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Society of Food Science and Technology
Department of Food Science and Technology
Faculty of Livestock, Fisheries and Nutrition
Wayamba University of Sri Lanka

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EDITORIAL

Empowering the Next Generation of Food Scientists

Global food systems face numerous challenges, including climate change, food insecurity, and sustainability pressures. Addressing these issues requires innovative solutions, and young food scientists are stepping up with fresh ideas and creativity.

From developing alternative proteins to designing biodegradable packaging and finding new uses for food waste, student-led innovations are already making a positive impact. With the right mentorship, research opportunities, and collaboration, these ideas can transform into practical solutions for the future.

Beyond technical expertise, it is equally important to cultivate responsibility and purpose among emerging professionals. Food science is not only about innovation but also about improving nutrition, supporting communities, and protecting the environment.

As a society, investing in the next generation is vital. By providing training, recognition, and platforms for young scientists, we ensure that food science and technology remain at the forefront of building a healthier, more sustainable world.

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DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

The Department of Food Science and Technology (DFST) has a mission to contribute to society through education in food science and technology, disseminating knowledge, and conducting research and teaching at the highest level of excellence. DFST's curriculum provides students with both theoretical knowledge and practical experience in food processing, product development, and quality control. The department has graduated skilled professionals to meet the demands of the food industry. In the final year, students specialize in specific topics, conduct research projects, or undergo intensive in-plant training. DFST places a strong emphasis on global food quality and safety.

Vision of the Department:

"Inspiring minds to meet global food and health challenges"

Mission of the Department:

"Contributing to society through the pursuit of education in Food Science and Technology in learning, research, disseminating knowledge, and meeting international standards at the highest level of excellence to meet global food challenges."

SOCIETY OF FOOD SCIENCE & TECHNOLOGY
WAYAMBA UNIVERSITY OF SRI LANKA

Society of Food Science & Technology
Wayamba University of Sri Lanka

The Department of Food Science and Technology aims to contribute to meeting international standards in research and teaching at the highest levels of excellence while pursuing education in food science, food technology, food quality & safety, and all related sciences in learning, developing skills, synthetic application, and dissemination of knowledge.

The Society of Food Science & Technology (SFST), established in 2004, allows undergraduates who specialize in Food Science & Technology to explore the different aspects of the field in which they will be professionals. The Society helps to develop the creativity of these undergraduates while harnessing their potential and getting the best out of each individual. Undergraduates are directed towards finding their strengths and opportunities in the industrial and academic fields of Food Science & Technology. Fundamentally, the Society helps to build up teamwork, good communication skills, and a strong personality among the students who specialize in Food Science & Technology.

MESSAGE FROM THE HEAD OF THE DEPARTMENT

It is indeed a great pleasure to send this message and good wishes to bring out the newsletter “Food Notes”, a fourth release from the Society of Food Science and Technology of the Department of Food Science and Technology, Wayamba University. There is no doubt that the “Food Notes” would disseminate and share novel food science and technology-related research, development, recent trends, and thoughts from our students, academics, and highlight updated developments in the field of Food Science and Technology nationally and internationally.

The Food Science and Technology Society is the official student body of the Department of Food Science and Technology, WUSL, and works towards enriching our student experience and skills by organizing, engaging in events, and providing opportunities that broaden horizons and prepare students for their future careers. Our students host a variety of activities every year, including career talks/research seminars, workshops, and showcasing novel products developed at ProFood, as well as other related exhibitions.

Launching the third newsletter, Food Notes, marks another milestone in the successful journey of the society. This newsletter gives us the honour that our students are on the correct path, we should appreciate their creative potential, and innovative thoughts compiled. The contents of the Food Notes are interesting, novel, and absorbing. I am confident that this newsletter will have a positive impact on readers who are interested in the food science and technology fields.

On behalf of the Department of Food Science and Technology, I would like to congratulate and give a big thank you to all the members of the Society, especially Mr. Salman Athif (President), Ms Wathasala Ranathunga, Secretary, Mr.Pasindu Dissanayake & Ms.Hiruni Gunasekara, Editors, who have played a wonderful role in accomplishing this task. In addition, I must convey my heartfelt gratitude to the senior treasurer of the Society, Dr. Oshala Hettiarachchi, under whose guidance this task has been undertaken. I also acknowledge all the contributors for their wonderful and inspiring notes, without which this newsletter issue would not have been possible.

Prof. K.D.D.P Gunathilake
Head of the Department
Department of Food Science and Technology
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

MESSAGE FROM THE SENIOR TREASURER

It is with immense pride and pleasure that we present the Food Notes, the official newsletter of the Society of Food Science and Technology, Faculty of Livestock, Fisheries, and Nutrition, Wayamba University of Sri Lanka.

This publication would foster communication, share knowledge and innovations, build professional networks, and promote sustainability in the field of food science and technology.

Further, it would keep members informed of industry news, events, and career opportunities. This newsletter serves as a valuable platform for members to connect, learn about advancements in the field, and contribute their own findings to inspire and inform the broader food technology community.

Apparently, it would enthrall the reader with “a panoramic view” in the field of food science through all the letters and images that have brought light to every topic included in Food Notes.

As the Senior Treasurer of the Society of Food Science and Technology, I wish to express my sincere gratitude to Prof. Prasanna Gunathilake, Head of the Department of Food Science and Technology, and the other members of the academic and non-academic staff for the support and guidance given to my executive board members and other student members of the society.

Let’s create a future bridge sky-high with expanding research and innovations in the field of food science and technology.

Dr. (Mrs.) H.A.C.O. Hettiarachchi
Senior Treasurer
Society of Food Science and Technology
Department of Food Science and Technology
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

MESSAGE FROM THE PRESIDENT

It is with great pride and a deep sense of responsibility that I present Volume 4 of **"FoodNotes"** on behalf of the Society of Food Science & Technology (SFST). This term has been defined by purposeful action, creativity, and resilience. Despite the rigorous demands of our academic schedules, our members, together with our faculty advisors and industry partners, have achieved remarkable milestones that reflect the Society's commitment to innovation, professional development, and community impact.

One of the most notable achievements this year was the successful launch of our Job Bank Project, the first of its kind in the Society's history. This initiative serves as a bridge between undergraduates and the food industry, creating a structured platform to connect students with internship and employment opportunities. It is a pioneering step that not only addresses the career aspirations of our members but also strengthens the visibility of our department as a reliable talent pool for the industry.

Our society also proudly celebrated World Food Day with a Food Photography Competition, creatively highlighting the cultural and nutritional importance of food through visual expression. At the Ruhunu Rasaraniya Industrial Exhibition 2024, our students showcased innovations that translated academic research into real-world applications, further strengthening the bond between academia and industry.

In line with our vision to build capacity in food safety and quality assurance, we conducted a nationwide HACCP Implementation Workshop that reached over 700 participants across the country. The program, which concluded with certificates issued by the Society, equipped attendees with practical skills in hazard analysis, critical control points, and regulatory compliance, significantly enhancing professional competence within the food sector.

We also marked World Food Safety Day by hosting a dedicated webinar aligned with the global theme, coupled with an inter-university quiz competition that stimulated knowledge-sharing and critical thinking among undergraduates nationwide. In addition, our collaboration with TEQZA Innovations (PVT) Ltd. resulted in a highly practical workshop on rapid food safety testing, ensuring participants gained first-hand exposure to advanced analytical tools.

To nurture an informed and engaged student community, the Society continued publishing monthly articles on diverse and emerging topics in food science, technology, and industry trends. These contributions played a vital role in fostering curiosity, disseminating knowledge, and keeping our members updated on industry developments.

The pinnacle of our activities this year was the highly successful participation in ProFood ProPack 2025, one of the most prestigious exhibitions in the region. Organized during a challenging period of end-of-semester examinations, this event was executed with professionalism and precision. It not only showcased innovative student-led products but also attracted attention from industry stakeholders, setting a new benchmark for the Society's standards of excellence.

Throughout my journey as president, my guiding theme has been entrepreneurship. I firmly believe that entrepreneurship is not merely about starting businesses but about cultivating a mindset of creativity, resilience, and opportunity recognition. This vision has driven me to motivate our team to approach every initiative with an entrepreneurial spirit, whether launching new projects, developing products, or building networks.

As I reflect on these accomplishments, I am filled with immense gratitude to our faculty mentors, industry partners, alumni, sponsors, and, most importantly, the dedicated members of SFST. The foundation we have built this year through resilience, collaboration, and unwavering commitment will continue to inspire future leaders, foster innovation, and leave a lasting legacy.

