



**The Twenty-fifth International Students Summit on
Food, Agriculture and Environment (ISS)**

**Pushing Boundaries: Inclusive Activities for
Community Welfare**

June 30 - July 3, 2026



2026 TOKYO

Organized by
Tokyo University of Agriculture (Tokyo NODAI)

The 25th International Students Summit on Food, Agriculture and Environment (ISS)

Pushing Boundaries: Inclusive Activities for Community Welfare

Date: June 30 – July 3, 2026

Statement

As we celebrate the 25th Anniversary of the International Students Summit on Food, Agriculture and Environment (ISS), it is important to reflect on the pressing global challenges that define our time. The world today faces unprecedented challenges in the domains of food security, sustainable agriculture, and environmental conservation. Climate change, resource depletion, loss of biodiversity, and unequal access to nutritious food threaten not only ecological balance but also the well-being of communities across the globe. These complex issues demand innovative, inclusive, and community-centered approaches that go beyond traditional boundaries. In this context, students have a unique role to play as catalysts of change. As emerging leaders, they can harness their knowledge, creativity, and collaborative spirits to design solutions that address local and global challenges simultaneously. By engaging in inclusive activities, whether as individuals championing sustainable practices in their daily lives, or through collective action in collaboration with companies, institutions, and communities, students can transform ideas into impactful initiatives. For instance, they can lead campaigns on responsible consumption, initiate community-based agricultural projects, or partner with organizations to implement technologies that improve food production while conserving natural resources. Such actions not only strengthen community welfare but also inspire broader participation and long-term change.

Tokyo University of Agriculture (Tokyo NODAI) has been organizing the International Students Summit (ISS) since 2001 to provide students from our global partner universities with an opportunity to gather, exchange views and ideas on global food, agricultural, and environmental issues, and discuss their roles in promoting sustainable development.

The 25th ISS will be held from June 30 - July 3, 2026, with the theme “*Pushing Boundaries: Inclusive Activities for Community Welfare*”, which was adopted by participating students at the 24th ISS hosted by IPB University in Bogor, Indonesia. Participating students are expected to attend in person and present activities undertaken at their home universities that have made or are making a positive impact on their respective communities. These student-led actions may take the form of new ideas or on-going initiatives. Presentations should clearly explain the rationale, methods, implications (on the economy, society, and culture), and constraints of the activities to highlight students' contributions to solving global challenges and advancing sustainability. Each selected partner university will be allocated **one (1) slot** for an oral presentation in one of the following fields:

- Students' Actions in the Field of **Agriculture**
- Students' Actions in the Field of **Environment**
- Students' Actions in the Field of **Food**
- Students' Actions in the Field of **Education**
- Students' Actions in the Field of **Community Development**

Submitted ISS manuscripts will undergo a screening process conducted by the ISS Committee using pre-set criteria and evaluation to ensure that the presentation is aligned with the ISS main theme. Moreover, each partner university is required to appoint faculty advisor(s) to support the presenter(s). Advisors are also welcome to attend the ISS in-person at their own expense or sponsor.

Tokyo University of Agriculture

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To the audience of the 25th International Students Summit

Please check the ISS Tokyo NODAI website for the latest information.

<https://www.isstokyonodai.net/>

25th ISS Participants' List

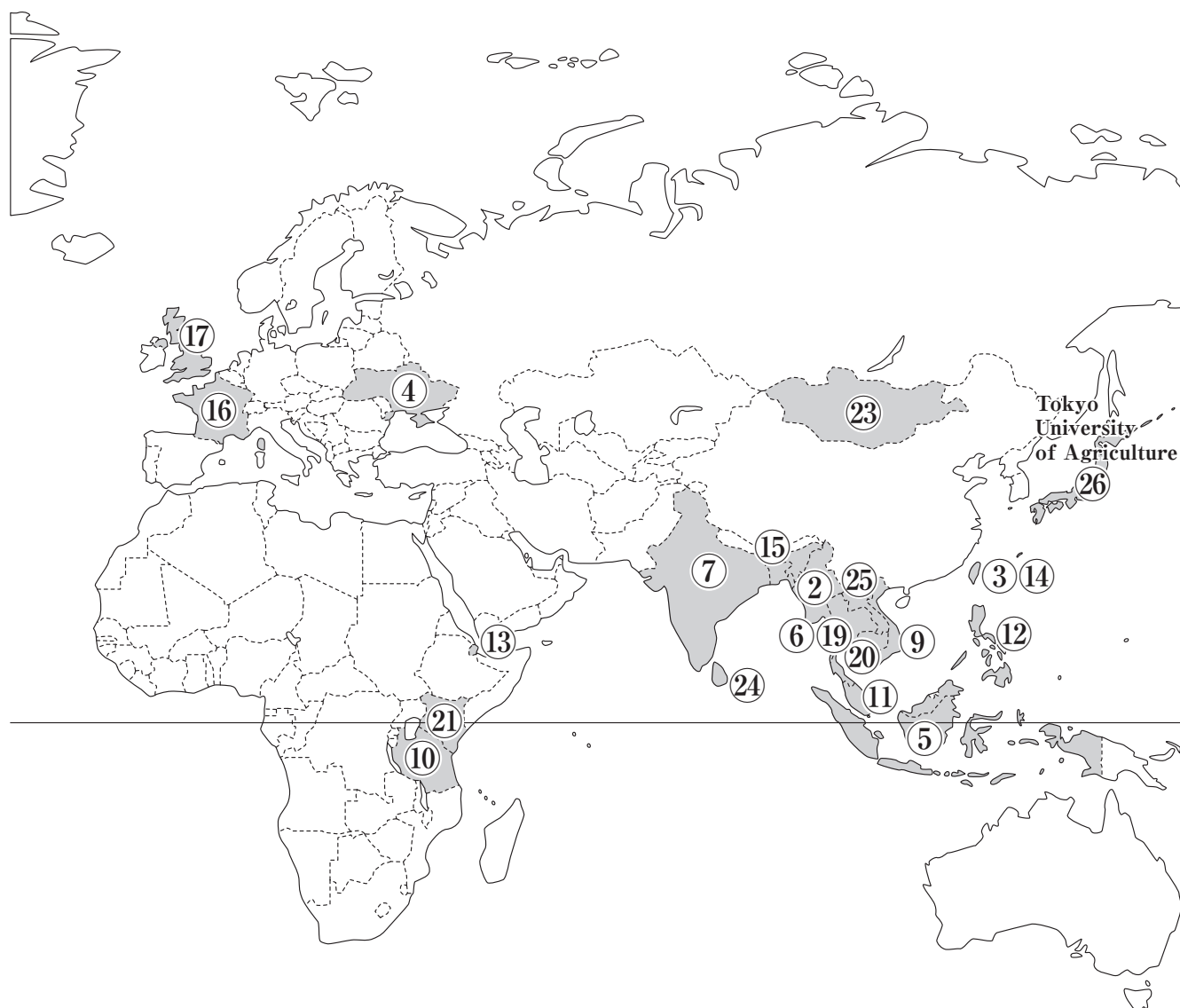
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General Chairpersons
(Tokyo NODAI)

GENERAL DISCUSSION
Aya Osman Idleh
Kentaro Yagyu

NEXT THEME DISCUSSION
Aya Osman Idleh
Kentaro Yagyu
Yuki Sawai

The 25th ISS Participating Universities



- ① Michigan State University
- ② Yezin Agricultural University
- ③ National Pingtung University of Science and Technology
- ④ National University of Life and Environmental Sciences of Ukraine
- ⑤ IPB University
- ⑥ Khon Kaen University

- ⑦ Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana)
- ⑧ Escola Superior de Agricultura Luiz de Queiroz Universidade de São Paulo
- ⑨ Vietnam National University of Agriculture
- ⑩ Sokoine University of Agriculture
- ⑪ Universiti Putra Malaysia
- ⑫ University of the Philippines Los Baños



- ⑬ University of djibouti
- ⑭ National Chung Hsing University
- ⑮ Bangladesh Agricultural University
- ⑯ Institut Polytechnique UniLaSalle
- ⑰ University of Reading
- ⑱ University of California, Davis
- ⑲ Kasetsart University
- ⑳ Royal University of Agriculture

- ㉑ Jomo Kenyatta University of Agriculture and Technology
- ㉒ The University of British Columbia
- ㉓ Mongolian University of Life Sciences
- ㉔ University of Peradeniya
- ㉕ National University of Laos
- ㉖ Tokyo University of Agriculture

Program

Venue: Tokyo University of Agriculture, Setagaya Campus
International Center 2F Enomoto Hall

Join Live in Microsoft Teams: <https://tinyurl.com/TokyoNODAI-ISS-2026>



Group A

July 1, Wednesday 9:00~10:30

[A Low-Cost Handheld Soil Moisture Measurement Sensing Device for Spatio-Temporal Optimization of Water by Farmers and Citizen Scientists]

Siddhesh S. Mane, *Michigan State University*

[Bringing Agriculture Closer to People: Our Journey at Vivid Earth Network]

Ai Sato, *Tokyo University of Agriculture*

[Towards Community Welfare: Assessment of Household Food Consumption Behavior, Resilience, and Perceptions under Food Price Changes in Myanmar]

Hlaing Thin Thin Myat, *Yezin Agricultural University*

[An Investigation into Rice Drip Irrigation Systems for Yield Maintenance and Greenhouse Gas Mitigation under Water Resource Competition in Taiwan]

Nuo-Ya Lou, *National Pingtung University of Science and Technology*

Group B

July 1, Wednesday 10:40~12:10

[Inclusive Computer Lab]

Mariia Bondarenko, *National university of life and environmental sciences of Ukraine*

[Environmental Sustainability through Green Character Education: Cultivating Compassion and Ecological Responsibility in Vulnerable Children]

Niko Faiz Fahrezi, *IPB University*

[Evaluation of Rice Elite Breeding Lines for Combined Tolerance to Submergence and Salinity Stress at Seedling Stage for Rice Sustainable]

Sukritta Somthong, *Khon Kaen University*

[Safe Food for All: Residue Free Organic and Natural Farming for Community Welfare and a Healthier Future]

Kamal, *Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana)*

Group C

July 1, Wednesday 13:00~14:30

[Microbiological Analysis of Milk from Small-Scale Producers: An Inclusive Activity for Expanding Access to Nutritious Food]

Gabriela Capelari De Proença, *University of São Paulo*

[Youth-driven Genetic Mapping for Pre-harvest Sprouting Resistance: Building Climate-resilient Rice Systems in Central Vietnam]

Diep Bich Tran, *Vietnam National University of Agriculture*

[The Potential Use Of Banana Peels And Banana Bunch As A Construction Material For Resource Recovery]

Martin Henry Kawogo, *Sokoine University of Agriculture*

[From University to Community: Food Science and Technology through the Practical Workshop]

Kalsom Aliah binti Abdul Hadi, *Universiti Putra Malaysia*

Group D

July 1, Wednesday 14:40~16:10

[Voices from the Field: Strengthening Market Visibility of Smallholder Vegetable Farmers Through Storytelling and a Farmer Visibility Kit]

Marcela Lye O. Jamora, *University of the Philippines Los Baños*

[Microplastic Contamination in Coastal Marine Organisms in Djibouti: Implications for Food Security, Public Health, and Community Well-Being]

Nawal Mohamed Adan, *University of Djibouti*

[Biochar Application to Reduce Greenhouse Gas Emissions in Vegetable Production: Field Trials and Farmer Perspectives]

Wei-en Lee, *National Chung Hsing University*

Group E

July 2, Thursday 9:00~10:30

[Regional Revitalization Efforts in Namie, Fukushima after the Great East Japan Earthquake]

Ami Namekawa, *Tokyo University of Agriculture*

[Promoting Students' Potential Towards Agriculture Related Social Development Through Innovative Works, Supporting Community During Crisis And Enhancing Farmers' Livelihood]

Khalid Hasan, *Bangladesh Agricultural University*

[Bridging the Adoption Gap: Understanding Factors influencing Farmers' Decisions toward an Agroecological Transition]

Faith Mutheu Musembi, *UniLaSalle Polytechnic Institute*

[Pushing Boundaries for Community Welfare: Youth-Led Participatory Tools for Inclusive Food Systems and Gender Justice]

Manyu Liu, *University of Reading*

Group F

July 2, Thursday 10:40~12:10

[Global Sustainability Dialogue Through Engaged Education: SDG Seminar and Symposium]

Judith Eppele, *University of California, Davis*

[Learning from Coexistence: A Youth-Led Experiential Conservation Model Inspired by the Eastern Sarus Crane Reintroduction in Thailand]

Bhasyn Saraporn, *Kasetsart University*

[Transforming Agricultural Waste into Sustainable Soil Mixture for Kale (*Brassica oleracea* var. *acephala*) Production: A Student-Led Initiative]

Vanchoeuy Heng, *Royal University of Agriculture*

[Assessment of Soil Types, Nutrient Uptake, and Their Impact on Yield and Nutritional Quality of Potatoes (*Solanum tuberosum* L) in Highlands of Nyandarua County, Kenya.]

