Welcome

We are pleased to welcome you to the AgMIP “Advancing Pest and Disease Modeling Workshop” at the University of Florida. This event is part of a global effort to address the effects of pests and diseases on the productivity and economics of crop production under various climatological conditions. These changes could thus have major impacts on food security, yet none of the major assessments of climate change on food security have directly included pest and disease effects. Our goal for this workshop is to advance insect and disease modeling for use in regional and global assessments of crop production, climate change, and food security through initiation of model intercomparison and improvement teams.

We hope that you will discover new and relevant research, inspiring keynote presentations, promising collaborations, and exciting new ways of working together toward solutions that will impact global efforts in food security forward. To that end, we have included a brief expertise synopsis of the workshop attendees so that you may use it as a resource for collaboration.

Many thanks for your participation in this important event!

Sincerely,

The AgMIP PI Team:

Cynthia Rosenzweig  Jim Jones  John Antle  Jerry Hatfield
Columbia University  University of Florida  Oregon State U  USDA-ARS

The University of Florida/IFAS:

Jack Payne
Senior Vice President for Agriculture and Natural Resources
Special Thanks to

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WORKSHOP HOSTS

AgMIP

UF/IFAS
UNIVERSITY OF FLORIDA

Florida Climate Institute

WORKSHOP PLANNING

Planning Committee
James W. Jones, Carolyn Cox, University of Florida
Mark Rosegrant, Jawoo Koo, International Food Policy Research Institute (IFPRI)
Jerry Hatfield, US Department of Agriculture, ARS
Cynthia Rosenzweig, Columbia University/AgMIP

Program Committee (in addition to members of planning committee)

Co-Chairs
Karen Garrett, University of Florida
Mauricio Fernandez, Embrapa
Keith Wiebe, Jawoo Koo IFPRI

Members
John Antle, Oregon State University
Ken Boote, University of Florida
Marcello Donatelli, Council for Agricultural Research and Economics (CRA)
John Capinera, University of Florida
Rosemary Loria, University of Florida
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## Agenda: Advancing Pest and Disease Modeling

**UF/IFAS Straughn Extension Professional Development Center | February 23–25, 2015**

### Workshop Goal

Advance insect and disease modeling for use in regional and global assessments of crop production, climate change and food security through initiation of model intercomparison and improvement teams.

### Objectives

1. Summarize recent progress on modeling pests and diseases and approaches for estimating their effects on crop yields and economic impacts.
2. Develop teams and strategies for intercomparing crop insect and disease models and approaches for their use in assessing production and economic impacts and adaptation at regional to global scales.
3. Identify opportunities for these teams to obtain support.
4. Develop plans for publishing a special issue on modeling pests and diseases in a high-impact peer-reviewed journal and identify lead authors for this effort.

### Monday, February 23

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>7:30am</td>
<td>Check-In, Registration, and Coffee</td>
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<tr>
<td></td>
<td><strong>Morning Plenary: Introduction, Goals and Challenges</strong></td>
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<tr>
<td></td>
<td>Moderated by Jim Jones</td>
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<tr>
<td>8am</td>
<td>Welcome from the University of Florida:</td>
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<td>Jack Payne, UF/IFAS Senior Vice President, Agriculture and Natural Resources</td>
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<tr>
<td>8:15am</td>
<td>Introductions, Workshop Goals, and Goals for Day 1</td>
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<td></td>
<td>Speakers: Jim Jones, Jerry Hatfield, and Mark Rosegrant</td>
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<tr>
<td>8:45am</td>
<td>Talk 1 – Setting Agenda for Pest and Disease Modeling in AgMIP</td>
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<td>Speakers: Perspectives by Mark Rosegrant, Jerry Hatfield, Jim Jones</td>
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<tr>
<td>9:15am</td>
<td>Talk 2 – Models for crop diseases: Overview of approaches, scales</td>
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<td>Speaker: Serge Savary</td>
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<td>9:45am</td>
<td>Discussion moderated by Jim Jones</td>
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<tr>
<td>10:15am</td>
<td>Morning Break</td>
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<tr>
<td>10:30am</td>
<td>Talk 3 – Models for crop insect pests: Overview of approaches, scales</td>
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<td>Speaker: Charles Godfray</td>
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<td>11am</td>
<td>Talk 4 – Modeling crop losses caused by pests &amp; diseases and management</td>
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<td>Speaker: Ken Boote</td>
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<td>11:30am</td>
<td>Discussion moderated by Mark Rosegrant</td>
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<tr>
<td>12pm</td>
<td>Lunch</td>
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<tr>
<td>1pm</td>
<td>Talk 5 – Modeling economics of pest and disease damage and management</td>
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<td>Speaker: Yuan Chai</td>
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<tr>
<td>1:30pm</td>
<td>Talk 6 – Integrated modeling of crops, pests, economics: What purposes and approaches? Speaker: John Antle</td>
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<tr>
<td>2pm</td>
<td>Discussion moderated by John Porter</td>
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<td>2:30pm</td>
<td>Charge to breakouts introduced by Mauricio Fernandes</td>
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<tr>
<td>2:35pm</td>
<td>Breakouts (Discipline perspectives on P&amp;D models needed for integrated assessments, MIP teams)</td>
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<tr>
<td>5pm</td>
<td>Plenary report back with discussion moderated by Peter Thorburn</td>
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<tr>
<td>5:30pm</td>
<td>End of plenary session</td>
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<tr>
<td>5:30pm</td>
<td>Workshop Poster Reception</td>
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<tr>
<td>7:30pm</td>
<td>Adjourn</td>
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**Tuesday, February 24**

**Morning Plenary: Learning from Past Experiences**

**Moderated by Jerry Hatfield**

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<th>Time</th>
<th>Event</th>
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| 8am   | Day 2 Goal introduced by Marcello Donatelli  
*Building on what we have learned from past experiences for advancing capabilities* |
| 8:15am| Talk 7 – Modeling potential effects of climate change on potato late blight  
Speaker: Ariena van Bruggen |
| 8:45am| Talk 8 – Crop insect pest modeling: What have we learned from past efforts?  
Speaker: Segenet Kelemu |
| 9:15am| Discussion moderated by Charles Godfray                               |
| 9:45am| Morning break and poster viewing                                     |
| 10:30am| Talk 9 – Crop modeling incorporating pests and diseases: What have we learned?  
Speaker: Mauricio Fernandes |
| 11am  | Talk 10 – Incorporating climate change scenarios  
Speaker: Alex Ruane |
| 11:30am| Talk 11 – Modeling interactions of crops and pests/diseases  
Speaker: Marcello Donatelli |
| 12pm  | Lunch & Poster Viewing                                                |

**Afternoon Plenary: Toward Integration Across Scales**

**Moderated by John Antle**

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<th>Time</th>
<th>Event</th>
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| 1:30pm| Talk 12 – AgMIP Teams for intercomparing and improving models  
Speaker: Jim Jones |
| 2pm   | Discussion, moderated by John Antle                                   |
| 2:30pm| Charge to breakouts (Interdisciplinary teams) introduced by Jawoo Koo |
| 2:40pm| Breakout sessions                                                     |
| 5pm   | Plenary report back with discussion moderated by Alex Ruane           |
| 5:30pm| Adjourn                                                               |
### Plenary Session: Roadmap for Advancing the Science Across Disciplines

