

Adam H. Sparks

SENIOR RESEARCH SCIENTIST, BIOECONOMIC MODELLER

State of Western Australia, Department of Primary Industries and Regional Development, Level 5, 1 Nash St., Perth WA, 6000

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I have demonstrated consistent success both in non-profit international NGO and academic settings and have an extensive background of experiences in working with diverse partners.

Professional Experience

State of Western Australia DPIRD

Perth, Western Australia, AUS

SENIOR RESEARCH SCIENTIST, BIOECONOMIC MODELLER

2021 – Current

- Conduct research in agricultural systems modelling and develop decision support system tools for growers and advisors

University of Southern Queensland

Toowoomba, Queensland, AUS

ASSOCIATE PROFESSOR OF FIELD CROPS PATHOLOGY

2016 – 2021

- Lead research group in developing plant disease models to support the Australian grains and cotton industries
- Lead research that contributes to the development of broadacre crop fungicide decision support system tools, e.g. PowderyMildewMBM
- Act as project manager for research projects spanning across research organisations
- Develop R packages that provide access to Australian and global weather or climate data and to assist in plant pathology research
- Work with the UN's FAO in a capacity building role to help build agrometeorology and pest and disease capabilities in Cambodia

International Rice Research Institute (IRRI)

Los Baños, Laguna, PHL

SCIENTIST I, PLANT DISEASE MANAGEMENT SPECIALIST

2012 – 2015

- Led research group in conducting research to reduce yield losses in tropical rice due to pests and diseases
- Used models to help evaluate impact and test rice crop management methodologies
- Acted as project manager for research projects spanning across research organisations and countries
- Co-directed the development of a country-wide rice monitoring system, the Philippine Rice Information System (PRISM), which uses geospatial, cloud-hosted and mobile device technologies to gather digital information
- Modelled the effects of climate change on rice diseases

International Rice Research Institute (IRRI)

Los Baños, Laguna, PHL

POST-DOCTORAL FELLOW

2011 – 2012

- Linked plant disease models with geographic information systems to map model outputs for decision making
- Conducted in-field experiments to develop pest and disease management programs

Kansas State University

Manhattan, Kansas, USA

POST-DOCTORAL RESEARCH ASSOCIATE

2010 – 2010

- Used bootstrapping methods to refit logistic regression model coefficients for wheat Fusarium head blight models using new and expanded data sets
- Studied the use of ensemble models to predict wheat Fusarium head blight

University of Nebraska – Lincoln

Lincoln, Nebraska, USA

RESEARCH TECHNOLOGIST

2002 – 2004

University of Nebraska – Lincoln

Clay Center, Nebraska, USA

RESEARCH TECHNICIAN

2000 – 2003

Purdue University

West Lafayette, Indiana, USA

ASSISTANT DIRECTOR

1999 – 2000

Purdue University

West Lafayette, Indiana, USA

RESEARCH TECHNICIAN

1997 – 1999

Education and Qualifications

Kansas State University

Manhattan, KS, USA

PH.D. OF PLANT PATHOLOGY IN EPIDEMIOLOGY AND ECOLOGY OF PLANT PATHOGENS

Dec. 2009

- Dissertation Title: "Disease risk mapping with metamodels for coarse resolution predictors: global potato late blight risk now and under future climate conditions."
- Committee members: Drs. Karen A. Garrett (adviser), James P. Stack, Erick DeWolf and J. M. Shawn Hutchinson.

Related Professional Skills

PROGRAMMING ABILITIES

- Programming: R (author and maintain packages on CRAN)
- Operating System: macOS, Unix/Linux (install and maintain Linux)
- Others: Git, Docker, LaTeX, Markdown and RMarkdown

SOFTWARE

- Statistical Software: R
- Office Software Packages: Microsoft Office/365, LibreOffice and Google Suites
- GIS Software: R, QGIS, ArcGIS