Let us remain curious, work with courage, and keep pushing the boundaries of food science and technology. Together, we can transform today's efforts into tomorrow's impact.

Mr. M.L.M.S.ATHIF
President
Society of Food Science and Technology
Department of Food Science and Technology
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

MESSAGE FROM THE SECRETARY

Serving as the Secretary of the Society of Food Science and Technology has been a truly enriching experience. While initiating new projects is exciting, sustaining them and ensuring their growth is where the real challenge lies. This journey has been filled with learning, teamwork, and innovation, and I am incredibly grateful to the faculty members and society members whose dedication has been the driving force behind our achievements.

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Our society is committed to building a strong network of food science enthusiasts, professionals, and students. This year, we are taking a step further by embracing novel food technologies and expanding our collaborations beyond traditional boundaries. By merging with other industries, universities, and research institutions, we aim to explore cutting-edge advancements, engage in interdisciplinary projects, and create impactful innovations in food science and technology.

We invite you to be a part of this exciting journey. Whether you're an aspiring student, a researcher, or a professional in the field, there is always room for new ideas and perspectives. Let’s work together to push the boundaries of food science, foster sustainability, and shape the future of the industry.

Ms. Wathsala Ranathunga
Secretary
Society of Food Science and Technology
Department of Food Science and Technology
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

MESSAGE FROM THE VICE PRESIDENT

It is both an honor and a privilege to serve as the Vice President of the Society of Food Science and Technology. This role has been a truly rewarding experience, marked by collaboration, growth, and a shared commitment to advancing the future of food science. Every initiative we have undertaken, whether organizing impactful events, championing innovative ideas, or strengthening academic and industry partnerships, has reinforced the value of teamwork and the power of collective vision

This year, we have focused on expanding our engagement with emerging food technologies and cultivating a dynamic platform that empowers students, researchers, and professionals alike. By transcending disciplinary and institutional boundaries, we continue to foster a culture rooted in innovation, inclusivity, and sustainability.

I am sincerely grateful to our dedicated faculty members and esteemed society members, whose unwavering support and enthusiasm have been instrumental in driving our progress and turning vision into reality.

As we move forward, let us build upon this momentum, exploring new horizons, exchanging knowledge, and working together to shape a more resilient and forward-looking food industry.

Mr. Thenuka Chamith
Vice president
Society of Food Science and Technology
Department of Food Science and Technology
Faculty of Livestock, Fisheries, and Nutrition
Wayamba University of Sri Lanka

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2024/2025

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EDITING THE FUTURE: CAN CRISPR FEED A GROWING WORLD?

Ensuring global food security and food safety has been a serious challenge over the years due to a growing population, climate change, and limited agricultural resources. These conditions have caused the demand for safe, nutritious food to skyrocket. Even though traditional planting, breeding, and food processing methods have contributed significantly to solving these issues, those methods are time-consuming, inconvenient, and often inefficient. That's where modern biotechnology plays a role.

CRISPR-Cas9 (Clustered Regularly Interspaced Short Palindromic Repeats) is an advanced biotechnological method that was discovered in 2012. It is a method that can be used to edit genes more precisely than available methods. This method can be applied to improve the nutritional value of produce, to increase yield, and to enhance crop and animal health.

CRISPR is a natural defense mechanism that is present in bacteria, where it is used to identify foreign DNA and cut it. Scientists have developed this mechanism into a highly accurate gene editing tool. The Cas9 enzyme is the main component in this technology, which acts as molecular scissors that cut DNA at a specific location. Guide RNA, which is also known as gRNA, directs Cas9 to the exact DNA sequence that needs to be edited. Once the Cas9 enzyme cuts the DNA in the desired location precisely, the DNA can be modified in one of two ways, which are Gene disruption (disabling a gene to remove an undesirable trait) and Gene insertion or correction (introducing or repairing a gene to create a desired trait) Precision, affordability, and efficiency of the CRISPR method have made it superior when compared with older genetic engineering methods.

Applications of CRISPR in the Food Industry

The CRISPR method can be used to find answers to burning questions in the modern food industry. CRISPR can be used to enhance crop health by making them resistant to viral, bacterial, and fungal infections. By using this method, crops can be precisely inserted with resistant genes and inactivate the susceptible genes. For instance, scientists have developed a rice variety using CRISPR that is resistant to bacterial blight. Moreover, it can be used to make crops more resilient to climate change and drought conditions.

Another application of CRISPR is that it can be used to enhance the nutritional profile of food. This method can unlock more pathways to biofortify foods by increasing the levels of vitamins and minerals. For example, scientists have developed a corn variety with increased iron and vitamin A by modifying its metabolic pathways. Furthermore, CRISPR can be used to alleviate allergens from foods like peanuts by knocking out the allergen-producing genes.

In addition, this method can be used to improve the livestock industry and increase its positive contribution to the food science field. CRISPR can be used to engineer animals that are resistant to bacterial, fungal, and viral infections. For instance, scientists have edited the genome of pigs to make them resistant to Porcine Reproductive and Respiratory Syndrome (PRRS). Also, gene editing can be used to increase muscle growth, milk yield, and reproductive efficiency of animals.

CRISPR can contribute to ensuring food safety and quality, as CRISPR-based diagnostic tools can instantly detect food-borne pathogens such as Salmonella species and E. coli. Moreover, this novel technology can be used to reduce enzymatic browning in vegetables, mushrooms, and apples, extending shelf life and reducing food waste.

This technology can also be used to enhance the activity of fermentation and microbial applications. CRISPR can improve the performance of bacteria and yeast used in food, and it can also eliminate harmful compounds produced by microbes, such as mycotoxins in stored grains.

However, the use of this method is dependent not only on scientific progress but also on ethical regulations. CRISPR has already started to reshape the food industry, and if used wisely, it will be able to solve a significant proportion of food challenges in the 21st century.

Written By- Ms. Pamodhya Samarakoon

A Showcase of Innovation at ProFood ProPack 2025

Wayamba University's Society of Food Science and Technology made a remarkable presence at "ProFood ProPack" and "AgBiz" 2025. This prestigious trade show, a premier platform for food, beverage, packaging, and agriculture industries, offered the perfect opportunity to present our newest innovations to a targeted audience.

Covering a wide variety of areas from nutritious functional foods to sustainable packaging, our products reflected both creativity and scientific excellence. This year's showcase received remarkable publicity and enthusiastic responses, as eye-catching displays and interactive presentations drew the attention of industry experts, entrepreneurs, and consumers alike.

The exhibition once again proved to be a stage for our talented members to highlight their ingenuity, innovation, and dedication to building a healthier, more sustainable future.

Triova — Multi-seed spread

A nut-free, plant-based alternative to peanut butter made from mixed seeds. High in protein, healthy fats, and minerals, it targets allergy-sensitive and health-conscious consumers. Use as a spread, baking ingredient, or protein boost for smoothies; commercially, it competes as a clean-label, family-friendly nut substitute.

Millex — Banana blossom malted breakfast cereal powder

An instant cereal powder combining banana blossom, germinated finger millet, and chocolate. Designed for convenience and nutrition, it delivers fiber, minerals, and plant-based phytonutrients while valorizing underused banana blossom. Ideal for health-focused breakfasts and institutional or retail formats.

AlgaKiK — Spirulina Protein Bar

Sri Lanka's spirulina chocolate protein bar: a vegan, algae-based superfood snack blending plant protein and oil seeds with chocolate. Offers clean energy and muscle recovery nutrients in an on-the-go format; appeals to athletes, vegans, and eco-minded buyers because spirulina uses low land/water compared with typical crops.

SMORA — Peanutshell liquid smoke

A sustainable liquid smoke produced from peanut shells. Formulated to be PAH-free and scientifically tested for antioxidant and antimicrobial activity, it provides a safe smoky flavor while reducing reliance on wood smoke and valorizing an Agro-waste stream. Use in marinades, sauces, snacks, and clean-label products.

TropiGold — Passionfruit peel marmalade

A premium marmalade made from passionfruit peel and juice (high in pectin, antioxidants, fiber, and vitamin C). It upcycles fruit waste into a flavorful, nutritious spread positioned as a tropical, health-forward product for premium retail and artisanal bakery pairings.

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Palmyrah-based / Palm-leaf eco containers

Biodegradable containers and sheets made from palmyra/palm leaf with natural binders. Lightweight, durable, and compostable, these serve as low-cost, local alternatives to plastics for packaging and food service, supporting circular-economy goals and adding value to traditional materials.