Ann Wangari Muthui, *Jomo Kenyatta University of Agriculture and Technology*

Group G

July 2, Thursday 13:00~14:30

[Organizing for Hope: Turning Climate Emotions Into Collective Action Through Student Climate Justice Activism]

Savini Goel, *The University of British Columbia*

[Improving MRV in Agriculture: Accurate Calculation of Sheep Enteric Methane and CH₄ Conversion Factors]

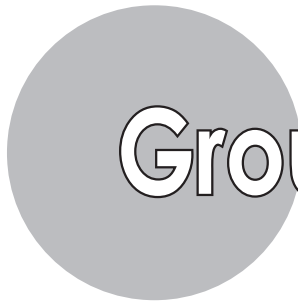
Saruulnorov Tuvshintugs, *Mongolian University of Life Sciences*

[Agri-Connect Lanka: A Student-Led Digital Ecosystem to Mobilize Underutilized Agricultural Resources for Inclusive Community Development]

S.H. Isuri Methhari Rodrigo, *University of Peradeniya*

[Using Gamification to Encourage Waste Segregation: A Case Study of Volunteer Activities at the That Luang Festival]

Khemphet Chanbouathong, *National University of Laos*



Group A

Presenters:

Siddhesh S. Mane, Michigan State University

Ai Sato, Tokyo University of Agriculture

Hlaing Thin Thin Myat, Yezin Agricultural University

Nuo-Ya Lou, National Pingtung University of Science and Technology

Chairpersons:

Aya Osman Idleh

Kentaro Yagyu

A Low-Cost Handheld Soil Moisture Measurement Sensing Device for Spatio-Temporal Optimization of Water by Farmers and Citizen Scientists

Siddhesh S. Mane

Michigan State University

Academic Supervisor: Prof. Dr. Narendra N. Das

Michigan State University, East Lansing, MI, USA

Abstract

Soil moisture represents a fundamental state variable in the terrestrial water cycle, yet characterizing its spatiotemporal dynamics at scales relevant for regional agricultural welfare remains a formidable challenge. In Michigan, this challenge is underscored by a critical boundary: groundwater levels have declined by more than 40 feet over four decades, driven in part by a 77% increase in irrigation demand. Despite the potential for continuous monitoring to reduce irrigation by up to 25%, the adoption of in situ sensing remains critically low due to the high costs and complexity of proprietary technology. To address this digital divide and promote inclusive community welfare, this research initiated the end-to-end engineering of an affordable handheld soil moisture sensing architecture. Utilizing accurate and low-cost hardware components including a capacitance-based dielectric sensor and a microcontroller unit, a field-deployable device was developed for approximately 80 USD, representing an 85% cost reduction compared to commercial market averages. Calibration was conducted across multiple mineral-rich agricultural soil types in Michigan, spanning a range of textural classes and organic matter contents representative of the region's farming landscape. Extensive field validation demonstrated that this device achieves an overall Root Mean Square Error of $0.035 \text{ m}^3\text{m}^{-3}$ with a strong correlation ($R = 0.90$), performing with accuracy comparable to established commercial sensors such as the HydraProbe and ThetaProbe. By integrating this low-cost technology with international platforms such as NASA's GLOBE program, farmers and citizen scientists can contribute georeferenced soil moisture observations to a global database, enabling data-driven irrigation decisions at both local and regional scales. Pilot deployment among NASA volunteers during the SMAPVEX 2022 field campaign demonstrated measurable improvements in usability and a significant reduction in equipment cost, without compromising measurement accuracy. This activity successfully shifts the paradigm from exclusive commercial assets to inclusive community resources, empowering regional stakeholders to take collective action toward climate resilience and the protection of sustainable water resources. Future work will focus on expanding deployment across additional soil types and integrating wireless data transmission for real-time monitoring.

Keywords: soil moisture, precision agriculture, farmers and citizen scientist

Bringing Agriculture Closer to People: Our Journey at Vivid Earth Network

Ai Sato

Vivid Earth Network (Viven)

Academic Supervisor: Prof. Dr. Nina N. Shimoguchi

Tokyo University of Agriculture, Japan

Abstract

Japan's agricultural sector is currently facing serious challenges. The number of new farmers under the age of 49 years has been declining each year, with a 12.3% decrease compared to the previous year (MAFF, 2023). In addition, Japan's food self-sufficiency rate remains low compared to other countries (MAFF, 2022). However, a survey conducted on Instagram revealed that more than half of the students reported having a positive image of agriculture. This suggests that while agriculture is viewed favorably, many people may still perceive agricultural issues as someone else's problem. I used to share this same perspective. After entering an agricultural university and experiencing farm work firsthand, I realized that agriculture offers psychological benefits such as relaxation and refreshment. This experience led me to believe that agriculture has the power to attract and engage people, and I wanted more people to discover its value. I believe that increasing opportunities to engage in agriculture can encourage people to see agricultural issues as their own. In this project, "people involved in agriculture" refers not only to farmers but also to individuals who participate in farm experiences, attend agricultural events, or purchase products from local farmers' markets. Not everyone needs to become a farmer; however, engaging in agriculture may shift people's awareness and attitudes toward agricultural issues. As an accessible entry point, this project focuses on a farming method that requires no pesticides, chemical fertilizers, or tillage. Because it does not rely on heavy machinery and mainly involves sowing seeds, it is easy for beginners to participate. We are using this in farmland in Hachijo Island to build a community around agriculture. If this initiative succeeds in forming a sustainable community in Hachijo Island, it could be applied to other regions in Japan and potentially to countries facing similar challenges. Although the project is still in its early stages, ultimately, this project aims to revitalize local communities, increase the number of people involved in agriculture, and encourage more individuals to view agricultural issues as their own.

Keywords: aging society, rural revitalization, island communication, community building

Towards Community Welfare: Assessment of Household Food Consumption Behavior, Resilience, and Perceptions under Food Price Changes in Myanmar

Hlaing Thin Thin Myat

Yezin Agricultural University, Agricultural Economics Specialization Students' group

Academic Supervisor: Dr. Honey Lynn Lynn

Yezin Agricultural University, Myanmar

Abstract

Food prices play a crucial role in households' daily consumption behavior, especially in developing countries. One of the Southeast Asia countries, Myanmar, where agriculture remains the backbone of the national economy, is highly sensitive to food price changes. Households are economically vulnerable as food prices are directly affecting their welfare and resilience. Towards community welfare, our research activities focus on the households' experiences, coping strategies and perceptions centering their voices to support and encourage inclusive welfare activities. Data were collected through a household survey and analyzed using descriptive statistics analysis. Households (HH) were classified into three income groups: low (< 238.10USD), middle (238.10-476.10USD), high (> 476.10USD) based on their monthly income. Findings show that low-income HH allocated 61.71% of their income to food consumption, making them highly vulnerable to food price changes. Furthermore, the results clearly demonstrated that all income groups adopted and practiced both food- and non-food-based strategies as much as possible to enhance their resilience to food price changes. The most common coping strategy adopted by every income group was reducing daily expenditures. Among three income groups, low-income HH relied more on borrowing money for food and significantly reduced children's education and healthcare expenditures. On the other hand, middle and high-income HH primarily reduced non-essential spending such as eating out behaviors. Optimistically, all households adopted home gardening to cope food price changes suggesting a potential and possible pathway toward improved community welfare. Also, the results of household perceptions on economic stress indicate that their primary concern was rising food prices. Most of them even had to make decisions choosing between food and other necessities. These findings demonstrate the importance of inclusive welfare activities such as community savings and lending groups to build economic resilience and community-meal sharing programs to ensure immediate food access. Overall, our research provides a comprehensive understanding of how different income groups respond to food price fluctuations and offers evidence-based, useful insights and recommendations for building resilience and inclusive community welfare in Myanmar.

Keywords: food price changes, coping strategies, food expenditure, perceptions, household food consumption

An Investigation into Rice Drip Irrigation Systems for Yield Maintenance and Greenhouse Gas Mitigation under Water Resource Competition in Taiwan

Nuo-Ya Lou, Chin-Sung Wu, Uei-Chern Chen, Tzu-Che Lin

National Pingtung University of Science and Technology

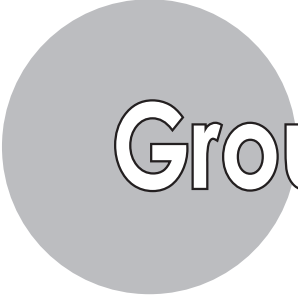
Academic Supervisor: Asst. Prof. Tzu-Che Lin

National Pingtung University of Science and Technology, Taiwan

Abstract

Traditional rice cultivation's reliance on continuous flooding exacerbates freshwater scarcity. In Taiwan, steep topography and escalating water competition with the high-value semiconductor industry make agricultural water-saving technologies critical for national resource security. Challenging the need for continuous flooding, this study evaluated Perforated Drip Irrigation (DI) as a sustainable alternative to Conventional Flooding (CF) using the rice variety 'Taichung 194' across the 2024 wet season (WS) and 2025 dry season (DS). By precisely managing soil water tension between -10 and -20 kPa, DI achieved grain yields statistically equivalent to those of CF in the 2024 WS, proving that continuous submersion is unnecessary to maintain high productivity. Crucially, DI demonstrated outstanding resource utilization by saving approximately 43% and 55% of irrigation water in the DS and WS, respectively. Consequently, Water Use Efficiency (WUE) reached 0.34 kg/m^3 (+44.0%) and 0.19 kg/m^3 (+10.5%) in the respective seasons. This efficiency effectively alleviates supply pressure on regional grids during industrial peak demand, mitigating inter-sectoral water conflicts. Furthermore, improved soil aeration under the DI system substantially reduced seasonal methane (CH_4) emissions by 58.8% to 76.2%. In conclusion, DI is a pivotal agronomic innovation that decouples rice production from its heavy reliance on water. It enhances agricultural drought resilience and provides a robust strategy to alleviate water-use friction between Taiwan's agricultural and industrial sectors.

Keywords: rice, drip irrigation, water resilience, climate mitigation, sustainable agriculture



Group B

Presenters:

Mariia Bondarenko,

National university of life and environmental sciences of Ukraine

Niko Faiz Fahrezi, IPB University

Sukritta Somthong, Khon Kaen University

Kamal,

Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana)

Chairpersons:

Randriamalala Njiva Nirina Georges

Nana Suzuki

Inclusive Computer Lab

Mariia Bondarenko

National university of life and environmental sciences of Ukraine

Academic Supervisor: Dr. Olena Kovtun

National university of life and environmental sciences of Ukraine, Ukraine

Abstract

With the start of Russia's full-scale invasion in February 2022, Ukraine has faced an unprecedented increase in the number of veterans and persons with disabilities, placing a significant burden on the country's social, healthcare, and economic systems. As of March 2026, more than 1.76 million war veterans have been registered in Ukraine. It is expected that after the end of hostilities, this number will rise to 2.5 million. The return of a significant number of war veterans with disabilities poses new challenges for the education system and social reintegration in Ukraine. People with visual, hearing, and musculoskeletal impairments often face barriers to access to education, digital technologies, and professional fulfillment. The goal of this student project was to create an inclusive computer laboratory that provides equal access to digital education and promotes professional adaptation of people with disabilities, including war veterans. The project was initiated and implemented with the active participation of students, including analyzing user needs, planning an inclusive space, selecting specialized equipment, and participating in the implementation of the laboratory in the educational process. As a result, an inclusive learning environment was created, equipped with adapted workplaces, screen access programs, speech-to-text technologies, video communication tools, an eye tracker, and specialized computer control devices. The operation of the laboratory contributes to the formation of digital competencies, increasing the level of social integration, expanding employment opportunities and developing an inclusive culture at the university. The project involves students who gain practical experience in an inclusive environment and participate in the development of innovative solutions in the field of social work and rehabilitation. The project demonstrates how student initiatives can help overcome social barriers, create a barrier-free educational environment and improve the quality of life of people with disabilities. Further development of the laboratory involves expanding the functionality, scaling the model and introducing new digital technologies for inclusive education.

Keywords: veterans reintegration, barrier-free access, assistive technologies

Environmental Sustainability through Green Character Education: Cultivating Compassion and Ecological Responsibility in Vulnerable Children

Niko Faiz Fahrezi

IPB University

Academic Supervisor: Dr Defina, S.S., M.Si.

IPB University, Indonesia

Abstract

The increasing incidence of violence against children in Indonesia highlights the urgent need for integrative psychosocial recovery models that foster long-term emotional resilience and prosocial character development. In 2024, 19,628 cases of child violence were reported nationally, reflecting a growing concern for sustainable child protection strategies. This project presents a student-led plant-based therapeutic intervention implemented at Yayasan Bina Matahari Bangsa (YBMB), North Jakarta, involving 16 children aged 6-14 years who had experienced physical and social violence. The program aimed to cultivate forgiveness and mercy through structured plant-care activities integrated with reflective learning processes. Using a pre- and post-assessment design with the Enright Forgiveness Inventory for Children (EFI), the findings demonstrated a measurable improvement in forgiveness-related indicators, with an average increase of 37.3% in EFI scores. Data were normally distributed based on normality testing, and the difference between pre- and post-scores was confirmed to be statistically significant using a paired sample t-test. These improvements included reduced resentment, improved emotional regulation, enhanced willingness to reconcile, and strengthened self-acceptance. The initiative also produced several outputs, including a guidance book, policy brief, and daily monitoring tool, which are intended to support replication and potential institutional adoption. Policy dialogue with local child protection agencies resulted in formal recognition and recommendations for program expansion. This project contributes to the development of inclusive green character education by positioning plant-based engagement as both a psychosocial healing strategy and a foundation for environmental stewardship among vulnerable children.

Keywords: forgiveness, mercy, plant-based therapy, vulnerable children,
environmental stewardship

Evaluation of Rice Elite Breeding Lines for Combined Tolerance to Submergence and Salinity Stress at Seedling Stage for Rice Sustainable

Sukritta Somthong

Khon Kaen University

Academic Supervisor: Assoc. Prof. Dr. Nakorn Jongrunklang

Khon Kaen University, Thailand

Abstract

Rice (*Oryza sativa*) feeds more than half the world's population, yet salinity and submergence stress can reduce its yield by 50% or more, posing a serious threat to food security in climate-vulnerable regions. Developing rice varieties tolerant to both stresses is therefore a breeding priority. This study, conducted at the Philippine Rice Research Institute (PhilRice) as part of an international cooperative education program, aimed to identify elite rice breeding lines with combined tolerance to salinity and submergence at the seedling stage. This study evaluated 39 elite rice breeding lines derived from 11 crosses for combined tolerance to submergence and salinity stress at the seedling stage. Promising lines carrying both tolerance genes were identified through morphological and molecular marker analyses. Given that salinity and submergence stress differentially affect the growth and morphology of rice plants, a Randomized Complete Block Design (RCBD) with two replications was employed. For salinity tolerance assessment, rice lines were compared against tolerant (FL478) and susceptible (IR29) checks, with salinity stress initially applied at EC = 6 dS/m and subsequently increased to EC = 16 dS/m. Leaf and root morphological traits were evaluated at 13, 19, and 25 days after sowing. No significant differences were observed in S-type, L-type, total lateral root length, or total root length; however, total nodal root length showed a significant difference ($P \leq 0.0001$). For submergence tolerance, lines were compared against tolerant (FR13A) and susceptible (IR42) checks, with ANOVA revealing significant differences in plant height before and after submergence ($P \leq 0.0001$). Molecular analysis using SSR markers confirmed the presence of the Saltol QTL (RM10793, RM7075) and the Sub1 gene (SC3, ART5) in selected lines. Two promising lines, PR52867-B-B-SubM23-3-1-1 and PR53300-B-B-SubM33-3-1-1, were identified as exhibiting combined tolerance to both salinity and submergence, demonstrating their potential for further development in breeding programs. These outcomes highlight the value of international cooperative education in strengthening human capacity in agricultural research and promoting community welfare through the development of climate-resilient rice varieties. This study underscores the importance of integrating students into applied research programs to advance sustainable agriculture and food security in vulnerable regions.