Publications

SELECTED PUBLICATIONS

- de Sousa, K., **Sparks, A.**, Ashmall, W., van Etten, J., & Solberg, S. Ø. (2020). Chirps: API client for the CHIRPS precipitation data in R. *The Journal of Open Source Software*, 5(51), 2419. <https://doi.org/10.21105/joss.02419>
- Khalique, I., Fanning, J., Melloy, P., Galloway, J., Moore, K., Burrell, D., & **Sparks, A.** (2020). The role of conidia in the dispersal of *Ascochyta rabiei*. *European Journal of Plant Pathology*. <https://doi.org/10.1007/s10658-020-02126-2>
- Purushotham, N., Jones, A., Poudel, B., Nasim, J., Adorada, D., **Sparks, A.**, ... Vaghefi, N. (2020). Draft genome resource for *Macrophomina phaseolina* associated with charcoal rot in sorghum. *Molecular Plant-Microbe Interactions*, 33(5), 724–726.
- Čučák, M., **Sparks, A.**, de Andrade R., M., Kildea, S., Lambkin, K., & Fealy, R. (2019). Evaluation of the 'Irish Rules': The potato late blight forecasting model and its operational use in the Republic of Ireland. *Agronomy*, 9(9), 515. <https://doi.org/10.3390/agronomy9090515>
- McCoy, A. G., Noel, Z., **Sparks, A.**, & Chilvers, M. (2019). hgis, an R package resource for pathotype analysis of *Phytophthora sojae* populations causing stem and root rot of soybean. *Molecular Plant-Microbe Interactions*, 32(12), 1574–1576.
- Pede, V. O., Barboza, G., **Sparks, A.**, & McKinley, J. (2019). The inequality-growth link revisited with spatial considerations: The case of provinces in the Philippines. *Journal of the Asia Pacific Economy*, 23(3), 411–427. <https://doi.org/10.1080/13547860.2018.1503765>
- Savary, S., Nelson, A. D., Djurle, A., Esker, P. D., **Sparks, A.**, Amorim, L., ... Willocquet, L. (2018). Concepts, approaches, and avenues for modelling crop health and crop losses. *European Journal of Agronomy*, 100, 4–18. <https://doi.org/10.1016/j.eja.2018.04.003>
- Sparks, A.** (2018). nasapower: A NASA POWER global meteorology, surface solar energy and climatology data client for R. *Journal of Open Source Software*, 3, 1035. <https://doi.org/10.21105/joss.01035>
- Savary, S., Bregaglio, S., Willocquet, L., Gustafson, D., D'Croz, D. M., **Sparks, A.**, ... Garrett, K. (2017). Crop health and its global impacts on the components of food security. *Food Security*, 9(2), 311–327. <https://doi.org/10.1007/s12571-017-0659-1>
- Sparks, A.** (2017). getCRUCLdata: Use and explore CRU CL v. 2.0 climatology elements in R. *The Journal of Open Source Software*, 2(12). <https://doi.org/10.21105/joss.00230>
- Sparks, A.**, Hengl, T., & Nelson, A. (2017). GSODR: Global summary daily weather data in R. *The Journal of Open Source Software*, 2(10). <https://doi.org/10.21105/joss.00177>

