

## FOOD SECURITY RESEARCH GROWS WITH AGMIP TEAMS

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The worst drought to hit the U.S. in decades has already brought corn yields to a 17-year low and will almost certainly raise food prices. Wealth will soften the blow in the U.S., but in sub-Saharan Africa and South Asia, prolonged drought has often had deadly consequences.

Is there a better way to anticipate climate's effect on food production? A group of experts on climate, agriculture and economics have gathered to address this question through the [Agricultural Model Intercomparison and Improvement Project](#), or AgMIP. In the **latest issue** of *Nature Climate Change*, Cynthia Rosenzweig, a climate scientist at Columbia's Earth Institute and the NASA Goddard Institute of Space Studies, explains how the project came about and what its priorities will be. Rosenzweig is co-leading the project, which aims to assess climate impacts on regional and global food security now and in the future.

Through AgMIP, agricultural experts are currently using computer models to understand how the world's major economic crops – wheat, maize, rice and sugarcane—are vulnerable to the changing climate. Other experts are actively improving crop models for sorghum, potato, and peanut – important household and economic crops in Africa and Asia. “Climate change – warmer temperatures, and possibly less rainfall – may make a vulnerable region even more vulnerable to the weather,” Cynthia Rosenzweig said.



Working in the participatory watershed at Kothapally, Ranga Reddy District, Andhra Pradesh, India (Carolyn Mutter/AgMIP)

“An exciting recent development enabled by UK aid from the Department for International Development is the expansion of the AgMIP research community to include interdisciplinary teams in Sub-Saharan Africa and South Asia,” said James Jones, AgMIP co-lead and senior research scientist at the University of Florida, Gainesville. With the help of the US Department of Agriculture, Columbia University and the International Crops Research Institute for the Semi-Arid Tropics in Patancheru, India, AgMIP is now disbursing nearly \$5M in project funds to ten teams involving about 40 different institutions in Sub-Saharan Africa and South Asia. Jones continues, “The Institutions involved will build capacity to analyze regional agricultural systems with a focus on how climate contributes to food insecurity.”

The AgMIP teams are currently gathering available climate, crop, and economic data for running scenarios in multiple models to assess vulnerability to climate change. Information technology tools for rapid translation of data formats among models are being built. “These tools will enable the teams, and the entire AgMIP community, to better utilize multiple models to explore plausible climate impacts on food production systems,” says Jerry Hatfield, AgMIP co-lead and lab director at the USDA-Agricultural Research Service in Ames, Iowa. “Being able to visualize a range of possible outcomes helps policy and decision makers consider how shifts in farming system practices may respond to climate risks and even improve food production.”

Since 2010, AgMIP regional workshops have brought together agricultural research scientists in Europe, South America, Sub-Saharan Africa, and South Asia. Next is the North America workshop, to be held in September in Ames. The North America workshop will include in-depth analysis of how carbon dioxide, temperature and water interact to influence crop growth, and how effective crop models are at capturing this dynamic.

Annual global workshops enable open access to recent findings and discussion of critical research questions, methods, and priorities. Priority work areas are advanced by hundreds of research scientists with the support of national, international and non-governmental agencies, institutions, foundations, and agribusinesses around the world. The 2012 global workshop, to be held in October at the UN Food and Agriculture Organization headquarters in Rome will include early results from global-scale biophysical and economic models of future food production scenarios.

The AgMIP Steering Group is co-chaired by Martin Parry (Imperial College, London) and Mannava Sivakumar (World Meteorological Organization). Specialized teams in climate, agriculture, economics and information technology are led by scientists at the University of Florida (Ken Boote, Cheryl Porter, Senthod Asseng), Oregon State University (John Antle, Roberto Valdivia), Columbia University/NASA-Goddard Institute for Space Studies (Alex Ruane), the International Food Production Research Institute (Gerald Nelson), the Australia Commonwealth Scientific and Industrial Research Organization (Peter Thorburn) and the Wageningen University and Research Centre Alterra in the Netherlands (Sander Janssen).

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