

The Agricultural Model Intercomparison and Improvement Project (AgMIP): Community Efforts for Agriculture and Food Security



Alex Ruane, NASA Goddard Institute for Space Studies, New York, USA
Cynthia Rosenzweig, Jim Jones, John Antle, and Jerry Hatfield

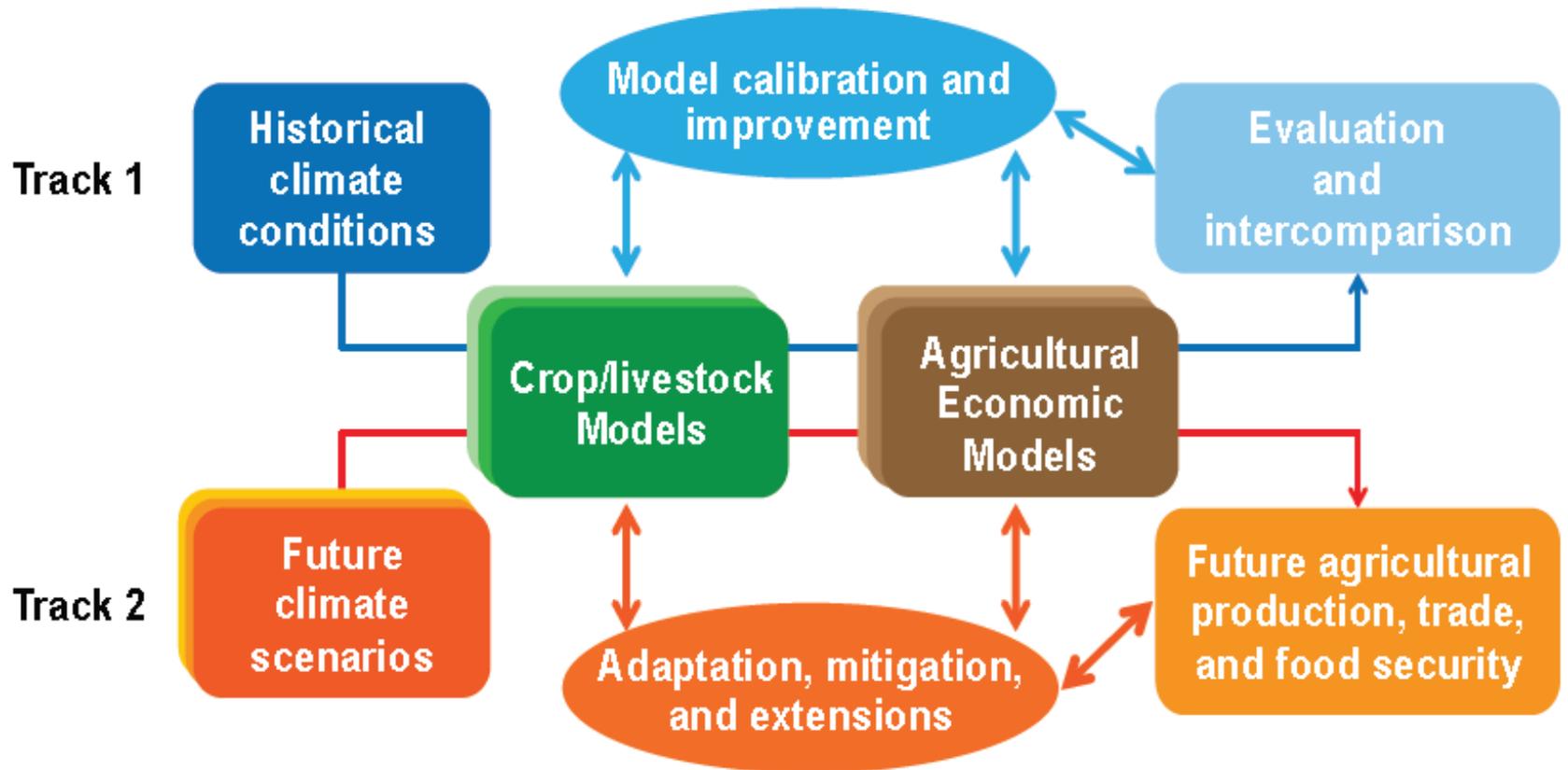
Energy Modeling Forum, Snowmass, Colorado, USA
July 25th, 2016