- Sparks, A.**, Padgham, M., Parsonage, H., & Pembleton, K. (2017). bomrang: Fetch Australian government Bureau of Meteorology weather data. *The Journal of Open Source Software*, 2(17). <https://doi.org/10.21105/joss.00411>
- Duku, C., **Sparks, A.**, & Zwart, S. J. (2016). Spatial modelling of rice yield losses in Tanzania due to bacterial leaf blight and leaf blast in a changing climate. *Climatic Change*, 135(3-4), 569–583. <https://doi.org/10.1007/s10584-015-1580-2>
- Dossa, G. S., **Sparks, A.**, Vera Cruz, C., & Oliva, R. (2015). Decision tools for bacterial blight resistance gene deployment in rice-based agricultural ecosystems. *Frontiers in Plant Science*, 6(305). <https://doi.org/10.3389/fpls.2015.00305>
- Laborte, A. G., Paguirigan, N. C., Moya, P. F., Nelson, A., **Sparks, A.**, & Gregorio, G. B. (2015). Farmers' preference for rice traits: Insights from farm surveys in central Luzon, Philippines, 1966-2012. *PLOS ONE*, 10(8), e0136562. <https://doi.org/10.1371/journal.pone.0136562>
- Maloon, J. M., Quilang, E. J. P., Mabalay, M. R. O., Dios, J. L. de, Jr., A. C. A., Mirandilla, J. R. R., ... Barbierri, M. (2015). Philippine Rice Information System (PRISM): Innovating the rice field data capture and monitoring using smartphone. *Philippine Journal of Crop Science*.
- Sparks, A.**, Forbes, G. A., Hijmans, R. J., & Garrett, K. A. (2014). Climate change may have limited effect on global risk of potato late blight. *Global Change Biology*, 20(12), 3621–3631. <https://doi.org/10.1111/gcb.12587>
- Barnwal, M. K., Kotasthane, A., Magculia, N., Mukherjee, P. K., Savary, S., Sharma, A. K., ... Zaidi, N. (2013). A review on crop losses, epidemiology and disease management of rice brown spot to identify research priorities and knowledge gaps. *European Journal of Plant Pathology*, 136(3), 443–457. <https://doi.org/10.1007/s10658-013-0195-6>
- Gaudin, A. C. M., **Sparks, A.**, & Slamet-Loedin, I. H. (2012). Taking transgenic rice drought screening to the field. *Journal of Experimental Botany*, 64(1), 109–117. <https://doi.org/10.1093/jxb/ers313>
- Mckinley, J. D., **Sparks, A.**, Pede, V. O., & Duff, B. (2012). An economic assessment of the impact of mango pulp weevil on the agricultural sector of Palawan, Philippines. *The Philippine Agricultural Scientist*, 95(3), 286–292.
- Garrett, K. A., Forbes, G. A., Savary, S., Skelsey, P., **Sparks, A.**, Valdivia, C., ... Yuen, J. (2011). Complexity in climate-change impacts: An analytical framework for effects mediated by plant disease. *Plant Pathology*, 60(1), 15–30. <https://doi.org/10.1111/j.1365-3059.2010.02409.x>
- Savary, S., Nelson, A., **Sparks, A.**, Willocquet, L., Duveiller, E., Mahuku, G., ... Djurle, A. (2011). International agricultural research tackling the effects of global and climate changes on plant diseases in the developing world. *Plant Disease*, 95(10), 1204–1216. <https://doi.org/10.1094/pdis-04-11-0316> doi: 10.1094/PDIS-04-11-0316
- Sparks, A.**, Forbes, G. A., Hijmans, R. J., & Garrett, K. A. (2011). A metamodeling framework for extending the application domain of process-based ecological models. *Ecosphere*, 2(8), art90. <https://doi.org/10.1890/es11-00128.1>
- Cheatham, M. R., Rouse, M. N., Esker, P. D., Ignacio, S., Pradel, W., Raymundo, R., ... Garrett, K. A. (2009). Beyond yield: Plant disease in the context of ecosystem services. *Phytopathology*, 99(11), 1228–1236. <https://doi.org/10.1094/phyto-99-11-1228>
- Esker, P. D., **Sparks, A.**, Campbell, L., Guo, Z., Rouse, M., Silwal, S. D., ... Garrett, K. A. (2008). Ecology and epidemiology in R: Disease forecasting. *The Plant Health Instructor*. <https://doi.org/10.1094/phi-a-2008-0129-01>
- Sparks, A.**, Esker, P. D., Antony, G., Campbell, L., Frank, E. E., Huebel, L., ... Garrett, K. A. (2008). Ecology and epidemiology in R: Spatial analysis. *The Plant Health Instructor*. <https://doi.org/10.1094/phi-a-2008-0129-03>
- Sparks, A.**, Esker, P. D., Bates, M., Dall'Acqua, W., Guo, Z., Segovia, V., ... Garrett, K. A. (2008). Ecology and epidemiology in R: Disease progress over time. *The Plant Health Instructor*. <https://doi.org/10.1094/phi-a-2008-0129-02>

Esler, P. D., **Sparks, A.**, Antony, G., Bates, M., Dall'Acqua, W., Frank, E. E., ... Garrett, K. A. (2007). Ecology and epidemiology in R: Modeling dispersal gradients. *The Plant Health Instructor*. <https://doi.org/10.1094/PHI-A-2007-1226-03>

Garrett, K. A., Esler, P. D., & **Sparks, A.** (2007). An introduction to the R programming environment. *The Plant Health Instructor*. <https://doi.org/10.1094/phi-a-2007-1226-02>

Garrett, K. A., Esler, P. D., **Sparks, A.**, & Scharmann, L. C. (2007). Writing teaching documents as a class project. *The Plant Health Instructor*. <https://doi.org/10.1094/phi-t-2007-1226-01>

PREPRINTS

Melloy, P., Del Ponte, E. M., **Sparks, A. H.** (2021). Timing of triazole-based spray schedules for controlling mungbean powdery mildew in Australia: A meta-analysis. *Timing of Triazole-Based Spray Schedules for Controlling Mungbean Powdery Mildew in Australia: A Meta-Analysis*. <https://doi.org/10.31220/agriRxiv.2021.00042>

Khalik, I., Fanning, J., Melloy, P., Galloway, J., Moore, K., Burrell, D., & **Sparks, A.** (2020). The role of conidia in the dispersal of *Ascochyta rabiei*. *bioRxiv*. <https://doi.org/10.1101/2020.05.12.091827>

BOOK CHAPTERS

Castilla, N. P., Macasero, J. B., Villa, J. E., **Sparks, A. H.**, Willocquet, L., & Savary, S. (2021). The impact of rice diseases in tropical Asia. In P. Scott, R. Strange, L. Korsten, & M. L. Gullino (Eds.), *Plant diseases and food security in the 21st century* (pp. 97–126). https://doi.org/10.1007/978-3-030-57899-2_6

Garrett, K. A., Nita, M., De Wolf, E. D., Esler, P. D., Gomez-Montano, L., & **Sparks, A. H.** (2021). Plant pathogens as indicators of climate change. In T. M. Letcher (Ed.), *Climate change (third edition)* (Third Edition, pp. 499–513). <https://doi.org/10.1016/B978-0-12-821575-3.00024-4>

