

## What is AgMIP?

The Agricultural Model Intercomparison and Improvement Project (AgMIP) is a major international collaborative effort to improve the state of agricultural simulation and to understand climate impacts on the agricultural sector at global and regional scales.

## Why AgMIP?

**Agricultural risks are growing.** Decision-makers need **probabilistic risk analysis** to identify and prioritize effective adaptation and mitigation strategies.

**Consistency is key.** AgMIP is establishing **research standards** so future studies no longer use different assumptions across regions and models.

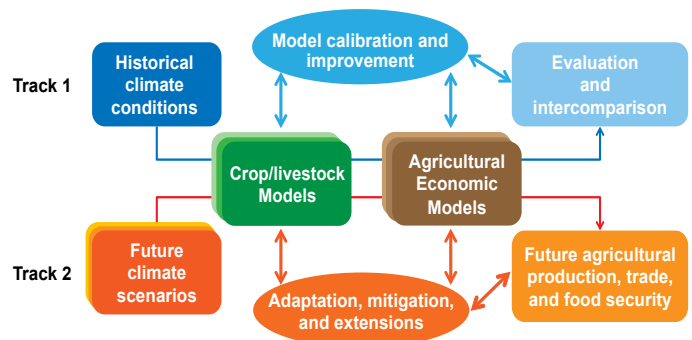
**Ongoing solutions.** AgMIP is developing a rigorous process to evaluate agricultural models, which results in **continuous model improvement**.

## Objectives

- **Improve agricultural models** based on their intercomparison and evaluation using high-quality global and regional **data** and best scientific practices, and document improvements for use in integrated assessments.
- **Incorporate state-of-the-art climate, crop/livestock, and agricultural economic model improvements with stakeholder input** into **coordinated multi-model regional and global assessments** of climate impacts and adaptation and of other key aspects of food systems.
- **Utilize multiple models, scenarios, locations, crops/livestock, and participants** to explore uncertainty and the effects of data and methodological choices.
- **Collaborate with regional experts** in agronomy, animal sciences, economics, and climate to build a strong basis for model applications, addressing key climate-related questions, adaptation priorities, and sustainable intensification.
- **Improve scientific and adaptive capacity in modeling** for major agricultural regions in the developing and developed world, with a focus on vulnerable regions.
- **Develop modeling frameworks to facilitate data-sharing** and to identify and evaluate promising adaptation technologies and policies and to prioritize strategies.

## AgMIP's Modeling and Assessment Framework

This diagram shows how AgMIP researchers use historical climate data to evaluate, intercompare, and improve crop/livestock and economic models. Utilizing the same multi-model framework with future scenarios, the researchers assess the impacts of climate variability and change on local, regional, national, and global food production and food security.

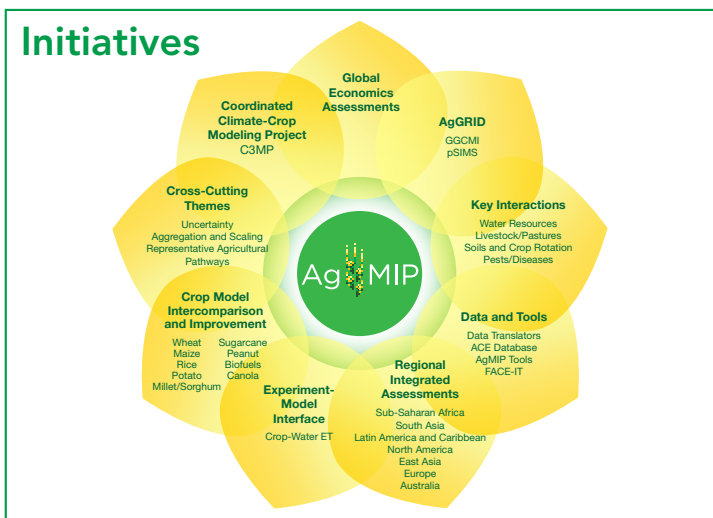
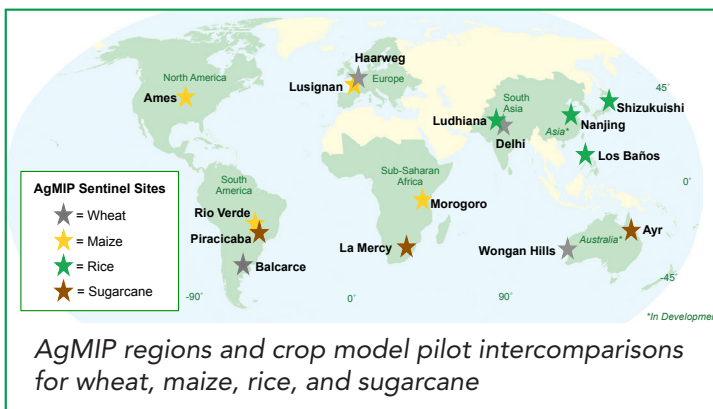


## Focus Areas

1. **Next Generation Knowledge, Data, and Tools** to improve projections of the systems, processes, and metrics needed to support effective decision making.
2. **Coordinated Global and Regional Assessments** of climate change impacts on agriculture and food security to consistently project the future implications of current investment and policy decisions around the world.
3. **Modeling Sustainable Farming Systems** to identify and prioritize transformations toward more sustainable agricultural systems while recognizing the potential for unforeseen socio-economic consequences.

# What AgMIP has learned so far

- **Tremendous interest** in agricultural research community in interdisciplinary multi-model research and assessment
- **Median of crop model ensembles** reproduces observed yields
- **'Best Practices'** for model calibration essential for rigorous results
- **Crop responses to CO<sub>2</sub>, temperature, and water** remain key sources of uncertainty
- **Regional Integrated Assessments** are extending methods for projecting changes in farm systems
- **Global crop yield impacts** project greater vulnerability in lower latitudes and in earlier decades; **model uncertainty now explicitly characterized**
- **Limitations in fresh water** for irrigation may compound climate impacts in many regions, while abundance could help in others
- **Agricultural prices** projected to experience upward pressure



# Outputs

## Sub-Saharan Africa and South Asia

- **Access to improved and science-based relevant information** on regional climate change impacts on agriculture by end-users
- **Improved crop/livestock and agricultural economic models** and outputs through evaluation and intercomparison of historical period simulations
- **Regional projections** of climate change impacts on crop/livestock production and the associated socio-economic implications
- **Identification and prioritization** of regional agricultural **adaptation strategies & policies**
- **Strengthened capacity of researchers** to access and use crop and economic models using AgMIP Regional Integrated Assessment Protocols
- **Development of an interactive decision support tool**, the AgMIP Impacts Explorer, to enable access to information and results from the Regional Integrated Assessments



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For more information, visit: [www.agmip.org](http://www.agmip.org)

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