



Stellenbosch

UNIVERSITY
IYUNIVESITHI
UNIVERSITEIT

December 2024 Desember



Food Science | Voedselwetenskap
Newsletter | Nuusbrief

forward together
sonke siya phambili
saam vorentoe

Dear Reader,

It is with a very grateful feeling that I write these words! Grateful that we have made it to the end of this year. Everywhere one goes the sentiment is the same – everyone is happy to see the end of 2024. Although it has been a tough year for many different reasons, there is also much to be grateful for and I believe we should focus on the positives, the battles won and achievements of the year. Hopefully looking back on these successes and a well-earned break will give us energy to tackle 2025.

In March 2024 we graduated five MSc's and 3 PhD's and the academic year of 2024 will deliver another nine MSc's and a record-breaking eight PhD graduates (December and March 2025 Graduations). This is a phenomenal achievement and shows the dedication of the staff in supervision and guidance.

Research outputs continued in abundance in 2024 and you will read of countless conferences that were attended by staff and students throughout the year. We continue to receive high praise at these international conferences for the quality of our research and the students that we train. Several have offers to continue their studies overseas.

Our undergraduate programme is also still receiving recognition locally and abroad and many companies contact us specifically searching for applicants to vacant positions – stating that they would prefer Stellenbosch graduates. The quality of our students was also showcased by Lize Theunissen (currently a first-year MSc student) being awarded the Rector's Award for academic achievements at the start of this year. You'll also read about the successful New Product Development projects of 2024 and the amazing support from food companies.

Furthermore, you'll get to read about staff and student achievements, the student associations drive for food which Megan Arendse is coordinating to ensure our food insecure students receive regular hampers to help them through the month and our very own Jana Schreuder, who is now the President-Elect of IFTSA (Institute of Food Technologists Student Association) in the USA. A special word of congratulations also to Prof Pieter Gouws on his Chancellor's Award.

I'd like to wish each and every one of you a very special, restful and relaxing Festive Season and look forward to new successes in 2025.



Prof Gunnar Sigge
Chair: Food Science

March 2024 Graduation



Attending the March 2024 graduation ceremony, from left to right:

Dr Stefan Hayward, Dr Sebastian Orth, Prof Pieter Gouws, Dr Rumbidzai Matenda, Dr Diane Rip and Prof Gunnar Sigge.

At the March graduation ceremony three PhD candidates graduated (read more about that in the next pages)

Five Master of Science in Food Science (left column) degrees were awarded as well as four Masters of Science in Food and Nutrition Security (right column)

- | | |
|--|------------------------|
| • Corani Jankowitz | Mania Donatien Diambwa |
| • Jess Kelfkens | Cheryl Erica Issel |
| • Margot Ellen Küster (<i>cum laude</i>) | Alice Phiri |
| • Mia Olga Schutte (<i>cum laude</i>) | Anne Smith |
| • Mari van Wyk (<i>cum laude</i>) | |

Two Bachelor of Science in Food Science degrees were awarded to Nola de Jongh and Nicolene Louw.

CONGRATULATIONS to our graduates!



Dr Rumbidzai Trust Matenda

Supervisor: Dr PJ Williams

Co-supervisors: Drs D Rip & J Marais

Assessment of *Listeria* species found on beef meat, using hyperspectral imaging

Traditional methods of identifying bacteria are often time-consuming, prompting exploration of rapid techniques. This study delves into near-infrared hyperspectral imaging (NIR-HIS) for the detection of *Listeria monocytogenes* on solid growth media and beef. Operating at 950-2500nm. NIR-HIS in combination with chemometrics successfully differentiates *Listeria* species and *L.monocytogenes* serotypes (1/2sa, 1/2c and 4b) with accuracies exceeding 90% and 80% respectively. Accuracies for *L.monocytogenes* detection of beef range between 63% and 81%. Distinctive wavebands associated with proteins, lipids and carbohydrates facilitate classification. These findings highlight the potential of NIR-HIS for *Listeria* detection and ensuring food safety.

Photos: Drs Rumbidzai Matenda with her supervisors, Drs Paul Williams and Diane Rip



PhD in record time and award for Dr Jana van Rooyen

Marena Manley

A huge congratulations to Dr Jana van Rooyen who was **Awarded a Best Postgraduate Student Award**, as one of the 5 best PhDs, who graduated in December 2023 and March 2024 at Stellenbosch University, for her outstanding performance during her postgraduate studies. She completed her PhD (Food Science) degree at the age of 25 with six peer-reviewed publications, only three years after completion of her first degree (BSc in Food Science).

During her studies, Jana performed research in 5 countries, including South Africa. She spent 12 months of her three years as postgraduate student in Europe and the UK. This was possible thanks to the H2020 MSCA RISE SuChAQuality Project (#101008228) with Principal Investigator, Dr Mecit Oztotop. Jana's PhD supervisor, Prof. Marena Manley, played a crucial role in facilitating these incredible opportunities for her abroad studies, helping her gain invaluable global insights and experience.

She performed research at Middle East Technical University, Ankara, Türkiye (6 months), Germany (1 month); Poland (2 months) and at Nottingham Trent University, Nottingham, UK (3 months). During this time, she collaborated and published with eight established international experts in their research fields from 8 different countries. In addition, she attended meetings related to her research and the SuChAQuality project in Serbia and Slovenia.

In her research Jana uses near-infrared (NIR) spectra and ANOVA—simultaneous component analysis to show the significant effect of roasting on the chemical-structural properties of wheat protein and starch. Time-domain nuclear magnetic resonance (TD-NMR) experiments accurately demonstrate water distribution in a starch–water system and provide information about the extent of gelatinisation after heating. Future cereal-based studies may benefit from the use of NIR spectroscopy as a characterisation technique, and TD-NMR relaxometry as a technique for studying molecular dynamics.

Jana is currently working as the *Sustainability Sourcing and Innovation Manager at Bidfood in Ede, The Netherlands*.



Dr Jana van Rooyen

Supervisor: Prof M Manley

Co-supervisors: Dr S Oyeyinka (external) & Prof S Simsek (external)

Physicochemical, functional and structural properties of flour and starch from dry heat-treated wheat

Wheat flour is primarily composed of starch, which serves as a multifunctional ingredient in food products. Roasting whole wheat affects the properties of flour and starch, determining final product quality. Using near-infrared (NIR) spectra and ANOVA-simultaneous component analysis, roasting was shown to significantly affect the chemical-structural properties of protein and starch. Time-domain-NMR (TD-NMR) experiments accurately demonstrated the distribution of water in a starch-water system and provided information about the extent of gelatinisation after heating. In future, cereal-based studies may benefit from the use of NIR spectroscopy as a characterisation technique and TD-NMR relaxometry as a technique for studying molecular dynamics.

Dr Sebastian Helmut Orth

Supervisor: Dr Stefan Hayward

Co-supervisors: Profs GP Fox (external) & M Manley

Application of spectral imaging in the determination of variety and pre-harvest seed damage in *Hordeum vulgare* by using a chemometric approach

Preharvest germination poses economic threat to the barley breeding and malting industries. This study utilizes visible and short-wave infrared spectral data from various malting barley varieties, both before and after germination, to determine variety and identify preharvest-germinated kernels via sequential multiblock modelling techniques. Chemometric data fusion methods achieve high classification accuracies, suggesting potential for non-invasive industrial monitoring. The approach should enable the implementation of sensors in malting-related industries to support quality control. These techniques offer a valuable tool to industries the pursue strict quality standards, and hold promise for improved cereal grain breeding and malting practices.



Photo from left to right: Dr Jana van Rooyen, Ms Mia Schutte, Prof Marena Manley, Ms Mari van Wyk, Dr Sebastian Orth and Dr Stefan Hayward celebrating at the March 2024 graduation ceremony.





Jana Schreuder IFTSA Board President

Jana Schreuder

The Institute of Food Technologists Student Association (IFTSA), the student-governed board of the Institute of Food Technologists (IFT), elected Jana Schreuder as its next Board President in May 2024..

The Institute of Food Technologists is an international scientific community that hosts the largest global food science conference and expo with more than 1000 exhibitors: IFT First. IFT is also known for its familiar scientific journals namely: *Comprehensive Reviews in Food Science and Food Safety* and *Journal of Food Science*.

Jana will be the first IFTSA President from a non-U.S. institution in the history of the organization. In her capacity as president of the student board, Jana is also allocated a seat on the IFT board, on which Prof G Sigge, served until August 2024. Jana was invited to travel to Chicago in May to attend board orientation in preparation for her role on the IFT Board of Directors and assumed the role of IFTSA President-Elect on 1 September 2024. She will serve in the IFTSA office of the president over the following 3 years until 31 August 2027, first as President-Elect; then as President and thereafter as President, respectively.



Top picture from the IFT Board Orientation at the new IFT office building.

Left to Right: Jana Schreuder, Dr. Jamie Reeves (Executive Vice President: Product Development & Commercialization, Mattson); Prof Girish Ganjyal (School of Food Science, Washington State University), Dr. Mohamed Badaoui Najjar (Senior Director, R&D, Pepsico).

Bottom picture: Attendees of IFT Board Orientation including incoming members and current board member mentors

Fresh-Cut, Foggia Italy

Nandi Nyamende

Nandi Elana Nyamende is a PhD student in the Department of Food Science. She attended the 5th International Conference on Fresh-Cut Produce: Maintaining Health and Safety, which took place from 3-6 June, 2024, in Foggia, Italy. During the conference, she presented a paper titled "Impact of Acidic Electrolyzed Water Treatments on Fresh-Cut 'Granny Smith' Apples," which was accepted for publication under the *Acta Horticulturae* platform. Participating in this conference provided Nandi with a valuable opportunity to explore the prospects of fresh-cut products and identify research gaps and challenges for her post-PhD work. Additionally, she connected with internationally recognized scientists and engineers in the field for potential future collaboration. Nandi was also invited to spend time in the lab at the Department of Agriculture, University of Foggia, where she observed the current instruments and research conducted by their team. Furthermore, she participated in an industry tour of the fresh-cut and minimally processed produce sector in nearby towns in Italy.

Photos and text provided.