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Solvo — Kalu Heenati pasta

A modern pasta made from Kalu Heenati rice, flavored with garlic and enriched with antioxidants and fiber. It reimagines traditional Sri Lankan rice as a value-added, nutritious alternative to wheat pasta, appealing to consumers seeking novel, locally rooted products.

12-14 (Cinnoman Vodka)

A Ceylon-made spirit produced from underutilized starches and infused with cinnamon and cloves. At ~40% ABV, it offers warm spice notes and a clean finish, positioned as a craft, locally sourced vodka for premium and cocktail markets.

Bael Wine

A fermented beverage from Bael flowers is rich in bioactive compounds with antioxidant and antimicrobial properties. Marketed as a novel, functional wine that combines traditional ingredients with health-oriented storytelling, good for niche gastronomy and functional-beverage consumers.

Mat-Sol sachet

An edible, seaweed-based sachet designed to replace single-use plastic sachets. Biodegradable and flavored, it's suitable for single-serve condiments, instant drinks, or pharmaceutical dosing, offering convenience with a strong sustainability claim.

Green Nest — Guinea grass biodegradable packaging

Paper bags and packaging made from invasive Guinea grass. Turning an environmental problem into a resource, these bags are strong enough for produce, reduce plastic waste, and create economic opportunities for local communities while aiding ecosystem management.

Showcasing Innovation at Ruhunu Rasa Saraniya - 2024

The Ruhunu Rasa Saraniya – 2024, an indigenous food and food technology industrial exhibition, was held on the 25th and 26th of October at the Galle Municipal Council premises, bringing together food science undergraduates, industry professionals, and food enthusiasts.

We, the undergraduates of the Department of Food Science and Technology, Faculty of Livestock, Fisheries, and Nutrition, were proud to contribute by showcasing seven new food products developed solely by our faculty students. Those innovative products drew attention from both local and foreign visitors, reflecting the innovation and expertise nurtured within our faculty.

The most thrilling element of the exhibition was the enthusiasm shown by school students towards the food science sector and inventions. The event also offered a useful platform for promoting the faculty and its remarkable achievements.

Ruhunu Rasa Saraniya was an exceptional gateway that gave a glimpse of the future of the food sector in Sri Lanka. Being a part of Ruhunu Rasa Saraniya – 2024 was a privilege that made us proud and inspired, strengthening our dedication to food technology innovation to a greater extent.

Where Creativity Meets Science: Showcasing Student Innovations in New Product Development

The Department of Food Science and Technology of Wayamba University of Sri Lanka proudly hosted an inspiring student exhibition featuring innovative food products developed under the Food Product Development course module. The exhibition served as a vibrant platform for students to present their creativity, technical skills, and entrepreneurial thinking to the university community and beyond.

Purpose of the Exhibition

The New Product Development course module is designed to provide students with:

- Knowledge of obtaining, screening, and selecting product ideas.
- Practical experience in developing market-ready products using a systematic approach.
- Hands-on exposure to integrating food processing, chemistry, and analysis.
- Guidance in formulating products that comply with current food regulations and industry standards.
- This exhibition represented the culmination of the module, enabling students to translate theoretical knowledge into real-world applications.

Highlights of the Novel Products

Students showcased an exciting array of products, each addressing consumer trends such as health, sustainability, and innovative flavors:

- **Protein Bar from Spirulina Powder** – A nutrient-rich snack blending plant-based protein and functional ingredients.
- **Banana Blossom Malted Drink** – A creative beverage harnessing underutilized local crops.
- **Multi-Seed Spread** (Pumpkin Seed, Cooking Melon Seeds, Watermelon Seeds) – A nutritious alternative to conventional spreads.
- **Marmalade from Passion Fruit Peel** – A zero-waste approach to fruit processing.
- **Bitter Gourd Sauce** – An innovative condiment combining health and taste.
- **Mushroom Mayonnaise** – A plant-based twist on a classic spread.
- **Low-Sugar Finger Millet Chocolate Spread** – A healthier indulgence aligning with low-sugar trends.
- **Bael Flower Wine** – A novel beverage inspired by Sri Lankan botanicals.
- **Cinnamon-Infused Vodka from Traditional Rice Variety** – A premium infusion highlighting heritage grains.

Each product was designed with a clear market justification, showing students' ability to balance creativity, feasibility, and compliance with food regulations.

Impact and Learning Outcomes

The exhibition not only showcased technical skills but also encouraged teamwork, communication, and critical thinking. Students gained hands-on experience in idea generation, product formulation, and market evaluation — essential skills for the evolving food industry.

Events like this exhibition highlight the Department of Food Science and Technology's commitment to nurturing innovation and entrepreneurship among undergraduates. By linking academic learning with practical applications, the Society of Food Science and Technology continues to empower students to become future leaders in the food sector.

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IOT APPLICATIONS IN MINIMIZING POST-HARVEST LOSS IN SRI LANKA

Post-harvest loss is a vital problem in Sri Lanka, resulting in substantial economic losses, food supply inefficiencies, and nutritional deficiencies. Current studies reveal that 30–40% of fruits and vegetables are lost after harvest, especially during transportation from farms to markets. Such losses amount to over 500,000 metric tons annually 200,000 tons of vegetables and 300,000 tonnes of fruits. Figuratively, the economic value of these losses amounts to approximately Rs. 180 billion per year, or nearly US$600 million. Most of the loss occurs due to poor packaging, improper storage, inadequate transportation, and transportation delays from harvest to market. Observing how IoT can be implemented offers a means to reduce these losses significantly.

IoT-enabled cold chain and monitoring

IoT-enabled monitoring can significantly reduce losses in the cold chain for fruits and vegetables in Sri Lanka. Currently, poor storage conditions lead to significant annual losses 19% of vegetables and 21% of fruits due to temperature, humidity, and ethylene levels. IoT sensors can track these conditions in real-time, enabling timely interventions such as adjusting cooling systems or modifying routes for transport. Implementing such technology could lower the current 30–40% loss rates for perishable produce.

Traceability and Smart Packaging

Traceability in Sri Lankan agricultural value chains is largely inadequate, leading to significant spoilage of produce. The implementation of IoT technologies like RFID, GPS, and QR codes can provide greater visibility throughout the supply chain. Approximately 20–30% of vegetables and 15–20% of fruits are lost due to insufficient packaging. Integrating traceability with intelligent packaging that can monitor freshness and detect spoilage will enable stakeholders to identify problems early, improve export quality, increase revenue, and reduce the rejection of spoiled goods.

Predictive Analytics and Shelf-life Estimation

Beyond real-time monitoring, sensor data can also be used to feed predictive analytics models to estimate shelf life. Based on local climatic conditions, harvesting methods, and variety-specific traits (such as ripening rates under given temperatures), the models can determine the optimal harvest time, storage conditions, and market timing to minimize spoilage. For example, Sri Lankan mango value chains were studied: 29–33% loss along the chain was noted by researchers, with ~20% losses being borne by small collectors and retailers; the largest contribution was from storage losses (up to ~13.5%). Through the application of IoT coupled with analytics, such loss points can be identified and addressed for improvement.

Smart Farming System

To reduce post-harvest loss, farmers and middlemen need better access to information and infrastructure. Despite existing guidelines for packaging and storage, grassroots adoption remains low. Implementing IoT-based systems, including local weather forecasts and sensor networks, can improve decision-making by alerting farmers about optimal harvesting times to prevent losses. Affordable sensors for soil and temperature, along with alert systems, can enhance the responsiveness of the entire supply chain.

To harness the benefits of IoT in Sri Lanka, investment in infrastructure, capacity building for farmers, and favorable policies is essential. Major barriers include inadequate rural infrastructure, high costs of sensors, and low e-literacy among farmers, which must be addressed to move beyond pilot projects and achieve broader application.