Kannan, E., Paliwal, A., & **Sparks, A.** (2017). Spatial and temporal patterns of rice production and productivity. In S. Mohanty, P. G. Chengappa, M. Hedge, J. K. Ladha, S. Baruah, E. Kannan, & A. V. Manjunatha (Eds.), *The future rice strategy for india* (First, pp. 39–68). <https://doi.org/10.1016/B978-0-12-805374-4.00003-8>

Garrett, K. A., Nita, M., DeWolf, E. D., Esler, P. D., Gomez-Montano, L., & **Sparks, A. H.** (2016). Plant Pathogens as Indicators of Climate Change. In T. M. Letcher (Ed.), *Climate change: Observed impacts on earth* (Second, pp. 325–328). Elsevier.

Garrett, K. A., Esler, P. D., & **Sparks, A.** (2014). An introduction to key distributions and models in epidemiology using R. In K. Stevenson & M. Jeger (Eds.), *Exercises in plant disease epidemiology* (2nd ed.). APS Press, Minneapolis, MN.

Garrett, K. A., Forbes, G. A., Gómez, L., Gonzáles, M. A., Gray, M., Skelsey, P., & **Sparks, A.** (2013). Cambio climático, enfermedades de las plantas e insectos plaga. In E. Jimenez (Ed.), *Cambio climático y adaptación en el altiplano boliviano* (Primera edición).

REPORTS

Raitzer, D. A., **Sparks, A.**, Huelgas, Z., Maligalig, R., Balangue, Z., Launio, C., ... Ahmed, H. U. (2015). *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*. [A report submitted to the Standing Panel on Impact Assessment (SPIA), CGIAR Independent Science and Partnership Council (ISPC). 128 pp.]. Retrieved from Standing Panel on Impact Assessment (SPIA), CGIAR Independent Science; Partnership Council (ISPC) website: <http://impact.cgiar.org/rice-improvement-still-making-difference>

Geisler, L. J., & **Sparks, A.** (2004). *Evaluation of seed treatment for controlling seedling diseases and compatibility with rhizobium inoculants, 2003*. (Fungicide and Nematicide Tests No. 59:ST025). The American Phytopathological Society, St. Paul, MN.

Geisler, L. J., & **Sparks, A.** (2004). *Evaluation of seed treatment fungicides for controlling soybean seedling diseases, 2003* (Fungicide and Nematicide Tests No. 59:ST025). The American Phytopathological Society, St. Paul, MN.

Grants

Towards effective genetic and sustainable management of Ascochyta blight of chickpea - Ascochyta blight pathogen biology, population dynamics and epidemiology

AUS

GRAINS RESEARCH AND DEVELOPMENT CORPORATION (GRDC)

2020 – 2024

- Led epidemiological and modelling research activities to support Australian grain growers.
- Funding amount: \$2,552,960 AU
- Project Lead: Ford, R

Country technical consultant

KHM

UNITED NATIONS FOOD AND AGRICULTURE ORGANISATION (FAO): CONSULTANCY

2019 – 2020

- Provided technical expertise and advice to country partners for building an agrometeorology bulletin in three provinces.
- Funding amount: \$80,000 AU

Ph.D. student scholarship

Toowoomba, Queensland, AUS

COTTON RESEARCH AND DEVELOPMENT CORPORATION (CRDC): SUPPRESSIVE SOILS PROJECT

2019 – 2021

- Funding amount: \$4,657,032 AU
- Project Lead: Smith, L

A model for predicting chickpea ascochyta blight risk, Parent Project: DAW1810

AUS

GRAINS RESEARCH AND DEVELOPMENT CORPORATION (GRDC): POST-DOCTORAL FELLOWSHIP PROJECT USQ1903-003RTX

2019 – 2021

- Supervised post-doctoral research fellow in the development of spatial disease risk model development for chickpea ascochyta blight.
- Funding amount: \$510,800 AU

Disease epidemiology and management tools for Australian grain growers

AUS

RESEARCH AND DEVELOPMENT CORPORATION (GRDC) RESEARCH PROJECT DAW1810 SUBCONTRACT TO USQ FROM THE

GOVERNMENT OF WESTERN AUSTRALIA

2018 – 2021

- Led epidemiological and modelling research activities to support Australian grain growers.
- Supervised post-doctoral research fellow in the development of spatial disease risk model development for black spot in field pea.
- Funding amount: \$650,429 AU

Northern rice Australia - Developing rice growing packages for tropical climates

Queensland, AUS

RURAL INDUSTRIES RESEARCH AND DEVELOPMENT CORPORATION (RIRDC): PROJECT PRJ-010814

2018 – 2021

- Led research into and developed control methods for common diseases of tropical rice.
- Co-PIs: Ash, G. and Pembleton, K.
- Funding amount: \$2 million AU

