

NOVEMBER 2025

Features

- DEMYSTIFYING SOUTH AFRICAN MEAT PRODUCTS VS REGULATIONS 6
- ALLERGEN TEST RESULTS: WHAT THE NUMBERS MEAN FOR FOOD SAFETY 10
- SMART SOLUTIONS FOR DIABETES 12
- POSTGRADUATE SHOWCASE 17
- SMARTER TOGETHER 19

South African Food Science and Technology

VOLUME 14 NUMBER 3

fst

magazine



AECI FOOD & BEVERAGE

Food & Beverage



**WE HAVE A BASKET
OF SPECIALTY
INGREDIENTS AND
BESPOKE BEVERAGE
SOLUTIONS TO SUIT
YOUR NEEDS**

CONTACT US TODAY:

Beverage:

Ron Richardson
ron.richardson@aeciworld.com
+27 72 667 1029

Food Ingredients:

Monique Barnard
monique.barnard@aeciworld.com
+27 72 587 5052



 **AECI**[®]

FOOD & BEVERAGE



message from the **SAAFoST** president

Dear Members

It's with sincere appreciation and humility that I submit my first SAAFoST president's message to *FST* magazine. As alluded to during my acceptance speech, we are entering a challenging, but also exciting, era during which food production stakeholders across the farm to fork continuum will be impacted by so-called global megatrends, which include, amongst others, geopolitical developments and globalisation, climate change, the circular and green economy, artificial intelligence and digitisation, remote engagement and the changing world-of-work, next-gen and transdisciplinary competencies. Add to these directives such as the sustainable development goals, the African Union's Agenda 2063 and, closer to home, the national development goals and further regional and socio-economic targets, and things may appear quite daunting.



Enter the recent SAAFoST 2025 Congress and Exhibition, from 25–27 August 2025, at CSIR ICC in Pretoria, and with a sigh of relief one got a feeling of: "WE'VE GOT THIS!". The numbers of delegates attending, high-level visitors from the continent and beyond, industry representation and engagement, high-level academic and innovative presentations and discussions, and vibrant youth and student engagements confirmed a scenario of not only sustaining the status quo, but improving and advancing. The congress theme of: "*Unlocking Potential: Integrating Science and Innovation for a Brighter Food Future*" has diligently responded to these developments and challenges.

Well done to the local organising committee (LOC) for an excellent event (particularly their crazy scientist attire at the gala dinner!), and to all delegates and exhibitors taking the time to attend and engage. Well done also, and sincere appreciation, to the immediate-past president Prof. Riette de Kock and the association's leadership, the branch and foundation office-bearers, task team members, representatives and advisory committees of the previous term for steering the SAAFoST ship safely. Congratulations, also, to all delegates and attendees awarded various honorary, academic, innovation and presentation awards and related recognition. Last but not least, well done to the association staff (Ingrid, Irene and Tsetse) for their efforts, commitment and loyalty, and to Tricia for her dedication to *FST* magazine.

Looking ahead, we will aim to build on SAAFoST's invaluable reputation of bringing together and empowering its members and stakeholders towards sustaining and enhancing the broader food sector, eloquently defined in Prof. Riette's last message: "*To bring along our vision of a brighter food future for the people of our country*". Some of our short-term considerations will include further streamlining standard operating procedures and processes, broadening income streams and collaboration, further expanding the membership base, revisiting our value proposition and, ultimately, ensuring vibrant and committed teams to lead the various initiatives. Indeed – culture eats strategy for breakfast!

Best wishes
Ryk Lues

CREDITS

SAAFoST PRESIDENT	Professor Ryk Lues
EDITORIAL	Editor Tricia Fitchet Email trifit31@gmail.com
ADMINISTRATION	Kathy Cassells
PROOFING	Proofreader Angela Voges
DESIGN	Graphic Designer Robyn Rochat
ADVISORY COMMITTEE	Professor Oluwafemi Adebo University of Johannesburg Professor Ryk Lues Central University of Technology (CUT) Ms Denise Metcalfe University of Johannesburg (retired) Professor Gunnar Sigge Stellenbosch University Mr Nigel Sunley Private Consultant Professor Jessy van Wyk Cape Peninsula University of Technology Dr Paul Williams Stellenbosch University

PUBLISHER SAAFoST
fst
Address Building 4 W, CSIR, Meiring Naudé Rd, Brummeria, Pretoria
Email ceo@saafost.org.za
Cell 073 339 0870
Website www.saafost.org.za



SAAFoST's official magazine
Published triannually
(April, July and November)

MEMBERSHIP DEVELOPMENT OFFICER Irene Burke
Email irene@saafost.org.za
Phone 071 870 2633



FACEBOOK SAAFoST



X @SAAFoSTofficial



INSTAGRAM saafost



LINKEDIN SAAFoST: South African Association for Food Science and Technology
www.linkedin.com/groups/5021507/

ISSN 2959-4642 (online)

E & OE All information correct at time of going to print.

2025 & 2026

events calendar

Although the items below are the original planned dates for events, the possibility exists that things might have changed, so please check before you book.

17–19 November 2025

39th EFFoST International Conference 2025

Fostering the Transition to Sustainable Food Systems: Embracing Novelty and Overcoming Challenges

Achieving food systems transformation is essential to safeguard both human and planetary health. Addressing this challenge demands innovative solutions and collaboration across the food sector. EFFoST2025 brings together experts to explore novel food sources, greener processing and packaging technologies, and the digital transformation of food systems.

Porto, Portugal
www.effost.org



2–4 December 2025

Food Ingredients Europe

A world of taste and opportunity

In 2025, Fi Europe returns to Paris for its 30th edition – a special milestone celebrating the incredible journey of an industry that has shaped the future of food. Whether you're a long-time attendee or new to the community, don't miss out!

Paris Expo, Porte de Versailles
www.figlobal.com/europe/en/home.html



1–4 February 2026

ProSweets Cologne 2026

This is where the suppliers and decision-makers of the snacks industry meet up

ProSweets Cologne addresses the international suppliers and decision-makers of the snacks and sweets industry. We offer the suppliers of packaging, machines and plants for snacks and sweets as well as service providers from secondary sections exhibition space. Whether resource-saving packaging for crisps or intelligent cooling and air-conditioning technology for ice cream, the entire spectrum of the industry is revealed at the supplier trade fair.

Cologne, Germany
www.prosweets.com



5–7 May 2026

Vitafoods Europe 2026

Vitafoods Europe has been bringing the global nutraceutical community together every year to connect and do business since 1997. It offers the perfect platform for businesses to thrive and forge long-term collaborations, enrich their understanding and initiate critical conversations about the most pressing issues concerning the health and nutrition industry.

Barcelona, Spain
www.vitafoods.eu.com



contents

articles

06

Demystifying South African meat products vs regulations

Consult Codex documents in every step

10

Allergen test results: What the numbers mean for food safety

How much is too much?

12

Smart solutions for diabetes

Smart ingredient choices matter more than ever

14

The importance of contributing to standards in the oil industry

Why testing your oil sample helps shape global standards

19

Smarter together

Open innovation is rewriting the food industry's R&D playbook



Envato/microgen

regulars

03

Message from the SAAFoST president

04

Events calendar

05

Note from the editor

09

Q&A

With Professor Ryk Lues

17

Postgraduate showcase

*Smoothing dark chocolate
 NIR spectroscopy sheds light on particle reduction in the melanger*



Envato/Rawpixel

25

MySAAFoST

MySAAFoST mentorship journey

26

On the bookshelf

Book reviews and an e-book giveaway



Envato/Image-Source

Please note that the views of the authors are not the views of the publication. Articles are not reviewed by the editorial team. All queries should be directed to the authors.



note from the editor

email trifit31@gmail.com

Dear readers

As 2025 comes to an end, *FST* completes 14 years of publication. We have some scintillating features in this issue we hope you will enjoy and that they will increase knowledge.

Demystifying South African meat products vs regulations is an article that looks at the definition of meats and, amongst other things, advises the consultation of Codex documents.

Allergen test results: What the numbers mean for food safety shows that an allergen test result is a conversation, not a conclusion. And as with any important conversation, you need to know how to listen, interpret and respond.

November marks World Diabetes Awareness Month and our author spotlights new developments that aid in managing and potentially reducing the risks associated with diabetes.

Professor Ryk Lues, SAAFoST's new president, writes about the recent Congress in his Message from the president and tackles the Q&A section in this issue. Learn more about him by reading those pieces.

The article selected from the IFT's *Food Technology* magazine deals with open innovation. Many organisations are now engaging in this practice. This unique approach to innovation can help organisations "unlock ideas and partnerships that [they] may not have even known [they] needed".

"Open innovation allows you to bring in new perspectives, technologies, and skill sets ... and speeds everything up."

