



Martín Acreche, Ph.D.

Independent Researcher at CONICET (National Scientific and Technical Research Council of Argentina). Researcher of INTA EEA Salta.

Country: Argentina

Title: “Toward a low carbon agriculture in sugarcane”

Abstract: Sugar cane is a crop with high potential to replace non-renewable energies. However, the current production systems of this crop put this usefulness at risk since they prioritize productivity to the detriment of the crop's sustainability. The main problems associated with traditional management practices are the high amount of greenhouse gases emitted and the decrease in soil organic carbon. Our lines of study aim to generate information on the effect of the main sugarcane management practices on greenhouse gas emissions and the stock of carbon in soil. In addition, we propose mitigation alternatives to traditional practices.

Biography: Martin Acreche is an agricultural engineer graduated from the Faculty of Natural Sciences of the National University of Salta, Argentina, in 2002. He has a PhD from the University of Lleida, Spain, with a thesis topic of "Eco-physiological bases of genetic gains of bread wheat yield in Mediterranean Spain during the 20th century" in 2009. He is a researcher repatriated to INTA by the PIDRI Program of Argentina in 2009. Since 2012, he is a CONICET Researcher (currently in the Independent category). He works at EEA Salta of INTA in crop ecophysiology of NOA crops with an emphasis on their sustainability. During his career, he has published more than 30 scientific articles, most of them in high-impact international journals, two book chapters, and numerous presentations at national and international conferences.

Email: acreche.martin@inta.gob.ar



Vanina Ambrosi, Ph.D.

Researcher at INTA (National Institute of Agricultural Technology). Assistant Professor Faculty of Pharmacy and Biochemistry, University of Buenos Aires.

Country: Argentina

Title: “Use of a bovine by-product as a food additive”

Abstract: During bovine slaughter, large volumes of by-products are obtained. The efficient use of these, is important for the profitability of the meat industry. Peptides derived from the hydrolysis of different by-products of bovine origin (blood, bones, etc.) have bioactive or techno-functional properties such as antihypertensive, antioxidant, antimicrobial capacity, among others. Therefore, these peptides have the potential to be used in the formulation of foods as functional additives. We evaluated the production of protein hydrolysates with antioxidant capacity from bovine by-products which could replace the synthetic additives commonly used in food. Our results provide an alternative for the recovery of by-products that would optimize the sustainability of the Argentine beef industry.

Biography: Dr. Vanina Ambrosi serves as a researcher at the National Institute of Agricultural Technology in the Biochemistry and Nutrition Area of the Institute of Food Technology. She received her Ph.D. from University of Buenos Aires, and her Food Engineer and BSc in Biotechnology from the National University of Quilmes. Dr. Ambrosi research focus on technologies for obtaining food and bioproducts utilization of residues, discards and agri-food and agricultural by-products; food processing techniques to obtain hypoallergenic products; and immunochemical & molecular techniques for fresh and processed agri-food authentication and allergen detection. She participates in various INTA, PICT and UBA Projects. Dr. Ambrosi teaches

undergraduate courses at the National University of Morón, and undergraduate & postgraduate courses at the University of Buenos Aires. She is a Member of the Interinstitutional Food Allergens Platform and participates at the INTA Food Allergens Platform.

Email: ambrosi.vanina@inta.gob.ar- website: <https://inta.gob.ar/personas/ambrosi.vanina>



Brunno Basso, Ph.D.

Foundation Professor, Department of Plant, Soil and Microbial Science, Michigan State University

Country: United States of America

Title: “Enabling Circularity in Grain Production Systems”

Abstract: The presentation discusses how digital agriculture can enhance circularity in grain production systems by increasing the efficiency of natural resources and agronomic input to increase profitability and reduce environmental impacts. Novel sets of practices and working methods will be introduced as case study to show improved circularity and resilience of agricultural crop production systems.

Biography : Bruno Basso is cofounder of CIBO Technology, a Flagship Pioneering company. He is university foundation professor in the Department of Earth and Environmental Sciences and W.K. Kellogg Biological Station at Michigan State University. He is a member of the Board

of Agriculture and Natural Resources of the National Academies of Science, Engineering and Medicine. He is a Fellow of the American Association for the Advancement of Science

Email: basso@msu.edu



Esteban Barelli, Ph.D.

Leader at Economic Division, Research and Development, CREA

Country: Argentina

Title: “Circular Economy at CREA: from concept to application”

Abstract: The presentation introduces how the CREA Movement is contributing to sustainable production throughout the Circular Economy in agricultural activities. The CREA Circular Economy Project is a collaborative initiative with the Embassy of the Kingdom of the Netherlands in Argentina. This Project aims to generate data and information for agricultural actors as well as specific new sustainable finance tools.

Biography: Esteban Barelli is part of the CREA Research and Development Unit as Leader of the Economics Area and Leader of the CREA Circular Economy Project. He is a researcher in the Research Quantitative Methods Center Apply to the Economy and the Management (Faculty of Economic Sciences - University of Buenos Aires). He is an agribusiness consultant.

Email: ebarelli@crea.org.ar



Martha Bargiela, Ph.D.

Professor in Analytical Chemistry in the University of Buenos Aires, School of Agronomy.

Country: Argentina

Title: Anaerobic Co-Digestion of Waste As an Environmental Alternative for Improvement of Biogas Production and Digest

Abstract:

Biography: Dr. Bargiela work focuses on water quality, the evaluation of contamination and degradation of land and rivers through indices, the relationship of contaminants in water with the solid phase, especially with the organic matter of soils and sediments, and the degradation of organic matter from various wastes from different activities to obtain biogas. Her main study area is in the Matanza Riachuelo River Basin in Buenos Aires. She has published two books and various book chapter, published many journal articles. She has participated in international projects on land degradation assessment, as guest speaker at international seminars, in editorial boards for book publications, congress evaluation committees, and various journals group of reviewers. She teaches courses in Applied Chemistry, Pollution Chemistry and Toxicology, and Water and wastewater treatment for undergraduate and postgraduates students.



Patricia Alina Bres, M.S.

Researcher, Institute of Microbiology and Agricultural Zoology (IMyZA), National Institute for Agricultural Technology, Argentina.

Country: Argentina

Title: “Use of Livestock Manure for the Production of Biogas and Digestates.”

Abstract: Anaerobic digestion represents one of the most viable alternatives to transform livestock manure into two products of great added value, biogas, a renewable energy source, and a semi-liquid effluent called digested, with great potential to be used as biofertilizer. However, most of the biogas plants installed have focused on the energy recovery of biogas, but not on the use of digested. There is a great lack of knowledge about the properties of digested in our country, about the proper management and application techniques to minimize environmental risks. One of the great challenges faced by these biogas plants is to find technological alternatives that increase the valorization of the digested, from an agronomic, economic and environmentally sustainable point of view.

Biography: Degree in Environmental Analysis (2005) from the National University of San Martin (UNSAM). Since 2005 he has worked in the Waste Transformation Laboratory, specializing in the anaerobic biodigestion of organic waste, such as the organic fraction of (Bres continued) household waste, poultry waste and pig effluents. She performs anaerobic biodegradability tests of different inocula and organic waste, in reactors with bach feed. It evaluates the efficiency of the anaerobic process in semi-continuous feed reactors, as well as studies the quality of the effluents generated during the degradative process.

Email: bres.patricia@inta.gob.ar



Roberto Oscar Bisang

Professor of Agriculture Economy (Buenos Aires University – Economy School), Senior Researcher of the Interdisciplinary Institute of Political Economy (National Research Council of Science and Technology).

Country: Argentina

Title: “Structural change and productive performance: The added value of chain agribusiness in Argentina”.

Abstract: Throughout the last few years, several manufactures related to land use show a remarkable performance in production, technology and international trade. Agriculture was organized based on three pillars: i) agriculture under contract; ii) the widespread adoption of a new technological package; and iii) growing advances in the use of industrial inputs in the productive function. Said consolidation meant both a massive adoption of the new techno-productive model and an initial expansion of the agricultural frontier. In a similar way, cattle, pork and poultry modify their structure, behavior and performance. Additionally, the first industrial phase grew quickly (biofuel, soybean crushing, maize fermentation and similar others). As a result, a lot of relevant aspects of traditional agriculture were affected: localization, market concentration, and intra-activities balance. Using the value chain approach, adapted to national account systems, the report aims to outline these structural changes, and their initial consequences on behavior and performance.

Smith Biography: Roberto Bisang has a degree in Economics from National Rosario University (1977) and a Master of Science from the Center for Macroeconomic Studies (1983) and was Visiting Fellow of the Science Policy Research Unit (SPRU) of Sussex University (1988). He is a Professor of Agricultural Economics and Senior researcher (A1 category) of the Interdisciplinary Institute of Political Economy (IIEPD) of the Faculty of Economic Sciences UBA / CONICET; Coordinator of the National Agricultural Census and National Director of Statistics of the Primary Sector of INDEC (2017/9); Specialist in Industrial Organization, Technology and Sectoral Analysis and Consultant for various international organizations (ECLAC, World Bank, IDB, PAHO, WHO, UNIDO, FAO), national (MINAGRO, INTA, MINCYT) and private companies.

Email: robertobisang@gmail.com



Roberto Mario Bocchetto, Ph.D.

Associate Professional of INTA (National Institute of Agricultural Technology). Former National Director - Former Project Director: “Bioeconomy of Northern Argentina”.

País: Argentina

Title: “The Bioeconomy as a Vector for Sustainable Development: Lessons from Institutional Life.”

Abstract: This presentation assumes an expanded vision regarding the insertion of circular bioeconomy into a sustainable national and regional development model that is an instrument of productive transformation and structural change that promotes economic, social, environmental and territorial cohesion. In Argentina, a political divergence was raised on the development strategy based on the role assumed by the agrarian and industrial sectors. The result was a pendular economy and an unfinished industrialization, which resulted in a trade deficit of manufacturing of industrial origin underlying the substitutive industrialization of imports and the low exportable value of manufacturing of agricultural origin, accompanied by the loss of energy supply. The circular bioeconomy in conjunction with science, technology and innovation (STI) opens the opportunity to overcome this divergence in the search for sustainable development, exploring biodiversity and using sustainably the whole spectrum of renewable biological production at the regional and territorial level of the country. The main conditioning for balanced regional development is due to the structural heterogeneity, (Bocchetto continued) different socio-productive dynamics and the degree of socio-economic performance that occurs between the central grassland region (*Pampeana*) and the other regions of the interior of the country (Norte Grande, Cuyo and Patagonia). Structural change requires the correction of imbalances in the interregional development of the country starting from the modification of the asymmetric pattern of regional accumulation and territorial equity. A basic hypothesis emerges: if the circular economy is to be functional to this challenge, it will be necessary for its progress to be consolidated in an integrated strategy with territorial development at the country level and as far as possible in the supra-regional sphere of the Southern Cone. In this exhibition, the stages, searches and conflicts of integration between circular bioeconomy and territorial development will be analyzed through the experience of the National Institute of Agricultural Technology (INTA) that covers the country, regions and territories, with identity functions focused on research (R&D) and the extension/transfer of technology. The main

conclusion is that emerging challenges require definitions and agreements that are consolidated as State policies and a new institutionality adapted to solve them in changing contexts.

Biography: Roberto Bocchetto, is an agronomic engineer at the National University of Mar del Plata, Master of Science in Agrarian Economics from the Graduate School for Agricultural Sciences of the Argentine Republic; Master of Arts in Economics and PhD in Agricultural Economics from Michigan State University, USA. He currently serves in INTA as Associate Professional with the role of Advisor in organization and management of institutional innovation. Positions held: Director of the MINCyT/BIRF Project: "Bioeconomy of Northern Argentina" - INTA-INTI-UNNE-UNSa-UNSE Consortium (2018-2021); Coordinator of the Agroindustrial Public Management Residency Program (postgraduate) and the study team on: "Development, industrialization and convergence field-industry" – Secretary of Agriculture, Livestock and Fisheries (2015); Director of the MINCyT/BIRF Project: "Studies of the Argentine Agro-Industrial Sector" - Consortium INTA-UNL-Grupo REDES-Fundación Banco Credicoop (2011-2013); Regional Coordinator of the Regional Platform for Institutional Innovations for the Development of PROCISUR (2009-2014); INTA National Director (2003-2007); Executive Secretary of PROCISUR (1995-2003); Director of PROCISUR/IDB Project: "Organization and management of agri-food and agro-industrial technological integration in the expanded Mercosur - Global Project" (1999-2001). He worked as an International Expert on FAO, UNDP and IICA in the Integrated Rural Development Programs of Northeast and Northwest Brazil (1985-1992).

Email: bocchetto.roberto@inta.gob.ar



Sylvie M. Brouder, Ph.D.

Director of the Purdue Center for Global Food Security, Professor and Wickersham Chair of Excellence in Agricultural Research, Purdue University

Country: United States of America

Title: “Developing a Purpose-Driven Research Agenda for Climate Smart Agriculture.”

Abstract: In June the US House Agricultural Committee convened a full hearing on “The Role of Climate Research in Supporting Agricultural Resiliency” for which my testimony was invited on behalf of the American Society of Agronomy and its sister societies. My written testimony addressed research needs to advance agricultural resilience in a changing climate with a particular focus on the current status of and challenges associated with achieving open data, a critical first step to capitalizing on the opportunities and efficiencies afforded by the host of new “e-sciences” tools and technologies. The full panel discussion and follow-on meetings have highlighted both the bipartisan interest in supporting research to advance agriculture as a “natural solution” to climate change and the need for Agronomy and collaborating disciplines to chart a purpose-driven pathway for efficient use of current and future funding. My presentation is intended to spur discussion on the overall research agenda as well as ethical hazards scientists may face in advocating for systems, performance metrics, and models.

Biography (Brouder): Sylvie M. Brouder is a professor in the Department of Agronomy and Director of the Center for Global Food Security at Purdue University. Her research addresses nutrient stewardship in agricultural landscapes and application of emerging digital tools and novel statistical approaches to improve data use for evidence-based recommendations and policy in a changing climate. She recently served as president for the American Society of Agronomy (ASA) where she has worked to advance an array of open science and data initiatives. She also serves on the Science Advisory Board for US Environmental Protection Agency. She is also Director of the Water Quality Field Station, a long-term, in-field laboratory and Purdue Core Facility, a Fellow of ASA and AAAS and a Purdue Wickersham Chair of Excellence in Agriculture Research. Her current research projects are funded by USDA and NSF and focus on optimizing multi-functional agricultural lands and synthesizing new research data with legacy and private data into recommendation frameworks.

Email: sbrouder@purdue.edu



Martín Bruno, Ing. Agr.

Doctoral scholarship holder at CONICET (National Scientific and Technical Research Council of Argentina) and INTA (National Institute of Agricultural Technology of Argentina).

Country: Argentina

Title: “Dynamics of the Generation of Vegetable Waste in Fruit and Vegetable Wholesale Market in the Metropolitan Area of Buenos Aires (AMBA): Alternatives for its Comprehensive Management.”

