

Maejo University hosts UC Graduate Forum on agriculture sustainability



By Leah Lyn Domingo
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Maejo University (MJU) is hosting the 8th UC Graduate Forum jointly organized with the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC), for which the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) serves as secretariat. Held on 18–19 May 2023 in the Furama Chiang Mai Hotel, the 8th UC Graduate Forum is themed “Future of Agriculture Sustainability: Organic Intelligent Agriculture.”



Dr. Weerapon Thongma, MJU president and a SEARCA alumnus, thanked UC for accepting MJU as a new member and enabling MJU to host the graduate forum.



At least 70 participants from Indonesia, Japan, Malaysia, the Philippines, Thailand, and Taiwan are attending the 8th UC Graduate Forum.

A total of 54 research papers will be presented during the plenary and parallel sessions on four subthemes, namely, Smart Agriculture Technologies: Precision agriculture, vertical farming, and innovative agri-products; Sustainable Agricultural Management: Biotechnology, agroforestry, agro-tourism, community-based tourism; Organic Intelligent Agriculture: A way towards ancient farming practices; and Digital Agro-Economy: BCG model, digital economics, and farm management. The 8th UC Graduate Forum will explore ways to improve agricultural production, particularly through the utilization of smart farming techniques.

Having convened at least 70 researchers, experts, practitioners, policymakers, and students from Indonesia, Japan, Malaysia, the Philippines, Thailand, and Taiwan, the graduate forum will facilitate the exchange of ideas, discuss cutting-edge advancements, and develop strategies to overcome the challenges facing food and agriculture systems.

Given the range of topics covered, the forum is also expected to enhance the participant's skills and knowledge on adapting to a changing environment and addressing environmental concerns.



During the opening program, Dr. Maria Cristeta Cuaresma, SEARCA senior program head for Education and Collective Learning Department, gave an overview of SEARCA's work and its role in the UC as well as the current membership, programs, and activities of the Consortium.

Dr. Glenn Gregorio, SEARCA director, congratulated MJU for successfully organizing the graduate forum. He noted how the graduate forum had become a regular UC activity, just like the UC Faculty Forum, which has gained traction and has been the hatching ground for new joint projects. "The 8th UC Graduate Forum promises to be a platform for knowledge sharing, collaboration, and innovation in the area of agriculture sustainability," Dr. Gregorio affirmed. Dr. Weerapon reiterated the significance of the forum's theme, given that humans consume agricultural products daily. He emphasized the importance of ensuring the safety of agricultural products, integrating innovation "in the local wisdom" of communities, and ensuring that new technologies and innovations are affordable to local people. As he declared the forum open, Dr. Weerapon reminded the participants of their responsibility to serve society and contribute to the greater good and positive change.

LevelUPHEI AFAR grantee from VSU conducts seminar series on sustainable agricultural production, assessment, and agri-food systems

Ms. Crislin Cruz, a grantee-participant of the Leveling-Up Philippine Higher Education Institutions in Agriculture, Fisheries, and Natural Resources (LevelUPHEI AFAR) project organized a hybrid seminar series on sustainable agricultural production, assessment, and agri-food systems. Ms. Cruz, faculty-researcher at Visayas State University (VSU), led the event on 5 April 2023.



(L-R) Ms. Crislin B. Cruz, LevelUPHEI AFAR grantee and Dr. Marisel A. Leorna, NCRC-Visayas Director

The hybrid seminar series conducted with the National Coconut Research Center-Visayas (NCRC-V), saw over 40 participants from VSU faculty members, researchers, farmer beneficiaries, and students. Ms. Cruz invited Dr. Jose Bacusmo, former VSU president and Baybay city councilor, to discuss the role of good governance in sustainable agricultural production. Dr. Bacusmo outlined the essential attributes of effective local governance: relevance, inclusiveness, fairness, efficiency, and accountability. He emphasized the importance of transparent and ongoing communication between the local government, farmers, entrepreneurs, and markets to ensure a consistent supply of high-quality and reasonably priced produce. Moreover, he also stressed the critical need for inclusive and participatory governance.