More international travels

Advancing Africa's Nonthermal Food Processing Research

Femi Caleb

Dr Oluwafemi Caleb attended the 2024 EFFoST / IFT-NPD Workshop on Nonthermal processing of Foods, at the Leibniz-Institute for Agricultural Engineering and Bioeconomy (ATB) in Potsdam, Germany. During the workshop he gave two talks which were focused on the application of electrolysed water and the potential for mild microwave treatments on whole apple and nectarine fruit, respectively. The workshop provided an overview of the state-of-the-art development in nonthermal processing of food materials. In total, the workshop had 8 short course lectures, 33 oral and 14 poster presentations from 11 countries and 5 continents.



Exploring Sensory Science in the Heart of Africa: AFROSENSE 2024

Jeannine Marais

This November, I attended the AFROSENSE 2024 conference in Ghana, an enriching experience that blended science, culture, and collaboration. The conference, hosted by the University of Ghana in Accra from 27–28 November, was organised by the African Network for Sensory Evaluation Research (ANSWER) and the University of Ghana's Sensory Evaluation Laboratory.

The aim of AFROSENSE 2024 was twofold: to strengthen the network of African sensory and consumer science experts across industry, academia, and research institutions; and to promote the field of sensory and consumer science in Africa. This year's theme, "Improving Nutrition and Wellbeing of Consumers Through a Holistic Sensory Experience," guided the discussions and activities, showcasing the transformative potential of sensory science in addressing Africa's unique needs.

Networking with sensory scientists from across Africa was a highlight for me, underscoring the unique opportunities and challenges of conducting sensory research in our diverse context. Africa's cultural richness offers an array of sensory preferences that must be understood and respected. At the same time, we face practical challenges, such as loadshedding and water shortages, which demand resilience and creativity.

This was my second visit to an African country outside South Africa (my first being Malawi in 2021), and it reaffirmed my passion for contributing to "Africa, for Africa." Hearing like-minded researchers share their groundbreaking projects inspired me to continue pursuing sensory research that aligns with the continent's aspirations.

AFROSENSE 2024 reminded me that African sensory scientists are not only innovative and hard-working but also deeply connected by a shared vision for improving lives through sensory science. The connections and collaborations fostered through ANSWER will undoubtedly pave the way for future advancements in this exciting field.

Photo: Dr Jeannine Marais, Prof Riëtte de Kock (Department of Consumer and Food Sciences, University of Pretoria; ANSWER chair); Mrs Linda Marais-Lombard (MANE, South Africa) at AFROSENSE 2024.



ISHH Conference 2024: Unlocking the Potential of Resilient Horticulture in Africa Loriane Yanclo

The 5th All-Africa Horticultural Congress (AAHC) 2024, hosted by the International Society for Horticultural Science (ISHH), took place in Marrakech, Morocco, from 26 February to 1 March, 2024, at the Université Mohammed VI Polytechnique. The conference brought together horticulture professionals, researchers, young scientists, and entrepreneurs from across the globe to explore innovative solutions for advancing African horticulture.

A Focus on Resilience and Innovation

The central theme of this year's conference, *"Unlocking the Potential of a Resilient Horticulture in Africa,"* set the stage for lively discussions surrounding the numerous opportunities for growth and development in the African horticultural sector. The primary objective of the event was to shed light on the significant potential of horticulture in Africa, particularly in terms of resilience, sustainability, and innovation. As climate change and economic pressures continue to challenge global food systems, the conference highlighted the need for adaptive strategies and cutting-edge techniques to strengthen the horticultural industry in Africa and beyond.

Networking and Knowledge Sharing

Upon arrival, attendees received their badges and had the opportunity to explore the venue, capturing photos and connecting with other participants. The event provided a platform for professionals to engage with the latest research, exchange ideas, and share experiences. With a diverse range of participants—from experienced researchers to emerging scientists and industry entrepreneurs—the conference was an ideal space for collaborative learning and expanding professional networks.

The congress also served as a hub for fostering technical cooperation between horticulture experts across Africa and the wider global community. Many attendees found the networking sessions to be invaluable, strengthening existing partnerships and forging new collaborations aimed at advancing horticultural practices across the continent.

Poster Presentation: Advancing Mango Storage Techniques

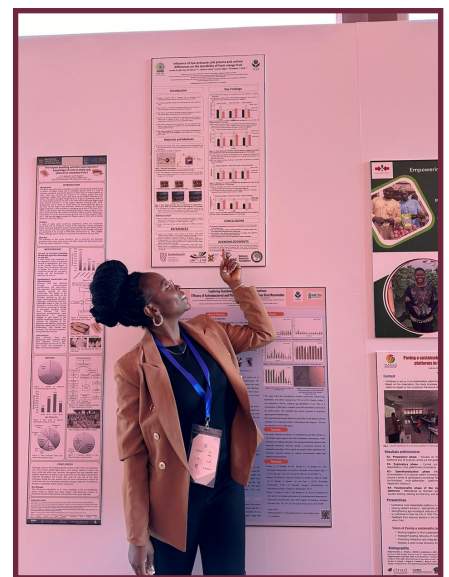
One of the highlights of the conference was the poster presentation session, where participants shared their research findings and innovations. I had the privilege of presenting my research on *"The Influence of Low-Pressure Cold Plasma and Cultivar Differences on the Storability of Fresh Mango."* My poster explored the potential of low-pressure cold plasma as an innovative technique for enhancing the shelf-life and storability of mangoes, a key fruit in many African markets. By examining the effects of this technique in combination with different mango cultivars, my research aims to contribute to post-harvest technology advancements and food security in the region.

Mr Frans Ngoako Monyela represented the *Agri-Food BioSystem and Technovation Research Group* at the 5th International Society for Horticultural Science, All-Africa Horticultural Congress (AAHC) 2024, Université Mohammed VI Polytechnique, Marrakech, Morocco. He gave a talk entitled: "Comparative study of two cold plasma-activated alginate coatings against *Penicillium expansum* on 'Packham's Triumph' pear fruit during storage". The peer review full manuscript has been accepted to be published in *Acta Horticulturae*

Looking Ahead

As the conference came to a close, it was clear that the discussions and collaborations sparked during the event would continue to influence the future of African horticulture. From cutting-edge post-harvest techniques to sustainable farming practices, the knowledge shared at the 5th AAHC will play a crucial role in driving the sector forward, ensuring that Africa's horticultural industry remains resilient in the face of global challenges.

With new research, innovations, and partnerships emerging from this event, the future of African horticulture looks promising, with the potential to unlock new avenues for economic growth, food security, and environmental sustainability.



Loriane Yanclo, Frans Monyela and Dr Femi Caleb at AAHC 2024, Morocco.

Lize Theunissen at the 2024 Rector's awards



Photo from left: Prof Danie Brink, Dean of the AgriSciences Faculty, Ms Lize Theunissen, Prof Wim De Villiers, Rector of SU.

Ms Lize Theunissen, a first-year MSc student in Food Science, is one of three recipients of the annual Rector's Award for Excellent Academic Achievement in AgriSciences 2024. The award is based on her undergraduate marks.

Lize is currently enrolled in postgraduate studies under the supervision of Prof Marena Manley. She is conducting research on the effect of powdered sourdough on the textural properties and staling of white wheat bread.

Lize is familiar with the Rector's Awards, having previously ranked as one of the top-achieving first-year students at Stellenbosch University in 2021. That award was based on her 2020, first-year marks.

Congratulations, Lize! We are confident that you have a bright future in Food Science.

For more information on the Rector's awards, click on this link.

[News - US se toppresteerdere by Rektorstoekenings...](#)



Two new employees at Food Science

Liverpool vs Manchester United...coincidence? Maybe... But one thing is certain: The Food Science team has gained two valuable members.

"Forward together" is our official slogan at Stellenbosch University, and although Zareenah Abader and Natasha Coltman support different soccer teams, we are confident that they will bring the same enthusiasm to supporting our team.

Zareenah Abader (right) joined the Department of Food Science in March 2024 as an Assistant Technical Officer. She previously earned her Master's degree in Chemistry from the University of the Western Cape, where she specialised in analytical chemistry. Zareenah will serve as the lab manager for the undergraduate laboratory in Food Science and will provide technical support to Food Chemistry students.

Natasha Coltman (left) has been with Stellenbosch University since 2016. Natasha holds an N Diploma in Financial Management from False Bay College, as well as NQF Level 3 and 4 qualifications in Accounting Technician from Accounting Technicians South Africa (ATSA).

Natasha served as the Administrative Officer at the SU Museum from 2016 to 2024 and joined the Department of Food Science in August 2024 in the same role.

Welcome to team Food Science!



Food Science food drive

Megan Arendse

With the rising cost of food, many students are grappling with the harsh reality of food insecurity. This financial strain often forces students to make difficult decisions, such as prioritising rent payments over buying groceries. Recognising this pressing issue, the Food Science Department, in collaboration with the student-led Food Science Association (FSA), initiated a food drive aimed at supporting students in need.

The initiative was sparked by a heartfelt conversation Ms Megan Arendse, our dedicated Student Wellness Champion had with a student. The students shared their personal struggles with accessing adequate and nutritious food while balancing the demands of their academic life. This brave disclosure highlighted a deeper, more widespread challenge that we suspected others in our student community might also be facing.