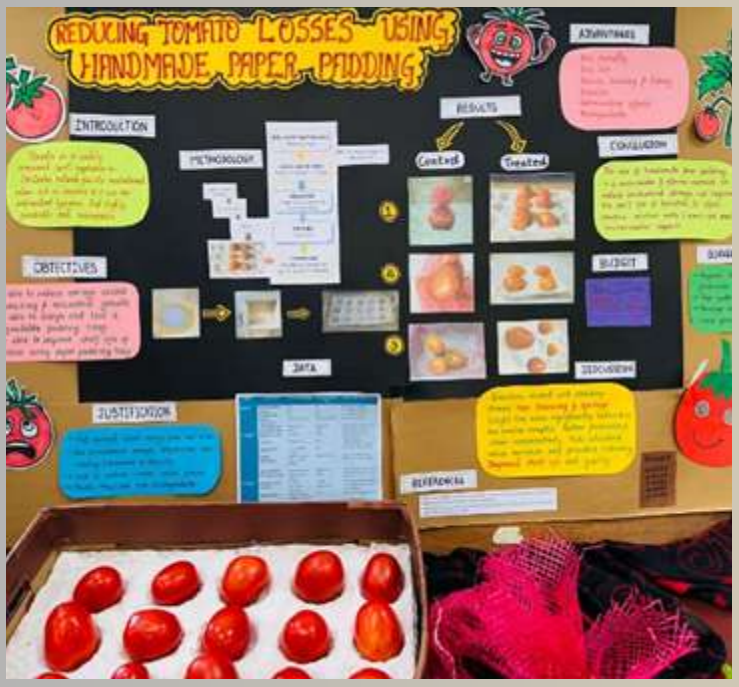
Post-harvest losses of 30–40%—half a million tons of produce and Rs. 180 billion worth of losses per year are both a challenge and an opportunity for Sri Lanka. IoT applications offer pragmatic solutions through cold-chain monitoring, traceability, predictive analytics, smart packaging, and decision support. If properly implemented with attention to cost, training, policy, and infrastructure support such tools can reduce losses dramatically (from 30–40% potentially to less than 10% for some segments) and have a very beneficial impact on farmers' revenues, food security, and export potential.

Written By: Ms. Kavindi Abeykoon

POSTHARVEST INNOVATIONS

Postharvest losses of food remain a significant challenge in Sri Lanka, where a considerable portion of fruits, vegetables, grains, and other perishable commodities are wasted before reaching the consumer. These losses occur due to inadequate handling, poor storage facilities, inefficient transportation, improper packaging, and a lack of modern preservation techniques. Such wastage not only reduces the quantity of food available for the population but also undermines the efforts to ensure national food security. In a country where agriculture is the backbone of the economy, postharvest losses represent both a financial burden to farmers and a barrier to sustainable development

01. Reducing Post Harvest Losses in Tomatoes Using Handmade Paper Padding



Tomatoes in Sri Lanka suffer high postharvest losses of about 25–35% mainly due to mechanical damage, microbial spoilage, and poor packaging. To minimize this, a sustainable packaging solution using handmade fiber pads from recycled paper has been introduced. These biodegradable pads cushion tomatoes during transport, reduce bruising, and allow breathability and moisture absorption. They are low-cost, eco-friendly, and can be easily produced with simple methods by farmers or youth groups. This innovation not only reduces food losses but also supports farmer income, food security, and sustainable packaging alternatives

02. Citronella oil based edible coating for enhancing the shelf life of Banana.

Bananas are highly perishable fruits that undergo rapid ripening and spoilage, leading to major postharvest losses. To address this, a citronella oil-based edible coating was developed, enriched with natural antimicrobials and additives like ascorbic acid, CMC, glycerol, pectin, and potassium sorbate. This coating helps reduce moisture loss, delay ripening, prevent browning, and enhance antifungal effects, thereby extending the shelf life of bananas.

The method involves preparing a simple coating solution and dipping bananas, making it cost-effective and practical. This innovation supports reduced food wastage, better fruit quality, and improved sustainability in postharvest handling.

03. Aplazador

Papaya, a highly perishable fruit in Sri Lanka, faces postharvest losses up to 46% due to rapid ripening, poor handling, and lack of proper storage. To reduce these losses, a natural edible coating spray called “Aplazador” was developed using lime juice and peel, cornstarch, calcium chloride, and water. This eco-friendly and cost-effective coating forms a protective film that reduces moisture loss, slows ripening, prevents spoilage, and maintains fruit freshness. Treated papayas showed delayed ripening and extended shelf life compared to untreated ones. The innovation offers a safe, sustainable method to minimize fruit waste and support better food security.

04.Transforming Surplus Kakiri into a Nutritious Sweet Snack

Post-harvest losses significantly impact the economic value of fruits and vegetables in Sri Lanka, especially perishable produce like kekiri (Armenian cucumber). The lack of proper preservation techniques and market linkage causes surplus harvests to go to waste. This report outlines a novel product developed using kekiri to minimize post-harvest losses through value addition by transforming surplus produce into a shelf-stable, appealing sweet snack, Kekiri Crystal Pops, using gelling and caramel coating techniques.

05. Goldkin

Pumpkin, a widely grown vegetable in Sri Lanka, has a very short shelf life of about 7–10 days, causing 30–40% of production losses due to sprouting, high moisture, and microbial spoilage. To overcome this, surplus pumpkins were converted into a value-added pickle product using natural preservation without synthetic chemicals. The process is simple, cost-effective, and scalable, providing farmers with a sustainable solution to reduce waste and increase income. Pumpkin pickles not only extend shelf life up to one month but also retain nutrients, enhance flavor, and promote local food traditions. This innovation turns postharvest waste into a marketable, nutritious, and eco-friendly product

Written By: Ms. Bhagya Sumathipala

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Packaging in the Food Industry: Balancing Protection, Innovation, and Sustainability

Packaging is a fundamental component of the food industry, serving multiple roles that go beyond simple containment. Its primary purpose is to protect food products from physical damage, microbial contamination, and chemical deterioration, ensuring extended shelf life and safe consumption. Effective packaging also enhances consumer convenience and acts as a communication tool, providing vital information such as nutritional labeling, storage guidelines, and brand identity. In this way, packaging serves as the crucial link between manufacturers and consumers.
Globally, food packaging is categorized into several levels. Primary packaging directly encloses the food, including cans, bottles, trays, or cartons. Secondary packaging groups these units together for handling and retail display, such as boxes or shrink wraps. Tertiary packaging supports bulk transportation and storage, typically using pallets and large containers, while some systems also recognize quaternary packaging, designed for large-scale distribution and warehouse logistics. Each level ensures safety, efficiency, and smooth flow across the supply chain.

The choice of packaging material depends on product requirements and environmental considerations. Plastics dominate due to their low cost, versatility, and light weight, but their environmental persistence raises serious sustainability concerns. Glass provides excellent protection and reusability but is heavy and expensive. Metals like aluminum and steel offer durability and protection from light and oxygen, making them ideal for canned goods and beverages.

Paper and paperboard, though renewable and versatile, require treatment to resist moisture and grease. In recent years, global innovation has introduced eco-friendly alternatives such as biodegradable plastics (PLA, PHA), sugarcane bagasse containers, leaf-based plates, edible seaweed films, and mushroom mycelium packaging —highlighting the urgent shift toward sustainable solutions.

Reflecting these trends, our undergraduate team presented two innovative, locally sourced packaging materials at the “ProFood ProPack” exhibition. The first was a Palmyrah-based packaging designed for paste containers. Palmyrah, a traditional yet underutilized Sri Lankan resource, provides strong fibers that can be converted into biodegradable containers. This not only reduces plastic dependence but also supports rural livelihoods by adding value to indigenous crops. The second was a Guinea grass–based packaging material, derived from a rapidly renewable grass. Lightweight, durable, and biodegradable, this solution demonstrates how agricultural by-products can be transformed into modern, eco-friendly packaging alternatives.
These innovations illustrate how global knowledge and local resources can be combined to achieve sustainable outcomes. By adopting natural materials like Palmyrah and Guinea grass, Sri Lanka can reduce plastic pollution, foster circular economies, and contribute to a greener food sector. The future of food packaging lies in solutions that balance functionality, affordability, and environmental responsibility—an effort where innovation and sustainability must progress hand in hand.

CELEBRATING WORLD FOOD SAFETY DAY 2025 AT WAYAMBA UNIVERSITY

Every year, June 7th is marked globally as World Food Safety Day, a reminder of the critical role food safety plays in public health and sustainable development. The 2025 theme, “Food Safety: Science in Action”, highlighted how science-based approaches safeguard the food we eat from farm to fork. In line with this, the Food Science and Nutrition Society of Wayamba University of Sri Lanka proudly organized a series of engaging and educational events to raise awareness and inspire action among students and young professionals.