SAAFoST's relationship with the IFT is a strong one, made even stronger by the fact that Professor Gunnar Sigge at Stellenbosch University is now President-Elect of the institute.



E-book giveaway in each issue

Our book reviews emphasise the shift to e-books and are topical with one e-book freely given away to a reader each time we publish. All you need to do is to send me an email with your first name, surname and company name with the email subject heading to read the issue month and the words "e-book giveaway".

Social media

Tsetse Baloyi, SAAFoST's Communications Officer, deals with social media, amongst other things. His feedback for members:



"Thank you for staying connected! We're grateful for your continued engagement with SAAFoST – whether through our MyGlue membership platform or on social media via Facebook, LinkedIn, X and Instagram. Your support helps us cultivate a vibrant community of food science and technology professionals, students, industry leaders and enthusiasts across southern Africa.

Let's keep the energy alive! Follow us, join the conversation, and stay informed about upcoming events, industry news and exciting developments."

SAAFoST's bursaries

SAAFoST, through its Foundation, offers prestigious bursaries to eligible students pursuing studies in food science and technology. Irene Burke, SAAFoST's Membership Officer, manages them and they include the **Brian**



Koeppen Memorial

Scholarship, the **Aubrey Parsons Study Grant**, the **Pieter van Twisk Academic Achievement Award**, the **Matric Bursary** and the **Undergraduate Bursary**. The awards aim to promote academic excellence and support the growth of the food industry. For more information, visit SAAFoST's official bursary page <https://www.saafofost.org.za/mysaafofost/bursaries/>

Best wishes
Tricia Fitchet

Demystifying South African meat products vs regulations

By Dr Francois Mellett



Francois is a monogastric nutritionist and meat scientist (Stellenbosch University), a qualified food technologist (University of Hohenheim, Stuttgart), and a trained meat artisan (Butcher School Augsburg) with a lifelong career in international food product formulation and industrial processing. He currently serves as a consultant to Synercore, focusing exclusively on Codex-compliant protein food product development.



Credit: Dr Francois Mellett

Consider the validity of the following statements:

- Water can only become wine via the roots of the vine.
- Soya can only become meat via the digestive tract of animals.
- Foods and additives are clearly described in Codex CXS 192, known as GSFA (General Standard for Food Additives).
- Food labelling is described in nine pages in Codex.
- QUID (quantitative ingredients declarations) are described in Codex.
- Anyone may prepare any food by a combination of foods and permitted additives for those foods (i.e. chilli pepper steak and kidney meat pie).
- Foods contain nutrients.

Given the above, do we need anything else to prescribe what meat products are on a specific patch of land? When considering R1283, R2410, SANS1675 and various lengthy chapters on food labelling, this is apparently the case.

In all the above documents the “definitions” of meat differ. How is that possible, and how must the consumer remember all of this? English dictionaries define meat as “the flesh of animals used as food”. Mammals produce milk, poultry produce eggs, sheep produce wool, plants produce various proteins depending on the plant species. All the above are sources of proteins. If it is safe, edible and digestible, it is food.

But are they equal, or as the RSA regulations state, equivalent? Some sources of proteins can sustain life,

while others may contain the wrong ratio of amino acids to sustain life. Imagine a banana equivalent made from apples – it is not possible to match the appearance, taste and particularly not the nutrients to the finest detail. As such, this may be an imitation banana made from apples and a whole lot of additives, time and effort.

Meat equivalents also do not exist. Imitation meat products, or to be more moderate, products resembling meat products, or a composite food product made from animal and/or plant sources, are perfectly acceptable as long as the consumers are informed about the Codex rules (i.e. QUID) and the nutrients are prominently displayed.



Envato/DC_Studio



Leaders in Food Research and Development

Innovative Research Solutions, a division of Synercore, is your trusted partner in specialised research, development, and tailored analytical testing for the food- and related industries. Our team of highly skilled scientists provide services and solutions through a science-based approach. We continue to focus on fundamental research and translate the findings into commercial solutions to meet the market's needs and trends. As a trusted partner, we aim to understand the needs of our customers, to ensure that we deliver to their expectation.

ADVANCING
SCIENCE,
EMPOWERING
INNOVATION

OUR EXPERTISE



ANALYTICAL TESTING

Precise and reliable non-routine testing and reporting services, supporting root cause analysis, quality, and compliance.



METHOD DEVELOPMENT

Laboratory method development to support industry.



FUNDAMENTAL RESEARCH

Strategic research projects aligned with commercial opportunities.



CONSULTATION

Expert guidance in trouble shooting and problem solving.



TRAINING AND EDUCATION

Building expertise through industry-focused training and education.

The GSFA contains one Afrikaans word: “Boerewors”, under the heading “Fresh meat, poultry and game, comminuted”. We don’t need to add words to this. We are left with minimal tasks:

- Force a composite food product into a category? No.
- Set the minimum required nutrient content of meat and imitation meat products? Yes.

Avoid misleading the consumer. Prominently declare QUID ingredients and nutrients. Note the two distinct words: Nutrients and Ingredients.

Consider the two nutrients: proteins and fats. In all the quoted RSA documents you will find the words “derived from animals or plants” when it relates to fats, and to some extent when it relates to proteins. It is commonly known that milk protein and milk fats sustain growth and development of newly born mammals, which includes humans. It is also common knowledge that liquid egg white and yolk develops into flesh, blood and bone within a matter of weeks in birds, including poultry. It is further known that milk and egg proteins have the highest biological values and PDCAAS (protein digestibility corrected amino acid score) ratings. Neither of these measurements come without criticism, but they are useful tools for estimating the available amino acids required to maintain a healthy body. Yet our regulations claim that all proteins are “equivalent”, and that is based on a nitrogen analysis alone, ignoring amino acids, which resulted in fraudulent melamine addition in infant formulas. Furthermore, one selected protein is banned from one selected meat product, while the same protein is the major source of protein in the majority of meat products. This is very unlikely and no improvement on Codex.



Envato/gresel

The body’s reaction of some individuals to selected proteins triggering a histamine response is well known. These proteins are listed in Codex. Some substances which are not proteins and, by definition, cannot be allergens are also listed under the same heading, simply because we do not have a group category for “sensitivities” to certain food ingredients and additives. Preservatives that have been used by mankind forever can have adverse effects on health and/or well-being. This includes salts, sugars, acids and sulphites. The question arises again whether the RSA population requires different rules of protection in regulations. Not likely, let alone the ever-increasing number of foreign visitors. Serious surprises await them in their burger patties and other minced (ground) meat products, and the famous American Hot Dog (what’s in a name?).

It’s time to consider that perhaps Codex was written over decades, and is constantly updated, by world-leading experts. It’s going to take some reading, all 568 pages of GSFA and counting, before we copy-and-paste selected and erroneous internet arguments to construct something beyond Codex. If sulphites are bad worldwide, they are not good for you anywhere. The publication of R5506 on 1 November 2024 accepting GSFA in totality and repealing archaic publications is the right step to unchain our minds.

With the above in mind, what is this R1283, R2410, SANS 1675 and 250+ pages added to the nine-page labelling document of Codex? Banana equivalents? Advice to English dictionaries to change the meanings of English words? Meat is the flesh of animals used as food. This includes muscles, fats, livers, kidneys, tendons, hearts, brains and various other parts, whether cut by hand or more hygienic machines. But they all have names; QUID labels them by their names and observes minimum and maximum inclusion levels, if any. None of these animal components grew on plants, but plant sources of proteins, fats and carbohydrates are used in their diets and in meat products. These also have names; QUID labels them as such. Consult Codex documents in every step. No one can prosecute blatant honesty.



Envato/seventyfourimages

Q&A

with SAAFoST
president,
Ryk
Lues

Credit: Cobus Brink

Professor Ryk Lues is a South African food scientist and Director of the Centre for Applied Food Sustainability and Biotechnology at CUT, specialising in food safety, microbiology, and sustainability.

How did you first get involved in food science and technology?

After finishing school in Bethlehem, Eastern Free State, I completed a BSc and BSc (Hons) with Microbiology and Genetics as majors at the University of the Free State, followed by an MSc in dough leavening optimisation and a PhD in organic acids in Cheddar cheese at UFS Department of Food Science. After receiving my master's, I was appointed as lecturer in Food Hygiene at the CUT in the programme Environmental Health, and was a founding member of the Centre for Applied Food Sustainability, which has been advancing for a number of years into prominent research niche areas in the institution, and more recently being awarded the Chair in Food Safety Culture and Sustainability.

What have been your greatest successes and greatest disappointments along the way?

Being able to contribute to the development of food safety culture (FSC) as a specialist field and to support the food sector in its conceptualisation and implementation has been quite rewarding. Having the privilege to participate in the development of students and upcoming researchers through their postgraduate and academic journeys, and experience their successes on national and international platforms, to holding senior positions in academia and industry, has also been a career highlight. In terms of disappointments, this likely entails witnessing the plight of current-day students amidst limited resources and declining employment opportunities.