Keywords: rice breeding, abiotic stresses, sustainable agriculture

Safe Food for All: Residue Free Organic and Natural Farming for Community Welfare and a Healthier Future

Kamal

Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana)

Academic Supervisor: Dr. Manjunath S. Hurakadli

Chaudhary Charan Singh Haryana Agricultural University, Hisar (Haryana), India

Abstract

Ensuring safe and nutritious food for a growing population is a major challenge in the context of increasing pesticide use and its associated health and environmental risks. Indiscriminate and excessive application of chemical pesticides and fertilizers has resulted in the presence of harmful residues in food commodities, posing serious threats to human health, soil quality, water resources, and biodiversity. Reports from organizations such as the World Health Organization and the Food and Agriculture Organization highlight the growing concern over chronic exposure to pesticide residues and its linkage with long-term health disorders. In India, monitoring by the Food Safety and Standards Authority of India has also indicated the presence of pesticide residues in commonly consumed food items. This situation necessitates the promotion of residue-free and sustainable agricultural practices. The present initiative focused on promoting residue-free farming through organic and natural agricultural approaches as an inclusive community-based activity. Awareness programs were conducted in rural areas to educate farmers about the health hazards of pesticide residues, safe waiting periods, and alternative eco-friendly practices. Demonstration plots were established to showcase the effectiveness of natural inputs such as Jeevamrit, botanical extracts, neem-based biopesticides, and biofertilizers. Training sessions were organized on integrated pest management, preparation of low-cost organic formulations, and sustainable soil management practices. Special emphasis was given to the participation of small and marginal farmers, women self-help groups, and rural youth to ensure inclusivity and community ownership. The initiative could significantly reduce the use of chemical pesticides, improve soil health, and enhance awareness among farmers and consumers about safe food production and consumption. Farmers may experience lower input costs and show increased interest in locally marketing residue-free produce. Furthermore, the promotion of kitchen gardens will contribute to improved household nutritional security. This work demonstrates that residue-free farming can serve as a practical pathway toward safe food, environmental sustainability, and improved livelihoods. By extending scientific knowledge beyond institutional boundaries and engaging diverse community groups, the initiative aligns with the theme of pushing boundaries through inclusive activities for community welfare and contributes to the long-term goal of sustainable and healthy food systems.

Keywords: residue-free farming, organic agriculture, natural farming, community health, sustainable agriculture, biofertilizers



Group C

Presenters:

Gabriela Capelari De Proença, University of São Paulo

Diep Bich Tran, Vietnam National University of Agriculture

Martin Henry Kawogo, Sokoine University of Agriculture

Kalsom Aliah binti Abdul Hadi, Universiti Putra Malaysia

Chairpersons:

Dewi Ernawati

Yuki Sawai

Microbiological Analysis of Milk from Small-Scale Producers: An Inclusive Activity for Expanding Access to Nutritious Food

Gabriela Capelari De Proença

University of São Paulo

Academic Supervisor: Prof. Luiz Lehmann Coutinho

University of São Paulo, Brazil

Abstract

Fresh food consumption in Brazil has declined as reliance on ultra-processed products has grown, intensifying concerns about public health and equitable access to nutritious foods. In this context, small-scale milk producers play an important role in strengthening local food systems and supporting community welfare by offering an alternative supply chain. Milk, however, is highly susceptible to microbiological contamination, which can compromise product safety, reduce production efficiency, and threaten producer income, challenges that are particularly pronounced in farms with limited technical support.

The project involved on-site assessments, interviews, and microbiome analysis of milk samples. It sought to connect academic research with producers' real needs, promoting accessible strategies to improve hygiene procedures, animal management, and product conservation through a collaborative approach.

Students played a central role by conducting field visits, listening to community demands, and gathering information on farm routines. They participated in sample collection, DNA sequencing, and discussion of results, as well as dialogue with farmers, helping to translate technical data into practical knowledge. This process fostered mutual learning and strengthened the relationship between the university and local communities.

As a concrete outcome, an educational booklet was produced that compiled study results and previous literature into accessible guidance for farmers. The material presented recommendations aimed at promoting the responsible production of healthy food, ensuring the proper use of environmental resources, ensuring food security for the community, and providing producers with a stable income. The project thus increased access to high-quality food and reinforced the social impact of student engagement.

This inclusive initiative supports community welfare by linking scientific knowledge to local realities and encouraging sustainable practices. It aligns with the United Nations Sustainable Development Goals, particularly SDG 2 (Zero Hunger and Sustainable Agriculture), SDG 11 (Sustainable Cities and Communities), and SDG 12 (Responsible Consumption and Production), as it strengthens local food systems and promotes environmentally responsible dairy production.

Keywords: milk microbiome, food quality, small-scale dairy systems

Youth-driven Genetic Mapping for Pre-harvest Sprouting Resistance: Building Climate-resilient Rice Systems in Central Vietnam

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Academic Supervisor: Dr. Trung Quoc Nguyen

Vietnam National University of Agriculture, Vietnam

Abstract

Climate change has become one of the most pressing challenges for agriculture in Vietnam, particularly in Central provinces such as Hue City. Extreme weather events, protracted flooding, and increasingly erratic rainfall have drastically decreased rice harvests, endangering both food security and farmer incomes. Pre-harvest sprouting (PHS), in which rice grains sprout on the plant before to harvest, is frequently caused by unpredictable rainfall and extended flooding during harvest. Grain output and quality are decreased by this climate-induced phenomena, with losses of 25–30%. Farmers' livelihoods and food security are under risk due to increased harvesting costs and declining market prices. In order to overcome this obstacle, our student research team at the Vietnam National University of Agriculture mapped and identified quantitative trait loci (QTLs) associated with sprouting resistance, with a particular emphasis on qPSR7 and qSGD1. During 2024-2025, we assessed rice lines in flood-prone areas of Huong Thuy, Hue City, Vietnam, using marker-assisted selection (MAS) and molecular methods including PCR and electrophoresis. In comparison to the local control variety KD18, the results indicated that enhanced lines (such as PSR7 and PSR8) had greater yields and increased resistance to PHS. The ramifications are obvious. Socially, youth-led research improved cooperation among local institutions, farmers, and students. In terms of the economy, resistant rice lines sustained farmer revenues and decreased post-harvest losses. Climate-resilient rice systems lessen dependency on chemical inputs and encourage sustainable land use. The ISS topic of "Pushing Boundaries: Inclusive Activities for Community Welfare" was in line with the intellectual curiosity and dedication to community welfare that drove youth involvement. Communication problems with farmers and a lack of finance were among the difficulties. Partnerships between governmental organizations, non-governmental organizations, and international research institutes are necessary to maintain and grow these initiatives. Future plans call for extending youth-led training initiatives to other regions, including digital crop monitoring, and growing resistant rice lines. In sensitive areas of Vietnam, this study shows how student-driven genetic research may directly reduce the effects of climate change on agriculture, guaranteeing food security and promoting inclusive community welfare.

Keywords: climate change, pre-harvest sprouting, rice genetics, youth engagement, central Vietnam

The Potential Use Of Banana Peels And Banana Bunch As A Construction Material For Resource Recovery

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Academic Supervisor: Dr Nelson Makange

Sokoine University of Agriculture (SUA), Tanzania

Abstract

Rapid urbanization and increased agricultural activities in developing countries have led to significant challenges in solid waste management and high construction material costs. Banana peels and banana bunch waste, which constitute a large proportion of agricultural waste in Tanzania, are often discarded despite their high resource potential. This study investigates the feasibility of utilizing banana peels and banana bunch waste as alternative materials in concrete brick production, contributing to sustainable construction and community welfare. The research adopted an experimental design in which banana peel and banana bunch powder are processed and used as partial replacements for cement in concrete brick manufacturing. Various mixing ratios are tested to determine the optimum proportion that provides acceptable compressive strength, durability, and water absorption characteristics. Performance of the modified concrete bricks is compared with conventional concrete bricks to assess their structural and functional suitability. The results showed that compressive strength increased with curing age for all mixes. The control mix achieved compressive strengths of 12.4 MPa, 15.9 MPa, and 18.8 MPa at 7, 14, and 28 days respectively. The 9% banana waste replacement achieved 11.2 MPa, 14.8 MPa, and 16.9 MPa at 7, 14, and 28 days respectively, representing approximately a 10% reduction at 28 days while maintaining acceptable performance for non-load-bearing applications. Higher replacement levels above 15% resulted in significant reductions in strength. Beyond technical performance, the study emphasizes inclusivity and community-based innovation. By utilizing locally available agricultural waste, the approach promotes participation of local communities in waste collection and processing, reduces environmental pollution, and lowers construction costs. This creates opportunities for affordable housing solutions and income generating activities, particularly for low-income and marginalized groups. The study demonstrated how innovative, inclusive, and sustainable use of agricultural by-products can enhance environmental protection, resource efficiency, and community welfare.

Keywords: banana peel and banana bunch waste, sustainable concrete brick production, agricultural waste recycling, circular economy, and community welfare

From University to Community: Food Science and Technology through the Practical Workshop

Kalsom Aliah binti Abdul Hadi

Universiti Putra Malaysia

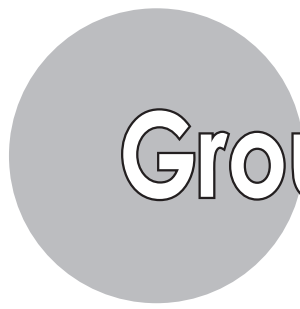
Academic Supervisor: Dr. Nor Afizah Mustapha

Universiti Putra Malaysia, Malaysia

Abstract

Food security and sustainable food production remain major concerns in Malaysia, and it continues to face challenges due to the general public's awareness with food technology. High school students are less likely to pursue careers in related fields due to lack of exposure to food science concepts and approaches. The necessity for inclusive programs that encourage science literacy and community involvement is highlighted by this knowledge gap. The FAO's State of Food Security and Nutrition in 2023 places a strong emphasis on innovations and behavioral changes as key strategies to expand access to nutritious foods in the context of rapid urbanization. The Science and Innovation Forum 2023 encourage youth empowerment via technology and education to transform agrifood systems (The State of Food Security and Nutrition in the World (SOFI) Report, World Food Programme, 2025). In order to promote youth engagement and scientific literacy, it is important to create accessible and hands-on learning experiences, that align with fundamental principles of inclusive community development. To bridge this gap, third- year students of the Bachelor of Science in Food Manufacturing Operations program at Universiti Putra Malaysia (UPM) organized a workshop that guided high school students in food processing by utilizing the facilities of the Faculty of Food Science and Technology, UPM. To reinforce scientific concepts and promote active participation, the workshop integrates hands-on food processing practical activities and analytical testing with interactive quiz sessions. In addition, the program highlights the environmental benefits of practical science education, including hygienic and sustainable food processing practices. As the result, this initiative empowers local communities to create a more resilient and inclusive food science ecosystem by addressing interrelated issues in food science and community welfare.

Keywords: community welfare, food science and technology education, youth engagement, experiential learning, STEM outreach



Group D

Presenters:

Marcela Lye O. Jamora, University of the Philippines Los Baños

Nawal Mohamed Adan, University of Djibouti

Wei-en Lee, National Chung Hsing University

Chairpersons:

Job Nyarimba Ombiro

Phyoe Su Su Kyaw

Voices from the Field: Strengthening Market Visibility of Smallholder Vegetable Farmers Through Storytelling and a Farmer Visibility Kit

Marcela Lye O. Jamora

University of the Philippines Los Baños

Academic Supervisor: Asst. Prof. Hanna Miranda-Quibot

University of the Philippines Los Baños, Philippines

Abstract

Smallholder vegetable farmers produce a significant share of local food in the Philippines, yet they remain largely invisible in formal markets and public narratives. Although their role in local food systems is critical, many smallholder vegetable farmers remain structurally disadvantaged within agricultural value chains due to limited access to market, weak bargaining power, and dependence on middlemen. They tend to have limited opportunities to communicate the value of their produce directly to consumers. They are known only through the vegetables they sell, but rarely through their identities, practices, or lived experiences. Such invisibility contributes to weak bargaining power, limited product differentiation, and unstable income. This student-led initiative aims to strengthen the market visibility of selected smallholder vegetable farmers in Los Baños, Laguna through participatory storytelling and the development of a Farmer Visibility Kit. This project combines qualitative documentation and practical intervention grounded in value chain theory and participatory development principles. Five farmers participated in semi-structured interviews to assess marketing constraints, pricing practices, and buyer relationships. Based on these findings, a low-cost “Farmer Visibility Kit” is proposed to be co-developed to support improved product presentation and direct buyer engagement. The storytelling component of this project is not only for documentation; it can also be viewed as an economic strategy. By helping make farmers’ voices heard and their work visible to consumers, the initiative aims to improve trust and negotiation confidence. Its goal is to create opportunities for partial direct marketing. The intervention is intended to be collaboratively developed with the farmers to ensure their consent and ownership of all materials. Aligned with the ISS theme, “Pushing Boundaries: Inclusive Activities for Community Welfare,” this initiative demonstrates how youth engagement can bridge communication gaps within local food systems. By combining agribusiness knowledge with narrative empowerment, the project seeks to contribute to more inclusive and human-centered agricultural markets.