One-Year extension to existing project

AUS

GRAINS RESEARCH AND DEVELOPMENT CORPORATION (GRDC): RESEARCH PROJECT DAQ00186

2017

- Led inter-organisational team in integrated disease management research and disease monitoring activities
- Funding amount: \$1.2 million AU

Laboratory improvements

Toowoomba, Queensland, AUS

UNIVERSITY OF SOUTHERN QUEENSLAND: RESEARCH INFRASTRUCTURE PROGRAM 2017

2017

- Co-PIs: Adorada, D. and Young, A.
- Funding amount: \$25,000 AU

Phase III, Sub-project 1 - Crop health management

South and Southeast Asia

SYNGENTA: SYNGENTA – IRRI SCIENTIFIC KNOWLEDGE AND EXCHANGE PROGRAM (SKEP)

2016 – 2019

- Led international and inter-organisational team in integrated disease management research and disease monitoring activities
- Co-PI: Kee-Fui K. (Syngenta)
- Funding amount: \$484,274 US

Epidemiology and environmental characterisation of false smut

PHL

BAYER: IDENTIFYING RESISTANT RICE GERMPLASM TO FALSE SMUT USING COMBINED SCREENING APPROACHES AND

UNDERSTANDING THE MECHANISMS UNDERLYING RICE RESISTANCE (BAYER)

2015 – 2017

- Led research into development of a predictive model for false smut in rice.
- Co-PIs: Zhou, B. and Vera Cruz, C. M.
- Funding amount: \$653,91 US

Component B - Crop health monitoring

PHL

PHILIPPINE DEPARTMENT OF AGRICULTURE: PHILIPPINE RICE INFORMATION SYSTEM (PRISM)

2013 – 2015

- Led inter-organisational team in integrated disease management research and disease monitoring activities
- Led efforts to standardise data collection methods and ensure data integrity through the use of mobile devices and cloud-hosted databases.
- Co-PIs: Nelson, A. (IRRI), Arida, G.S. (PhilRice), Quilang, E. J. P. (PhilRice)
- Funding amount: \$2.8 million US

- Led international and inter-organisational team in integrated disease management research and disease monitoring activities
- Co-PI: Kee-Fui K. (Syngenta)
- Funding amount: \$454,640 US

Awards and Honours

Fourth Most Downloaded MPMI Journal Article of 2019

Global

McCOY, A. G., NOEL, Z., SPARKS, A., CHILVERS M.

2020

- hags, an R Package Resource for Pathotype Analysis of Phytophthora sojae Populations Causing Stem and Root Rot of Soybean

Theo Murphy (Australia) Initiative for support for ‘Re:produce – kick-off meeting of reproducible research network’

Brisbane, Queensland, AUS

PANCZAK, R., BAKER, P., GACENGA, F., KING, R., LI, L., LODGE, J., LIM, C., SCHNYDER, N. AND SPARKS, A.

2019

- Sponsored by The Australian Academy of Science

Participant in workshop on “Food System Impacts of Pests & Pathogens in a Changing Climate”

Aspen, Colorado, USA

SPARKS, A.

2019

- Aspen Global Change Initiative

“Best Independent Film” Award for creation of extension articles for extensionAUS website

Adelaide, South Australia, AUS

SPARKS, A. & ADORADA, D.

2018

- extensionAUS Field Disease Community of Practice

First Place Award for Paddock to Plate Category, John Conner Hack

AUS

PEMBLETON, K., GRUNDY, G., SPARKS, A.

2016

- GovHack 2016

Third Place Graduate Student Oral Presentation and Poster Competition

Minneapolis, Minnesota, USA

SPARKS, A.

2008

- 2008 APS North Central Division Meeting

Invited Guest Lectures

Sparks, A. (2020). *Flashback 2014: Using R at IRRI*. Invited presentation delivered at “RUG-PH Seventh Anniversary” held via Zoom.

Sparks, A. (2019). *The Impact of Plant Pathology on the Global Economy*. Invited presentation delivered at the “IX Symposium on Updates in Phytopathology” held in Viçosa, Minas Gerais, BRA.

Sparks, A. (2019). *Delivering and Supporting Open Science Practices Through Open Plant Pathology*. Invited presentation delivered at the October 2019 Queensland Chapter APPS Seminar Series, held in Toowoomba, Queensland, AUS.

Sparks, A. (2019). *Climate Change May Have Limited Effect on Global Risk of Potato Late Blight*. Invited presentation delivered at the workshop on “Food System Impacts of Pests & Pathogens in a Changing Climate” hosted by Aspen Initiative held in Aspen, Colorado, USA.