**Moderated by Jerry Hatfield**

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<th>Time</th>
<th>Activity</th>
<th>Speaker/Speaker(s)</th>
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<tr>
<td>8am</td>
<td>Day 3 Goal introduced by Cynthia Rosenzweig</td>
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<td></td>
<td>• Creating a roadmap for AgMIP pest and disease integrated modeling</td>
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<tr>
<td>8:15am</td>
<td><strong>Talk 13 – Next generation crop disease models for integrated assessments; will generic models work?</strong></td>
<td>Roger Magarey</td>
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<tr>
<td>8:45am</td>
<td><strong>Talk 14 – Next generation crop insect pest models for integrated assessments</strong></td>
<td>Jurgen Kroschel</td>
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<tr>
<td>9:15am</td>
<td>Discussion moderated by Jerry Hatfield</td>
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<tr>
<td>9:40am</td>
<td><strong>Charge to breakout groups introduced by Senthold Asseng</strong></td>
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<tr>
<td>9:45am</td>
<td>Breakout sessions (Develop target roadmaps for AgMIP P&amp;D modeling teams)</td>
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<td></td>
<td><em>Mid-morning break during breakout sessions</em></td>
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<tr>
<td>11am</td>
<td><strong>Plenary report back with discussion moderated by Jim Jones</strong></td>
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<tr>
<td>11:45am</td>
<td>Concluding comments: Jim Jones, Jerry Hatfield, Mark Rosegrant and Cynthia Rosenzweig</td>
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<tr>
<td>12pm</td>
<td><strong>Adjourn</strong></td>
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Breakout Sessions

1. Monday afternoon: **Discipline perspectives on P&D models needed for integrated assessments, MIP teams**

**Goals:** Disciplinary breakouts to discuss the need for P&D model integration with climate, crop, and economic assessments of impacts and adoption of alternative management systems and to discuss the main approaches that could be used to make advances by teams focusing on several P&D that are important internationally.

**Suggested Breakouts with Suggested Leaders and Rapporteurs:**

- a. Economic Modeling (Mark Rosegrant – Leader; John Antle – Rapporteur)
- b. Crop Modeling (Ken Boote – Leader; Peter Thorburn – Rapporteur)
- c. Climate (Alex Ruane – Leader; Jeff Andresen – Rapporteur)
- d. Insect Modeling (Charles Godfray – Leader; Sanford Eigenbrode – Rapporteur)
- e. Plant Disease Modeling (Karen Garrett – Leader; Mauricio Fernandes – Rapporteur)

**Questions to guide discussions in each disciplinary breakout:**

- a. For what purposes should P&D models be used in assessments of impacts (e.g., considering food security climate impacts, etc.) and adaptation (i.e., including genetic resistance, crop rotation, agrochemicals, cultural practices, etc.)?
- b. What models are needed and what approaches should be considered to ensure engagement of your discipline?
- c. What data are needed and what are the available datasets for use in a MIP?
- d. What are major pests and diseases that would be good candidates for model intercomparison and improvement teams to work on? Consider the MIPs suggested prior to the workshop.
- e. How should the MIP teams be organized? Are disciplinary-oriented MIP teams needed (e.g., similar to existing crop-specific and economic modeling teams?)

**Outcomes from this breakout:** recommended insects, diseases, and approaches for guiding new MIP teams, and the suggested roles of different disciplines.

2. Tuesday afternoon: **Building P&D MIP teams to advance the science**

**Goals:** To start building specific AgMIP teams that will work toward advancing capabilities in modeling crop P&D for use in integrated assessments and adaptation research. This includes the identification of specific insects and diseases with their associated crops and scientists from different disciplines who are working with those P&D and crops.

**Breakout composition:** Interdisciplinary, but with likely different members in each breakout. The composition will be determined by the choice(s) of insects or diseases to study, the crops they attack, and the approaches that they intend to use. There could also be teams that are more disciplinary oriented depending on interests and Monday breakout sessions.

**Suggested Breakouts with Suggested Leaders and Rapporteurs:**

- a. BlightMIIP: potato & tomato late blight model intercomparison and improvement project (Karen Garrett – Leader; Greg Forbes – Rapporteur)
- b. Wheat FHB disease MIP (Mauricio Fernandes – Leader; S. Asseng – Rapporteur)
- c. Maize or rice or soybean insect pest MIP (Robin Taylor – Leader; Rick Hellmich – Rapporteur)
- d. Crop Health MIP (Serge Savary – Leader; Jawoo Koo – Rapporteur)
- e. Economic methodology for integrating P&D MIP (Mark Rosegrant – Leader; K. Weibe – Rapporteur)
f. Crop modeling approaches for integrating P&D information/models to estimate yield loss (Marcello Donatelli – Leader; Peter Thorburn – Rapporteur)

g. Publication planning for journal special issue

h. Other?

**Number of breakouts:** Depends on first breakouts, but potentially 4-6, with 10-15 participants in each, focusing on specific insects, diseases and crops, with linkages to climate and economics.

**Questions to guide discussions in each breakout:** However, keep in mind the goals and intended outcomes of the breakout sessions to help set your discussion agenda.

a. Who are the modelers of the target insect or disease, and what is the nature of their collaboration now, if any.

b. Who are the modelers of crops that are damaged by insects or diseases, and who might be interested in model intercomparisons of insects/diseases and damage to the crop?

c. What approaches are suggested for including P&D damage to crops and yield losses in economic models and how climate affects that? Note, there may be interest in more than one aspect of the study, for example how to integrate damage simulated by insects or diseases into economic models at regional or global scales.

d. What are the recommendations to the workshop regarding formation of one or more teams based on what is learned in the breakout discussions?

e. What are potential funding opportunities?

**Outcomes from this breakout:** Preliminary plans to form one or more AgMIP P&D MIP teams, with specific insect, disease, crop, economic, and climate researchers who are interested in contributing to these studies. Also, preliminary list of datasets that should be assembled for each effort.

3. Wednesday morning: **Develop target roadmaps for AgMIP P&D MIP teams**

**Goals:** to develop a tentative plan of work for each AgMIP P&D model intercomparison and improvement team identified during last two days

**Breakout composition:** Interdisciplinary with teams ideally having insect or disease modelers, crop modelers, economic modelers and climate scientists contributing to the studies. Continuing teams from Tuesday.

**Number of breakouts:** Preliminary plans are breakouts for BlightMIIP, Wheat FHB MIP, and Crop Health MIP, but we hope that other MIPs will have been identified, e.g., for maize insect MIP, etc. So, the number of breakouts will depend on recommendations from second breakouts, but maximum of 6 or 7, with up to 12-15 participants in each.

**Suggested Breakouts with Suggested Leaders and Rapporteurs:**
To be determined in prior breakout sessions.

**Questions to guide discussions in each breakout:**

a. What are the goals (crop, pest/disease, economics, climate) of each team?

b. Who are the co-leaders of each team?

c. What are the steps needed to implement this new activity?

d. What potential data sources can be identified for this activity?

e. What is the thinking about what is needed to form the core AgMIP effort to support this initiative?

f. What timetable do you envision and what outputs will the team aim for?

g. What are the target funding sources and what steps are needed to obtain funding?