Dr. Jose L. Bacusmo, former VSU President and Baybay City councilor.

Dr. Christophe Lesueur, manager of the Institute for Higher Education in Tropical and Sub-tropical Agri-food Sciences of Agro Montpellier Institute in France, joined the learning event online and talked about France's sustainable agriculture practices, impact assessment approaches, and changes toward sustainable agri-food systems. France utilized a participatory approach by creating schools and education systems to provide technical assistance and to showcase the latest scientific innovations to farmers.

Ms. Cruz also shared the challenges in assessing agricultural sustainability. After introducing sustainable development concepts, she drew attention to the challenge of addressing present needs while safeguarding future generations' requirements. Toward the end of her presentation, she introduced the SAFA (Sustainability Assessment of Food and Agriculture Systems) guidelines, created by the United Nations' FAO, as a valuable tool for evaluating agricultural sustainability.



The hybrid seminar series is part of Ms. Cruz's re-entry action plan, in line with her attendance at the Training-Workshop on Sustainability Assessment in Agricultural Production and Food Processing from 15–25 May 2022, at Krabi, Thailand. Kasetsart University (KU) in Thailand and L' Institut Agro of France organized the said training-workshop to equip the participants with capacity for sustainability assessment and to build their skills in data collection, survey, observation, investigation, and interview.

The Southeast Asian Regional Center for Graduate Study and Research Center in Agriculture (SEARCA) supported Ms. Cruz's participation to the training-workshop through the LevelUPHEI AFAR project with funds from the Philippine Commission on Higher Education (CHED). This project aims to upgrade the institutional capacities of the State Universities and Colleges-Association of Colleges of Agriculture in the Philippines, Inc. (SUC-ACAP, Inc.) and its 75 members through participation in activities organized by the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC) and its member universities. VSU is both a member of SUC-ACAP and UC.

All LevelUPHEI AFAR grantees from SUC-ACAP develop their re-entry action plans and execute them toward contributing to their home institution's development. SEARCA continuously offers grants through the project for mobility, research, benchmarking, internationalization activities, and attendance to training, workshops, conferences, and seminars.

Source: <https://sites.google.com/view/nrcr-visayas/news>

Philippine HEIs enhance practical bioinformatics skills through training in Thailand

Four delegates from Philippine universities, namely the Cagayan State University, the Nueva Vizcaya State University, the University of the Philippines Los Baños (UPLB), and the Visayas State University, participated in a training program focused on practical bioinformatics skills for plant and animal whole genome sequencing data. The training was organized by the Center for Agricultural Biotechnology (CAB) at Kasetsart University (KU) in Thailand and took place on 22–26 May 2023 at KU's Kamphaeng Saen campus. Their participation in the training was made possible through the support of the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Leveling-Up Philippine Higher Education Institutions in Agriculture, Fisheries, and Natural Resources (LevelUPHEI AFAR) grant.

The training, as outlined by CAB-KU, encompassed the entire bioinformatics workflow from data acquisition to its application in plant and animal breeding, as well as conservation research.



It offered a comprehensive curriculum that combined lectures with hands-on activities. Designed as a beginner's course, it catered specifically to biologists with limited experience in using command-line software but with an interest in genomic analysis.

Alongside the four LevelUPHEI AFAR project-sponsored delegates, two additional UPLB attendees were present, courtesy of the SEARCA Faculty Mobility Grants. In total, 18 participants from the Philippines, Indonesia, and Thailand attended the international training.

SEARCA, the University Consortium, and KU plan to conduct three more training programs in 2023. These programs include the UC Summer School, which will focus on the sustainability of agricultural systems in challenging environments, as well as specialized courses on aquatic animal nutrition and feed manufacturing. Additionally, another iteration of the training on practical bioinformatics skills will be offered. These activities will be open to universities affiliated with the State Universities and Colleges-Association of Colleges of Agriculture in the Philippines (SUC-ACAP).