Sparks, A. (2019). *Pre and In-Season Tools to Inform Broadacre Grains Growers* Invited presentation delivered at Southern Cross University in Lismore, New South Wales, AUS.

Sparks, A. (2019). *From Models to Maps and IDM In-Between*. Invited presentation delivered at the Australian National University in Canberra, Australian Capital Territory, AUS.

Sparks, A. (2019). *What’s so Open About Plant Pathology?* Invited presentation delivered at the “Openness and Reproducibility in Science” symposium, hosted by Australian National University, held in Canberra, Australian Capital Territory, AUS.

Sparks, A. (2018). *University of Southern Queensland, Centre for Crop Health, Summer Crop Pathology*. Invited presentation delivered during visit to TEGASC Oak Park Campus in Carlow, IRL.

- Sparks, A.**, A.D. Nelson, K.A. Garrett, C. Gilligan and K. Pembleton. (2018). *Upscaling models, downscaling data or the right model for the right scale of application?* Invited presentation delivered at the “2018 International Congress of Plant Pathology” held in Boston, Massachusetts, USA.
- Sparks, A.** (2016). *Using modelling and mapping for digital insights into diseases in the rice field.* Invited presentation delivered at the “2016 Korean Society of Plant Pathology Fall Meeting and International Conference” at Seoul National University, Pyeongchang, Gangwon-do, KOR.
- Sparks, A.**, N. P. Castilla and G. S. Arida. (2014). *Taking sustainable crop protection from the field to the cloud.* Invited presentation delivered at the “4th International Rice Congress (IRC2014)” in Bangkok, THA.
- Sparks, A.** (2014). *Impact of climate change on rice diseases.* Invited presentation delivered at the “Workshop on the impact of climate change on crop pests and diseases, and adaptation strategies for the Greater Mekong Sub – Region (GMS)” at Hotel Continental Saigon, Ho Chi Minh City, VNM.
- Sparks, A.** (2014). *Epidemiology and Disease Management of rice brown spot: Research priorities and knowledge gaps.* Invited presentation delivered at the “66th Annual Indian Phytopathological Society Meeting” at Indira Gandhi Krishi Vishwavidyalaya University, Raipur, IND.
- Sparks, A.** (2013). *Biosecurity risks in Southeast Asia impacting on human food supplies.* Invited presentation delivered at the “Pacific Environmental Security Forum” hosted by the Australian Department of Defence (ADoD) and U. S. Pacific Command (USPACOM) in Sydney, New South Wales, AUS.
- Sparks, A.** (2010). *Global potato late blight risk in response to climate change, possible futures for a historic disease.* Invited presentation presented at “Emerging infectious diseases in response to climate change” hosted by New York Academy of Sciences in New York, New York, USA.

Papers and Posters Presented

- Adorada, D. L., Adorada, E. E., Gonzales, P., & **Sparks, A.** (2019). Pathogenicity and aggressiveness of *macrophomina phaseolina* isolates to sorghum in Australia’s northern grains region. *Proceedings of the 2019 Australian Summer Grains Conference.*
- Sparks, A.**, Diggle, A., Galloway, J., Kelly, L., Melloy, P., & Weir, D. (2019). A new tool to support mungbean growers and advisers in the fight against powdery mildew. *Proceedings of the 2019 Australian Summer Grains Conference.*
- Vaghefi, N., Adorada, D. L., Adorada, E. E., Kelly, L., Young, A., & **Sparks, A.** (2019). Characterising the genotypic diversity of *Curtobacterium flaccumfaciens* pv. *Flaccumfaciens*, the cause of tan spot on mungbean. *Proceedings of the 2019 Australian Summer Grains Conference.*
- Adorada, D. L., Gonzales, P., McKay, A., Vaghefi, N., & **Sparks, A.** (2018). A broad look at charcoal rot in the Northern Region broadacre crops through soil sampling and in-crop surveys. *Proceedings of the 10th australasian soilborne diseases symposium.* Presented at the National Wine Centre.
- Adorada, D. L., Thompson, S. M., Grams, R. A., Adorada, E. E., **Sparks, A.**, Wright, G., ... Ash, G. J. (2017). Fungi and bacteria associated with the Peanut Kernel Shivel (PKS) disease in the Bundaberg region. *Proceedings of the australasian plant pathology society 2017 meeting.*
- Cucak, M., **Sparks, A.**, Fealy, R., Griffin, D., Lambkin, K., & Kildea, S. (2017). Lowering thresholds of qualitative plant risk prediction algorithms: Sensitivity versus specificity of Irish Rules for potato late blight development. *Euroblight Workshop.*
- Kelly, L., White, J., Sharman, M., Brier, H., Williams, L., Grams, R., ... **Sparks, A.** (2017). Mungbean and sorghum disease update. *GRDC Updates (Jondaryan).* Presented at the Jondaryan Woolshed. GRDC.
- Sparks, A.**, Castilla, N. P., & Sander, B. O. (2017). Do alternate wetting and drying irrigation technologies and nitrogen rates affect rice sheath blight? *Proceedings of the Australasian Plant Pathology Society 2017 meeting.*
- Jaisong, S., Castilla, N. P., Magculia, C. T., Savary, S., Pangga, I. B., & **Sparks, A.** (2015). Evaluation of correlation methods for co-occurrence network construction of rice crop health survey data. *Proceedings of the Australasian Plant Pathology Society 2015 Meeting.*