**Outcomes from this breakout:** Concrete plans for moving forward with several new AgMIP teams working on P&D model intercomparison and improvement initiatives.
Keynote Speakers

Dr. John Antle
Professor in the Department of Applied Economics at Oregon State University
Dr. Antle is a professor in the Department of Applied Economics at Oregon State University, Corvallis, Oregon, a University Fellow at Resources for the Future, Washington, D.C. and was a lead and contributing author to the IPCC third and fourth assessment reports. He is a Fellow and past President of the American Agricultural Economics Association. His current research focuses on the sustainability of agricultural systems in industrialized and developing countries, including climate change impacts, adaptation and mitigation in agriculture; assessment of environmental and social impacts of agricultural technologies; and geologic carbon sequestration. john.ante@oregonstate.edu

Dr. Ken Boote
Professor Emeritus in Agronomy at the University of Florida
Dr. Boote’s research focuses on the study of photosynthesis, respiration, carbon and nitrogen metabolism, and growth of crop plants in response to climate, carbon dioxide enrichment, drought, defoliating pests, and diseases. Develop crop growth models to understand crop physiology, to evaluate crop and pest management strategies, and to evaluate physiological traits for genetic yield improvement. kjboote@ufl.edu

Yuan Chai, Ph.D. Student
Department of Applied Economics, University of Minnesota
Yuan is affiliated with the International Science and Technology Practice and Policy (InSTePP) center where he works on the HarvestChoice project. His research focuses on agricultural risk management strategies and the impact of biotic and abiotic crop stresses on agricultural production and productivity. Combining his background in plant pathology, bio-technology and economics, he utilizes spatial bio-economic modeling approaches to evaluate the economic consequences of major crop diseases. He also studies the welfare and policy implications of public expenditure on agricultural R&D and crop insurance aimed at mitigating agricultural risks. chaix026@umn.edu

Dr. Marcello Donatelli
Head of the Research Center for Industrial Crops (CRA-CIN), Director of Research, and full professor of agronomy
Dr. Donatelli’s research area is biophysical modelling and software systems for model development and use. Applications are related to agriculture with a focus on cropping systems analysis, and onagro-management adaptation to climate. He is the leader of the development of the BioMA software platform for modelling agricultural systems used by the European Commission both for in season estimates of crop production and for climate change scenarios analysis (https://en.wikipedia.org/wiki/BioMA). marcello.a.donatelli@gmail.com
Dr. Mauricio Fernandes
Plant Epidemiologist with Brazilian Agricultural Research Corporation, Embrapa

Dr. Fernandes’ research is focused on botanic epidemiology and more specifically in modeling of plant diseases epidemics. He has concentrated efforts in coupling plant disease models to crop simulation models. These models, have been used to evaluated climate variability/change impact on crop production. He is also interested in the development of web-based plant diseases warning systems target to farmers and farmer’s consultants. Warnings are dispatched directly to mobile phones, electronic mail and in the Web. Warnings are based on validated epidemiological models that use observed meteorological data and numerical weather forecast as input. mauricio.fernandes@embrapa.br

Professor Charles Godfray
Oxford Martin Programme on the Future of Food, Oxford University

Professor Godfray is a population biologist with broad interests in science and the interplay of science and policy. He is interested in how the global food system will need to change and adapt to the challenges facing humanity in the 21st century, and in particular in the concept of sustainable intensification, and the relationship between food production, ecosystem services and biodiversity. He chaired the Lead Expert Group of the UK Government’s Foresight Project on the Future of Food and Farming and is a member of the Strategy Advisory Board of the UK Global Food Security Programme and the Steering Group of the UK Government Green Food Project. He is also a member of the writing team for the UN’s Committee on World Food Security. charles.godfray@zoo.ox.ac.uk

Dr. Jerry Hatfield
Collaborating Professor/ Lab Director National Lab for Agriculture and the Environment (USDA-ARS)

Dr. Hatfield’s research emphasis is on the interactions among the components of the soil-plant-atmosphere continuum and their linkage to air, water, and soil quality. His focus has been on the evaluation of farming systems and their response to water and nitrogen interactions across soils and the evaluation of remote sensing methods to quantify spatial variation within fields for application to risk management tools. jerry.hatfield@ars.usda.gov

Dr. James W. Jones
Distinguished Professor in Ag and Biological Engineering and Director, Florida Climate Institute at the University of Florida

Dr. Jones has led and participated in many interdisciplinary research programs both nationally and internationally for over 35 years. His research has focused on modeling the effects of climate on crops and on applying those models to study effects of climate variability and climate change on crop yield to evaluate management options that minimize climate risks and support agricultural decision-making. His most current large-scale project, AgMIP, The Agricultural Model Intercomparison and Improvement Project, has received recognition and funding globally and continues to grow. Dr. Jones was elected to the National Academy of Engineering in 2012 for his interdisciplinary research and serves on several international science advisory committees related to climate and agriculture. jimj@ufl.edu
Dr. Segenet Kelemu
Director General of icipe and Ex-Officio Member of the Governing Council

Dr. Kelemu is the fourth Director General of the International Centre for Insect Physiology and Ecology (icipe) in Nairobi, Kenya, and the first woman to lead icipe. She is a molecular plant pathologist with emphasis on elucidation of molecular determinants of host-pathogen interactions, development of novel plant disease control strategies including genetic engineering, biopesticides, pathogen population genetics and dynamics and endophytic microbes and their role in plant development. After post-doctoral work at Cornell University in the USA, Segenet joined the International Center for Tropical Agriculture (CIAT) as a Senior Scientist in 1992 and was later appointed Leader of Crop and Agroecosystem Health Management.
skelemu@icipe.org

Dr. Jürgen Kroschel
Science Leader Agroecology at the International Potato Center (CIP)

Dr. Kroschel is science leader of the Agroecology/IPM program at the International Potato Center (CIP), Lima, Peru, developing and implementing a global potato and sweet potato IPM research and development program under the aspect of climate change. Before joining CIP, he worked as Professor for Plant Production in the Tropics and Subtropics at the Universities of Hohenheim and Kassel, Germany, and as team leader for the German International Cooperation (GIZ). He is editor of the series “Tropical Agriculture: Advances in Crop Research”, and member of the editorial board of the Journal of Applied Entomology.
j.kroschel@cgiar.org

Dr. Roger Magarey
Senior Researcher, North Carolina State University

Dr. Magarey’s research interests are risk mapping of exotic plant pests, plant pest forecasting, species distribution modeling and cyberinfrastructure. He led the development of the NCSU APHIS Plant Pest Forecast (NAPPPAST) system for pest surveillance, emergency programs and risk analysis. NAPPPAST is a weather-based risk mapping tool that includes interactive templates and global hourly weather data sets. The tool was used for risk mapping of high priority pests including soybean rust, sudden oak death and citrus black spot. Magarey also has experience working with other kinds of risk modeling for exotic and invasive species including: phylogenetic modeling of host range, EXPAT for modeling species spread and impacts, probabilistic pathway modeling using @RISK, and propagule presume modeling using trade and phytosanitary databases. rdmagare@ncsu.edu

Dr. Mark Rosegrant
Director of the Environment and Production Technology Division at the International Food Policy Research Institute (IFPRI) in Washington, DC

