Cowpea Research in Burkina Faso: Progress, Challenges to Crop Improvement, and the Place of the Crop Improvement Innovation Lab Initiative

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Cowpea (*Vigna unguiculata* [L.] Walp.) is one of the cheapest sources of protein for rural people in Burkina Faso. Harvested before the cereal crops, cowpea is considered as a ‘‘hungry-season” crop or poor’s meat. Its potential to address food and nutritional security in Burkina Faso and beyond is well established. However, the crop yield remains low. Efforts have been made to improve several traits including drought tolerance, and resistance to Striga and diseases. Progress in recent years has benefitted from projects funded by the US Agency for International Development (USAID; Legume Innovation Lab, Innovation Lab for Climate Resilient Cowpea), the Kirkhouse Trust SCIO, the Alliance for a Green Revolution in Africa (AGRA), and the CGIAR Generation Challenge Program (Tropical Legumes). A long-standing relationship between INERA and the University of California Riverside has been important in for improvement of the breeding methods in Burkina Faso, which combine farmers’ participatory variety selection and modern breeding tools. This has led to the development of important breeding lines currently under testing for release, and for prior release of the most popular varieties such as Tiligré and Komcallé. Through adoption of new varieties, together with improvements in farmer practices, yield has increased from 200kg/ha to 800 kg/ha and the mean production from 100,000 tonnes in the early 1980’s to 700,000 tonnes in recent years. However, efforts are still needed improvements in physical resources and a better workflow to improve genetic gain. This presentation will focus on achievements of the cowpea breeding program in Burkina Faso, the challenges, and some comments on how the new Crop Improvement Innovation Lab might be of assistance.

W020: A Global Vision for Crop Improvement and Food Security: Connecting the Dots

The Evolution of a Revolution: Re-Designing Green Revolution Breeding Programs in Asia and Africa to Increase Rates of Genetic Gain

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As rice feeds nearly half of the human population, rice breeding is a critical focal point for achieving the UN Sustainable Development Goal of eliminating hunger and poverty by 2030 and to providing a sufficient quantity of safe and nutritious food to vulnerable populations in the developing world. However, despite dramatic improvements in understanding the genetic basis of complex traits in rice over the last 20 years, annual rates of genetic gain for yield and other important traits in most public rice breeding programs in Asia and Africa are extremely low. Understanding and manipulating the key drivers of genetic gain will be necessary for rice breeding programs to fully meet the expectations of the 21st century. Funded by the Bill and Melinda Gates foundation and in coordination with the CGIAR Excellence in Breeding Platform, the International Rice Research Institute (IRRI) aims to transform rice breeding by aligning IRRI's international breeding efforts together with national public breeding programs (NARs programs) into collaborative regional breeding networks. These CGIAR-NARs breeding networks serve as a platform to deploy an integrated breeding model that combines modern genomic technologies with regional knowledge and testing capabilities to ensure that smallholder rice farmers have access to a steady stream of consistently improved, high yielding, locally adapted, and market-ready rice varieties.

W021: A Global Vision for Crop Improvement and Food Security: Connecting the Dots

Delivering Genetic Gains to Smallholder Farmers in the Face of Climate Change

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