Our celebrations began with a special webinar featuring Mr. Tony Susantha Ukwattage, a renowned expert in quality assurance and food safety. The session, held on the evening of June 7th via Zoom, explored how modern scientific tools and practices ensure the safety and quality of food worldwide. Participants had the opportunity to learn from real-world experiences and gain insights into the future of food safety in Sri Lanka and beyond. To further engage students, we hosted the Food Safety Inter-University Quiz Challenge 2025, held on the same day. The competition brought together over 200 participants from universities across the country, creating a vibrant platform to test knowledge, share ideas, and strengthen inter-university. collaboration. The quiz not only promoted learning in a competitive spirit but also highlighted the importance of food safety education among the younger generation.

We are thrilled to congratulate the winners of this year’s quiz:

- **1st Place** – Mathusha Praba, Sabaragamuwa University of Sri Lanka
- **2nd Place**– Kaviduni Seramika, Wayamba University of Sri Lanka
- **3rd Place** – Thuvaraka Nixson, Sabaragamuwa University of Sri Lanka

All winners received cash prizes and e-certificates in recognition of their achievement, while every participant’s enthusiasm was truly commendable.

Through these initiatives, our society reaffirmed its commitment to promoting food safety awareness and knowledge-sharing among future food scientists. The active participation and positive feedback received highlight the growing interest in this vital field. As we reflect on this year’s celebrations, we remain dedicated to fostering a culture of safe and sustainable food practices—because when it comes to food, safety is everyone’s responsibility.

UNLOCKING FOOD SAFETY EXCELLENCE: HACCP IMPLEMENTATION WORKSHOP

Food safety is not just a responsibility; it is a promise to protect consumers and build trust in every bite they take. Recognizing the importance of this mission, the Society of Food Science and Technology, Wayamba University of Sri Lanka, organized an inspiring HACCP Implementation Workshop, which became one of the most impactful knowledge-sharing events of the year.

The workshop attracted over 600 participants from both the academic and industrial sectors, highlighting the growing interest and demand for expertise in food safety. Conducted across four days, not just a single session and it was designed to provide participants with comprehensive knowledge on the subject. Undergraduates, fresh graduates, food business operators, executives, and food safety officers all took part, eager to strengthen their understanding of globally recognized safety systems.

The event was led by **Mr. Nalin Ariyaratne**, a highly accomplished professional in the field of food safety with a Master's degree in Food Science and Technology, a B.Sc. (Hons), and multiple prestigious certifications such as Certified Lead Auditor, Certified Trainer (City & Guilds), PCQI, and LSSBB, he has earned international recognition for his expertise.

Mr. Ariyaratne is currently serving as the Food Safety Manager at Almarai, Riyadh, Saudi Arabia, and has previously worked as Food Safety Manager at Nestlé. His wealth of experience made him the perfect mentor to guide participants through the critical aspects of HACCP.

The workshop provided deep insights into Hazard Analysis and Critical Control Points (HACCP), a preventive system designed to identify, evaluate, and control hazards across the food supply chain. Participants gained practical knowledge on:

- Principles and application of HACCP
- Foodborne diseases and hygiene practices
- Legal responsibilities in food safety
- Food Safety Management Systems (FSMS)

With engaging discussions, real-world examples, and interactive sessions, the workshop bridged the gap between theory and practice. More than just lectures, it offered a hands-on learning experience that allowed participants to envision how HACCP principles could be directly applied in their future workplaces or current businesses.

A key highlight of the program was its inclusivity. Whether you were a student preparing to step into the food industry or an experienced professional aiming to refresh and enhance your skills, the workshop delivered valuable takeaways for all. Participants walked away not only with new knowledge but also with hard-copy and sharable certificates, symbolizing their commitment to food safety excellence.

This initiative demonstrated the Society's commitment to creating opportunities that empower young professionals while meeting the needs of the food industry. By hosting such events, the Society continues to foster a generation of food scientists and technologists who are capable, confident, and ready to lead.

The HACCP Implementation Workshop was more than a training session; it was a transformative experience that set the stage for stronger food safety practices in Sri Lanka and beyond.

WASTE-FREE FISHERIES: TURNING HEADS, BONES, AND SHELLS INTO PROFITABLE PRODUCTS

Introduction

Traditionally, fish processing generates significant waste, including heads, bones, skin, viscera, and crustacean shells, which often end up in landfills or are used for low-value purposes. Modern approaches in fisheries are shifting toward zero-waste and circular economy models, maximizing the full potential of by-products while reducing environmental harm. Certain garbage and repulsive fish are not fit for human food. Fish by-products can be produced from these waste materials and the aforementioned fisheries. All of these are excellent sources of high-quality fat, protein, minerals, and other nutrients. In today's seafood industry, the shift toward sustainability isn't just about how we catch fish it's also about what we do with every part of the catch. About 1/3rd of the world's catch of fish is not used for direct human consumption but for the production of fish byproducts

High-Value Applications of Fish By-Products

Fish oil

It is utilized in the manufacturing of feed, pharmaceuticals, paints, and resins, as well as in human food such as margarines, pastries, and dietary supplements. It is a significant source of Omega-3 fatty acids. Fish oil is extracted from the fatty tissues of the fish.

Fish Silage

Commercial fish waste, spoiled fish, and underutilized species can all be used to make it. The most readily available source of amino acids for protein production is fish silage because its proteins may be hydrolyzed to release amino acids

Fish Protein

Fish protein concentrate (FPC) is any stable fish preparation, intended for human consumption, in which protein is more concentrated than in the original fish. Provides a low-cost, concentrated protein source for populations with limited access to animal protein. Can be easily incorporated into cereals, baked goods, soups, and infant foods.

Collagen and gelatin

Fish bones, scales, and skin can be used to extract collagen and gelatin, which are then utilized to make protein powders and health drinks that promote the health of the skin and joints. Additionally, food and medications employ the produced gelatin as a thickening agent.

Advantages of Turning heads, bones, and shells into profitable products

By transforming previously discarded waste into new, high-value products, fishing and seafood processing companies can access new revenue streams and enhance their overall profitability
Effective valorization considerably reduces or removes waste, which decreases the costs and logistical issues related to waste disposal and minimizes losses.
Disposing of fish waste in oceans or landfills can cause significant environmental pollution, resulting in diminished oxygen levels in marine habitats and harmful methane emissions during decay. Reusing this waste reduces these adverse impacts
Developing new processing facilities and markets for by-products creates new jobs and income opportunities, especially for coastal communities that depend on fishing.

Challenges and future outlook

Technical and financial obstacles: Enlarging new technologies for waste management necessitates substantial funding.
Moving and keeping perishable raw materials, particularly for smaller fishing businesses, can be challenging

Standards and policies for ingredients derived from byproducts still require alignment across different regions.

Numerous smaller processors are missing the specific equipment, storage capabilities, and workforce required to manage and convert by-products into valuable products. The significant upfront cost for the required technology is a key obstacle for numerous companies.

The makeup of fish waste differs greatly depending on the species, the season, and the particular processing techniques applied. This variation makes it difficult to standardize extraction methods and the quality of the end product.

In spite of these challenges, the prospects remain promising. As the demand for sustainable goods rises and new technologies emerge, the fisheries industry is set to wholeheartedly adopt the circular economy. Focused policy assistance, investments in expandable infrastructure, and educational initiatives can facilitate this change.

Conclusion

However, realizing the full potential of fish by-products is not without its challenges. Overcoming technical barriers, securing funding, and standardizing production methods will require coordinated efforts across the industry. Despite these hurdles, the future outlook is optimistic, driven by the growing demand for sustainable practices, advances in technology, and supportive policy frameworks. As the fisheries sector embraces the circular economy, it can lead the way in transforming waste into wealth, creating a more sustainable and profitable future for the global seafood industry.

Written by
Ms. Anne Rashini Minodya

FOOD IN MOOD: CELEBRATING CREATIVITY THROUGH FOOD PHOTOGRAPHY

In celebration of **World Food Day 2024**, the Society of Food Science and Technology (SFST) of Wayamba University of Sri Lanka proudly hosted an engaging and visually rich event, the Food in Mood Photography Competition. This initiative aimed to highlight the artistry of food presentation while encouraging students to showcase their talent in food photography.

An inclusive space for aspiring photographers and food enthusiasts across the university. Participants were invited to capture the beauty, mood, and essence of food through their lenses, focusing on creativity, originality, and visual storytelling.

To make the competition dynamic, submissions were evaluated under two categories:

- Best Photograph – Judged by a panel of professionals from the food and photography fields.
- Most Popular Photograph – Determined by audience engagement through Facebook reactions.