Keywords: smallholder farmers, market visibility, inclusive development

Microplastic Contamination in Coastal Marine Organisms in Djibouti: Implications for Food Security, Public Health, and Community Well-Being

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University of Djibouti

Academic Supervisor: Dr Ibrahim Souleiman Abdallah

University of Djibouti, Djibouti

Abstract

Microplastic pollution has emerged as a critical environmental challenge affecting marine ecosystems and raising increasing concerns about its potential impacts on human health. Filter-feeding organisms such as oysters, along with gastropods, are particularly vulnerable due to their feeding strategies, making them effective bioindicators of environmental contamination. This study investigates the presence of microplastics in these organisms collected from the Douda Natural Reserve in Djibouti, across two contrasting ecological zones: a beach and a mangrove. A total of 95 specimens were analyzed using chemical digestion and low-cost identification methods, including visual observation and the hot needle test, adapted to resource-limited research settings. Microplastics were detected in both species, with fibrous particles predominating, indicating widespread contamination potentially originating from land-based waste sources.

Beyond its environmental significance, this contamination raises important concerns for coastal communities that rely heavily on shellfish as a regular source of food and as a mean of livelihood through small-scale and local. The presence of microplastics in locally consumed species highlights potential risks related to food safety, public health, and economic stability, particularly in regions where access to alternative food sources and waste management infrastructure is limited.

In response, this study proposes a community-based intervention model designed to translate scientific findings into practical action. The initiative integrates environmental education programs in schools, community awareness campaigns, and the promotion of sustainable alternatives such as traditional Djiboutian straw baskets to reduce reliance on single-use plastics. Additionally, it encourages local participation through beach clean-up activities and youth-led environmental initiatives.

By linking scientific research with inclusive, culturally adapted, and accessible solutions, this project aims to strengthen community awareness, promote sustainable behavioral change, and support long-term environmental protection and community well-being. This approach reflects the ISS 2026 theme by pushing the boundaries of scientific research toward meaningful and inclusive societal impact.

Keywords: microplastic pollution, community welfare, coastal communities, environmental health, sustainable practices, Djibouti

Biochar Application to Reduce Greenhouse Gas Emissions in Vegetable Production: Field Trials and Farmer Perspectives

Wei-en Lee

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Academic Supervisor: Prof. Shaw-Yhi Hwang

National Chung Hsing University, Republic of China

Abstract

Agricultural communities are facing increasing pressure to reduce greenhouse gas (GHG) emissions while maintaining crop productivity under changing environmental conditions. Biochar has been widely discussed as a potential sustainable soil amendment; however, its adoption remains limited due to gaps between scientific research and farmers' perceptions. This manuscript presents a student-led, action-oriented initiative that integrates field experimentation and community engagement to promote inclusive and sustainable agricultural practices.

A field experiment was conducted in cabbage (*Brassica oleracea*) production to evaluate the effects of biochar application on GHG emissions and crop performance. Biochar was applied under local farming conditions, and emissions of methane (CH₄) and nitrous oxide (N₂O) were systematically measured throughout the growing period. The results demonstrated that biochar application contributed to a reduction in GHG emissions compared to conventional management practices. In addition, a slight increase in cabbage yield was observed, indicating that biochar may provide both environmental benefits and agronomic potential in vegetable cropping systems.

To further address the social dimension of sustainability, semi-structured interviews were conducted with local farmers to assess their awareness, attitudes, and willingness to adopt biochar. Most farmers reported having prior knowledge of biochar, and more than half expressed willingness to invest in its use. However, concerns regarding the relatively high cost of biochar were consistently identified as a major barrier to adoption, highlighting the importance of economic feasibility in promoting sustainable technologies.

Farmers expressed strong support for student involvement in these activities, perceiving students as neutral and trustworthy actors who facilitate open dialogue. Through direct interaction, students acted as knowledge translators, bridging scientific findings and practical decision-making. This study demonstrates how inclusive, student-centered actions that combine scientific experimentation with community-based dialogue can push conventional boundaries, contributing to reduced agricultural emissions, enhanced community welfare, and the long-term sustainability of local food systems.

Keywords: biochar, greenhouse gas emissions, farmer perceptions

Group E

Presenters:

Ami Namekawa, Tokyo University of Agriculture

Khalid Hasan, Bangladesh Agricultural University

Faith Mutheu Musembi, UniLaSalle Polytechnic Institute

Manyu Liu, University of Reading

Chairpersons:

Maminandrasana Herilalaina Toky Ny Aina

Mayui Yamamoto

Regional Revitalization Efforts in Namie, Fukushima after the Great East Japan Earthquake

Ami Namekawa

Tokyo University of Agriculture, Namie Reconstruction Support Project

Academic Supervisor: Kanako Yano

Tokyo University of Agriculture, Japan

Abstract

The Great East Japan Earthquake of March 11, 2011 caused unprecedented destruction across the Tohoku region. The massive tsunami devastated coastal towns, infrastructure, and farmland, while the Fukushima Daiichi nuclear accident created longterm environmental and social impacts. Agriculture suffered severe damage: farmland was flooded with seawater, leaving high salt concentrations, debris, and sediment, and in some areas the soil structure itself was compromised. Radioactive contamination further intensified public concern and required extensive decontamination. Although nearly 90% of farmland in Fukushima has been restored by 2023, the pace of agricultural recovery varies widely among municipalities. In towns like Namie, low return rates and unresolved soil issues continue to hinder full-scale farming resumption.

In response, Namie Town and Tokyo University of Agriculture launched the Namie Reconstruction Support Project in 2019. Centered on promoting “new agriculture,” the project advances farmer expansion, sixthsector industrialization, and smartagriculture initiatives by applying the university’s reconstruction expertise. Through collaboration with Namie Town and Butai Farm Co., Ltd., students lead educational and research programs aimed at revitalizing agriculture and strengthening the broader regional economy. The project seeks to expand exchange and related populations, promote longterm workforce retention through new farmers and local employment, and reinforce collaboration with related industries.

In this project, I participate in the Garlic Team, which aims to develop Namie’s garlic production, distribution, and processed products, aiming to build a “Namie brand” through sixth industrialization. Our activities include providing cultivation guidance, conducting field training, developing products, organizing study sessions, and participating in local events. Although results are still emerging, we have gained insights into structural challenges in disasteraffected agriculture, contributed to raising awareness of Namie, and recognized the potential for fostering new farmers.

Challenges remain, such as the heavy manual labor required in garlic farming, the need for improved work efficiency, and further research on soil conditions and root rot. In sales activities, we aim not only to promote products but also to communicate the stories of farmers and the town itself, ultimately contributing to expanding Namie’s connected population and supporting longterm regional revitalization.

Keywords: regional collaboration, reconstruction, community revitalization

Promoting Students' Potential Towards Agriculture Related Social Development Through Innovative Works, Supporting Community During Crisis And Enhancing Farmers' Livelihood

Khalid Hasan

Bangladesh Agricultural University, Agri Students' Alliance, Bangladesh

Academic Supervisor: Professor Dr. Md. Rashedur Rahman

Bangladesh Agricultural University, Bangladesh

Abstract

Farming is the ancient and traditional profession of Bangladeshi people. However, the farmers in this country do not lead superior livelihood due to their poor income. Moreover, crop cultivation is becoming more challenging day-to-day than before due to natural calamities including flood, cyclone, river erosion, drought, salinity, waterlogging and many others. These have made crop cultivation uneconomic and sometimes total crop loss. As a result, farmers are now-a-days considered as a vulnerable community of this country. We, the students of agricultural universities, formed Agri Students' Alliance, Bangladesh to support the farmers from our side. We try to help them by advisory services in dealing with farming issues, support farmers in small scale during crisis, disseminate innovation to farmers in making farming profession more profitable while conserving the nature. Our journey started in August 2024, when the southern part of the country experienced a severe flood inundation, leading to a potential food crisis arising from the total crop loss. We tried to help the small farmers by providing planting materials of rice and technical support for growing new crop within a short period of time. The follow-up reports depicted how the small support helped them attaining golden harvest at the end of the season. Alongside, we extended our support services to vulnerable farm-families through providing goats, maize and vegetable seeds, seedlings and fertilizers across multiple regions of Bangladesh. Our future work-plan includes developing family vegetable gardens in the cultivable fallow lands in small households to support family nutrition through a self-sustained year-round vegetable production system. Our strong commitment to the environment is reflected through promoting sensible use of pesticides, while securing healthy produces. To sum up, we try our innovative ideas for socio-economic development in the farming community by implementing our pilot projects. With their successful implementation, we want to scale up through collaboration with government and private agencies.

Keywords: agricultural crisis, stakeholder engagement, supporting community, profitable farming, conserving environment

Bridging the Adoption Gap: Understanding Factors influencing Farmers' Decisions toward an Agroecological Transition

Faith Mutheu Musembi

UniLaSalle Polytechnic Institute

Academic Supervisor: Dr. Adrien Gauthier

UniLaSalle Polytechnic Institute, France.

Abstract

The need to establish sustainable agricultural systems has become a priority as intensive farming systems continue to contribute to soil degradation, biodiversity loss, water pollution and increased vulnerability to pest and disease in the face of climate change. In response to these challenges, agroecology has been gaining momentum worldwide as an approach to agricultural and food systems management. It can contribute to addressing global food insecurity and sovereignty, reducing environmental impacts of agriculture and balancing production and biodiversity conservation while promoting equity and fairness (Tittonell, 2020).

Europe has put in place strategies to encourage this transition, with the European Green Deal aiming to make food systems fair, healthy and environmentally friendly. Included, is the Farm to Fork Strategy which aims for 50% reduction in pesticide use by 2030, 20% reduction in fertilizer use and to have 25% of EU farmland under organic farming (European commission, 2020). This deal is backed financially by the eco-scheme CAP (Common Agricultural Policy) through which farmers receive incentives to boost sustainable practices like agroecology.

France has demonstrated commitment toward this transition through national plans such as “*Ecophyto plan*” and “*Projet Agroécologie pour la France*” which promote input reduction and biodiversity restoration. However, despite these efforts, implementation challenges persist, particularly, farmer adoption of these practices.

The ADOPT project, conducted by UniLaSalle students in collaboration with INRAE and ENS, in the Normandy region, North of France, is investigating the factors that are influencing farmer decision to adopt, reject, sustain or abandon agroecological practices. The specific focus is on diversification and its effects on microbial disease management as disease pressure is a critical concern on farmers activities.

Preliminary insights suggest that adoption of diversification practices such as cover crops, crop rotation, agroforestry among others, is influenced not only by awareness of the need for environmental conservation but also by the associated economic risk, technical capacity requirements and market structures. By understanding the adoption pathways, this project seeks to contribute to more inclusive transition strategies that integrate farmers' realities into policy, ultimately accelerating sustainability in French agriculture.

Keywords: sustainable agriculture, agroecology, diversification, adoption

Pushing Boundaries for Community Welfare: Youth-Led Participatory Tools for Inclusive Food Systems and Gender Justice

Manyu Liu

University of Reading

Academic Supervisor: Prof. Sarah Cardey

University of Reading, United Kingdom

Abstract

Communities face intertwined pressures from food insecurity, climate stress, and unequal development outcomes. A persistent barrier is limited genuine inclusion: women's agricultural and care labour is often rendered invisible, while policies and projects may not reflect lived priorities. Framed by the International Student Summit theme "Pushing Boundaries: Inclusive Activities for Community Welfare", this paper examines how participatory tools and partnership governance operationalise inclusion – especially gender justice – to strengthen food-system welfare across three contexts.

The paper uses a comparative qualitative design drawing on (i) structured field notes from a Ripple Effect Transformative Household Methodology (THM) session, (ii) practitioner briefings and Q&A with Temwa in Bristol, and (iii) an on-site local government briefing on Bristol's One City approach, triangulated with publicly available strategy and action-plan documents. Through cross-case thematic analysis, I compare mechanisms of inclusion, pathways to social-economic-environmental welfare, and constraints on scaling and sustainability.

Across cases, inclusion functions as a practical mechanism rather than an ethical add-on: making hidden labour negotiable at household level (Ripple Effect), clarifying how "community-driven" participation and impact measurement are enacted in practice (Temwa), and embedding food equality and climate goals within cross-sector governance arrangements (Bristol One City). The paper concludes with student-led prescriptions for universities to support durable inclusive action, including open-access facilitation toolkits, co-designed equity-and-climate indicators, and longer-horizon partnerships that protect relational work alongside conventional KPIs.

Keywords: participatory tools, gender justice, food systems, youth-led action,
partnership governance



Group F

Presenters:

Judith Epple, University of California, Davis

Bhasyn Saraporn, Kasetsart University

Vanchoeuy Heng, Royal University of Agriculture

Ann Wangari Muthui,

Jomo Kenyatta University of Agriculture and Technology

Chairpersons:

Glenn Ameni Ansah

Anju Hayashi

Global Sustainability Dialogue Through Engaged Education: SDG Seminar and Symposium

Judith Eppele

University of California, Davis

Academic Supervisor: Dr. Clare Cannon

University of California, Davis, United States of America

Abstract

Through the creation and implementation of a seminar (Unwrapped: The History and Sustainability of Global Foods) and a symposium (SDG Symposium), the lack of awareness in sustainability-and specifically with the United Nations Sustainable Development Goals (SDGs)-within the Davis, California community are addressed in an educational and engaging format. The seminar occurred during March-June 2025 and September-December 2025, and was built upon the ideas of Universal Design for Learning (UDL), experiential learning, and active learning strategies-discussing a global dish's history and alignment to sustainability. Students expressed their interest in the course content in an end of course evaluation, highlighting the active learning strategies, the specifics and breadth of sustainability, as well as the variety of backgrounds and expertise of the students as it included undergraduate and graduate students. The inaugural SDG Symposium will occur in April 2026, educating the Davis community on the SDGs and sustainability, while also developing the capacity of attendees to pursue actionable change around the goals in their current and future work. Preliminary results are expected to show a higher proportion of participants from fields not specifically related to the environment, thus creating a more holistic representation of how sustainability and the SDGs can be progressed. Challenges with the two activities circle around the fact that neither have been done before, so there is limited reach and unknown outcomes. However, this novelty does directly reflect the ISS theme of the year, "*Pushing Boundaries: Inclusive Activities for Community Welfare*" as their existence is pushing the boundary for what engagement and education on sustainability and the SDGs can look like. With continued support from UC Davis organizations such as the UC Davis Global Learning Hub, Unwrapped: The History and Sustainability of Global Foods and the SDG Symposium have the potential to be improved and sustained for years to come.

