Adam H. Sparks

contact

Centre for Crop Health
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Adam H. Sparks
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skills

GIS
modelling
R programming

professional profile

- Wide ranging career demonstrating consistent success both in an non-profit international NGO and academia.
- Experience in conceptualising projects through successful grant applications, project management and attaining desired results.
- Extensive background of experiences in working with diverse partners.
- Broad experience in effective communication ranging from peer-reviewed journal articles to extension presentations and popular press.

experience

2016–Present	**University of Southern Queensland** Toowoomba, Queensland, AUS	Associate Professor
2012–2015	**International Rice Research Institute** Los Baños, Laguna, PHL	Scientist I
2011–2012	**International Rice Research Institute** Los Baños, Laguna, PHL	Post-Doctoral Fellow
2009–2010	**Kansas State University** Manhattan, Kansas, USA	Post-Doctoral Research Associate
2002–2004	**University of Nebraska-Lincoln** Lincoln, Nebraska, USA	Research Technologist
2000–2003	**University of Nebraska-Lincoln** Clay Center, Nebraska, USA	Research Technician
1999–2000	**Purdue University** West Lafayette, Indiana, USA	Assistant Director
1997–1999	**Purdue University** West Lafayette, Indiana, USA	Research Technician

education

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

publications

peer reviewed

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 (Mar. 10, 2013) pp. 443–457. Springer Nature.* DOI: *10.1007/s10658-013-0195-6*

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 (Nov. 2009) pp. 1228–1236. Scientific Societies.* DOI: *10.1094/phyto-99-11-1228*

Decision tools for bacterial blight resistance gene deployment in rice-based agricultural ecosystems

G. S. Dossa, A. Sparks, C. Vera Cruz, R. Oliva

Frontiers in Plant Science *6.305 (May 5, 2015). Frontiers Media SA.* DOI: *10.3389/fpls.2015.00305*

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

C. Duku, A. H. Sparks, S. J. Zwart

Climatic Change *135.3-4 (2016) pp. 569–583. Springer Nature.* DOI: *10.1007/s10584-015-1580-2*

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*

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). Scientific Societies.* DOI: *10.1094/phi-a-2008-0129-01*

An Introduction to the R Programming Environment

K. A. Garrett, P. D. Esker, A. H. Sparks

The Plant Health Instructor *(2007). Scientific Societies.* DOI: *10.1094/phi-a-2007-1226-02*

Writing Teaching Documents as a Class Project

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

The Plant Health Instructor *(2007). Scientific Societies.* DOI: *10.1094/phi-t-2007-1226-01*

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. Bruggen, L. Willocquet, A. Djurle, E. Duveiller, H. Eckersten, S. Pande, C. Vera Cruz, J. Yuen

Plant Pathology *60.1 (Jan. 10, 2011) pp. 15–30. Wiley-Blackwell.* DOI: *10.1111/j.1365-3059.2010.02409.x*

Taking transgenic rice drought screening to the field

A. C. M. Gaudin, A. H. A. H. Sparks, I. H. Slamet-Loedin

Journal of Experimental Botany *64.1 (Dec. 1, 2012) pp. 109–117. Oxford University Press (OUP).* DOI: *10.1093/jxb/ers313*

Farmers' Preference for Rice Traits: Insights from Farm Surveys in Central Luzon, Philippines, 1966-2012

A. G. Laborte, N. C. Paguirigan, P. F. Moya, A. Nelson, A. H. Sparks, G. B. Gregorio

PLOS ONE *10.8 (Aug. 28, 2015) e0136562. Public Library of Science (PLoS).* DOI: *10.1371/journal.pone.0136562*

Philippine Rice Information System (PRISM): innovating the rice field data capture and monitoring using smartphone

J. M. Maloon, E. J. P. Quilang, M. R. O. Mabalay, J. L. Dios, A. C. Arocena Jr. J. R. F. Mirandilla, P. A. Mabalot, M. I. Barroga, R. T. Dollontas, G. C. Peralta, G. Mesa, B. T. Salazar, G. D. Balleras, N. B. Detoito, G. Arida, D. K. M. Donayre, E. C. Martin, G. F. Estoy, A. Nelson, A. Sparks, J. V. Raviz, A. G. Laborte, T. O. Setiyono, A. A. Maunahan, A. B. Rala, J. E. Villa, N. P. Castilla, Z. M. Bhatti, D. D. Maco, R. S. Bayot, M. Barbierri

Philippine Journal of Crop Science *(2015)*

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*

Crop health and its global impacts on the components of food security

S. Savary, S. Bregaglio, L. Willocquet, D. Gustafson, D. Mason D'Croz, A. Sparks, N. Castilla, A. Djurle, C. Allinne, M. Sharma, V. Rossi, L. Amorim, A. Bergamin, J. Yuen, P. Esker, N. McRoberts, J. Avelino, E. Duveiller, J. Koo, K. Garrett

Food Security *9.2 (Apr. 2017) pp. 311–327. Springer Nature.* DOI: *10.1007/s12571-017-0659-1*