Dr. Rosegrant has extensive experience in research and policy analysis in agriculture and economic development, with an emphasis on water resources and other critical natural resource and agricultural policy issues as they impact food security, rural livelihoods and environmental sustainability. He currently directs research on climate change, water resources, sustainable land management, genetic resources and biotechnology, and agriculture and energy. Rosegrant has won numerous awards, and is a Fellow of the American Association for the Advancement of Science; and a Fellow of the Agricultural and Applied Economics Association. m.rosegrant@cgiar.org
http://www.ifpri.org/staffprofile/mark-rosegrant
Dr. Cynthia Rosenzweig
Senior Research Scientist at the Goddard Institute for Space Studies at Columbia University

Dr. Rosenzweig is also a Senior Research Scientist at Columbia University’s Center for Climate Systems Research. She is the co-founder of the Agricultural Model Intercomparison and Improvement Project (AgMIP), a major international collaboration to improve global agricultural modeling, understand climate impacts on the agricultural sector, and enhance adaptation capacity in developing and developed countries. She was a Coordinating Lead Author on observed climate change impacts for the IPCC Working Group II Fourth Assessment. She was named as one of “Nature’s 10: Ten People Who Mattered in 2012” by the science journal Nature. A recipient of a Guggenheim Fellowship, she joins impact models with climate models to project future outcomes under altered climate conditions. Dr. Rosenzweig is also a Professor in the Department of Environmental Science at Barnard College.
crr2@columbia.edu
www.agmip.org

Dr. Alex Ruane
Research Physical Scientist at NASA Goddard Institute for Space Studies / Associate Research Scientist at Columbia University

Dr. Ruane serves as the Research Coordinator and Climate Team Leader for the Agricultural Model Intercomparison and Improvement Project (AgMIP; www.agmip.org). His research uses a variety of climate and impacts assessment models to examine the influence of climate variability and change on a variety of sectors including agriculture, water resources, urban areas, infrastructure, energy, and human health, leading to the development of adaptation strategies and decision support tools for stakeholders and policy makers who need to understand vulnerabilities and uncertainties to successfully manage risk. Alex leads the Coordinated Climate-Crop Modeling Project (C3MP; www.agmip.org), in its investigations of climate sensitivity at more than 1000 worldwide crop and livestock simulation sets, and has developed the AgMERRA climate forcing dataset to support agricultural impacts modeling. Alex also works to develop new methods to tailor climate scenarios for unique applications around the world, and investigates observational methods, high-frequency variations, and extreme characteristics of hydroclimate.
alexander.c.ruane@nasa.gov

Dr. Serge Savary
Principal Research Scientist, INRA Research Group AGIR

Dr. Savary is a plant pathologist with INRA. His research has addressed taxonomy, diagnostic, botanical epidemiology, risk assessment, crop health management, analysis of agricultural systems, and research prioritization. He has spent most of his professional career in the tropical world with ORSTOM (IRD), and at the International Rice Research Institute, in West Africa, Central America, France, and South-East and South Asia. He has worked on various topics, including plant disease epidemiology and IPM in vegetables, legumes, and cassava in West Africa; plant disease epidemiology and crop loss analysis in coffee and bean in Central America; epidemiology and disease management in wheat and grapevine in France; management of rice health in tropical Asia; and wheat health. He is involved in international education and research in plant health with colleagues at UF Viçosa (Brazil), UC Davis (USA), U. Costa-Rica, and in France. His research involves simulation modelling; epidemiological and crop loss experiments; and multivariate statistical analyses on large data bases. His interests focus on the forces that shape production situations, and on the dynamic linkages between crop health and production situations, including the agronomic and the socio-economic contexts of agricultural production, and their application for sustainable crop health management and food security.
Serge.Savary@toulouse.inra.fr
Dr. Ariena H.C. vanBruggen
Professor of Plant Pathology, UF/IFAS Department of Plant Pathology and Emerging Pathogens

Dr. van Bruggen is a Professor at the Emerging Pathogens Institute and the UF/IFAS Department of Plant Pathology, where she focuses on the ecology and epidemiology of emerging and re-emerging plant diseases, among others potato late blight as affected by climate change. She is author of over 170 research articles and 18 book chapters on plant disease epidemiology, food safety and sustainable agriculture. She received the APS Ciba-Geigy award from the American Phytopathological Society and the Jakob Eriksson Gold Medal from the Swedish Academy of Sciences in 1993, and became a Fellow of the American Phytopathological Society in 2012.

ahcvanbruggen@ufl.edu
http://plantpath.ifas.ufl.edu/faculty/vanBruggen/faculty-vanBruggen.shtml
http://epi.ufl.edu/ariena-h-c-van-bruggen/
# Attendees

<table>
<thead>
<tr>
<th>Name</th>
<th>Role and Affiliation</th>
<th>Research Focus</th>
<th>Contact Information</th>
</tr>
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<tbody>
<tr>
<td>Dr. Jeffrey Andresen</td>
<td>Professor of Meteorology/Climatology with Michigan State University's Department of Geography, Extension Specialist with Michigan State University Extension, and the State Climatologist for Michigan</td>
<td>The primary focus of Dr. Andresen's research has been the influence of weather and climate on agriculture, both in the USA and in international production areas. Current and past themes include climatological trends and potential impacts, crop simulation modeling, agricultural irrigation, impacts associated with potential future changes in climate, weather and risk management, and the influence of land use changes on regional climate.</td>
<td><a href="mailto:andresen@msu.edu">andresen@msu.edu</a></td>
</tr>
<tr>
<td>Dr. Senthold Asseng</td>
<td>Professor, UF/IFAS Agricultural and Biological Engineering Department</td>
<td>Dr. Asseng's research focus is in comparing and improving the productivity and sustainability of atmosphere-crop-soil systems changing over time, space and scales. Particular interest in the impact of climate variability and climate change on cropping systems and food security and the development of adaptation options. Co-Leader of AgMIP-Wheat, an international team of wheat modellers and experimentalists as part of the Agricultural Model Intercomparison and Improvement Project and also the Principal Investigator of the South East Climate Consortium (SECC) and the Chair of the Expert Working Group Wheat Plant and Crop Modeling of the international Wheat Initiative.</td>
<td><a href="mailto:sasseng@ufl.edu">sasseng@ufl.edu</a></td>
</tr>
<tr>
<td>Dr. Cynthia Bantilan</td>
<td>Research Program Director of ICRISAT’s Research Program on Markets, Institutions and Policies</td>
<td>Research focus is on agricultural research evaluation and impact assessment, strategic foresight analysis, poverty and income distribution analysis, econometrics, monitoring and evaluation, agricultural economics and agricultural statistics, information systems management, and applications for decision support and policy analysis. At ICRISAT, she is involved in strategic assessments, research evaluation, analysis of livelihood strategies and development pathways, poverty and income distribution analysis, monitoring and impact studies, applications for decision support and policy analysis, and science policy.</td>
<td><a href="mailto:c.bantilan@cgiar.org">c.bantilan@cgiar.org</a></td>
</tr>
<tr>
<td>Dr. Simone Bregaglio</td>
<td>System Modeler at the Department of Agricultural and Environmental Sciences, Università degli Studi di Milano</td>
<td>Research focus is the development and the application of models to simulate plant-pathogen interactions and to quantify yield losses due to plant diseases. He is a developer of software components which can be coupled to crop models in order to simulate the biotic damages on crops. These tools are currently used in international projects to improve crop yield forecasts at local and regional level.</td>
<td><a href="mailto:simone.bregaglio@unimi.it">simone.bregaglio@unimi.it</a></td>
</tr>
<tr>
<td>Beatriz Vanessa Herrera Campo</td>
<td>Faculty of Agricultural Sciences, Georg-August Universität Göttingen (MSc Student), Göttingen, Germany</td>
<td>Research focuses mainly on the prediction of the distribution of cassava (and other) pests and diseases at regional and global scales. Prediction is performed through the use of ecological models, climatic data and occurrence records of species. She also has experience with phenological models (such as climex), population models (deterministic dynamics) and integration of information via spatial and geostatistical analyses.</td>
<td><a href="mailto:beatrizvanessah@gmail.com">beatrizvanessah@gmail.com</a> or <a href="mailto:b.herreracampo@stud.uni-goettingen.de">b.herreracampo@stud.uni-goettingen.de</a></td>
</tr>
<tr>
<td>Dr. John Capinera</td>
<td>Professor and Chair, UF/IFAS Department of Entomology and Nematology</td>
<td>Research interests are integrated pest management involving grasshoppers, vegetable pests, and terrestrial molluscs (slugs &amp; snails). Focus on host and habitat associations, plant feeding behavior, biological control, and least toxic pesticides.</td>
<td><a href="mailto:Capinera@ufl.edu">Capinera@ufl.edu</a></td>
</tr>
</tbody>
</table>