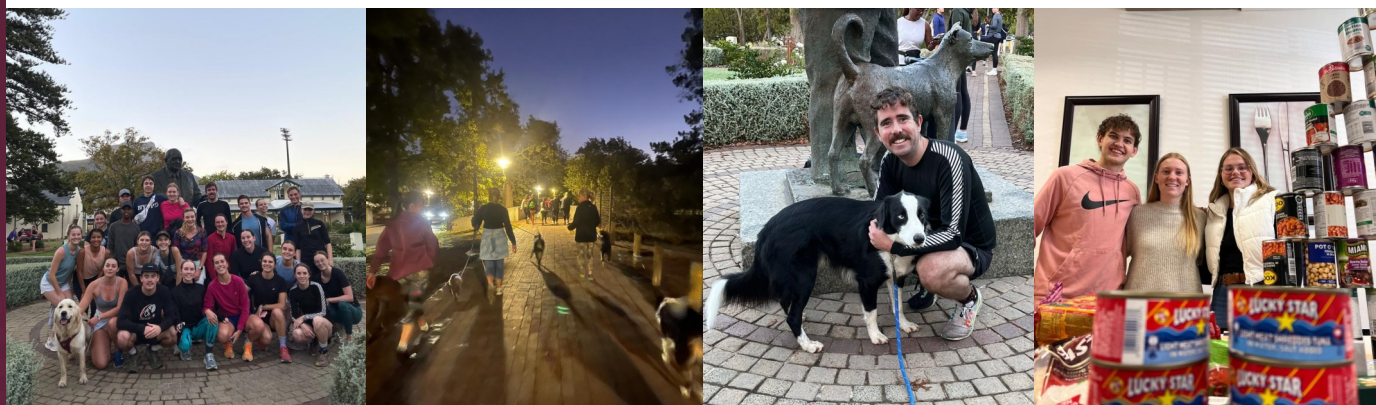
In May, the FSA organised its inaugural **Food Drive Fun Run**, creatively linking fitness and charity by making the entry fee a non-perishable food item. We gathered students, staff members, friends and dogs to do an early morning, 5km walk/run. The response was heartwarming, as the collected items, supplemented by generous donations from Food Science staff, enabled us to provide substantial food parcels to five students in need.

The initiative gained further momentum when the South African Association of the Flavour & Fragrance Industry (**SAAFFI**) and **Rhodes Food group**, graciously donated a variety of canned goods during a workshop held at the department. This contribution significantly bolstered our efforts to support students facing food insecurity.

Although the second fun run in October saw lower participation due to final exams, the FSA stepped up to fill the gap by donating four bags of groceries and two 6-packs of UHT milk. These contributions ensured that several students could head into their holiday break with well-stocked pantries, alleviating the burden of food insecurity during this critical time.

Looking ahead, we are eager to grow this initiative, reaching more students and building a stronger safety net for those in need. This programme is not just about food—it's about fostering a community of care and support.

If you want to support this worthy cause, please let us know at mcarendse@sun.ac.za



Research Experience in South Africa

A Pampuri & B Gülenç

Barış Ege Gülenç and Alessia Pampuri are both PhD students conducting research in Food Science and Technology. They were fortunate to spend five months at Stellenbosch University in South Africa as part of their respective research projects, supported by the Marie Skłodowska-Curie Actions (MSCA) and their home institutions.

Barış is a PhD student at the Middle East Technical University in Turkey, working in the Food Engineering Department. For the past three and a half years, he had been involved in the SuchaQuality project, which focuses on innovative, non-destructive, and eco-friendly methods to address quality issues in the chocolate and confectionery industries. Through this project, which partnered with institutions worldwide—including Stellenbosch University—Barış studied the use of Hyper Spectral Imaging (HSI) and Near-Infrared Spectroscopy (NIR) to detect moisture content in hard candy products. This five-month secondment at Stellenbosch was an exciting opportunity to expand his research within the Food Science Department.

Alessia, is a PhD student in Food Systems at the University of Milan, Italy. Her PhD project, titled "Industry 4.0 in the Agri-Food Sector: Innovative Sensors and Smart Logistics to Support the Sustainability of the Supply Chain," focuses on applying advanced sensors and smart technologies to improve sustainability within food systems. During her time at Stellenbosch, Alessia tested commercial portable VIS/NIR instruments and two sensor prototypes in areas related to wheat and beer production. Her research was part of a broader effort to integrate Industry 4.0 concepts into agri-food sectors. Thanks to the guidance of Prof Marena Manley, Dr Stefan Hayward, and Dr Sebastian Orth, Alessia also had the opportunity to collaborate with Professor Glen Fox, a renowned expert in beer, during his recent visit to Stellenbosch. Prof Glen Fox is an ABInBev endowed Professor of Malting and Brewing Science, University of California, Davis.



Photo left: Alessia and Barış



Right: In the brewery at Food Science, Drs Timo Tait, Sebastian Orth, Stefan Hayward, Prof Glen Fox, Ms Alessia Pampuri, Ms Sandra Hull and Ms Anesu Mukuwane

While their research in South Africa was of great significance to their academic and professional development, they also enjoyed some cultural and personal experiences. Alessia, who is passionate about rugby, had the chance to train and play with the Maties Women's Rugby Team at Stellenbosch University, which was a highlight during her stay.

Together, they were grateful for the opportunity to work at Stellenbosch University, where they could advance their research, collaborate with esteemed experts, and experience life in South Africa.



Prof. Pieter Gouws, Jacques Olivier, and Michelle Gouws, represented SU and the Centre for Food Safety (CFS) at the Food Micro 2024 Conference held in Burgos, Spain, earlier in 2024, where they presented their research. The conference was hosted by the International Committee on Food Microbiology and Hygiene (ICFMH) and focused on global, relevant topics in the field of food microbiology.

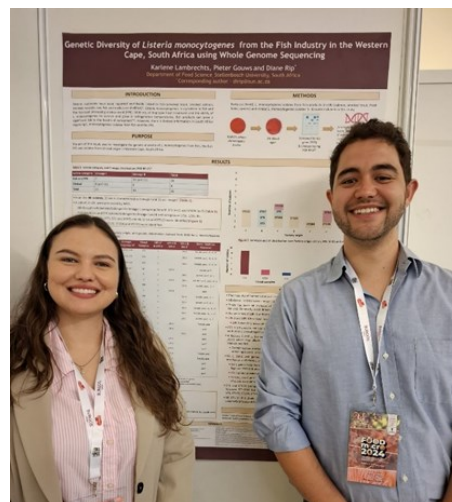
Several workshops were held at the conference, including the Microplastics and Microbiome Interaction sessions, which the CFS team attended. Prof Adreja Rajkovic from Ghent University in Belgium hosted the session and facilitated insightful discussions on microplastics as a vector for pathogens in the food chain, as well as their newly described influence on the development of antimicrobial resistance.

A workshop hosted by Prof Luca Cocolin and Joanna Aldred shed light on publishing with Elsevier. The workshop was aimed at postgraduate students and young scientists, focusing on the application of artificial intelligence (AI) in scientific writing. One of the key concerns discussed was the ethical use of AI in publishing, offering valuable insights on this emerging issue.

Michelle Gouws and Jacques Olivier presented a poster for MSc graduate Karlene Lambrechts, along with Prof Pieter Gouws and Dr Diane Rip. Three CFS posters were presented at the conference:

- Genetic diversity of *Listeria monocytogenes* from the fish industry in the Western Cape, South Africa using whole genome sequencing
- The efficacy of metal-free photocatalysts for the solar-driven elimination of *Escherichia coli* and *Listeria monocytogenes* from water
- The influence of essential oil compounds in animal feed on the presence of multidrug-resistant *Escherichia coli* after continued exposure to subtherapeutic antimicrobials within food production systems

The conference facilitated dynamic conversations between academia, the food industry, and international agencies such as the World Health Organization, paving the way for future collaboration. Highlights included learning about the latest science-based trends in safe food production and engaging in discussions on One-Health, led by keynote speaker Prof Bruno González Zorn, who will be visited South Africa in September.



From left: Michelle Gouws (PhD Student), Jacques Olivier (MSc Student), Prof Adreja Rajkovic (ICFMH President, Ghent University), Prof Pieter Gouws (CFS, Stellenbosch University) Photo right: Michelle and Jacques, presenting a poster at IFMFH 2024

The 2024 NPD journey

We are excited to share the results of the 2024 Food Science, New Product Development (NPD) presentations. This event is a highlight on the calendar of everyone in the food industry, and with good reason. The quality of work, the depth of scientific knowledge communicated, and the overall standard consistently impress. The 2024 presentations, held on 17 October, were no exception.

After years working in the Food industry, Dr Debora van der Merwe joined the Food Science Department in mid-2023, making 2024 her first full year of involvement from start to finish. The inspiration for this year's theme came from a talk by Miles Kubeka, which made her realise the significant need and gap in the market.

The brief was to develop an innovative and exciting new product or to improve an existing favourite for the Spaza shop market in South Africa, taking the following into consideration:

- Non-communicable diseases or health problems relevant to the target market
- Nutritionally improved when compared to products currently available in this market
- Target market
- Current food trends
- Benchmark testing against current products available in the market
- Costing
- SA Legislation
- Food Safety aspects and shelf life at ambient temperature
- Nutritional information
- Consumer research
- Suitable packaging

The products

ChedSpread, Cheddar cheese flavoured vegetable spread

Ama-Phuthu, An Amasi flavoured, quick cooking Phuthu porridge

Monsta Noodles, Instant noodles made with a carrot base, accompanied by a spice sachet with authentic South African flavours

Maak-Gou, A banana mageu inspired energy chew with a maize meal and sugar bean base

Bob's, A smokey BBQ flavoured, fermented soybean spread

Ama-zin Stix, A Sorghum-based cheese and atchar flavoured extruded snack

The judges

We were privileged to have a highly skilled and reputable panel of judges.

Miles Kubheka is a keynote speaker, author, celebrity chef, entrepreneur, cook show TV host and philanthropist.

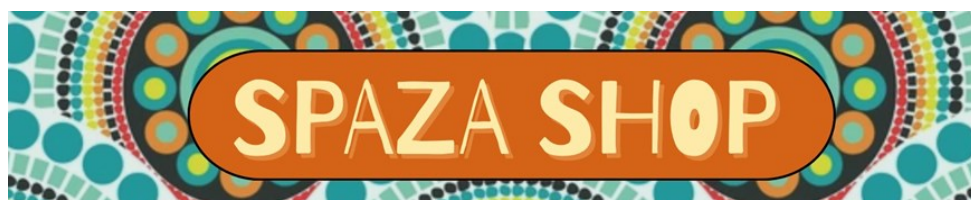
Linka Cameron, former Group Managing Director of Elgin Free Range Chickens Holdings, founder and business coach at &Collab

Tanya Rabie, Category Head of Prepared Food division at In2Food

Dr Tertius Cilliers, CEO of Synercore

The IPSA Gold Pack Packaging awards were judged by **Ingrid Schoeman**, Packaging expert and consultant and **John Fox**, from Biopack Sustainable Packaging.

