Invited Speaker: Dr. Lyda Hok, The Royal University of Agriculture, Cambodia

Title: Potential Extension Pathways for Sustainable Agricultural Intensification Practices in Cambodia: Farmer Fields and Secondary School Systems

Abstract: The further transformation of agriculture in Cambodia through the development of sustainable agricultural intensification practices has contributed to the improvement of agricultural productivity and soil health. The technology transfer process that involves the relationship between the knowledge providers and users significantly affects the adoption. Drawing on the experience of the Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN), the presentation highlights the extension mechanism to transfer agricultural research findings from researcher-managed plots to smallholder farmers in rural communities and secondary school students who engage in mini-agricultural technology parks serving as interactive learning and demonstration platforms on school campuses. These pathways could connect some missing gaps to move closer to resilient and circular smallholder farming systems by fostering the adoption of promising agricultural practices and establishing a coordination mechanism and extension systems for farmers and youth. This approach helps raise a new generation of agriculturally literate youth, future farmers, and qualified frontline extension agents to facilitate the smoother adoption of sustainable agricultural intensification practices.

Biography: Dr. Lyda Hok currently serves as the Dean of the Faculty of Agricultural Education and Communications as the Director of the Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN) at the Royal University of Agriculture, Cambodia. Holding a Ph.D. from North Carolina A&T State University, his career is dedicated to promoting sustainable agricultural intensification in Cambodia through research on soil health in conservation agriculture, the development of innovative extension pathways, and strengthening the capacity of frontline agricultural extension agents. He has directed and co-led numerous multi-stakeholder projects funded by various development partners.

Invited Speaker: Dr. Tabibul Islam, University of Tennessee, Knoxville, USA

Title: Dynamic Environmental Control Strategies for Resource-Efficient Controlled Environment Agriculture

Abstract: Controlled Environment Agriculture (CEA) enables year-round strawberry production but faces energy and resource challenges. We are exploring dynamic environmental control strategies to improve efficiency by examining the effects of light quality, photoperiod, temperature, and plant genotypes on growth and fruit quality. Our experimental data will train reinforcement learning models that drive AI for real-time environmental adjustments, optimizing plant performance and reducing energy use. By applying circular economy principles, such as energy recovery and sustainable inputs, this research aims to develop scalable, resource-efficient CEA systems that support sustainable, low-waste production for smallholder and commercial farms.

Biography: Dr. Tabibul Islam is an Assistant Professor at the Plant Sciences Department, UTIA. He is leading research to enhance the performance of fruit crops in controlled environment agriculture (CEA). By integrating plant physiology, biochemistry, molecular biology, and environmental management, he aims to optimize growth, enhance stress resilience, and improve resource-use efficiency for fruit crops. Furthermore, he is actively working on innovative biomaterials and the development of RNA interference (RNAi)-based biopesticides, with the potential to revolutionize crop production systems.

Invited Speaker: Dr. Dale Manning, University of Tennessee, Knoxville, USA

Title: The Fiscal Impact of Biodiversity Loss and a Pathway for Conservation Finance

Abstract: The Global Biodiversity Framework seeks to leverage private finance to achieve conservation goals. Therefore, identifying instances where conservation investment can generate positive returns for private investors is an imperative. Here, we investigate how natural asset changes impact municipal bond yields by examining the effects of sudden bat population losses on the bonds of rural counties. Bats provide pest control services for farmers. Bat population losses reduce agricultural land tax revenues, driving up bond spreads in affected counties by 11.5 basis points, a 27% increase. This result implies that conservation investors purchasing bonds with a principal value of $1 million and restoring bats could expect bond prices to increase by $13,855. This payoff can potentially cover conservation costs without new government actions.

Biography: Dr. Dale T. Manning is an Associate Professor of Agricultural and Natural Resource Economics at the Howard H. Baker Jr. School of Public Policy and Public Affairs at the University of Tennessee, Knoxville. His research focuses on natural resource and environmental economics, development economics, and the intersection of economic policy with sustainable resource management. Dr. Manning joined UT in 2024 after more than a decade at Colorado State University. He uses optimization methods, integrated modeling, and econometrics to investigate topics such as the fiscal impacts of biodiversity loss, agricultural resilience to climate change, and the economics of groundwater management.

Invited Speaker: Dr. Sathish Samiappan, University of Tennessee, Knoxville, USA

Title: Evidence-Based Land Conservation Framework Using Multi-Criteria Acceptability Analysis

Abstract: Dr. Sathish Samiappan will present Conservation Prioritization Tool (CPT), developed to support data driven land conservation decisions based on openly available GIS and remote sensing data. This project was funded by the U.S. Fish and Wildlife and this tool was developed based on a co-production framework. This web-based geospatial tool utilizes multi-criteria decision analysis (MCDA) to evaluate areas for land conservation based on ecological and socioeconomic priorities identified by stakeholders in the Gulf of Mexico coastal region. The CPT allows users to weight conservation goals and data measures, providing a flexible and transparent framework for strategic land conservation planning. It is designed to be user-friendly and accessible online, requiring minimal prior GIS knowledge.

Biography: Dr. Sathishkumar (Sathish) Samiappan is an Associate Professor in the Department of Biosystems Engineering at The University of Tennessee at Knoxville. He has a Ph.D. in Electrical and Computer Engineering from Mississippi State University, where he also held positions as an Associate Research Professor, Assistant Research Professor, and Postdoctoral Associate at the Geosystems Research Institute between 2014 and 2024. His research interests include the application of remote sensing, artificial intelligence, and machine learning to various fields such as agriculture, environmental monitoring, and wildlife management.

Invited Speaker: Mr. Asher Wright, Farm Director of Caney Fork Farm, Nashville, Tennessee, USA

Title: Regenerative Agriculture in Middle Tennessee

Abstract: This presentation will explore the spectrum of regenerative agriculture in the United States through the lens of a 550-acre regenerative organic farm in Middle Tennessee. Small bioregional farms play an important role in food system resilience and food sovereignty by decentralizing and decommodifying food production in a way that puts power back into the hands of farmers and regional communities.

Biography: Asher Wright has been working in regenerative agriculture since 2005, with a heavy focus on diversified crop and livestock systems. He loves all things related to agriculture and food systems. His career experience began at the agriculture program at Warren Wilson College, which led him to work on farms around the US and Central and South America. After his travels, he received an M.S. in Animal Science from Clemson University. While at Clemson, he researched forage-finished beef, studying both animal performance and the interface between meat quality and human health. Asher has a diverse career background working in both for-profit farm businesses and agriculture education. He is also an Accredited Professional with the Savory Institute. Asher is particularly excited about the role that Caney Fork Farms can play in the world and the opportunity to be a part of a team working to make a strong business case for regenerative agriculture through the integration of research and production agriculture.