[http://entnemdept.ifas.ufl.edu/cv/people/capinera/](http://entnemdept.ifas.ufl.edu/cv/people/capinera/)
Dr. Emerson M. Del Ponte  
Associate Professor,  
Departamento de Fitopatologia, Universidade Federal de Viçosa, Brasil  
Research focus is plant pathology with expertise in the field of plant disease epidemiology. Dr. Del Ponte developed a series of epidemiological studies on Fusarium head blight (FHB) of wheat, including a dynamic simulation model for predicting FHB epidemics, during his PhD. Research questions addressed in the laboratory over the last years involve two main areas: population biology of plant pathogens and modelling and risk assessment of plant diseases of major impact to key crops including wheat, rice and soybean.  
delponte@ufv.br

Dr. Etienne Duveiller  
CIMMYT Regional Representative Asia based in Delhi and Director of Research in South Asia  
Dr. Duveiller specializes in wheat disease resistance under stressed environments and integrated crop management. He conducted most of his research in CIMMYT Mexico and as regional pathologist for South Asia based in Nepal. As general pathologist interested in anticipatory breeding and epidemiology he contributed to the monitoring of wheat rust pathogens in the Indian Subcontinent and participated in several wheat disease surveys in central Asia.  
E.Duveiller@cgiar.org

Dr. Sanford Eigenbrode  
Professor, UF/IFAS College of Agricultural and Life Sciences, Department of Plant, Soil and Entomological Sciences  
Dr. Eigenbrode conducts research on the chemical ecology of insect-plant and multitrophic interactions, pest management and pest risk forecasting in crops prevalent in Idaho and the inland Pacific Northwest. This has included emphases on the chemical ecology, landscape ecology and management of insect-vectored viruses of wheat, potatoes and legumes in the Pacific Northwest. He is project director for a large NIFA sponsored Coordinated Agricultural Project on Regional Approaches to Climate Change in Pacific Northwest Agriculture.  
sanford@uidaho.edu  
www.reacchpna.org

Dr. Kindie Tesfaye Fantaye  
Researcher, International Maize and Wheat Improvement Center, Ethiopia  
Dr. Fantaye’s research focuses on crop modeling and geospatial analysis of climate change and climate risks, agricultural water management and agronomy. He is currently working on the calibration and evaluation of the DSSAT crop model under optimum, water-stressed, nitrogen-stressed and water and nitrogen stressed environments. He is also working on the evaluation, calibration and application of the DSSAT model for heat stress using benchmark maize varieties in eastern and southern Africa.  
K.TesfayeFantaye@cgiar.org

Dr. David Fleisher  
Research Agricultural Engineer with the USDA-ARS Crop Systems and Global Change Laboratory  
Dr. Fleisher’s research focus includes developing mechanistic soil-plant-atmospheric mathematical models and conducting field and growth chamber experiments to quantifying impacts of environmental, management, and genetic factors on crop production. Current research includes assessing impacts of climate change and abiotic constraints on food security issues using geospatially referenced data and modeling tools and is currently serving as co-leader of the potato crop modeling pilot with the Agricultural Model Intercomparison and Improvement Project (AgMIP).  
david.fleisher@ars.usda.gov

Dr. Greg Forbes  
Researcher, International Potato Center (CIP)  
Dr. Forbes’ research is focused on potato late blight (PLB), and more recently for management of other potato diseases. He spent much of his career in Andean highlands at the CIP Quito (Ecuador) and in Lima (Peru) at CIP’s headquarters and is currently posted in Beijing, China. Greg is interested in disease management strategies appropriate for developing countries and has focused on host plant resistance and farmer disease management capacity. He has worked with PLB modeling for disease management and risk assessment due to both climate change and pathogen evolution.  
G.Forbes@cgiar.org

Dr. Clyde Fraisse  
Associate Professor, UF/IFAS Agricultural & Biological Engineering Department  
Dr. Fraisse’s extension and applied research program at UF focus on developing and providing climate information and decision support tools to help agricultural producers better cope with risks associated with climate variability and change. Dr. Fraisse developed and maintains AgroClimate.org, a web-based climate information system customized for the agricultural industry in the southeastern U.S. and is the project director of an USDA-NIFA regional extension program on climate and agriculture.  
cfraisse@ufl.edu  
http://www.agroclimate.org/frac.html
Dr. Karen Garrett
Professor, UF/IFAS Plant Pathology

Dr. Garrett’s research focus is on plant disease ecology, ecological genomics, agricultural biodiversity and resistance gene deployment, disease in natural systems, statistical applications in biology, international agriculture. In agricultural systems, she works to improve plant disease management in US and tropical farming through resistance gene deployment and sustainable cultural practices. In natural systems, she studies plant-pathogen-environment interactions in tallgrass prairie and tropical forests.

karengarrett@ufl.edu

Dr. Sika Gbegbelegbe
Associate Scientist (Agricultural Economics), CIMMYT

Dr. Gbegbelegbe works on foresight modeling with the Socioeconomics Program in CIMMYT. Before joining CIMMYT, she was a post-doctoral scientist (agricultural economics) in ReSAKSS; while in ReSAKSS, she conducted research on trade in staple foods and food security in Eastern and Southern Africa (ESA).

g.sika@cgiar.org

Eder Antônio Giglioti
Biopesticides Development Modeling Sugarcane Traits; Decision Support Systems Development; and 3. Big Data Mining.
edergiglioti@smartbiotecnologia.com.br

Dr. Byju N Govindan
Research Associate, Biological Systems Engineering, Washington State University

Research focuses on using insects as model fauna, he employs observational, empirical and modeling approach to appreciate the consequence of climate change for herbivory and biological control in agricultural cropping systems and develop decision support tools to manage agricultural pests for improved crop productivity. Currently, he is into process based simulation modeling to assess the impact of climate change on the cereal leaf beetle (Oulema melanopus (L.) (Coleoptera: Chrysomelidae)) phenology and population dynamics, and damage potential to wheat, Triticum aestivum.

ngbyju@gmail.com

Dr. Dave Gustafson
Director for ILSI Research Foundation’s Center for Integrated Modeling of Sustainable Agriculture and Nutrition Security (CIMSANS)

Dr. Gustafson works to foster new public-private partnerships on improving scientific understanding of how climate change and resource scarcity impact sustainable nutrition security. His initial focus was predicting agricultural impacts on water quality. In subsequent years, Dave developed new modeling approaches to pollen-mediated gene flow and the population genetics of insect and weed resistance.

dgustafson@ilsi.org

Dr. David G Hall
Research Leader, Subtropical Insects & Horticulture Research Unit, USDA

Dr. Hall is an entomologist with an emphasis on developing IPM strategies based on insect biology, plant-insect interactions, biological control, and quantitative ecology. He worked in private industry as a research entomologist for 22 years studying insect problems in sugarcane and citrus, transferring significant technology to client industries through scientific publications, consultation, and presentations. Dr. Hall designed/implemented pest management programs for commercial citrus (19,000 acres) and sugarcane (160,000 acres) and served as the primary decision maker for insect pest management decisions in both crops.

