

Food Systems Innovation Challenge

Nature-based Solutions edition

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WUR Student Challenges

NFP Netherlands Food Partnership



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Editing: Rebeka Bílik
Photos: Guy Ackermans and photos by the student teams
Design: GAW, Marieke Eijt
Printing: Drukkerij Modern, Bennekom

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We thank our partners and sponsors for their generous contributions. Their support has been invaluable in making the Food Systems Innovation Challenge - Nature-based Solutions edition an unforgettable and inspirational event, empowering the young pioneers of change in our food systems and contributing to innovations for a sustainable future.

Partner Universities

Supporting Partners

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Introduction

The 2025 Food Systems Innovation Challenge: Youth-led Nature-based Solutions for Food Systems

The challenges facing our global food systems like climate change, biodiversity loss, and food insecurity, require bold and innovative approaches. The 2025 Food Systems Innovation Challenge was launched to empower students to take on these urgent issues by designing practical, locally grounded innovations that transform food systems.

Organised by Wageningen University & Research and the Netherlands Food Partnership, this year's edition focuses on Nature-based Solutions, which are initiatives that harness the power of ecosystems to restore biodiversity, adapt to climate change, and improve food security. By highlighting the link between food systems and nature, the challenge brings fresh perspectives to global debates on sustainability.

Over six months (April to September 2025), 24 student teams from 12 countries worked to turn their ideas into tangible impact. Supported by mentors, knowledge partners, and their universities, the students developed projects that address ecological sustainability, nutrition, and social inclusion, all with Nature-based Solutions at the core.

More than a competition, this challenge is a community for youth engagement, creativity, and international collaboration. We hope their stories inspire you as much as they inspire us!

2025 Impact in numbers:

13 Universities from 4 continents participated

590 Students registered with their project idea, with 109 teams

24 Student teams (125 students) selected for the challenge and received project seed money

5 Teams were selected to continue in the Youth Food Lab incubation program

About the challenge

Why a Challenge on Food Systems?

Feeding a growing population while safeguarding our ecosystems is one of the greatest challenges of our time. Climate change, biodiversity loss, and rising inequality demand integrated solutions that combine science, innovation, and community engagement. Food systems spanning production, processing, distribution, and consumption, are at the heart of these challenges.
The Food Systems Innovation Challenge offers students the chance to co-create solutions that respond to local realities while contributing to global transformation

Why Nature-based Solutions?

Today's global agriculture faces many challenges, especially feeding our growing population while simultaneously preserving our ecosystems and natural resources worldwide. Climate change is affecting the way we grow food. Integrated and innovative approaches from a wide range of disciplines are needed to ensure healthy, equal, and sustainable food systems in the future.

Partner Universities

A unique strength of the challenge is its global collaboration. In 2025, 24 teams from these 13 universities were selected to take part:

- Bangladesh Agricultural University, Bangladesh
- ESALQ-USP, Brazil
- Wollo University, Ethiopia
- University of Ghana, Ghana
- University of Brawijaya, Indonesia
- Lukenya University, Kenya
- Kathmandu University, Nepal
- University of Abuja, Nigeria
- Anton de Kom University, Suriname
- Wageningen University & Research, the Netherlands
- Makerere University, Uganda
- Tra Vinh University, Vietnam
- Can Tho University, Vietnam



Mentoring

Mentorship is one of the most valued aspects of the Food Systems Innovation Challenge. Each team is paired with an experienced mentor from an influential company or organization. Mentors provide personal guidance, share expertise, and connect students with relevant networks, helping them lift their projects to the next level. This close mentorship ensures that innovative ideas are not only developed, but also tested for real-world feasibility and impact.



The Grand Finals

The Grand Finals on 30 September 2025 in Wageningen is the culmination of six months of hard work. It brings together all participating teams, who present their projects to an international jury, connect with stakeholders, and share their progress.

At this event, top-performing teams are awarded funding and the opportunity to continue their journey in the Youth Food Lab, an international incubation programme by the World Food Forum (FAO), The International Association of students in Agricultural and related Sciences (IAAS), and Wageningen University & Research. Through this programme, the most promising innovations will be further developed into scalable solutions that contribute to global food system transformation.

Youth Food Lab

From ideas to global impact

The journey of the Food Systems Innovation Challenge does not end at the Grand Finale. For the top five teams, it is just the beginning. These teams will secure a place in the Youth Food Lab, an international incubation programme that helps young innovators bring their food system ideas to life.

The Youth Food Lab (created by partners WUR, World Food Forum and IAAS) empowers young changemakers to transform promising concepts into impactful solutions. Over several months, participants receive hands-on mentorship, take part in expert workshops, and gain access to a global network of professionals, researchers, and entrepreneurs. The programme also provides visibility at the World Food Forum in Rome, where selected teams present their projects on an international stage.

By combining personal guidance with practical training and global exposure, the Youth Food Lab supports students in refining their innovations, scaling their impact, and growing as leaders of food system transformation. It is here that the seeds planted during the challenge can continue to grow into solutions that will shape the future of food.



Youth Take the Lead in Nature-based Food Systems Solutions

Text: Rebeka Bílik

With the accelerating impacts of climate change, biodiversity loss, and food insecurity, countries around the world are urgently rethinking the way food is produced, processed, and consumed. One promising approach rising to the forefront is Nature-based Solutions (NbS): strategies that work with ecosystems to address societal challenges while enhancing resilience, sustainability, and equity.

The 2025 Food Systems Innovation Challenge – Nature-based Solutions edition, organized by Wageningen University & Research (WUR) and the Netherlands Food Partnership (NFP), brought together student teams from 12 countries to co-create and implement NbS projects tailored to their local realities. The challenge nurtured entrepreneurial thinking and hands-on learning among future food system leaders.

