We also thought of bell pepper and tomato. A sort of curve-ball thought I had was honey.

4-Ethyloctanal

Source: Endeavour/Treatt
FEMA #4117, CAS #58475-04-0

Odor @ 1%: Animal fat, waxy, green fresh, vegetative, slightly rancid, gamey, dairy, fatty, herbal, plastic, lactonic, lamb, citrus, fruity.

Taste @ 0.1 ppm: Fatty, waxy, animalic, slightly fruity, mouthfeel, fatty, cheesy-aftertaste, green, rancid, very heavy / backend.

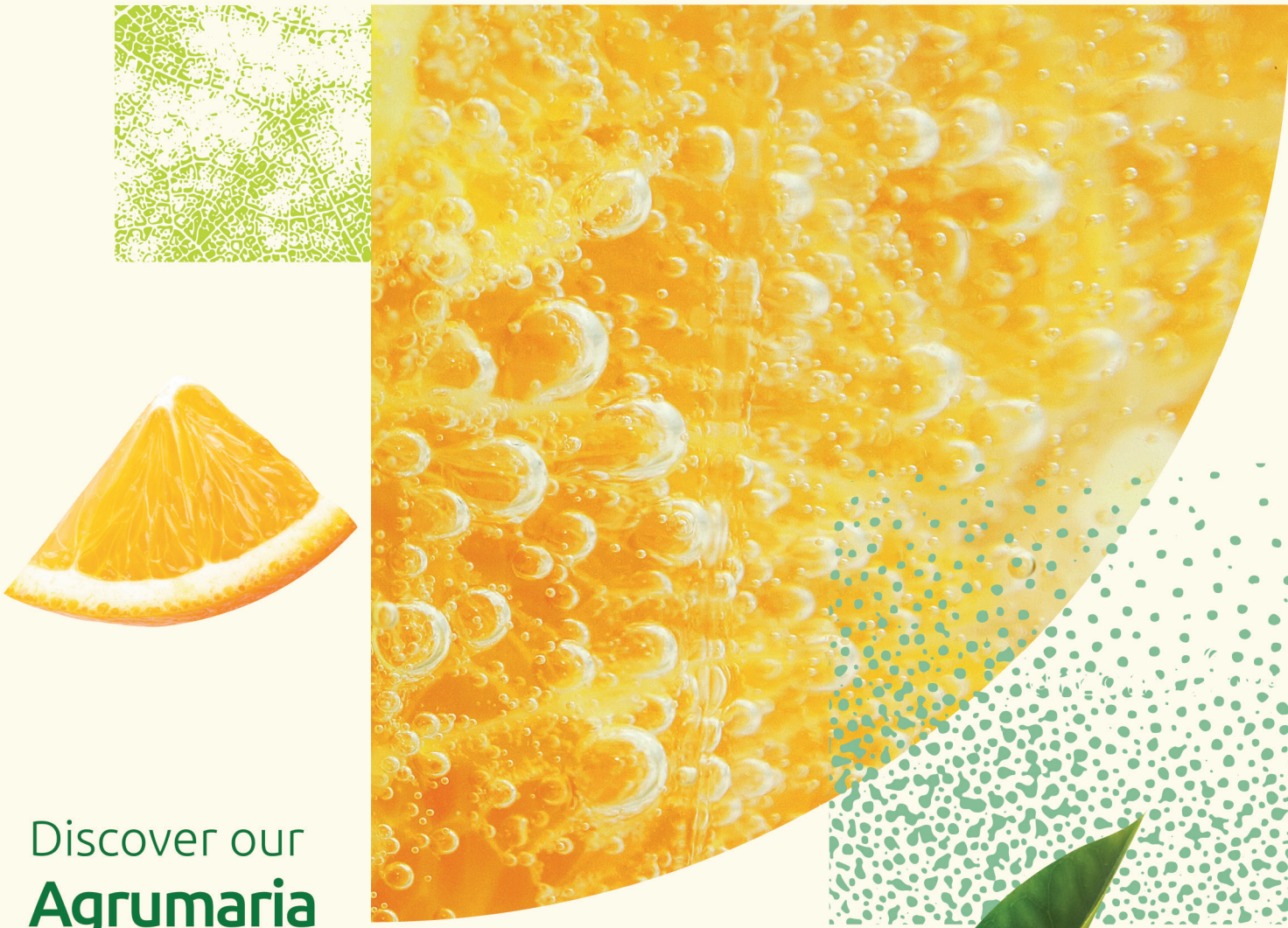
Taste @ 0.2 ppm: Fatty, waxy, animalic, mouthcoating, green earthy, mushroom gamey, creamy, butter, heavy, umami aftertaste, fatty, lactonic, dairy.