- Sparks, A.,** & Noel, M. (2015). Mapping rice diseases for targeted deployment of resistant varieties in India. *Proceedings of the australasian plant pathology society 2015 meeting*.
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- Savary, S., **Sparks, A.**, Nelson, A., McRoberts, N., & Esker, P. D. (2012). Putting information to use: Decisions at different scales. *Phytopathology*, 102:S4.162.
- Sparks, A.,** Savary, S., & Nelson, A. (2012). Preventing what ails rice with a strategic, statistical, prescriptive model system. *Phytopathology*, 102:S4.113.
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- McKinley, J., Pedde, V. O., **Sparks, A.**, & Duff, B. (2011). An economic assessment of the impact of mango pulp weevil on the agricultural sector of Palawan, Philippines. *The conference secretariat, 2011 PAEDA biennial convention*.
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- Garrett, K., Forbes, G., Pande, S., Savary, S., **Sparks, A.**, Valdivia, C., ... Willocquet, L. (2009). Anticipating and responding to biological complexity in the effects of climate change on agriculture. *IOP conference series: Earth and environmental science*, 6. <https://doi.org/10.1088/1755-1307/6/7/372007>
- Sparks, A.,** Forbes, G., & Garrett, K. A. (2009). Adapting disease forecasting models to coarser scales: Global potato late blight prediction. *Phytopathology*, 99:S122.
- Sparks, A.,** Raymundo, R., Simon, R., Forbes, G., & Garrett, K. A. (2008). Regional predictions of potato late blight risk in a GIS incorporating disease resistance profiles, climate change, and risk neighborhoods. *Phytopathology*, 98:S149.

Campus or Departmental Talks

- Sparks, A.** (2019). *Improving management options, epidemiology knowledge and tools to manage crop diseases*. for Curtin University Centre for Crop Disease Management visit to University of Southern Queensland Centre for Crop Health in Toowoomba, Queensland, AUS.
- Sparks, A.** (2019). *Completing the Picture. Integrating Plant Disease Into Ag Systems Modelling* for University of Southern Queensland Agriculture Systems Precinct grand opening held in Toowoomba, Queensland, AUS.
- Sparks, A.** (2016). *How to Combine Models and Maps When All Models Are Wrong and Maps Lie* for University of Southern Queensland Centre for Crop Health Seminar Series at University of Southern Queensland, Toowoomba, Queensland, AUS.
- Sparks, A.** (2016). *USQ CCH Modelling*. at University of Southern Queensland in Toowoomba, Queensland, AUS
- Sparks, A.** (2015). *I've a feeling we're not in Kansas anymore*. Introductory seminar for University of Southern Queensland in Toowoomba, Queensland, AUS.
- Sparks, A.** (2015). *Working across scales: Integrating satellite mapping and field studies for policy, crop management and forecasting*. for Bill Gates visit to IRRI at IRRI in Los Baños, Laguna, PHL.

- Sparks, A.** (2014). *Looking forward, a workplan for integrated disease management at IRRI*. Work Vision Seminar at IRRI in Los Baños, Laguna, PHL.
- Sparks, A.** (2013). *Don't get caught with your plants down. Consult a plant pathologist*. Invited presentation for IRRI Thursday Seminar Series in Los Baños, Laguna, PHL.
- Sparks, A.** (2013). *Current status of rice pathogens over geographic regions*. Presented for Taiwan Delegation visiting IRRI in Los Baños, Laguna, PHL.
- Sparks, A.** (2011). *Crop Modelling at IRRI*. at IRRI in Los Baños, Laguna, PHL.
- Sparks, A.** (2011). *Mapping the future*. IRRI Plant Breeding Genetics and Biotechnology division Seminar Series in Los Baños, Laguna, PHL.