> *"Nature-based solutions are increasingly critical in addressing food security and climate issues," explained Mirjam Troost, coordinator from WUR. "By sharing our knowledge and supporting youth engagement, we help spread awareness of the importance of applying NBS in food systems."*

Now in its second year, the challenge grew in scope and recognition, with more universities joining and applications rising. According to Troost, "What excites me most is that after just one year, we already saw a change in the universities involved. More are embracing challenge-based learning, and it's becoming a true network."

Bridging Generations with New Perspectives

One of the core goals of the challenge was to bridge generational divides in how food systems are understood and improved. Supervisors supporting the student teams observed striking differences in how younger generations approach longstanding problems.

In Uganda, John Edison from Makerere University highlighted the unique advantages that youth bring: "As generations change, new tools, perspectives, and skills emerge. Engaging young people allows interventions to tap into these resources." He added that students tend to adopt sustainable interventions more readily, as these often align with their lifestyles and values.



Edison's own experience working with a team on vegetable dehydration showcased this shift. While older consumers expressed hesitation, preferring fresh produce from the garden, students recognized the convenience, longer shelf life, and reduced waste benefits of the innovation, especially in urban settings.

Similar dynamics appeared in Indonesia, where students from University of Brawijaya explored unconventional approaches to farming challenges. Supervisor Dr. Uma Khumairoh emphasized the urgency of involving young people in shaping future food systems:

> *"If we don't involve them from an early age, the sustainability of farming is at great risk from climate change, supply chain disruption, and environmental degradation, to irresponsible consumption."*

Khumairoh saw students as a vital force in revitalizing farming. With broader access to knowledge and technology, they were able to bring new life to traditional practices. "They often implemented approaches that were not conventional, but attractive and innovative," she said. "They brought their youthful breath to revive and save farming, keeping it alive and vibrant."



Real-World Learning, Local Impact

A defining feature of the challenge was its emphasis on implementation, not just ideas. Over the course of six months, student teams worked closely with stakeholders to bring their projects to life, applying NBS in practical, community-driven ways.

In Ethiopia, the team Mushroom Organic, Mysteries and Golden Food combined science, tradition, and sustainability to promote organic mushroom farming. "We were motivated by the urgent need to create sustainable, nutrient-rich food systems that also support local economies," shared team member Desye Melese. Their project aimed to enhance food security while building income opportunities.

For AçaíBoosters in Suriname, the challenge provided a platform to experiment with turning açaí into yogurt — boosting local processing and value addition. "We're especially excited about the combination of online learning and hands-on fieldwork," the team reflected, "which allowed us to grow while working on something that could genuinely benefit communities in Suriname."

Both teams stressed the value of international exchange. "Every conversation offered new perspectives and fresh ideas," noted the AçaíBoosters. "It challenged us to think beyond our usual frameworks and focus on solutions that are meaningful and inclusive."

A Global Challenge, Rooted in Local Realities

Each student team was asked to design a nature-based project addressing climate adaptation, biodiversity restoration, and social wellbeing, while ensuring feasibility, scalability, and grounding in local conditions. Throughout the process, they received guidance from experts, connected with real stakeholders, and collaborated across borders.

"We're not just seeing new projects," Mirjam Troost concludes. "We're seeing a growing network of students and supervisors who are ready to transform food systems through nature-based solutions."



Meet the Jury

Celeste Macilwaine
World Food Forum (FAO)



Celeste leads the Youth Innovation Lab at the World Food Forum, where she empowers young innovators to drive agrifood system transformation. With a strong interest in equity, public health, and sustainability, she is committed to fostering socially responsible and ecologically sound solutions for the future of food.

"Transforming agrifood systems demands much bolder action today – and this starts by giving meaningful leadership opportunities, resources and support to youth today so that they are empowered to address the diverse challenges that affect them now but also in the future."

Edson Mpyisi
African Development Bank



Edson is Chief Financial Economist at the African Development Bank and Coordinator of the ENABLE Youth Program, which supports youth-led agribusiness across Africa. With over 20 years of experience in economic and rural development, he specializes in agricultural policy, finance, and empowering young agripreneurs across the continent.

"Serving as a jury member for the Food Systems Innovation Challenge is an opportunity to witness first-hand how the next generation is reimagining agriculture - not just as a source of food, but as a driver of jobs, climate resilience, and inclusive growth. By empowering young entrepreneurs, we are not only transforming food systems, we are investing in Africa's most powerful asset - its youth."

Fernando Russo
Meraki Impact



Fernando is the CEO of Meraki Impact, an impact investment firm supporting regenerative agriculture and inclusive food systems. With a background in business and a deep-rooted passion for nature, he works at the intersection of ecology, farming, and entrepreneurship to foster models that restore both land and livelihoods.

"As we enhance our efforts for large-scale regeneration, we need every talented mind, heart, and hand to support the shift towards a regenerative economy."

Jacobine Mannak
sustainability leader



Jacobine is a sustainability leader passionate about food system transformation. With expertise in regenerative agriculture, nutrition and value chain collaboration, she aligns stakeholder interests to drive innovations with a positive impact on people and planet, contributing to just and sustainable food systems providing for healthy diets.

"Young entrepreneurs are the best to detect today's challenges and opportunities - with fresh perspectives and latest knowledge applied."

Jean Muthamia-Mwenda
SNV



Jean is SNVs Global Lead, Youth Employment and Entrepreneurship. Leader with 15+ years' experience driving youth and women's economic inclusion across Africa and Europe. Skilled in strategy, governance, and inclusive systems transformation. Proven in catalysing partnerships and sustainable enterprises. Committed to unlocking potential, breaking barriers, and creating equitable opportunities through collaboration and innovation.

"Youth-led innovation is pivotal to transforming food systems, revitalizing traditional agricultural practices, and strengthening local food resilience."

