Donald Danforth Plant Science Center

The Donald Danforth Plant Science Center today announced the opening of the Bellwether Foundation Pheno-typing Facility. The facility will automate continuous plant imaging and provide accurate control over experimental conditions.

“The new facility was built to provide our scientists and collaborators with a best-in-class resource that is unique in the U.S.,” says Jim Carrington, president of the Danforth Plant Science Center. “This technology ramps up the pace of scientific discovery, as well as applications that impact agricultural productivity.”

The system combines a temperature- and light-controlled plant growth environment with a conveyor system to move plants through three instrument chambers. Real-time measurements of plant growth, photosynthetic ability, and water content are captured using three-dimensional imaging techniques. Image data analysis is done through the high-performance computing capabilities of the Danforth Center’s Bioinformatics Core.

“This unique facility will enable us to conduct genetic screens with a precision never before possible. The result will be a much better understanding of how genes operate in plants,” says Tom Brutnell, director of the Danforth Center’s Enterprise Institute for Renewable Fuels.

The facility includes a 680 ft², climate-controlled, Conviron growth house, which permits precise control over temperature, humidity, and light intensity. The robotic conveyor system moves plants through watering and nutrient stations, in addition to the imaging stations.

MacArthur Foundation

David Lobell, Agricultural Ecologist and Associate Professor in the Department of Environmental Earth System Science at Stanford University, was one of 24 people named 2013 MacArthur Fellows in September by the MacArthur Foundation. Lobell was cited “for unearthing richly informative, but often underutilized, sources of data to investigate the impacts of climate change on crop production and global food security.” He received a Sc.B. (2000) from Brown University and a Ph.D. (2005) from Stanford University. He was a postdoctoral fellow at Lawrence Livermore National Laboratory, on the faculty at Stanford University where he is also associate director of the Center on Food Security and the Environment. MacArthur Fellows receive a “no-strings-attached” grant over five years to do as they see fit.

A pioneer of the emerging field of crop informatics, Lobell is revolutionizing the understanding of environmental factors controlling crop yields, with an emphasis on adaptation to climate change. He decides with decision makers with critical information to help adapt agricultural development to climate change.

Lobell’s research focuses on identifying and increasing yields of crops including wheat in major agricultural regions, with projects currently in Africa, South Asia, Mexico, and the United States interested in how to feed the world and protect the environment at the same time,” he says. “While I have theories about how to do that, my work has been to test whether those theories, often using data that were collected for different reasons.”

Ohio State University

Rattan Lal has been chosen as one of the first Global Dryland Champions by the United Nations Convention to Combat Desertification (UNCCD). The honor, according to a letter by Luc Gnacadja of Benin, the convention’s executive secretary, recognizes “those who have made outstanding contributions to our efforts for achieving a land-degradation-neutral world.”