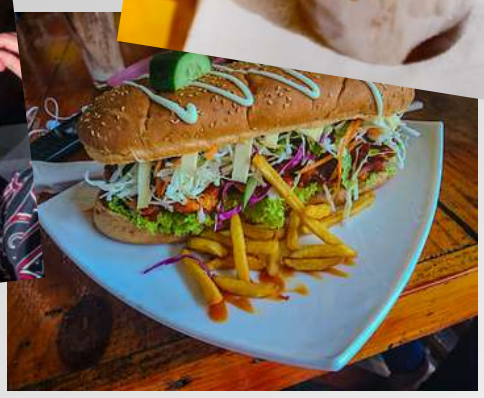
The rules encouraged authenticity and minimal editing, allowing only basic color balancing to maintain fairness and originality. Each photo had to be under 10 MB and strictly the participant's own work.

The competition attracted a remarkable number of entries, each reflecting unique perspectives of food as more than nourishment as culture, emotion, and art. This was a wonderful opportunity for students to experiment creatively, think critically about composition, and share their passion with a broader audience.

After careful evaluation, three outstanding photographs were selected as the Best Photographs, while five photographs won recognition in the Most Popular Photograph category based on social media engagement. The winners received valuable e-certificates recognizing their creativity and contribution.

Beyond the competition itself, Food in Mood served as a celebration of World Food Day's message — emphasizing the importance of food in our lives and inspiring a deeper appreciation for the science, technology, and creativity behind it. The event successfully combined art with awareness, reinforcing SFST's commitment to fostering student engagement and showcasing diverse talents.

Written by
Mr. Lakindu Weerasinghe



ADVANCING EXCELLENCE IN FOOD SAFETY: WORKSHOP ON RAPID FOOD SAFETY TESTING

On 28th June 2025, the Society of Food Science and Technology successfully hosted a specialized workshop on Rapid Food Safety Testing in collaboration with **TEQZA Innovations Pvt. Ltd**.

The workshop was done under the expertise of **Dr. Geetha Gangadharan and the invaluable support and guidance of Mr. Mohamed Rimzan and Mr. Rizvan Mohamed.**

The event brought together professionals, researchers, and undergraduates committed to advancing food safety standards and practices across the industry. The workshop emphasized the importance of innovative rapid testing technologies in strengthening food safety protocols, and ensuring faster detection of contaminants.

Participants were introduced to a range of state-of-the-art testing tools, including portable lateral flow assay kits for pathogen detection, ATP bioluminescence meters for rapid hygiene monitoring, and Petrifilm plates designed for faster identification of microbial contaminants. Through live demonstrations attendees experienced how these tools can be integrated into food safety operations.

Hands-on sessions showed sample-to-result workflows, including detecting microbial load within minutes and identifying allergens with precision.
This opportunity enabled the participants to practice the use of these rapid methods, compare their effectiveness against traditional approaches, and understand their use in real-world food processing environments.

By engaging with these technologies, participants gained not only theoretical insights but also practical confidence to adopt faster, more reliable, and cost-effective rapid food safety testing methods. This experiential learning reinforced the critical role of innovation in safeguarding food safety while enhancing efficiency in food industry.

Written by
Ms. Warsha Aakashi De Silva

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Carbon Footprint of the Food Industry - How Sri Lanka Can Align with Global Goals

From a plate of rice and curry in Colombo to a cup of Ceylon tea sipped overseas, every bite and sip has a hidden carbon cost. Food production worldwide generates roughly a quarter of all greenhouse gas emissions, yet these emissions often remain invisible to consumers. In Sri Lanka, a country proud of its tea, rice, and fisheries, this “carbon footprint” of food is becoming a pressing issue. What exactly is a carbon footprint, and why should we care about it when we enjoy our daily meals? Let’s unravel this concept and explore how Sri Lanka’s unique food industry can grow sustainably while aligning with global climate goals.

What Is a Carbon Footprint?

A carbon footprint is the total greenhouse gases released by our activities or products. It is like a shadow that grows with every step – from farming and processing to transporting and cooking. It counts gases such as carbon dioxide and methane. For example, a single meal’s footprint includes fuel for tractors and trucks, fertilizer emissions, and gases from rice paddies or landfills. The bigger the shadow, the bigger the impact.

Sri Lanka’s Food Footprint

Tea is central to Sri Lanka’s culture and economy, but it carries emissions. Producing a ton of Ceylon tea emits around 500–600 kilograms of CO_2, mainly from energy used in withering, drying, and packaging. Shipping it overseas adds more. That cup of tea in London or Dubai has already travelled with a carbon cost.

Rice, the daily staple, has an even bigger climate challenge. Flooded paddy fields emit methane, a gas over 25 times more heat-trapping than CO_2. Studies suggest paddy fields account for nearly half of farm-related emissions in some regions. Lush rice fields, while iconic, also contribute to global warming.

Fishing, another vital livelihood, also emits carbon. Most boats run on diesel, and each litre burned releases CO_2. Globally and in Sri Lanka, fleets depend almost entirely on fossil fuels. More efficient engines or alternative energy could help reduce this burden while keeping fish on our plates keeping fish on our plates.

Food imports add another layer. While most food is grown locally, about 22% is imported. Wheat, lentils, and milk powder travel thousands of kilometres by ship or air. A bag of flour on a Colombo shelf carries hidden transport emissions. Reducing food miles or greening logistics would help.

From Local Challenges to Global Goals

The UN Sustainable Development Goals call for sustainable agriculture, responsible consumption, and climate action. Under the Paris Agreement, Sri Lanka joined nearly 200 nations in pledging to limit warming to 1.5–2°C. Achieving this requires steep emission cuts across all sectors, including food. Although Sri Lanka contributes only 0.08% of global emissions, it is highly vulnerable to climate change. The country has pledged carbon neutrality by 2050, meaning the food sector must adapt alongside energy and transport.

Toward a Sustainable Food Future

Solutions exist. Greener farming practices, such as organic methods, regenerative agriculture, and water-saving techniques in rice paddies, can cut emissions. Climate-smart seeds and precision tools can protect yields while reducing methane.

Energy transitions in processing and transport are also vital. Tea factories and rice mills can adopt solar, hydro, or biomass energy. Some tea companies, such as Dilmah, have already achieved carbon-neutral certification by investing in renewables and offsets. In fisheries, improved boat design and engines can save fuel and emissions, while better cold storage reduces waste.

Tackling food waste is another priority. Sri Lanka's goal of halving waste mirrors global targets. Better logistics, public awareness, redistribution, and composting can prevent methane while addressing hunger. Communities and businesses are increasingly engaged, from hotels donating surplus food to apps connecting excess with those in need.

Finally, policy and consumer choices matter. Government incentives for renewables and sustainable farming can accelerate change. Consumers can support local seasonal foods, demand eco-labelling, and reduce their own waste. Sri Lanka's food heritage, including home gardens, spice gardens, and traditional diets, offers models for sustainable living.

Sri Lanka now stands at a crossroads where tradition meets global challenge. By lightening the carbon footprint of food, the nation can protect its heritage while aligning with climate goals. I remember walking through Pettah market as a child, dazzled by piles of fruits and spices. Today we know these vibrant scenes also carry an environmental story. With mindful changes on our farms, in our kitchens, and across communities, Sri Lanka can ensure that rice and curry or Ceylon tea remain symbols of culture and comfort, not of climate harm.

Written by
Mr. Anton Dalson

FROM CLASSROOM TO MARKETPLACE: OUR JOURNEY AT INDUSTRY EXPO 2025

The Society of Food Science and Technology proudly embraced a remarkable milestone this year by participating in the Industry Expo 2025 – National Industry Exhibition, held from September 18th to 21st at the Innovation Arena, organized by the Industrial Development Board (IDB). The exhibition was more than just an event, it was a dynamic platform where innovation, creativity, and entrepreneurship converged to unlock untapped opportunities. For us, the students of the Department of Food Science and Technology, Faculty of Livestock, Fisheries and Nutrition, it was an eye-opening experience that transformed classroom learning into real-world impact.

Our participation was centered on one goal: to showcase how research-driven innovations can address both nutritional needs and sustainable food practices. The stall we presented quickly became a lively space where academic curiosity met industrial possibility. Visitors were fascinated by our line-up of novel products, each designed with a balance of functionality, taste, and sustainability.