David.Hall@ars.usda.gov

Dr. Richard (Rick) Hellmich
Research Entomologist, USDA–ARS, Corn Insects and Crop Genetics Research Unit and Assistant Professor with the Iowa State University Department of Entomology

Dr. Hellmich’s mission in this lab is to develop sustainable ways to manage insect pests of corn. Previously, Dr. Hellmich studied Africanized honey bees in Venezuela and Guatemala while working for eight years at the USDA–ARS Honey Bee Laboratory in Baton Rouge, LA. His research focuses on European corn borer ecology and genetics, insect resistance management, and evaluation of non-target effects of genetically-engineered (GE) maize.

Richard.Hellmich@ars.usda.gov

Dr. Robert Hijmans
Associate Professor, Department of Environmental Science and Policy, University of California Davis

Research focus is spatial variation in agriculture using mechanistic and statistical modeling techniques. Current work focuses on sustainable intensification of agriculture in Africa and South Asia.

robert.hijmans@gmail.com
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Research Focus</th>
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<tbody>
<tr>
<td>Dr. Gerrit Hoogenboom</td>
<td>Director of AgWeatherNet and Professor of Agrometeorology at Washington State University</td>
<td>Dr. Hoogenboom’s research has specialized in the development and application of crop simulation models and decision support systems and he currently coordinates the development of the Decision Support System for Agrotechnology Transfer (DSSAT; <a href="http://www.dssat.net">www.dssat.net</a>), a crop modeling system that is being used world-wide. He frequently organizes and facilitates international training workshops on crop modeling and decision support systems. <a href="mailto:gerrit.hoogenboom@wsu.edu">gerrit.hoogenboom@wsu.edu</a> <a href="http://www.GerritHoogenboom.com">www.GerritHoogenboom.com</a></td>
</tr>
<tr>
<td>Dr. Dennis A. Johnson</td>
<td>Professor and Extension Plant Pathologist at Washington State University</td>
<td>Dr. Johnson’s research expertise is in epidemiology, disease forecasting, disease resistance and in developing practical management strategies for diseases of asparagus, mint and potatoes. He has published extensively on late blight, and black dot of potato, Verticillium wilt of mint and potato and rust of asparagus. <a href="mailto:dajohn@wsu.edu">dajohn@wsu.edu</a> <a href="http://plantpath.wsu.edu/dajohn/">http://plantpath.wsu.edu/dajohn/</a></td>
</tr>
<tr>
<td>Dr. James Keesling</td>
<td>Professor of Mathematics, University of Florida</td>
<td>Dr. Keesling’s current work is in biomathematical modeling is primarily concerned with refining and applying a model we developed for the asymptomatic spread of Citrus Greening. The model is an agent based microsimulation model for the spread of this disease and being applied to the Psyllid Shield Project funded by the Citrus Research and Development Foundation. <a href="mailto:kees@ufl.edu">kees@ufl.edu</a> <a href="http://www.people.clas.ufl.edu/kees/">www.people.clas.ufl.edu/kees/</a></td>
</tr>
<tr>
<td>Dr. Jawoo Koo</td>
<td>Research Fellow at International Food Policy Research Institute (IFPRI), Washington, DC</td>
<td>Dr. Koo is working to simulate crop production systems in developing world to better estimate the potential impacts of agricultural technologies on global/regional food security – on a grid-based modeling framework by HarvestChoice (<a href="http://harvest-choice.org">http://harvest-choice.org</a>) and its partners. At IFPRI, Jawoo is leading the HarvestChoice program, an initiative co-implemented by IFPRI and University of Minnesota, which generates knowledge products to help stakeholders and policy makers to make better strategic decisions in Sub-Saharan Africa. <a href="mailto:j.koo@cgiar.org">j.koo@cgiar.org</a> <a href="http://about.me/jawoo">http://about.me/jawoo</a></td>
</tr>
<tr>
<td>Dr. Rosemary Loria</td>
<td>Professor and Chair, UF/IFAS Department of Plant Pathology</td>
<td>Dr. Loria’s work focuses on evolution and molecular mechanisms of plant pathogenesis in Streptomyces spp. Genomics of plant pathogenic actinobacteria. Biosynthesis and regulation of the cellulose biosynthesis inhibitor, thaxtomin. Identification of secreted proteins in the virulence of streptomycetes. Secondary metabolite production and regulation in plant pathogenic Streptomycetes. The role of horizontal gene transfer in the emergence of plant pathogenic bacteria. <a href="mailto:rloria@ufl.edu">rloria@ufl.edu</a></td>
</tr>
<tr>
<td>Dr. Andrea Maiorano</td>
<td>Researcher, INRA, Montpellier, France</td>
<td>Dr. Maiorano’s main research focuses on the development, testing and improvement of biophysical models to support and analyze management of agricultural systems under current climate conditions and climate change. Other frameworks explore the development of simulation models for fungal diseases, insect pest, and cereal development. Most recent project is about the improvement of the AgMIP-wheat models intercomparison and uncertainty assessment, climate change impact studies. <a href="mailto:andrea.maiorano@supagro.inra.fr">andrea.maiorano@supagro.inra.fr</a></td>
</tr>
<tr>
<td>Daniel Mason-D’Croz</td>
<td>IFPRI Research analyst on the IMPACT development team</td>
<td>Mason-D’Croz has focused on improving and redesigning the IMPACT model as well as standardizing and leading the IMPACT training program. Prior to his work at IFPRI he has worked with the US International Trade Commission and a variety of rural development projects in Guatemala, the USA, as well as serving as a Peace Corps volunteer in Bolivia. <a href="mailto:d.mason-dcroz@cgiar.org">d.mason-dcroz@cgiar.org</a> <a href="http://www.globalfutures.cgiar.org">www.globalfutures.cgiar.org</a></td>
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<tr>
<td>Name</td>
<td>Title</td>
<td>Experience/Research Focus</td>
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<tr>
<td><strong>Alessandro Moscuzza</strong></td>
<td>Climate Change and Environment Adviser, UK Government’s Department for International Development (UK-Aid)</td>
<td>Technical expertise crosses several environmental, agricultural, and climate science areas with experience in Africa, Asia, and Europe.</td>
</tr>
<tr>
<td><strong>Dr. Steven Naranjo</strong></td>
<td>Director of the USDA-ARS, Arid-Land Agricultural Research Center in Maricopa, Arizona</td>
<td>Dr. Naranjo oversees and provides leadership for three units focused on crop protection and crop production in arid environments. Dr. Naranjo is internationally recognized for his research in insect sampling and decision aids, integrated pest management, conservation biological control, insect population ecology, and environmental risk assessment of transgenic crops.</td>
</tr>
<tr>
<td><strong>Dr. S. Nedumaran</strong></td>
<td>Scientist (Economics), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru, Hyderabad, India</td>
<td>Dr. Nedumaran is working as a scientist in Research Program on Markets, Institutions and Policies at ICRISAT, India. He research also contributed immensely to address the targeting and priority setting concern of CRP Dryland Cereals and Grain Legumes by using his analytical prowess harnessing national, regional, meso and micro farm level database.</td>
</tr>
<tr>
<td><strong>Dr. Jonathan Newman</strong></td>
<td>Professor and Director, School of Environmental Sciences, Guelph Ontario</td>
