



Tuesday April 20, 3:00 – 5:30 pm US Eastern Time

Session 7 – ‘Greenhouses Gases’ from the Food Supply Chain: Paths to Mitigation and Sustainability

Session Co-Chairs: **Geoffry Smith**, Nutrition Strategies International Pte. Ltd., Singapore and **François Eudes**, PhD, Agriculture and Agri-Food Canada

Biography: **Mr Geoffry Smith** is President of ILSI Southeast Asia Region based in Singapore and was a Member of the Executive Committee of the global ILSI Board. In addition, he is the Chairman of the Essential Micronutrients Foundation, a non-profit organization which addresses micronutrient deficiencies globally as a public health issue. He is also Director of Nutrition Strategies International which deals with food and nutrition issues in developing countries. In addition, he serves as a Member of the editorial board of the journal, Food and Nutrition Bulletin. Prior to his current positions, Mr. Smith was the Global Director, Health Chelates for Akzo Nobel Functional Chemicals, and directed the global business for these compounds in food and nutrition as well as pharmaceutical applications. He was responsible for the global project within Akzo Nobel addressing iron deficiency anemia. In addition, Mr. Smith directed the Asia Pacific activities for Akzo Nobel's Innovation Unit. He is a thirty-year veteran of the chemical industry in the Asia Pacific and has resided in Singapore for more than 20 years. He is a Member of the Nutrition Society of the UK, the American Society of Nutrition and the American Chemical Society.



Biography: **François Eudes**, is Research, Development and Technology Director – Alberta, for Agriculture and Agri-Food Canada (AAFC). He received his PhD in Plant Science at the University of Laval, Québec, in 1998. His research includes developing technologies in tissue culture, as well as genetic engineering and their applications in cereals. Dr. Eudes has published more than 60 papers in biotechnology, cell biology and plant disease. As Director of Alberta's Lethbridge Research and Development Centre and Lacombe RDC, he oversees a broad range of research areas that include Agro-ecosystem Resilience and Discovery research in plant and animal microbiomes, livestock and meat production, as well as crop sciences.





1. If You Can't Measure It, You Can't Manage It. The Why, the What and the So-What of Greenhouse Gas Assessments in the Dairy Chain, [Jeremy Hill](#), PhD, Fonterra, New Zealand

Abstract: Dairying regions around the world face a similar challenge in the reduction of GHG emissions. This presentation will discuss the importance of accurate measurement and how this can feed into management practices that reduce the environmental impact of a food systems supply chain. Examples from Fonterra and the Sustainable Nutrition Initiative will be used to illustrate the journey we are currently on as we continue to explore what a sustainable food system looks like.

Biography: [Jeremy Hill](#), Chief Science & Technology Officer, Fonterra Cooperative Group & Professor, Sustainable Nutrition, Riddet Institute, Massey University Professor Hill has worked for Fonterra and its predecessor companies for over 30 years, the last 14 as Fonterra's Chief Science & Technology Officer. He is an inventor on numerous patents covering different aspects of dairy science, technology, health and nutrition and has published over 100 scientific papers. Between 2012-2016 he served as President and Chairman of the Board of the International Dairy Federation (IDF). He is Chairman of the Pastoral Greenhouse Gas Research Consortium and sits of the Board of the NZ Agricultural Greenhouse Gas Research Centre. Professor Hill was made a Member of the New Zealand Order of Merit for services to science and the dairy industry in the 2020 Queens Birthday Honours.



2. Rethinking Methane: Uncovering Climate Solutions within Animal Agriculture, [Frank Mitloehner](#), PhD, University of California, Davis, United States

Abstract: Animal agriculture is often disproportionately blamed when it comes to climate change, distracting us from legitimate climate solutions in a sector portrayed as only a problem. That's because we haven't been looking at how methane actually warms – or cools – our planet. By rethinking methane, we can show how animal agriculture cannot only find a path to climate neutrality, but also one in which it can be a tool in our fight against global climate change.

Biography: [Dr. Frank Mitloehner](#) is a professor and air quality specialist in cooperative extension in the Department of Animal Science at UC Davis. As such, he shares his knowledge and research, both domestically and abroad, with students, scientists, farmers and ranchers, policy makers, and the public at large. Frank is also director of the CLEAR Center, which has two cores – research and communications. The CLEAR Center brings clarity to the intersection of animal agriculture and the environment, helping our global community understand the environmental and human health impacts of livestock, so we can make informed decisions about the foods we eat and while reducing environmental impacts.



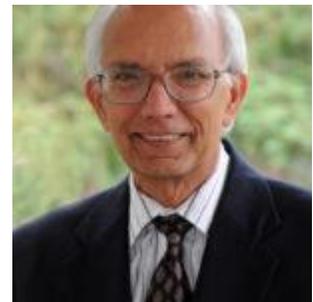
[CLEAR Center Twitter](#) ; [CLEAR Center Facebook](#); [Dr. Mitloehner Twitter](#)



3. The Potential of Regenerative Agriculture for Carbon Management and Sustainability, [Rattan Lal](#), PhD, The Ohio State University, United States; 2020 World Food Prize