Possible Applications: Well, we sure see where this is heading don't we? First, we want to cover all the animalic fatty aspects such as tallow, lard and butter. And then we want to mention goat, lamb, mutton, beef, chicken, pork and game. This is a relative of 4-ethyloctanoic acid so none of that is surprising. But the panel also felt that this could be a great addition to dairy profiles including butter and cheeses such as American, aged cheddar, goat cheese, Manchego and Feta. There are some citrus aspects to this aldehyde which would provide lift to fatty profiles, but I would not think this would be as helpful to citrus flavors as some other options. This is, however, a great option for mouthfeel and products which are reduced-fat. I think it would be most effective in strong profiles (coffee/chocolate/maple and many others) where the animalic notes would be hidden.

p&f+

Image by pilipphoto at Adobe Stock

Agrumaria Reggina



Discover our

Agrumaria Natural Platform

Experience the essence of vitality with our **Citrus Spark**. As your trusted partner for citrus-based ingredients, we specialize in providing clean label solutions, such as our citrus extracts, 100% FTNF specifically crafted to enhance your Flavors and Fragrance creations.

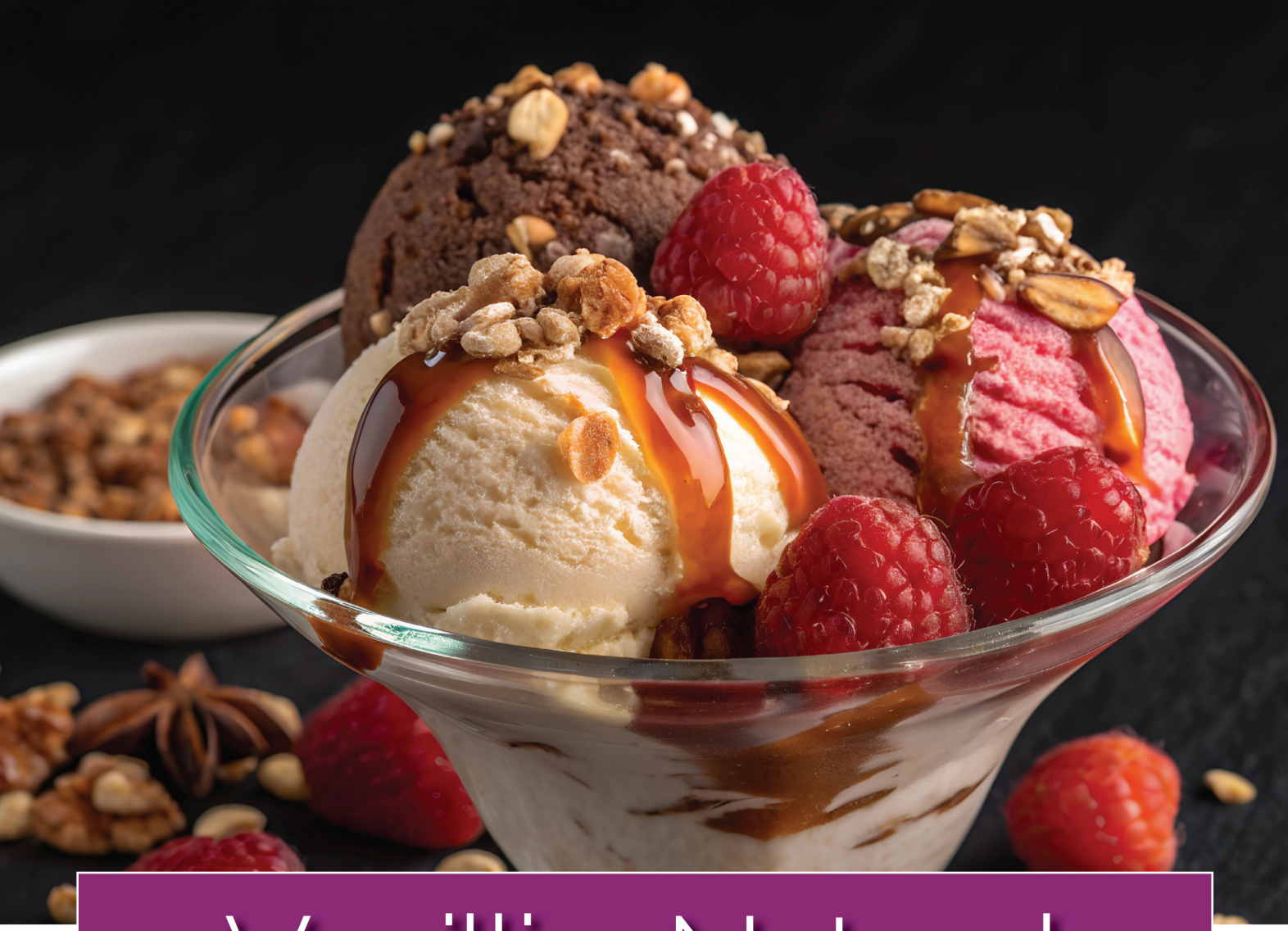
Embrace the authenticity of nature with our responsible and sustainable sourcing.