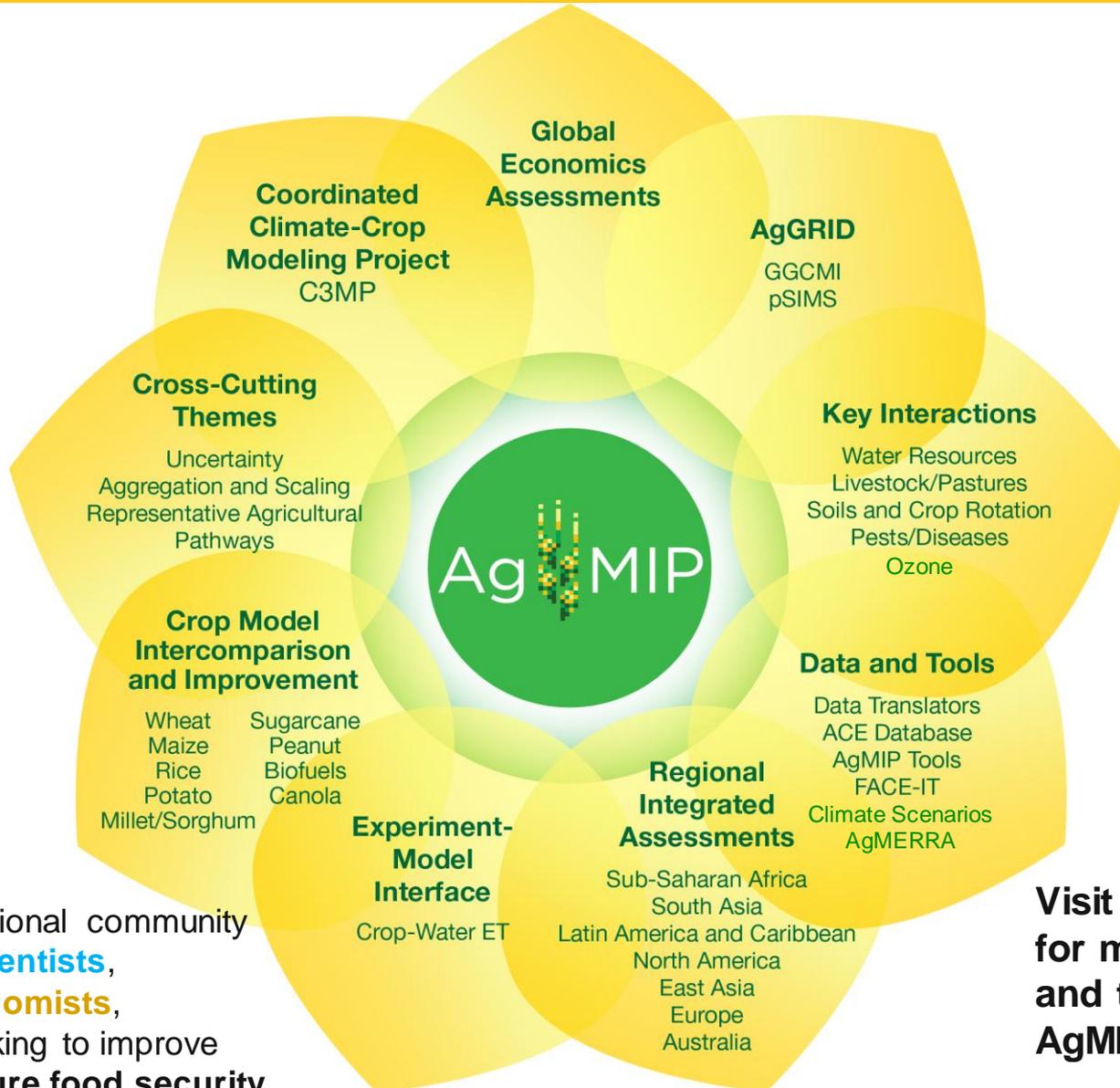
Goddard Institute for Space Studies
New York, N.Y.



AgMIP6 – Montpellier, France
June, 2016



Rosenzweig et al., 2013 AgForMet



AgMIP is an international community of 850+ **climate scientists**, **agronomists**, **economists**, and **IT experts** working to improve assessments of **future food security**

Visit www.agmip.org for more information and to sign up for **AgMIP listserv** 4



AgMIP's Coordinated Global and Regional Assessments (CGRA)

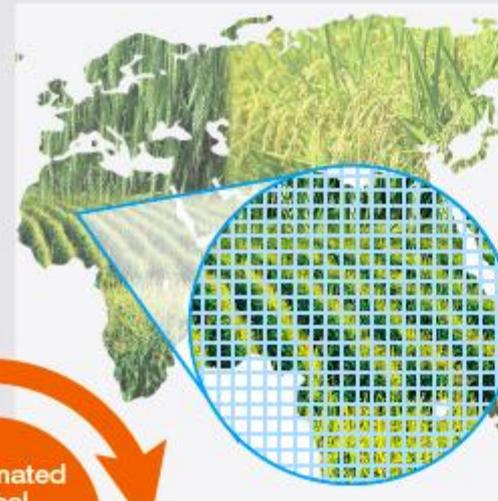


Aspen Global Change Institute –
September, 2015

Building Blocks allow telescopic scales, feedbacks, and details

Regional research

on farming systems using biophysical and socioeconomic models



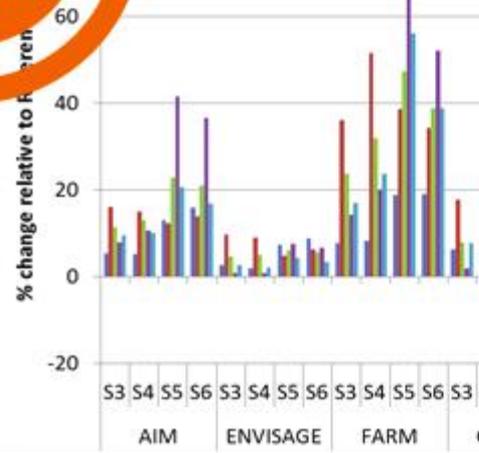
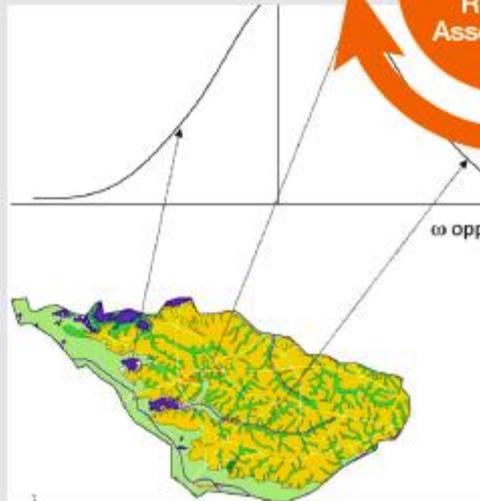
High-resolution gridded crop modeling