NEUST faculty member explores research on renewable energy at IPB University during one-month attachment

A faculty member from the Nueva Ecija University of Science and Technology (NEUST) recently completed a one-month faculty attachment at the Institut Pertanian Bogor (IPB) from 1–30 May 2023. Engr. Melissa Medina, an instructor at NEUST's College of Agriculture, successfully secured the Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) Leveling-Up Philippine Higher Education Institutions in Agriculture, Fisheries, and Natural Resources (LevelUP HEI AFAR) grant to support her research and teaching capacity at her home institution. This grant aligns with her responsibilities as chair of the Agricultural Innovation Research and Related Project at NEUST.

During her attachment, Engr. Medina was hosted by the Department of Mechanical and Biosystem Engineering (TMB-IPB) at IPB, with Dr. Edy Hartulistiyoso, the head of TMB-IPB, as her mentor. For one month, she had the opportunity to observe various facilities and laboratories at IPB, such as the Agribusiness and Technology Park (ATP), Surfactant and Bioenergy Research Center (SBRC), Biogas Integrated Farming - PT. Swen Transfer Innovations, and the Agricultural Instrument Standardization Agency (BSIP). In these observations, she focused on technologies related to food processing, carbonization and briquetting, biodiesel production, miniplant factories and precision indoor farming, agricultural machinery, and infrastructure testing.



Engr. Medina's visit to these facilities gave her valuable insights into the best practices employed by IPB University, which she intends to apply in NEUST's Controlled Environment Agriculture (CEA), moringa processing, and primary coffee processing. Additionally, she attended graduate courses offered by the Department of Mechanical and Biosystem Engineering program, wherein she presented the agricultural status and mechanization development in the Philippines. She also participated in a webinar by Dr. Keishiro Hara on complexity and sustainability science organized by the 93rd ICO (International Collaboration Office)- IPB through e-IPB Talk.

Engr. Medina submitted an initial research proposal on renewable energy to IPB University for review. Her study focuses on harnessing widely known renewable resources, such as solar radiation and biomass, to develop coffee dryers. Since coffee is a priority commodity at NEUST, Engr. Medina aims to create a sustainable drying technology out of locally available materials.



The proposed project includes the development of a modified greenhouse rack-type mixed-mode coffee dryer and the evaluation of its performance in terms of drying capacity, efficiency, moisture reduction per hour, and power consumption. Ultimately, she envisions creating a prototype multi-layered mixed-mode coffee dryer that maintains coffee quality, reduces contamination, and minimizes drying costs.

SEARCA facilitated Engr. Medina's attachment at IPB University through the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC). SEARCA serves as the secretariat for UC, which counts IPB among its founding members. The funding for Engr. Medina's attachment was provided by the Philippine Commission on Higher Education (CHED) under its International Continuing Professional Education (ICPE) grant awarded for the LevelUPHEI AFAR project by SEARCA.



The Science and Art of Mushroom Farming with CLSU'S Dr. Renato G. Reyes



Dr. Renato G. Reyes, Professor VI and the Vice President for Academic Affairs of Central Luzon State University, Philippines, received the SEARCA Regional Professorial Chair Grant in AY 2022-2023 for his immense contributions to the field of Mycology. Dr. Reyes specializes in mushroom science and biotechnology, mushroom nutraceuticals, fungal ecology and taxonomy, and fungal plant pathogens. Most notably, he has authored the manual on the Philippine National Standard for Natural Ingredients titled "Standard for Edible Fungi and Code of Hygienic Practice for Mushrooms and the Code on Good Cultivation Practices for Mushrooms." Because of his extensive work in the field, Dr. Reyes is the leading mushroomologist in the country.