Karen Horsburgh and Gabriella Stevens from FACTS took care of the Regulatory requirements and labelling, while **Karin Botha** of NSF, judged the HACCP plans.





THE PRODUCTS





The inspiration

After attending a session at the SAAFoST conference in Cape Town, presented by Miles Kubheka, Dr Debora van der Merwe had her inspiration for the 2024 New Product Development (NPD) theme.

The need and the market is here.

The only question that remained was, 'how can we afford not to get involved'?

In hindsight, the choice of theme was spot on, especially in light of recent developments regarding the regulation of Spaza shop food, following the tragic deaths of several South African children who consumed food from unsafe sources.

She contacted Miles and the rest is history.

He agreed to address the group at the beginning of the year to explain the target market and give some valuable insight into the spaza shop market. He certainly inspired this group of aspiring product developers.

We then invited Miles back to attend the NPD presentations and to also perform the role of being one of the judges on our big day.

We are very proud of the result and his comment on Instagram, @mileskubheka, as quoted below.

"Because it turns out that if you want a better and brighter future, not only do you have to create it, but you also need to help shape future world-changers.

I am so inspired by the deep talent pool we have in South Africa. I started working with this group of talented final-year food scientists at the beginning of the year. We gave them the challenge to develop innovative and appealing foods, suitable for sale in South African townships. Now, seeing and tasting the products they've developed over the course of the year is just amazing.

All the products I saw and tasted today are ready to be launched on shelves and would do well! We live in a country where the number one killer of women is diabetes, and children are dying from consuming poisonous foods. You can't fix these massive problems unless you invest in and support the future of food science.

We need to cultivate food scientists who value impact over profit—those who will say NO to corporate greed when big corporations ask them to create empty-calorie products. We need food scientists who will develop human- and climate-positive foods! Scientists who have been to the townships and have seen firsthand what empty calories are doing to communities.

From pap that cooks in three minutes, plant-based cheese spreads, carrot off-cut Durban curry instant noodles for children, to upcycled sorghum snacks—the future is indeed bright!"

Photo and quote from Instagram page @mileskubheka



KasNomics

GG Alcock

*Strategy / Creative
Insights / Speaker*



SPAZA SHOP

Who is the target market?



Guest Lecturers



- Tanya Rabie - In2Food
- Brandon Pascal - Launchlab
- Bitta van Staden - Sensient Technologies
- Karin Carstensen - Woolworths
- Gary Pon - Ingredion
- Karen Horsburgh - FACTS
- Karin Botha - NSF
- Raymond Hartley & Nathan Naude - Microchem
- Vanessa von Holdt - IPSA



Food & beverage sponsors for the big day



Team monsta



CHERIEN VAN ZYL



KAYLA SWANEPOEL



MIEKE LAUBSER



ALEXANDER BRODY



SYNTICHE KABUYA



ZANIE OOSTHUIZEN

TEAM CHEDSPREAD



GEORGIA NOCK
Group Coordinator &
HACCP Manager



NICOLA GOOSEN
Co-Group Coordinator &
Kitchen Trial Manager



EMILY TEANBY
Costing & Microbiological
Manager



**KOOTLELO
MADISHA**
Microbiological &
Marketing Manager



JANA-MARI STEYN
Packaging Specialist &
Wellness Officer



MARIANNE BARRY
Nutrition Specialist
& Secretary

GROUP 3



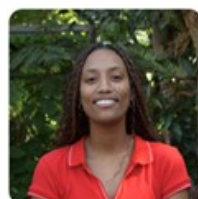
Jenna Egberink



Lieneke Eigenhuis



Zoë Hendricks



Fallon Matthews



Lindsay Heyns



Anelisa Hoboyi

**Ama-zin
STIX**

Meet the team!

BOB'S



PAIGE WARDLE



SUZAN WENTZEL



LUMÉ VAN ECK



KHOLIWE BIYELA



ANNÉ POTGIETER



CARLI LOURENS



Maak-Gou



Mia Groenewald



Tammy Kumm



Nombali Hlambisa



Jeanelle Baard



Helene-Mari van Niekerk



Taylor Carnie

NPD Group 6: Ama-Phuthu



Carine Vermeulen
Finance Lead
Packaging and Food Safety



Joy Machabi
Food Safety Lead
Regulations and R&D



Elzaan Louw
Sensory Lead
Branding and Production



Cara Smit
Sensory Lead
Packaging and Food Safety



Marli Kotze
Group Co-Ordinator
HACCP Lead | Regulations



Niel van Heerden
Technical Lead | R&D Lead
Business Strategy

2024 NPD Prize winners

Best Product & Presentation

GOLD, Sponsored by Synercore and INNOVUS, to the value of R20 000 per group, went to *Monsta Noodles*



Best Product & Presentation

SILVER, Sponsored by Synercore and INNOVUS, to the value of R10 000 per group, went to *Ama-Phuthu*.



Best Product & presentation

BRONZE, Sponsored by Synercore to the value of R5000 per group, went to 4 groups, namely; *ChedSpread*, *Maak-Gou*, *Bob's* and *Ama-zin Stix*

Prize for the group, best complying to SA Regulations, sponsored by FACTS went to *Ama-Phuthu*. This is to the value of R10 000 per group, and to attend a virtual workshop.



Prize for the group with the best HACCP plan, sponsored by NSF, to attend a two day training course, went to *Ama-Phuthu*



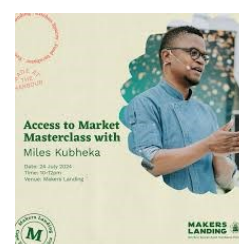
Institute of Packaging prize for best packaging design went to *Bob's* (GOLD) and *Ama-Phuthu* (SILVER)



The *MICROCHEM prize* for product best liked by the audience (R10 000) went to the *Ama-zin Sticks* team. MICROCHEM also sponsored all chemical & micro analysis



The *Miles Kobeka prize* to attend a once a month, for 6-months Coaching Opportunity with Miles Kobeka, went to *ChedSpread*



Thank you to the sponsors



The Department of Food Science at Stellenbosch University (SU) would like to express its sincere gratitude to the following sponsors for their generous contributions of ingredients and services to our New Product Development (NPD) students.

Your support made the development and presentation of six new products possible!

We deeply appreciate your time, patience, and ongoing commitment to our work.

It is an honour to be associated with you.

Department of Food Science Prizes

SIMMONS (KITTY SIMMONS-PRIZE): R950 (83%)

Kirsten Pietersen

Awarded annually to a third year BSc Food Science student with the highest average percentage in Food Science 214 and Food Science 244 (Commercial Food Processing and Preservation), presented by Kendyll Carle, granddaughter of Kitty Simmons.

BESSIE RETIEF-PRIZE: R1 200 (84%)

Marli Kotze

Awarded annually to a final year BSc Food Science student with the highest average in the undergraduate module, Sensory Analysis (FS 354).

MIMSIE SMIT-PRIZE: R1 500 (84%)

Marli Kotze

Awarded annually to a final year BSc Food Science student with the highest average percentage in Food Science 344 module (Food of plant origin).

NONNA RABIE-PRIZE: R6 500 (86%)

Sandhya Naidoo

Awarded annually to a second year BSc Food Science student for the best achievement in his/her first year in all Food Science modules, presented by Andrea Steer, granddaughter of Nonna Rabie).

JEANNE MARIE VAN DER POEL-PRIZE: R5 500

Niel van Heerden

Awarded annually to a final year BSc Food Science student. Involvement and general interest in Food Science as a field of study.

DEPARTMENT OF FOOD SCIENCE-PRIZE: R800

Madison Beley & Lisa Clarke

Awarded annually to a third year BSc Food Science student. Involvement and general interest in Food Science as a field of study.

DEPARTMENT OF FOOD SCIENCE-PRIZE: R700

Sean Conroy

Awarded annually to a second year BSc Food Science student. Involvement and general interest in Food Science as a field of study.

DEPARTMENT OF FOOD SCIENCE-PRIZE: R600

Thoriso Tjale

Awarded annually to a first year BSc Food Science student. Involvement and general interest in Food Science as a field of study.

MATTIE JOOSTE (UNDERGRADUATE): PRIZE: R13 200 (86.5%)

Marli Kotze

Awarded annually to an undergraduate final year student in BSc Food Science for having obtained the highest average percentage for all modules over the first three years.

MATTIE JOOSTE (POSTGRADUATE): R17 600 (76%)

Denise Coetzee

Awarded annually to a PhD student for the best achievement in an MSc in Food Science degree.

SASKO-PRIZE: R12 000 (78.2%)

Kirsten Pietersen

Awarded annually to a third-year BSc Food Science student for the best achievement in all the first year and second year modules. Sponsored by Pioneer Foods/Pepsico and presented by Kim du Plessis, R&D Manager: Grains.

Prize winners 2024



Winners of the Department of Food Science prizes from left to right:

Denise Coetzee, Sean Conroy, Sandhya Naidoo, Lisa Clark, Kirsten Pietersen, Madison Beley, Marli Kotze & Niel van Heerden

Prys vir Navorsingspublikasie in Afrikaans vir Marguerite Vermeulen

Marena Manley

Me Marguerite Vermeulen het onlangs 'n **ATKV-SA AKADEMIEPRYS** ontvang vir haar publikasie 'Geografiese klassifikasie van Suid-Afrikaanse heuning met naby-infrarooi spektroskopie'. Die redakteurs van geakkrediteerde Akademiese tydskrifte het Afrikaanse artikels wat in 2022 verskyn het, voorgelê vir beoordeling deur vakkundiges. Dié publikasie van Marguerite, erken as een van die twee beste publikasies in die Natuurwetenskappe, het in die *Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie* [41(1), 47-57] verskyn. Marguerite het dié artikel, wat deel van haar MSc in Voedselwetenskap-navorsing was, in samewerking met Dr Paul Williams en Prof Marena Manley (haar studieleier) van die Departement Voedselwetenskap, asook Mike Allsopp van die Plantbeskermingsnavorsing-instituut, Landbounavorsingsraad, en Prof

Federico Marini van 'La Sapienza', Universiteit van Rome, Italië geskryf. Marguerite was ook die ontvanger van 'n Suid-Afrikaanse Akademie vir Wetenskap en Kuns studiebeurs tydens haar MSc studies wat sy in Desember 2020 voltooi het.