for gap-filling and aggregation in each region

Coordinated Global and Regional Assessments

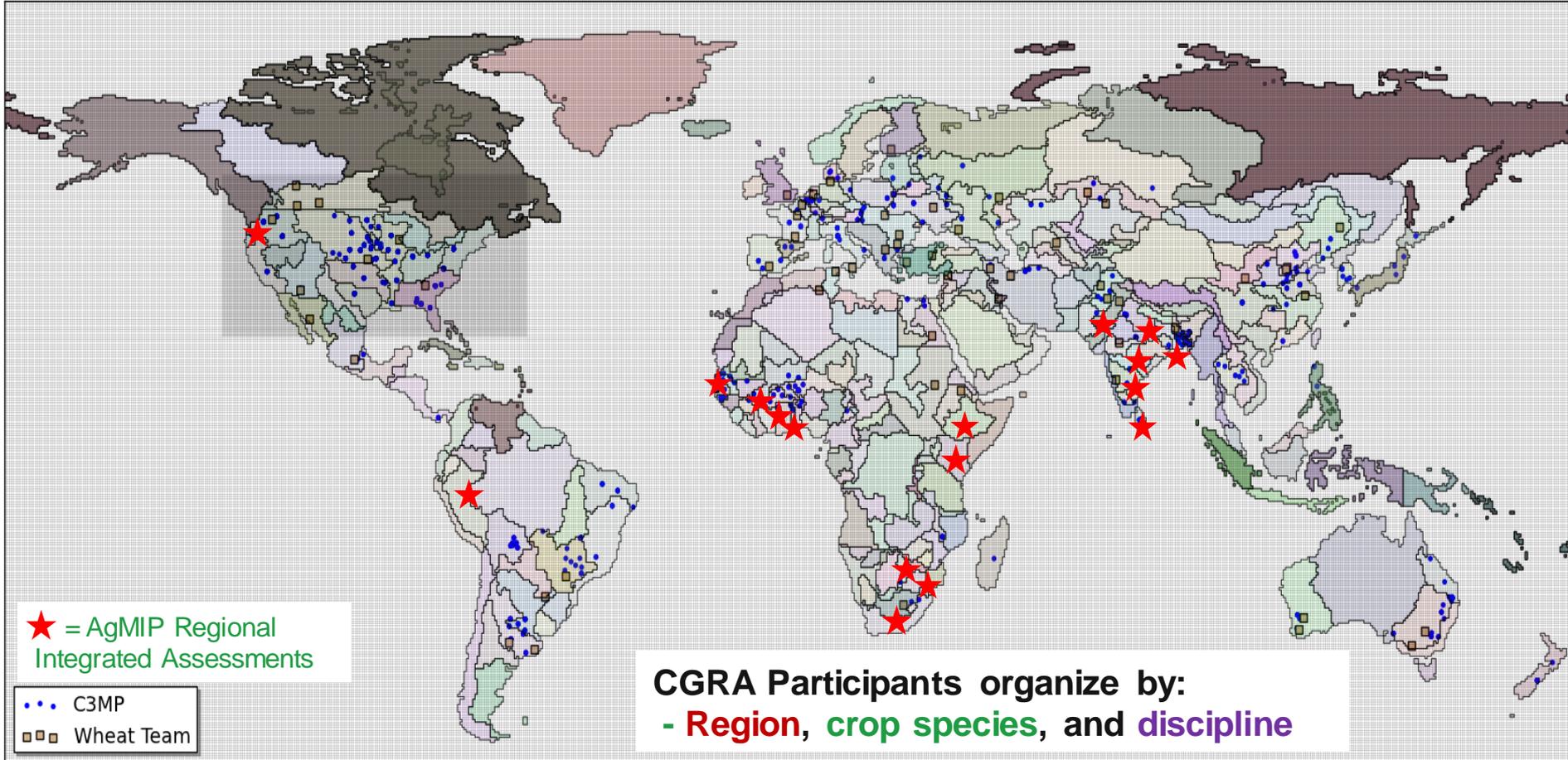
Production systems and regional economics

