

Adam H. Sparks

Plant Disease Management Specialist@IRRI

skills



GIS
modelling
agricultural statistics

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experience

- since 2012 **International Rice Research Institute** Los Baños, Philippines Scientist I
Develop tools and strategies for farmers to use in addressing rice diseases
- 2011-2012 **International Rice Research Institute** Los Baños, Philippines Post-Doctoral Fellow
Linked botanic epidemiology models to GIS tools for mapping model output
- 2009-2010 **Kansas State University, Manhattan, Kansas** Post-Doctoral Research Associate
Developed and refined predictive Fusarium head blight models for wheat
- 2002-2004 **University of Nebraska-Lincoln, Lincoln, Nebraska** Research Technologist
Managed maize and soybean plant pathology extension field research
- 2000-2003 **University of Nebraska-Lincoln, Clay Center, Nebraska** Research Technician
Managed maize and sorghum plant pathology extension field research
- 1999-2000 **Purdue University, West Lafayette, Indiana** Assistant Director
Coordinated training events for Purdue Diagnostic Training and Research Center
- 1997-1999 **Purdue University, West Lafayette, Indiana** Research Technician
Managed soybean and canola production research studies

education

- 2009 **Ph.D. Plant Pathology** Kansas State University, Manhattan, Kansas
Plant Disease Epidemiology and Ecology
Dissertation: *Disease risk mapping with metamodels for coarse resolution predictors: global potato late blight risk now and under future climate conditions*
- 2007 **Graduate Certificate** Geography Kansas State University, Manhattan, Kansas
Geographic Information Science
- 2000 **B.Sc. Agronomy** Purdue University, West Lafayette, Indiana
Soil and Crop Management

publications

peer-reviewed

- Climate change may have limited effect on global risk of potato late blight
A H Sparks, G A Forbes, R J Hijmans, K A Garrett
Global Change Biology 20 (2014) pp. 3621–3631. DOI: 10.1111/gcb.12587
- A review on crop losses, epidemiology and disease management of rice brown spot to identify research priorities and knowledge gaps
M K Barnwal, A Kotasthane, N Magculia, P K Mukherjee, S Savary, A K Sharma, H B Singh, U S Singh, A H Sparks, M Variar, N Zaidi
European Journal of Plant Pathology 136.3 (2013) pp. 443–457. DOI: 10.1007/s10658-013-0195-6
- Taking transgenic rice drought screening to the field.
A C M Gaudin, A Henry, A H Sparks, I H Slamet-Loedin
Journal of Experimental Botany 63.2 (2012) pp. 695–709. DOI: 10.1093/jxb/ers313

An Economic Assessment of the Impact of Mango Pulp Weevil on the Agricultural Sector of Palawan, Philippines

J D Mckinley, A H Sparks, V O Pede, B Duff

The Philippine Agricultural Scientist 95.3 (2012) pp. 286–292

Complexity in climate-change impacts: an analytical framework for effects mediated by plant disease

K A Garrett, G A Forbes, S Savary, P Skelsey, A H Sparks, C Valdivia, A H C van Bruggen, L Willocquet, A Djurle, E Duveiller, H Eckersten, S Pande, C Vera Cruz, J Yuen

Plant Pathology 60.1 (2011) pp. 15–30. DOI: [10.1111/j.1365-3059.2010.02409.x](https://doi.org/10.1111/j.1365-3059.2010.02409.x)

International agricultural research tackling the effects of global and climate changes on plant diseases in the developing world

S Savary, A Nelson, A H Sparks, L Willocquet, E Duveiller, G Mahuku, G Forbes, K A Garrett, J Padgham, S Pande, M Sharma, J Yuen, A Djurle

Plant Disease 48 (2011) pp. 1–40

A metamodeling framework for extending the application domain of process-based ecological models

A H Sparks, G A Forbes, R J Hijmans, K A Garrett

Ecosphere 2.8 (2011) art90. DOI: [10.1890/ES11-00128.1](https://doi.org/10.1890/ES11-00128.1)

Beyond yield: plant disease in the context of ecosystem services.