What do you think is the biggest challenge facing academic and commercial food scientists and technologists at present? How should we respond to it?

A notable challenge amongst food sector stakeholders is deficits in embracing cross-disciplinary narratives and collaboration, which ultimately leads to silos and an inability to ideate targeted solutions to industry and society. Transcending traditional skills barriers through collaboration and initiatives such as work-integrated learning, graduate placements, contemporary assessment methodologies and including concepts such as creativity, ideation, innovation and commercialisation in teaching curricula should go some way to alleviate the shortfalls.

How can we improve the understanding of our profession and of food as a whole by the public?

The involvement and visibility of food scientists across occupational portfolios through community and industry events, social media visibility and themed workshops that focus on trending matters are likely to contribute to the understanding and demystifying of the profession, as well as prevent the mis- and disinformation that negatively impact the industry. Partnerships with industry and academia will create more visible and collaborative initiatives, while leveraging professional associations like SAAFoST to support the dissemination of knowledge.

How has involvement with SAAFoST helped in your career?

SAAFoST has played a fundamental role in shaping my career through exposure to stakeholders across the discipline, and opening up vast horizons for collaboration and presenting new skills and research opportunities. There is no doubt that SAAFoST has been, and should remain, a beacon of advancement, development and prospects in the South African food and associated sectors.



Envato/felipeparros

Allergen test results: What the numbers mean for food safety

How much is too much?

By Comaine van Zijl and Kayla Steyn



The authors are mainstays of the allergen consulting team at FACTS, with a Food Technology and Food Science degree respectively. They assist the food industry daily, and are passionate about providing practical, evidence-based insights and hands-on solutions.

An allergen test result is not a conclusion, it is a conversation. And as with any important conversation, you need to know how to listen, interpret and respond. The exchange begins with key questions:

- What is the purpose of the analysis?
- What is being measured, and in what units?
- How does the sample relate to the final product?

Every microgram has weight, and every assumption carries risk. Misunderstanding these details can lead to misinformed decisions and, ultimately, misjudged food-safety risk. It is time to move past guesswork, and become fluent in the language of data-driven allergen-risk assessment.

1. Responsible risk review and management

Why micrograms matter

Even small amounts – just a few milligrams – of protein from an allergen can trigger a mild to life-threatening reaction in sensitive individuals. That is why manufacturers need to assess the risk of cross-contact allergens. If there is significant risk, precautionary allergen labelling (PAL) such as ‘may contain’ should be used to warn consumers.

FOOD ALLERGEN	REFERENCE DOSE*
Walnuts, pecans, cashews, pistachios, almonds, Brazil nuts, macadamia/Queensland nuts, pine nuts, celery/celeriac, mustard	1.0
Egg, milk, peanut, sesame	2.0
Hazelnuts	3.0
Fish, wheat	5.0
Soy, lupin, buckwheat	10.0
Crustacean	200.0

*mg total protein from the allergenic source
Reference available on request.

Responsible precautionary allergen labelling

Traditionally, potential allergen cross-contact information is simply passed along the supply chain until it reaches the consumer as a PAL. However, using PAL as a blanket warning without proper risk assessment limits allergic consumers’ choices, fuels label fatigue, and goes against the Regulations Relating to the Labelling and Advertising of Foodstuffs (R. 146/2010). Globally, the industry is shifting away from a zero-tolerance approach towards a more harmonised, risk-based strategy for applying PAL.

When it is time to look at the numbers

Quantitative allergen information becomes particularly important when determining the need for PAL, validating critical allergen controls, investigating cross-contact incidents or customer complaints, and making informed product recall decisions. Whether in a proactive or reactive scenario, the goal of a quantitative risk assessment (QRA) is the same: estimating consumer exposure to the allergen, and assessing whether it poses a risk.

2. Responsible risk assessment

Tools for a smarter conversation

With the right tools, anyone can confidently engage in this conversation, and even a basic QRA, grounded in sound inputs, can improve allergen risk management.

Benchmarking the risk

Unlike microorganisms, allergens do not have defined limits (with the exception of gluten). Instead, we use:

Reference Doses (RfDs): Thresholds (mg allergen protein) derived from low-dose oral challenge studies. Below these, only a small percentage of allergic individuals would react, and usually mildly.

Reference Amounts (RAs): Realistic estimates of how much of a product someone is likely to eat in one sitting. Together, these allow us to calculate **action levels (AL)** – allergen protein concentrations above which PAL is warranted.

Calculating the risk

Once the **AL** has been calculated, a simple risk factor (**RF**) can be determined by dividing the allergen cross-contact concentration (**CC**) by the **AL**. An RF above 1 means exposure exceeds the RfD, indicating significant consumer risk and that PAL or further action is required. An RF below 1 suggests low consumer risk, often supporting the decision to omit PAL. Remember, your conclusions are only as reliable as the information and assumptions supporting them. Keep the conversation grounded by carefully considering:

- The physical form of the allergen (particulate vs readily dispersed).
- The sample matrix and its effect on detection.
- Actual concentration in the affected product.
- Method suitability and sampling approaches.

3. Responsible risk communication

From doubt to data-driven decisions

Today's allergen management is about more than just controlling cross-contact. It is about having a confident, evidence-based conversation that leads to informed, consistent decisions that protect allergic consumers without over-relying on PAL. Once the conversation has led to a clear understanding of risk, and it is effectively managed, that message must be responsibly

FORMULAS
Step 1: $\text{RfD (mg)} \times (1000 \div \text{RA (g)}) = \text{AL (mg/kg)}$ $2 \text{ mg} \times (1000 \div 40 \text{ g}) = 50 \text{ mg/kg}$
Step 2: $\text{Allergen CC (mg/kg)} \div \text{AL (mg/kg)} = \text{RF}$ $65 \text{ mg/kg} \div 50 \text{ mg/kg} = 1.3$
Step 3: $\text{RF} > 1 = \text{Significant risk} \mid \text{RF} < 1 = \text{Low risk}$ $1.3 > 1 = \text{Significant risk}$
EXAMPLE INFORMATION
Milk RfD: 2 mg RA: 40 g product (snack food) Allergen CC: 65 mg/kg milk protein

The example serves to demonstrate the formulas but omits other essential risk assessment factors.

communicated to consumers in line with R. 146. This means avoiding unsubstantiated PAL, ensuring the risk assessment process is well documented, and maintaining consistent, transparent messaging across all products and markets. In allergen-risk management, silence is not safety. Speak up and join the conversation!

*To learn more, contact the authors
 (comaine@factssa.com ; kayla@factssa.com)
 or visit the FACTS website www.factssa.com*



facts Food & Allergy Consulting
& Testing Services
the go-to-company for peace of mind

FACTS empowers food businesses to make data-driven allergen decisions, helping to ensure responsible allergen management, risk assessment, precautionary allergen labelling and regulatory compliance.



Our core allergen management solution-driven services include:

- ✓ Allergen testing using validated, fit-for-purpose methods
- ✓ Training and consulting tailored to your site and products
- ✓ Consulting on best practice and practical allergen management
- ✓ Support to create meaningful validation and verification plans
- ✓ Quantitative risk assessment to guide precautionary allergen labelling



www.factssa.com | +27 21 882 9883 | info@factssa.com

Smart solutions for diabetes

By
Roné Luttig



Roné holds a BSc Honours in Biochemistry and serves as General Manager at Savannah Fine Chemicals, where she bridges science and strategy in the Food, Health & Nutrition industries.

Smart ingredient choices for better diabetes management

November marks World Diabetes Awareness Month – a time to spotlight innovations that support diabetes management and prevention. With over 537 million people affected globally and nearly half undiagnosed, the need for accessible, effective nutritional interventions is urgent. Diabetes is no longer a condition managed solely through medication and lifestyle changes; it's increasingly being addressed through smarter food choices and ingredient technologies that support metabolic health.

Functional ingredients are reshaping how we approach blood sugar regulation. These components not only support glycaemic control but also empower food manufacturers to create products tailored to diabetic consumers – blending health benefits with taste, convenience, and clean-label appeal.

Low-glycaemic ingredients for blood sugar stability

The glycaemic index (GI) ranks carbohydrates by how quickly they raise blood sugar. Low-GI ingredients slow glucose absorption, helping prevent spikes – a key concern for those with diabetes or prediabetes. Choosing ingredients that release energy slowly can help maintain stable blood sugar levels throughout the day.

This slow-digesting carbohydrate isomaltulose offers steady energy release and improved glycaemic control. Unlike traditional sugars, isomaltulose is absorbed gradually, making it ideal for nutrition bars, cereals and sports drinks designed to support blood sugar stability.