Keywords: sustainability, education, food, community

Learning from Coexistence: A Youth-Led Experiential Conservation Model Inspired by the Eastern Sarus Crane Reintroduction in Thailand

Bhasyn Saraporn

Kasetsart University

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Kasetsart University, Thailand

Abstract

Environmental degradation, biodiversity loss, and unsustainable food systems continue to place increasing pressure on communities worldwide, highlighting the need for inclusive and community-centered approaches. When engaged through meaningful, real-world experiences, youth can play a transformative role in addressing these challenges as active contributors rather than passive learners. The following manuscript presents a proposed youth-led environmental conservation initiative grounded in over ten years of personal conservation experience in Thailand, centered on the reintroduction of a once-extinct endemic species, the Eastern Sarus Crane (ESC). The ecological and social history of the ESC, its extinction driven by human misinterpretation as a crop threat and habitat alteration, followed by its recovery into rice-farming landscapes in Buriram province, provides a powerful lens through which youths can experience coexistence between two, once-conflicting species in a shared landscape and gain a fundamental understanding of the effective conservation cycle. This involves understanding themes such as how misconceptions must be addressed through education, and reinforcing community cooperation through ecological, social, and economic benefits that sustain both quality of life and biodiversity. Building on these experiences, the initiative introduces an inclusive, hands-on, experiential conservation education activity that connects youth directly with real-life natural environments. Learning is structured to progress from curiosity sparked by direct nature-exposure to awareness developed through dialogue with local communities and experts, and ultimately to youth action through designing and executing activities/small-scale projects within their own communities. Preliminary survey findings demonstrate strong youth interest in experiential and hands-on environmental learning, aligning well with the proposed model, whilst identifying time and access as key constraints to inclusive participation. Aligned with the ISS theme “Pushing Boundaries: Inclusive Activities for Community Welfare,” this student-led initiative illustrates how experiential, inclusive approaches can effectively serve as a model for long-term conservation strategies empowered by youth action.

Keywords: experiential conservation education, effective conservation cycle, youth-led, inclusive, local communities

Transforming Agricultural Waste into Sustainable Soil Mixture for Kale (*Brassica oleracea* var. *acephala*) Production: A Student-Led Initiative

Vanchoeuy Heng

Royal University of Agriculture

Academic Advisor: Mr. Sophal Var

Royal University of Agriculture, Cambodia

Abstract

Clay soils are widely distributed in Cambodia and are characterized by high bulk density, poor drainage, and limited aeration, which restrict vegetable growth, particularly under container-based systems. At the same time, agricultural residues such as rice husk and coconut by-products are abundantly generated but remain underutilized, often contributing to environmental pollution through open-field burning. Converting these residues into productive inputs offers environmental and economic advantages by reducing waste, lowering input costs, and promoting circular resource use.

This study evaluated the potential of selected agricultural wastes as sustainable soil amendments for improving kale production in clay soil. Rice husk biochar was selected due to its capacity to enhance soil structure, improve nutrient retention, and increase cation exchange capacity. Cocopeat was chosen for its high water-holding capacity and its ability to improve aeration in compacted clay soils, while compost provides essential nutrients and supports microbial activity. An experiment was conducted using a Completely Randomized Design (CRD) with three treatments and three replications: T1 (Clay soil + Compost, 50:50), T2 (Clay soil + Compost + Rice Husk Biochar, 40:40:20), and T3 (Clay soil + Compost + Cocopeat, 40:40:20). Growth parameters including plant height, leaf number, fresh and dry biomass, as well as soil moisture, pH, and electrical conductivity were measured and analyzed using one-way ANOVA at a 5% significance level.

Results showed that T2 and T3 significantly improved plant growth compared to T1 ($p < 0.05$). Plant height increased from 28.4 cm in T1 to 38.2 cm and 39.5 cm in T2 and T3, respectively, while fresh biomass increased by up to 55%. Soil moisture was highest in T3 (42.5%), whereas soil pH and electrical conductivity were improved in T2.

In conclusion, integrating rice husk biochar and cocopeat effectively enhanced clay soil properties and kale productivity. This study demonstrates that agricultural waste can be transformed into functional growing media, supporting sustainable vegetable production, urban agriculture and environmental protection.

Keywords: agricultural waste, clay soil, biochar, cocopeat, sustainable growing media

Assessment of Soil Types, Nutrient Uptake, and Their Impact on Yield and Nutritional Quality of Potatoes (*Solanum tuberosum* L.) in Highlands of Nyandarua County, Kenya.

Ann Wangari Muthui

Jomo Kenyatta University of Agriculture and Technology

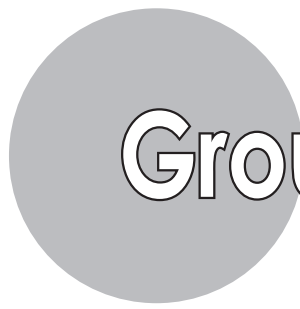
Academic Supervisor: Dr. Cornelius Wainaina

Jomo Kenyatta University of Agriculture and Technology, Kenya.

Abstract

Potato (*Solanum tuberosum* L.) is a major food and income crop in Nyandarua County, yet yields remain low ($\approx 12 \text{ Mg ha}^{-1}$) compared to the global average ($\approx 20.8 \text{ Mg ha}^{-1}$), largely due to soil fertility decline, inappropriate fertilizer use, and lack of soil-specific agronomic guidance. Although nutrient limitations particularly N, P and K have been widely reported in Kenyan highlands, the relationship between soil type, nutrient uptake, and tuber nutritional quality remains poorly understood. Existing fertilizer recommendations are generic, largely adapted from maize systems, and fail to account for the soil heterogeneity characteristic of Nyandarua's toposequence. Consequently, productivity and tuber quality continue to decline despite increased input use. This study aims to evaluate the influence of soil fertility status on potato productivity and nutritional quality in Kipipiri Sub-County by integrating soil characterization, farmer surveys, laboratory diagnostics, and nutrient uptake analysis. Five predominant soil types along a toposequence will be classified using standard pedological methods, followed by comprehensive assessment of soil physical and chemical properties. A regional survey of small-scale farms will document existing management practices, input use, and yield variability. Crop and soil samples will be analyzed for macro- and micronutrients, while tuber quality will be evaluated for dry matter, starch, and nutritional content. Data analysis will involve descriptive statistics, two-way ANOVA (soil type $\times$ treatment), correlation and regression modelling to quantify linkages between soil fertility indicators, nutrient uptake, and yield and quality outcomes. Qualitative survey data will be analyzed thematically. Expected results include: (i) detailed soil classification maps and fertility indices, (ii) baseline documentation of farmer practices and productivity constraints, (iii) quantified relationships between soil properties, nutrient dynamics, and tuber quality, and (iv) predictive models identifying key soil factors driving productivity. By linking soil type, nutrient status, plant uptake, and potato quality, the research provides a foundation for developing localized fertilizer recommendation frameworks and low-cost diagnostic tools suitable for smallholder potato farmers in Nyandarua and similar highland agro-ecosystems.

Keywords: soil fertility, nutrient uptake, tuber quality, smallholder farming,
site-specific fertilizer



Group G

Presenters:

Savini Goel, The University of British Columbia

Saruulnorov Tuvshintugs, Mongolian University of Life Sciences

S.H. Isuri Methhari Rodrigo, University of Peradeniya

Khemphet Chanbouathong, National University of Laos

Chairpersons:

Ogochi Hunter Bundusi

Yun Ling Chang

Organizing for Hope: Turning Climate Emotions Into Collective Action Through Student Climate Justice Activism

Savini Goel

The University of British Columbia, Climate Justice UBC

Academic Supervisor: Dr. L.M. (Les) Lavkulich

The University of British Columbia, Canada

Abstract

The impacts of climate change pose several mental health and wellbeing challenges for youth and cause emotions including anxiety, grief, hopelessness and helplessness. While these emotional responses are increasingly being recognized, approaches focusing on individual resilience may risk obscuring the systemic causes of climate change and shift responsibility onto individuals. Instead, emerging scholarship emphasizes the importance of collective care, community-building, and action-oriented responses that transform climate emotions into hope and agency. This paper examines Climate Justice UBC (CJUBC), a student-led climate justice organization at University of British Columbia, as a case study of how campus organizing can create safe spaces for processing climate emotions while advancing structural change. CJUBC mobilizes students through 3 main campaigns which include Fossil Free Research, Action and Mobilizing, and Banks-Off-Campus, while grounding its work in principles of collective access, intersectionality, Indigenous sovereignty, anti-racism, anti-capitalism, and community sustainability. Through events such as community dinners, film screenings, fundraising initiatives, and institutional and governmental advocacy, the organization fosters belonging, resilience, and radical hope while offering its members multiple avenues to take meaningful climate action. CJUBC has also achieved tangible institutional outcomes, most notably contributing to UBC's 2019 divestment of its multi-billion-dollar land endowment from fossil fuels and declaration of a climate emergency after a six-year campaign. Current campaigns continue to challenge university ties to the fossil fuel industry and strengthen solidarity with broader justice movements. Member testimonies further illustrate that participation in CJUBC helps cultivate hope in the midst of climate chaos, creates meaningful friendships, and provides an empowering outlet for responding to the climate crisis. This case study demonstrates that student climate justice organizing can serve as both a strategy for systemic environmental change and a vital form of collective mental health support. By transforming isolation into solidarity and despair into action, campus organizing offers an important model for cultivating hope in the midst of climate chaos.

Keywords: climate justice, climate emotions, community, hope

Improving MRV in Agriculture: Accurate Calculation of Sheep Enteric Methane and CH₄ Conversion Factors

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Abstract

Accurately estimating enteric methane (CH₄) emissions is important for improving Measurement, Reporting, and Verification (MRV) systems in livestock production. However, applying the IPCC Tier 2 methodology to nomadic pastoral systems is not straightforward. In these systems, animals move over long distances, experience large seasonal temperature changes, and rely on highly variable forage. As a result, their energy expenditure is far from constant – it shifts with climate conditions, feed availability, and grazing distance. The Tier 2 approach does not fully capture these realities. In particular, it does not account for additional energy demands caused by cold stress, thermoregulation, and long-distance movement. These factors are central to nomadic systems and can significantly influence methane emissions, especially during the winter-spring period when animals face harsh conditions and limited feed. Another limitation is the use of a fixed methane conversion factor (Y_m), usually assumed to be 6.5% of gross energy intake (GEI). In practice, Y_m varies depending on feed quality and digestibility, which change across seasons and grazing environments. To address these gaps, this study measured methane production and estimated Y_m values for sheep under controlled conditions. A sheep weighing 50.45 ± 0.08 kg was placed in a 1052.9 L respiration chamber at 20.75°C and 0.8339 atm. Methane concentration was recorded over 90 minutes and used to estimate daily emissions, which averaged 15.15 g CH₄/day (0.30 g/kg body weight). Energy partitioning was calculated based on metabolic body weight (kg BW^{0.75}), with gross energy intake of 1.023 MJ, digestible energy of 0.614 MJ, and metabolizable energy of 0.561 MJ. Methane energy loss was 0.33 MJ/day, equivalent to 4.34% of GE (Y_m), 6.68% of DE, and 8.15% of ME. Overall, the results suggest moderate methane emissions and relatively efficient energy use under the study conditions. They also show that methane production is strongly influenced by feed quality, pasture type, and intake. Combining direct measurements with energy-based calculations provides more reliable, context-specific data, which can help refine emission estimates and improve MRV systems in pastoral livestock production.

Keywords: enteric methane, livestock sustainability, respiration chamber, climate-smart livestock

Agri-Connect Lanka: A Student-Led Digital Ecosystem to Mobilize Underutilized Agricultural Resources for Inclusive Community Development

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Abstract

Sri Lanka, recognized as a global biodiversity hotspot, exhibits a highly diverse natural resource base underpinned by heterogeneous agro-ecological zones and favourable climatic conditions that collectively enable year-round crop production. This agricultural system is further characterized by significant livestock production systems and a rich diversity of medicinal plant species, reflecting a long-standing integration of ecological and livelihood functions within the rural landscape. In parallel, the country possesses substantial natural and cultural heritage resources, including ecologically significant landscapes and ancient monuments, which constitute key drivers of tourism development. Despite this dual endowment of agricultural and tourism-related resources, both sectors remain markedly underutilized in terms of their full productive and economic potential. Concurrently, Sri Lanka has a considerable stock of underutilized human capital, comprising women, youth, persons with disabilities, and an increasingly ageing population. The limited integration of these human resources into productive economic systems, alongside the underutilization of natural and cultural endowments, constrains the realization of inclusive and sustainable rural development outcomes. Against this backdrop, this paper proposes “Agri-Connect Lanka” as an integrated, digitally enabled platform designed to bridge these structural gaps. The initiative seeks to link underutilized land resources, agro-biodiversity, medicinal plant knowledge, livestock systems, and heritage-based tourism opportunities with diverse and often marginalized population groups. By facilitating the establishment of decentralized, small-scale agricultural and agro-tourism enterprises, the platform aims to convert idle or underexploited resources into viable livelihood opportunities. The proposed framework contributes to income diversification, rural economic resilience, and sustainable resource management, while simultaneously promoting the conservation of socio-ecological systems shaped by long-term human-environment interactions. Agri-Connect Lanka thus offers a scalable and inclusive model for aligning resource efficiency, social inclusion, and environmental sustainability within Sri Lanka’s rural development trajectory.