Abstract: Fruit and vegetable wholesale market are an important element in the food trade network of the AMBA, providing a logistic support that allows absorbing large volumes of products and placing them fast. As part of their activity, considerable volumes of discards are generated daily, which are mainly unmarketed surpluses, making the markets strategic spaces for the strengthening of waste reduction and food ordering in the AMBA. The following work aims to understand the processes of organic solid waste (OSW) generation and food loss in the AMBA fruit and vegetable concentrator markets from a multidimensional perspective. It is expected to be a contribution (M Bruno continued) to enhance the social role of fruit and vegetable wholesale market in the AMBA and collaborate to generate experiences of food donation and integrated waste management, with positive impacts on the economic, social, environmental and health dimensions.

Biography: Martín Bruno is an INTA-CONICET doctoral scholarship holder, completing his doctorate at the Universidad Nacional de La Plata (UNLP) under the title of “Dynamics of the generation of vegetable waste in fruit and vegetable wholesale market in the metropolitan area of Buenos Aires (AMBA): alternatives for its comprehensive management”. He has publications in scientific journals as main author and co-author, oriented to food loss and waste, urban solid waste (RSU), environment, supply markets, innovation in production systems and rural development.

Within INTA, it is part of the Disciplinary Project (PD-L04-I123) "Rescue of food, use of by-products, residues and discards of agro-bioindustry for food use and added value", the Specific Project (PE) I173 of " Marketing and consumption of Family Farming products", the “Loss Prevention Network

(harvest and post-harvest) and Food Waste” and the “Regional and Territorial Development Program by Thematic Area”, continuing its research on organic waste generated by the fruit and vegetable wholesale market of the AMBA.

Email: martin.bruno@inta.gob.ar



Shawn Robert Campagna, Ph.D.

Professor, Department Head, Department of Chemistry, University of Tennessee

Country: United States of America

Title: “Metabolomics Investigations of Environmentally Relevant Bacterial Consortia.”

Abstract : Recent advances in liquid chromatography – mass spectrometry – based metabolomics have furthered understanding of metabolism in a variety of systems. Not only can such techniques be used to discover biomarkers for the physiological state of the system, they can also be used to probe the global metabolism of a sample by providing information on the concentration of thousands of molecules (I.E. the metabolome) from a single sample. Several vignettes studying the metabolism of bacterial consortia from aquatic and soil ecosystems will be discussed. These data will highlight the benefit of including measures of the physiology of microorganisms in environmental studies.

Biography: Dr. Campagna completed his B.S. in Chemistry at North Carolina State University in 2000 and conducted research with Prof. Jonathan S. Lindsey on the chemical synthesis of bacterial chromosomes. He received his Ph.D. from Princeton University in 2006, after working with Prof. Martin F. Semmelhack on a joint project with Profs. Bonnie L. Bassler and Frederick M. Hughson to characterize the chemical properties of an inter-species bacterial signaling molecule, autoinducer-2. Dr. Campagna then performed post-doctoral fellow research with Prof. Joshua D. Rabinowitz at the Lewis-Sigler Institute for Integrative Genomics at Princeton University where he developed mass spectrometric methods for the identification of novel biochemical pathways and natural products from whole cell extracts. He joined the Chemistry Department at UT Knoxville in August 2007 and

became a full professor in 2017. Dr. Campagna is an expert in chemical biology with a focus on metabolomics and lipidomics, and he has published over 110 publications in his independent career.

Email: campagna@utk.edu



Danielle Julie Carrier, Ph.D.

Department Head Biosystems Engineering and Soil Science, University of Tennessee, Knoxville

Country: United States of America

Title: “Overview of the journal ACS Sustainable Chemistry and Engineering.”

Abstract: ACS Sustainable Chemistry and Engineering is a scientific journal devoted to developing and promoting sustainable chemistry and engineering processes. Carrier is associated editor and manages manuscripts that are centered on biorefineries, especially those that embrace circularity principles. Cascade processes and a multiproduct valorization of biomass, development and exploration of extraction, fractionation and separation technologies that are mindful of upstream and downstream operations are priorities for this journal. As consumers are critical to the adoption of circularity principles, integration of their preferences and habits as it affects processing sustainability is also an angle that this journal wishes to adopt.

Biography: Danielle Julie (goes by Julie) received her BSc in Agricultural Engineering in 1984, her M Eng in Chemical Engineering in 1986 and her PhD in Chemical Engineering in 1992, all from McGill University in Montreal, Canada. From 1992 to 1994, she did postdoctoral work at the University of Leiden in The Netherlands and from 1994 to 1996 at the Plant Biotechnology Institute in Saskatoon, Canada. Julie has been faculty since 1996, first at the University of Saskatchewan in Bioresource Engineering (Saskatoon, Canada) until 2000, then from 2000 to 2016 at the

University of Arkansas (Fayetteville, Arkansas) in the Department of Biological and Agricultural Engineering. She was promoted to Professor in 2009. While at the Universities of Saskatchewan and Arkansas, her research program was focused on the extraction of carbohydrates and phytochemicals from biomass, (Carrier continued) such as milk thistle, poplar, pine and sweetgum. She was particularly interested by pressurized hot water and by dilute acid extractions, such that these unit operations could be coupled to existing biochemical biorefinery processing technology or pulp mill operations. She has published 99 peer-reviewed papers and has garnered more than \$7 million for her research program. She has mentored over 20 graduate students, 4 postdocs and 15 undergraduate honors theses. She has served on over 30 National Science Foundation and United States Department of Agriculture scientific panels. Since April 1, 2016 she is serving as Professor and Head of the Department of Biosystems Engineering and Soil Science at the University of Tennessee (Knoxville, Tennessee), a department with 360 undergraduates, 35 graduate students, and 28 faculty. Since 2016, she is associate editor for *ACS Sustainable Chemistry and Engineering* and has served from 2019 to 2022 on the American Society of Agricultural and Biological Engineers (ASABE) Board of Trustees.

Email: dcarr1@utk.edu



Alfredo Caprile

Team Leader of the Low Carbon & Circular Economy Business Action

Country: Argentina

Title: EU Program Low Carbon and Circular Economy Business Action (LCBA): supporting companies to close cleantech business deals and reduce carbon footprint

Abstract: The LCBA is a doing-business platform funded by the European Union (EU) to facilitate exchanges between LATAM businesses with environmental sustainability problems and technology solution providers from the EU. Transforming low carbon technology demands (Caprile continued) into effective sales contracts. This business-driven initiative aims to promote the principles of the European Green Deal and Paris Climate

Agreement and enhance the sustainability transition of LATAM companies to a low carbon and circular economy via the internationalization of EU SMEs providers supporting innovation & sustainability of local counterparts and increase the competitiveness of Argentinian, Brazilian Chilean and Colombian companies thanks to green technology transfer. Its goal is to facilitate the signature of business contracts between EU technology providers and LATAM buyers in three phases: Phase 1: Mapping: Identifying cleantech business opportunities in Argentina, Brazil, Chile and Colombia; Phase 2 Matching Connecting LATAM buyers with EU SMEs green technology suppliers delivering free consultancy services to the facilitate the conversion of joint business concepts with truly potential environmental impact into business contracts

The LCBA LATAM program started in September 2020 and is due to end by September 2023 together with two other sister programs that operate in Mexico and Canada. To date LCBA LATAM has been able to identify 580 business opportunities and recruited 589 EU technology providers, mobilized more than 11,000 participants, and held over 1,000 business meetings. As a result, 146 joint business concepts have been supported of which 113 have already granted with free technical assistance services. LCBA LATAM team is still recruiting companies and projects to help them both to close international business and contribute to reduce carbon footprint.

Biography: Alfredo Caprile has more than 30 years of international experience in providing financial and economic advice on projects and policies to the public and private sectors in developing countries. He is an Industrial Engineer and Mechanical Engineer from ITBA and has an MBA from Cornell University in Ithaca, New York. His consulting work has focused on the evaluation and financing of energy and infrastructure investments and for the last 15 years also on issues related to GHG mitigation and adaptation, climate change and climate finance. Throughout his career, he has advised governments and private sector clients in 25 countries in the Latin American and Caribbean, African and Pacific regions. From May 2018 to August 2021, he served as Head of International Technical Assistance for the Energy Efficiency project in Argentina financed by the European Union. He is currently Team Leader of the Low Carbon & Circular Economy Business Action project financed by the European Union, which consists of a business platform to facilitate commercial exchange between companies with environmental and economic sustainability challenges from Argentina, Brazil, Chile and Colombia and solution providers. EU technology.



Néstor Caracciolo, Ph.D.

Senior Researcher at FIUBA (University of Buenos Aires, Faculty of Engineering. Professor and director of LaQuiAmCenter (Environmental Chemistry Laboratory, FIUBA)

Country: Argentina

Title: Low-Cost Treatment Reactors Design for Low Income areas: Copper Sorption on Dolomite in a Fixed Bed Tubular Reactor

Abstract: The contamination of water by heavy metals is becoming a serious health and environmental problem worldwide, being one of the biggest challenges of our time. Heavy metals such as Copper, Nickel, Zinc, or Lead are named by the Environmental Protection Agency as "priority pollutants" due to their toxic effects. Sorption is an effective method for the removal of heavy metals from aqueous solutions. The main disadvantage of the sorption process is the high cost of the adsorbent material, which can further increase the price of wastewater treatment. The use of abundant natural materials such as dolomite offer profitability and environmentally friendly technologies; we use a continuous fixed-bed system. We diagnose the type of flow inside the reactor by applying the axial dispersion module; to do this, we operated the reactor with small glass spheres that did not adsorb the metal, recording the concentration at the exit through a spectrophotometer.

Biography: Dr. Caracciolo has a Ph.D in Chemical Engineering from the University of Buenos Aires. His doctoral dissertation was titled "Use of Polymeric Dispersions in reactors for Industrial Effluents Treatment". He is a researcher at the University of Buenos Aires in the Chemistry Department. 2019-2020 Member of the Scientific Advisory Board of the 15th Conference on Sustainable Development of Energy, Water and Environment Systems. Cologne, Germany. Member of the Organizing Committee and the Scientific Committee of the 2nd Latin American Conference (2020) on Sustainable Development of Energy, Water and Environment Systems. Organized by SDEWES Centre, University of Zagreb and University of Lisbon. Buenos Aires, February 2020. 2019-current Member of the Curricular Commission of Industrial Engineering (FIUBA). Current Director of the Environmental Chemistry Laboratory (LaQuiAm). He directed the 2018 Project UBACYT: "Development of low-cost reactors for water treatment"; 2017 University Extension Project: "Contributions for intervention in housing improvement in the context of environmental pollution." He has been faculty at the University of Buenos Aires since 2012. In 2018-2019 Member of the project "Cooperativism and Social Economy at the University": "Healthy Water in pursuit of socio-environmental sustainability in Wichi Communities of northwestern Formosa with their schools". INAES, Education Ministry, University Policies Secretary. Supervised theses: 3 doctoral theses in progress, 7 completed master's theses and 7 completed bachelor's theses. 8 patents filed, 7 in Argentina and 1 in Chile, 6 of them transferred to the industry. Participation in 5 book chapters, 20 articles in national and international referred magazines, 25 conference proceedings with reference. Presentations at conferences: Nationals: 40, Internationals 61.

Email: ncaracciol@fi.uba.ar – website: www.fi.uba.ar



Chien-Fei Chen, Ph.D.

Research Associate Professor and Director of Energy and Environmental Justice, Institute for a Secure and Sustainable Environment (ISSE), University of Tennessee, Knoxville

Country: United States of America

Title: “The Social-Technological Approach to Examining Energy Justice and Renewable Technology Adoption.”

Abstract : Dr. Chen will present micro and macro-level analyses in two studies to explore the interconnected factors of social-psychological, economic, behavioral, and policy factors influencing solar panel adoption in the United States. At the micro-level, the first part of the presentation will focus on the online survey results from 2300 residents in the southeastern states of the United States. This study analyzes the types of motivations (environmental or financial) to adopt solar panels in various conditions relating to social, economic, and environmental factors and the influence of social-psychological and household characteristics, racial diversity, demographics on solar adoption in the U.S. Specifically, we analyzed the customer-utility relationship and its impact on household solar panel adoption. The variables include trust in utilities, satisfaction with current electricity prices, data privacy concerns, and demand response (DR) program acceptance. The second part of the presentation will present a big data result at the census tract level using the Deep Solar Data and census survey in the U.S. The analyzed variables include sociodemographic, location and racial diversity, household characteristics, energy consumption, electricity cost, energy policy (net metering, tax incentive programs), solar adoption suitability, climate factor, etc. Finally, Dr. Chen will present her energy justice framework on EV adoption and community engagement plan and policy recommendations.

Biography: Dr. Chien-fei Chen is an environmental sociologist, Research Associate Professor and the Director of Energy and Environmental Justice at the Institute for a Secure and Sustainable Environment (ISSE), the Education and Diversity at the Center for Ultra-wide-area Resilient Electric Energy Transmission Networks (CURENT), Department of Electrical Engineering and Computer Science. She is also the Co-director of Center for the Study of Social Justice at the University of Tennessee

Dr. Chen's research centers on environmental sociology, energy justice and policy and renewable energy technology adoption and community engagement. Her main research goals are to conduct interdisciplinary research in integrating social-technological aspects in EV and solar adoption, power grid resilience, and energy inequality among underserved communities, as well as provide practical knowledge to academic, communities, utilities, and policy makers. Dr. Chen publications appear in many interdisciplinary journals, including *Building and Environment*, *Renewable and Sustainable Energy Reviews*, *Environmental Sociology*, *Energy*, *Environmental Sociology*, *Energy and Buildings*, *Energy Policy*, *Energy Research and Social Science*, *Energy and Buildings*, *Journal of Environmental Psychology*, *IEEE Transactions on Power Systems*, *IEEE Transactions on Smart Grid*, *Electric Power Systems Research*, and so on. Dr. Chen has been actively involved with several international and interdisciplinary networks. She has received several research awards from National Science Foundation and Alfred P. Sloan Foundation. In 2022, she has two-large scale funded NSF projects: Smart Connected Community "Advancing Human- Centered Sociotechnical Research for Enabling Independent Mobility in People with Physical Disabilities," and "Strengthening American Infrastructure: Community- centered Decision-making Framework for Microgrid Deployment to Enhance Energy Justice and Power System Resilience." In 2019, Dr. Chen received the Fulbright U.S. and UK Global Scholar Award for her energy justice work.

Email: cchen26@utk.edu



Carter Christopher, Ph.D.

Distinguished Research Scientist and Section Head, Human Dynamics R&D, Geospatial Science and Human Security Division, Oak Ridge National Laboratory

Country: United States of America

Title: "A Geospatial Framework for Enabling and Governing Circular Bioeconomies."