John Reich
Foundation for Food & Agriculture Research (FFAR)



John is Scientific Program Director at the Foundation for Food & Agriculture Research (FFAR), where he develops cross-sector research initiatives that drive equitable economic development and nutrition security. With a background in science and lived experience, he champions collaborative, long-term solutions to complex challenges in food and agriculture.

"Enabling a new generation of entrepreneurs that applies science to problems within their communities is essential to developing more sustainable and inclusive systems."

Jurriaan Middelhoff
Ministry of Foreign Affairs



Jurriaan is the Dutch Ambassador for Youth, Education and Employment. With a diplomatic career spanning Europe, Africa, Asia, and Latin America, he advocates for youth participation and skills development. His work focuses on creating opportunities for young people and amplifying their voices in policymaking and international development.

"Being a jury member allows me to witness groundbreaking youth ideas that connect science, policy, and practice to transform food systems sustainably and inclusively."

Maaike Groot
East-West Seed



Maaike is Global Head of Communications, Public and Regulatory Affairs and Sustainability at East-West Seed. As a 7th generation seedswoman, she works to advance sustainable agriculture, strengthen farmer livelihoods, and shape policy and public discourse on food systems across emerging markets.

"Seeing youth-led innovation in agriculture fills me with hope. We need the bright minds and hands of the next generation to fight poverty and feed the world."

Patrick Okori
Regional Universities Forum for Capacity Building In Agriculture (RUFORUM)



Patrick is the Executive Secretary of the Regional Universities Forum for Capacity Building In Agriculture (RUFORUM). He is a respected leader in crop science, policy engagement, and innovation, advancing resilient food systems across Africa and other emerging economies.

"Being a member of the jury give me the opportunity to learn from the process innovators plan for fixing our world challenges"

NutriVeggie Foods

Makerere University - Uganda

The team's goal is to address the low consumption of fruits and vegetables among Ugandans, particularly students, which correlates to a high risk of noncommunicable diseases. They aim to develop "VegetableBlend," a ready-to-eat vegetable powder that can be mixed into meals to increase vitamin and mineral intake. Their mission is to improve public health by making vegetable nutrients



Team members:
Josephat Mbabazi
Austin Odongo
Vivian Komugisha
Trevor Atuhaire Wamara
Descent Arinda
Daniel Jjingo

"This challenge showed us the power of innovation to fight malnutrition, reduce food waste, and support farmers. NutriVeggie Foods transforms waste into wellness for a healthier, more sustainable Uganda."



Okhel Preserves BioGrans

Makerere University - Uganda

The team aims to revitalise and modernise the traditional African granary by combining ecological, cost-effective, and bio-based solutions to improve storage conditions. They intend to improve granary performance by incorporating materials such as High-Density Polyethylene and Polypropylene to manage moisture and reduce insect damage. Their goal is to provide farmers with a practical, cost-effective solution for long-term food storage that solves both physical and economic losses.



Team members:
Kabuye Andrew Benjamin
Okot Ribon Musoga
Namubiru Kevin
Odaru Zulaikah
Esther Bergmans



"This challenge inspired us to reimagine the traditional African granary. With BioGrans, we aim to improve food security, protect harvests, and strengthen farmer livelihoods sustainably."



PaiBloom

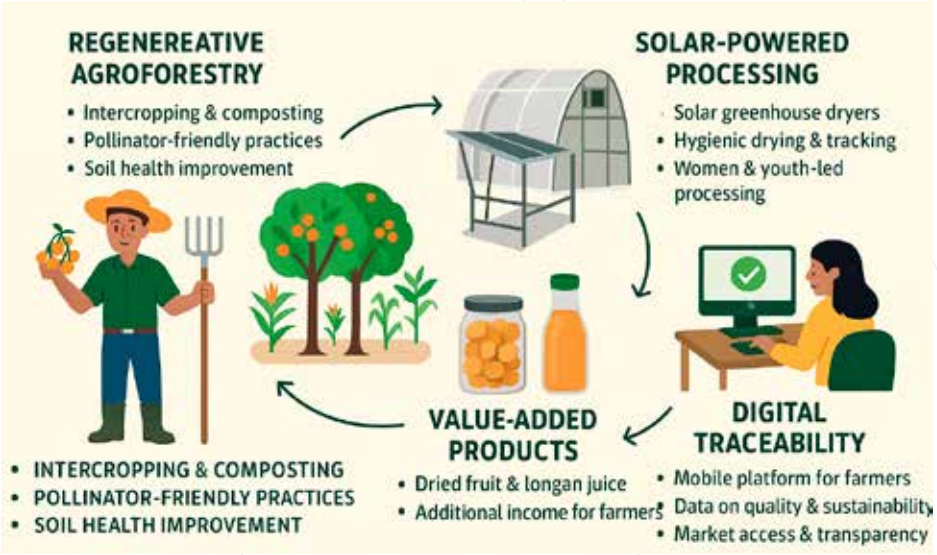
Wageningen University & Research - The Netherlands

The team's goal is to develop a regenerative and traceable longan production strategy that will empower smallholder farmers in Pailin by promoting sustainable practices and local processing. They aim to reduce post-harvest losses, increase market access, and create healthier, naturally sweet longan-based products as alternatives to sugary snacks. Their goal is to increase farmer earnings, improve food safety standards, and address growing health concerns about sugar use.



Team members:
Alita Tithphit
Mickey Tithphit
Jimmy Tithphit
Sai Lohitha

"This challenge helped us turn our vision into something tangible. We learned that food system change can simply start with the people and practices we already know, and grow through science, community, and care."



EcoFood Links

Wageningen University & Research - The Netherlands

The team's goal is to connect Wageningen's urban food systems and green spaces to create a connected ecological network that will reduce the detrimental effects of urban growth. They hope to improve ecosystem services, create urban-rural connectedness, and promote sustainable landscape management through urban gardens and stakeholder participation. Their mission is to balance urban growth with ecological integrity, promote local food production, and reinforce natural resource cycles.