Abstract: Site-specific regenerative agriculture (RA) is aimed at reconciling the need to produce adequate and nutritious food with the necessity of restoring the environment, and to make farming a solution to global warming and other environmental issues. Rather than one practice, RA encompasses a wide range of farming and grazing options aimed at restoration and sustainable management of soil health through sequestration of soil organic carbon (SOC) and improvement of soil structure. Thus, some examples of RA include system-based conservation agriculture or CA (e.g., no-till farming in conjunction with residue mulching, cover cropping, integrated nutrient and pest management, complex rotations), and integration of crops with trees and livestock. Because of wide variations in bio-physical and socio-economic factors, site-specific RA package(s) must be fine-tuned and adapted. The soil-centric RA strategy, based on the premise that “health of soil, plants, animals, and humans is one and indivisible,” is focused more on obtaining an optimum yield sustained over a long-term basis and with minimal dependence on agrochemicals than on obtaining high yields over a short time horizon even if it degrades soil and pollutes the environment. The goal is to minimize the off-farm inputs with judicious and discriminate use of inputs (e.g., chemical fertilizers, pesticides, tillage, and other energy-based substances). Therefore, it is important to identify site-specific CA systems and other practices that can restore SOC stock, enhance soil health, and improve eco-efficiency of inputs and make agriculture a solution to addressing global environmental issues.

Biography: [Rattan Lal](#), Ph.D., is a Distinguished University Professor of Soil Science and Director of the Carbon Management and Sequestration Center at The Ohio State University, and an Adjunct Professor of University of Iceland. He received a B.S. from Punjab Agricultural University, Ludhiana, India (1963); M.S. from Indian Agricultural Research Institute, New Delhi, India (1965); and Ph.D. from the Ohio State University, Columbus, Ohio (1968). He served as Sr. Research Fellow with the University of Sydney, Australia (1968-69), Soil Physicist at IITA, Ibadan, Nigeria (1970-87), and Professor of Soil Science at OSU (1987-present). He has authored/co-authored 955 refereed journal articles and 543 book chapters, has written 22 and edited/co-edited 76 books. He was included in the Thomson Reuters list of the World’s Most Influential Scientific Minds (2014-2016), and he is among Clarivate’s Highly Cited Researchers in Agriculture (2014-2019). He has received an Honoris Causa degree from seven universities in Europe, USA and Asia; the Medal of Honor from UIMP, Santander, Spain (2018); the Distinguished Service Medal of IUSS (2018); and is fellow of the five professional societies. Dr. Lal has mentored 112 graduate students and 180 visiting scholars from around the world. He was President of the World Association of Soil and Water Conservation (1987-1990), International Soil and Tillage Research Organization (1988-1991), Soil Science Society of America (2006-2008), and the International Union of Soil Sciences (2017-2018). He is laureate of the GCHERA World Agriculture Prize (2018), Glinka World Soil Prize (2018), the Japan Prize (2019), the U.S. Awasthi IFFCO Prize (2019), and the World Food Prize (2020).





4. Science for Agriculture Towards Sustainability and Potential CO₂ Management, **John R. Tafkaj Porter**, PhD, University of Copenhagen, Denmark

Abstract: Should agriculture have the mantra of ‘more from less’ or should its goal be ‘enough from less’? What is the relation between improving efficiencies and at the same time reducing absolute emissions from farming. What does a food system and agriculture look like that produces enough, saves more and wastes less. In this talk I will present some ideas, methods and experimental analyses that allow us to examine these questions and issues. I will take as a starting point the ideas of crop ideotypes and expand it to crop ideosystems. The methodology that I present can also be used in other contexts - such as assessing ways to reduce the impacts of the Covid 19 virus.

Bio: Porter is an internationally known agro-ecological scientist with an expertise in ecosystem services in agro-ecosystems, including agro-ecology, simulation modelling and food system ecology including that of cities. He has personally received three international prizes for his research and teaching and three others jointly with his research group. From 2011 to 2014 he led the writing of the critically important chapter for the IPCC 5th Assessment in Working Group 2 on food production systems and food security, including fisheries and livestock. This chapter was one of the most cited from the IPCC 5th Assessment and formed an important scientific bedrock of the COP21 agreement in Paris in 2015. He has recently become a member of the inter-disciplinary international working group on post-growth economics and founder member of the Advanced Research Institute at the University of Montpellier and science consultant on the One Planet Fellowship Programme. Porter has published papers in agricultural, climate change, economic, political and medical journals.



5. Panel discussion with the speakers and **Beata Madari**, PhD, Embrapa, Brazil

Beata Madari is agronomist and soil scientist at Embrapa, the Brazilian Agricultural Research Corporation, in the National Research Center for Rice and Beans. She was leader of the Embrapa Research Network on Greenhouse Gas Emissions from Grain Crop Production Systems (Embrapa Fluxus Network) and is presently member of the Executive Committee of the Climate Change Portfolio of Projects of Embrapa. This experience has ranged from carbon and nitrogen cycling in terrestrial ecosystems, particularly regarding tropical acid soils under annual crops, to integrated crop-livestock-forestry systems.



Dr. Madari received her PhD in Soil Science from the Szent István University, Gödöllő, Hungary. Along with her Embrapa responsibilities, she is professor in post-graduate training in Agronomy at the Federal University of Goiás, Brazil. She was visiting scientist at the Eco&Sols (Ecologie fonctionnelle & biogéochimie des sols & des agro-systèmes) Mixed Research Unit in Montpellier, France between 2016 and 2019. She is a Fellow Scientist of the Brazilian Council on Science and Technology Development (CNPq) and has contributed to the IPCC on HWP, Wetlands and Soil N₂O



and to the UN Global Compact Initiative (unglobalcompact.org). Additionally, she is a member of the Scientific and Technical Committee of the 4 per 1000 Initiative - Soil for Food Security and Climate since 2016 and was a member of FAO's Livestock Environmental Assessment Partnership's technical advisory group on soil organic carbon stock change.