Abstract: A central tenet of circular economies and bioeconomies (CBE) is a more sustainable use of and equitable benefit from renewable natural resources. Ensuring effective cataloging, monitoring, evaluation, and calibrated feedback across the natural resources that support CBE production and consumption processes requires an integrated use of geospatial data, technologies, and methodologies. This presentation introduces the concept of a Geospatial Framework for Circular Bioeconomies, to support the transition to and effective governance of the processes and systems that accumulate to create CBEs.

Biography: Dr. Carter Christopher is Section Head for Human Dynamics R&D and Distinguished Research Scientist in Oak Ridge National Laboratory's Geospatial Science and Human Security Division. Dr. Christopher leads the Human Geography, Location Intelligence, Built Environment Characterization, and Geoinformatics Engineering research groups at the lab, helping to solve national- and global-scale challenges for Energy Security and National Security. Dr. Christopher also serves as ORNL Program Manager on IARPA's HAYSTAC program, Principal Investigator for DOE's Center for Alternative Synchronization and Timing, and Principal Investigator for NNSA's SecuRoute project. Prior to joining ORNL, Dr. Christopher was Head of Geospatial at an aerospace start-up, and he had a distinguished 12-year career in the U.S. Intelligence Community (IC). Dr. Christopher spent more than 10 years at the National Geospatial-Intelligence Agency (NGA) where he led a range of geospatial modernization programs, including ML/AI-driven object detection and mapping, geospatial cloud modernization for the IC, data science and advanced geospatial analysis, and global GIS training. Dr. Christopher closed his Federal career at the US State Department as Deputy to the Geographer of the United (Christopher continued) States, where he helped stand up the Department's enterprise GIS and led human geography and humanitarian mapping initiatives. Prior to Federal service, Dr. Christopher held analyst and project management roles in the geospatial private sector. Carter has a PhD in Earth Systems and Geoinformation Science, and a MS in Geography and Remote Sensing.

Email: christophesc@ornl.gov



Christopher Currey, Ph.D.

Associate Professor, Department of Horticulture, Iowa State University

Country: United States of America

Title: “Controlled-Environment Agriculture – The Promise and pitfalls of Intensive Crop Production.”

Abstract: Controlled-environment agriculture (CEA) is an emerging and rapidly expanding method for intensive crop production. Using CEA techniques to grow food, ornamental, and medicinal crops provides opportunities to maximize productivity per unit area. Technologies commonly used in CEA production also allow for the conservation and reuse of resources and production inputs. However, while there are great opportunities and benefits associated with CEA, the intensive nature of this production method can also require intensive inputs. This presentation will introduce the current state of CEA, outline the benefits and challenges associated with it as a crop production system, and discuss the potential for CEA moving forward.

Biography: Dr. Currey has appointments in research, teaching, and extension. His controlled-environment and greenhouse crop research is focused on providing research-based best-management practices to support commercial producers of ornamental and food crops to improve sustainability, productivity, (Currey continued) and profitability using and managing light, temperature, mineral nutrition, and plant growth regulators. His scholarship spans beyond his research and Extension activities. Within the scholarship of teaching and learning, Dr. Currey strives to identify effective methods to increase student confidence and success in greenhouse crop production and increase student understanding of timely and important topics related to greenhouse crop production, such as local food security and native plant production.

Email: ccurrey@iastate.edu



Guillermo J. Copello, Ph.D.

Adjunct Professor and Independent Researcher of Departamento de Ciencias Químicas e Instituto de Química y Metabolismo del Fármaco (IQUIMEFA-CONICET), Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires, Argentina.

Country: Argentina

Title: “Natural Polymers based materials: back to the future”

Authors: Rodrigo Nuñez, María Luz Peralta Ramos, María Emilia Villanueva, Andrea Mebert, Guillermo J. Copello

Abstract: Fossil based polymers have been studied from over a century and this research has been very successful in terms of the taking full profit of its source and regarding the performance of the obtained materials. Nevertheless, the massive use of these polymers is associated with long term pollution. Natural polymers are sustainable building blocks for many materials. They have also been known for more than a century but their R&D for material obtaining has been less intensive. Oil shortage and environmental pollution has renewed and triggered the natural polymer interest and their materials have moved to a priority level in most countries research agenda. Cellulose and natural rubber are some of the long time studied, and a few have raised as promising stars of the field, such as chitosan, but many, such as pectin, chitin and keratin, are understudied and even more are still to be considered.

Biography: G. Copello is an Adjunct Professor at Departament de Ciencias Químicas, Facultad de Farmacia y Bioquímica, Universidad de Buenos Aires and an Independent Researcher the of CONICET at the Grupo de Investigación en Nanotecnología, Polímeros y Sustentabilidad (GINaPS) from the Instituto de Química y Metabolismo del Fármaco (IQUIMEFA-CONICET). He earned his PhD degree at Universidad de Buenos Aires. His research focuses in the development of natural polymer based materials with the aim of replacing fossil based polymers. His recent projects involves the obtaining of natural polymer derivatives and nanocomposite materials for their application in several fields such as medicine, environment and biotechnology. He has published 56 peer reviewed journal articles, 10 book chapters and 2 patents in his field. His and his group work embraces from basic to the technological field and has awarded with several recognitions for their innovative developments.

Email: gcopello@ffyb.uba.ar



Brad Day, Ph.D.

Associate Vice Chancellor for Research Innovation Initiatives at the University of Tennessee, Knoxville

Country: United States of America

Title: “Convergent energy research for a sustainable planet.”

Abstract: Recent technological advances in biology and engineering have accelerated the discovery and translation of processes that have the potential to improve life – of humans and the planet. Indeed, the convergence of technologies and knowledge from across STEM, social, and medical disciplines (Day continued) provide an opportunity to address a multitude of challenges at the at the nexus of food, energy, and water. Here, we will first outline key challenges that will require the collaborative input from a broad range of scholars and explorers. Next, we will discuss and identify approaches to meet these challenges, focusing on the breadth of expertise represented by the group of international scholars represented here. Our goal will be to only map out viable solutions for many of these identified challenges, but to also develop a blueprint – a roadmap – for the next step.

Biography: Dr. Brad Day is the Associate Vice Chancellor for Research Innovation Initiatives at the University of Tennessee, Knoxville. He joined the university in November 2021, is responsible for the development of new, cross- disciplinary, research activities which capture the strengths, and opportunities of faculty at UT. Importantly, in this role, he is focusing on convergence research activities to eliminate traditionally, siloed disciplinary-focused research and innovation.

Prior to UT, Day was a Foundation Professor at Michigan State University where his research focused on the molecular-genetic regulation of plant immune signaling. His research was funded by a breadth of national and international funding agencies, including NSF, USDA, NIH, Asian Development Bank, the Gates Foundation. During his time at MSU, he spent 1 year as a Program Director at the National Science Foundation. Prior

to MSU, he was a NIH-funded postdoctoral scholar at UC-Berkeley, and an NSF- postdoc at the National Institute of Agroenvironmental Resources in Japan.

He has a PhD and BS in Microbiology from the University of Tennessee.

Email: bradday@utk.edu



Melisa Deciancio, Ph.D.

Senior Fellow Researcher Institute for Political Science, University of Münster (Germany), Department of International Relations, FLACSO (Argentina)

Title: The role of the State and public policies in the development of the bioeconomy in Argentina

Abstract: In recent decades, the bioeconomy has been gaining space within discussions about the development model in Argentina. Its main objective is to replace fossil fuels with resources of biological origin, contributing to mitigating climate change through more sustainable production with less impact on the environment. As previous studies have shown, the bioeconomy is gaining momentum in Argentina, driven by the private sector through various business and academic initiatives, mainly associated with the biotechnology and agroindustry sectors. However, the development of the bioeconomy has been strongly accompanied by state policies during neoliberal and developmentalist governments, which has received less attention in the literature. Different state policies generated the institutional and regulatory conditions for its promotion. Although with variations, it remained a development project in governments of different political colours. The paper focuses on the extent to which the State,

through the promotion of various initiatives (public policies, regulatory frameworks, public-private partnerships, etc.), contributed to the development of bioeconomy projects in Argentina and the positive results and limitations of this process. The paper will examine two cases of the bioeconomy in Argentina. First, it will investigate the development of biorefineries and the state policies accompanying their development and promotion. Since the biofuels law was passed in 2007, biorefineries and soy-based biodiesel production have become the pillar of the Argentine bioeconomy, both for their rapid growth and economic significance. Second, the paper will focus on another Argentinean bioeconomy project: biotechnology applied to genetically modified seeds, where, through public-private partnerships and the exchange of knowledge and technology, the company Bioceres has managed to become a global leader. From the analysis of policies and the actors involved in the development of both sectors, it becomes clear that the State has played an important role in accompanying the private sector in promoting the bioeconomy. Despite ideological divergences, the policies designed demonstrate the continuity between the various governments in the promotion of this strategy. Nevertheless, these strategies have shown limitations and risks as the sustainability of the processes, and negative socio-environmental impacts have not received sufficient attention. The study is based on the analysis of official documents, interviews with key actors from both the public and private sectors, and secondary bibliography that allow for an in-depth analysis of the process of bioeconomy development in Argentina and the role of public and private actors.

Biography: Dr. Melisa Deciancio is Senior Fellow Researcher at the University of Münster. She is also Research Fellow at the National Scientific and Research Council of Argentina, based in the Department of International Relations at FLACSO Argentina. Melisa holds a Master in International Relations and Negotiations and a PhD in Social Sciences from FLACSO. Her research is focused on the areas of International Relations Theory, Latin American Foreign Policy and Global Governance.



Adriana María Descalzo, Ph.D.

Senior Researcher at CONICET (National Scientific and Technical Research Council of Argentina). Coordinator of the National Program of Added Value, Agroindustry and Bioenergy. National Institute of Agricultural Technology (INTA)

Country: Argentina

Title: “Use Lactic Fermentation as a Tool to Transform Cereal Biomass into Functional Foods.”

Abstract: The modern bio-economy consists of biotechnology, green chemistry, clean food processing, and modern biofuels, and can learn from the experience of the "traditional" processes such as fermentation to alcoholic drinks, foods, and medicine. Lactic acid fermentation is a traditional tool to preserve food from pathogen microorganism growth. Lactic acids bacteria (LAB) are used mainly at the dairy industry and some of these strains exert probiotic and post biotic activities. Combined with yeasts and molds, they intervene in the formation of flavors and aroma compounds during cheese maturation. For that reason, lactic acid fermentation continue to be a highly desirable method of processing and preserving foods because they are of low cost, have low energy requirements for both processing and preparing foods for consumption, and yield highly acceptable and diversified flavors. Lactic acid fermentations have other distinct advantages in that the foods become resistant to microbial spoilage and toxin development. Acid fermentations also modify the flavor of the original ingredients and often improve nutritive value.

(Descalzo continued) Many African and American traditional recipes, involve the use of fermented maize and sorghum. In the present work, we propose to add nutritional value to these products through the incorporation of functional compounds as phytosterols and antioxidant vitamins, and to use both, one extensive field crop as maize, as well as quinoa from small producers from La Rioja in the Northwest of the country.

Using maize as a base for a fermented yogurt type food, allowed driving fermentation, with *L. plantarum* and *L casei* growth of more than two logs in the cereal matrix, until reaching 10^8 UFC/g product. This concentration is required for probiotic action. The addition of natural concentrated juice of papaya and melon gave stable concentrations of carotenoids (more than 30 mg/kg product) tocopherols (around 5 mg/kg product). Other added functional compounds such as phytosterols were stable at concentrations of 2 mg per portion, reported as anticholesterolemic. Results extrapolated to quinoa, successfully fermented with natural traditional kefir as starter, showed 10^9 UFC/g product of LAB Using these starters may also allow to transform cereal grains and residues into valuable products. Therefore, we present an alternative to use cereals and ancestral crops to add value as functional plant-based foods using low energy, clean technologies.

Biography: Adriana M. Descalzo is a biologist, specialized in food technology and nutrition. She works at the National Institute of Agricultural Technology (INTA) and coordinates the Program of Added Value, Agroindustry and Bioenergy. She has a PhD degree at the University of Buenos Aires (Biology) and a post-doctoral study at the University of Freiburg, Germany (molecular virology). She also made short stays at the University of Georgia (food stability) and University of California, Davis (food genomics), worked at the Institute of Food Technology at INTA for 22 years with an expatriation at the UMR-Qualisud, CIRAD, France (food quality and technology). Professor at the University of Buenos Aires and University of Morón, with the direction and co-direction of 18 post-graduation thesis and 5 research staff. Presently, the coordination of key actions in agroindustry ow to generate impact between the academic and the productive system in the territory.

Email: descalzo.adriana@inta.gob.ar – Orcid: <https://orcid.org/my-orcid?orcid=0000-0002-3261-5865>



María Mercedes Echarte, Ph.D.

Scientific Researcher at INTA (National Institute of Agriculture Technology) and CONICET (National Scientific and Technical Research Council of Argentina). Director of Biomass and Bioenergy Laboratory at IPADS Balcarce (Institute of Innovation for Agriculture and Sustainable Development).

Country: Argentina

Title: “Biogas Demonstration Unit for a sustainable rural energy development in the Humid Pampas, Argentina”

Abstract: Lack or unreliable access to energy is one central factor of rural marginalization along Latin America. Biomass based solid fuels (e.g. firewood and charcoal) are still the main sources of energy for heating and cooking in rural households, while the introduction of subsidy policies for consumption of Liquefied Petroleum Gas (LPG) has contributed to the expansion and consolidation of fossil fuel distribution infrastructures and consumption patterns. Decentralized renewable energy solutions offer promising options for tackling energy related development constraints of rural population. Among them, biogas solutions —systems for the production and use of biogas and digestate— are often praised for their multi-functionality since they contribute to increased availability of renewable energy while addressing other challenges such as improving waste handling and increasing nutrient recycling. Moreover, biogas systems open the opportunity for a deeper involvement of citizens in the transformation and management of their energy systems, creating new jobs and skills among the energy users. However, evidence on how rural energy interventions effectively trigger positive developmental dynamics beyond the energy access dimension is still scarce. The socio-cultural, institutional and economic conditions of the context as well as of the configuration of the intervention itself play a key role, and many energy development interventions fail or fall short to successfully translate into significant development impacts for involved communities. In Argentina the long and broadly-spread practices of cooperativism offer promising alternative for tackling those crucial issues.

In order to link knowledge production on the one side and societal transformation on the other we built a Biogas Demonstration Unit in a small rural town (Los Pinos) of Buenos Aires Province. Applying a transdisciplinary and transformative research design we explore to which extent and how the developmental potential of biogas systems can be unleashed by integrating such technical option into the concept and practices of cooperativism.