Team members:
Amaranta Ruiz Martínez
Paola Danello
Nadhif Ditertian Girawan
Stylianos Nikolaos Eminoglou
Ernesto Orrillo Aguirre



"We are designing a game that engages communities in co-creating urban food systems, turning dialogue into action and cooperation into shared green spaces."

Waste2Wonders (W2W)

Anton de Kom University of Suriname - Suriname

The team aims to reduce plastic pollution in Suriname's agricultural sector by creating biodegradable planting pots comprised of rice husk, cocopeat, and cow manure. Their product is an environmentally friendly alternative to plastic trays that also repurposes agricultural waste and promotes plant growth. The project encourages sustainable farming practices and generates new employment prospects.



Team members:
Shanisha Badrie
Wiraisha Gauri
Stefany Wijngaarde
Ezra Gron



"You see Waste, We see Wonders, a Minor yet Impactful Change can be an Innovation!"

AçaíBoosters

Anton de Kom University of Suriname - Suriname

The team seeks to reduce açaí spoilage in Suriname by creating a yoghurt with a minimum shelf life of 7 days. This would promote healthier food options and reduce food waste. The goal is to develop the açaí value chain by promoting collaboration among producers, processors (particularly female entrepreneurs), students, and consumers. Their mission is to increase rural incomes, promote sustainable production techniques, and contribute to numerous Sustainable Development Goals (SDGs) through innovation and collaboration.





Team members:
Lateefa Cairo
Rewita Kapoerchan
Rawina Matai
Nicoline Abauna
Jasherel Wielzen
Raïssa Doornkamp
Luise Baldauf
Athena Besancon

"This project showed us that food innovation is more than creating a product. It's about trust, sharing knowledge, and supporting the people behind the ingredients in our Surinamese community."



Nature Pro
University of Abuja - Nigeria

The team's goal is to create biodegradable, environmentally friendly, and safe alternatives to styrofoam food packaging, which poses significant health and environmental dangers. They are searching for materials that are affordable, non-toxic, and universally accepted by consumers. Their mission is to promote safer food packaging alternatives that benefit both human health and the environment.



Team members:
Rukayat A. Ilias
AbdulAzeez Faruk
Yusuf Muhammad Mansur
Victor Grant Kamsirochi
Christopher Faith Osasere
Isah Amirat Muhammad

"This challenge sparked our creativity to look to nature for solutions. By transforming local leaves into eco-friendly packaging, we discovered innovation rooted in sustainability and a vision for the future."



Millet Mavens
University of Abuja - Nigeria

The Millet Mavens aim to create sustainable millet-based products including flour, powdered milk, and oil pesticides to combat food insecurity, promote better diets, and mitigate the consequences of climate change. They plan to promote biodiversity restoration, reduce chemical use in agriculture, and generate new economic options for farmers. Their goal is to increase awareness of millet's variety and nutritional benefits, strengthening local food systems and fostering economic and environmental resilience.



Team members:
Joseph Cornerstone
Loveth Duru
Blessing Sunday
David Olaosebikan
Marvellous Ugen



"We learned that innovation begins with small changes. By rethinking the familiar and improving little things, we can spark real transformation."

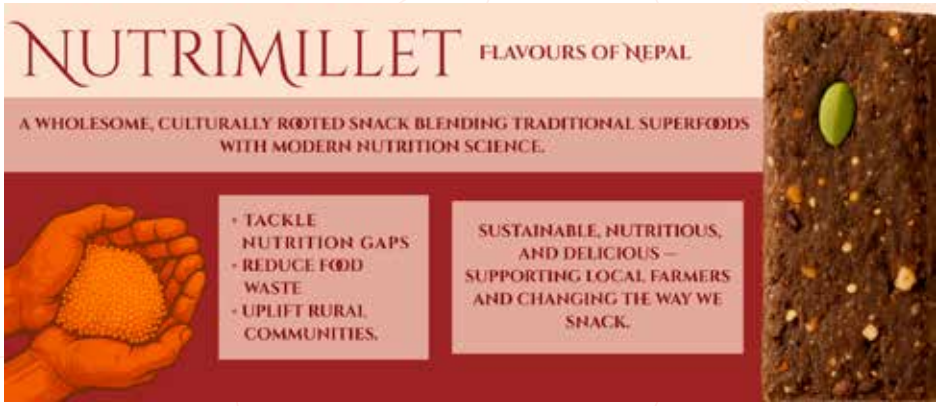
GraiNergy
Kathmandu University - Nepal

The team's goal is to create NutriMillet Energy Bites, a healthy, natural snack created from locally sourced ingredients such as millet, jaggery, flaxseeds, and overripe raspberries, to promote improved nutrition and reduce food waste in Nepal. They aim to improve public health by providing a chemical-free, renewable energy source while also promoting local agriculture and empowering farmers. They will develop a modern, culturally relevant food product that will boost Nepal's food economy and promote healthy eating habits.



Team members:
Rupa Bajagain
Bipul Chaudhary
Aditi Sapkota
Samrat Panta
Meghan George

"Through this challenge, we learned how food innovation connects health, culture, and sustainability. With NutriMillet, we reimagined traditional ingredients in new ways, showing that healthy food can also be truly enjoyable."



FruViate
Kathmandu University - Nepal

The team aims to decrease food waste in Kavrepalanchowk by transforming watermelon rinds and coconut wastes into nutritious, shelf-stable gummy products. They want to build a sustainable value chain that not only reduces trash but also promotes healthy eating and generates local jobs. Their goal is to provide an alternative to synthetic gummies, helping to create a more sustainable and nutritious food system while minimising environmental effect.