Its mild sweetness and heat stability also make it suitable for baked goods and powdered beverage formulations. Chicory root fibre (inulin and oligofructose sourced from chicory root) are soluble prebiotic fibres; they slow carbohydrate absorption and modulate post-meal glucose responses. They also promote satiety and support weight management – critical for diabetes prevention – while enhancing digestive comfort and gut health.

Supporting weight management and satiety

Excess weight, especially visceral fat, contributes to insulin resistance and increases the risk of type 2 diabetes. Functional fibres like chicory root fibre help regulate appetite by enhancing satiety signals, reducing the urge to overeat. This makes them valuable tools in the development of portion-controlled, nutrient-dense foods.

Enhanced digestive health and overall well-being

Gut health is increasingly recognised as a factor in diabetes. Poor microbiota composition can lead to chronic inflammation and impaired insulin response. Prebiotic fibres from chicory root feed beneficial bacteria, promoting a healthy microbiome and smoother digestion.

This relationship may help reduce bloating and systemic inflammation, making digestive health a valuable target in diabetes interventions. Consumers are becoming more aware of the gut-metabolism connection, and brands that incorporate gut-friendly ingredients are well positioned to meet this growing demand.



Envato/furmanphoto

Clean-label solutions for better consumer acceptance

Today's consumers demand transparency and simplicity. "Clean-label" has evolved into a standard, driving interest in natural, minimally processed ingredients. Functional fibres and slow-digesting carbohydrates meet both efficacy and clean-label criteria.

Their versatility allows for use in:

- Fibre-enriched baked goods.
- Reduced-sugar confectionery.
- Dairy alternatives (e.g. yoghurts, plant-based milks).
- Ready-to-drink beverages and nutritional powders.

These ingredients align with consumer values and elevate brand positioning as health-forward solution providers. Clean-label innovations also help build trust, especially among consumers managing chronic conditions like diabetes.

Innovation in diabetic-friendly food formulations

The growing diabetic population is driving innovation in food development. Manufacturers are prioritizing low-GI formulations that deliver taste and texture without compromising metabolic health. By combining fibres,

slow-release carbohydrates and nutrient-dense ingredients, developers are creating functional foods – from snack bars to cereals – that support blood sugar stability, digestive wellness and overall vitality.

This innovation is not limited to niche health products. Mainstream brands are increasingly incorporating diabetic-friendly ingredients into everyday foods, making it easier for consumers to make healthier choices without sacrificing enjoyment. The result is a more inclusive food landscape that supports prevention and wellness.

Conclusion

Smart ingredient choices are essential for those living with or at risk of diabetes. Low-GI components like isomaltulose and chicory root fibre offer holistic benefits – from stabilising glucose and enhancing satiety to supporting gut health and meeting clean-label demands. During World Diabetes Awareness Month and beyond, the focus is on nutritional strategies that empower consumers and manufacturers alike.

By embracing scientifically backed ingredients, we move toward a food ecosystem that promotes prevention, wellness and resilience – one smart solution at a time.

INGREDIENT INNOVATION THAT'S VALUE DRIVEN

BASIC INGREDIENTS FOR EVERYDAY SOLUTIONS

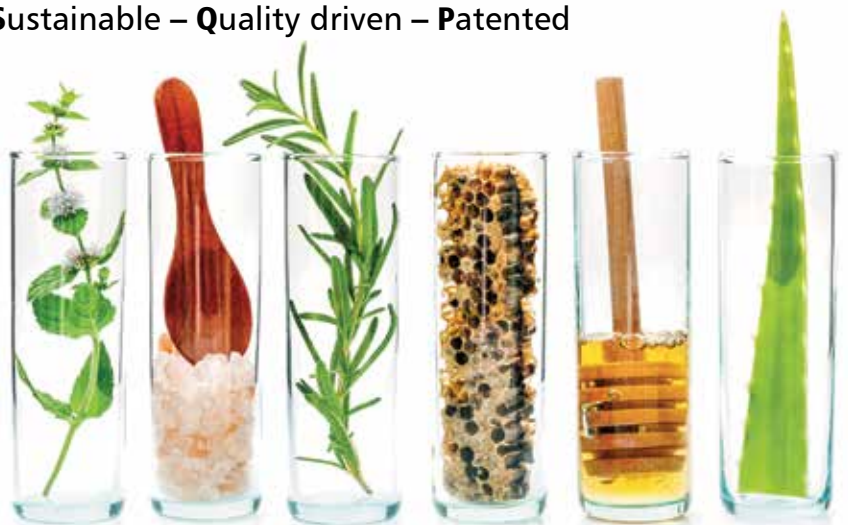
We supply industry manufacturers with quality ingredients and a wide range of additives to create the taste, texture, performance and appearance you need for your products. Inspiration for cutting edge technology with sensory expertise which will set you apart – global winners providing technical support for:

Reliable – Consistent – Sustainable – Quality driven – Patented

INGREDIENTS TO CREATE BRILLIANCE

We represent leading global manufacturers and our specialists can provide you with unrivalled sales support bringing the highest quality products to market.

- Food and Beverage
- Healthcare and Nutrition
- Personal Care
- Homecare and Industrial



Johannesburg: +27 11 856 4500
Cape Town: +27 21 830 5306

Durban: +27 31 313 3338
Email: info@savannah.co.za

SAVANNAH
Ingredients to create brilliance!

The importance of contributing to standards in the oil industry:

Why testing your oil sample helps shape global standards

By Dr Mathilda Mostert



Mathilda is the founder of Precision Oil Laboratories and UPENYA Cosmetics and is an expert in the Oil Chemistry field. Since completion of her PhD and postdoctoral studies in 2008, she has become a leading figure in the oil industry, spearheading research projects and at the same time establishing and expanding Precision Oil Laboratories. As one of South Africa's foremost authorities in the fats and oils sector, she is an active contributor to international standards as a member of expert committees for Codex and SABS. Additionally, she serves as a consultant within the food and cosmetic oil industry. Her motto is "If you can't measure it, don't mention it," emphasising her commitment to quality and respect for the industry.



From the harvesting field to formulations of top-tier cosmetics and kitchens preparing artisanal foods, vegetable oils have become indispensable. They are natural, versatile and valued across both culinary and personal care industries, but behind every beautifully bottled oil lies a world of science, safety and quality assurance. At the heart of that are national and international standards. In a growing, fast-evolving global marketplace, testing your oil is no longer optional. It is a fundamental responsibility for both producers and marketers and ensures that products comply with quality and compositional standards.

But standards don't write themselves. They depend on real-world data that comes from routine oil testing conducted by producers and laboratories.

Standards can be divided into three types: industry standards, national standards and international standards. Industry standards usually arise due to a collective need of producers, marketers and buyers but are often the most challenging to establish as producers are generally cautious to share "trade secrets". It is, however, important to establish trust in an industry when creating standards by educating participants in terms of the advantages of contributing data. Contributing to standards not only gives you a say but

ensures that you are represented in the standards. Especially where processes are concerned, it is imperative that processes are shared so that they can be standardised and represented in the standards. When setting up industry standards, a working group including scientists as well as industry experts is important. This ensures that the reality of what is practically possible during production as well as the requirements of formulators and buyers are met.

A national standard (SABS standard) usually arises due to a request from industry and will generally follow an already established industry standard. Industry can obtain an application form from the SABS whereafter a working group must be formed to draw up the first draft of the standard. Companies are invited to contribute to SABS standards and this can only be done if a dataset is already in place. The importance of a well-described and documented dataset cannot be underestimated. This will show variations in the oil between producers as well as possible reasons for the variation. If different producers submit results, the variation in results will increase, leading to more representation in the standard. It is, however, important to build a dataset based on results from a trusted and preferably accredited laboratory so that variation in results can be attributed to the true factors leading to this variation. The composition of oil is known to vary



progress
est. in 2005
EXCELLENCE
management system coaching

CONTACT

+27 23 316 2202

info@progress-excellence.co.za

+27 78 199 3640

www.progress-excellence.co.za

UNLOCK BUSINESS EXCELLENCE

Since 2005, Progress Excellence has helped food industry companies implement and sustain effective management systems through expert training. We believe that being systems driven leads to real business benefits—turning compliance into a way of life rather than just a certification requirement.

LEARNING PLATFORMS

At Progress Excellence, we offer flexible training solutions to suit different learning preferences and business needs:

Virtual Training

- Interactive sessions conducted live via platforms like Teams, ensuring real-time engagement with expert facilitators.

Online Training

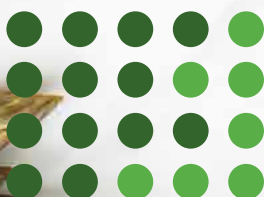
- Self-paced courses designed for flexibility, allowing delegates to complete training at their convenience.