to respond to price changes



Global economics

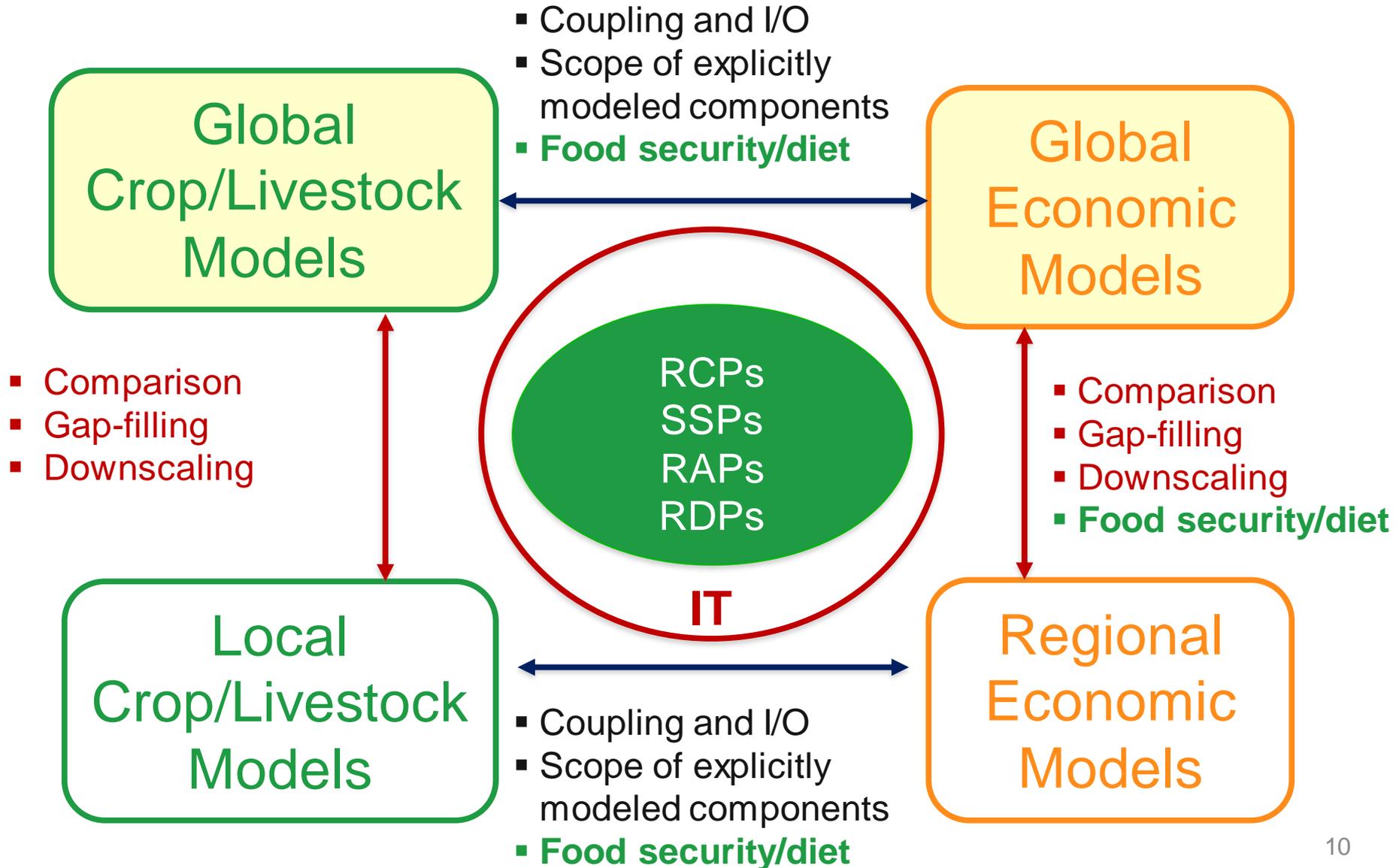
with analysis of world and regional prices