Team members:
Stuti Pokharel
Dikshya Khadka
Aashish Karki
Prabesh Guragain

"This challenge reminded us that every part of nature deserves a second chance, and that transformation can be both thoughtful and enjoyable."



AgriPlus
Lukenya University - Kenya

The team's goal is to establish fish farming as a sustainable economic activity in dryland areas, complementing poultry raising, in order to improve food security and living conditions. They hope to reduce poverty and hunger by fostering the blue economy, as well as to combat the effects of global warming. Their mission is to provide marginalised communities with the resources and information they need to develop resilient, self-sustaining livelihoods.



Team members:
Roy Mwaka
Linet Mutuku
Ann Wachira
Benjamin Muoki



"Circular farming is the future. By turning waste into value and designing systems where one process feeds another, we create more sustainable food solutions."

AquaSmart Innovators
Lukenya University - Kenya

The team's goal is to alleviate water scarcity and inefficient irrigation in Kenya's arid and semi-arid regions by creating a Smart Agri-Water Management System that combines sensor-based irrigation, rainwater collection, and renewable energy. Their goal is to maximise water use, raise crop yields, and improve climate resilience for smallholder farmers, all while introducing drought-resistant African Indigenous Vegetables (AIVs) as cover crops. The initiative aims to develop a sustainable agricultural strategy that increases food security while conserving water resources.



Team members:
Anthony Muuo
Ruth Wambua
Albanus Mutinda
Elizabeth Mueni
Osama Achman

"This challenge pushed us to merge innovation with sustainability. Working on Smart-Agri water management and vermicomposting opened our minds to nature-based solutions for smallholder farmers."



AgriSynergy
University of Brawijaya - Indonesia

The team's goal is to increase rice output in the face of climate change by incorporating plant and animal species into the traditional "salibu" ratoon rice farming method. By adding ducks and legumes, they hope to reduce pesticide usage, labour, and environmental effect while increasing yields and food security. Their goal is to develop a diverse, climate-resilient farming system that helps rural communities, improves nutrition, and promotes food sovereignty.

"AgriSynergy redefines farming by regenerating rice, enriching diets with soy, and empowering ecosystems with ducks and azolla. All in one field for a nourished future."





Team members:
Candra Prabowo
Intana Rahma
Khairunita Rahmadanti
Leylyana Bestira
Syafina Athaya
Moh Ardinata
Gils Imanuel
Elwina Meylenti Halim



Memayu Ning Papat
University of Brawijaya - Indonesia

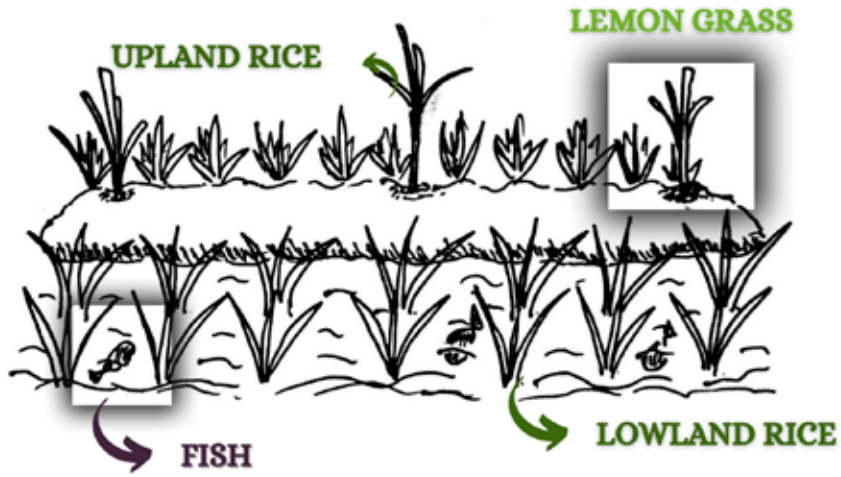
The team intends to establish ecologically friendly farming practices in Jenggolo Village by including fish, azolla, and lemongrass into rice production systems to naturally manage pests and diversify farmers' income. This nature-based solution aims to reduce reliance on chemical inputs, increase rice yields, and offset the effects of climate change on rice farming. The project aims to increase farmer welfare, promote sustainable farming techniques, and safeguard local water supplies and biodiversity.

"This challenge inspired us to revive balance in food systems by respecting nature, honoring culture, and strengthening collective resilience."





Team members:
Muhamad Reza
Daffa Ahmad
Muhammad Hasan
Nanda Aprilian
Rifda Baskara
Siti Nurmaulidiyah
Siti Nursofa



FlyCycle
University of Ghana - Ghana

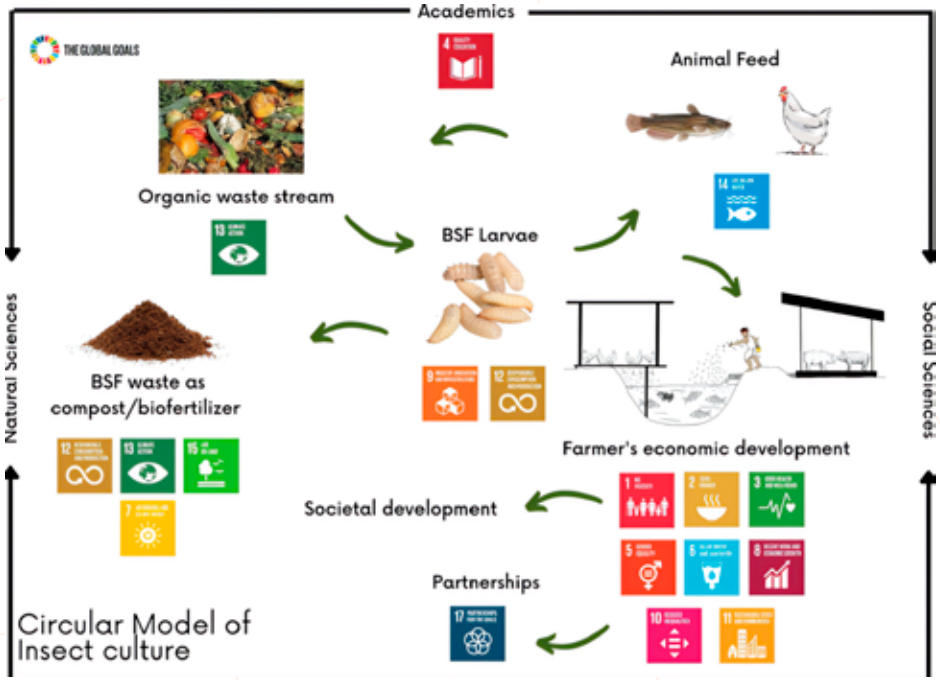
The team's goal with Black Soldier Fly farming is to address organic waste management and lessen Ghana's reliance on soybeans and fish meal in animal feed manufacturing. Their idea will turn organic waste into high-protein feed and organic fertiliser, lowering waste pollution and providing an environmentally sustainable answer for farms. The goal is to establish a lucrative and sustainable agriculture system that benefits both the environment and the local farming community.