Keywords: Neglected and Underutilized Agricultural Resources (NUAR), agro-tourism, sustainable community development, inclusive innovation, youth-led action

Using Gamification to Encourage Waste Segregation: A Case Study of Volunteer Activities at the That Luang Festival

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Abstract

The That Luang Festival is the most important cultural event in Laos, focused on the national symbol of the golden stupa in Vientiane. While the festival serves as an essential spiritual experience for tens of thousands of residents and monks, its huge magnitude offers a recurring environmental challenge: substantial waste generation. Historically, public concern has mounted regarding litter levels, particularly as many participants travel from the countryside where waste management awareness may vary.

This project, organized by a team of student volunteers from the National University of Laos, intended to solve these difficulties through two core inclusive activities. First, we created a gamified waste segregation station during the festival. Using interactive methods, we offered photos of common festival waste – such as Styrofoam, aluminum cans, and plastic – and challenged participants of all ages to sort them into simulated bins. This technique “pushed the boundaries” of traditional environmental education by translating inert knowledge into an engaging, inclusive experience for varied demographics.

Second, to assure community welfare following the festivities, our team engaged in a post-festival clean-up effort. Working alongside experienced sanitation workers, we helped restore the sanctity of the national monument, demonstrating that young can lead in social responsibility.

Results showed considerable public interest, with a substantial majority of participants successfully demonstrating waste segregation expertise. However, we found a key challenge: some participants were driven largely by extrinsic benefits rather than innate environmental concern. This points out the necessity for future educational efforts to transition toward making trash segregation a social norm. Ultimately, our experience indicates that inclusive, student-led efforts may dramatically boost public environmental awareness and conserve cultural assets.

Keywords: waste segregation, gamification, youth volunteerism

Voices from Next Generation

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Can AI Solve Future Food Problems? Challenges and Opportunities for Sustainable Food Systems in the Age of the SDGs

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We are researching whether AI can help solve food-related problems such as hunger, food waste, climate change, and the decline in the number of agricultural workers in order to prepare for future international discussions. Through our research, we realized that a great deal of food is also wasted in our daily lives, and we came to feel that food problems are not only issues in distant countries but also challenges close to home. At present, AI is being used in agriculture in many countries to improve weather forecasting, detect plant diseases, manage irrigation, and increase crop yields. We, too, were greatly impressed by videos and news reports of automatic harvesting robots and drones spraying pesticides, which changed our image of agriculture. In supermarkets and restaurants as well, AI is being used to reduce food waste by predicting demand and managing supply. However, AI alone cannot solve all food problems. Access to technology is unequal, and in developing countries, there may be a lack of the funding, internet access, and infrastructure needed to introduce advanced AI systems. In addition, issues remain, such as who should manage agricultural data, whether small-scale farmers can benefit fairly, and how the work of laborers will change as automation progresses. Through this research, we realized that food problems are not only scientific issues but also social and political ones. In particular, because conditions differ from country to country and region to region, we learned that it is important to understand each side's position and work together. We believe that if AI is used responsibly and people cooperate with one another, it can become a powerful tool for creating a sustainable future for food.

Keywords: SDG 2 (Zero Hunger), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 17 (Partnerships for the Goals).

Possibilities for Japanese Food Culture Opened by Ultrafine Bubbles

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Ultrafine bubbles (UFB) are microscopic gas bubbles in water with diameters of less than one micrometer. They possess unique physical properties, including high gas solubility, a negative surface charge, and the ability to remain stable in water for extended periods without floating to the surface. Currently, UFBs are widely utilized across various industries, demonstrating proven success in promoting agricultural growth, increasing industrial cleaning efficiency, and treating environmental wastewater. However, their application in food processing remains largely unexplored. To address the sustainability of food resources, this study aims to optimize the extraction process of *dashi*, the foundation of traditional Japanese cuisine using UFB technology. We investigated whether UFB water could enhance the extraction efficiency of *dashi* prepared from a combination of bonito flakes (*katsuobushi*) and kelp (*konbu*), compared to conventional tap water. *Dashi* samples were prepared using four types of water: tap water, purified water, UFB-air, and UFB-N₂. To objectively evaluate the flavor profiles, taste sensor technology was utilized to analyze the five basic tastes. The experimental results demonstrated that even with identical extraction times, *dashi* prepared with UFB water exhibited a significantly altered flavor profile compared to *dashi* made with tap or purified water. Specifically, the sensor analysis revealed that UFB-air effectively enhanced the intensity of *umami*. Furthermore, distinct variations were observed in other taste characteristics, including sourness, bitterness, astringency, and saltiness, depending on the UFB generation time and the type of gas used. Achieving high *umami* intensity with fewer raw materials while precisely controlling taste characteristics allows for the minimization of leftover extraction waste (*dashigara*), thereby preventing the depletion of marine resources. Our research integrates cutting-edge science and technology with traditional food culture to create a sustainable future for food. From a high school student's perspective, we propose highly actionable plans that contribute to SDG 12 (Responsible Consumption and Production) and SDG 14 (Life Below Water).

Keywords: Ultrafine Bubbles (UFB), taste sensor, dashi

Seedlings with Thick, Strong Roots! Efforts to Develop Seeds for Highly Flood-Resistant Hiroshima-na

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Recently yields of *Brassica rapa* var. *pekinensis* (also known as “Hiroshima-na”) have been declining due to the effects of extreme heat and torrential rains. As a result, the number of manufacturers of pickled Hiroshima-na has also been decreasing. Hiroshima-na is a cruciferous crop, a type of Chinese cabbage that prefers well-drained soil. It has long been cultivated in certain areas of Hiroshima City. When we visited farmers, they cited excessive moisture in the soil caused by torrential rains which lead to oxygen deprivation in the plants as one of the causes of the yield decline. They also shared the following insight: “Based on our experience, even when torrential rains occur, plants with long, thick roots and a strong network of fine roots tend to survive better.” Therefore, this study aimed to develop Hiroshima-na seedlings with long, thick roots and numerous fine roots by refining various cultivation techniques. In Experiment 1, cultivation trials were conducted under three conditions: mist, soil, and hydroponics. The results showed that plants grown in soil exhibited the best growth, while seedlings grown hydroponically rotted. In mist cultivation, the roots grew the longest, but no thick root growth was observed. Therefore, in Experiment 2, we modified the method based on soil cultivation. After germination, during the seedling rearing phase, we divided the treatments into three groups: potting soil alone, potting soil mixed with vermiculite, and potting soil mixed with a homemade soil conditioner, with 10 pots per treatment. Leaf length was measured twice a week, and root length was measured approximately one month later. The results showed that while the growth rate of leaf length was highest in the soil amendment treatment, root length was the shortest; the “potting soil only” and “potting soil with vermiculite” treatments showed greater growth. Therefore, we conducted a similar experiment using the potting mix and vermiculite-supplemented treatments. After two weeks, although the leaf length growth rate was slightly lower in the vermiculite-supplemented treatment, root length was greater. Moving forward, we plan to utilize publicly available genetic databases to compare genetic information and incorporate these findings into improvements to cultivation methods.

Keywords: Hiroshima-na, flood-resistant, root length

Is there a Shortage of Water in Japan?

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Is Japan really safe from water scarcity? While the country enjoys high annual rainfall, its short and steep rivers cause rainwater to rush quickly into the sea, making it difficult to store water efficiently in dams. Consequently, Japan's available water resource per capita is actually below the global average, meaning we cannot definitively say the nation is free from water shortages. Furthermore, due to a rapidly aging population, water management facilities face a desperate shortage of personnel to maintain proper sanitation. Simultaneously, global warming causes severe droughts, raising fears that Japan might eventually suffer from critical crises like other water-depleted nations today. To address these interconnected challenges, we must take action from our own schools and homes. Inspired by a study abroad experience in Australia-where host families use large water tanks and strictly limit shower times to save resources-we realized that Japan must also adapt. Even if our rules are not as strict, we need to appreciate our water and change our daily lifestyles for the future. Specifically, we propose practical solutions like installing water storage tanks on the flat, spacious grounds of junior high and high schools, as well as introducing simple rainwater tanks to individual households. Moreover, we advocate for raising awareness by sharing vital information within our friends, families, and school communities. Even small, collective actions can foster significant structural improvements in our society. In conclusion, by working together to secure these essential goods, we can safeguard the fundamental right to sustainable resources for everyone. Ultimately, these initiatives will empower the next generation in Japan, helping them build a brighter, more adaptable future.

Keywords: water scarcity, rainwater tanks, adaptable future

We can Change the World with the Spirit of “Mottainai”

**Hiroto Tsubokura, Ota Sekiya, Ichika Kubota,
Shino Hakamada, Chisa Minowa**

The Third High School, Tokyo University of Agriculture, Japan

This presentation focuses on the shortage of school supplies and menstrual products in Kenya and how these problems affect the lives of many children and young people. Kenya is one of the fastest-growing countries in East Africa, but many families still live in poverty. Because of this, they cannot always afford the things that are necessary for education and health. As a result, many students face difficulties in going to school and continuing their studies. Many schools do not have enough textbooks, notebooks, pens, desks, or other learning materials. Some children have to share one textbook with several classmates, while others cannot buy notebooks or school uniforms. These shortages make it difficult for students to study effectively and achieve their goals. Education is one of the most important ways to reduce poverty, but the lack of school supplies prevents many children from receiving a good education. Another serious problem is the shortage of menstrual products. Many girls cannot afford sanitary pads because they are too expensive for their families. Without these products, some girls stay home during their periods because they feel uncomfortable or embarrassed. Missing several days of school every month can cause them to fall behind in their studies. In some cases, girls leave school completely, which reduces their future opportunities for higher education and employment. To address these interconnected challenges, this presentation highlights practical solutions, including the donation of school supplies and menstrual products to children in need. It emphasizes the importance of supporting local charities and organizations already working on the ground in Kenya. Moreover, we advocate for raising awareness by sharing vital information within our friends, families, and school communities. Even small, collective actions can foster significant structural improvements in these children's lives. In conclusion, by working together to secure these essential goods, we can safeguard the fundamental right to education for all children. Ultimately, these initiatives will empower the next generation in Kenya, helping them overcome systemic barriers and build a brighter, more sustainable future.

Keywords: Kenya, school products, education, children, girls

Eco-Friendly Products: Through a Turtle's Eyes

So Fujitani

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I keep two Japanese pond turtles. They lived near agricultural land. I can change the tank water which has become dirty with waste. Keeping them makes me think about my daily life. Seeing through a turtle's eyes, I became interested in environmental issues people often miss. First, I saw the unknown words "fishmeal" on the food container. Fishmeal is made from marine resources. Today animal feed and agricultural fertilizers depend on marine resources. I got interested in how it was made. Insect protein might be a nice idea because it uses very little energy and reduces carbon emissions. Insect protein is one of the eco-friendly products. Second, according to the plan called Yokohama city's Green Up Plan, grasslands, woodlands and agricultural lands have been decreasing. This survey analyzes the rate of change in green areas based on five-year trends by land category. I'd like to approach this issue using data on green coverage. Shared agricultural lands are eco-friendly services. It can help keep some green areas, which is important for a turtle. Third, we are used to seeing our traditional water system such as emergency wells. There are more than 2,000 registered emergency wells in Yokohama city. They can provide water in natural disasters. They help people understand the importance of local natural resources. I'd like to show how convenient they are by comparing emergency wells with government water services for daily use. Looking at what happened around the world through a turtle's eyes, we can notice environmental issues humans often miss. In other words, my turtles need safe food, green areas, and clean water.

Keywords: animal feed production, shared agricultural lands, emergency wells

Bringing Dazaifu Plums to the World: Revitalizing Local Industries Through Industry-Government-Academia Collaboration

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The Fukuoka Agricultural High School Plum Research Group actively participates in the “Plum Project,” an innovative initiative designed to brand Dazaifu’s historic plums into attractive sweets and local gourmet items for a wide audience. Through hands-on product development featuring these plums as the main ingredient, we foster a strong industry-government-academia collaboration among Dazaifu City, local businesses, and our school. Our goal is to revitalize local industries and build a sustainable regional society. As of July 31, 2025, this project has successfully generated 38 unique products from 24 different businesses. Among these, we have directly co-developed 13 products in partnership with professional companies, accounting for over 30% of the total project output. Notably, the “Gokaku-suru Ume” (Success Plums) series developed with Calbee, Inc., and “Umenbei” created with Yamaguchi Aburaya Fukutaro, Inc. boast exceptionally high recognition. These items are widely loved not only by local residents but also by tourists visiting Dazaifu from all over Japan. We have two major goals for the future. First, we aim to effectively utilize plums from historic sites. These plums, harvested from locations such as the Dazaifu Exhibition Hall site, carry deep historical significance linked to the ancient “Plum Blossom Banquet” that inspired Japan’s era name, “Reiwa.” However, until deregulation in December 2020, their commercial use was strictly restricted by cultural property protection laws. Following this deregulation, we now harvest these historic plums ourselves and process them into high-quality plum paste and syrup. By doing so, we can add significant value to our local agricultural resources. Second, we aim to further raise awareness of “Dazaifu Plums” through these efforts, boosting the local community and creating a truly sustainable society. Our activities to add value to once-neglected plums directly align with SDG Goal 12, “Responsible Consumption and Production.” Additionally, our ongoing efforts to revitalize the local economy by increasing the nationwide profile of Dazaifu’s plums contribute significantly to SDG Goal 11, “Sustainable Cities and Communities.”