Discover citrus world at
agrumariareggina.it/ourcitrus

AD INDEX

Advertiser	Web site	Page
ADM	*www.wildflavors.com*	11
Agrumaria Reggina	*www.agrumariareggina.it*	47
Aurochemicals	*www.aurochemicals.com*	C3
Avant Organics	*www.avantorganics.com*	7
Axxence	*www.axxence.de/en*	19
Berjé, Inc.	*www.berjeinc.com*	C2
Eternis	*www.eternis.com*	41
Gourmet Ingredients B.V.	*www.gourmet-ingredients.nl*	9
John Wright	*www.johnrwright.com*	15
Mane	*www.mane.com*	28–29
MG International Fragrance Company	*www.mgessentialingredients.com*	5
Penta Manufacturing Co.	*www.pentamfg.com*	C4
Sensient	*www.sensient-tech.com*	33
Symrise	*www.symrise.com*	1
Vigon International, Inc.	*www.vigon.com*	3





Vanillin, Natural

One product. Endless possibilities.

With its smooth notes and creamy texture, it's no surprise that Vanillin, Natural can be found in hundreds of flavor and fragrance combinations. But endless possibilities need a supply to match.

At Aurochemicals, Vanillin, Natural is at the top of our list. We're stocked so you'll never have to delay your production.

All natural - 99% pure.

aurochemicals.com | 1-866-875-AURO

auro CHEMICALS

The Natural Choice for Flavor and Fragrance Ingredients

Developing Better Products through Natural Chemistry

The Allure of a Successful Fragrance

Evolves from the Quality of its Ingredients

Penta.....your Evolution to Success.....



Penta®

Penta Fine Ingredients, Inc.

4 Dedrick Place
West Caldwell, NJ 07006
Phone: (973) 740-2300 ▪ Fax: (973) 740-1839
E-Mail: sales@pentafineingredients.com
Web: www.pentafineingredients.com

USDA FEMA 100 A Century of Great Taste MEMBER FDA U.S.Food and Drug Administration APPROVED CERTIFIED HALAL