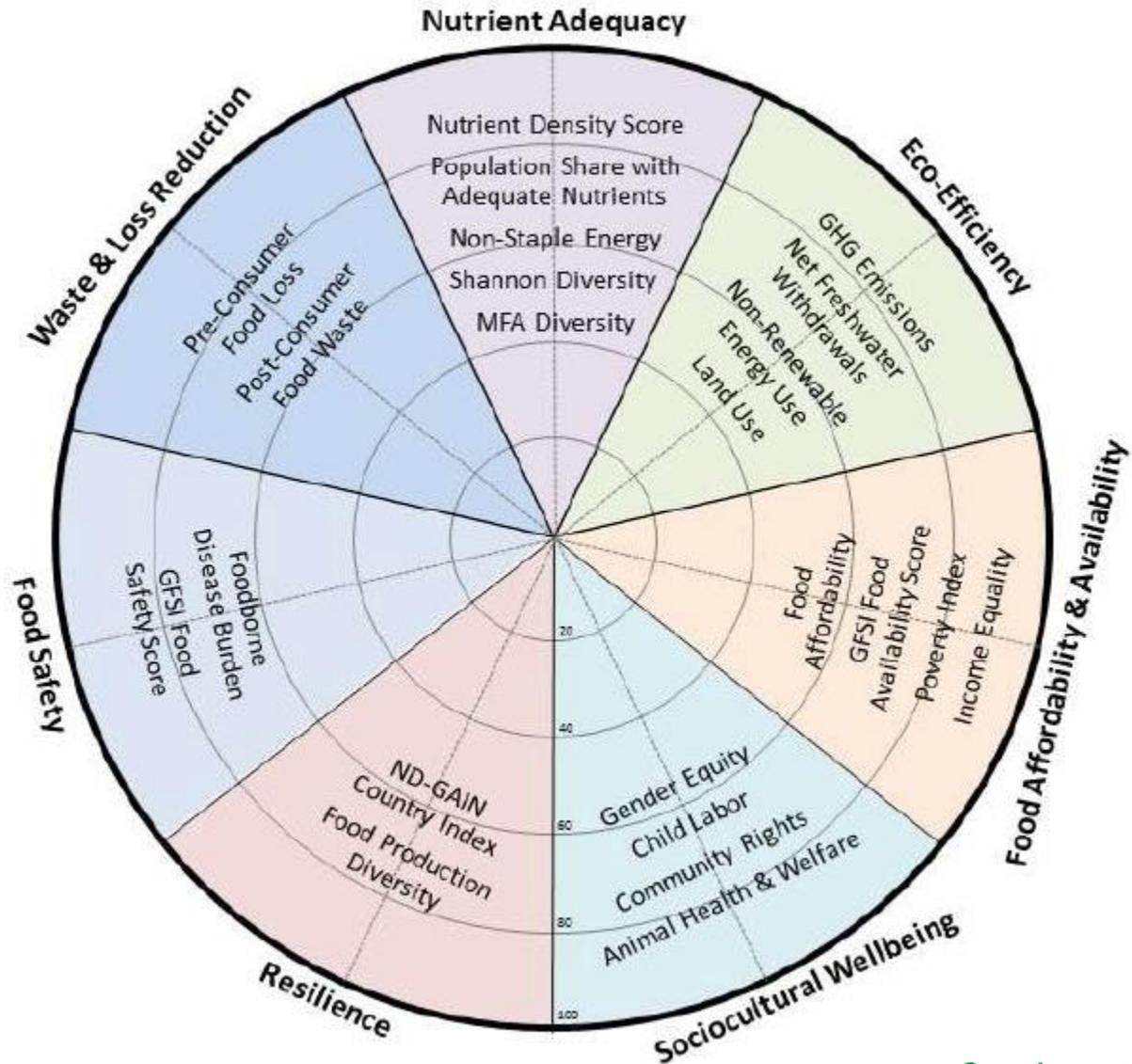


Grids = Global and regional crop models; Polygons = Food-producing units from IMPACT model

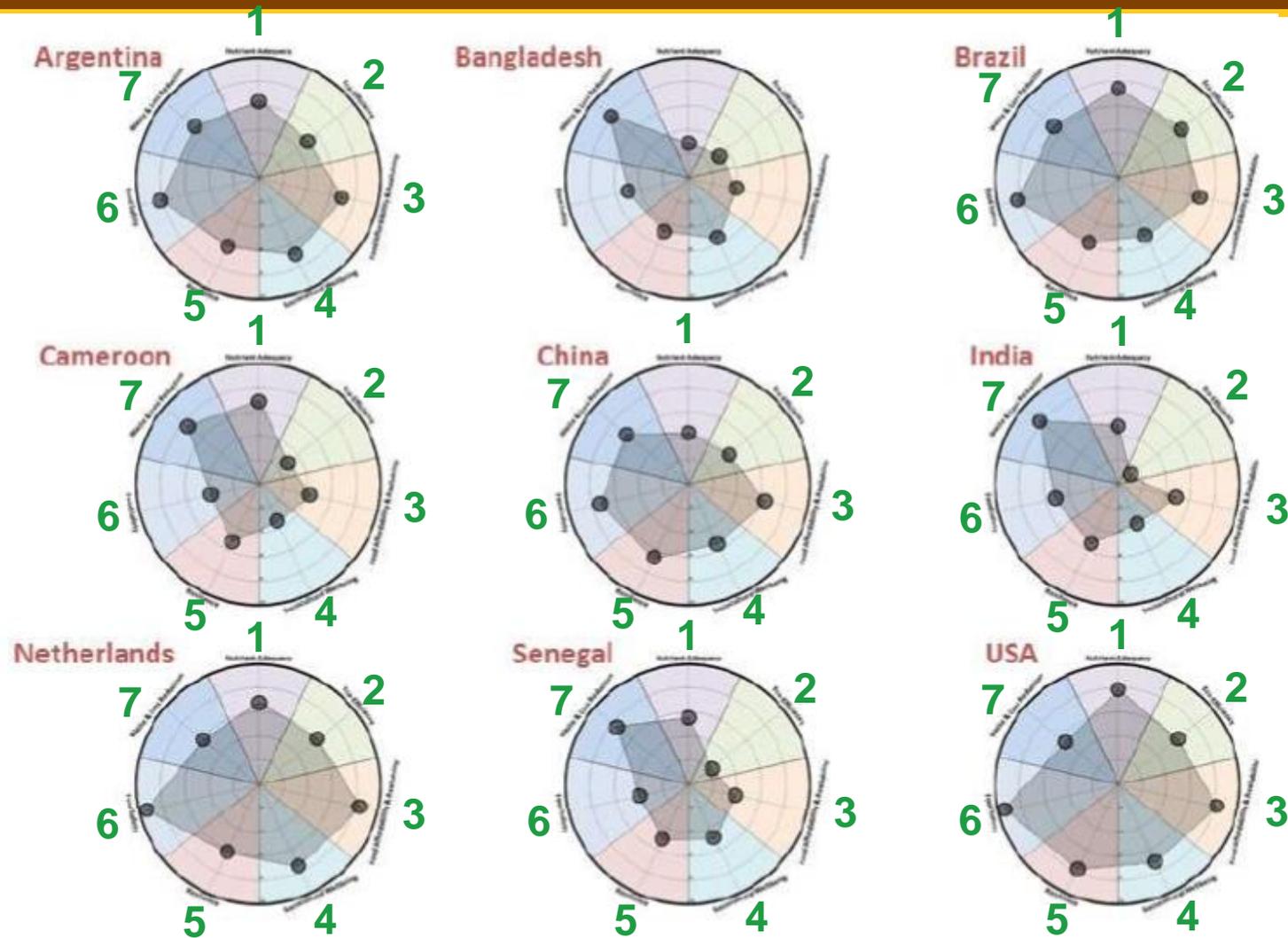


TOA-MD: More than 700 registered users!