Among the highlights were:

- **Protein Bar from Spirulina Powder** – A nutrient-dense snack catering to modern health trends with plant-based protein.
- **Banana Blossom Malted Drink** – A creative beverage that valorizes underutilized local crops.
- Multi-Seed Spread (Pumpkin, Cooking Melon & Watermelon Seeds) – A nutritious, innovative alternative to conventional spreads.
- **Marmalade from Passion Fruit Peel** – A zero-waste innovation that transforms by-products into value-added goods.
- **Bael Flower Wine** – A unique beverage rooted in Sri Lankan botanicals and tradition.
- **Cinnamon-Infused Vodka from Traditional Rice Variety** – A premium infusion bridging heritage grains with modern consumer appeal.

The response exceeded our expectations. Many industry leaders, entrepreneurs, and potential investors commended the ingenuity of our creations. The conversations went beyond appreciation, we received constructive feedback on product development, packaging, and market positioning. Several investors even expressed direct interest in supporting commercialization, proving that our student-driven innovations have true potential in the marketplace.

This experience was also about much more than showcasing products. It was about confidence building, professional networking, and learning how innovation can drive change in the food sector. We learned to present our ideas not only as students but as young innovators capable of addressing consumer demands and industry challenges. The encouragement and recognition we received have fueled our determination to continue exploring, experimenting, and innovating.

As a society, we view this achievement as the beginning of a larger journey. Our participation at Industry Expo 2025 reminded us that innovation is not confined to laboratories or lecture halls. It becomes meaningful when it connects with people, communities, and industries. Moving forward, we are motivated to refine our projects, collaborate with stakeholders, and bring more sustainable, nutritious, and impactful food solutions to life.

Innovation is not just about invention; it is about reimagining the familiar to transform the future.

Written by,
Ms. Wathsala Ranathunga

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Smart Food Packaging: Edible Films, Biodegradable Materials, and QR-Enabled Traceability

In today's world, food packaging is not just about wrapping a product. It has become an essential part of food safety, sustainability, and customer trust. With global concern about plastic pollution and the rising demand for transparency in food supply chains, smart packaging solutions are stepping into the spotlight. Among them, edible films, biodegradable materials, and QR-enabled traceability are transforming the way we think about packaging and consumption.

Edible Films – A Safe and Sustainable Bite

Imagine peeling a fruit and eating the protective layer instead of throwing it away. Edible films make this possible. These thin layers are made from natural ingredients such as proteins, polysaccharides, or lipids. They are safe for human consumption and can be flavored or enriched with nutrients to enhance the food.

Edible films are particularly useful for fresh produce, bakery items, and confectionery products. They act as a barrier to moisture and . oxygen, helping to extend shelf life. For example, an apple coated with an edible film stays fresh longer without the need for synthetic preservatives. This innovation reduces food waste while eliminating unnecessary plastic wraps

Biodegradable Materials – Packaging That Returns to Nature

For decades, single-use plastics have dominated the packaging industry, but their environmental footprint has caused serious global challenges. Biodegradable materials offer a sustainable alternative. These packaging solutions are made from plant-based resources like corn starch, sugarcane, or cellulose. After use, they break down naturally in soil or water without leaving harmful residues.

Biodegradable packaging is versatile and can replace conventional plastics in bottles, trays, and bags. Some advanced versions even have compostable properties, meaning they decompose within weeks under the right conditions. By adopting these materials, companies not only reduce plastic pollution but also align with eco-conscious consumer preferences.

QR-Enabled Traceability – Building Trust with Transparency

Consumers today want to know more about the food they eat. Where did it grow? Was it ethically sourced? Is it safe?

QR-enabled packaging provides these answers at the touch of a smartphone.
By scanning a QR code on the package, customers can access detailed information such as the product's origin, processing methods, nutritional values, and even storage guidelines. For producers, QR-enabled traceability builds trust and enhances brand reputation. It also plays a crucial role in food safety, allowing rapid identification and recall of contaminated products if needed.
This technology empowers both businesses and consumers. Farmers gain recognition for their produce, retailers improve accountability, and customers feel confident about their choices.

The Bigger Picture – A Smart Future for Packaging

Edible films, biodegradable materials, and QR-enabled traceability are not just trends - they represent the future of responsible packaging. Together, they address three pressing needs: reducing waste, protecting the planet, and ensuring food safety.
As more companies invest in these innovations, the food industry moves closer to a circular economy, where nothing goes to waste, and every step in the food journey is transparent. Governments and organizations are also supporting these efforts with policies, research, and incentives, making it easier for businesses to adopt greener solutions.

Conclusion

Smart packaging is changing the way we produce, package, and consume food. From films you can eat, to materials that safely return to the earth, to QR codes that tell the story behind your meal - not only protect the environment but also foster packaging that is becoming smarter, safer, and more sustainable. By embracing these solutions, we are not only protecting the environment but also creating stronger connections between producers and consumers.
The future of food packaging is here, and it is innovative, interactive, and eco-friendly.

Written by
Ms. Mihika Subasinghe

SMART, SUSTAINABLE, AND PRACTICAL: REDEFINING FOOD PACKAGING THROUGH STUDENT CREATIVITY

Smart Spaghetti Serving Box

Innovation in food packaging has taken a new direction, one that blends sustainability, creativity, and practicality. This year, our students proudly demonstrated that spirit through their achievements at the **Lanka Stars 2025 competition**, where their designs stood out among many impressive entries.

The **Smart Spaghetti Serving Box** earned **Second place** for its intelligent and user-friendly design that allows neat portioning and serving of spaghetti without mess. This packaging not only enhances convenience for takeaway and ready-to-eat meals but also promotes a modern approach to functional design. Meanwhile, the **Slice Pack Pizza Box** secured **Third place**, offering a compact and consumer-friendly solution for single pizza slices. Its innovative format reduces material use, supports on-the-go dining, and has already gained strong attention for its practical and sustainable concept.

Slice Pack Pizza Box

Beyond these award-winning designs, our “Packaging” module encouraged students to explore a wide range of innovative packaging concepts that address real-world needs and environmental concerns.

Palmyrah-based / Palm-leaf eco containers

Biodegradable containers and sheets made from palmyrah/palm leaf with natural binders. Lightweight, durable and compostable, these serve as low-cost, local alternatives to plastics for packaging and food service, supporting circular-economy goals and adding value to traditional materials.

Medicine-Inspired Sachet Packaging (Mat-Sol Sachet)

Adapting the concept of pharmaceutical sachets, this design replaces aluminum-foil noodle sachets with water soluble, biodegradable films. Perfect for instant foods like noodles, coffee, or oral rehydration salts, these sachets dissolve directly in hot water, ensuring hygiene, reducing waste, and improving convenience.

Duo Eco Foldable Meal Box

Designed with two compartments, this eco-friendly foldable box keeps different food items separate while being compact and easy to carry. It's a smart solution for combo meals, catering services, and takeaway outlets.

Multi Resealable Press Lock Package

This pouch incorporates multiple press-lock seals, making it ideal for snacks, dry fruits, and frozen foods. Its resealable feature maintains freshness, prevents spillage, and minimizes food waste a user friendly upgrade to traditional packaging.

Multi-Compartment Kraft Paper Combo Pack

Made from kraft paper, this design supports full meal packaging with several compartments. It is biodegradable, functional, and suitable for food deliveries and catering, offering an elegant solution for eco-conscious consumers.

Natural pH-Sensitive Biodegradable Spoilage Indicator Film

Developed using *Clitoria ternatea* (Nil Katarolu) anthocyanins combined with a carrageenan, glycerin matrix, this eco-friendly film provides real-time color changes to indicate food freshness. Ideal for meat, curd, and dairy products, it offers a safe, low-cost, and sustainable solution to reduce food waste and enhance consumer confidence.

Green Nest — Guinea grass biodegradable packaging

Paper bags and packaging made from invasive Guinea grass. Turning an environmental problem into a resource, these bags are strong enough for produce, reduce plastic waste, and create economic opportunities for local communities while aiding ecosystem management.

SPOOKY NIGHT TO REMEMBER: PHANTOM NIGHT 2024

The Society of Food Science and Technology at Wayamba University of Sri Lanka brought a thrilling twist to campus life with its **PHANTOM NIGHT 2024**, a night filled with excitement, creative costumes, and spine-chilling fun. Held at the Faculty Auditorium, on the 25th of November 2024. This event marked a unique celebration that blended food, music, and Halloween-themed entertainment, making it a standout moment of the semester.

The night kicked off with a costume contest, where participants showcased they're most haunting and imaginative outfits. From classic horror icons to creative, out-of-the-box characters, the competition was fierce, and the audience was thrilled by the spooky transformations.