"Waste nothing. Cycle everything."



Team members:

William Oduro
Samuel Ofori
Paul Ansah Asiedu
Perpetua Adofoli
Pharida Adams
Nashvel
Bright Matey Baah
Mershach Fosuhene



Bio-Char Innovate
University of Ghana - Ghana

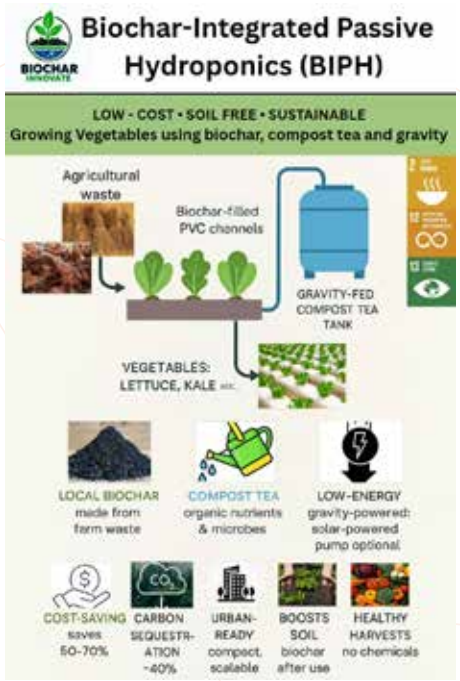
The team's goal is to create a low-cost, charcoal-based hydroponic farming model that will increase vegetable production in both urban and rural locations while solving land shortages and water scarcity. The initiative uses a recirculating nutrient system to promote food security, minimise water usage, and offer economic opportunities for kids and women. It also encourages sustainable waste management by using locally obtained charcoal and organic fertilisers, which benefits both local populations and the environment.

"Through this challenge, we realized we grow more than crops. By transforming agricultural waste, we create opportunities, foster sustainability, and empower communities."



Team members:

Ebenezer Sanka
Justice Kosi Atsu
Prudence Nkornyui
Boahemaah Beatrice
Mensah
Alando Aziz Isaac
Appreku Stephenson



Pumpkin Aid
Wollo University - Ethiopia

The team's goal is to reduce undernutrition in Ethiopia by encouraging the growing and consumption of pumpkin and its nutrient-dense seeds. The project aims to improve nutrient intake, increase food security, and reduce food waste by implementing sustainable farming practices and new food processing processes. By raising knowledge of pumpkin's nutritious potential, the project hopes to diversify diets, boost supply chains, and contribute to Ethiopia's national food system.



Team members:
Lielet Belete
Sisay Tadesse
Marta Seid
Habtamu Tekalign
Mandefro Mihret

"Participating in the Food Systems Innovation Challenge inspired us to turn an overlooked crop into a sustainable food solution. It reshaped our thinking from academic research to real-world impact and motivated us to scale our project."



Mushroom: Organic, Mysteries and Golden Food
Wollo University - Ethiopia

This initiative intends to alleviate malnutrition and food insecurity in South Wollo Zone, Ethiopia, by introducing mushrooms as a nutritious, low-cost, and climate-resilient food source. The project aims to enhance livelihoods and decrease poverty by providing mushroom farming training to women and unemployed youth. It also encourages sustainable agriculture techniques based on agro-waste, which aligns with Ethiopia's climate-resilient aims and helps to accomplish numerous UN Sustainable Development Goals.





Team members:
Desye Melese
Robel Kasahun
Bernabas Haile
Emebet Demeke
Hayat Teshome
Semira Aragie
Gelgelo Askale
Muleken Ekule



SolarPANC

University of São Paulo / ESALQ - Brazil

In Brazil, the spread of industrialised agriculture has eroded biodiversity and traditional food knowledge, resulting in food instability and nutritional inadequacies, particularly among marginalised people. This research attempts to solve this by returning Unconventional Food Plants (UFPs) and medicinal species into local food systems through the use of solar dehydration technologies for effective preservation. As a result, it aids community efforts to recover traditional plant knowledge, improve food sovereignty, and foster sustainability.



Team members:
Samuel Horta
Yuri Mello
Aline Barbosa
Gabriela Galvão
Davi Oliveira
Bruno Ellis
Clayton da Broi
Leonardo César

"This challenge pushed us to be creative, adaptable, and collaborative. Developing our solar-drying solution taught us how innovation becomes meaningful when it is aligned with real societal needs."