Working in the academe was not in Dr. Reyes' plan after he graduated from college two years before the EDSA Revolution. As a fresh graduate in the BS Agriculture program of CLSU, his thin stature became a source of insecurity to face students despite his outstanding academic credentials as a Cum Laude graduate. It was his research adviser and professor who encouraged him to be more confident and to enter the teaching profession. This nurturing and unconditional support enabled Dr. Reyes to make his mark in his current field. Before his current post as VP for Academic Affairs, he also served as the Director of the International Affairs Office and the Dean of the College of Arts and Sciences at CLSU.



For Dr. Reyes, teaching made him a better version of himself. The academe's culture of excellence, coupled with patience and service, guided him in transforming the lives of the youth into responsible citizens who play major roles in building a habitable community. Above all else, he wants to impart patrimony and a love for science to the youth. Dr. Reyes' continuing advocacy is on putting science into the art of mushroom farming and introducing innovations in the field. For mushroom science to be sustainable and relevant, it should always be research-oriented and people-centered. Dr. Reyes coined the term mushroom pharming in 2007 when he and his team developed innovative technologies for medicinal mushroom cultivation in the Philippines.

Dr. Reyes received his PhD in Forest Science at Tokyo University of Agriculture in Japan and after conducting his post-doctoral research fellowships at Michigan State University, USA; Takasaki University of Health and Welfare, Japan; and the German Research Center for Biotechnology (GBF) and the Technical University of Braunschweig in Germany, he focused on harnessing the economic potential of Philippine wild edible mushrooms, particularly the underutilized mushroom genetic resources. This scientific intervention made Philippine mushrooms known to the international scientific community. Dr. Reyes conceptualized and advanced an innovative approach for mushroom cultivation via mushroom pharming in the Philippines, which includes cultivating medicinal mushrooms for nutrient and climate change-sensitive agriculture. He also holds the intellectual property rights on the production of mushroom-based beta glucan using coconut water as a culture medium. Because of his efforts, the government, through the Philippine Council for Health Research and Development of the Department of Science and Technology (DOST-PCHRD), awarded CLSU as a Tuklas Lunas Development Center to focus its research on mushroom drug discovery.



As part of his SEARCA Regional Professorial Chair grant, Dr. Reyes introduced wild edible mushrooms through a public lecture on 6 March 2023 at his home institution. Discussing "Recent advances in the domestication and mykopharming of wild edible mushrooms in the Philippines for the bio-functional food industry," Dr. Reyes shared about the zero rice waste technology, which utilizes rice straw as the main substrate for cultivating edible mushrooms. Farmers commonly burn rice straws, and Dr. Reyes' study proposed a solution to this harmful practice. He talked about *Volvariella volvacea*, a popular mushroom in the Philippines that grows well in rice straw, banana leaves, water lily, and other cellulosic farm residues.



Pushing the boundaries with UPM's Dr. Helmi Zulhaidi Mohd Shafri

Dr. Helmi Zulhaidi Mohd Shafri is an Associate Professor and the Coordinator of the Remote Sensing and GIS Programme at the Department of Civil Engineering, Faculty of Engineering, Universiti Putra Malaysia (UPM). He previously served as the Head of the Department of Civil Engineering and the Deputy Dean of Postgraduate Studies at UPM. His excellent achievements in the field of agricultural innovation, specifically in remote sensing and geomatics engineering, afforded him the SEARCA Regional Professorial Chair Grant.

Assoc. Prof. Dr. Helmi's passion for teaching began at a young age. Growing up, he was always fascinated by how people learn and acquire new knowledge. He loved reading and learning new things and was always eager to share his discoveries with others. After completing his undergraduate studies in Land Surveying (Geomatics) at the Royal Melbourne Institute of Technology (RMIT) University in Melbourne, Australia, Assoc. Prof. Dr. Helmi decided to pursue a career in teaching and research at UPM. He subsequently earned his PhD in Remote Sensing at the University of Nottingham, United Kingdom after becoming a junior lecturer for first-year undergraduate students.