Concepts, approaches, and avenues for modelling crop health and crop losses

S. Savary, A. D. Nelson, A. Djurle, P. D. Esker, A. Sparks, L. Amorim, A. Bergamin Filho, T. Caffi, N. Castilla, K. Garrett

European Journal of Agronomy *(2018). Elsevier*

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, D. Hodson, J. Padgham, S. Pande, M. Sharma, J. Yuen, A. Djurle

Plant Disease *95.10 (Nov. 2011) pp. 1204–1216. Scientific Societies.* DOI: *10.1094/pdis-04-11-0316*

getCRUCLdata: Use and Explore CRU CL v. 2.0 Climatology Elements in R

A. H. Sparks

The Journal of Open Source Software *2.12 (Apr. 6, 2017). The Open Journal.* DOI: *10.21105/joss.00230*

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). Scientific Societies.* DOI: *10.1094/phi-a-2008-0129-03*

Ecology and Epidemiology in R: 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

The Plant Health Instructor *(2008). Scientific Societies.* DOI: *10.1094/phi-a-2008-0129-02*

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 (Aug. 18, 2011) art90. Wiley-Blackwell.* DOI: *10.1890/es11-00128.1*

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 *20.12 (May 2014) pp. 3621–3631. Wiley-Blackwell.* DOI: *10.1111/gcb.12587*

GSODR: Global Summary Daily Weather Data in R

A. H. Sparks, T. Hengl, A. Nelson

The Journal of Open Source Software *2.10 (Feb. 3, 2017). The Open Journal.* DOI: *10.21105/joss.00177*

bomrang: Fetch Australian Government Bureau of Meteorology Weather Data

A. H. Sparks, M. Padgham, H. Parsonage, K. Pembleton

The Journal of Open Source Software *2.17 (Sept. 21, 2017). The Open Journal.* DOI: *10.21105/joss.00411*

nasapower: A NASA POWER Global Meteorology, Surface Solar Energy and Climatology Data Client for R

Adam H. Sparks

Journal of Open Source Software *3 (Oct. 19, 2018) p. 1035*

conferences/proceedings

Fungi and bacteria associated with the Peanut Kernel Shrivel (PKS) disease in the Bundaberg region

D. L. Adorada, S. M. Thompson, R. A. Grams, E. E. Adorada, A. H. Sparks, G. Wright, D. O'Connor, G. J. Ash

Proceedings of the Australasian Plant Pathology Society 2017 Meeting *(2017)*

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)*

Lowering thresholds of qualitative plant risk prediction algorithms: sensitivity versus specificity of Irish Rules for potato late blight development

M. Cucak, A. H. Sparks, R. Fealy, D. Griffin, K. Lambkin, S. Kildea

Euroblight Workshop *(2017)*

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)*

Evaluation of correlation methods for co-occurrence network construction of rice crop health survey data

S. Jaisong, N. P. Castilla, C. T. Magculia, S. Savary, I. B. Pangga, A. H. Sparks

Proceedings of the Australasian Plant Pathology Society 2015 Meeting *(2015)*

Mungbean and Sorghum Disease Update

L. Kelly, J. White, M. Sharman, H. Brier, L. Williams, R. Grams, D. Weir, A. Mckay, A. H. Sparks

GRDC Updates (Jondaryan) *(July 19, 2017). Jondaryan, Queensland, Australia*

Predisposition factors affecting brown spot disease development in rice

N. J. Magculia, A. H. Sparks

Phytopathology *vol. 102:S4.74.7 (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)*

Putting information to use: Decisions at different scales

S. Savary, A. H. Sparks, A. Nelson, N. McRoberts, P. D. Esker

Phytopathology *vol. 102:S4.162 (2012)*

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

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

Do Alternate Wetting and Drying Irrigation Technologies and Nitrogen Rates Affect Rice Sheath Blight?

A. H. Sparks, N. P. Castilla, B. O. Sander

Proceedings of the Australasian Plant Pathology Society 2017 Meeting *(2017)*

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)*

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)*

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)*

Adapting global disease forecasting models for readily available weather data sets in GIS
A. H. Sparks, K. A. Garrett, G. A Forbes
Proceedings of the 10th International Epidemiology Workshop *(2009). Geneva, NY, USA*

Mapping Rice Diseases for Targeted Deployment of Resistant Varieties in India
A. H. Sparks, M. Noel
Proceedings of the Australasian Plant Pathology Society 2015 Meeting *(2015)*

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)*

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)*

Refined empirical models for predicting Fusarium head blight epidemics in the United States
A. Sparks, D. Shah, E. DeWolf, L. Madden, P. Paul, K. Willyerd
Phytopathology *vol. 101:S223 (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)*

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", 2014

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., Plural editores, "Cambio climático y adaptacińn en el Altiplano boliviano", 2013

Chap. Plant pathogens as indicators for climate change
K. A. Garrett, M. Nita, E. D. DeWolf, P. D. Esker, L. Gomez-Montano, A. H. Sparks
Letcher, T. M., Elsevier, "Plant Pathogens as Indicators of Climate Change", 2016

Chap. Spatial and Temporal Patterns of Rice Production
E. Kannan, A. Paliwal, A. Sparks
Mohanty, S., P. G. Chengappa, M. Hedge, J.K. Ladha, S. Baruah, E. Kannan, and A. V. Manjunatha, Elsevier, "The Future Rice Strategy for India", 2017

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

Is rice improvement still making a difference? Assessing the economic, poverty and food security impacts of rice varieties released from 1989 to 2009 in Bangladesh, Indonesia and the Philippines.