M R Cheatham, M N Rouse, P D Esker, S Ignacio, W Pradel, R Raymundo, A H Sparks, G A Forbes, T R Gordon, K A Garrett

Phytopathology 99.11 (2009) pp. 1228–36. DOI: [10.1094/PHYTO-99-11-1228](https://doi.org/10.1094/PHYTO-99-11-1228)

Ecology and epidemiology in R: disease forecasting

P D Esker, A H Sparks, L Campbell, Z Guo, M Rouse, S D Silwal, S Tolos, B Van Allen, K A Garrett

The Plant Health Instructor (2008). DOI: [10.1094/PHI-A-2008-0129-01](https://doi.org/10.1094/PHI-A-2008-0129-01)

Ecology and epidemiology in R: modeling plant disease progress over time

A H Sparks, P D Esker, M Bates, W Dall'Acqua, Z Guo, V Segovia, S D Silwal, S Tolos, K A Garrett

(2008). DOI: [10.1094/PHI-A-2008-0129-02](https://doi.org/10.1094/PHI-A-2008-0129-02)

Ecology and epidemiology in R: spatial analysis

A H Sparks, P D Esker, G Antony, L Campbell, E E Frank, L Huebel, M N Rouse, B Van Allen, K A Garrett

The Plant Health Instructor (2008). DOI: [10.1094/PHI-A-2008-0129-03](https://doi.org/10.1094/PHI-A-2008-0129-03)

Introduction to the R programming environment

K A Garrett, P D Esker, A H Sparks

The Plant Health Instructor (2007). DOI: [10.1094/PHI-A-2008-0129-02](https://doi.org/10.1094/PHI-A-2008-0129-02)

Ecology and epidemiology in R: modeling dispersal gradients

P D Esker, A H Sparks, G Antony, M Bates, W Dall'Acqua, E E Frank, L Huebel, V Segovia, K A Garrett

The Plant Health Instructor (2007). DOI: [10.1094/PHI-A-2007-1226-03](https://doi.org/10.1094/PHI-A-2007-1226-03)

Writing teaching documents as a class project

K A Garrett, P D Esker, A H Sparks, L C Scharmann

The Plant Health Instructor (2007). DOI: [10.1094/PHI-T-2007-1226-01](https://doi.org/10.1094/PHI-T-2007-1226-01)

conferences/proceedings

Modeling the impact of disease resistance on rice yields in the Philippines and Indonesia

A H Sparks, J Anaurio, C Duku, M Noel, D Raitzer

In *Proceedings of the Australasian Plant Pathology Society 2013 Meeting* (2013)

Spatial modelling of rice yield losses due to bacterial leaf blight and leaf blast in a changing climate

A H Sparks, C Duku, M Noel, S J Zwart

Acta Phytopathologica Sinica vol. 43. Supplement (2013)

Preventing what ails rice with a strategic, statistical, prescriptive model system

A H Sparks, S Savary, A Nelson
Phytopathology vol. 102:S4.113.7 (2012)

Predisposition factors affecting brown spot disease development in rice

N F Magculia, A H Sparks
Phytopathology vol. 102:S4.74.7 (2012)

Putting information to use: Decisions at different scales

S Savary, A H Sparks, N Nelson, N McRoberts, P D Esker
Phytopathology vol. 102:S4.162 (2012)

An economic assessment of the impact of mango pulp weevil on the agricultural sector of Palawan, Philippines

J McKinley, V O Pede, A H Sparks, B Duff
The Conference Secretariat, 2011 PAEDA Biennial Convention (2011)

Income inequality and economic growth in the Philippines

G B Ballesefin, V O Pede, A H Sparks
The Conference Secretariat, 2011 PAEDA Biennial Convention (2011)

Crop losses in highly populated areas: A global perspective

L Willocquet, A Nelson, A Sparks, A Laborte, S Savary
Phytopathology vol. 101:S223 (2011)

Metamodels for scaling potato late blight risk analysis in climate change scenarios

A H Sparks, G Forbes, R Hijmans, K Garrett
Phytopathology vol. 100:S121 (2010)

