

Wed. Sep 8, 2021

Plenary Room

Keynote Lectures | Keynote Lectures | KL-01

New Agricultural Research Paradigms to Build Resilient Food Systems

Lecturer: Jacqueline d'Arros Hughes (Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India)

Chair: Hiroshi Ehara (Nagoya University, Japan)

11:30 AM - 12:00 PM Plenary Room

[KL-01] New Agricultural Research Paradigms to Build Resilient Food Systems

Jacqueline d'Arros Hughes (Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India)

11:30 AM - 12:00 PM

Keynote Lectures | Keynote Lectures | KL-02

Ten Reasons Why Asian Crop Science Must be Reinforced

Lecturer: Osamu Koyama (President, Japan International Research Center for Agricultural Sciences, Japan)

Chair: Hiroshi Ehara (Nagoya University, Japan)

12:00 PM - 12:30 PM Plenary Room

[KL-02] Ten Reasons Why Asian Crop Science Must be Reinforced

Osamu Koyama (President, Japan International Research Center for Agricultural Sciences, Japan)

12:00 PM - 12:30 PM

Keynote Lectures | Keynote Lectures | KL-01

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[KL-01] New Agricultural Research Paradigms to Build Resilient Food Systems

Jacqueline d'Arros Hughes (Director General, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), India)

Current food systems based on over-reliance on a limited number of crops and marginalisation of smallholder farmers who produce a significant portion of the world's total food grain production are neither sustainable, nor resilient. The present pandemic has exposed the vulnerabilities and inequities of our current food systems and its impact on the most marginalized communities. It has exacerbated malnutrition and slowed progress towards achieving SDG 2 (Zero Hunger) as well as many of the other SDGs around gender, health and nutrition and beyond. Sustainable changes are required to increase agricultural production, improve global supply chains and value webs, decrease food losses and waste, and to ensure that healthy and nutritious food is available and affordable for all.

A transformation of our food systems requires bridging yield gaps, fixing long and inefficient supply chains where profits accrue to intermediaries who add little value, reducing food losses and waste, curbing greenhouse gas emissions, shifting and diversifying diets to eliminate undernutrition, over-nourishment as well as the hidden hunger of micronutrient malnutrition.

Diets, and the food systems that deliver them, are at the intersection of the challenges associated with malnutrition, human health, natural resource degradation, and climate change. There is already high-quality research on various aspects of climate change, health and food and nutrition security. To transform food systems, inter-disciplinary research in support of policy makers facing difficult decisions at the intersection of human and planetary health is urgently required.

Policy makers are confronted with rapidly evolving, rapidly changing and sometimes even U-turns of scientific views across multiple disciplines. Current research fails to meet the most pressing needs of policy makers (especially in relation to managing policy trade-offs and costs). More research needs to be driven by the specific needs of national governments and their policy makers. Inter-disciplinary / multi-disciplinary / transdisciplinary research linkages across disciplines – climate, natural resources, food, health, and nutrition is required to fully address the diversity and complexity of global and local food systems. This calls for a new approach to find the solutions we and our planet desperately need. The public sector, the private sector and all participants and stakeholders at all levels in our agriculture and food systems need to work together to make this happen.

The complexity of our food systems calls for the best minds of the public and private sectors, with research institutions, civil society think tanks and advocacy groups, to pool their skills and resources to transform our dryland food systems for the benefit of all.

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Ten Reasons Why Asian Crop Science Must be Reinforced

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[KL-02] Ten Reasons Why Asian Crop Science Must be Reinforced

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[KL-02] Ten Reasons Why Asian Crop Science Must be Reinforced

Osamu Koyama (President, Japan International Research Center for Agricultural Sciences, Japan)

The issues of sustainability have recently become common among a wide range of population as the Sustainable Development Goals of the United Nations (SDGs) have gained global recognition. The issues are increasing its urgency and intensity. Climate change, for example, is now being called as "climate crisis" because of frequent extreme climate events, which in turn strongly affect agriculture and food security. Among the SDGs, sustainable agriculture is undoubtedly one of the most critical issues for the existence of human beings. Thus, the United Nations will hold a Food Systems Summit in September 2021 in order to foster innovative ideas and prompt collective actions worldwide.

Asia is well known for being the origin of human civilization and for its long history of crop cultivation. For example, sustainable rice paddy cultivation has been continuing for thousands of years, and wheat is said to be one of the first crops cultivated by human beings in the Middle East. However, Asia, which accounts for about 60% of the world's population, has always been suffering from famines and starvation. Although Asia has partly succeeded in providing enough food by introducing modern technologies, the region as a whole has gradually become dependent on imported food. And the region's high population density and intensive farming systems have turned agriculture-related environmental issues into a most pressing concern in recent years. In addition, Asia, with its diversified natural conditions — from dry to humid, from continental to archipelagic, and from cold to hot temperature — is a showcase of cropping systems, and consequently, a showcase of food-related problems such as poor soil fertility and limited water resources, weeds, pests, and so on. We Asians must find solutions against these various problems by ourselves as nobody else has enough capacity and experiences to provide the proper answers. Without these answers for Asia, the rest of the world would not be able to attain the goal of sustainable agriculture.

Crop science, as an academic field that deals with the relationships between plants species and human beings, can provide objective and technical solutions — namely, proper land use, proper chemical input use, proper water use, proper energy and labor use, and the proper combinations of the above — to most of the aforementioned problems. Furthermore, as a knowledge base of holistic wisdom accumulated in the long history of humankind, crop science can provide effective answers to complicated questions regarding human-nature relationship, namely, how to adapt to extreme climate, how to conserve biodiversity and ecosystem, how to optimize food and dietary culture, and eventually, how to maintain human society. Thus, there are plenty of reasons why Asian crop science should be energized more. It is natural to say, in the year of the Food Systems Summit, that Asian crop scientists should lead and guide the world towards creating sustainable and harmonious food systems.