Face-to-Face Training

- In-person sessions held at our approved training facilities or on-site, fostering direct interaction with facilitators.

Hybrid Training

- A blend of in-person and virtual learning, catering to both physical and remote participants.



STANDARDS

FSSC | ISO 22000

ISO 9001

BRCGS Food

ISO 14001

IFS Food

ISO 45001

HACCP | SANS 10330

due to environmental conditions, seasonal variation, geographical location and subspecies. Contribution of data across these fields ensures that adequate ranges are established for each parameter. Avocado oil, for example, becomes more unsaturated as the season progresses and the newly included avocado oil values in the international Codex standard have acceptable oleic acid values ranging from 35 to 80g oleic acid per 100g oil. This wide range covers seasonal, geographical as well as climatic variation. In this way, we can all contribute to shaping global standards.

In the oil field, international standards generally refer to the international Codex Alimentarius Commission standards. The Codex Alimentarius Commission is a United Nations organisation created 60 years ago to oversee the development of internationally aligned food standards, guidelines and codes of practice. With 188 countries worldwide and constantly increasing populations, it is necessary to create and adhere to standards contributed by and compiled using worldwide data to ensure safe and efficient trading of food and cosmetic products. Codex standards play a vital role in ensuring the authenticity and quality of oils, particularly in the food and cosmetic industries. These internationally recognised benchmarks help protect against adulteration, safeguard consumer health and promote fair trade by providing clear definitions and testing methods for quality, purity and composition.

Especially the speciality oil and indigenous oil industries are facing significant challenges due to the widespread adulteration of oils through dilution with low-cost commodity oils like sunflower oil. This malpractice not



only erodes consumer trust and threatens the sustainability and commercial viability of indigenous and speciality oil producers, but also forces genuine producers out of the market.

It has become common practice for producers to verify oil using the Codex standard as reference to identify adulteration using various tests. Especially the fatty acid profile, sterol and tocopherol composition and concentration are often used to verify authenticity.

Analysing the fatty acid profile of the oils alone provides a 60–70% accuracy rate in predicting adulteration. Fatty acid profiles are essential as they reflect the fundamental composition of the oil, making it possible to identify deviations from expected standards. By adding the analysis of sterol composition to the

testing protocol, the accuracy of detecting adulteration increases. Sterols are minor components of oils, but their specific composition and concentration can provide additional markers for authenticity. Further enhancement in accuracy is achieved by including tocopherol content analysis. Tocopherols, which are a group of organic compounds with antioxidant properties, collectively known as vitamin E, vary significantly between different oils. Analysing both the composition and concentration of tocopherols adds another layer of verification, further increasing the reliability of the test results.

To summarise: Test regularly, test at a trusted or accredited laboratory and contribute data when standards are compiled to ensure realistic ranges for industry, national and international standards.



Envato/Peteer5

Smoothing dark chocolate:

NIR spectroscopy sheds light on particle reduction in the melanger

By

Carli Pretorius



Carli completed her MSc in Food Science in 2024 at Stellenbosch University in South Africa. She is currently working as a Product Developer for In2Food, a food manufacturing and production company that supplies food internationally.

Smooth, melt-in-your-mouth chocolate is enjoyed by many, but what gives it that luxurious texture? The answer lies in the size of the solid particles and how they are reduced during processing. Chocolate is made up of cocoa solids, cocoa butter, sugar and lecithin, and it can be thought of as a semi-solid mix where the solid particles (cocoa solids and sugar) are distributed throughout the cocoa butter. The making of chocolate involves several steps – mixing, refining, conching and tempering – and each plays an important role in creating the final product's quality. Refining is a crucial step in chocolate production that reduces particle size, usually followed by conching, which helps develop the chocolate's flavour and texture. Traditionally, these steps have been done separately, but melangers – machines combining refining and conching into one operation – are becoming more popular because they offer better scalability and require relatively low initial investment.

Despite how common melangers have become, there hasn't been much research on how processing time inside these machines affects particle size reduction, which plays a big role in final chocolate texture and quality. NIR spectroscopy, combined with chemometrics, is regularly used as a premier method for rapid and non-invasive monitoring of quantitative and qualitative analysis of raw materials as well as intermediate and end products in the food industry. NIR spectroscopy works by measuring how samples absorb near-infrared light within the 780–2 500nm range. This absorption creates spectral data analysed using chemometrics – a set of mathematical and statistical tools – to uncover important chemical and physical characteristics of the sample. One common chemometric method, partial least squares (PLS) regression, is especially useful for building accurate

prediction models and classifying samples by capturing data patterns. The use of NIR spectroscopy to monitor particle size reduction during chocolate manufacturing remains unexplored, and this study aimed to investigate how different processing times in a melanger impact particle size reduction using NIR spectroscopy.

The ingredients for 70% dark chocolate were individually weighed, mixed and heated to 50°C to ensure optimal blending. Activation of the melanger initiated particle size reduction, with molten chocolate samples taken every 15 minutes until particle size reached 20 µm. Particle size was measured using a digital micrometre, serving as the reference method for model development. Spectral data from the molten chocolate were collected using both a benchtop NIR instrument (Büchi NIRFlex N-500; 1 000–2 500nm) and a handheld NIR device (Viavi; 950–1 650nm). The spectral data were pre-processed with standard normal variate (SNV) and mean centering (MC), and analysed using principal component analysis (PCA) for exploratory purposes and partial least squares (PLS) regression for model development. Since the two NIR devices capture different wavelength ranges, each may detect distinct features of the same phenomenon. To avoid biased results, a mid-level data fusion approach was employed to select calibration and validation datasets. This involved applying PCA to each sub-data matrix, reducing dimensionality by focusing on important variances and retaining only representative data from both devices. Then, the Duplex algorithm – with a 30% holdout for validation – was applied to the representative data matrices to obtain calibration and validation data sets. PLS regression models were developed and optimised using Venetian blinds cross-validation with 14 splits.

It is known that the particle size of non-fat particles, such as cocoa solids and sugar crystals, decreases during the melanging of dark chocolate, a fact supported by the scatterplot shown in Figure 1. However, the data points in the scatterplot did not follow a linear pattern; instead, a non-linear relationship was observed, likely caused by the creation of new contact surfaces and the formation of agglomerates. Analysis of the reference particle size values indicated that a 480-minute melanging time is required to achieve the desired 20µm particle size, suggesting that continuous monitoring from the start is unnecessary and should begin only after 240 minutes. Principal component analysis (PCA) showed a decreasing trend in particle size in the positive to negative direction of PC1 and PC2 for the benchtop (Figure 2A) and handheld NIR devices (Figure 2B) respectively. Partial least squares (PLS) regression models developed from the benchtop data set (Figure 3A), pre-processed using standard normal variate (SNV) and mean centring (MC), yielded a root mean square error of prediction (RMSEP) of 5.40µm, an R^2 of 0.97, and a ratio of performance to deviation (RPD) of 6.0. Similarly, the handheld data set (Figure 3B), pre-processed with MC, produced an RMSEP of 6.59µm, an R^2 of 0.96 and an RPD of 4.9.

The RMSEP values being close to the standard error of laboratory (SEL) value of 3.28µm demonstrates the models' reliable predictive performance. Although the benchtop instrument showed higher prediction accuracy overall, it exhibited a greater prediction bias (2.38) compared to the handheld device (1.83). The VIP scores plot for the molten benchtop data matrix (Figure 4A) identified that proteins, at a wavelength of 1 930nm, had the highest VIP score. These proteins are associated with the compound theobromine, which is abundant in cocoa solids. In contrast, for the molten handheld data matrix (Figure 4B), carbohydrates at approximately 1 440nm had the highest VIP scores. These carbohydrates are linked to sucrose, a primary ingredient in the chocolate formulation. Although the VIP scores identified proteins and carbohydrates as the most significant contributors to the models, lipids and aromatic compounds also played notable roles.

