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Political initiatives

As we approach the end of the year, plant sciences have been placed front and centre of initiatives to ameliorate the effects of climate change.

The past month has seen not one but two high-profile political meetings in which agriculture and food production have been discussed in terms of climate change. At each, initiatives were announced that could have a substantial influence on fundamental and applied plant research.

The first of these was the Global Food Security Summit held on 20 November 2023 in London and hosted by the governments of the UK, United Arab Emirates and Somalia, as well as the Bill & Melinda Gates Foundation and The Children's Investment Fund Foundation (CIFF) (an independent philanthropic organization founded in 2002 by Sir Chris Hohn). Most of the real work of the summit was probably done in side meetings between the various diplomats and technical staff in attendance. However, in his opening address, UK Prime Minister Rishi Sunak announced the establishment of a UK-CGIAR Centre for Collaboration and Innovation in Science and Technology.

The Consultative Group on International Agricultural Research (CGIAR) is probably best known for its crop research and breeding centres, such as the International Rice Research Institute (IRRI) in the Philippines, the International Maize and Wheat Improvement Center (CIMMYT) in Mexico and the World Agroforestry Centre (ICRAF) in Kenya. The UK-CIGAR centre was conceived as more of a virtual centre involved with forging "dynamic new collaborations between CGIAR, UK science institutes and research centers in the Global South," as well as "galvanizing existing partnerships." The centre will be funded through a grant from the UK Foreign, Commonwealth & Development Office (FCDO) and managed by the Centre for Agriculture and Bioscience International (CABI), which holds considerable experience with international collaborations in agricultural research.

One immediate focus of the UK-CGIAR will be a project "leveraging genetic innovations for accelerated breeding of climate-resilient and nutritious crops," particularly wheat, involving the John Innes Centre (JIC) in Norwich UK, CIMMYT and the International Center for Agricultural Research in the Dry Areas (ICARDA; another CGIAR centre, sited in Lebanon). Cristóbal Uauy, one of the lead researchers, describes the project as "developing locally adapted wheat cultivars that exhibit enhanced resistance to wheat rusts and elevated levels of iron" using "'big genome data' approaches to accelerate the use of historical diversity within modern breeding programmes." This would thus build upon long-standing collaborations between JIC and CIMMYT, which were formalized into a strategic collaboration in April 2021.

Ten short days after the Global Food Security Summit saw the opening of the 2023 United Nations Climate Change Conference in Dubai. This is also known as the Conference of the Parties of the United Nations Framework Convention on Climate Change, or more succinctly as COP28, it being the 28th of these annual meetings. Previous COP meetings have concentrated on the drivers of climate change and on agreements on restraining both the seemingly relentless rise of average global temperatures and the changes in climate that accompany it. The resolutions that have emerged from the previous 27 meetings have had nothing directly to say about agriculture or food production. This would seem a major omission, as around a third of warming gas emissions are directly or indirectly related to food systems, while the resulting climate change is a challenge to present and future agriculture; a report from the Food and Agriculture Organization of the United Nations (FAO) presented on the sidelines of COP28 estimated that droughts have resulted in losses of US $3.8 trillion in global agriculture over the past 30 years.

The first day of COP28 rectified this oversight with the Emirates Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action, which has so far been signed by more than 130 countries, representing around 70% of the world's land area. The declaration commits signatories to "scaling-up adaptation and resilience activities and responses in order to reduce the vulnerability of all farmers, fisherfolk and other food producers to the impacts of climate change, including through financial and technical support for solutions, capacity building, infrastructure and innovations, including early warning systems, that promote sustainable food security, production and nutrition, while conserving, protecting and restoring nature."

At the time of writing, few details have emerged about the implications of the Emirates Declaration. However, a high-level session to discuss its implementation, which promises to provide a roadmap for progress into at least 2025, is scheduled for 10 December 2023. Whatever the specific outcomes may be of initiatives such as these, prominent acknowledgement of the centrality of agri-food systems to both the processes and effects of climate change, and the crucial role of plant science in tackling them, is to be applauded.

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