Food Science Academics Join the Fun at the Annual Student Dance

Jeannine Marais

It was an honour for the Food Science academics to attend this year's Food Science dance, a vibrant and colourful event that provided a unique opportunity to connect with undergraduate students beyond the classroom. Under the glow of disco lights, we had the chance to see our students in a new light, getting to know more about who they are as individuals.

At the Department of Food Science, we aim to build meaningful connections with our students, recognising that we are working with holistic individuals. Events like this highlight the privilege of being part of such an excellent group of people, whose energy and uniqueness continue to inspire us.

Here's to many more moments of connection and celebration as we journey together in the world of Food Science!

Photo below: Pieter Gouws, Jeannine & Schutz Marais



Sensory Science Students Explore Innovation at MANE Flavor & Fragrance

Jeannine Marais

Our third-year BSc Food Science students, enrolled in the Sensory Science module, had the privilege of visiting MANE Flavor & Fragrances Manufacturer in the Western Cape. This incredible opportunity allowed 58 students to explore MANE's state-of-the-art facilities and gain firsthand insights into the innovative research being conducted, particularly in Sensory Science.

A highlight of the visit was the tour of MANE's unique sensory facilities, which left a lasting impression on the students. Many were fascinated by the "flavour room," where they learned how precise flavour profiles are developed, and the "bad smell room" sparked lively discussions that continued long after the visit. These interactive experiences offered a tangible connection between theoretical concepts and real-world applications.

To end off the visit, students participated in a sensory science quiz, with congratulations going to Nina Wessels for her quick thinking and accurate answers, earning her the top prize!

This is the second year that MANE has hosted our Sensory Science student group, and their commitment to supporting education at Stellenbosch University's Department of Food Science is truly commendable. Sunett Gerber and her team went above and beyond to create an enriching and memorable experience for our students. Their generosity and dedication play a vital role in inspiring the next generation of Food Scientists and sensory professionals.

A heartfelt thank you to MANE and its team for their invaluable contribution to our student's academic journey.

Photos from left to right: Sunett Gerber, Nina Wessels and Jeannine Marais at MANE



Dr. Jeannine Marais and Dr. Diane Rip had the valuable opportunity to attend the *Higher Education Resource Services South Africa* (HERS-SA) ACADEMY 2024 programme, hosted in Cape Town in collaboration with the MTN SA Foundation.

HERS-SA is a registered Non-Profit Organisation (NPO) founded in 2003 to address the critical shortage of women in senior positions within the higher education sector in South Africa. The organisation offers a range of activities, including workshops, research, coaching, mentorship, and networking opportunities, with the HERS-SA ACADEMY being its premier event.

The theme of the HERS-SA ACADEMY 2024 was *"Succession Planning for Sustainable Higher Education."* Key topics covered included 'Women's Leadership and Changes in the Sector,' 'A Multi-Lenses Perspective on Leadership,' 'Career Advancement for Women in Higher Education,' and 'Self-care.' The programme also provided an excellent opportunity to connect and build a network with women in higher education from numerous national and international institutions.



Drs Diane Rip and Jeannine Marais at HERS-SA

Prof Gunnar Sigge elected as President-Elect of IFT

Gunnar Sigge

Professor Gunnar Sigge has been elected as President-Elect of the Institute of Food Technologists (IFT) in the USA. He will commence his term as President-Elect on 1 September 2025 and a year later will become President of IFT. It will be the first time that an individual from Africa is the President of IFT. Prof Sigge has previously served on the Board of Directors of IFT (2021-2024) and also served on IFT's Annual Meeting Scientific Programme Advisory Panel (AMSPAP) for five years, chairing it in 2017 and 2019.

The Institute of Food Technologists is a US-based Food Science and Technology association with over 11 000 members from across the globe (over 90 countries are represented). Approximately 25% of the membership are international members. IFT's vision is a world where food science and innovation are connected and universally accepted as essential to improving food for everyone and their mission is to connect the global food system communities to promote and advance the science of food and its application. IFT is very active in global food traceability initiatives, food and nutrition security programmes, career and student

development and the annual meeting and expo held in Chicago every year attracts ca. 17 000 delegates and over 1 100 exhibitors from around the world.

The Department's Food Science Student association committee members obtain free membership to IFT's Student Association (IFTSA) every year and currently Jana Schreuder, a postgraduate student, serves as the President-Elect of IFTSA.



Prof Gunnar Sigge



EuroSense 2024

Tarryn Ohlsson

In September 2024, the 11th European Conference for Sensory and Consumer Research took place in Dublin, Ireland, under the theme 'A Sense of Global Culture'. The event, organised by the European Sensory Science Society (E3S) and Teagasc, encouraged innovative research with a global perspective in sensory and consumer science.

Tarryn Ohlsson, a Master's student in the Department of Food Science, attended the conference with her supervisor, Dr Jeannine Marais, and researchers Dr Erika Moelich and Dr Brigitte du Preez. Each presented posters showcasing their work. For Tarryn, this was her first international conference, where she proudly presented her poster titled 'Grade expectations: Sensory quality of macadamia nut butter produced from different Styles (grades)', which was based on her Master's research. The conference was an unforgettable experience for the Stellenbosch University team, who also won the 'Best Photo' award in the photo competition. (see photo the winning photo below). The winning image, meant to reflect South African culture through food, was captioned: 'From braai broodjies to biltong, rooibos tea to koeksisters, this spread is a full-on taste safari—because in South Africa, every bite is an adventure!'

Tarryn extends her heartfelt gratitude to her supervisor, Dr Jeannine Marais, for her unwavering support and to the Stellenbosch University Postgraduate Office for making this opportunity possible.

Photo: The Stellenbosch University EuroSense 2024 attendees. From left to right, Dr Erika Moelich, Tarryn Ohlsson, Dr Brigitte du Preez, and Dr Jeannine Marais.



Drs Marais & Williams enrolled in SUNRISE Programme

Jeannine Marais

Drs Jeannine Marais and Paul William are honoured to be part of the inaugural cohort of Stellenbosch University's Research & Innovation Strategic Excellence (SUNRISE) Programme. Launched on 13 March 2024, this prestigious and selective initiative is designed to support high-performing mid-career academics, providing them with resources and mentorship to enhance their expertise and leadership capabilities.

The SUNRISE Programme is a strategic response to the anticipated retirement of senior professors, ensuring the cultivation of the next generation of academic leaders. It aligns with Stellenbosch University's vision of becoming a leading research-intensive and inclusive African institution. The programme is overseen by the Deputy Vice-Chancellor for Research, Innovation, and Postgraduate Studies.

Building on the foundation established by the National Future Professors Programme (FPP), SUNRISE fosters a collaborative scholarly community that spans disciplines. Each year, new fellows are selected based on their innovative contributions, resilience, and impactful work, with a strong focus on personal growth and academic excellence.



Food Science Welcomes Ann Colonna: A Sensory Science Inspiration

Jeannine Marais

We recently had the privilege of hosting Ann Colonna, the Sensory Program Director at the Food Innovation Center, affiliated with Oregon State University in Portland, Oregon. Located on the West Coast near California, Portland is Oregon's largest city, with a population of over two million. The region is renowned for its agricultural diversity, making it a hub for food innovation.

Ann's guest lecture and practical tasting session with our third-year Food Science students were truly inspiring. With her extensive experience in Sensory and Consumer Science, she brought an extraordinary depth of knowledge and creativity to the session. Ann shared insights from her work with a wide variety of food products, including tree nuts, dairy, seafood, raspberries, blackberries, kombucha, beer, wine, coffee, cheese, potato chips, honeybush tea, beverages, nut milk, oatmeal, and hazelnut oil.

One of the standout moments was her reminder of the importance of consumer testing: "The most important thing about consumer testing is testing the right consumers." This wisdom, paired with her engaging presentation style, sparked meaningful discussions among students and staff, offering plenty of "food for thought."

Ann's visit not only broadened our students' understanding of Sensory and Consumer Science but also showcased the creativity and innovation required in this field. Her passion and expertise left a lasting impression on everyone who attended.



Photo from left to right: Ann Colonna, Dr. Erika Moelich, Dr. Brigitte du Preez, Dr. Jeannine Marais

FameLab

Eduard Zehrt

In May, one of our MSc students, Eduard Zehrt, participated in the FameLab science communication competition. FameLab is an initiative that promotes science and technology by providing a platform for scientists to share their research with the public. The Stellenbosch University (SU) heat of FameLab took place over two days. On the first day, participants attended a full-day masterclass, which covered key aspects of science communication, public speaking, and analyses of world-famous speeches. On the second day, more than twenty SU students competed in two rounds for the top spot.

Eduard presented his research, which involved using Hyperspectral Imaging to distinguish between fresh, retail free-range chicken and conventional chicken. He explained that hyperspectral cameras function similarly to regular cameras (like those in your smartphone) but with advanced sensors that capture more wavelengths of light, providing far more information about the physical and chemical composition of food.

Eduard's engaging presentation, enhanced by the use of props, earned him second place and a R3,000 prize, sponsored by Prof Sibusiso Moyo, SU's Deputy Vice-Chancellor for Research, Innovation, and Postgraduate Studies.

Eduard and the winner of the SU heat, Tallulah Glasby, were invited to compete in the FameLab National Finals in September. The competition was livestreamed from the NRF SAASTA headquarters in Pretoria. After additional training to fine-tune their science communication skills and perfect their 3-minute talks, students from universities across South Africa competed for the title of FameLab 2024 national winner. By emphasizing the serious issue of food adulteration and comparing hyperspectral cameras to Iron Man's high-tech vision, Eduard secured third place in the national competition. The winner, Yolanda Mngcongco, will soon represent South Africa in the international finals in the UK.

Reflecting on the experience, Eduard said, "It was incredibly rewarding to share my research in this way. FameLab is a fantastic opportunity to make complex science accessible to the public. I believe more of our Food Science students should participate – they would excel in this competition! I wish I had done it sooner, but it's easy to overlook opportunities like this due to deadlines. However, making time for it is well worth it! It's an invaluable experience, and, most importantly, it's so much fun! It was refreshing to hear about the diverse research of other students, especially those outside of food science."