Biography: María Mercedes Echarte is a Biochemist working in biomass and bioenergy field. Graduated in Buenos Aires University (UBA), she obtained her PhD in Biophysics in the Biological Chemistry and Physical-chemistry Institute (IQUIFIB, UBA). She made postdoctoral stays at the

Center for Advanced Microscopies (Physics Department, UBA) and Plant Physiology Laboratory (Mar del Plata National University). She made short research stays at Max Planck Institute for Biophysical Chemistry (Goettingen, Germany), Institute of Fat CSIC (Sevilla, Spain) and INRA (Toulouse, France). She recently obtained her diploma in “Strategic design of technologies for a sustainable inclusive development” from Quilmes National University. She is currently a scientific researcher of INTA and CONICET and Professor of the Agronomy School of Mar del Plata National University. She is directing projects, PhD thesis and postdoctoral fellowships aimed at developing strategies for waste valorization through anaerobic digestion and technologies for upgrading and use of biogas and digestate.

Email: echarte.maria@inta.gob.ar



Josefina Eisele

Director for Latin America, Global Roundtable for Sustainable Beef (GRSB)

Country: Argentina

Title: “Raising Awareness and adoption of sustainable grasslands and livestock management amongst GRSB members”.

Abstract: Grasslands are vital for food production, nature conservation, and other ecosystem services such as regulating water flow and mitigating climate change. Across the globe, grasslands are under increasing pressure from increasing human populations, reduced areas with increasing livestock numbers, and declining terms of trade for livestock production. This presentation will focus on how the Global Roundtable for Sustainable Beef works collaboratively with otherse to disseminate scientific findinds to stakehodors on strategies to combat grassland degradation and manage grasslands for biodiversity, multifunctionality, and food production..

BIOGRAPHY: Josefina Eisele is graduated from the University of Buenos Aires has a degrees in Business Management. She is the Regional Director for Latin America for the Global Roundtable on Sustainable Beef. She has worked for GRSB since 2018 and have helped developed five

livestock roundtables in Paraguay, Colombia, Mexico, Bolivia and Argentina. Previous to her current position she worked as the Director of Peterson Consultancy, a sustainability strategy consulting firm, part of Control Unión Group. She also worked at a Dutch NGO *Solidaridad* and previous to that she worked for the Financial Sector at the Sustainability area. Josefina Eisele is graduated from the University of Buenos Aires has a degrees in Business Management. She is the Regional Director for Latin America for the Global Roundtable on Sustainable Beef.



Paola Fontana, Ph.D.

Senior Researcher at INTA (National Institute of Agriculture Technology of Argentina). Coordinator of the Project: “Genetic breeding and ideotype development of industrial crops (sugarcane, peanut, *yerba mate*, cassava, stevia, quinoa and tea) for resilient productive systems”.

Country: Argentina

Title: “Vulnerability reduction and sustainability increase of small-scale Sugarcane productive systems”.

Abstract: There is an increasing demand for food of more nutritive value and produced in more environmental friendly systems. Sugarcane productive systems face low profitability issues; soil degradation, high GGE; high herbicides use; low variety diversity and yield reduction by diseases. Thus, they are highly vulnerable to the climate change impacts. In association with the Sugarcane Cooperatives Federation, science and technology institutions and the Province Government of Tucumán we are doing research, validation and transference of new socio-economical productive models. They include low environmental impact technologies developed by INTA for increasing systems sustainability and for adding value through the production of *mascabo* sugar and alcohol.

Smith Biography: PhD Paola Fontana is an Agronomy Engineer from the National University of Tucumán, Argentina. She had her Master Science degree in Agronomy Sciences in the National University of Córdoba and is PhD in Biological Sciences of the National University of Tucumán. Currently is a senior researcher at INTA, Genetic breeding, genetic resources and molecular biology area. She coordinates the Project: “Genetic breeding and ideotype development of industrial crops (sugarcane, peanut, *yerba mate*, cassava, stevia, quinoa and tea) for resilient productive systems”. She published numerous papers in scientific journals and book chapters and she is supervisor and co-supervisor of postgraduate fellows.

Email: fontana.paola@inta.gob.ar



Beatriz Giobellina, Ph.D.

Senior researcher at INTA (National Institute of Agricultural Technology). Professor at Faculty of Architecture, Urbanism and Design of Córdoba National University, Argentina.

Country: Argentina

Title: “Territorial Planning and Climate-Smart Agriculture (ACI) for the Sustainability of Local Food Production Systems in the Food Region of Córdoba (RAC), Argentina.”

Abstract: The historic Green Belts and peri-urban fresh food production systems close to cities –fruits, vegetables, eggs, chickens, etc.- are systematically disappearing in Argentina and in other cities around the world. Some causes: lack of territorial and urban planning aware of the strategic importance of food production close to the city, or competition for land use with other activities with high profitability in the short term (real estate market or the production of commodities) . The territorial system is also weakened by the growing vulnerability of family farming, which

maintains low-tech traditional productions, dependent on imported inputs, unable to set a fair price for its products, without access to land ownership and with very high rents. For some decades, also affected by the impact of local and global environmental change, which manifests itself with a high variability and unpredictability of extreme weather events (EME), and by exposure to drifts of agrochemicals harmful to human health, the environment and horticulture, due to the extensive production that surrounds them. In the RAC for years, the O-AUPA (Observatory of Urban, Peri-urban and Agroecology Agriculture) with headquarters at INTA Córdoba, has formed an interdisciplinary, inter-actor and inter-institutional cooperation (Giobellina continued) network, which works to identify these problems and of the challenges to reduce vulnerabilities of these systems. Some innovations underway are socio-organizational – Agroclimatic and Environmental Technical Tables (MACA); productive ACI –crop management and organization strategies, transition to agroecology, incorporation of appropriate infrastructure and machinery-; incorporation of digital technology and satellite applications, such as an early warning system and monitoring of EME and agrochemical drift events -APP HARVEST-; and efforts to generate new territorial planning figures.

Biography: Architect, International Specialist in Spatial Planning and the Environment; Master's Degree in Management of Business Innovation, and Doctor from the Polytechnic University of Valencia in Legal Regime, Territorial Planning, the Environment and Urban Planning. She is a specialist in issues that contribute to the sustainability of urban settlements. She focuses on territorial planning with an emphasis on the study of peri-urban interfaces -urban-natural and urban-rural-; within them, to the food systems close to the cities, mainly horticulture and farm, understanding them as strategic green infrastructures for sustainable urban development. She provides a look at the complexity of these systems based mainly on family farming and integrates aspects of adaptation and mitigation of climate change. Another line of research is the coexistence conflicts between extensive production and urban settlements, due to contamination by drift of agrochemicals. She has created and coordinates the O-AUPA Observatory (Urban Agriculture, Periurban Agriculture and Agroecology) based at INTA AER Córdoba, and the Periurban Network that articulates different research teams and other social actors linked to the issues she works on. She is also an Assistant Professor of Architecture IIIC and holder of Environment and Society at FAUD-UNC. She is director and co-director of postgraduate students with CONICET, CONAE, UNC scholarships. She has 15 published books and several magazine articles and book chapters.

Email : b.gibellina@gmail.com <http://inta.gob.ar/personas/giobellina.beatriz>



Ricardo Hamdan

Sales Manager Canada and Latin America. Hitachi Zosen Inova

Country: Canada

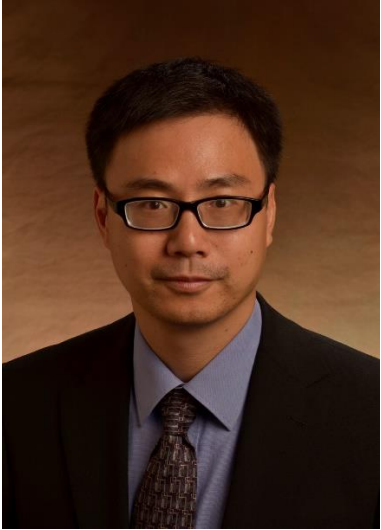
Title: “The role of Renewable Gas in the Circular Economy: Transforming Municipal Infrastructure into Profit Centers.”

Abstract: The need to reduce waste and emissions in urban communities is a central piece to the Circular Economy. As municipalities devise plans to achieve Net Zero, Renewable Gases provide a way to achieve waste and emission targets while providing extra profits to cities around the world. In this paper, we will explore the many ways we can transform cost centers (Landfills, Wastewater Treatment Facilities, Food Waste and SSO Facilities) into profit generating infrastructure. We will look at the different ways of using renewable gas: Electricity Generation, Pipeline Injection, Decarbonization of Public Transportation, and the role of public policy to make this a reality.

Biography: Ricardo Hamdan is the Sales Manager Canada and Latin America for Hitachi Zosen Inova, a supplier of a wide range of Renewable Natural Gas and Hydrogen technology solutions. He has over 15 years of experience in the RNG industry. His portfolio includes anaerobic digestion, gas upgrading, hydrogen electrolysis and CO2 methanation. Ricardo’s experience ranges from development of carbon credit projects across dairy farms in Latin America to providing technology solutions for signature private and municipal projects in the US and Canada particularly in California, Colorado, BC, Quebec and Ontario.

(Hamdan continued) Ricardo has previously served as a Board Director for the Canadian Biogas Association and as a volunteer advisor for MARS Innovation Centre in Toronto.

Email: Ricardo.hamdan@gmail.com



Mingzhou Jin, Ph.D.

John D. Tickle Professor of Engineering and Director of the Institute for a Secure and Sustainable Environment, University of Tennessee, Knoxville

Country: United States of America

Title: “Estimation of the Energy Consumption and GHG Emissions from the U.S. Food System.”

Abstract: Quantifying the energy consumption and GHG emissions along the U.S. food supply chain (FSC) and identifying the high impact areas are the first steps to transforming the U.S. food sector to net-zero emissions. This work provides a database of the energy consumption and GHG emissions from the U.S. food system at national and state level by FSC stage, fuel type, and food commodity. We estimate that the U.S. food system consumed a total 4,787 TBTU of site energy, 7,258 TBTU of primary energy, and generated 984.1 MMT of GHG emissions in 2016. Among all the FSC stages, on-farm production is the largest energy consumer (35% primary) and, by far, the largest source of GHG emissions (71%). Reducing food loss and (Jin continued) waste generation is one of the best options for reducing the impact of the FSC, as it also reduces the amount of food that is necessary to grow, and thus impacts the overall FSC.

Biography: Dr. Mingzhou Jin, John D. Tickle Professor at the University of Tennessee, has expertise in sustainability, climate change, data analytics, operations research, additive and smart manufacturing, energy efficiency, supply chain, manufacturing systems, logistics, and transportation. He is directing both the Institute for a Secure and Sustainable Environment and the Logistics, Transportation, and Supply Chain Engineering Lab. His research has been well sponsored with more than \$10 million in grants and contracts from a board spectrum of federal, local government agencies and corporations including US National Science Foundation, US Department of Energy, US Department of Transportation, and

US Department of Homeland Security. He is a fellow of the Institute of Industrial and Systems Engineers (IISE). Currently, he is Editor-in-Chief for *Cleaner and Circular Bioeconomy* and the executive editor of the *Journal of Cleaner Production*.

Email: jin@utk.edu



Madhu Khanna, Ph.D.

Alvin H. Baum Family Chair and Director, Institute for Sustainability, Energy and Environment, University of Illinois, Urbana- Champaign

Country: United States of America

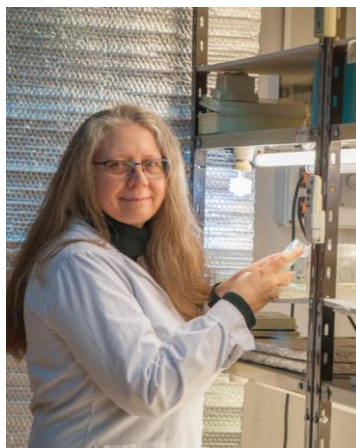
Title: “Quantifying the Multi-Ecosystem Impacts of Cellulosic Biofuels.”

Abstract: Cellulosic biofuels can be produced from multiple feedstocks that differ in their impacts on land use, greenhouse gas emissions and nitrogen runoff. The economically incentivized mix of feedstocks can lead to trade-offs among their environmental impacts. We develop an integrated economic-ecosystem modeling approach to quantify the synergies and trade-offs among multiple ecosystem impacts and the uncertainties in these effects. We show that cellulosic biofuels have significant potential to reduce greenhouse gas emissions but their effects on water quality are mixed depending on the mix of feedstocks incentivized. We discuss the implications of these findings for the design of policy incentives to achieve more sustainable biomass production.

Biography: Dr. Madhu Khanna is the ACES Distinguished Professor of Environmental Economics in the Department of Agricultural and Consumer Economics and Alvin H. Baum Family Chair and Director of the Institute for Sustainability, Energy, and Environment, at the University of Illinois at Urbana-Champaign. She received her Ph.D. from the University of California at Berkeley. Her research is at the intersection of agricultural, energy and environmental economics and has led to more than 150 peer-reviewed publications that are widely cited. She has received funding from several federal agencies in the US and served as the Theme Leader for the Sustainability Theme in the USDOE funded Center for Advanced Bioenergy and Bioproducts Innovation. She has served on the USEPA Science Advisory Board and as a member of the National Academies of Sciences committee

on low carbon transportation fuels. She is a University of Illinois Scholar, a Stanford Woods Institute of Environment Leopold Leadership Fellow and a Fellow and past President of the Agricultural and Applied Economics Association.

Email: khanna1@illinois.edu



Dalia Lewi, Ph.D.

Director of Bioeconomy Directorate at Secretary of Agriculture, Livestock and Fisheries, Argentina

Country: Argentina

Biography: Graduate of agriculture engineering with a specialty in plant breeding at the University of Buenos Aires (UBA). Completed the PhD in biological sciences at the Faculty of Exact and Natural Sciences (UBA) on “Genetic transformation of sunflower”. As postdoctoral subject at the Genetics Institute INTA (National Institute of Agricultural Technology) developed the maize genetic transformation for “Mal de Rio Cuarto Virus” resistance and then for abiotic stress. More recently, since 2010 lead the development of the cotton genetic transformation protocols at INTA to obtain events with the cotton boll weevil resistance.

Researcher in plant biotechnology since 1992. Until May 2020 responsible for the development of maize and transgenic cotton at INTA. Leads the Plant Genetic Transformation Group at the Genetic Institute, INTA, where transgenic events of wheat, corn and cotton are developed.

Represented INTA at CONABIA (National Advisory Commission on Agricultural Biotechnology) since 2009. Has participated in the revisions of the regulations and proposed specific regulations for the management of GMO in local institutions. Has published works in international journals, books and books chapters. Has directed graduate and postgraduate thesis and coordinates projects on plant biotechnology. Is a professor of “Biosecurity and risk assessment” in the Agrobiotechnology Engineering career at the National University of San Martín.



Wei Liao, Ph.D.

Professor and Director, Anaerobic Digestion Research and Education Center (ADREC), Biosystems and Agricultural Engineering, Michigan State University (MSU), East Lansing, MI

Country: United States of America

Title: “A Food-Energy-Water (FEW) Nexus Solution towards a Sustainable Europe.”