Having thoroughly examined how processing time influences particle size, this study offers valuable insights for optimising chocolate production, particularly benefiting small-scale and artisanal chocolate makers who rely on melangers. A deeper understanding of this relationship can help

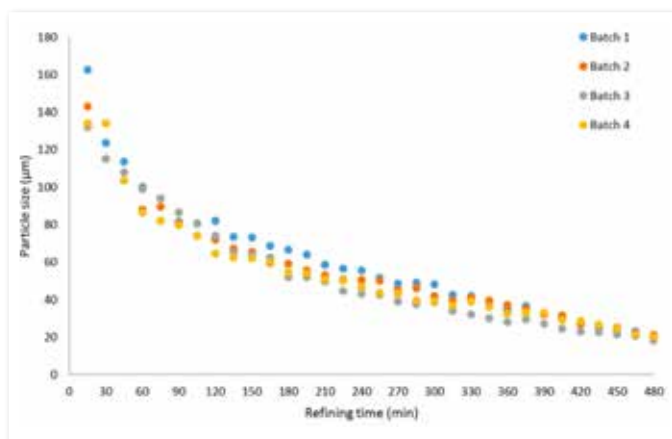


Figure 1: Effect of melanging time on particle size reduction during chocolate manufacturing

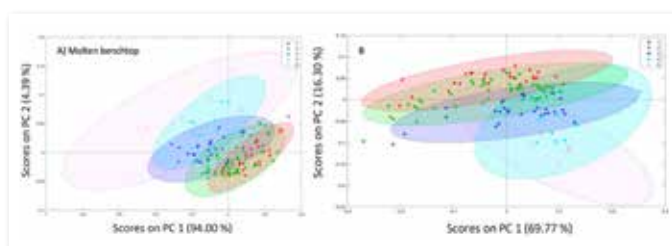


Figure 2: PCA scores plot of PC1 vs. PC2 for the (A) Molten benchtop samples, and (B) Molten handheld samples

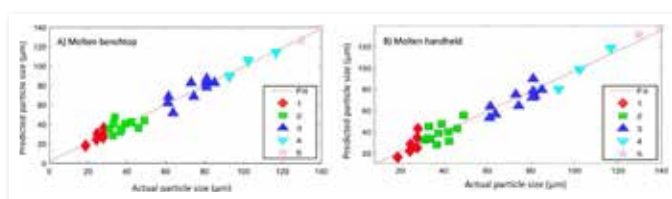


Figure 3: PLS regression plot for the data matrices of the (A) Molten benchtop samples, and (B) Molten handheld samples

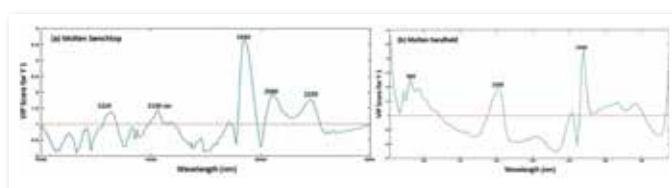


Figure 4: VIP scores plots for the data matrices of the (A) Molten benchtop model, and (B) Molten handheld model

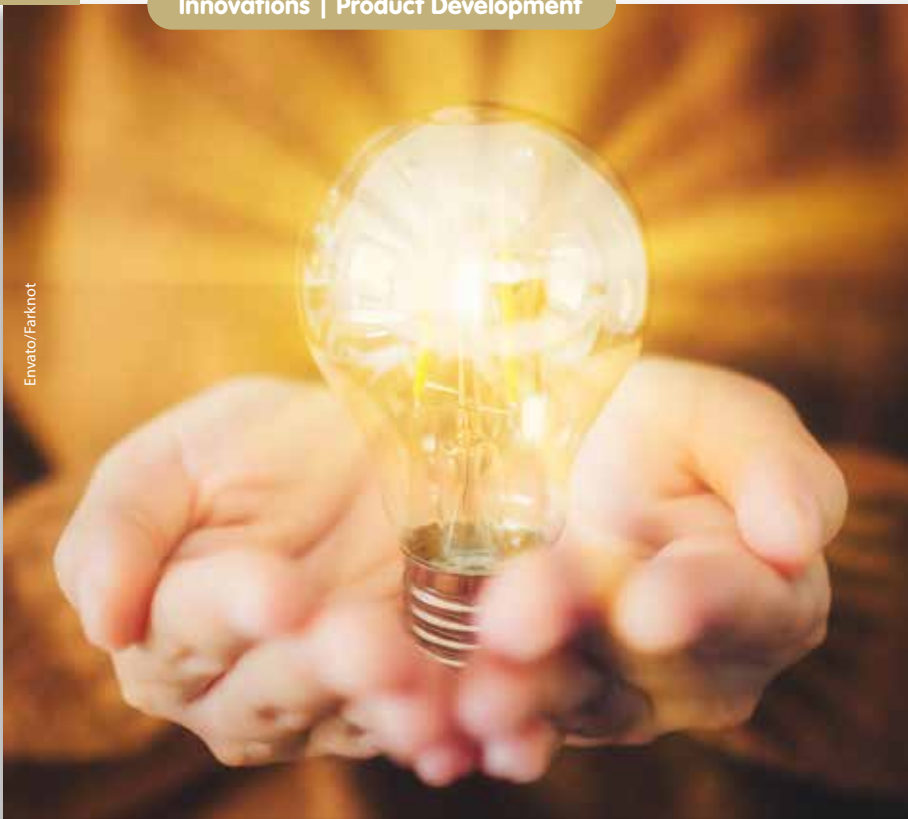
producers consistently achieve high-quality products with the desired texture while also improving overall production efficiency. Furthermore, the application of NIR spectroscopy presents a rapid and reliable method for monitoring particle size changes throughout the process. This work clearly illustrates how NIR spectroscopy can serve as an effective quality control tool, providing real-time data to support better decision-making during chocolate manufacturing.

References are available.

Smarter together

By Kayt Sukel

Envato/farknot



Kayt is a book author, magazine writer, and public speaker who frequently covers scientific topics (ksukel@hotmail.com).



Credit: Kayt Sukel

Open innovation is rewriting the food industry's R&D playbook

The global food system is facing a broad swathe of daunting – and costly – challenges. From addressing the impacts of climate change on agriculture to ensuring nutritious food remains accessible and affordable to all, food and beverage companies around the world are searching for innovative solutions to complex problems. And Adam Adamek, director of innovation and business transformation at EIT Food, says the majority of these problems are simply too big for individual companies to tackle alone.

"Whether it's reducing emissions in food processing, improving nutrition at scale, or making agriculture more efficient, these are problems that span across different disciplines and value chains," he says. "I've been part of this space for nearly 30 years, and one thing I've seen consistently is that breakthroughs don't happen in isolation."

To more successfully address the type of challenges that immediately seem "too big, too systemic, or too slow-moving," Adamek says that many organisations are

now engaging in a practice known as open innovation. This unique approach to innovation can help organisations "unlock ideas and partnerships that they may not have even known they needed," Adamek observes. "Open innovation allows you to bring in new perspectives, technologies, and skill sets ... and speeds everything up."

Defining open innovation

The term open innovation was first coined in 2003 by Henry Chesbrough, faculty director of the Garwood Center for Corporate Innovation at the Haas School of Business at the University of California, Berkeley. As companies, across industries, sought to deal with different obstacles and disruptions, he hypothesised



Envato/MKU018

that they would benefit from integrating more external research and development (R&D) into their innovation efforts. Such companies would not only have the advantage of new knowledge or technologies provided by those outside partners, they could also share their best practices with their partners – helping the whole industry move forward. Chesbrough defined open innovation as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.”

“Open innovation is central to our strategy,” says Alexandre Bastos, head of front end innovation at Givaudan Taste and Wellbeing. “It allows us to engage with startups, academic institutions, and industry leaders to co-create sustainable food solutions. It enables us to harness a wide range of ideas and technologies, accelerating the development of innovative food products.”

What exactly an open innovation project might look like, adds Kamesh Ellajosyula, president and chief innovation and quality officer at Olam Food Ingredients (OFI), can vary depending on the problem to be solved and the various partners involved. Yet, he says that the word open, to his mind, means that “everyone’s cards are on the table.”

“Traditionally, companies in our industry can be very contractual and transactional,” he explains. “But open innovation has a spirit where we all come together and share what we know, what we don’t know, and establish common goals to achieve. No one is holding their cards too close to the vest.”



“You want the kind of relationships where everyone gets something – where everyone can win.”

– Cindy Stewart, Innovative Food Science Consulting

Relationships based on open innovation emphasise “co-creation and shared objectives,” says Bastos. And by engaging with other industry leaders, as well as cutting-edge startup companies, Givaudan has been able to successfully experiment with novel food technologies, ranging from molecular farming to precision nutrition.

“This collaborative environment fosters a culture of agility and experimentation that is essential in today’s fast-evolving food landscape,” says Bastos.

Yet, Cindy Stewart, who used to lead Open Innovation at Corbion and now has her own consulting firm, Innovative Food Science Consulting, says the key difference between open innovation and the kinds of traditional partnerships entered into with suppliers, incubators, or accelerators is that any new knowledge or technology doesn’t just benefit the biggest company at the table.

“It’s a much more symbiotic relationship,” Stewart says. “Members of open innovation teams need something from the other organisations involved to get a new product to market. You want the kind of relationships where everyone gets something – where everyone can win.”



Enabling agility

Adoption of open innovation projects is growing at a fast pace in the food ecosystem because of the many advantages they confer – speed, agility, and knowledge sharing. Eric Weisser, senior director and head of open innovation and customer innovation at Ingredion, says that’s because many large organisations are now too big to pivot when faced with a new challenge.

