Agricultural system models provide predictive and assessment capability to a wide range of decision-makers in the private and public sectors. There has been extensive and beneficial research to improve agricultural models – but the fact remains that many of the models used today are the result of investments made 30-40 years ago.

AgMIP has convened internationally renowned and early career experts from around the world for a Next Generation Models Groundwork scoping study, initially funded by the Bill and Melinda Gates Foundation, to review the current state of agricultural system models and to explore possibilities for significantly advancing the way they use data and information technology. (Papers accessible at agmip.org)

The complexity of agricultural challenges facing the nation and the world are such that agricultural data stewardship and advanced tools are needed to enable sustainable production that can meet future national and international food, fiber, and bioenergy needs. There is a major gap between the potential value of data collected in agricultural experiments and the value currently obtained through use of those data. Typically, data collected in experiments are used for the original research purpose only. Vastly greater value might be obtained if the data were combined across locations, time, and management conditions so that one could develop or evaluate models against emerging patterns and key distinctions. In this way data could inform decision support systems, assess the benefits of new technologies or management, changes in climate, and trade-offs between productivity gains and environmental risks. AgMIP and USDA have joined to explore concepts for harmonizing agricultural databases and models through the development of a National Agricultural Data Network with harmonized data.

In an AgMIP Next Generation Models Groundwork scoping study, funded by the Bill and Melinda Gates Foundation, experts from around the world reviewed the current state of agricultural system models and explored possibilities for advancing developments in models, data, and information technology resulting in a set of papers titled “Towards a New Generation of Agricultural System Models, Data, and Knowledge Products”, led by the AgMIP Principal Investigators, that will be published in a special issue of Agricultural Systems.