Abstract: Rapid growth of the world population, along with accelerating industrialization and expanding urbanization, quickly pushes the global community to face the serious challenges (i.e., food, energy, water, air pollution, climate change, and diseases) of living in the Anthropocene. Food, energy, and water (FEW) are the most significant ones among them, where innovations are urgently needed to develop system-based FEW solutions. In response to this critical need, Europe was selected as the target region for the study. A GIS-based model is developed to comprehensively evaluate food, water, and energy systems and conclude a FEW nexus solution to realize a sustainable Europe.

Biography: Dr. Liao, a registered professional engineer (PE), is a professor and director at Michigan State University (MSU). He obtained his Bachelor and Master degrees from Jiangnan University, China, and his Ph.D. degree from Washington State University. Dr. Liao is leading an active research program on developing integrated systems to utilize organic residues for energy and chemical production. Current research areas that Dr. Liao’s group is working on are: integrated farm-based biorefining, solar-bio-based solutions to convert organic wastes/wastewater into energy and

clean (Liao continued) water, a one-carbon platform of food/fuel/chemical production, etc. Dr. Liao has been extensively involved in international research and education activities on renewable energy and environmental sustainability. His group is carrying out research projects in Latin America, Europe, and Asia.

Email: liaow@msu.edu



Frank Löffler, Ph.D.

Governor's Chair Professor and Director, Center for Environmental Biotechnology, Department of Microbiology, Department of Civil & Environmental Engineering, Department of Biosystems Engineering and Soil Science, University of Tennessee – Knoxville, Tennessee
Oak Ridge National Laboratory, Biosciences Division – Oak Ridge, Tennessee

Country: United States of America

Title: “From Waste to Value – What Microbes Can Teach Us.”

Abstract: The Anthropocene describes the period in Earth's history during which human activity has been the dominant influence on climate and the environment. The generation of various waste streams contributes to environmental degradation, and the consequences on the planet's climate and (Löffler continued) ecosystems are becoming more and more obvious. The microbial world provides a treasure trove of untapped metabolic potential, and new biotechnologies can give wastes real value and transition linear processes to a circular economy. “Waste is a lack of imagination” and the goal of this presentation to encourage “microbial thinking”, as the microbial world has perfected nutrient cycling and energy sharing.

Biography: Frank Löffler received a B.S. degree in Biology and an M.S. degree in microbiology from the University of Hohenheim in Stuttgart, Germany. He performed his doctoral studies in biotechnology at the Technical University Hamburg-Harburg and received a Ph.D. degree (summa cum laude) in 1994. As an Alexander von Humboldt fellow, he conducted research in the NSF Center for Microbial Ecology at Michigan State University, before joining the School of Civil & Environmental Engineering at the Georgia Institute of Technology in Atlanta, GA. Since 2010, Dr. Löffler serves as Governor's Chair Professor at the University of Tennessee and Oak Ridge National Laboratory, and he directs the university's Center for Environmental Biotechnology. The Löffler laboratory explores the physiology, diversity, distribution, and ecology of microbes that control the turnover of nutrients and pollutants, with the goal to harness, manipulate, and predict their functions in both natural and managed habitats. His research has been funded by the DOE, EPA, NIH, DOD, and NSF. He has published over 200 manuscripts and book chapters and has edited a seminal book, Organohalide-Respiring Bacteria. His work has been cited more than 16,000 times and he has an H-index of 67. Dr. Löffler is a fellow of the American Academy of Microbiology.

Email: frank.loeffler@utk.edu



Pablo Mac Clay, Ph.D.

Doctoral Candidate, University of Bonn (Germany) and Lecturer at Center for Food & Agribusiness, Universidad Austral (Argentina)

Title: “Value chain transformations in the transition to a sustainable bioeconomy”

Abstract: The adoption of new bio-based technologies that reduce our reliance on fossil fuels is presented as a path to reduce greenhouse gas emissions while creating new business opportunities. Such a transition towards a bio-based economy will require substantial investments in technological innovations that will likely affect how value chains are structured and which actors benefit from this transformation. Yet, previous studies on the bioeconomy have largely ignored the relationship between the structure of value chains and the rate of technological innovation. In this article, we propose six conceptual models to analyze the link between technological innovation, value chain structures, and welfare distribution in the transition to a bioeconomy, covering not only agribusiness firms but also emerging high-biotechnology firms. Finally, we argue that innovation in the bioeconomy and its associated value chain features may lead to welfare changes. Thus, we propose some lines of thought regarding the potential

distributional effects of bio-based innovation. From a policy perspective, this debate is a relevant to safeguard social sustainability in the transition to a bioeconomy.

Biography: Pablo Mac Clay is an economist with research experience in the Argentine agribusiness sector. His academic background includes a master's degree in Agribusiness and a bachelor's degree in Economics. He is now a doctoral candidate at the University of Bonn. His main research interests are agri-food value chain analysis, renewable energy and innovation in the bio and circular economy.



Andrew Muhammad, Ph.D.

Professor and Blasingame Chair of Excellence in Agricultural Policy, Department of Agricultural and Resource Economics, University of Tennessee

Country: United States of America

Title: “Agrivoltaic Systems and Climate-Smart Expansion of Solar Energy in Small and Medium Farms.”

Abstract: The objective of this research is to evaluate a dual land use modeling framework for joint placement of solar PV and croplands/grazing lands (agrivoltaic systems). The proposed solution is an integrated modeling framework for optimal siting, sizing, and placement of solar PV on farmland considering biophysical and social factors. Important to this project is a better understanding of how producers jointly maximize returns from solar energy and agricultural output in an agrivoltaic system relative to the costs and returns and optimizing behavior in a traditional agricultural system.

Biography: Dr. Andrew Muhammad is Professor and Blasingame Chair of Excellence in Agricultural Policy, in the Department of Agricultural and Resource Economics, University of Tennessee Institute of Agriculture. Dr. Muhammad previously served as the Associate Director of the Markets

and Trade Economics Division (2016-2018) at the Economic Research Service (ERS), U.S. Department of Agriculture. He also served as Chief of the International Demand and Trade Branch at ERS (2013-2016). His current research focuses on agricultural trade and trade policy, global competitiveness of U.S. agriculture, effects of trade on developing countries, and determinants of global food choice. He currently serves on several Advisory Boards, including the Agricultural Policy Advisory Committee (APAC), which provides trade policy counsel to the Secretary of (Muhammad continued) Agriculture and USAID's Board for International Food and Agricultural Development (BIFAD) Subcommittee on Systemic Solutions for Climate Change Adaptation and Mitigation in Food Systems.

Email: amuhamm4@utk.edu



Gretchen Neisler, Ph.D.

Vice Provost of International Affairs, Director of the Center for Global Engagement, University of Tennessee, Knoxville

Country: United States of America

Title: “Triangulating the Connectivity of Education: Government, Private Sector, and Higher Education.”

Abstract: Education is a social investment aimed at shaping the present and the future. Like other investments, it should abide by the rules of a market that demands quality, relevance, durability and accessibility. In low-income economies, higher education and other units of governance (i.e. Ministries) (Neisler continued) do not consistently communicate and work together. This creates a gap in strategic planning for country level strategies and

workforce development. Additionally, connecting the private sector and post-secondary education institutions to leverage their strengths in the delivery of education could help bridge this gap, strengthen education and ultimately lead to better learning outcomes for students.

Biography: Gretchen Neisler has been the senior international officer at the University of Tennessee Knoxville since August of 2018. Dr. Neisler provides leadership intended to help transform the University of Tennessee into a globally engaged modern R-1 university. She works closely with the university community to lead the development of the university's strategic international agenda, and oversees the Center for Global Engagement., which encompasses the offices of Asia Engagement, Programs Abroad, International Support Services, International House, English Language Institute, and Global Research

Neisler received her Ph.D. in Higher Education Administration, Master of Science in Agriculture Extension Education, and B.S. in Agriscience Education and Animal Science from the Michigan State University.

Email: gneisler@utk.edu



Romina Ochoa, CPN.

Head of the INTA Extra-budgetary Projects Management Unit

Country: Argentina

Title: “Extra-budgetary Funding Opportunities”

Summary: In 2021 after an evaluation of the institution in relation to INTA's extra-budgetary financing, the Extra-budgetary Projects Management Unit (UGPE) was created to support interdisciplinary work between the INTA Group (INTA, Fundación ArgenINTA and INTEA S.A.). The UGPE permanently surveys for

opportunities for external financing, internalizes the formalities and particular presentation mechanisms of each call, and interacts with the Regional Centers, the Research Centers, and the Assistant National Directions and Coordinations of INTA, to jointly analyze strategies of financing to the activities, its relationship with the institutional objectives and the link with the portfolio of own projects. Likewise, with the support of the Education and Training Management Unit, training is carried out for INTA personnel on the different financing proposals and the procedures for the presentation of interdisciplinary, interinstitutional, interjurisdictional and international projects are supported.

Biography: Accountant (Buenos Aires University). Romina Ochoa has been in charge of INTA's new Extra-budgetary Project Management Unit since 2021. She has been working as an auditor and management since 2014 where she was employed as an international consultant at firm Price Waterhouse Coopers. In 2010 she joined the Research, Development and Innovation Agency, where she was responsible for the Management Control area and was in charge of auditing all the projects financed by funds from international organizations such as IDB, CAFF, WB. As of 2016, she was in charge of the Directorate of Interjurisdictional Relations of the Federal Council of Science and Technology, articulating mechanisms with science and technology authorities throughout the country with the objective of reducing the asymmetries of regional economies. Since April 2021, she has been in charge of INTA's new Extra-budgetary Project Management Unit.



Demián Olemberg, Ph.D.

Researcher at INTA (National Agricultural Technology Institute). Professor at Buenos Aires University.

Country: Argentina

Title: “Economic Analysis of *Eucalyptus* Cultivation for Energy from Biomass in Argentina ”

Abstract: Renewable energy production is currently a technical necessity and a political goal itself. Northeastern Argentina is an area of great potential for the cultivation of fast-growing species for energy use. However, an economic analysis is required to assess its viability. We propose an ex-ante evaluation of the viability of *Eucalyptus grandis* wood energy plantations modelling the effects of changes in the economic context key

prices. The model we built enables the estimation of the minimum viable price for forest biomass production, sensitivity analysis, and an approach to understanding the evolution of the economic viability conditions to anticipate future scenarios.

Biography: Demián Olemberg holds a Bachelor in Economics (Universidad de Buenos Aires) and a PhD in Sociales Agrarian Studies (Universidad Nacional de Córdoba). He is a researcher at the Economics and Prospective Studies Research Center, National Agricultural Technology Institute (INTA), and is also lecturer of Economics at the Buenos Aires University. His current work areas include Forest Economics, Economic Evaluation and Sustainable Rural Development. He works within projects hosted by INTA and in consultancy for external institutions. He takes part in scientific meetings in his specialty and counts with academic as well as dissemination published works.

Email: olemberg.demian@inta.gob.ar



Marinus L. Otte, Ph.D.

Professor, Biological Sciences, North Dakota State University – projects on water and wetland, restoration and integration into entire watersheds.
Editor-in-Chief of WETLANDS

Country: United States of America

Title: “Integrating wetlands in urban- and agriculture-dominated watersheds.”

Abstract: More than 85% of the world’s wetlands have been lost due to anthropogenic activities, particularly agriculture, and urban and industrial development. This has exacerbated droughts and floods, pollution, climate change, loss of biodiversity and other ecosystem services, and has led to enormous economic losses, well beyond what is sustainable. As the human population continues to increase in this Anthropocene, it is imperative that

urban and agricultural development are considered as intrinsically linked within entire watersheds, integrating wetlands with a view to restore their invaluable ecosystem services. Not doing so will threaten food security and further exacerbate global change.

Biography: Dr. Marinus L. Otte is a professor at North Dakota State University, Fargo, ND, USA, and has specialized in wetlands research and education for more than 30 years. His interests range from biogeochemistry to whole watersheds and his work has included projects in many countries around the world: the Netherlands and Ireland, Kyrgyzstan, China, and Taiwan, several States in the USA, and most recently in Mexico. He has been the editor-in-chief of the scientific journal *Wetlands* since 2012 and has published almost 100 peer-reviewed articles and hundreds of conference contributions. He is a Fulbright Specialist in water and wetlands.

Email: marinus.tte@ndsu.edu



Joaquín Mario Ortiz, Ing. Agr. Mg.

Associate Researcher at INTA (National Institute of Agricultural Technologies). Agricultural Experimental Station Famaillá, Tucumán.

Country: Argentina

Title: “Adding Value to Sugarcane Crop Residue”

Abstract: Tucumán is the sugar and bioethanol from sugarcane largest producer in the country, with 270,000 hectares of sugar cane. The average yield is 60 t/ha, with 12-15 t/ha of crop residue after harvest (RAC).

INTA works studying potential uses for this residual biomass. From a modified integral sugarcane harvester, it is feasible to take and chop the Sugarcane Crop (DCA) in an attached hopper before reaching the ground.

The potential uses of this biomass were analyzed and the DCA and RAC were compared as input to produce 2nd Generation bioethanol, fuel for boilers, biogas production and for animal feeding (in evaluation process).

Biography: Joaquín Mario Ortiz is an agricultural engineer, graduated from the National University of Tucumán, with a master's degree in Energy and Environment ITBA (Technological Institute of Buenos Aires)-KIT (Karlsruhe Institute of Technology).

He has been working at INTA since 2015. He currently is a researcher in Bioenergies in the RRNN group at the Agricultural Experimental Station Famaillá. There he works on biomass value addition projects, renewables energies, circular economy, and climate smart projects.

He did postgraduate courses in Japan (University of Hiroshima), India (Hyderabad, EPTRI) and a stay in Mexico, at the National Polytechnic Institute, during his undergraduate studies. He also took UN diplomas in climate change.

e-mail: ortiz.joaquin@inta.gob.ar



Roxana Paez, Ph.D., Food Science and Technology

Senior Researcher at Institute for Research in the Milk Chain (IDICAL), National Institute of Agricultural Technology –National Council of Scientific and Technical Research (INTA -CONICET), Rafaela, Argentina. Technical Director at INCUVA INTA EEA Rafaela, Santa Fe

Country: Argentina

Title: “Obtaining Biopolymers from Agro-Industrial Waste”

Abstract: In our country, 11 million liters of cheese whey are produced per day, of which only 45% is processed, being mainly the large companies that can industrialize it. The remaining 55% is generally given away free of charge to be used as animal feed, such as for fattening calves, or dumped into causing serious pollution problems.

At INTA, together with other scientific institutions, we have been working for more than ten years on the development of a technological platform based on the bioconversion of whey lactose and its derivatives such as permeate, to reach various bioproducts with high added value, including: yeasts, probiotic bacteria, bioplastics, enzymes, microalgae, etc. The products obtained as a result of this biotechnological platform could be used within the same value chain by applying a circular bioeconomy model. The processing and generation of products with higher added value from whey could drive new business models in start-ups and SMEs, with an effect on job creation and regional development.