Keywords: Dazaifu plums, local industries, product development

Development of Microbial Pesticides Using Lactic Acid Bacteria in Soil Cultivation: Growth Promotion and Stress Resilience of Plants Against Diseases and Pests

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Background and Objective; Achieving the Sustainable Development Goals (SDGs) is an important challenge in agriculture. Microbial pesticides that do not rely on chemical agents have attracted attention as environmentally friendly alternatives. We previously investigated plant cultivation using lactic acid bacteria to develop microbial pesticides. This study examined the effects of lactic acid bacteria and okara (soy pulp used as a culture substrate) in soil cultivation systems. Unexpected outbreaks of cucumber downy mildew and tomato leaf miner infestation shifted the focus of this study toward plant resilience and regeneration. **Methods;** Tomato and cucumber plants were cultivated under three conditions: (1) water only (control), (2) water plus okara, and (3) okara mixed with a diluted commercial yogurt solution (0.2%, w/w) containing lactic acid bacteria and incubated at 27° C for one week. After disease and insect damage occurred, a suspension containing fermented okara and lactic acid bacteria was prepared by water filtration and applied to the affected plants. Survival and recovery rates were then compared. **Results and Discussion;** Tomato fruit volume and surface area were greatest in the control group. However, fruits in the lactic acid bacteria-treated group matured earlier, enabling earlier and more frequent harvesting. These findings suggest that lactic acid bacteria may promote reproductive growth under insect stress and improve productivity. In cucumbers, the yogurt solution containing *Lactobacillus gasseri* induced a clear resilience response and enhanced disease tolerance. Okara alone provided only short-term nutritional benefits, whereas the combination of okara and lactic acid bacteria produced a pronounced V-shaped recovery after damage. This synergistic effect may result from okara acting as a prebiotic substrate that promotes bacterial growth. However, the selective attraction of insect pests to okara-treated plants remains a challenge. Further studies are needed to clarify the antimicrobial properties of lactic acid bacteria and their role in inducing plant immunity. **Conclusion;** These findings demonstrate the potential of okara utilization and environmentally friendly microbial pesticides for sustainable agriculture and may contribute to SDG-oriented farming practices.

Keywords: lactic acid bacteria, microbial pesticide, Okara, soil cultivation, plant resilience, sustainable agriculture, SDGs

Solutions and Utilization Methods for Energy Problems by using MFCT

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We often hear about energy problems these days. In Japan, we cannot produce enough energy on its own. Also, we usually use fossil fuels to generate electricity, so that we produce a lot of CO₂s. Therefore, global warming is getting worse. Solar power and wind power, facilities are becoming more common but both have many problems. For example, they cost a lot of money. However, they cannot make much electricity for the cost. In addition, Japan is vulnerable to many typhoons and lightning strikes. Therefore, it is hard to produce electricity stably. So, we want to propose a new way to solve these problems. It is Microbial Fuel Cell Technology (MFCT). MFCT uses microbes to generate electricity. Microbes in the mud break down organic matter and make electrons. By collecting these electrons, we can make electricity. This method is good not only for generating electricity but also for cleansing the soil. In addition, it is smaller and cheaper than other methods. Moreover, people say it could be more efficient by mixing organic matter into the mud. We focused on this point, and studied what kind of organic matter is the best to use. For organic matter, we used food waste. We thought it could generate electricity more efficiently while also reducing food loss. Our goal is to spread MFCT to households. At home, we often throw away kitchen waste like vegetable scraps. So, we thought it would be better to use them for generating electricity instead of throwing them away. In the future, if we could spread MFCT to households, we would be able to charge our smartphones or use LED lights. We worked on this experiment with that hope in mind.

Keywords: energy problems, global warming, MFCT (Microbial Fuel Cell Technology), food loss

Rescuing Vegetables and Communities through Vegicle

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Do you know about “Organic Villages”? An Organic Village is an initiative promoted by the Ministry of Agriculture, Forestry and Fisheries. In fiscal year 2025, approximately 154 municipalities were certified as “Organic Villages.” These are municipalities that manage the entire process of organic agriculture, from production to consumption, and work as a community to build a town centered on organic products. Organic vegetables refer to vegetables grown organically without the use of pesticides. This cultivation method also contributes to achieving the 15th goal of the SDGs, “Life on Land.” Organic vegetables are grown there using environmentally friendly methods, yet some cannot be sold due to issues such as irregular shapes. We propose developing crayons using these vegetables as raw materials. It’s “Vegicle”. The key feature that distinguishes these crayons from those made from other vegetables is the key ability to circulate resources within the local region. Locally grown vegetables are processed by local people and delivered directly to consumers. This fosters local production and consumption, thereby revitalizing the region. By utilizing only the necessary amount of naturally derived raw materials-without relying on excessive petroleum-based fuels-the process reduces the environmental impact of production and distribution, aligning with SDGs Goal 12, “Responsible Consumption and Production.” The widespread adoption of these products can help reduce food waste and cut down on the use of petroleum-whether as a coloring agent or as transport fuel-as well as lower transportation costs. We hope that the “Organic Village” initiative gains greater recognition and leads to regional revitalization while also contributing to the SDGs.

Keywords: organic, vegetables, SDGs

Make Biofuel from Giant Canadian Waterweed – Effective use of Priority Invasive Species –

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Giant Canadian Waterweed (*Elodea canadensis*) is designated as a priority invasive alien species because of its negative impact on aquatic ecosystem. Lake Biwa in Shiga, excessive growth of this plant contributes to algal blooms and requires costly removal efforts, often exceeding one billion yen annually. Therefore, this study aimed to explore the effective utilization of harvested Giant Canadian waterweed by converting it into biofuel. Based on previous research, we investigated methane production from Giant Canadian waterweed using a bio electrochemical fermentation process. The plant material was dried at 65°C for 24 hours, treated with 10ml of acetic acid, and subjected to an electric current of 1.0V. The material was then fermented for 20 days while voltage changes were monitored daily. On the final day, we will use a portable gas detector for flammable gases to measure the amounts of methane and ethanol. To identify optimal methane-producing conditions, we examined the effects of drying temperature, current application time, and fermentation period. We set four conditions for each one. Our preliminary results suggest that drying at 65°C for 24 hours, applying 1.0V for 10 minutes, and fermenting for 20 days produced the highest methane yield. These conditions may promote the activity of electroactive bacteria involved in methane generation. Because the current study was conducted with a limited number of trials, additional experiments and repeated measurements will be performed to improve reliability and reproducibility. Future work will focus on refining the optimal conditions for methane production and evaluating the practical feasibility of using invasive aquatic plants as a renewable energy resource.

Keywords: giant canadian waterweed, electroactive bacteria, methane, ethanol, biofuel

Reuse and Recycling Methods for Used Medium Density Fiberboard

Yoshino Annaka

Yamawaki Senior High School, Japan

When you hear the word “Medium Density Fiberboard”, do you know how it is used? Medium Density Fiberboard is an artificial material made from wood fibers and glue. This material is widely used for furniture and buildings. In addition, a lot of waste is produced because Medium Density Fiberboard is cut from large boards before use. It is cut with a special machine before use. However, previous studies show that there are few ways to recycle used Medium Density Fiberboard into new materials. In my research, I studied Medium Density Fiberboard recycling using various methods and checked the features of Medium Density Fiberboard (MDF). MDF is made from wood fibers, it contains cellulose. Cellulose is an important material used to make paper and rayon. Therefore, I focused on the cellulose in MDF and investigated whether it could be reused effectively. *Cuprammonium rayon* is an artificial fiber made mainly from cellulose. I focused on this process. And I investigated whether *cuprammonium rayon* could be produced from the cellulose in MDF. In addition to the process for producing *cuprammonium rayon*, I carried out an additional treatment. MDF contains a *formaldehyde*-based adhesive. I thought that this adhesive might prevent the production of *cuprammonium rayon*. Therefore, I added *hydrochloric acid* treatment before the production process.

Keywords: MDF, cellulose, cuprammonium rayon, cupra, reuse, recycle

Sustainable Community Building through Farming Activities – Connecting High School Students, Farmers, and Local Families –

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At our high school, a group of agriculture students called AgriKids has collaborated with local farmers to organize farming activities for children and families since 2021. Through this project, students take over the work of previous members while adding new ideas and improving the activities each year. Although new members often join because they enjoy working with children and farmers, they gradually come to understand the broader significance of these activities and how they support the local community. As the 6th generation of AgriKids, we aimed to examine how our activities contribute not only to agricultural education for children but also to community building among the people involved. During the past two years, we have organized 12 farming events, recording approximately 500 participants visits. We have collected feedback from participants, student volunteers, and local farmers throughout the project. Our observations suggest that the project helps many groups. Children gain hands-on experience with food production and become more interested in agriculture. Parents appreciate chances to spend time with their children while meeting other families. Local farmers build relationships with their neighbors and receive support in running community events. Student volunteers deepen their interest in agriculture, develop communication and leadership skills, and strengthen their sense of responsibility toward their community. Perhaps the most important result is that these activities create chances for people of different ages and backgrounds to work together. Through repeated collaboration, participants begin to see one another not just as organizers or guests but as partners in building a community. We hope this project will encourage more high school students to get involved in agriculture and local communities. By continuing to review our activities and improve them based on feedback, we aim to support sustainable community development through long-term cooperation between schools, farmers, and residents.

Keywords: food education, community building, sustainability, high school students, local farmers

Effect of Photosynthetic Bacteria from the Chick Stage on Egg Production Rate

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In recent years, egg prices in Japan have approximately doubled, mainly due to the rising cost of compound feed, which accounts for about 60% of total egg production costs. Compound feed is primarily corn-based, and its price has increased significantly due to global factors such as the Ukraine war and the expansion of bioethanol production. Corn prices are unlikely to return to previous levels in the short term, and it is difficult to reduce other costs such as facility maintenance. Therefore, improving egg production rate has become a key factor for lowering overall production costs. In a previous study, our research group found that photosynthetic bacteria-microorganisms that perform photosynthesis without producing oxygen-can positively affect the growth and egg production of chickens. Specifically, their use was shown to improve both egg production rate and egg quality when administered to adult chickens. This finding led to a new question: could egg production be improved further if photosynthetic bacteria are provided from the chick stage? This study primarily investigates whether earlier administration of photosynthetic bacteria improves egg production rate. It also evaluates whether this approach can effectively reduce overall egg production costs by comparing production rates with the cost of photosynthetic bacteria. In this experiment, two groups of chickens, each consisting of 22 individuals, were used. The experimental group received photosynthetic bacteria in their drinking water from the chick stage, while the control group began receiving the bacteria after reaching adulthood. Both groups were housed in enclosures of approximately 18 m², equipped with sand baths. All other conditions, including feed and environment, were kept identical between the groups. Growth and egg production were recorded. These results may suggest a practical method for lowering egg production costs.

Keywords: photosynthetic bacteria, chicken, chick

One Bite, and Plants Fight Back.

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We came up with a product based on the natural pest-defense system of plants. Our product is designed for people who grow plants at home, such as in home gardens, and it is easy to use. By reducing crop damage caused by insect pests, we believe it has the potential to contribute to SDG 2: Zero Hunger by helping address food security challenges. The idea came to us during a biology class when we learned about jasmonic acid, a plant hormone. At first, we only knew its name, but as we researched it further, we discovered that jasmonic acid plays an important role in the natural pest-defense system of plants. This inspired us to think of a new pest-control product based on this natural mechanism. If this idea is realized, we believe that applying jasmonic acid to plants before they are attacked by insects could activate their natural defense system and help prevent insect damage. Normally, plants produce jasmonic acid only after they are damaged by insect feeding. Plants then convert jasmonic acid into methyl jasmonate, a gaseous compound, and release it into the air. This signal triggers pest-defense responses in nearby plants of the same species. As a result, even a small amount can spread over a wide area through this chain reaction. In addition, users do not need to adjust the concentration themselves, making the product simple and convenient to use. Conventional pesticides protect plants from insect pests by using chemical ingredients. In contrast, our idea activates the plant's own natural defense system to reduce insect damage. In addition, it may attract beneficial insects that are natural enemies of pests, making it a more environmentally friendly approach to pest control.

Keywords: Jasmonic acid (JA), Methyl jasmonate (MeJA), plant defense mechanisms, induced plant defense, biopesticides, pest control, beneficial insects, sustainable agriculture, crop protection, SDG 2: Zero Hunger

Food Baton: Pass It to the Next Person Before Throwing It Away

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Japan generates approximately 4.7 million tons of food loss each year, while many people around the world continue to suffer from food insecurity. This study explores a practical approach to reducing household food waste and improving local food sharing by connecting families with their communities through technology and school-based initiatives. To develop this proposal, we examined current food loss issues in Japan, researched existing food management technologies, and considered how schools could serve as community hubs for food redistribution. Based on this research, we designed a two-part system. The first component is an AI-powered smart refrigerator designed to help households manage food more effectively. The refrigerator would display expiration dates without requiring users to open the door and automatically arrange food items so that those approaching their expiration dates are placed at the front. These features are intended to encourage families to use food before it becomes wasted. The second component is a school-based food-sharing network. Schools would install large refrigerators where families could donate unopened and unexpired food items that they are unlikely to use. Because the smart refrigerator helps users identify surplus food before it expires, the donation process becomes more convenient and efficient. By combining household food management with community-based food sharing, this proposal aims to reduce food loss while increasing opportunities to redistribute edible food to people in need. Although further research and practical testing would be necessary, this framework demonstrates how technology and local communities can work together to address food waste and contribute to a more sustainable society.