D. A. Raitzer, A. H. Sparks, Z. Huelgas, R. Maligalig, Z. Balangue, C. Launio, A. Daradjat, H. U. Ahmed

A report submitted to the Standing Panel on Impact Assessment (SPIA), CGIAR Independent Science and Partnership Council (ISPC). 128 pp.

invited talks

2016 **Using modelling and mapping for digital insights into diseases in the rice field**
2016 Korean Society of Plant Pathology Fall Meeting and International Conference
Seoul National University
Pyeongchang, Gangwon-do, Korea

2014 **Taking sustainable crop protection from the field to the cloud**
4th International Rice Congress (IRC2014)
Bangkok, Thailand

2014 **Impact of climate change on rice diseases**
Workshop on the impact of climate change on crop pests and diseases, and adaptation strategies for the Greater Mekong Sub – Region (GMS)
Hotel Continental Saigon,
Ho Chi Minh City, Vietnam

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

2013 **Biosecurity risks in Southeast Asia impacting on human food supplies**
Pacific Environmental Security Forum
Australian Department of Defence (ADoD) and U. S. Pacific Command (USPACOM)
Sydney, New South Wales, Australia

2010 **Global potato late blight risk in response to climate change, possible futures for a historic disease**
Emerging infectious diseases in response to climate change.
New York Academy of Sciences,
New York, New York, USA

doctoral dissertation mentorship

Current **Mladen Cucak** (Collaborator) Maynooth University/TEAGASC, IRL
Can we still use 'Irish Rules' to forecast development of potato late blight epidemics in Ireland?

Current **Charles T. Gray** (Collaborator) La Trobe University, AUS
Statistical Meta-research

2016 **Sith Jaisong** (Principal Supervisor) University of the Philippines, Los Baños, PHL
Network analysis of rice crop health survey data for characterization of yield reducing factors of tropical rice ecosystems in south and southeast Asia

master's thesis mentorship

2017 **Patrick Kiplimo Toroitich** (Collaborator) Strathmore University, KEN
A model for early detection of potato late blight disease: A case study in Nakuru County

2016 **Jerico Bigornia** (Principal Supervisor) University of the Philippines, Los Baños, PHL
Environmental performance of water saving technologies for irrigated low-land rice production

extramural support

2017 **USQ Research Infrastructure Program 2017** AUD 25000
PIs: D. Adorada, A. Sparks, A. Young

2016-2019 **EPIC** (Developing Ecologically-based Participatory IPM package for rice in Cambodia) USD 2.2 million
PIs: B. Hadi (IRRI), A. Sparks, V. Kumar (IRRI), A. Stuart (IRRI), R. Oliva (IRRI), I.R. Choi (IRRI)

2016–2019 **Syngenta-IRRI Scientific Knowledge and Exchange Program** USD 484,274
Phase III, Sub-Project 1 - Crop Health Management
PIs: A. Sparks (IRRI) and K. K. Fui (Syngenta)

2015–2017 **Identifying resistant rice germplasm to false smut using combined screening approaches and understanding the mechanisms underlying rice resistance** USD 653,914
Epidemiology and environmental characterisation of false smut,
PIs: B. Zhou (IRRI), C. M. Vera Cruz (IRRI) and A. Sparks (IRRI)

2013–2017 **PRiSM** (Philippine Rice Information SysteM) USD 2.8 million
Component B - Crop Health Monitoring,
PIs: A. Nelson (IRRI), A. Sparks (IRRI), G. S. Arida (PhilRice), E. J. P. Quilang (PhilRice)

2013–2015 **Syngenta-IRRI Scientific Knowledge and Exchange Program** USD 454,640
Phase II, Sub-Project 2 - Crop Health Management
PI: A. Sparks (IRRI) and K. K. Fui (Syngenta)

awards

2016 **GovHack 2016 First Place Award for Paddock to Plate Category, John Conner Hack**
As part of the Toowoomba Trio with K Pembleton and G Grundy

professional certifications

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

professional affiliations

Australasian Plant Pathology Society (APPS)

American Phytopathological Society (APS)

International Society for Plant Pathology (ISPP)

professional service

Section Editor Tropical Plant Pathology

Member Australia National Plant Biosecurity Diagnostic Network

Member ExtensionAUS Field Crop Diseases Community of Practice

Member International Congress of Plant Pathology (ICPP) 2018 Epidemiology Committee