Anticipating and responding to biological complexity in the effects of climate change on agriculture

K Garrett, G Forbes, S Pande, S Savary, A Sparks, C Valdivia, C Vera Cruz, L Willocquet
IOP Conference Series: Earth and Environmental Science vol. 6.37 (2009)

Adapting disease forecasting models to coarser scales: Global potato late blight prediction

A H Sparks, G Forbes, K A Garrett
Phytopathology vol. 99:S122 (2009)

Adapting global disease forecasting models for readily available weather data sets in GIS

A H Sparks, K A Garrett, G A Forbes
In Proceedings of the 10th International Epidemiology Workshop (2009). Geneva, NY, USA

Regional predictions of potato late blight risk in a GIS incorporating disease resistance profiles, climate change, and risk neighborhoods

A H Sparks, R Raymundo, R Simon, G Forbes, K A Garrett
Phytopathology vol. 98:S149 (2008)

book chapters

Chap. An introduction to key distributions and models for epidemiology using R

K A Garrett, P D Esker, A H Sparks
Stevenson, K and M Jeger, APS Press, Minneapolis, MN, "Exercises in Plant Disease Epidemiology", In Press

Chap. Cambio climático, enfermedades de las plantas e insectos plaga

K A Garrett, G A Forbes, L Gómez, M A Gonzáles, M Gray, P Skelsey, A H Sparks
Jiménez, E, "Cambio climático y adaptación en el Altiplano boliviano", 2013

Chap. Plant pathogens as indicators for climate change

K A Garrett, M Nita, E D De Wolf, L Gomez, A H Sparks
Letcher, T, Elsevier, "Climate Change Indicators", 2009

reports

Evaluation of seed treatment for controlling seedling diseases and compatibility with Rhizobium inoculants, 2003.

L J Geisler, A H Sparks
Fungicide and Nematicide Tests 59:ST025

Evaluation of seed treatment fungicides for controlling soybean seedling diseases, 2003

L J Geisler, A H Sparks
Fungicide and Nematicide Tests 59:ST025

invited talks

- October 2014 **Taking Sustainable Crop Protection From the Field to the Cloud**
4th International Rice Congress (IRC2014)
Bangkok, Thailand
- May 2014 **Epidemiology and Disease Management of Rice Brown Spot: Research Priorities and Knowledge Gaps**
66th Annual Indian Phytopathological Society Meeting
Indira Gandhi Krishi Vishwavidyalaya University,
Raipur, India
- April 2013 **Biosecurity Risks in Southeast Asia Impacting on Human Food Supplies**
Forum: Pacific Environmental Safety Forum Australian Department of Defence
and U. S. Pacific Command
Sydney, New South Wales, Australia
- 2010 **Global potato late blight risk in response to climate change, possible futures for a historic disease**
Symposium: Emerging Infectious Diseases in Response to Climate Change.
New York Academy of Sciences, New York, New York

extramural support

- 2013-2017 **PRISM** (Philippine Rice Information System) \$2,765,783
Component B – Crop Health Monitoring,
Co-PIs: A Nelson (IRRI) and G S Arida, E J P Quilang, (PhilRice)
- 2013-2015 **Syngenta** \$454,640
Phase II, Project 2 – Crop Health Management
- 2015-2017 **Identifying resistant rice germplasm to false smut using combined screening approaches and understanding the mechanisms underlying rice resistance** \$653,914
Epidemiology and environmental characterisation of false smut,
Co-PI's: B Zhou and CM Vera Cruze (IRRI)

service to profession

Currently reviewing for:
Global Change Biology
European Journal of Plant Pathology

organization service
2014-2015 **Crop and Environmental Sciences Division Seminar Committee Chair**

professional certifications

PRINCE2 Foundation (2014) candidate number: P2R/009385 – HiLogic Pty Ltd.

professional affiliations

American Phytopathological Society (APS)

Australasian Plant Pathology Society (APPS)

International Society of Plant Pathology (ISPP)

International Association for the Plant Protection Sciences (IAPPS)