FreeDye

University of São Paulo / ESALQ - Brazil

This initiative addresses the health problems connected with synthetic food dyes by presenting a natural alternative produced from the Brazilian plant crajiru (Fridericia chica). The plant's high-quality pigments, which are more stable and have better fixation than other natural dyes, are harvested and synthesised in controlled conditions to boost productivity. The project's goal is to replace synthetic dyes in the food sector with crajiru pigments, encouraging sustainability, enhancing food safety, and addressing consumer demand for healthier, more natural products.



Team members:
Laura Bortolato
Gustavo Camargo
Fabrício Valério
Isabela Pontes
Caroline Moller



"Our project has grown substantially since its start, fuelled by our team's commitment and growing interest. Along the way, we keep meeting new people and gaining valuable insights."



AGRO-FEME SEPTET

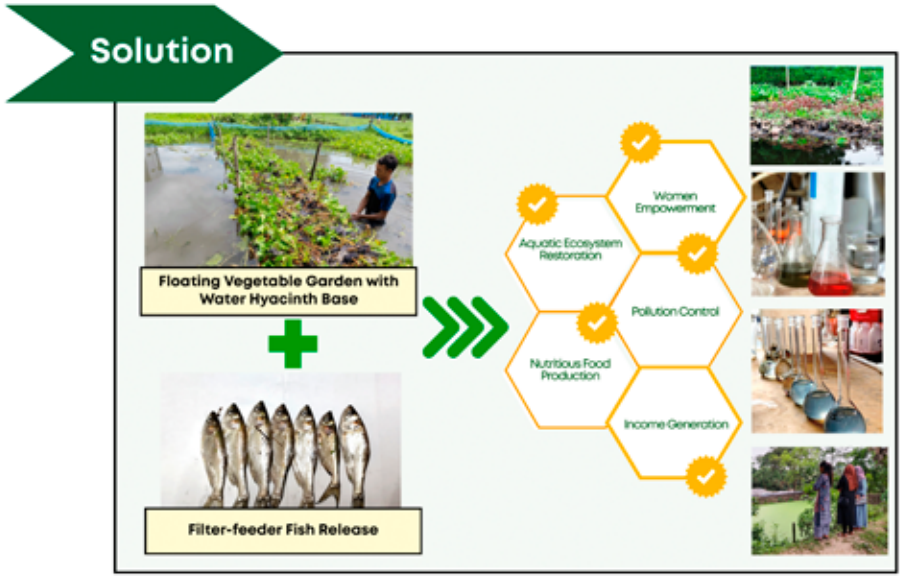
Bangladesh Agricultural University - Bangladesh

This project intends to alleviate eutrophication and water hyacinth invasion in Bangladesh's freshwater bodies by building an integrated horticulture-aquaculture system. The system will use water hyacinth to grow vegetables and filter-feeder fish, thereby reducing nutrient pollution and improving water quality. The ultimate goal is to repair derelict water bodies, improve local nutrition, and support livelihoods by transforming these regions into profitable agricultural and aquaculture zones.



Team members:
Rubya Binte Rezanur
Atia Anzum Dina
Apsari Wasim
Most. Sumaya Akter Tanni
Zummi Nahdia Zarin
Sumaiya Afrin Raka
Nashita Rashid

"Finding Solutions to ecological problems; we customize nature"



AquaFour

Bangladesh Agricultural University - Bangladesh

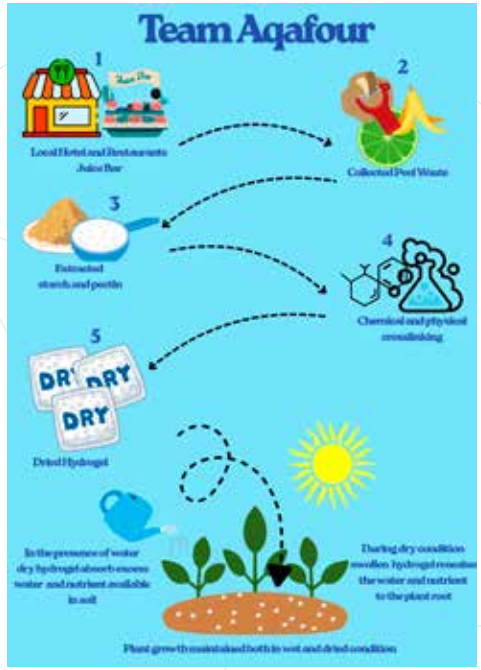
This initiative seeks to address water depletion and soil degradation issues in Mymensingh, Bangladesh, by creating a nature-based hydrogel from agricultural waste such as potato peels, banana peels, and okra stems. Within six months, the hydrogel will cut irrigation water use, enhance soil moisture retention, and boost soil organic carbon levels. This project uses agricultural waste to not only alleviate water scarcity and improve soil fertility, but it also minimises environmental pollution produced by garbage burning.



Team members:
Shabnum Ferdous
Tasrin Sultana
Md. Abdur Rouf
Ashiqur Rahman Himal
Dani O'Brien



"Participating in FSIC 2025 has been an incredible journey. Creating our hydrogel was not just science but also teamwork, resilience, and a vision for eco-friendly solutions."



Ecoshrimp
Can Tho University - Vietnam

Vietnam is one of the world's leading suppliers of farmed shrimp, with farms typically consisting of shrimp cultivation ponds and supporting ponds designated for water treatment. However, these supporting ponds are often underutilized. Team Ecoshrimp seeks to transform them into productive, sustainable ecosystems by introducing a nature-based, multi-species pond system that integrates mangrove forests, seaweed cultivation, aquaponics, and native fish. This approach enhances environmental resilience while increasing overall farm productivity.



Team members:
Luu Ngoc Dang
Nguyen Bao Khang
Lu Nguyen Thanh Hieu
Nguyen Hong Minh

"EcoShrimp is more than just a project. It is a movement for reviving ponds, restoring livelihoods, and reimagining aquaculture."