Biography: Roxana Paez has a Ph.D. in Food Science and Technology, Researcher of Milk Quality and Agroindustries Group at the INTA's Experimental Station in Rafaela. Specialist in milk quality and dairy products. Manager of INCUVA INTA Incubator of agroindustries technological based Companies. Project Manager of INTA and extra-INTA research projects. Professor of undergraduate and postgraduate courses related to the topic Milk and milk products quality in several universities in the country. Supervisor of CONICET and INTA grantees and Director of various theses. Author / co-author of scientific publications published in national and international indexed journals, book chapters, national and international congresses.

Email: paez.roxana@inta.gob.ar - website: www.inta.gob.ar/incuva



P.V. Vara Prasad, Ph.D.

University Distinguished Professor, R.O. Kruse Endowed Professor and Director, Feed the Future Sustainable Intensification Innovation Lab, Kansas State University, Manhattan, Kansas.

Country: United States of America

Title: “Climate Smart Agricultural Practices – Platforms and Examples”

Abstract: Climate change and climate variability negatively impacts productivity of food crops. In addition, climate change influences occurrence, intensity and spread of pests and diseases limiting productivity of crops. There is an urgent need to develop and scale climate smart agricultural practices with systems perspective to enhance productivity, nutrition and build resilience of our cropping systems to climate change. This should include exploring genetic, agronomic and ecological innovations to increase resilience through both adaptation and mitigation strategies using systems and transdisciplinary approaches. There is need for stronger collaboration between biophysical and social scientists to build resilience. Focus should be on broader one-health, end-to-end agri-food systems with emphasis of circularity. Several examples of different innovations and platforms for climate smart agriculture and circular bioeconomic systems will be presented and discussed.

Biography: P.V. Vara Prasad is a Distinguished Professor and Director of the Feed the Future Sustainable Intensification Innovation Lab at Kansas State University. He obtained his B.S. and M.S. from Andhra Pradesh Agricultural University (India) and Ph.D. from the University of Reading (U.K.). His research focuses on understanding responses of crops to changing environments; and developing best management strategies to improve and protect yields. He has active programs in Asia, Africa and Latin America and Caribbean. He has published over 350 journal articles and book chapters; trained 160 research scholars from 25 countries. His research has been cited over 21,000 times with an h-index of 75. He is an elected fellow of American Society of Agronomy; Crop Science Society of America; and American Association for the Advancement of Science. He is the Past President of the Crop Science Society of America.

Email: vara@ksu.edu



Rodrigo M. Pontiggia, Ph.D.

Development and Innovation Director, Benito Roggio Ambiental, Argentina.

Country: Argentina

Title: “Use of Biological Mud in Soil Restoration: Five Years of Technical Advances

Abstract: The design of technosols using mixtures of discarded soils and other inputs such as organic mud is an innovative option for soil restoration and sustainable environmental production. These mixtures fulfill the productive and environmental functions of natural soils and at the same time are an integral solution in their management as waste. From the point of view of sustainable production, soil onservation is a key challenge for humanity as reflected in Sustainable Development Goals 12 and 15. In Argentina, there is currently no installed capacity for the use of sludge generated by municipalities and industries such as paper and food, despite the fact that they are produced in large quantities. It is necessary to generate information on the use of technosols in production systems under real field conditions, allowing this new value chain to be promoted. The presentation will focus on a new project that allows to create a grassland with a dense vegetation cover, significantly increasing the visit of different birds, beneficial soil insects, pollinating insects and wild animals that contribute to the recomposition of the original ecosystem of the area.

Biography: PhD in Chemistry (UBA), Bachelor of Chemistry and Food Technology, University of Belgrano. PhD Fellow, Research Institute in Genetic Engineering and Molecular Biology/CONICET (2001–2009), Visiting Researcher, J W Goëthe Universität, Germany, Scholarship by Boehringer Foundation. He has published articles and given numerous lectures on waste. He is currently Development and Innovation Manager of Benito Roggio environmental where he was responsible for the formation of the R + D + I area. He has led the projects: Use of Biosolids of Sewage origin for vegetation cover of Landfill; Use of stabilized organic fraction in MSW MTB plant (1250 tons / day) for the construction of biocoverage in Landfill; Construction of laboratory and transportable plant of Anaerobic Digestion (with a national award and international recognition).



Jiaguo Qi, Ph.D.

Professor and Director, Professor of Geography, Environment and Spatial Sciences, Director of Asia Hub, International Studies and Programs, Michigan State University

Country: United States of America

Title : “Livestock, Food Security and Regional Economy from the WEF Nexus Perspectives.”

Abstract: Global demand for meat and the national need for economic prosperity motivated the nations in Central Asia to expand the utilization of their vast rangeland resources to increase livestock production. However, the implications for water-energy security and the ecological consequences of these economic and food-driven undertakings are largely unknown. A case study in Kazakhstan indicated the potential to increase livestock production by 3-fold, but water availability to meet livestock requirements would need to be addressed. The high variability in livestock carrying capacity suggests that policies and programs must be optimized for local ranch operations, vegetation status, and annual variation in weather. These findings provided important insights into the current rangeland state, potentials, and challenges that the government needs to consider as the country plans to expand its livestock production at the national level.

Biography: Dr. Qi served as the Director of the Center for Global Change & Earth Observations, Director of the Environmental Science and Policy Programs, and Director of the Office of China Programs over the last two decades. Currently, he serves as the Director of the Asia Hub, a new unit within the International Studies and Programs at Michigan State University. Dr. Qi has a broad interest in global change issues to understand better the complex interactions among land, water, climate, and society. His recent research efforts include the water-energy-food nexus framework to integrate land, human, the environment, and climate change for sustainable development in Southeast Asia, Central Asia, and East Africa. Dr. Qi is also actively

engaged in many national and international programs. He served as MAIRS Project Scientist of NASA's LCLU Program, the Steering Committee chair of the Future Earth Nexus KAN, the Science Steering Committee member of the MAIRS-FE Program, the liaison for the NEESPI program for China, coordinator for the Central Asia Regional Information Network (CARIN) and Mekong Regional Information Network (MekRIN).

Email: qi@msu.edu



Andrew Rzepa, Partner

Gallup, The Shard, 18th Floor, 32 London Bridge Street, London, SE1 9SG

Country: United Kingdom

Title: “Global Diet Quality Project: Measuring What the World Eats.”

Abstract: Diet quality is critical for human health. Current diets are the main drivers of ill health and premature mortality, with adverse spillover effects on the environment and economy. Monitoring diet quality globally is thus essential for holding decision makers accountable for progress toward global nutrition, health, and development goals. Yet there has been no way of monitoring diet quality at scale in a credible, affordable, and timely way.

To address this, Gallup, The Harvard T.H. Chan School of Public Health, and the Global Alliance for Improved Nutrition teamed up to overcome this challenge by initiating the Global Diet Quality Project. Through this initiative the project team have created a new approach that enables countries to monitor diet quality year to year, seasonally, or even more frequently. The new approach allows users to investigate both people's overall dietary adequacy and their consumption of foods that protect against or increase risk for noncommunicable diseases (NCDs).

This presentation will detail the work undertaken to conceptualize the approach, opportunities and limitations of the methodology developed, and present some insights from the first round of diet quality data from 2021 for 41 countries, representing two-thirds of the world's population.

Biography: Andrew Rzepa is head of Gallup's public sector division in Europe and the Middle East and a regional executive leadership team member. He also serves as Gallup Executive Director of United Nations ("U.N.") partnerships. Within this role, he is responsible for the success of Gallup's engagements with U.N. agencies. These projects include measuring Sustainable Development Goal ("SDG") indicators focused on food insecurity and financial inclusion and numerous ad hoc projects, including measures of risk and water insecurity.

Mr Rzepa is an advisor for governments, U.N. entities and nonprofit organizations, including the U.K.'s What Works Centre for Wellbeing. He is also a senior (nonresident) associate with the Washington, D.C.-based Center for Strategic and International Studies ("CSIS") and a Science and Innovation Council Member for "Beans is How" a multi-sectoral initiative launched at COP27 to double bean and pulse consumption globally by 2028. Before joining Gallup, Mr Rzepa served as a management consultant across various sectors, working in Brussels, Manchester and Hong Kong.

Mr Rzepa has been admitted to the roll of solicitors of England and Wales. He earned his bachelor's degree in law and master's degree in international and European human rights law from Durham University and his legal practice certificate from Nottingham Law School. Mr Rzepa earned a master's in business administration with a focus on international business consulting from The University of Manchester.

Email: andrew_rzepa@gallup.co.uk



Ezequiel Sack, Producer

Producer Regenerative Agriculture

Country: Argentina

Title: "Regional Experiences in Regenerative Livestock"

Abstract: The presentation covers the central axes of regenerative livestock; emphasizing the main transformations necessary to adopt a productive model based on Natural Processes. Crucial contributions of regenerative livestock to the mitigation of Climate Change. Presentation of Association GRASS FED – Argentina.

Regenerative Livestock throughout the country. Experiences from North to South. What is the animal biotype with the best characteristics to adapt to the new management according to region, what tools are essential to achieve it and how we can measure evolution. Importance of livestock size, adaptation and phenotypic response. Emphasis on Animal Reproduction and Grassland Health. Production and Marketing of Regenerative Meat; Introduction to the concept of the brand "Native Grasslands".

Biography: Ezequiel Sack is a livestock producer. Founding Partner of the Regenerative Cabin of Angus and Murray Grey "Genetics of the East SA". Creator of the "Greyman Argentino" Breed. Founding Partner of the Murray Grey and Greyman Argentine Association and President since 2005, working on livestock adaptive strategies to climate change. Founding Partner and Vice President of the GRASS Association FED Argentina. Founding Partner of the Breedplan Group, creator of the Responsible Livestock Protocol. Founding Partner of Boran Argentina.

Committed to regenerative agriculture and livestock feeding of natural grasslands. He has more than 30 years of experience in selection by adaptation and breeding of functional rodeos with the Greyman Argentino, Senegrey, Andean Composite Breed breeds.

Email: ezequielsack@hotmail.com



Gustavo Schujman, Ph.D.

Co-Founder & Manager of Inmet SA

Professor of Microbial Genetics, Department of Microbiology, Rosario National University. Career Researcher of Argentinian Scientific and Technological Council

Country: Argentina

Title: “Biotransformation of agroindustrial residues and byproducts into bioplastics”

Abstract: The presentation discusses how metabolic engineering of bacteria and fermentation processes were applied to transform byproducts of different industries into biomaterials. The processes developed are environmentally friendly and produce a biodegradable bioplastic, reducing wastes and increasing added value.

Biography: Gustavo Schujman is cofounder of Inmet SA, a pioneering metabolic engineering company in Argentina. He studied Biochemistry at La Plata National University, obtained a PhD at Rosario National University and performed doctoral and postdoctoral research at MIT and Pasteur Institute of France. He is a Career Researcher of Argentinian Scientific and Technological Council (Conicet) and Professor of Microbial Genetics, Department of Microbiology, Rosario National University.

Email: gustavo.schujman@inmet.com.ar



Gustavo E. Schrauf, Ph.D.

Professor of Genetics. Facultad de Agronomía Universidad de Buenos Aires (FAUBA). Director of the Plant Breeding Programs of “Criadero Cultivos del Sur-FAUBA”. Secretary of Development and Institutional Affairs of FAUBA. Buenos Aires.

Country: Argentina

Title: “Genetics and Bioeconomy”

Abstract: Seeds are the key factor of any model of production. The seed involves its genotype and that of its associated microbiota. The definition of bioeconomy involves environmental, social and economic sustainability. Therefore, genetics can be a conditioning factor for sustainability. In the “Cultivos del Sur”-FAUBA Hatchery, pre-breeding and breeding research have been generating contributions for the development from a Bioeconomy perspective. Native species tolerant to abiotic stresses such as salinity, drought or extreme low temperatures have been studied. Cultivars with a high productive impact have been obtained in forage species, both in native and naturalized species, grasses and legumes. These cultivars, by increasing their biomass production specially under abiotic stresses, make sustainable systems more competitive. Additionally, a molecular breeding program is being developed in *Paspalum dilatatum*, different events are being analyzed and its genome is being sequenced. In tomato, genotypes from old Argentinean cultivars as genetic resources have also been selected in order to recover lost organoleptic qualities. This program was developed through a high participation of both consumers and horticultural producers, with the help of Bioleft platform, becoming an example of citizen science. In corn, in collaboration with INTA and the Ministry of Agrarian Development of Buenos Aires province, highly productive hybrids are being generated that also reduce the need for the use of herbicides. It is possible to consider that genetic improvement will become a driver in the Argentinean Bioeconomy.

Biography: Gustavo Schrauf is a genetist and plant breeder, agronomist of Universidad Nacional de Rosario (UNR), Magister Scientiae (UNR-INTA) and Doctor in Agricultural Sciences UBA. He is Full Professor of the Chair of Genetics at FAUBA and Director of the Hatchery "Cultivos del Sur" FAUBA. He has supervised numerous undergraduate (33) and postgraduate (10) thesis students. Many of whom currently direct breeding programs in the public and private spheres. The cultivars generated by the research and development group currently within the Plant Breeding Programs at “Cultivos del Sur” Hatchery have had outstanding performances when they were tested in cultivar evaluation networks. Part of the cultivars were obtained from native species (5). Additionally, experimental plants were obtained through transgenesis and intragenesis, currently under evaluation, and progress has been made in obtaining the genome of the native forage *Paspalum dilatatum*. Improvement programs with a high level of collaboration on the part of the agricultural producers, called participatory breeding, are also being developed at the Hatchery in corn, tomato and forages species. He has generated numerous agreements for academic cooperation and technological linkage.

Email: gschrauf@agro.uba.ar



Karen C. Seto, Ph.D.

Frederick C. Hixon Professor of Geography and Urbanization Science, Faculty Director, Hixon Center for Urban Ecology, Yale School of the Environment, Yale University

Country: United States of America

Title: “Global Urbanization and the Imperative for a Circular Bioeconomy.”

Abstract: The pace and magnitude of urbanization are unprecedented. Every day, an area equal to about 20,000 soccer fields become converted to urban uses. Every five days, the global urban population increases by about one million. Currently, urban areas contribute to about 67-72% of global emissions. With urban land areas expected to triple in size between 2015 and 2050, massive infrastructure build-up will result in carbon lock-in and the global share of future urban GHG emissions will increase through 2050. In this talk, I will discuss trends in urbanization and the challenges they present for global sustainability. I will present key findings from the 2022 IPCC report and other new results that document the effects of urbanization on land, biodiversity, food systems, and regional and global climate.

