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Contact: media@gatesagone.org

International Research Project to Optimize Photosynthesis in Crops Joins Bill & Melinda Gates Agricultural Innovations Portfolio

ST. LOUIS (Dec. 13, 2022) — Bill & Melinda Gates Agricultural Innovations (Gates Ag One) has announced its latest grant to the University of Illinois Urbana-Champaign for the Realizing Increased Photosynthetic Efficiency (RIPE) project. The project targets improvements in photosynthesis through cutting-edge science after finding that approximately 1% of the energy from sunlight is converted into the growth of crop plants.

The $34 million, four-year grant will support RIPE researchers in the subsequent phase of the project, to explore further gains to improve important food crops like cowpea and soybean, which are cultivated in Africa and South Asia, and serve as important sources of protein.

The RIPE project, originally funded in 2012 by the Bill & Melinda Gates Foundation, the UK Foreign, Commonwealth and Development Office (FCDO), and the U.S. Foundation for Food and Agriculture Research, will continue with support from Gates Ag One, a not-for-profit subsidiary of the Bill & Melinda Gates Foundation created to leverage global crop science to meet the needs of smallholder farmers in Africa and South Asia.

Gates Ag One focuses on accelerating research that enhances the biological processes, from photosynthesis to nitrogen fixation, of six priority food crops: cassava, cowpea, maize, rice, sorghum and soybean.

The RIPE project, directed by Steve Long, Ikenberry Endowed University Chair of Crop Sciences and Plant Biology at U of I, is analyzing the complex 170-step process of photosynthesis to identify opportunities to maximize plant growth and, as a result, increase crop yields to meet rising demands for sustainably produced food and feed.

“Dr. Long and the RIPE team are carrying out incredibly exciting breakthrough research at the cutting edge of crop science and innovation. We’re thrilled that Gates Ag One can provide continued support for such groundbreaking work,” said Joe Cornelius, CEO of Gates Ag One. “Optimizing the biological processes of crops has profound implications for small-scale agriculture in developing countries, unlocking improvements in productivity without requiring more inputs from farmers with limited resources.”

Among the RIPE research areas is relaxing photoprotection, or the defensive mechanism that protects plants from high light intensity.

“Some of the crop developments that inspired the Green Revolution and increased global food production are now reaching their biological limits,” said Long, Director of RIPE. “New innovations, such as increased photosynthetic efficiency, are needed to develop seeds that will help deliver global food security despite the increasingly challenging impacts of climate change.”

In addition to the University of Illinois, the RIPE team comprises scientists from the Australia Commonwealth Scientific and Industrial Research Organisation, Lancaster University, University of California Berkeley, the University of Cambridge, the University of Essex and the U.S. Department of Agriculture, Agricultural Research Service.

About Gates Ag One:

Bill & Melinda Gates Agricultural Innovations (Gates Ag One) is a non-profit organization that accelerates breakthrough agricultural research to meet the urgent and neglected needs of smallholder farmers in sub-Saharan Africa and South Asia. Out of the conviction that all lives have equal value, Gates Ag One serves the interests of smallholder farmers, who are most exposed to climate shocks yet lack the access that others have to the latest agricultural innovations. Gates Ag One works to level the playing field and empower smallholder farmers to transform their agricultural productivity, nutrition security and climate resilience. Learn more at gatesagone.org.

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