Evaluation of Food System Sustainability

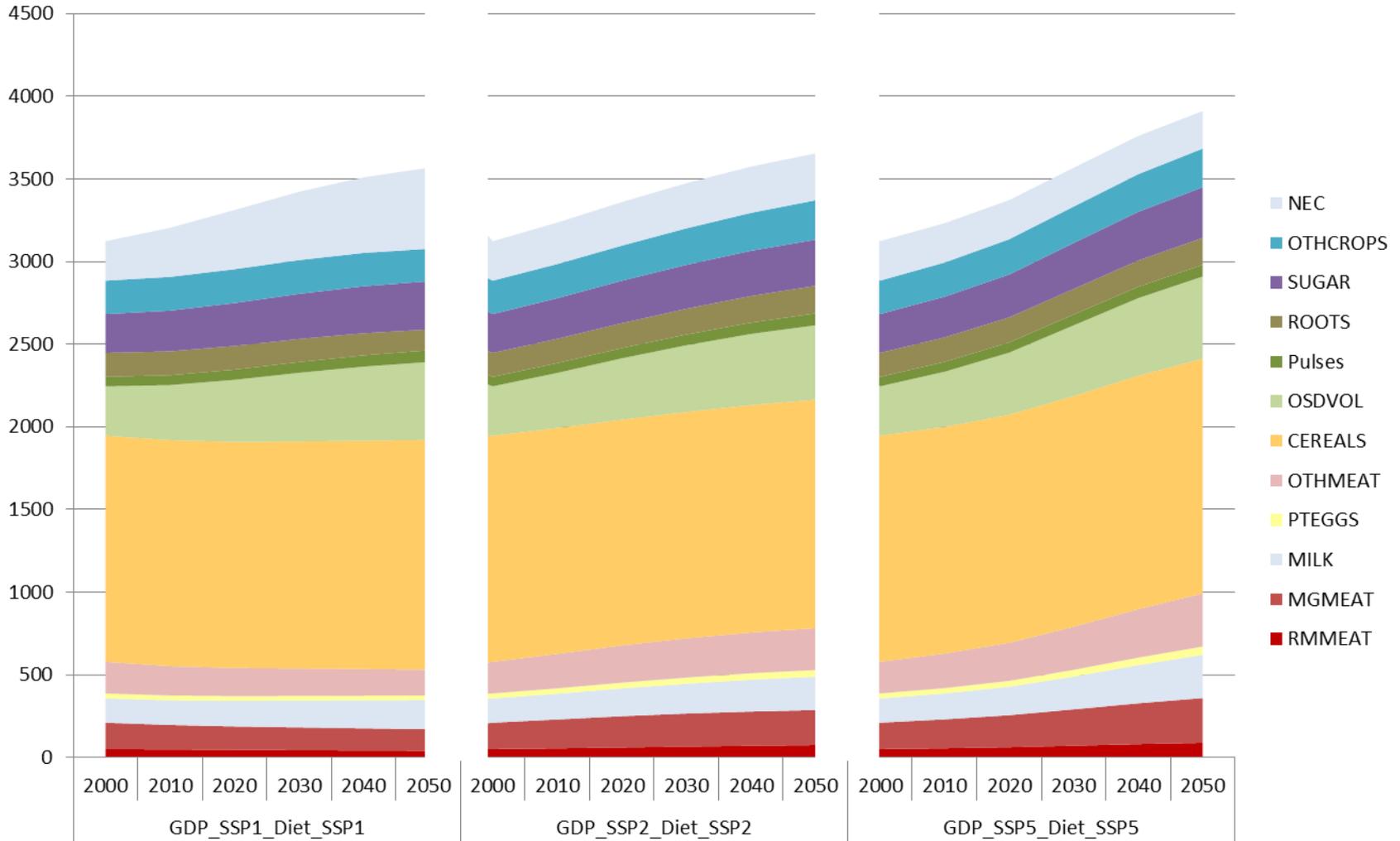


(1) nutrient adequacy; (2) eco-efficiency;

(3) food affordability and availability; (4) sociocultural wellbeing; (5) food safety; (6) resilience; and (7) waste and loss reduction.