EarthFeast
Tra Vinh University - Vietnam

Rice-shrimp farming is a nature-based agricultural practice where farmers cultivate shrimp alongside rice, adapting to the natural cycles of alternating saltwater and freshwater. Despite its sustainability, rice-shrimp farming cooperatives in Tra Vinh province, Vietnam, face significant challenges, including market instability, an aging workforce, and limited access to technology. Team EarthFeast aims to scale this sustainable practice and raise consumer awareness by developing a digital platform that directly connects farmers with traders, improving market access and transparency.



Team members:
Huynh Thi Hong Xuyen
Nguyen Thi Kim Anh
Pham Thai Ngoc Vi
Tram Van Loc
Lam Tran Que Chi

"EarthFeast gave us the chance to turn academic knowledge into real solutions. Working with a diverse team taught us that true growth comes from listening, adapting, and creating lasting value together."



Acknowledgements

The Food Systems Innovation Challenge would not have been possible without the dedication, guidance, and generosity of the many people who supported the student teams along the way. We are deeply grateful to the advisory board members and the coordinators of each partner university, who have been passionately guiding the challenge; to the mentors, who walked closely with the teams throughout their journey; and to the experts, who shared their time and knowledge in focused sessions. Their advice, encouragement, and belief in the students made a world of difference.

Coordinators and advisory board members of the partner universities

- Dr. Judith Wafula and Dr. Esther Muli - Lukenya University - Kenya
- Dr. Seid Hussen Muhie and Dr. Birhan Asmame - Wollo University - Ethiopia
- Jane Jagernath, MSc and Dr. Wasudha S. Malgie - Anton de Kom University of Suriname - Suriname
- Dr. Mohammad Matiur Rahman and Dr. A. K. Fazlul Haque Bhuiyan - Bangladesh Agricultural University - Bangladesh
- Dr. Akeem Abolade Oyerinde and Dr. Aisha Sani Maikudi - University of Abuja - Nigeria
- Dr. Daniel Adu Ankrah and Dr. Eric Kwesi Nartey - University of Ghana - Ghana
- Dr. Uma Shankar Panday and Dr. Bal Krishna Bal - Kathmandu University - Nepal
- Mirjam Troost, MSc and Dr. Sigrid Wertheim-Heck - Wageningen University & Research - The Netherlands
- Dr. Edison Sempiira and Dr. Julia Kigozi - Makerere University - Uganda
- Dr. José Belasque Júnior and Dr. Thais Vieira - University of São Paulo - Brazil
- Dr. Uma Khumairoh and Dr. Sujarwo - University of Brawijaya - Indonesia
- Dr. Ho Hong Lien - Can Tho University - Vietnam
- Dr. Tran Thi Ngoc Bich - Tra Vinh University - Vietnam

Mentors of the student teams

Mayuri Jaggan, Yves Diran, Esther Muli, Judith Wafula, Blair van Pelt, Gerrit-Jan van Uffelen, Aline Silva Mello Cesar, Tran Trung Tri, Ho Hong Lien, Muhammed Seid Anbesaw, Yawkal Tsega Nebeb, Parash Mani Timilsina, Bishnu Maya K.C., Lukenge James, Kwagala Joshua, Jael Birgen, Otim Andrew, Anisur Rahman Mazumder, Harunur Rashid, Adryan Nur Fauzan, Wildan Sultan Syahrir Ramadhan, Benjamin Adjei-Mensah, Bright Agblevor, Ogunlade-Anibasa Grace Oyisa, Liadi Muideen Tella

Experts

Hung Nguyen-Ngoc, Onno van Manen, Ayeloja Ayodeji Ahmed, Siemen van Berkum, Bich Tran (Bica Tran), Ogwang Robert Rapsy, John Afuye, Koba Tchegoun, Tonny Blair Omondi, Judith Wafula, Daniel Ogunsola, Harunur Rashid, Roseline Remans, Chandima Ariyarathana, Souleymane Boni, Assefa Adane Atinafu, Ogunlade-Anibasa Grace Oyiza, Kamara Daniel, Assegid Gedamu, Adekunbi Malomo, Jael Birgen, Asikaralu Okafor

Local jury members

Ahamada Zziwa, Allan Komakech, Filda Ayaa, Dennis Nsubuga, Masereka Ronald, Julia Kigozi, Richard Bukenya, Byakika Stellah, Nina Maaswinkel, Jacobine Mannak, David Mornout, Ranoe Jhari, Rinesh Kowlesar, Vishaja Boedjawan, M. A. Belewu, Taibat Atoyebi, A. A. Alarape, I. A. Aderolu, Upama Ashish Koju, Rajendra Uprety, Ek Narayan Dhakal, Sharmila Pun, Josphert Kimatu, Harrison Mwololo, Jeremiah Rogito, Theodorus Dedy Tri Kuncoro, Ratih Sandrakirana, Andi Bachtiar, Peni Agustijanto, Abu Iddrisu Seidu, Isaac Alvin Amoah, Seid Hussen, Mulugeta Chanie, Assamen Ayalew, Muluken Girma, Mohammad Shamsul Alam Bhuiyan, Kazi Kamrul Islam, Harunur Rashid, Md. Anisur Rahman Mazumder, Mohd. Golam Quader Khan, Mohammad Matiur Rahman, Bram de Groote, Lan Nguyen and Marjan de Jong

Organizing committee

Mirjam Troost, Bente Meindertsma, Rio Pals, Yasmin Dijksterhuis, Caitlin Moyle, Maria Theodoridou, Rebeka Bílik

We also warmly thank our Knowledge Partner, the Global Network of Lighthouse Farms, for their invaluable contribution to this year's challenge:

The organizers of the 2025 Food Systems Innovation Challenge – Nature-based Solutions edition:

Highlights from the 2024 Food Systems Innovation Challenge

Photos: Guy Ackermans