Open innovation allows them to bring more agility back into the organisation's R&D efforts. And that, in turn, can fuel game-changing products and processes.

"Bigger companies are no longer able to really delve deeply into new areas of interest. We have so many competing activities, which hampers our ability to move fast and to focus on new, specific problems," he says. "At this point, we understand that we can't do everything all by ourselves. When we look outside the company, we can see there are a lot of other people who are smarter than us that are working on things that we see as being beneficial to our business."

Sze Tan, executive director of the Agency for Science, Technology and Research (A*STAR) Singapore Institute of Food and Biotechnology Innovation (SIFBI), says many food and beverage startups focus on a very specific technology domain. Because of that, they can work much faster to solve niche problems.



"I've been part of this space for nearly 30 years, and one thing I've seen consistently is that breakthroughs don't happen in isolation."

– Adam Adamek, EIT Food

The greatest obstacle to open innovation remains the most obvious: intellectual property.

"Especially with emerging technologies, companies can work with these startups on something that is high risk, but potentially high gain, and rely on the startup's expertise," she says. "Instead of trying to invest fully in something internally, they can partner so they can create value with lower investment and lower risk."

Benjamin Smith, executive director and president of the Monell Chemical Senses Center, and architect of an open innovation research collaboration between Monell and A*STAR, says pulling the right people together can allow companies to move in directions they may not have expected to go. Monell's new alliance with A*STAR SIFBI, for example, called East Meets West, is working to deepen the industry's understanding of how chemosensory perception influences internal signals of hunger and satiety – knowing that these chemical senses can vary across cultures and populations.

"The combined results of several different people, with



different backgrounds and skill sets, working together on a problem is often much more effective than a single scientist or lab working alone," he says. "When we can bring scientists from different fields together, we can work on finding solutions that will improve health for the population, health for individuals, and also the health of our environment."

That enhanced access to diverse ideas, says Bastos, can help companies move new products to market more quickly, too. He says the 2024 MISTA Growth Hack event is a great example of how companies can leverage open innovation platforms to do just that. MISTA, which means "tasty morsel" in Sanskrit, is a San Francisco based innovation platform created by Givaudan, Danone, Ingredion, AAK and other large companies. Its mission is to accelerate the development of fermentation-powered food solutions.

"The Growth Hack initiative sought to elevate food solutions for the future by bringing together 14 leading startups from around the world," Bastos says. "Each startup partnered with a technical team composed of experts from major corporate MISTA members to develop food or beverage prototypes that showcased the benefits of their key ingredients in practical and appealing applications."

The results from Growth Hack can help all organisations involved better understand what kind of investment is really required to launch a biomass fermentation product in the future – as well as understand the potential return on investment. And that leads to one of the last great advantages of open innovation: spreading the risk of new endeavors across a pool of partners.

"Innovation is uncertain. Some things will fail," says Adamek. "But when you share the load with other partners, those risks are easier to manage. At EIT Food, we've seen this play out again and again. For every €1 we've invested in innovation projects, we're seeing €21 in projected returns over 15 years. That includes business benefits, environmental impact, and even improved health outcomes."

Overcoming obstacles

As with any partnership, challenges that include cultural differences within organisations, ensuring goal alignment, and balancing speed with the right combination of scientific rigor can get in the way of results. Yet Tan says the greatest obstacle to open innovation remains the most obvious: intellectual property (IP).

"Determining who owns what comes down to a case-by-case negotiation. There may be discussions of background and foreground IP, depending on the situation," she says. "There are many different scenarios, and they all take ages to settle."

But, beyond IP ownership, Bastos says that open projects can also hit the same sorts of hurdles you might expect in any new R&D project. That might include consumer sensory acceptance of an end product – or overcoming barriers to regulatory compliance once you seek to take that product to market.

"When developing new plant-based proteins, we often face challenges related to texture and flavor that consumers expect from traditional meat products," he says. "Our open innovation approach offers an ideal way to tackle these challenges. For example, during the MISTA Growth Hack, we established cross-functional teams that combined expertise from various companies to develop prototypes. We also invested in consumer testing to

gather feedback early in the development process, ensuring that products meet market expectations."

Monell's Smith adds that even basics like time zone differences, data harmonisation efforts and differing scientific methodologies can take some time to iron out when different partners start working together.

"From the very beginning, you need to make sure you're coming up with the same way of doing things," he says. "If we are doing science one way here and they are doing it a different way over there, then we won't have the right comparisons. You need to talk about it. Communication, as in most things, is key here."



"In the end, I think what makes open innovation work is when you determine how to enable your partners to continue on their journey so they are successful."

– Eric Weisser, Ingredion

Then there's a need for strong leadership across innovation partners. Stewart says that any project should have a C-suite champion to help guide mindset – not to mention continued funding. But Weisser adds that having the right leaders in smaller partners, especially startup companies, is also crucial.

"Entrepreneurs work on different timescales than bigger companies do. They often have different goals and cultures," he says. "So, the quality of leadership in the startup, as well as the quality of the science they do, is so important. You want to see how they lead and can help guide the project as it moves forward."

Taken together, Adamek says it's not easy to come up with an open innovation agreement because different partners are coming in with different timelines, cultures and expectations. There can never be a one-size-fits-all approach. Everyone needs to be open and transparent from the start in order to succeed.

"Startups want speed and agility. Corporations want safety and compliance. Universities care about research," he says. "If you don't align early, things can derail. That's why we put a lot of focus on relationship building and clarity from the start. Who owns what? How do we make decisions? What happens if things go sideways?"



"Open innovation is central to our strategy."

– Alexandre Bastos, Givaudan Taste and Wellbeing

Getting those questions answered upfront – especially around IP and revenue sharing – can help prevent conflict later."

Lessons from the trenches

Beyond initial expectation setting, Stewart says that open innovation projects are more successful when organisations take the time to build trust across partners.

"Starting from the beginning with the idea that everyone is going to get something out of the partnership when a product goes to market, that's what is going to help build that kind of trust that will take you forward together," Stewart observes.

For his part, Weisser says Ingredion's initial forays into open innovation did not work as well as hoped at first because they "wanted everything." He says it took some time for them to recognise the unique value proposition that their partners brought to the mix – and to take a step back so they could leverage the most value from their shared arrangement.

"Before, we came in and said we wanted all the go-to-market. We wanted the exclusivity. We wanted the IP. That's where you get unequal power dynamics," Weisser says. "Once we started approaching these projects thinking instead about how we could make our external partners successful, rather than thinking about how they'd





A cocoa farmer proudly shows a healthy pod in West Africa, where industry partners and researchers are working together to combat crop disease.

make us successful, things changed. In the end, I think what makes open innovation work is when you determine how to enable your partners to continue on their journey so they are successful. Because when they are successful, you will be, too.”

But the very first step, upon coming together, Ellajosyula says, should be to carefully define the problem you and your partners are trying to solve. Far too often, he maintains, groups try to tackle nebulous, open-ended challenges. Instead, he recommends taking the time to get very specific. He says OFI's efforts to eradicate disease in West African cocoa was one such effort.

“This is a problem that took different industry partners, research institutions, and farmers coming together with a single-minded focus to identify the vectors to disease in order to address the spread,” he says.

Adamek concurred that problem definition is a great place to start. Then, you and your partners can build upon your shared objective.

“Start with a real problem – something that matters to your customers, your business,

and, ideally, the world. Don't do open innovation for public relations. Do it to solve something that keeps you up at night,” says Adamek. “Then, find the right partners. Look beyond your usual circle. Be clear about your goals and be honest about your limits. If you can, start small. Run a pilot. Test the waters. Learn together.”

That last imperative is perhaps the most important. Because, Adamek says, innovation no longer happens

behind closed doors.

The problems are too big. Technological advances are too quick. And the people who have the answers you seek probably aren't located within the four walls of your organisation.

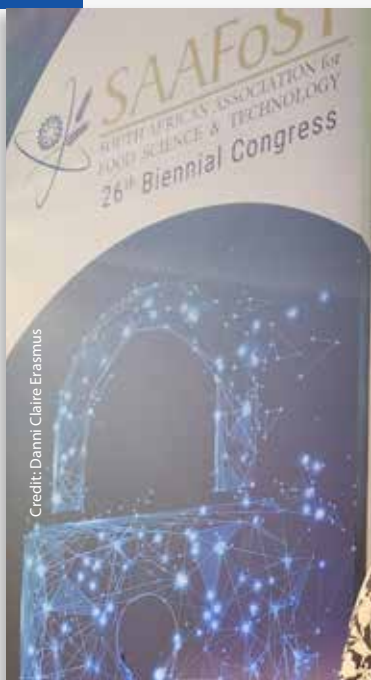
“Open innovation isn't a trend anymore. It's the new normal,” Adamek says. “Every week, I see big players announcing challenges, partnering with startups, and co-developing new technology. It's exciting. And they are doing it because the pressure is real. We are facing wicked problems, and no one can fix them alone.”