<td>Dr. Newman’s research is focused on plant-insect interactions and climate change with a particular emphasis on species of agronomic interest and/or invasive species.</td>
</tr>
<tr>
<td><strong>Dr. John Hernandez Nopsa</strong></td>
<td>Research Associate, Department of Plant Pathology, Kansas State University</td>
<td>Dr. Nopsa has experience as a plant disease epidemiologist and with network modeling of different systems such as stored grain diseases and pests. Currently, he is working on the characterization of the network structure of global croplands, and its potential impact on pest and disease risk globally, using the network structure to evaluate priorities for surveillance of new invasive pests and diseases.</td>
</tr>
<tr>
<td><strong>Dr. Athanasios Petsakos</strong></td>
<td>Agricultural Economist, International Potato Center (CIP), Lima Peru</td>
<td>Dr. Petsakos’ research has mostly concentrated on the impact analysis of agricultural and environmental policies, especially with respect to nitrate pollution control and the sustainable use of irrigation water. He is skilled in economic optimization models at the farm and the regional scale and also has significant experience in the use of the crop simulation models, especially the model STICS.</td>
</tr>
<tr>
<td><strong>Professor John Roy Porter</strong></td>
<td>Professor of Agriculture and Climate Change, Natural Resources Institute, University of Greenwich, UK</td>
<td>Professor Porter is an internationally known scientist in crop ecology and physiology, biological modelling and agricultural ecology. Main contribution has been multi-disciplinary and collaborative work in the response of arable crops, energy crops and complex agro-ecosystems to their environment with an emphasis on climate change, food security and ecosystem services. Recently he has led the writing of the critically important chapter for the IPCC 5th Assessment in Working Group 2 on food production systems and food security.</td>
</tr>
<tr>
<td><strong>Kate Schneider</strong></td>
<td>Associate Program Officer, Agricultural Development Team, Bill and Melinda Gates Foundation</td>
<td>Kate works on a data and diagnostics portfolio, focusing on improving the evidence base and decision-support tools for data-driven policy and investment decision-making. She is also responsible for addressing the environmental components of increasing sustainable productivity growth for smallholder farmers.</td>
</tr>
</tbody>
</table>
| **Dr. Paulo Sentelhas**  
Associate Professor of Agronomy, University of São Paulo, BR | Dr. Sentelhas works with agrometeorological aspects of plant disease occurrence, mainly for measuring and estimating leaf wetness duration for both reference and specific crops. He also advises grad students in the Agricultural Systems Engineering Program, focusing on the influence of climate variability and change on agricultural production and plant diseases risks, mainly for sugarcane, citrus, grape and coffee crops, through the use of crop simulation models.  
pcsentel.esalq@usp.br  
http://www.leb.esalq.usp.br/sentelhas.html |
| --- | --- |
| **Dr. Mamta Sharma**  
Senior Scientist, Legumes Pathology, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Hyderabad, India | Dr. Sharma’s current research activities focus on pathogen management under current and future climate by exploiting weakness determined from new knowledge on emerging diseases/pathogens biology, epidemiology and pathogenesis mechanisms. The research is also concentrated on host plant resistance, variability in pathogen population and management of necrotrrophic plant pathogens in legume crops.  
mamta.sharma@cgiar.org  
http://www.icrisat.org/ |
| **Dr. Hari C Sharma**  
Principal Scientist in Entomology at the International crops Research Institute for the Semi-Arid Tropics (ICRISAT) | Dr. Sharma’s research is in the areas of insect bio-ecology, host-plant resistance, mechanisms and inheritance of resistance, biosafety of transgenic crops to non-target organisms, climate change effects on arthropods, application of genetic engineering and genomics tools for insect resistance, and integrated pest management.  
H.Sharma@cgiar.org  
www.icrisat.org |
| **Dr. Claudio Stockle**  
Professor and Department Chair, Biological Systems Engineering, Washington State University | Dr. Stockle’s research is focused on the development and application of computer-based analytical tools (crop simulation models, weather generators, watershed models, geographical information systems) to study the effect of soil, weather, land use, and management on crop growth, crop productivity, and the environment (erosion and chemical pollution) at the field, regional, and watershed scales. He also works on climate change and nutrient cycling analyses.  
stockle@wsu.edu  
http://bsyse.wsu.edu/faculty/stockle/ |
| **Dr. Robin Taylor**  
Senior Research Scientist, Texas A & M University | Dr. Taylor is a statistical ecology modeler who uses a wide knowledge of quantitative, statistical, and computational methods in novel ways in collaboration with experimental scientists to analyze complex natural and manmade systems. Collaborations include developing a dose-mortality analysis incorporating information of pesticide delivery efficiency and concentration; a general life system model of invasive species; combining geographic information systems and neural networks to predict the population dynamics of insects, impact of climate change on insect-crop interactions and pest management requirements.  
rtaylor@brc.tamus.edu  
http://blackland.tamu.edu/people/taylor-robin/ |
| **Dr. Peter Thorburn**  
Senior Principal Research Scientist and Research Group Leader in the CSIRO Agriculture Flagship | Dr. Thorburn’s research is multidisciplinary with interests in the dynamics of soil-plant interactions, and his research group has a strong focus on the development and application of the APSIM. Peter’s personal research, and that of his group, focuses on enhancing the sustainability of farming systems in Australia and many developing countries to increase food production, reduce environmental impacts and allow these systems to adapt to a changing climate.  
Peter.Torburn@csiro.au |
Dr. Henri Tonnang

Dr. Tonnang’s research activities are focusing on the use of mathematical, physical and advanced statistical methods to enhance the understanding of agricultural and biological systems and processes in the including pests and diseases. Recently, he began working on Public Policy and is leading the idea of establishing a network that will help to convert some of the existing robust scientific outputs into simple readable documents for end-users and policy makers.

htonnang@icipe.org www.icipe.org

Dr. Wopke van der Werf

Associate Professor, Crop Systems Analysis Unit, Department of Plant Sciences, Wageningen University, The Netherlands

Dr. van der Werf’s research focuses on spatial ecology, ecosystem services, productivity and resource use efficiency in mixed plant systems (e.g. intercrops) and advanced ecological modelling, e.g. likelihood-based model selection and spatial modelling. He studies possibilities for pest suppressive agricultural production systems and enhanced biological control, and conducts research on pest invasions. His research spans multiple scales, from field to continental level, and makes uses of empirical field work, as well as modelling and statistical techniques for model identification and selection, for upscaling and uncertainty analysis.