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A visit to Türkiye and England

Ilke Olivier

The Short Term Scientific Mission (STSM) applications from the Sensorfint E-cost action opened in December 2023, just after I graduated with a BSc in Food Science. I spent the holiday completing the application and hoping for the best. At the end of January 2024, I received an e-mail informing me that I was one of the 10 individuals chosen for this opportunity. I was filled with excitement and gratitude.

No one in my extended family had ever had the opportunity to travel abroad before. Therefore, I had many conversations in preparation for this significant trip ahead of me. This exciting academic mission occurred from 31 March to 25 April 2024.

I started my first year of my Master's with this exciting opportunity. This is when I realised that pursuing a Master's degree is so much more than just academics.

My year started very differently from that of my peers, as I had to plan for Türkiye, which involved a lot of administrative tasks to figure out. My application for a bursary through DSI was successful, and everything was in place for me to go. Luckily, Prof. Manley, Naomi Douglas, and Carli Pretorius helped me a lot with travel preparations and going abroad.

The purpose of the STSM was to gain knowledge from experts at Middle East Technical University (METU) in Ankara, Türkiye, on Nuclear Magnetic Resonance Relaxometry, while performing preliminary trials for my Master's project using new devices that are not available at Stellenbosch University. I also had the honour of meeting Prof Oztop, who is the co-supervisor on my project.

The STSM provided an invaluable opportunity to network with postgraduate students from another country, exposing me to diverse perspectives and methodologies. These interactions enriched not only my academic knowledge but also my personal and cultural growth. Discussions with my fellow lab mates taught me about strong work ethics in the lab and gave me insights into their various projects. Attending another university enabled me to form networking connections that could be valuable in the field of non-destructive spectral sensors (NDSS) concerning food items, offering potential benefits for the future.

A week after returning from Türkiye, I received an email from my supervisor offering me the opportunity to complete my data collection in England for two months as part of the SuChAQuality project, which runs from 2020 to 2024. Thrilled by this incredible opportunity, I eagerly accepted. From 26 August to 25 October 2024, I conducted my research at Nottingham Trent University (NTU). Thus, I also had to apply for a VISA for my first time ever, which was a learning opportunity on its own.

This period turned out to be one of the most challenging academic experiences of my life, as I faced tight deadlines and a packed schedule. Despite the intensity, England proved to be an amazing place to visit. Thankfully the convenience of public transport and the accessibility of everything in English, made this trip quite easy. At NTU, I was warmly welcomed by my host, Prof Rob Morris who ensured my learning extended beyond the scope of my project, for example like learning MRI scanning. I had the chance to also experience NTU's welcoming week which was an absolute highlight.

The most rewarding aspect of studying abroad in the beautiful England was the ability to focus deeply on my work as I had no distractions. During my time there, I successfully completed my practical trials and gained valuable experience using a MOUSE-NMR device.

The lessons I learned from these two opportunities were both personal and academic. The experience enhanced my self-confidence and affirmed my ability to be adaptable, face challenges, solve problems, and trust myself. This journey pushed me out of my comfort zone and facilitated collaborations. Discussions with the postgraduate students about their projects broadened my understanding of how postgraduate studies are conducted abroad. Relationships were built that will hopefully last a very long time, and knowledge will continue to be shared. Networking and building relationships have expanded my understanding of the food industry. I gained a good idea of how to plan a postgraduate timeline for the successful completion of a thesis. This experience has shifted my perspective on academic approaches. This journey also cultivated an appreciation for my home and community in South Africa. Adapting to a new environment required effective time management and alignment with local schedules. It also enhanced my understanding of diversity and the importance of being flexible when collaborating with others.

I would like to thank Prof Manley, my supervisor, for providing me with so many opportunities, and DSI and SuCAQuality for making these opportunities possible. I am forever changed and forever grateful.



IASIM, Bilbao

Eduard Zehrt

In July, Eduard joined Dr Paul Williams and Dr Rumbi Matenda at the 2024 International Association for Spectral Imaging (IASIM) congress in Bilbao, Spain. He presented a poster on using hyperspectral imaging to distinguish between fresh retail free-range and conventional chicken.

The conference was preceded by three workshops, where Eduard said he learned more in a day than he otherwise would in a month:

- Spectral image analysis in Python

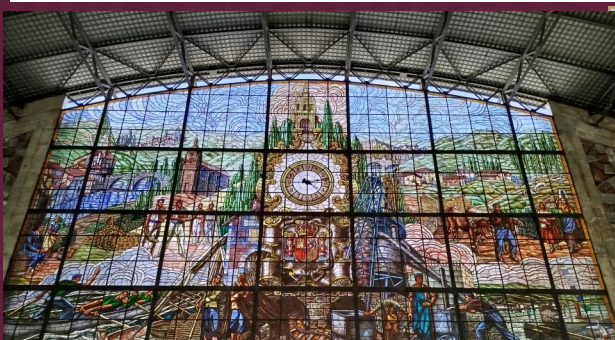
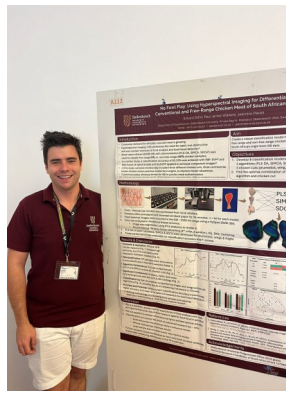
- Advanced target detection with PLS toolbox

- Applying deep-learning to hyperspectral data

At the conference, Eduard engaged with leading researchers and equipment manufacturers. IASIM 2024 also showcased diverse applications of imaging and spectroscopy, from agriculture to medicine. Eduard, Drs Williams and Matenda were proud to present SU's research on the global stage.

Eduard was able to make some time to explore the city of Bilbao. It is home to one of only three Guggenheim museums in the world. He says he fell in love with the historical buildings in the city, the mountains surrounding the city and the Basque cuisine. He spoke highly of the beer he enjoyed there but says Stellenbosch wines are much better than Spanish wines. As part of the conference, attendees were treated to an authentic Basque dance performance, a scenic boat cruise on the Nervión river, a bus tour to the coastal town of Mundaka, and dinner at a fine restaurant, Eneperi.

Back home, Eduard implemented what he learned and improved his classification accuracy by about 20%! Although initially reluctant to travel, he now says that students should seize opportunities to travel abroad. Experiencing different environments, cultures and ways of thinking, whiles engaging with top researchers, makes for a truly indescribable and invaluable experience.





SU Wellness Staff Sport and Recreation Day 27 November 2024



Tackling Antimicrobial Resistance: Insights from the AFMA-FoodForward SA: Securing Quality Food, Nourishing Lives

Diane Rip



Since its founding in 2009, FoodForward SA (FFSA) (<https://foodforwardsa.org/>) has been a champion in the fight against hunger and food waste in South Africa. By recovering surplus, high-quality, nutritious food from the consumer goods supply chain, FFSA helps reduce environmental impact while feeding those in need. Through a network of 2500 beneficiary organisations, this initiative nourishes countless lives across the country.

Dr Diane Rip has been privileged to contribute to FFSA's impactful work, particularly in the area of food safety communication. Her efforts include designing informative infographics, tailored to the needs of FFSA's diverse audience, and made available in multiple languages - English, Afrikaans, isiXhosa, and Sesotho. These resources were distributed to all 2500 beneficiary organisations, ensuring that critical food safety information reaches those who need it most. This year, Dr Rip's role expanded to include the development of a Standard Operating Procedure for prepared food recovery, further enhancing FFSA's commitment to safe and efficient food redistribution. She collaborated with Tarryn Ohlsson, who added creative flair to the design elements, making the materials both engaging and accessible. Dr Rip's passion for bridging the gap between food safety science and lay audiences shines through in this work, highlighting the importance of clear, actionable communication in building a healthier and more food-secure society. In her words, "Food safety is not just for the lab - it's for everyone's table!"

SAAHA Workshop

Diane Rip

Dr Diane Rip, Clio Sass (MSc) and Michelle Gouws (PhD) attended the **AFMA-SAAHA Antimicrobial Resistance (AMR) Workshop** hosted by the Animal Feed Manufacturer's Association (AFMA) of South Africa over 23-24 April in Pretoria East -<https://www.afma.co.za/amr-workshop/>. (Photo left)

The various livestock, companion animal, and governmental sectors each presented their unique challenges with regards to AMR, along with how they mitigate them. Representatives from the Milk Producers' Organisation (MPO), Game SA, South African Pork Producers Organisation (SAPPO), South African Ostrich Business Chamber, as well as the South African Equine Veterinary Association were among some of the speakers. They all provided insight on antimicrobial use, and what the main drivers of potential overuse and misuse of these drugs may be.

It was clear that a lack of consensus remains between the different animal sectors, with AMR frequently being interpreted solely as "antimicrobial use" or "antibiotic residue". A representative emphasised the necessity for the government, industry, and trade (export) partners to reach common ground on the use of antibiotics in food-producing animals. It was further concluded that this may be difficult to achieve, as it requires everybody's participation.

Most sectors only test for antibiotic residues in their products. However, SAPPO and the Ostrich industry invests largely in AMR research. Some of SAPPO's current projects investigate the mitigation of AMR in farms, as well as its impact on pig gut health.

This was the first workshop aimed at addressing the concern of AMR in food-producing animals in South Africa at industry level. Even though a disconnect between research, industry, and government remains, this was an essential first step in bridging that gap.





Flying the Food Science Flag at IAFP European Symposium

Diane Rip

Prof Pieter Gouws, Kyle Corbett (PhD), Dr Diane Rip, Denise Coetzee (PhD), and Nicole Meyer (MSc), proudly represented the Department of Food Science at the **International Association for Food Protection (IAFP) European Symposium on Food Safety** in Geneva, Switzerland, held from 30 April to 2 May, 2024.

This prestigious event featured a packed three-day programme, including 17 symposia, two roundtables, eight technical sessions, and a captivating closing plenary session. The symposium also showcased 175 poster presentations, with post-graduate students from the Department making a strong impression with their research:

Denise presented on "Uncommon Multi-Drug Resistance Profiles Reported for *Listeria monocytogenes* Originating from Leafy Greens in South Africa."