Biography: Karen Seto is the Frederick C. Hixon Professor of Geography and Urbanization Science at the Yale School of the Environment. She is an urban and land change scientist whose central research focus is how urbanization will affect the planet. A geographer by training, she integrates remote sensing, field interviews, and modeling methods to study urbanization and land change, forecast urban growth, and examine the environmental consequences of urban expansion. She is the recipient of a NASA New Investigator Program Award, a NSF Career Award, a National Geographic Research Grant, and the Outstanding Contributions to Remote Sensing Research Award from the American Association of Geographers. She was named an Aldo (Seto continued) Leopold Leadership Fellow in 2009. She is an elected member of the U.S. National Academy of Sciences, the Connecticut Academy of Science and Engineering, and the American Association for the Advancement of Science. She earned a PhD in Geography from Boston University.

Email: karen.seto@yale.edu



Marcelo Sili

Researcher and University Professor in rural development, planning and territorial development, development policies. Specialist in development policies and projects in Latin America (IDB, World Bank, IFAD, FAO, JICA, National, provincial and local government ministries)

Title: “Bioeconomic Entrepreneurship and Key Factors of Development: Lessons from Argentina.”

Abstract:

For Argentina, a country with large biomass availability, scientific-technological capacities and a strong agro-industrial sector, bioeconomy comes with an opportunity for sustainable local and national development. As key actors in bioeconomic transition processes, entrepreneurs become an important source of information for the design and implementation of bioeconomic strategies and policies. However, bioeconomic activity cannot guarantee sustainable development outcomes. We examine factors that influenced bioeconomic entrepreneurship and related sustainability outcomes. We identify five bioeconomic pathways with distinct characteristics. Among the main factors driving development in these pathways of the Argentinian bioeconomy, entrepreneurs emphasized the rich endowment with natural resources and the high level of scientific, technological and entrepreneurial capacities. Public policies,

(Sili continued) economic stability and regulatory frameworks were considered as the most critical barriers to bioeconomic development. Entrepreneurs saw their contribution to sustainable development primarily in the generation of new knowledge and employment. Ecological or social motives were

less frequently reported. Despite agricultural commodity production being the mainstay of the Argentinian bioeconomy, small-scale local initiatives, which also include socio-institutional and agro-ecological innovations, are coming up. Recommendations to improve the competitiveness of the Argentinean bioeconomy include the elaboration of a national bioeconomic development policy with the participation of private actors and their organizations, and the scientific and technological complex. Moreover, regulatory and normative frameworks have to be adapted and bureaucratic obstacles be reduced.

Biography:

Marcelo Sili is a geographer and specialist in rural & territorial development. He works in public policies, rural and territorial development, land use and environment policy, and local and regional strategic and economic development planning in Latin American countries. He holds a Phd in Rural Development at Université Toulouse (France), his postdoctorate degree at INRA (France). Actually, he is a Senior Researcher at the CONICET (National Scientific and Technical Research Council of Argentina). Titular Professor and Director of the Center for Territorial Development (ADETER), Universidad Nacional del Sur. International consultant in local and regional development projects. Published 15 books and more than 40 scientific articles among them several Atlas (Rural spaces in Argentina, rural spaces in Ecuador, Municipalities in Paraguay), studies on the problems of rural development in Latin America and recently on problems of territorial governance, and development paradigms and models in Latin America, Africa and Asia. He has coordinated more than 60 local and regional development projects in Latin America for local and national governments, and for the international agencies (IFAD, World Bank, JICA, IADB, IICA).

Email: sili.marcelo@gmail.com – website: www.marcelosili.com



S. Aaron Smith, Ph.D.

Associate Professor and Associate Director Center of Farm Management, University of Tennessee Institute of Agriculture, University of Tennessee – Knoxville, Tennessee.

Country: United States of America

Title: “Carbon Markets and Climate Smart Agricultural Commodities: Economic Sustainability and Access to Global Markets”

Abstract: Technological advancements in climate smart commodities have accelerated globally, with new technologies and systems being rapidly implemented. This presentation discusses the interaction between technology adoption and market development with firm and industry level economic sustainability and access to the global marketplace. Development of climate smart agricultural markets to connect agriculture with rural and urban consumers necessitates a system wide analysis of firm level profitability, supply chains, and global trade. Voluntary and compulsory carbon markets and Ecosystem Credit Markets have the capacity to provide new revenue streams to the agri-forestry complex, however determining a low cost, verifiable tracking system is imperative to establish confidence in Ecosystem Credit Markets. Development of supply chains and trade agreements to provide consumer access to climate smart agricultural commodities will be imperative to long-term market viability.

Biography: S. Aaron Smith is an Associate Professor and Associate Director, University of Tennessee Center of Farm Management. University of Tennessee Institute of Agriculture, University of Tennessee – Knoxville, Tennessee. He earned both his Master and PhD degrees at University of Arkansas in Fayetteville Arkansas. His applied research and Extension program focuses on agricultural marketing, risk management, and domestic farm policy. His recent research focuses on the economics of climate smart agricultural commodities and carbon trading systems. He has published 25 peer reviewed journal articles and obtained over \$45 million in grant funding as a PI or co-PI. His work has been cited by popular press outlets such as Farm Press, Bloomberg, and NPR. In 2022 he received the Early Career Contributions to Public Policy Award by the Council on Food, Agricultural and Resource Economics. The award specifically honors early-career food, agricultural and resource economists who generate science-based, policy-relevant knowledge and actively seek to make that knowledge available in a form accessible to public policy decision-makers at the federal, state and/or local levels.

Email: aaron.smith@utk.edu



Daniel Somma, Ph.D.

Senior Researcher at INTA (National Institute of Agricultural Technology of Argentina).

Country: Argentina

Biography: Dr. Daniel Somma is a senior researcher at the National Institute for Agricultural Technology (INTA). He has an Agricultural Engineering degree from the National University of Buenos Aires and a doctoral degree from Wageningen University, Netherlands. He has served as a consultant for agricultural planning, sustainable forestry production and information systems in different projects of a private and public nature in provincial (Salta, Jujuy, Catamarca, Santa Cruz), national and international (Uruguay, Chile, Bolivia, Paraguay) settings. He has participated as Director or Principal Consultant in projects of the IDB, the GEF (World Bank), the UNDP, the EU, and or financed by international organizations (JICA, AECI). He has been Director of the Buenos Aires Norte Regional Center (2013 – 2016) and President of National Parks (2019 – 2021). He is the author of several publications: scientific articles and book chapters. Among them, 20 are selected referring to land use planning, rural planning and the implementation of information systems; He has participated as a speaker and lecturer in different meetings held in Germany, Holland, Italy, the United States, Brazil, Kenya, South Africa, Australia, New Zealand, Paraguay, Bolivia, Chile and Mexico. He has received several scholarships for higher education: Junta de Gobierno de Andalucía (Spain), Royal Netherlands Fellowship (ITC and Agrarian University of Wageningen, The Netherlands), Fulbright Commission (University of California, Davis and Berkeley), Canon National Parks Science Scholars Program (Canon USA Inc., AAAS, National Parks Service, USA) and New Zealand Government scientific cooperation, among others

Email: somma.daniel@inta.gob.ar



Ana Sonsino, M.Ed.

Manager of Education and Training, National Assistant Directorate “Development, Management and Strengthening of People” at INTA. Buenos Aires, Argentina

Country: Argentina

Title: Training at INTA: institutional tools and challenges for the formation of interdisciplinary teams.

Abstract: INTA (National Institute of Agricultural Technology) is an agency of the science, technology and innovation system that, through different processes and components, contributes to the sustainable development of the agro-bioindustrial system and the formulation of public policies. The 2015-2030 Institutional Strategic Plan states that knowledge is a strategic asset par excellence for value generation and education is a fundamental tool for promoting institutional innovation and achieving strategic goals. Within this framework, the Education and Training Management designs, coordinates and implements different lines of action aimed at accompanying educational trajectories and promoting the continuous updating of both staff and producers, technicians, professionals, students, teachers and the community at large. These actions are reflected in the Strategic Training Plan and the annual plans, which are flexible tools and built in a participatory way. These tools help to promote work in transdisciplinary and inter-institutional teams, the assessment and integration of knowledge and a strategic and prospective view.

Biography: Ana Sonsino. Master’s degree in education and ICT (e-learning) with orientation in management (Universitat Oberta de Catalunya), Specialist in Didactics, and Degree in Educational Sciences (University of Buenos Aires). She is Manager of Education and Training of the National Directorate Assistant Development, Management and Strengthening of People at INTA. She participates as an external researcher in the project "Educational, communicational, aesthetic and political dimensions of digital culture" of the National University of Quilmes. She teaches at the undergraduate and postgraduate level in various Universities in areas related to didactics, educational planning and management, educational technology and digital policies.

Email: sonsino.ana@inta.gob.ar



John Stier, Ph.D.

Associate Dean and Professor, Herbert College of Agriculture, University of Tennessee, Knoxville

Country: United States of America

Title: “Post-Secondary Education for the Circular Bioeconomy of Agriculture and Natural Resources.”

Abstract: Student demographics and interests combine with university, industry, and governmental capacities and needs to shape educational offerings. Employer needs and emerging technologies such as robotics, artificial intelligence and data science are rapidly changing how our bioeconomy is developing. Current and projected needs and opportunities of workforce development for the bioeconomy will be described, followed by ways in which the needs might be met by post-secondary institutions.

Biography: John Stier is associate dean for academic and faculty affairs in the Herbert College of Agriculture at the University of Tennessee (UT). He earned bachelors and masters degrees in agriculture and plant pathology from The Ohio State University, and a PhD in crop and soil sciences from Michigan State University. He oversees student recruitment, curriculum, and career preparation at UT, collaborating with industries to ensure the university is responsive to employer needs. Dr. Stier has worked on industry and/or academic programs in multiple countries, ranging from a PhD program with the China Scholarship Council to summer-long student research and outreach projects for farmers in Belize. He is a Fellow of both the American Society of Agronomy and the Crop Science Society of America, and received the Crop Science Society’s Fred Grau award in 2020 for the greatest impact on turfgrass science research and outreach over the last 15 years.

Email: jstier1@utk.edu



Miguel Ángel Taboada, Ph.D.

Professor Edaphology, University of Buenos Aires, School of Agriculture, Argentina.

Country: Argentina

Title: Climate-Smart Production of Crop and Livestock in Argentina

Abstract: Climate-smart agriculture (CSA) is an approach for transforming and reorienting agricultural systems to support food security under the new realities of climate change. Threats are reduced by increasing resilience and resource use efficiency in agricultural production systems. For a long time, Argentine agriculture and livestock did not have CSA as objective, but this began to change in recent years, when about 20% of farmers have adopted knowledge-based systems, such as precision agriculture and agriculture by environments, greater diversification and intensification of rotations, with double crops, late corn, enhanced efficiency fertilizers (EEF) and cover crops along with no-till, in replacement of other systems based on inputs. In the same way, livestock farmers began to pay more attention to grazing management in pasture-based systems, with at most supplementation with grain at the end of the cycle. Based on a study done for FAO by Peralta and Di Paolo (Modeling and mapping Soil Organic Carbon (SOC) sequestration potential (GSOCseq, 2022), the application of these nature-based solutions (NBS) has a potential to sequester carbon between +10% and +30% for cropped soils, and between +25% and +70% for livestock systems. This shows that climate change mitigation by NBS may be the missing link to attain effective CSA in cropping and livestock systems in Argentina.

Biography: Miguel Ángel Taboada is an Agricultural Engineer. He has a Master in Soil Sciences from the School of Agriculture, University of Buenos Aires, and as a Ph.D. in Eco- and Agro-systems from the Higher National Institute of Toulouse, France. He is a Professor of Edaphology at the University of Buenos Aires and Faculty of Agronomy UBA and Director of Carbon Group Agroclimatic Solutions (Taboada continued) SRL. He has author 75 journal publications, 45 book chapters and five books, on topics related to soil fertility, saline-sodium soils, and adaptation and mitigation of climate change in the agricultural sector. He is a member of the National Academy of Agronomy and Veterinary Medicine since December 2021 Full Professor in Edaphology. He has been a member of the National Research Council of Argentina (CONICET) since 1992.



Laila Toun Terrones, Ph.D.

Assistant researcher in the National Scientific and Technical Research Council (CONICET). Ministry of Science and Technology, Argentina. Soybean breeding. Drought tolerance phenotyping.

Country: Argentina

Title: “The first Innovation Center for Sustainable Agriculture in Argentina: the challenge of leading the technological transformation of the local agro-industrial productive system.”

Abstract: Calculation models based on the growing global population and current agricultural production suggest that crop yields must be doubled to provide enough food in 2050. Agriculture is an element of economic development and an axis of social articulation. However, this prominence does not come without costs. Agriculture and the use of farmland is responsible for more than 20% of greenhouse gas emissions and the consumption of

70% of water globally. In Argentina, even when this activity is central and relevant, we have almost 37% of poverty, which demands a strong transformation of the agricultural practices based on social and technological changes, establishing new sustainable strategies to keep Argentina competitiveness and to reverse poverty rates of part of our population. With the frame, The Ministry of Science, Technology and Innovation of Argentina firmly promoted the creation of the first Innovation Center for Sustainable Agriculture in Argentina with the expectation to become agriculture more sustainable using the enormous scientific and technological knowledge in this area in our country.

Biography: Laila Toum Terrones is an Assistant Researcher in the National Scientific and Technical Research Council (CONICET) and currently plays a role in the Ministry of Science and Technology, Argentina. She earned her Bachelor and PhD degrees in Biological Science in the University of Buenos Aires. She conducted her graduate studies in the Laboratory of Molecular Phytopathology, at the University of Buenos Aires. PhD studies focused on plant-microbe interaction, studying suppression mechanisms of immune response by *Xanthomonas campestris campestris* (Xcc) in (Terrones continued) *A.thaliana* plants. As a postdoctoral research fellow in the Biotecnology Institute in Tucumán, Argentina, she studied the drought tolerance in soybean plants through transcriptomic and genomic approaches. She has published 11 peer reviewed papers in this field. Since 2020, she is working in the Ministry of Science, Tecnology and Innovation with the aim of consolidate science and technology political policies to contribute to Argentina development.

Email: ltoum@mincyt.gob.ar



Daniel Tomasini, Ph.D.

University of Buenos Aires, School of Agriculture, Argentina

Title: “Environmental Law and Policies for Bioeconomy Governance”

Abstract: Bioeconomy, as a concrete manifestation of the circular economy, is not only aimed at sustaining and increasing environmental goods availability, but also at promoting environmental services (positive amenities) and reducing impacts (negative amenities). This concept is strongly influenced by public policies and financial resources allocated to improve environmental quality for people, so authorities must lead the development of bioeconomy and its coordination at territorial level, involving both public and private partners.