Keywords: food loss, food waste, food sharing, smart refrigerator, sustainability, community

The Future of Water from Realities of Singapore and Malaysia

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We visited Singapore and Malaysia on our school trip. While we were on the bus, our guide told us that Singapore has limited water resources. We also learned that Singapore imports water from Malaysia under an agreement that is set to expire in 2061, Singapore is implementing various initiatives aimed at achieving water self-sufficiency. For example, they are developing technologies to treat wastewater and turn it into reclaimed water, as well as to desalinate seawater. Furthermore, Singapore is providing support by utilizing these technologies to sell treated water to Malaysia at low costs and by transferring water treatment facilities it has built domestically to Malaysia free of charge. On the other hand, conflicts over water are occurring around the world. For example, in the 1980s, Turkey built dams on the upper reaches of the Tigris and Euphrates rivers, causing Iraq's agricultural regions to suffer from drought and desertification, which has led to a long-standing conflict. Also, when we used restrooms in Malaysia, we noticed that while those in hotels and other facilities were clean, the restrooms in Malaysian schools and villages were not. We also found that while sewage treatment has improved significantly in urban areas, there are still challenges in rural areas. Even on a global scale, these two countries are among those with relatively advanced sewage treatment systems. However, many developing countries lack sewage infrastructure altogether. There are large-scale water-related challenges around the world. While some countries compete over water resources, others, like Singapore and Malaysia, are working together to overcome these challenges. Water shortages are expected to become even more severe in the future due to population growth and global warming. Instead of engaging in conflicts over water, we are called upon to spread the attitude of mutual assistance-sharing the technology and resources possessed by Singapore and Malaysia to the entire world.

Keywords: water resources, water self-sufficiency, drought and desertification, global warming



Tokyo Declaration

International Students Summit Action Plan

Establishing International Students Forum

**Establishing Global Network for Environment,
Food and Agriculture**

Mission Statement of International Students Forum (ISF)

Acknowledgement



TOKYO DECLARATION

International Students Summit on Food, Agriculture and Environment

Date: November 19 - 20, 2001

Venue: Tokyo University of Agriculture, Tokyo, Japan

In commemoration of 110th Anniversary of the Founding of Tokyo University of Agriculture, an International Students Summit on Food, Agriculture and Environment in the New Century is held. Students from twelve countries and area in the world participated and discussed about present conditions and future issues on food, agriculture and environment. With this opportunity, we air our opinions and views raised in this Summit documented in this Tokyo Declaration, which we propose to the world.

1. Agriculture carries an important role of producing food for mankind to live. With the remarkable population increase since the 1950s, food production has been greatly increased through the Green Revolution, but negative effects to the environment and health occurred due to the intensive use of chemical fertilizers and agricultural pesticides. For now and the coming years, global food production increase and poverty alleviation are vital and agriculture plays an important role. "Therefore, we aim at sustainable development in the New Century through the recognition of the value of agriculture as a life industry, and the respect of the unique ecosystem and wisdom of each region. Through the collaboration between traditional agriculture knowledge and wisdom, and modern science and technology, we endeavor to develop environment-friendly technologies and production systems. Eventually, we hope to develop and promote a new form of organic agriculture which will meet social, economic and environmental requirements."
2. Based on science and technology development, various new technologies are being developed and spread in the agricultural field. Among them, biotechnology, especially Genetically Modified Organisms (GMO) is considered the mainstream technology. Consumers also have strong concerns regarding GM crops and foods. "Therefore, we recognize the potentials of biotechnology including GMO based on judgment with right knowledge. At the same time, we, as agricultural students, need to study and research more about the safety of biotechnology especially GMO in relation to human health and environment, and we have a role of disseminating result-related information to consumers."
3. In each region, history gave birth to food culture and molded people. By definition, food should be consistently safe from production to consumption. "Therefore, we create a new system wherein we can continuously be supplied and be able to consume safe foods. Each actor in the system, based on the social infrastructure provided and improved by the government, should consider the importance of safety issues such as pesticide residues at the production level, and post harvest and food additive usage problems at the processing and distribution levels. At the same time, we, as consumers, must think better of healthy regional food culture and are urged to cooperate and understand the added costs for commodities that are produced in a safe and environmentally friendly way."
4. Nowadays, although trade liberalization is progressing under the WTO system, all countries and areas do not have access to fair food distribution because economic infrastructure and social infrastructure gaps still exist. "Therefore, we promote Regional Self-sufficiency mainly for staple foods by making use of the unique ecosystems and regional individuality from the local point of view. Then, in the global point of view, food self-sufficiency in the whole of Asia can be achieved if food self-sufficiency is promoted in each area."
5. In the years to come, we, the students have a huge role to play. More international cooperation is encouraged through human resource exchange and sharing knowledge to overcome barriers such as academic disciplines and geographic borders. "Therefore, we, as the core group consisting of students from thirteen (13) countries and areas, aim to create an International Students Network. Also, we share a new and same value, wherein we need to create a new social system where an environmentally benefiting and safe food production, distribution, processing and consumption exist."

In realization of this *Tokyo Declaration*, we take an oath to make an *International Students Summit Action Plan* for each country and area.

November 20, 2001
Tokyo



International Students Summit Action Plan

In line with the Tokyo Declaration adopted during the 1st International Students Summit organized by the Tokyo University of Agriculture held last November 19-20, 2001, the action plan has been drawn up in this 2nd International Students Summit. As part of the future generation, we students commit ourselves to the following actions.

General Actions

- ✧ We shall study issues of food, agriculture and environment in holistic manners. We shall serve as a bridge between producers, consumers and professionals for the betterment of the society.
- ✧ We shall not limit ourselves to studying; we shall raise our own awareness and put our ideas into practice.
- ✧ We shall reconsider and emphasize the cultural aspect of agriculture.
- ✧ We shall appreciate and conserve our respective traditional technologies and institutions.

Specific Actions

Environmental Conservation

- ✧ We shall study and make public the roles and values of agriculture and environment, by participating in farm training and the like in rural areas.
- ✧ We shall conduct various campaigns and promotions of the present condition and prospects of agriculture and agricultural communities; and deepen consumers' understanding and interest on agriculture and environment.
- ✧ We shall vigorously promote environmentally friendly agriculture such as organic agriculture for establishing the system of stable supply of safe food.

Biotechnology

- ✧ We shall encourage unbiased research and undertaking. We shall publicize scientific information and research results about biotechnology.
- ✧ We shall vigilantly investigate food biotechnology such as GMO and inform the public about the results.

Food Safety

- ✧ We shall review our respective dietary life, conduct surveys and research on food from farm to table, and update the public about recent findings.
- ✧ We shall encourage strict labeling of food. We shall charge appropriate social responsibilities to any company found to have committed food safety violation.

Food Security

- ✧ We shall reduce food wastes. We shall avoid over consumption to conserve resources and promote health.
- ✧ We shall consume what is needed rather than what is demanded, on the basis of energy-saving local production and local consumption framework.
- ✧ We shall promote home production of food using any available space.

Students Network

- ✧ We shall establish the "International Students Forum," on food, agriculture and environment.
- ✧ As a body, we shall actively lobby and take actions on relevant issues, and represent youth in national and international conferences.

The above action plan shall serve as the basis for the country or area level action plans to be made by students of the respective participating university. Thus, we urge the participating universities to make their respective action plan as soon as possible.

November 17, 2002
Tokyo, Japan



Establishing International Students Forum (ISF)

Agricultural science plays a vital role in solving the fundamental problems of human beings in relation to food, environment, human health, and natural resources and energy. Because food production and consumption systems are closely related to the condition of the natural environment, the stage of economic development and food culture in each country and area, their patterns and problems reflect regional characteristics, requiring a multiple region-oriented approach.

Tokyo University of Agriculture organized the International Students Summit on Food, Agriculture and Environment in the New Century in 2001 and adopted the “Tokyo Declaration”.

In line with the action plan adopted at the 2nd International Students Summit in 2002, we hereby agree to organize the International Students Forum (ISF), a students’ network for the betterment of food, agriculture, and environment problems.

1. Objective

International Students Forum (ISF) promotes information exchange and discussion among the students of agricultural and other related sciences, in order to solve the problems common to human beings, such as environmental conservation, development of harmonious food production and establishment of food safety.

2. Organization

- ISF consists of Committees of International Students Forum set up in the participating universities.
- Members of the respective ISF Committees play an active part while in school and resign from ISF automatically at their graduation.
- Each ISF Committee decides the matters on the management respectively in each country and area.

3. Role

- ISF Members constantly make effort toward solutions of the problems common to human beings such as world environmental conservation, promotion of sustainable food production and establishment of food safety.
- ISF Members exchange information and opinions via the Internet. (Internet International Conference)
- Representatives of ISF committees in the respective universities get together on a regular basis and hold an international conference to present the results of research and study. (International Students Summit, ISS)

4. Activities

- ISF Members play an active role as students for solutions of food, agriculture and environment problems.
- ISF Members work in accordance with the common theme agreed upon at the International Students Summit for the whole year.
- ISF Members are expected to present the results of the previous year’s activity and decide on the common theme for the following year.

5. Participating Universities

- | | |
|--|---|
| ○ Universidade de São Paulo, Brazil | ○ The University of British Columbia, Canada |
| ○ China Agricultural University, China | ○ Bogor Agricultural University, Indonesia |
| ○ Tokyo University of Agriculture, Japan | ○ Kyungpook National University, Korea |
| ○ University Autonoma Chapingo, Mexico | ○ Mongolian State University of Agriculture, Mongolia |
| ○ Wageningen University, Holland | ○ The State Agriculture University of La Molina, Peru |
| ○ University of the Philippines Los Baños, Philippines | ○ National Chung-Hsing University, Taiwan |
| ○ Kasetsart University, Thailand | ○ Michigan State University, USA |
| ○ Hanoi Agricultural University, Vietnam | |

6. Secretariat

Secretariat of International Students Forum is set up at NODAI Center for International Programs, Tokyo University of Agriculture to take care of related administrative matters.

November 17, 2002
Tokyo, Japan

Establishing Global Network for Environment, Food and Agriculture (Global NEFA)

Since 2001, the International Students Summit (ISS) has been the venue for student discussions on relevant global issues on food, agriculture and environment. Due to the call for a students' network as documented in the adopted "Tokyo Declaration" and "Action Plan", the International Students Forum (ISF) was established in 2002. In total, there have been more than 400 student-participants from around the world. Most of us have already graduated and are now part of the working society. Using the knowledge and experience we gained in the ISS, we are now playing an active role in different fields in various countries. However, there have been limited opportunities to meet and exchange information among ourselves. Therefore, we have established the "Global Network for Environment, Food and Agriculture (Global NEFA)" as an alumni association of ISS/ISF.

Objective

Based on the adopted "Tokyo Declaration" and "Action Plan", the organization aims to contribute to the sustainable development of the international society.

Membership

Membership is initially open to all past ISF members or ISS participants who agree to the objectives of the organization. Other interested persons can join the organization through a recommendation of members.

Activities

- Manage the website and mailing list
- Provide information related to employment and graduate study opportunities for students
- Organize study meetings, symposiums, and similar activities
- Promote information exchange
- Hold annual general meeting

November 25, 2005
Tokyo, Japan

Mission Statement of International Students Forum (ISF)

ISF is an international network of students which encourages cooperation, discussion and research to aid in the sustainable development of food, agriculture and environment into the future. ISF allows students to use their knowledge and expertise in their field of study to promote collective action, which will result in the unity of our global food system and our environment.

We have recognized that in order to implement the objectives of the ISF within our respective countries and area, we must consider the following plans of action:

1. The ISF joint communique and mission statement must be translated into the language of the participants' countries of origin.
2. A clear explanation of the objectives and mission of ISF must be placed online.
3. A pamphlet including the objectives and mission statement of ISF should be circulated to the members of ISF, in the language of the participant's countries of origin.
4. A newsletter should be delivered regularly to past and present ISS participants. This newsletter would include updates from alumni and the ISF.

We have recognized that in order to improve the current structure of the ISS, the following ideas must be implemented:

1. Establish the ISF in each partner university.
2. Support of the ISS student presenters must be maintained, both through the partner universities and ISF-Japan.
3. Create new partnerships with universities, in order to represent population distribution around the world.
4. Promote ISS earlier in the school year, in order to generate a new participant base.

Through the implementation of these suggestions, we believe that the promotion of the sustainability of food, agriculture and environment will be improved.

November 30, 2007
International Students Summit
Tokyo University of Agriculture, Japan

Acknowledgement

Since its inception in 2001, the International Students Summit on Food, Agriculture and Environment (ISS) has grown into a dynamic platform for global dialogue and collaboration. This year, we proudly celebrate the 25th anniversary of ISS, marking a significant milestone in its long-standing commitment to addressing global issues related to food, agriculture, and the environment. Over the years, ISS has welcomed increasingly diverse participants, reflecting a broad range of backgrounds, perspectives, and experiences. The contributions of dedicated ISS Advisors have also brought valuable expertise and insights, enabling ISS to continuously evolve and meet the needs of its growing international community.

Through ISS, students are provided with valuable opportunities to share their activities, exchange ideas, and discover new perspectives beyond those available in their own environments. This spirit closely reflects Tokyo University of Agriculture's emphasis of Comprehensive Agricultural Science, in which all academic disciplines and faculties are interconnected through a shared commitment to agriculture and its related fields. By integrating diverse areas of study, from food production and environmental conservation to international development and life sciences, Tokyo NODAI strives to cultivate holistic solutions to global challenges. We hope that the knowledge gained and the relationships built through ISS will contribute to new pathways for global agricultural and environmental innovation toward achieving a sustainable society.

Our sincere gratitude goes to everyone who contributed to the successful organization of the 25th ISS. In particular, we are deeply grateful to the members of the ISS Advisors Committee, who not only evaluated and reviewed the manuscripts for the 25th ISS but also provided valuable guidance, suggestions, and ideas to ensure the event's efficiency and effectiveness.

We would also like to extend our appreciation to all presenters for contributing outstanding content in their respective fields of study, as well as to their Academic Supervisors for their continued support and guidance. Furthermore, we would like to thank the Tokyo NODAI Committee for Global Education (国際教育専門委員会) for providing valuable academic guidance to ISS participants.

We would also like to express our special appreciation to the chairpersons, general chairpersons, and all Tokyo NODAI student groups who have worked tirelessly in preparing for the 25th ISS.

Lastly, we extend our heartfelt gratitude to all audience members whose participation has made this event a meaningful, fruitful, and enriching experience for everyone involved.

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