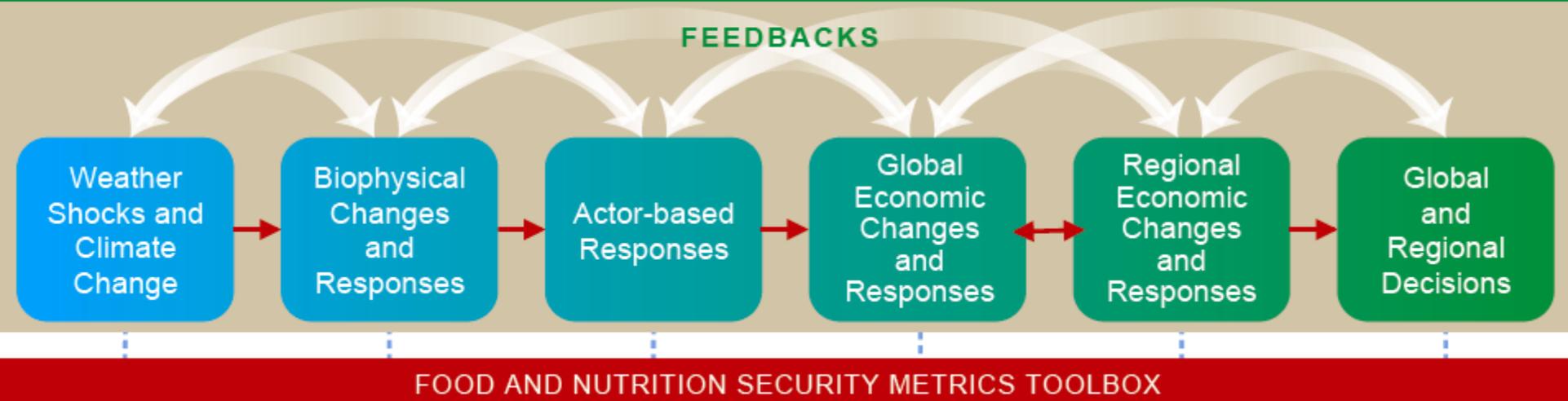
Representative Dietary Pathways

World

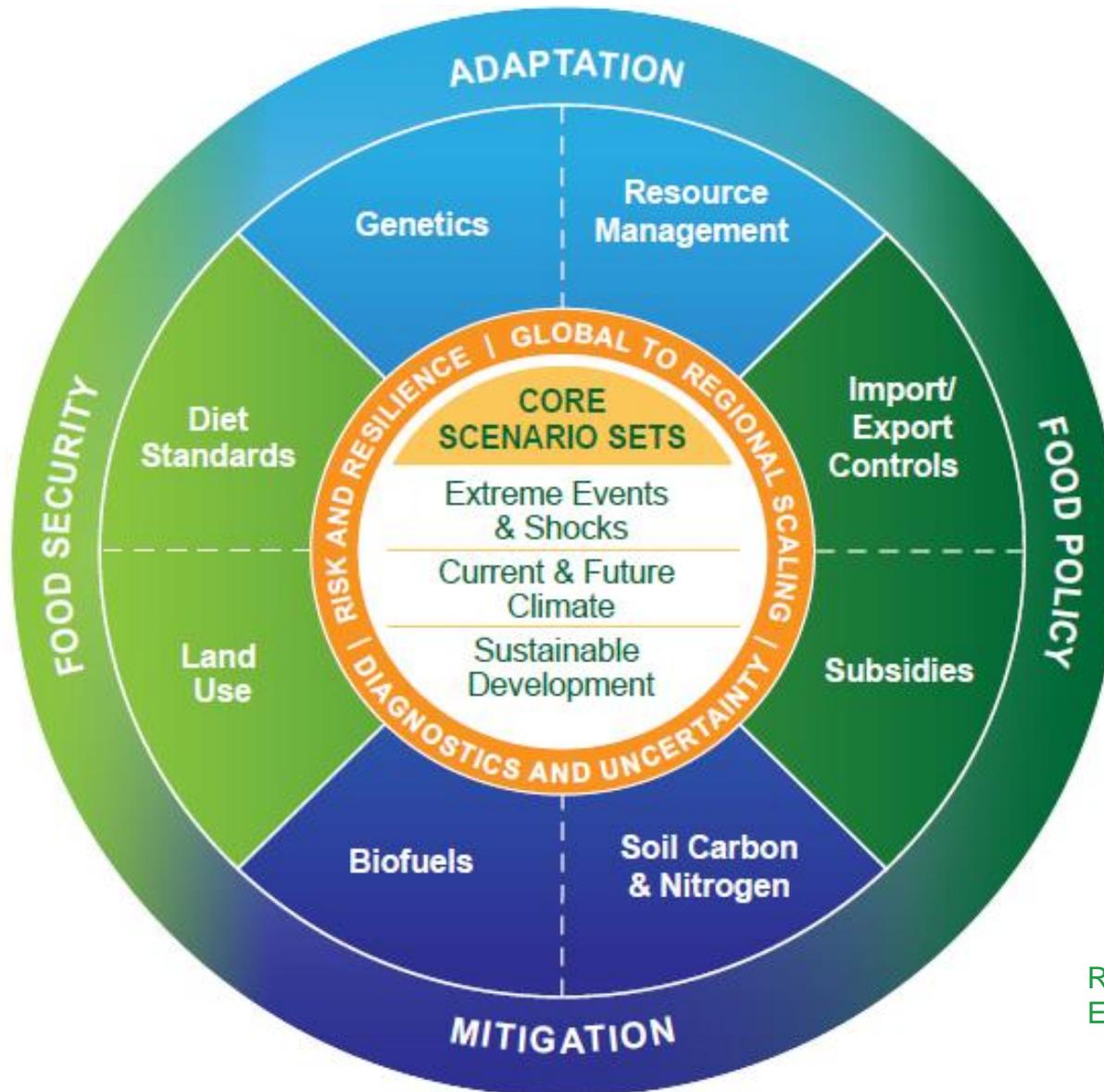


Scenarios for Health, Climate Change Adaptation, and Sustainable Development

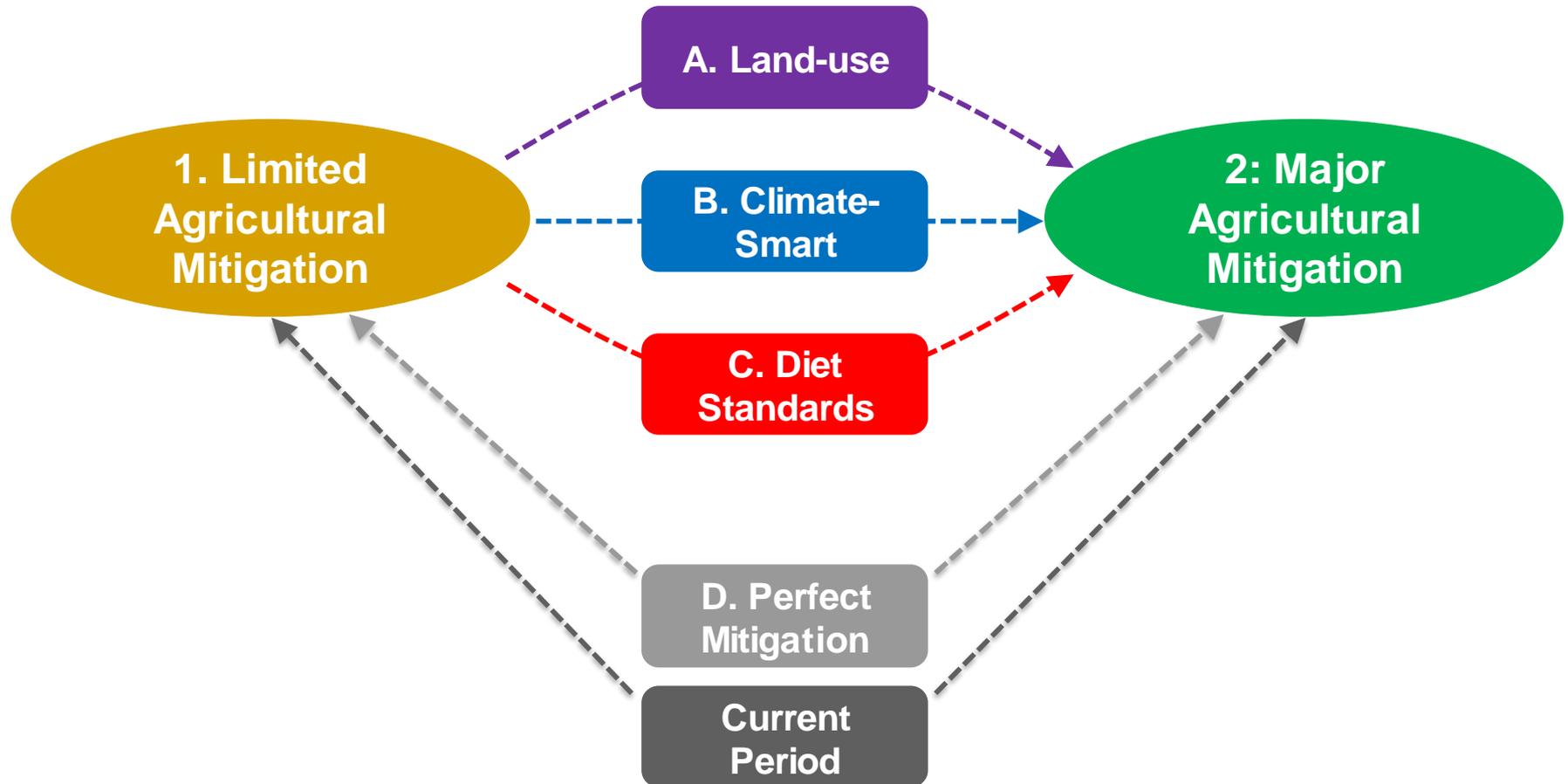
➤ Identification, testing, and prioritization of interventions for decision-making



CGRA Scenario Sets – Core Risk and Resilience Framing



Rosenzweig et al., 2016
EOS



Overview of Priority (oval) and Additional (rectangle) scenarios for the CGRA 1.5 °C Assessments. Additional scenarios emphasize specific aspects of future change.

- AgMIP Projects and Partners use cutting-edge model, data, and IT approaches to understand resilience, sustainability, and productivity of farming systems and agricultural economies in support of stakeholder decisions from regional to global scales.
 - Models can be used for both climate change and broader sustainability studies
- The AgMIP community has grown in the last 6+ years, and participants are eager to demonstrate the use of models for the testing of sustainable solutions and informed decision making
 - Lots of projections and agricultural response outputs to inform IAMs
- AgMIP tools could play a role in identifying and prioritizing food security solutions in diverse communities.
 - AgMIP experts eager to provide input on agricultural aspects of future scenarios
- AgMIP's Coordinated Global and Regional Assessments of Climate Impacts on Agriculture and Food Security will provide cutting-edge assessments – **We want to work with you!**

Thanks!

alexander.c.ruane@nasa.gov

science@agmip.org