Adding to the electrifying atmosphere was a DJ performance, keeping the crowd engaged with a mix of energetic beats and Halloween-themed tracks. The dimly lit venue, decorated with pumpkins, cobwebs, and flickering lights, set the perfect stage for an unforgettable night of dancing and celebration.

No Halloween event is complete without delicious treats, and the food stalls did not disappoint. From creepy-themed snacks to seasonal delights, attendees indulged in a variety of food and drinks that added to the festive spirit.

Interactive games and horror-themed activities kept the excitement going, allowing participants to engage in friendly competitions and test their bravery in haunted challenges. The night ended on a high note, leaving everyone with unforgettable memories and anticipation for more such events in the future.

The PHANTOM NIGHT 2024 was a spectacular success, thanks to the hard work of the organizing team and the enthusiastic participation of students. This event showcased the society's commitment to creating a vibrant community through food, entertainment, and creative celebrations. With such an incredible response, the Society of Food Science and Technology looks forward to hosting even more thrilling and engaging events in the coming months!

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Ceylon Gold: The Journey of Sri Lanka's Iconic Cinnamon

Sri Lanka's Ceylon cinnamon (Cinnamomum verum) is one of the world's most prized spices, celebrated for its delicate aroma, health benefits, and cultural heritage. Known as "Ceylon Gold," it has shaped global trade, sustained rural livelihoods, and carved out a unique identity against its cheaper cousin, cassia. This article traces its journey from ancient forests to modern markets, exploring history, cultivation, processing, trade, challenges, and future prospects.

From Forest to Fortune: Cinnamon in Ancient Sri Lanka

Cinnamon has been entwined with Sri Lanka's identity for millennia. Records from 1400 B.C. mention its use, while Arab traders carried it to the Middle East and Europe long before Sri Lanka's colonial era. During the reign of King Parakramabahu II (1236–1270 A.D.), Sri Lanka's cinnamon was famed for its quality, especially along the southern and western coasts. By the 16th century, it became a coveted treasure that drew foreign powers to the island.

The Spice That Launched Empires

The Portuguese, Dutch, and British all vied for control of Sri Lanka's cinnamon. The Dutch in particular monopolized the industry, shifting from wild harvesting to plantation cultivation in the late 18th century. Cinnamon was so valuable that it financed colonial ambitions, cementing its reputation as Sri Lanka's "brown gold."

Peeling Back Perfection: The Art of Cinnamon Processing

Ceylon cinnamon remains a labor-intensive product. Smallholder farmers cultivate over 70% of the crop across about 30,000 hectares.

Processing is artisanal: skilled peelers scrape, roll, and dry the delicate bark into "quills." These quills are then graded into featherings, quillings, and chips, with essential oils and powders as by-products. The process is so intricate that quality depends heavily on human expertise

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Ceylon vs. Cassia: What Makes It "True Cinnamon"?

Globally, cassia (from China and Indonesia) often substitutes cinnamon, but the two are distinct. Ceylon cinnamon is lighter, sweeter, and contains significantly less coumarin, a compound harmful in high doses. This health advantage and refined flavor give Sri Lanka's product its premium status, earning the title "True Cinnamon."

Cinnamon in Everyday Life: More Than Just a Spice

Beyond the kitchen, cinnamon is used in ayurvedic medicine for digestion, blood sugar regulation, and heart health. Its essential oils serve in cosmetics, fragrances, and even natural insect repellents. In Sri Lankan rituals, cinnamon continues to feature in offerings and cultural practices, symbolizing purity and prosperity.

The Modern Cinnamon Economy: Sri Lanka's "Brown Gold"

Sri Lanka produces about 25,000 metric tons of cinnamon annually, exporting nearly 19,000 tons, which accounts for 90% of global "true cinnamon" supply. Export earnings average USD 250 million per year, making cinnamon the second-largest spice export after tea.

Challenges in the Spice Lane

Despite its dominance, the sector faces hurdles:

- Supply chain risks such as poor inventory control, outdated processing, and delays.
- Production inefficiencies, where yields have not matched the expansion of cultivation in Galle

- District due to infrastructural and policy weaknesses.
- Global competition with cassia, which is cheaper and more widely available, threatening Ceylon cinnamon's market share.

Branding an Island: The GI Status of Ceylon Cinnamon

In 2022, Ceylon cinnamon earned Geographical Indication (GI) status, giving it legal protection and brand identity in global markets. This recognition helps secure premium pricing and positions Sri Lanka's spice industry to compete on quality rather than volume.

Future Flavors: Innovation and Value Addition

Sri Lanka aims to double cinnamon export earnings to USD 500 million by 2030. Strategies include expanding cultivation beyond traditional southern belts, producing value-added goods like teas, spice blends, and essential oils, and strengthening processing infrastructure. International partnerships and training for farmers are also vital to sustain competitiveness.

The Aroma of Heritage: Why Ceylon Cinnamon Still Matters

From ancient temples to modern kitchens, Ceylon cinnamon embodies Sri Lanka's cultural and economic essence. Its unique qualities, artisanal processing, and GI recognition make it more than just a spice—it is a heritage product, a livelihood for thousands, and a fragrant ambassador of Sri Lanka to the world. The future of "Ceylon Gold" depends on balancing tradition with innovation, ensuring that its story continues to unfold across global markets.

References - Hettiarachchi, I. C., et al. Journal of Agricultural Sciences – Sri Lanka, 2020.

Written by
Ms. Jasithra Vijayakumar

Celebrating Excellence- 11th Undergraduate Research Symposium of Faculty of Livestock, Fisheries and Nutrition, Wayamba University of Sri Lanka

Wayamba University of Sri Lanka held its 2024 annual Graduate Research Symposium on 2nd of April 2025, when the best and brightest young scholars came together to present their cutting-edge work. The symposium provided a platform for graduate students to present their research, learn from one another, and open doors for potential future collaborations.

This year's symposium was a grand success with presentations spanning research that was solving real issues and advancing national and international knowledge.

We're proud to publicize the winners of the Symposium who stood out with their innovative thinking and impactful research.

The Faculty Award for Best Student Innovation 2024 was awarded to **Miss K. Kishanthani** from the Department of Food Science and Technology.

Best Oral Presenter for the technical session 2 was praised for **Miss J.M.A.G.G.T.Jayasekara**, and as the honorable mentions, **first runner-ups** from both technical sessions 1 and 2 went to **Miss K.Kishanthani** and **Miss R. Yasara Amarasinghe**, respectively. As second runner-ups from both technical sessions 1 and 2 were **Mr. S.A.Dinura Yuvin Ukwatta** and **Miss P.H.U.I.Karunaratna** sequentially. The honored were awarded by the students of the Department of Food Science and Technology.

The symposium also featured an inspiring keynote address by Dr. Chathurangi Wickramaratne, A researcher from the International Water Management Institute, Sri Lanka, who emphasized the importance of research in driving innovation, conservation, and restoration in Sri Lanka.
Occasions like this remind us of the promise of research towards shaping the future. Warmest congratulations to all participants and winners for making this year's symposium such a grand success.

Written By
Ms. Kavindi Abeykoon

A year of academic excellence, teamwork, and lasting connections - FST Batch 2020/21

Acknowledgement

We are honored to present the third issue of the newsletter
*"**FoodNotes**"*
by the Society of Food Science and Technology (2025)
of the Department of Food Science and Technology.

We extend our profound gratitude to Professor K.D.D.P. Gunathilake, Head of the Department, for his steadfast guidance and encouragement.

Our heartfelt appreciation is also conveyed to Senior Professor Chamila Jayasinghe, Chair Professor of the Department and Former Dean of the Faculty, for her unwavering support and inspiring mentorship.

We hold in deepest regard Professor Niranjalie Perera, Professor in Food Science and Technology, whose invaluable guidance and encouragement have illuminated our journey throughout.

We are also sincerely thankful to Dr. Oshala Hettiarachchi, Senior Treasurer of the Society, for his dedicated commitment and counsel.

With equal respect, we gratefully acknowledge the academic staff, demonstrators, and non-academic staff of the Department, whose continuous assistance and encouragement strengthened this endeavor.

Finally, we extend our appreciation to the Executive Board and all members of the Society, whose collective efforts made this publication a reality.

May “Food Notes” continue to serve as a platform for knowledge, inspiration, and unity within our community, reflecting the vision and spirit of the Society of Food Science and Technology.

Mr. Salman Athif
President
Society of Food Science and Technology
(24/25 academic year)

FOODNOTES

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