Kyle shared insights from his work, "*Listeria monocytogenes* in Two Ready-to-Eat Food Factories: Whole Genome Sequencing Outputs."

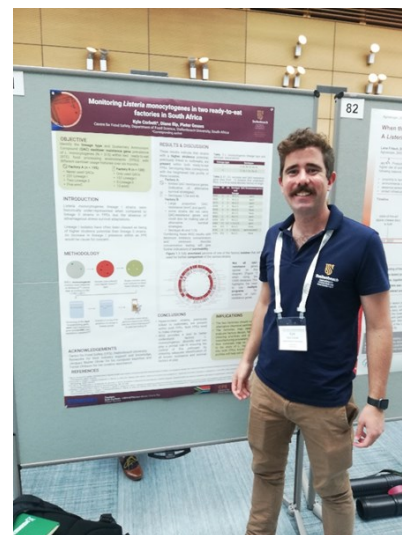
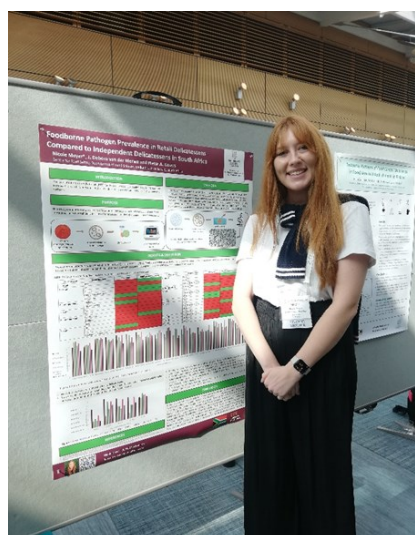
Nicole presented on "Foodborne Pathogen Prevalence in Retail Delicatessens Compared to Independent Delicatessens in South Africa."

The students not only showcased their research but also engaged in meaningful discussions with international delegates and food safety experts, enriching their knowledge and expanding their professional networks.

Of course, no conference experience would be complete without a nod to the food, and the IAFP delivered in spades! The delegates were treated to an array of delectable meals and Swiss desserts that left a lasting impression. Outside the symposium, the Food Science team took full advantage of their time in Geneva, enjoying a mix of sightseeing and a bit of retail therapy.

Overall, the IAFP Symposium was a valuable opportunity for research dissemination, professional growth, and international engagement, with a few sweet indulgences along the way!

Photos from left: Nicole Meyer, Denise Coetzee, Prof Pieter Gouws, Kyle Corbett



The One Health approach, emphasizing the interconnectedness of human, animal, and environmental health, is rapidly gaining momentum worldwide. Dr Rip's participation in the **8th World One Health Congress** organised by the global One Health Community, and held at the CTICC from 20-23 September, was particularly insightful.

This conference brought together hundreds of delegates from across the globe, showcasing a robust African presence and highlighting the continent's contributions to One Health research. Dr Rip presented a poster titled "*Listeria monocytogenes* genetic diversity from food, environmental, and clinical origins," which sparked significant interest among attendees. The presentation opened doors to exciting potential collaborations with researchers who share her passion for addressing food safety and public health challenges through a One Health lens.

The congress was a richly informative and rewarding experience, reinforcing the importance of cross-sector partnerships in addressing complex global health issues. Photo below: Dr Diane Rip with Dr Lynn Paul from the University of Cape Town (Division of Medical Microbiology).



Brewing Intersivity 2024

Anesu Mukuwane

The annual Brewing Intersivity was hosted by Central University of Technology, (CUT) in Bloemfontein, from 24–26 October 2024, which marked the 17th consecutive competition. This year 18 universities entered the competition which was a record number of participants for the event. Out of the six categories Stellenbosch University clinched 3rd place for the labelling and IPA (Indian Pale Ale) category, receiving full marks from the judges for the regulatory compliance score for the label.

The Intersivity Brewing & Tasting Challenge now includes support from the non-profit Beer Association of South Africa (BASA) and their partners SAB, Heineken and the Craft Brewers Association of South Africa (CBASA).

From left: Heineken representative (unknown), Dr S Hayward (Mentor), Mongezi Mchunu, Sandra Hul, Anesu Mukuwane (Captain), Alex Brock

ISOPOL 2024: South Africa Represents at the Global Stage

Diane Rip



From 10-13 September, **Dr Diane Rip** and **Kyle Corbett** (PhD student) attended the **21st International Symposium on Problems of *Listeria* and Listeriosis (ISOPOL)** at the University of East Anglia, Norwich, UK. Hosted by the Quadram Institute, this conference brought together the *who's who* of the *Listeria* research world - a rare opportunity to meet the experts whose names dominate the reference sections of countless publications.

The conference covered diverse themes, including pathogenesis, genomics, surveillance, novel control strategies, risk management, food safety, and *Listeria* biology. Kyle presented a poster titled "*Whole genome sequencing analysis of Listeria monocytogenes from two South African ready-to-eat food factories with different sanitiser usage histories*". To top it off, he was invited to chair a session on *Listeria* surveillance - an excellent recognition and opportunity. Dr Rip also delivered a poster presentation "*Diversity of Listeria monocytogenes in the understudied seafood industry of the Western Cape, South Africa, and its comparison with human listeriosis isolates*". Both posters attracted significant attention, sparking two days of engaging discussions and networking with peers from around the globe.

One of the joys of attending a niche conference such as ISOPOL is the natural camaraderie that arises from a shared focus. From deep discussions on surveillance strategies to light-hearted exchanges over coffee, the event offered a perfect blend of intellectual rigor and approachability.

A standout moment was the presentation of a collaborative study with NOFIMA on "*The role of cleaning and disinfection in preventing and eliminating Listeria in the food production environment*". This oral presentation highlighted the global importance of effective sanitisation practices and was recently selected for inclusion in a special issue of an international journal - a proud achievement for the team.

On the lighter side, a recurring theme was *L. monocytogenes*' notorious reputation as the 'factory pest that just won't quit,' reaffirming that controlling this pathogen remains a worldwide challenge.

The conference closed on an exciting note, as Dr. Rip formally submitted a bid to host the next ISOPOL in Cape Town in 2027. A successful bid would bring this prestigious event to South African soil, further spotlighting the region's contribution to global food safety research. Fingers crossed for a positive outcome!

Herbal Tea Horizons: A Sensory Journey through Innovation and Collaboration in 2024

Erika Moelich & Brigitte du Preez

Drs Erika Moelich and Brigitte du Preez had another successful year as they embarked on new adventures, conducted collaborative research, and explored the sensory world of herbal teas. Prof. Lizette Joubert's innovative research on herbal teas led to several opportunities for research collaboration. Workshops were presented to disseminate the research outputs and share knowledge with industry partners.

Connecting at EuroSense 2024

In September 2024, we travelled to Dublin, Ireland, for the EuroSense 2024 Conference on Sensory & Consumer Research with the theme 'A Sense of Global Culture'. Conference topics emphasised how an increasingly globalised world will shape the future of sensory and consumer science. Speakers from across the world presented their latest findings and discussed current issues relating to the application of sensory science and consumer research on a global scale. Together with our USA collaborator, Ann Colonna, Oregon State University, Portland, we presented 'A Cross-Cultural Study on Honeybush Tea'. Presenting these results is the culmination of the research in collaboration with our colleagues at the ARC Infruitec-Nietvoorbij on the processing of honeybush tea, investigating new techniques to reduce the processing time of honeybush tea, and ultimately increase energy efficiency. The current study explored general trends of herbal tea drinkers, comparing opinions and consump-

tion patterns of South African and USA consumers. The preferences, sensory descriptions, and emotional responses to honeybush tea produced using traditional and energy-efficient processing methods were also addressed.

Attending EuroSense 2024 was a rewarding experience and allowed us to engage with global experts and gain fresh insights into sensory and consumer research. The stimulating presentations on research with underrepresented communities, how to adapt sensory approaches to cultural contexts, the complexity of language in multicultural research, and the importance of sensory science to more sustainable food systems left us with a lot to consider.

Photo below: Ann Colonna, Dr Erika Moelich and Dr Brigitte du Preez at EuroSense 2024



SAAFoST Expert Sensory Workshop

Erika Moelich

Drs Erika Moelich and Brigitte du Preez were invited to present at the SAAFoST Expert Sensory Workshop for the Food Industry, which took place at the University of Pretoria's Future Africa Campus in June 2024. This two-day workshop emphasised the significance and application of sensory and consumer analyses in the food industry. The presentation, 'An Introduction to the Development of Sensory Communication Tools', included a unique tasting journey of South Africa's finest herbal teas. The sensory team at Stellenbosch University, in collaboration with the ARC Infruitec-Nietvoorbij, developed sensory wheels for honeybush and green rooibos, and *Setšong* Tepane black bush and Diya red root tea. The formal description of the sensory characteristics (aroma, flavour, taste and mouthfeel attributes) of the tea as part of a sensory lexicon and sensory wheels, are excellent tools to communicate the perception and sensory quality of these uniquely South African teas. Delegates were introduced to the attributes specific to Rooibos, Tepane black bush and Diya red root tea in an interactive tasting session, using the sensory wheels as a guide and food-based reference standards to illustrate the attributes associated with each indigenous tea.



Coming to our Senses: Exploring Sensory and Consumer Evaluation':
SAAFoST Expert Sensory Workshop presenters:

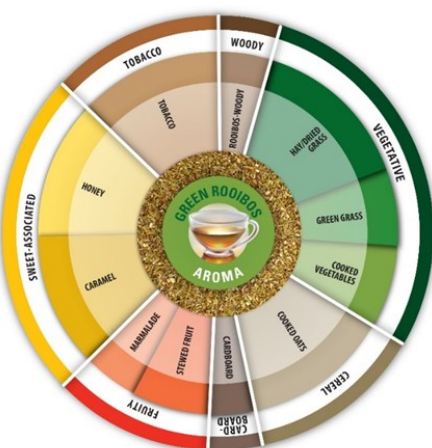
Front f.l.t.r.: Lorraine Smuts (Market researcher at Consumers In Focus), Katlego Mahlako Kgole (Research Assistant, University of Pretoria), Prof Annchen Mielmann (North-West University) and Dr Jeanine Kriek (Associate Director, Sensory Qual at MMR). Back f.l.t.r.: Almaré de Bruin (MSc student, University of the Free State), Dr Carina Bothma (University of the Free State), Prof Riëtte de Kock (University of Pretoria), Dr Erika Moelich (Stellenbosch University) and Dr Brigitte du Preez (Stellenbosch University).