“The combined results of several different people, with different backgrounds and skill sets, working together on a problem is often much more effective than a single scientist or lab working alone.”

– Ben Smith, Monell Chemical Senses Center

This article appeared in Food Technology magazine and we thank the IFT for allowing us to print it.



Bridging research and industry:

MySAAFoST
mentorship
journey

By Anja
Laubscher



Yolande Schulz
and Anja Laubscher

Anja is a Product Manager and Food Scientist at Sally-Ann Creed.

A little over a year ago, I stumbled across an announcement for the MySAAFoST mentorship programme while scrolling LinkedIn. At that time, my world revolved around my PhD thesis, "The use of Near Infrared Spectroscopy for the analysis of fumonisins". What started as a master's project had evolved into a PhD journey, defined by four years of lab work, long nights and a deep dive into mycotoxin analysis. Many peers were steadily building industry experience while I remained within academia. I worried about the challenges of entering the food industry, especially given the hesitation towards appointing PhD graduates without practical experience.

A turning point came during my short research visit to the Southern African Grain Laboratory (SAGL), where Dr Hannalien Meyer reassured me with her kind words, "Opportunities will arise where you are, you just need to grab them." This inspired my application to MySAAFoST's mentorship programme. I hadn't realised how significant this step would be.

Several months later, I was matched with my mentor, Yolande Schulz, Regional R&D Director at McCormick & Company. From the outset, her experience and passion for mentorship stood out. Throughout the year, her support was transformative; she became a sounding board for professional questions and personal uncertainties alike.

Yolande openly shared her own career transitions, discussing the doubts and excitement she experienced. This helped me accept uncertainties during thesis writing and job searching. She also connected me with another mentee who had transitioned from a PhD research environment into the food industry. My exchange with

her encouraged me that, even with limited hands-on industry experience, the soft skills cultivated through research – such as problem-solving, critical thinking, perseverance and professional communication – are highly valued and transferable.

Yolande's mentorship struck the right balance between encouragement and practical advice. She assisted me with interview preparation and salary negotiations, and provided insights into critical industry processes like new product development and shelf life assessment. Her coaching on managing challenging workplace conversations proved especially helpful. With her support, I transitioned into my first industry position at the start of 2025 and currently serve as a Product Manager and Food Scientist at Sally-Ann Creed, a South African health and wellness company specialising in pure nutritional supplements. In this role, I oversee the procurement of raw materials for product development, manage our nutraceutical product range including formulation and sourcing, and implement essential Food Safety Procedures.

Reflecting on the past year, I am grateful to MySAAFoST for championing this mentorship programme. It truly bridged the gap between research and industry, illuminating professional pathways I might never have explored otherwise. My experience demonstrates how mentorship matters. Investing in mentorship – through MySAAFoST or similar programmes within your company – not only propels individual growth but also contributes to advancing the entire food science community.

For more information about MySAAFoST, please contact Tsetse Baloyi at tsetse@saafost.org.za.

On the bookshelf

Reviewed by Professor Gunnar Sigge

Sustainable Analytical Techniques in Food Science

Edited by Bárbara Socas Rodríguez, Antonio V. Herrera-Herrera, Alicia Gil Ramírez and Mauricio A. Rostagno

In the modern era of food traceability and liability, food analysis and the accuracy thereof have not only become increasingly important, but the amount of analyses have increased exponentially. Just as sustainability has become important in food production, it is also becoming important in aspects such as analytical techniques.

This book is set out in 13 chapters, starting with an introduction to food analysis and the evolution of analytical strategies in food sciences, the latter chapter focusing on the shift to greener approaches to analytical techniques and methods. The following five chapters describe the analysis of bioactive food constituents, namely bioactive carbohydrates, lipids, proteins, vitamins and minerals, and other bioactive compounds in foods. This is done through the lens of the origin of the foods, the extraction of the compounds, the analytical techniques, challenges and recommendations. The next five chapters focus on analysis of inorganic species in food and the organic contaminants of pesticides, pharmaceuticals, natural toxins and other organic compounds. Other organic compounds include veterinary drugs, plastic migrants and polycyclic aromatic hydrocarbons. The last chapter is devoted to the bacteriological analysis of foods from a sustainability perspective. This chapter focuses mainly on the sustainability of the main microbiological techniques and future trends in analysis as more rapid techniques become available.

This book is of interest to academics, students and anyone working in the area of food analysis as sustainability of operations and routine laboratories become more important.

Published by Elsevier



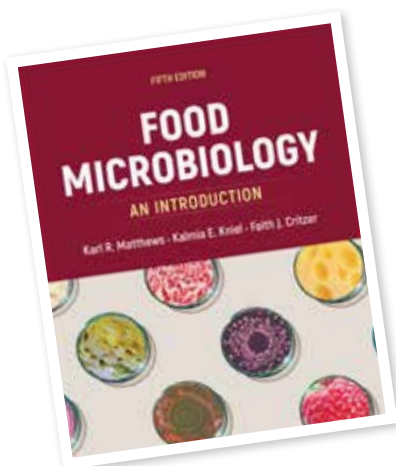
Food Microbiology: An Introduction (Fifth Edition)

Edited by Karl R. Mathews, Kalmia E. Kniel and Faith J. Critzer

Food microbiology and food safety are one of the fundamentals of any undergraduate food science and technology curriculum. Equipping graduates with the basic understanding of this discipline is paramount for food quality and food safety. Fortunately, this book is specifically designed for the undergraduate student and it also makes teaching of the topic easier for lecturers. The layout of the book is such that chapters are self-contained and can thus be taught in any order and lecturers can choose which chapters to use. There is also an accompanying website containing resources for lecturers to facilitate the presentation of material from the book. Each chapter also features examples, case studies, study questions, suggestions for further reading and some critical thinking questions.

The book is divided into four sections, with several chapters each. The first section covers the foundations of food microbiology, how bacteria grow, factors affecting their growth, how we can control growth, detection and microbiological criteria. Section II covers the foodborne pathogenic bacteria (in alphabetical order) and covers parasites, viruses and prions. Beneficial microbes, spoilage organisms and lactic acid bacteria and yeast fermentations are discussed in Section III. This section also includes moulds (spoilage and possible toxin producers) and indicator microorganisms, while microbiological criteria are also covered. The final section covers the chemical, biological, physical and non-thermal processing methods that can be employed to control foodborne microbes. In conclusion, there is a discussion on industrial and regulatory strategies for ensuring food safety.

Co-published by the American Society for Microbiology and John Wiley & Sons, Inc.



November 2025 e-book giveaway – to the value of R2 334

FST has a copy of **Food Microbiology: An Introduction (Fifth Edition)** to give away. Should you wish to enter the draw, please email your name, surname and that of your company to trift31@gmail.com with **FST November book giveaway** in the subject line. Congratulations to Claire Mundell (Rainbow Chicken) who received an e-copy of the book featured in the July 2025 issue.



Discover Döhler's latest food and beverage innovations at

Gulfood Manufacturing

November 4–6, 2025

We are excited to see you at our stand in Hall 5, Stand A5–4, Dubai World Trade Centre

WE BRING IDEAS TO LIFE. | NATURAL INGREDIENTS | INGREDIENT SYSTEMS | INTEGRATED SOLUTIONS



SAAFoST (The South African Association for Food Science and Technology)

We are for Food Scientists, Technologists and other professionals serving the food and allied industries in South Africa.

Visit our website at saafost.org.za and apply for SAAFoST membership

SAAFoST, advancing Food Science and Technology since 1960!



Make Your Mark in FST

Big Impact in a Quarter-Page

Quarter-page adverts in FST (Food Science & Technology Magazine) are an affordable way to reach the decision-makers, innovators, and professionals in South Africa's food and beverage industry.

- Targeted circulation to SAAFoST members and industry leaders
- Cost-effective exposure alongside South Africa's leading food science content
- Digital format ensures wide distribution and long shelf life

Contact the editor, Tricia Fitchet for quarter-page ads at trifit31@gmail.com

www.fstmagazine.co.za

Whether you're a start-up or an established company, a quarter-page ad gets your brand seen, remembered, and connected with the right audience.

YOUR FOUNDATION needs YOU!



SAAFoST Foundation

Contribute to the development of the next generation of food science and technology graduates by becoming a donor and sponsoring a bursary. Please see www.saafoست.org.za/mysaafoست/bursaries/

Can't sponsor an entire bursary?
Make a donation to The Foundation.

We will allocate the donation to bursaries and awards such as the Koeppen Award for MSc and PhD and Aubrey Parsons awards for outstanding results.

For more information
or any queries, please contact
Irene Burke at
foundation@saafoست.org.za.

