

# AgMIP MENA



## **Agricultural Model Intercomparison and Improvement Project**

Linking the climate, crop, and economic modeling communities with cutting-edge information technology to produce improved crop and economic models and the next generation of climate impact projections for the agriculture sector

The Middle East and North Africa (MENA) is a region highly vulnerable to climate change, which drives its increasing socioeconomic challenges. Along with water scarcity exacerbated by climate change, food security is constrained by the demand from a rapidly growing population and inadequate crop productivity. Data-poor environments and the lack of skills in modeling are holding back good risk management and climate-informed adaptation, leading to heavy dependence on food imports. Agriculture and agri-food systems remain fragile and are in need of an improved foresight analysis to help design a whole new farm system.



# About AgMIP

Agricultural Model Intercomparison and Improvement Project (AgMIP) is a distributed network to research future climate change impact in agriculture from field to farm to the globe, link climate, crop & agricultural economics, support farmers and policymakers with science-based strategies, and ensure future food security (science with an impact). AgMIP started in 2010 and includes +1000 agricultural scientists from around the world.

Dr. Cynthia Rosenzweig, AgMIP co-founder, was awarded the 2022 World Food Prize at the Norman E. Borlaug International Dialogue held in Des Moines, Iowa on October 18-20, 2022

The AgMIP Mission is to significantly improve agricultural models, scientific and technological capabilities for assessing the impacts of climate variability and change and other driving forces on agriculture, food security, and poverty at local to global scales. The goal is to create a next-generation knowledge platform for agricultural modeling worldwide.

## AgMIP's Modeling and Assessment Framework

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.

# AgMIP resources and outcomes

AgMIP has developed a variety of resources, including data and tools, an impact explorer, protocols and reports, publications, and software. In recent years, the AgMIP team has published numerous papers in prestigious journals, including 19 in Nature Journals, 12 in PNAS, and 10 in Global Change Biology (<https://agmip.org/publications-2021/>)



## AgMIP MENA will be Launched in 2023

The AgMIP MENA launch is significant due to the lack of coordinated efforts to model cropping and farming systems in the face of climate change and water scarcity. With this launch, there is the possibility of connecting to the AIM4Climate partnership led by the United States and the United Arab Emirates to bring climate-smart approaches to agriculture around the world. In AgMIP MENA, there is a possibility of learning from the organization and ambition of other AgMIP country teams and build a program tailored for MENA.

For AgMIP MENA, crop modelers from the region should be invited for physical and virtual meetings with AgMIP MENA coordinators, which could be expanded in workshops with policymakers and stakeholders. This is critical for building crop modeling capacity based on the AgMIP protocol. This also can catalyze an award from the US State Department which will fund a team of MENA modelers to travel to the USA to learn AgMIP's protocol-based approaches from AgMIP leaders in New York, Florida, and Oregon.

- Improve agricultural models based on their intercomparison and evaluation using standard global and regional data and best scientific practices; and document improvements for integrated assessments.
- Incorporate climate, crop/livestock, and agricultural economic model improvements into coordinated multi-model regional and global assessments of climate impacts and adaptation and other critical aspects of agri-food systems.





## AgMIP MENA is a must!

*Global challenges that have compounded in recent years have thrown the global community off course, with particularly dire consequences for the water-scarce and conflict-torn MENA region. This should be a wake-up call for regional governments and others with significant partnerships with MENA.*



To develop next generation knowledge, data and tools



To develop farming systems in the face of climate change



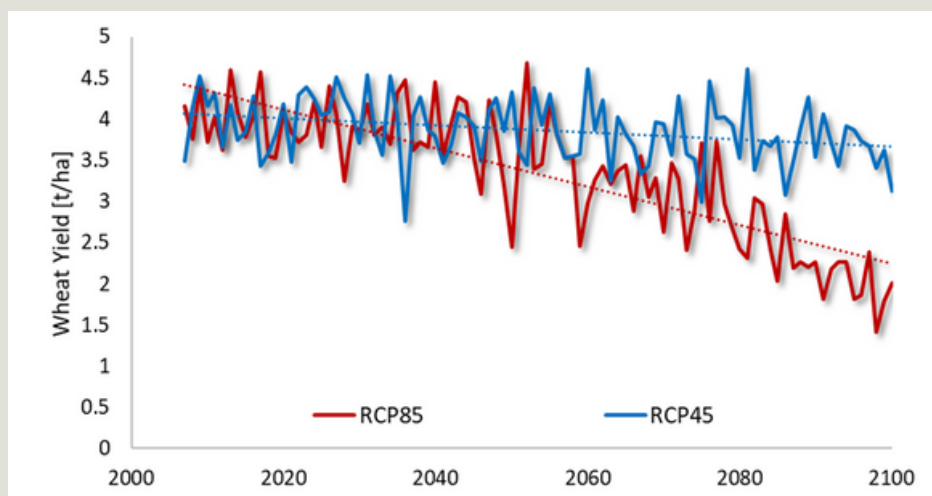
Regional Capacity Development



Coordinated regional assessment



Joint synergistic activities such as conferences, symposia, special issue of journals, books etc.



Merchouch, Morocco. The crop is Durum Wheat. The Model is APSIM. Climate data is RICCAR

IT IS A MAJOR INTERNATIONAL EFFORT TO PRODUCE THE NEXT GENERATION OF CLIMATE IMPACT PROJECTIONS FOR THE AGRICULTURAL SECTOR.



## Join the community to:

01

Engage in  
Standardization of  
Modeling Protocols

04

Agree on  
Common modeling  
assumptions

02

Use common  
gold standard  
Input datasets

05

Work with Common  
parametrization  
schemes

03

Have the work  
endorsed by a  
Community of  
practice

06

Involve in Modeling  
Intercomparison  
Experiments

Fill out the form to register and become part of AgMI- MENA!

<https://forms.gle/MxU7k6fStntFFrsV9>.

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