Teaching has made a profound difference in Assoc. Prof. Dr. Helmi's life as it helped him develop a sense of purpose and meaning. It has been a rewarding career and a personal journey of growth and self-discovery. As a lecturer, he had the privilege of becoming a part of his students' journey. He witnessed first-hand the moment a student finally understood a difficult concept or achieved a goal they never thought possible. Knowing that he played a small role in helping them is incredibly rewarding.

Throughout his career, Assoc. Prof. Dr. Helmi sees hard work, perseverance, adaptability, teamwork, communication, and lifelong learning as valuable lessons that the youth should imbibe. It requires a lot of dedication, patience, and hard work to achieve success. There are times when things don't go as planned, and it's easy to get discouraged and give up. Success is also not just about talent but putting in the time and effort required to achieve your goals. It is also important to become adaptable and open to change. Technology and trends constantly evolve, and it's essential to stay current, adapt to new developments, and become open to new ideas and perspectives. Collaboration and teamwork are also vital to achieving common goals. It's not just about working with colleagues and clients but also learning from them and benefiting from their diverse perspectives. Communicating complex ideas and concepts is likewise essential to success as well as staying curious and continuously learning.



Besides teaching, Assoc. Prof. Dr. Helmi considers his most significant contribution to be his research on remote sensing and machine learning for various agriculture, environmental, and geomatics applications. This research has the potential to impact many people's lives, particularly in his home country. Remote sensing technology allows data collection from the earth's surface using sensors on aircraft or satellites. This technology can monitor crop growth, detect disease, and measure soil moisture. Machine learning, on the other hand, is a method that uses algorithms and models to automatically identify patterns and make predictions from data. By combining these two fields, Assoc. Prof. Dr. Helmi's research enables the public to analyze large amounts of data and make predictions that can be used to improve agricultural practices and environmental management. As a result, it addresses some of the most pressing issues in his country. Agriculture is a critical sector in Malaysia, and improving agricultural practices can lead to food security and economic development. Additionally, Assoc. Prof. Dr. Helmi's research helps better understand and manage the environment. It can assist in predicting and mitigating the impacts of natural disasters and climate change, and it can help conserve natural resources.

In addition to its practical applications, Assoc. Prof. Dr. Helmi's research has pushed the boundaries of what is possible in his field. It has required him to think creatively, collaborate with other researchers, and use cutting-edge technologies. For Assoc. Prof. Dr. Helmi, it has been a challenging and rewarding experience.

As a recipient of the SEARCA Regional Professorial Chair Grant, Assoc. Prof. Dr. Helmi feels honored and grateful for the opportunity to continue his research and contribute to agriculture and food security. He hopes to continue his research by expanding to new regions, conducting more detailed and in-depth studies, and incorporating new technologies and methods. By doing so, Assoc. Prof. Dr. Helmi aims to generate new insights and knowledge that can improve the farmers' livelihood and the sustainability of food systems.

Assoc. Prof. Dr. Helmi also plans to use his award to support the professional development of researchers and practitioners by mentoring graduate students, providing training and workshops, and organizing research collaboration and networking opportunities. He also wants to engage with stakeholders and policymakers to promote the uptake and application of his research findings. Assoc. Prof. Dr. Helmi aspires to influence policymaking and decision-making to improve the sustainability of food systems.

As part of the SEARCA Regional Professorial Chair grant, Assoc. Prof. Dr. Helmi conducted a public lecture on the "Development of oil palm yield prediction model using advanced geospatial and machine learning techniques" on 22 March 2023 through UPM's Geospatial Information Science Research Centre (GISRC) Webinar Series. His lecture discussed the use of geospatial data and advanced machine learning techniques such as the deployment of the final model which were effective in predicting oil palm yield as per research results. Assoc. Prof. Dr. Helmi also shared the practical application of the model in a user-friendly web-based platform for stakeholders in the industry.

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