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Dr. Daniel Wallach

INRA, chargé de mission, Toulouse, France and Professor at the University of Florida

Dr. Wallach’s research focus is in statistics applied to dynamic system models. Main work is with crop models, but have also worked with disease and insect pest models. To create better predictors, it is necessary to have reliable criteria for estimating predictive accuracy. Two methods of improving models are explored: better parameter estimation and the use of the mean of multiple models. Exploring the various questions related to the use of multi-model ensembles is a recent research direction.

Daniel.Wallach@toulouse.inra.fr

Dr. John Westbrook

Research Meteorologist, USDA-ARS

Dr. Westbrook has developed technologies and techniques to determine source areas, spring emergence, and long-distance dispersal of important crop pests including corn earworm moths, boll weevils (between eradication zones), pyrethroid-resistant tobacco budworm moths, sunflower moths, and fall armyworm moths. New basic knowledge and increased predictability of insect flight behavior have identified biologically-defined areas for effective areawide pest management of these highly-mobile pest species.

john.westbrook@ars.usda.gov

Dr. Jeremy Whish

Senior Research Scientist with CSIRO Agriculture Flagship in Toowoomba Queensland

Dr. Whish uses simulation modelling and on-farm research techniques to investigate ways of improving production and resource use in Agricultural systems. He currently is focusing on modelling Pratylenchus thornei (root lesion nematode populations) in grain farming systems. More recently he has been working on integrating biological constraints within the APSIM modelling framework to better represent the farming system and quantify the value of crop rotation within the system.

jeremy.whish@csiro.au

Dr Jeremy Whish: Examining the sustainable and ... - CSIRO,

Dr. Jeffrey W. White

Research Plant Physiologist & Research Leader, USDA

Dr. White’ research focuses on crop adaptation to climate change and uncertainty with emphasis on genetic adaptation to heat and drought. He uses ecophysiological models to test hypotheses related to crop responses and to assess potential impacts of climate on productivity. Recognizing that access to high quality data is essential for model evaluation and improvement, he is a strong proponent of efforts to improve management of research datasets via data standards and supporting software tools.

Jeffrey.white@ars.usda.gov
http://www.ars.usda.gov/pandp/people/people.htm?personid=33167,
| **Keith Wiebe**  
Senior Research Fellow at the International Food Policy Research Institute in Washington DC | Keith Wiebe leads a multi-center research program on Global Futures and Strategic Foresight. Prior to joining IFPRI in 2013, he was Deputy Director of the Agricultural Development Economics Division of the United Nations Food and Agriculture Organization in Rome, where he managed a program of economic research and policy analysis for food security and sustainable development, and helped coordinate preparation of FAO's annual flagship reports on the State of Food and Agriculture and the State of Food Insecurity in the World. Previously he was Deputy Director of the Resource and Rural Economics Division of the US Department of Agriculture’s Economic Research Service in Washington, DC. His areas of particular interest include land tenure, natural resource use and conservation, agricultural productivity and food security.  
k.wiebe@cgiar.org  
http://globalfutures.cgiar.org/ and  
http://www.agmip.org/global-economics-team/, |
|---|---|
| **Dr. Stanley Wood**  
Senior Program Officer and leader of the Data, Analytics and Environment Practice in the Agricultural Development Program at the Bill & Melinda Gates Foundation, Seattle, WA | Dr. Wood has over 35 years of international development experience. Prior to joining the foundation in 2013, Stanley was a Senior Research Fellow in the Environment and Production Technology Division of the International Food Policy Research Institute (IFPRI), Washington DC, where he also served as Coordinator of the CGIAR’s Consortium on Spatial Information (CSI) and Co-PI of HarvestChoice. He began his career as a water resource systems modeler and hydrologist in the UK water industry.  
Stanley.Wood@gatesfoundation.org |
## Poster Abstracts

<table>
<thead>
<tr>
<th>Authors</th>
<th>Title</th>
<th>Link to Abstract</th>
<th>Space</th>
</tr>
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<tbody>
<tr>
<td>Kenneth J. Boote, Maninder Singh, John Erickson, Jesse B. Naab, S. Narh, Gaetan Bourgeois, and James W. Jones</td>
<td>Coupling Leafspot Disease Damage to the Csm-Cropgro-Peanut Model for Prediction of Peanut Yield</td>
<td>Boote-Pest-Disease-Workshop-Abstract.doc</td>
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<td>Simone Bregaglio, Marcello Donatelli, Patrizia Titone, and Roberto Confalonieri</td>
<td>A Set of Components for the Simulation of Plant Diseases: an Application to the Blast-Rice Pathosystem in Northern Italy</td>
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<td>Dave Hodson, Kai Sonder, and Etienne Duveiller</td>
<td>Mapping Wheat Disease Risk Areas: Stem Rust and Wheat Blast</td>
<td>Mapping Wheat Disease Risk Areas Abstract ED .docx</td>
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<td>Josué Toebe, José Mauricio Cunha Fernandes, Douglas Lau, and Willingthon Pavan</td>
<td>An Agent-Based Model for Aphid Population Dynamics: Rhopalosiphum Padi a Case Study</td>
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<td>Alexandre Tagliari Lazzaretti, José Mauricio Cunha Fernandes, and Willingthon Pavan</td>
<td>Agrodb: Integration of Database Management Systems with Crop Models</td>
<td>abstractAgroDB.docx</td>
<td>6</td>
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</table>

Enviro-weather integrates near-real-time weather data from a meso-network of 81 stations across Michigan and adjacent portions of Wisconsin and the National Weather Service with a number of interactive model applications and other IPM and crop management resources (www.enviroweather.msu.edu).

The purpose of this paper is to illustrate how observed leafspot damage (percent defoliation and percent necrosis) on peanut can be coupled to a dynamic crop growth model to predict the resulting yield loss. The coupling points to leaf area index (LAI) and leaf photosynthesis in the CSM-CROPGRO Peanut model will be illustrated and examples shown of simulated growth and yield response under observed leafspot damage in experiments in Florida and Ghana.

This poster presents four software components which implement collections of models to simulate the evolution of a generic polycyclic fungal epidemic (Diseases components), and their application to reproduce the impacts of rice blast disease (Magnaporthe oryzae B. Couch) on key physiological processes and thus on final yield.

Investment in collective actions and multidisciplinary research has shown its efficacy to combat stem rust re-emergence after the outbreak of Ug99. Climate change is impacting the spread of new pathotypes or emerging diseases. Therefore, resources for collective research in epidemiology is essential to develop effective forecasting models and prioritize breeding efforts.

Using Rhopalosiphum padi population growth as case study, we show what data inputs are needed, how they are used in the model, what kind of simulations can be done, and what kind of results follow from the simulations. Finally, the relevance of these results for evaluating interventions on pest management, environmental effects on pest populations and pest risk assessment are discussed.

The AgroDB, proved to be a useful tool for climate variability/change impact assessment on wheat production and FHB intensity. Application results found that wheat yields might benefit from higher rainfall in the projected climate scenario. In contrast, increase of FHB severity should contribute to reduced grain yield and quality.
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<td>Climate change can modify the development of insect pests, and their impact on crops. The study of future impacts on maize remains relatively unexplored. Here we modelled the distribution and development of the maize borer <em>Sesamia nonagrioides</em> Lef. in Europe using a 25 x 25 km grid. This is the first attempt to provide extensive estimates on the effects of climate change on <em>S. nonagrioides</em> distribution, development, and on possible management changes.</td>
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