Rooibos Sensory Workshop for Industry Partners

Erika Moelich

One of the highlights this year was presenting another sensory workshop for one of our Rooibos industry partners, Carmién Tea. This immersive two-day session introduced delegates from New Product Development, Production, Quality Control, and Marketing to sensory evaluation tools tailored specifically for rooibos. Participants enhanced their vocabulary with the Rooibos aroma lexicon and wheel, delved into intensive quality grading sessions of production batches, and, for the first time, applied the recently published green rooibos sensory lexicon. Green rooibos is an emerging alternative to traditional green tea, and we are proud to support its growth with communication tools like the Green Rooibos Sensory Wheels.

For more information on green rooibos tea: De Beer, D., Human, C., Du Preez, B.V.P., Moelich, E.I., Van der Rijst, M., Joubert, E. (2024). Development of sensory tools for green rooibos (*Aspalathus linearis* (Burm.f.) R.Dahlgren) and changes in quality attributes during shelf-life storage. <https://doi.org/10.1002/jsfa.13593>.





We remember and honour Prof Paul Geladi

Marena Manley

Prof Paul Geladi, a long-time collaborator with Prof Marena Manley and Dr Paul Williams, sadly passed away in May this year in Umeå, Sweden, at the age of 72.

In 2001, Paul was the first person to invite Marena to do an international invited talk at NIR NORD in Umeå. This was the beginning of a long collaboration and Paul visited Stellenbosch University and South Africa often. Coincidentally, Paul Williams, was also invited by Paul Geladi to do his first international talk (also in Sweden), although some years later. Paul Geladi was one of Paul's MSc as well as PhD supervisors and they continued to collaborate till the day Paul Geladi passed away.

Paul was a brilliant chemometrician – his paper on 'Principal Component Analysis' published in *Chemometrics and intelligent laboratory systems* in 1987 had been cited more than 14 500 times. As recognition of his scientific achievements, he received an Honorary Doctorate in Technology from the University of Vaasa, Finland in 2011. Paul enjoyed to teach, but most importantly he enjoyed life. In addition to flying planes and making electronic music, he enjoyed photography, theatre, traveling, and experiencing other cultures. He did not like driving, he would rather cycle... wind, rain or snow.

Paul is and will continue to be missed as a colleague and friend, but mostly for being the kind and unique person he was.



December 2024 Graduation



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Dear Food Science Graduates,

Congratulations, you have now moved on from undergraduate students to SU Alumni.

I want to quote our SU Chancellor, Retired Justice Edwin Cameron.

"As we celebrate the culmination of this academic journey, I am filled with immense pride in our graduands. Your achievements reflect perseverance, intellect, and the power of community support. Today, you join a worldwide network of Stellenbosch alumni who are shaping the future across South Africa and the world. Your success is not only a personal milestone but a testament to the collective effort of your peers, lecturers, families, and friends who supported you along the way. Remember, with your new qualification comes the opportunity – and responsibility – to contribute to the progress of our community and beyond. I know you will embrace this challenge with the same determination that brought you to this proud moment. Congratulations on this remarkable achievement. Once a Matie, always a Matie".

Always a Matie Congratulations and welcome to the Stellenbosch University alumni family!

Your graduation is a momentous occasion and marks the beginning of your continued relationship with your alma mater.

There are many ways to stay connected.

Please update your latest contact details via alumni@sun.ac.za in order for us to continue to keep in touch with you.

The Alumni Office is your lifelong connection to the University.

Join Maties Connect Our www.matiesconnect.com platform will help you increase your professional network, find a job opportunity, advertise your business, search for a mentor, reach out to alumni, and keep up to date on what's happening at your alma mater. Be part of an Alumni Chapter The University's Development and Alumni Relations team establish alumni chapters both locally and internationally to connect alumni in specific regions with one another through regular networking and social events - both online and in person. For more information on how to join or to volunteer and participate in a chapter, send an e-mail to alumnihubs@sun.ac.za

"Stay connected with the Department of Food Science! Discover innovative research, student achievements, and industry collaborations by following our LinkedIn page: Department of Food Science - Stellenbosch University."



Chancellor's award to Prof Pieter Gouws

Since joining the Department of Food Science in 2014, Prof Pieter Gouws has dedicated himself to advancing the field of food microbiology, with a focus on enhancing food safety. As the World Health Organization (WHO) aptly states, 'If it is not safe, it is not food.'

Prof Gouws has made it his mission not only to impart these critical lessons to students but also to share his extensive knowledge with the global food industry. His research and expertise led to the founding of the Centre for Food Safety in 2019, a milestone in his career. In recognition of his remarkable contributions, Prof Gouws was honored with the Chancellor's Award at this year's graduation ceremonies, a testament to the impact of his work."

Congratulations, Prof Gouws. We are truly proud of your achievements!

Picture below: Prof Pieter Gouws with his wife Lizelle and two daughters Lisa and Michelle, both SU students.

Receiving his award from Retired Justice Edwin Cameron at the 2024 graduation ceremony.



"Prof Gouws' research focuses on food safety, and he has made a significant contribution as an educator and researcher. His work on foodborne pathogens, especially Listeria and Salmonella, has earned him considerable international recognition, and he is the South African representative on the International Commission on Food Microbiology and Hygiene (ICMFH). His visionary and innovative leadership resulted in the establishment of the Centre for Food Safety (CFS) in 2019, a one-of-a-kind applied food science research consortium comprised of Stellenbosch University and partners in the food industry. Through innovation and collaboration, the CFS is continuing to receive global interest and recognition."

From the Dec 2024 Graduation brochure

Dr Marbi Schwartz

Investigating the potential of red-fleshed apples for cider production

This study investigates the unique chemistry of red-fleshed apples and their potential for cider production. It employs advanced analytical techniques to uncover the effects of processing and storage on changes in sugars, organic acids, phenolic compounds and volatile compounds, as well as colour and sensory attributes. By mapping these transformations, the study reveals that red-fleshed apples can create ciders with distinctive aroma and flavour profiles that differ markedly from the traditional Fuji variety. This pioneering work not only enhances the understanding of cider chemistry, but also opens new avenues for cider production, highlighting red-fleshed apples' potential for delivering high-quality, unique beverages.

Supervisor: Dr J Marais

Co-supervisor: Prof D de Beer (external)

Drs Jeannine Marais and Marbi Schwartz at the PhD graduation ceremony





Dr Loriane Yanclo



Dr Loriane Yanclo

Impact of low-pressure cold plasma treatment on postharvest quality attributes of fresh and dried mango fruit

There is a growing global consumer demand for ready-to eat fresh and dried fruits free of chemical residues. This study investigates the use of low-pressure cold plasma, an emerging non-thermal food processing technology, as an alternative to chemical pretreatments. The results indicate that cold plasma pretreatment maintains desired quality for fresh whole mango and reduces the drying time for mango slices compared to commercial practices. Using metagenomic characterisation, the study shows that the microbial diversity on mango fruit is strongly influenced by postharvest handling practices.

Supervisor: Dr OJ Caleb

Co-supervisors: Prof GO Sigge, Dr ZA Belay (*external*)





MSc degrees awarded

Master of Science in Food and Nutrition Security

Farmer, Kelly Odette (Food and Nutrition Security)

Monga, Yanne Kalombo (Food and Nutrition Security)

Solomon, Liezl (Food and Nutrition Security) (*cum laude*)

Master of Science in Food Science

Douglas, Naomi (*cum laude*) (Photo at top with Prof Marena Manley)

Ohlsson, Tarryn Amber (*cum laude*) (Photo right with Dr Jeannine Marais)

Riekert, Tarien (*cum laude*) (Photo left with Prof Pieter Gouws and Dr Diane Rip)



Bachelor of Science in Food Science

Baard, Jeanelle

Barry, Marianne Marie

Biyela, Kholiwe

Brody, Alexander Hubert

Carnie, Taylor

Eigenhuis, Lieneke Tahrita

Goosen, Nicola

Groenewald, Mia

Hendricks, Zoe

Heyns, Lindsay (*cum laude*)

Hirsch, Jack Harrison

Hlambisa, Nombali

Kabuya, Nzeba Syntiche

Kotze, Marli (*cum laude*)

Kumm, Tamryn Olivia

Laubser, Mieke

Lourens, Carli

Louw, Elzaan Michelle

Machabi, Joy Queen

Madisha, Kgotlello

Matthews, Fallon Chelsea

Nock, Georgia Ann

Oosthuizen, Zanie

Phosa, Nare Kamogelo

Potgieter, Anné

Smit, Cara

Steyn, Jana-Mari

Swanepoel, Kayla

Teanby, Emily Lucy

Van Eck, Lumé

Van Heerden, Abraham Daniel

Van Niekerk, Helene-Mari

Van Tonder, Dian

Van Zyl, Cherien

Vermeulen, Carine Hugo

Wardle, Paige Sarah Zwicky (*cum laude*)

Wentzel, Suzan







Dear Alumni, students and Friends of Food Science at Stellenbosch University,

As 2024 draws to a close, we would like to extend our warmest wishes for a joyful holiday season and a prosperous 2025 to all of you.

We are truly thankful for your continued interest and support throughout the year. Our achievements are a direct result of the collaborative efforts of our outstanding students and dedicated staff, all guided with great care by our Head of Department, Prof Gunnar Sigge.

We take immense pride in the accomplishments of our students and staff, and their achievements continue to provide us with plenty of reasons to celebrate. As I put this newsletter together, I felt great joy in seeing the collective efforts that made it possible. A special thank you goes to Petro Du Buisson for her exceptional support and attention to detail editing the final draft of this newsletter.

May this holiday season bring you peace and joy.

Kind regards,
Anchen Lombard
Food Science, Stellenbosch University