Biography: Agronomic Engineer from the School of Agronomy-Buenos Aires University. Specialized in economics and environmental law, with postgraduate studies in Natural Resources Law at the University of Buenos Aires and Economics and Environmental Policy at Harvard University. He has developed an academic career in which he is currently Associate Professor in the Area of Environmental Economics and Policy of the Department of Economics at the School of Agronomy-UBA, where he implements teaching activities on undergraduate and postgraduate courses, and researches on economics and environmental policy. He also served as Director of the Department of Economics, Development and Agricultural Planning. He has been Coordinator of the Environment and Sustainable Development Cluster of the United Nations Development Program (UNDP) in Argentina, between 2004 and 2016, where he implemented national and international projects and activities related to environmental management and development. He also has an extensive experience in Argentine national and provincial public management in environmental, agricultural and energy issues, programs and projects and has been consultant to several international cooperation agencies.



Brian Wanamaker, Ph.D.

Legal Counsel, North America; Hitachi Zosen Inova

Country: United States of America

Title: “Early Biogas Market Feedback from the Inflation Reduction Act.”

Abstract: The United States recently enacted the Inflation Reduction Act, which, among other things, provides significant federal incentives to promote biogas projects. Those incentives have jolted the biogas market: causing some projects to change direction, tipping some projects across the line from (Wanamaker continued) finically marginal to financially sensible, and likely accelerating the growth in an already rapidly growing US market. This talk provides some of HZI’s anecdotal observations about the initial effect of the legislation in order to help inform future policymaking.

Biography: Brian Wanamaker is the North American legal counsel for Hitachi Zosen Inova, the renewable energy arm of Hitachi Zosen Corporation and a world leader in anaerobic digestion and biogas upgrading technology. Brian previously served as General Counsel to United States Senator Cory Gardner and as the Interim Chief Legal Officer of Ruby Tuesday, Inc. Brian began his career as a litigator in the Chicago office of Winston & Strawn and has served as a law clerk in the federal and state courts. He received his JD from the Washington University School of Law in St. Louis and his BA from the University of Kansas.

Email: brian.wanamaker@hz-inova.com



Andrew White

CEO, CHAR Technologies Ltd.

Country: Canada

Title: “Renewable Gases & Biocarbon from Biomass & Residuals with High Temperature Pyrolysis - A Co-Product Model.”

Abstract: High Temperature Pyrolysis (HTP) process converts low value, residual biomass and wastes into co-products of biocarbon and renewable gases. Depending on the feedstock, the resultant biocarbon can either be used to offset fossil coal in heavy industrial applications such as steel making or (White continued) can be used as part of a PyCCS (Pyrolysis Carbon Capture & Sequestration) process. Likewise, the gases generated can either be optimized to generate a green hydrogen product, or can be processed and upgraded into renewable natural gas. During the presentation, the technology, as well as the various product output opportunities, will be explored in greater detail.

Biography: Andrew is the co-founder of CHAR Technologies. He has a MASc degree in Chemical Engineering from the University of Toronto and after a eureka moment in the lab, launched CHAR Technologies. He also has a Master's Degree in Business, Entrepreneurship and Technology (MBET) from the University of Waterloo and has won the IBK Capital Ivey Business Plan Competition, been named the OBBA's Young Entrepreneur of the Year, and led CHAR to be named the CIX Top 20 Most Innovative Public Companies. Andrew leads by example – providing clients and staff alike with clear guidance and actionable insights that help make our world a better place

Email: Andrew.white@chartechnologies.com



Jewell Winn, Ph.D.

Senior International Officer, Chief Diversity Officer, Assistant Professor/College of Education, Tennessee State University

Country: United States of America

Title: “Diversifying an Interdisciplinary Workforce through an SDG Lens.”

Abstract : Student experiences vary in STEM fields depending on socio-economic background, geographic region, and racial and gender background. These experiences are impacted by the teachers who serve them and the type of school they attend. Schools designated as high poverty tend to have fewer teachers who are certified in specific content areas, fewer advanced courses offered in STEM subjects and higher turnover than in wealthier schools. These concerns are a major factor when recruiting a diverse workforce. The United Nations Sustainable Development Goals provide resources and opportunities for K-16 institutions and organizations to think differently about how to prepare the next generation of STEM leaders.

Biography: Dr. Jewell Green Winn has over thirty-five years of experience in education. She provides leadership to the office of International Affairs at Tennessee State University as the Senior International Officer and Chief Diversity Officer. Dr. Winn holds a Doctorate of Education, Master of Public Administration, and Bachelor of Business Administration degrees. Her research interests include the intersection of diversity and international affairs, global strategies for minority-serving institutions, cultural competence in theory and practice, and the acculturation of international students. She has authored and co-authored articles and book chapters relative to diversity and internationalization efforts at HBCUs. She is the President of the Association of International Education Administrators; serves on the American Council on Education Women's Network Advisory Council, the Association of Public Land Grant Universities Commission on International Initiatives, the Tennessee Diversity Consortium, and Alignment Nashville. She is also a member of Diversity Abroad, the Forum on Education Abroad, Women in Higher Education in Tennessee, and other civic/social organizations.

Email: jwinn@tnstate.edu



Jie Zhuang, Ph.D.

Professor, Biosystems Engineering and Soil Science, Director of FEWSUS, University of Tennessee, Knoxville

Country: United States of America

Title: “Can Food–Energy–Water Nexus Education Keep Pace with Agricultural Innovation?”

Abstract: The nexus of food, energy, and water (FEW) systems represents complex system science. The nexus underlies the sustainable development of agriculture while confronting increasing complexity and challenges brought about by emerging technologies (such as sensors, artificial intelligence, and automated machines), supply chain disruption, and environmental change. Far less understood are the FEW outcomes for future generations if the emerging technologies are widely applied to agriculture. The outcomes are becoming increasingly complex as environmental change and unpredictable economic, social, and political consequences emerge. Current undergraduate and graduate curricula much lag behind the increasing requirement of job training on emerging technologies. There is an urgent need to reform current curriculum by strengthening transdisciplinary learning of the benefits and tradeoffs of emerging technologies. In general, development of a transdisciplinary education system by integrating disconnected knowledge, information and perspectives is a prerequisite for training next-generation workforce that can explore solutions effective to minimize the tradeoffs of emerging technologies. Such a visionary transdisciplinary education can greatly benefit roadmap development and decision-making on future food production practices from local to global scales. This presentation will address the increasing challenges and opportunities of emerging technologies if they are applied for food production and identify learning gaps in the education of FEW nexus, which is being reshaped by the emerging technologies.

Biography: Dr. Jie (Joe) Zhuang is a professor and graduate program director in Department of Biosystems Engineering and Soil Science and affiliated faculty in Center for Environmental Biotechnology and Institute for a Secure and Sustainable Environment at the University of Tennessee, Knoxville, USA. He received his bachelor, masters, and doctoral degrees in soil science from Shenyang Agricultural University, China. He is a co-founder and vice director of China-US Joint Research Center for Ecosystem and Environmental Change during 2007-2020. Dr. Zhuang created a US-China 100-PhD Program in the areas of Food, Energy and Environment in 2014 and has recruited more than 40 students for doctoral study in the U.S. With the support of the U.S. National Science Foundation, Dr. Zhuang currently leads a project aiming to develop a global research network for creating transdisciplinary nodes of food-energy-water to support sustainable urban systems (FEWSUS). This research project involves researchers, students, stakeholders, and policy-makers of many countries of the world. Over the past two decades, Dr. Zhuang has worked on a broad range of research projects in the United States, Japan, and China. His research focuses on food-energy-water nexus, fate and transport of contaminants (e.g., viruses, bacteria, colloids, emerging chemicals, radionuclides, and munitions constituents), physical foundation of soil viral ecology, soil carbon management, and soil hydrology modeling. He has served on the editorial boards for eight international journals, published more than 120 referred papers and book chapters, and given more than 40 invited talks worldwide.

Email: jzhuang@utk.edu



David Zilberman, Ph.D.

Distinguished professor and holder of the Robinson Chair, Department of Agricultural and Resource Economics, University of California Berkeley

Country: United States of America

Title: “The impacts of a circular economy- and the policies to advance it.”

Abstract: Climate change food security and safety challenge the human food system, technology, and institutions. New management principles are introduced to address these challenges- including circularity, the bioeconomy, agroecology, and precision farming. I aim to address the linkage between these approaches and argue that they are part of the sustainable development of agriculture. Sustainable development means pursuing improved welfare at present without harming future generations, and thus implies conservation, improved input use efficiency, and recycling, among others. These approaches are complementary, and their introduction, implementation, and growth require continuing investment in education research, extension, technology transfer institutions from the public and private sector, and enabling incentives and policies. These policies include pricing various externalities, particularly greenhouse gas emissions, science-based regulations allowing utilizing new biological tools, smart credit policies and investment in digital infrastructure and in human capital.

Biography: David Zilberman holds the Robinson Chair in the Agricultural and Resource Economics Department, University of California at Berkeley. He is the recipient of the 2019 Wolf Prize in Agriculture and was elected a member of the U.S. National Academy of Science 2019. David served as the 2018-(Zilberman continued) 19 President of the Agricultural & Applied Economics Association (AAEA). He's a Fellow of the

AAEA, Association of Environmental and Resource Economists, European Association of Environmental and Resource Economists, and Honorary Life Member of the International Association of Agricultural Economists. David has published in both professional and popular outlets. He has more than 350 refereed articles in journals ranging from Science to ARE-Update and has edited 20 books. In addition, he has served as a Consultant to the U.S. Environmental Protection Agency, the World Bank, and FAO.

David's research analyzes innovation supply chain and policy economics, emphasizing the interactions between agriculture, energy, and the environment. He has researched the economics and political economy of agricultural biotechnology and the potential of the bioeconomy. In addition, he has been working on water policy programs and the economic impacts of the covid pandemic.

Email: zilber11@berkeley.edu

Moderators



Mirian Gomez Alegre , M.Ed.

Biography: Mirian Gomez Alegre is a staff at the Management of Education and Training team, National Assistant Directorate “Development, Management and Strengthening of People” at INTA. Buenos Aires, Argentina.

She holds a Degree in Educational Sciences, Specialist in Educational Technology and Master in Educational Technology (University of Buenos Aires). Since 2014 she has been part of the Education and Training Management team. She worked as a teacher and virtual tutor for the Permanent Training Program of the Ministry of Education and Human Rights of the Province of Rio Negro and has generated content for virtual courses for different educational institutions.

E-mail: gomezalegre.m@inta.gob.ar



Eduardo Cittadini, Ph.D.

National Coordinator of the Program “Regional and Territorial Development” at INTA (National Institute of Agricultural Technology), Argentina. Lecturer of Ethics at UNPSJB (National University of Patagonia “San Juan Bosco”), Trelew, Argentina.

Country: Argentina

Biography: Agronomist Engineer (1994), Mar del Plata National University, Argentina. Master of Science (M.Sc.) in Crop Sciences (2002), Wageningen University (The Netherlands). Doctoral degree in Production Ecology and Resource Conservation (2007), Wageningen University. Postdoc in Project Management (2010), Wageningen University. Bachelor of Political Science (2014), National University of Patagonia “San Juan Bosco”). MBA in Direction and Management of Organizatios (2022), Blas Pascal University (UBP), Argentina.

He has worked in extensive sheep farming, in experimentation and extension in horticulture, in ecophysiology of fruit trees, in analysis and design of production systems, in simulation models at crop, farm and regional levels, in territorial development and in policy analysis. He coordinated national and international projects. He supervises Master's and Doctorate thesis students. He is the author of a significant number of scientific articles in journals, books and book chapters. Likewise, he is a regular reviewer of projects and articles for scientific journals. Between 2014 and 2018 he coordinated the INTA’s National Program for Development and Sustainability of the Territories. Since 2018 he coordinates the INTA’s Program “Regional and Territorial Development”.

Email: Cittadini.eduardo@inta.gob.ar



Luis Ernesto Erazzu, Ph.D.

Biography: Luis Ernesto Erazzu is an Agricultural Engineer (National University of Tucumán, 1987), Master of Science and Doctor of Agricultural Sciences (National University of Mar del Plata, 1996 and 2009 respectively). He is a visiting professor of the Graduate Course on Plant Genetic Improvement of the Faculty of Agricultural Sciences of the National University of Mar del Plata and a professor attached to the Genetics Chair at the National University of Tucumán. Since 2010 he is a researcher of the Genetic Improvement Program for Sugar Cane, Cotton and Soybean crops. He currently works on the improvement of sugar cane and quinoa at INTA's EEA Famaillá. He has coordinated research projects and is currently Coordinator of INTA's National Program for Industrial Crops. He is the director, co-director, advisor on bachelor's, master's and doctoral theses on potato, sugar cane, stevia and quinoa research. He has publications in Euphytica, American Journal of Potato Research, Plant Disease, Plant Systematics and Evolution, Plant Biology, Journal of Soil Science and Plant Nutrition, Journal of Basic and Applied Genetics, Lilloa, and Botany. He participated in obtaining and plant patents for cultivars of sugar cane, cotton.

E-mail: erazzu.luis@inta.gob.ar



Daniel Horacio GRASSO, Ph.D.

Biography: He is a biochemist graduated from the National University of La Plata (1986) where he also obtained his doctorate (1996). He is a specialist in Soil Biology, Soil Microbiology and Laboratory. He is Associate Professor of Molecular Genetics in the Department of Science and Technology of UNQ. He is currently a researcher in the Project "Development of processes for the transformation of biomass into bioenergy", where he explores the alternatives of various crops for the production of bioenergy.

Email: grasso.daniel@inta.gob.ar



Sebastián Grenoville, M.Sc., Ph.D. candidate

Senior Researcher at INTA (National Institute of Agricultural Technology). Professor of the University of Buenos Aires. Argentina.

Biography: Sebastian Grenoville has a BA in Sociology and MSc in Comparative Politics, Latin America. London School of Economics and Political Science and the University of Buenos Aires. He is a doctoral candidate in Development Studies at University of the Basque Country (UPV / EHU). He is a lecturer and researcher at the University of Buenos Aires. He held management positions in different science and technical organizations in Argentina in the areas of rural development, vulnerability, social inclusion, marketing and food supply. He currently serves as researcher at the National Institute of Agricultural Technology (INTA). He participates in various national and international research projects and action networks such as Justice and Food Sovereignty in the Americas; Contested Territories; Food, Energy and Water for Sustainable Cities, among others.

E-mail: grenoville.sebastian@inta.gob.ar



Ana Carolina Wojtun, M.Ed.

Biography: Ana Carolina Wojtun is staff at the Management of Education and Training team, National Assistant Directorate “Development, Management and Strengthening of People” at INTA. Buenos Aires, Argentina.

She holds a Degree in Educational Sciences and Master in Educational Technology (University of Buenos Aires). Specialist in Education and New Technologies (PENT/FLACSO). She is part of the Pedagogical Implementation team in PROCADIS / INTA (Distance Training Program), and in the Education and Training Management, both of the National Directorate Assistant Development, Management and Strengthening of People in INTA. She is a pedagogical advisor and teacher in the field of teaching practice, specializing in the design, planning and management of teaching and learning proposals in virtual environments.

Email: wojtun.ana@inta.gob.ar