Extension and Community Outreach

- Eyre, J., **Sparks, A.**, Miles, M., & Rodriguez, D. (2020). Consider soil water storage before sowing a grain sorghum crop. *GRDC Ground Cover*. Retrieved from <https://groundcover.grdc.com.au/story/6591350/is-late-sowing-of-sorghum-a-viable-option-in-the-northern-region/>
- Sparks, A.**, Melloy, P., Diggle, A., & Galloway, J. (2020). Make better fungicide application decisions for mungbean powdery mildew with the new PowderyMildewMBM app. *GRDC Update Papers*. Retrieved from <https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2020/07/make-better-fungicide-application-decisions-for-mungbean-powdery-mildew-with-the-new-powderymildewmbm-app>
- Adorada, D., & **Sparks, A.** (2019). Low levels of disease persist during the drier summer season in parts of the northern region. *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/low-disease-drier-summer-northern/>
- Adorada, D., & **Sparks, A.** (2019). Moisture saves sorghum from disease in parts of the northern region. *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/sorghum-disease-survey/>
- Adorada, D., Vaghefi, N., & **Sparks, A.** (2019). Re-visiting management options for charcoal rot in sorghum. *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/re-visiting-management-options-charcoal-rot-sorghum/>
- Sparks, A.** (2019). Where and when does charcoal rot in sorghum occur? *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/charcoal-rot-sorghum/>
- Sparks, A.**, & Purushotham, N. (2019). Last season's summer grain diseases & sorghum charcoal rot. *GRDC Communities Podcast*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/summer-crop-diseases-podcast/>
- Adorada, D., Kelly, L., Vaghefi, N., & **Sparks, A.** (2018). Summer paddock survey finds fungal and bacterial diseases decreased but not eliminated. *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/summer-paddock-survey/>
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- Adorada, D., Sigel, L., Kelly, L., & **Sparks, A.** (2017). Diagnosing plant diseases: What do we ask and why do we ask for it? *GRDC Communities*. Retrieved from <https://communities.grdc.com.au/field-crop-diseases/diagnosing-plant-diseases-ask-ask/>
- Kelly, L., White, J., Sharman, M., Brier, H., Williams, L., Grams, R., ... **Sparks, A.** (2017). Mungbean and sorghum disease update. *19th July 2017 Grains Research Update: Jondaryan*, 11-22. Retrieved from <https://grdc.com.au/resources-and-publications/grdc-update-papers/tab-content/grdc-update-papers/2017/07/mungbean-and-sorghum-disease-update>

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- Choi, I. R., **Sparks, A.**, & Vera Cruz, C. M. (2014). Red stripe. *IRRI Rice Knowledge Bank*. Retrieved from <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/narrow-brown-spot>
- Sparks, A.**, Castilla, N. P., & Savary, S. (2014). Narrow brown spot. *IRRI Rice Knowledge Bank*. Retrieved from <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/narrow-brown-spot>
- Sparks, A.**, Castilla, N. P., & Vera Cruz, C. M. (2014). Bakanae. *IRRI Rice Knowledge Bank*. Retrieved from <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/bakanae>
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- Sparks, A.**, Castilla, N. P., & Vera Cruz, C. M. (2014). Brown spot. *IRRI Rice Knowledge Bank*. Retrieved from <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/brown-spot>
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- Sparks, A.**, Castilla, N. P., Vera Cruz, C. M., & Elazegui, F. A. (2014). Stem rot. *IRRI Rice Knowledge Bank*. Retrieved from <http://www.knowledgebank.irri.org/training/fact-sheets/pest-management/diseases/item/stem-rot>
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- Sparks, A.**, & Kennelly, M. (2008). Blackleg of potato. *Kansas State University*. Retrieved from <https://krex.k-state.edu/dspace/handle/2097/21719>
- Sparks, A.** (2002). Fusarium root rot. *Nebraska Crop Watch*. Retrieved from <https://cropwatch.unl.edu/plantdisease/corn/fusarium-root-rot>
- Sparks, A.** (2002). Fusarium stalk rot. *Nebraska Crop Watch*. Retrieved from <https://cropwatch.unl.edu/plantdisease/corn/fusarium-stalk-rot>

Teaching Experience

CLASSROOM

Kansas State University

TEACHING ASSISTANT

- Epidemiology and Ecology of Plant Pathogens

Manhattan, Kansas, USA

2006

Kansas State University

TEACHING ASSISTANT

- Introduction to Plant Pathology Laboratory Section

Manhattan, Kansas, USA

2008

WORKSHOPS

QCIF (Queensland Cyber Infrastructure Foundation)

SOFTWARE CARPENTRIES R FOR REPRODUCIBLE SCIENTIFIC ANALYSIS

- Lead Instructor

Zoom

Aug. 2020

QCIF (Queensland Cyber Infrastructure Foundation)

SOFTWARE CARPENTRIES R FOR REPRODUCIBLE SCIENTIFIC ANALYSIS

- Lead Instructor

Zoom

Jun. 2020

FAO and Cambodia GDA

DATA CARPENTRIES DATA ORGANIZATION IN SPREADSHEETS FOR ECOLOGISTS

- Organiser and Lead Instructor

Phnom Penh, KHM

Dec. 2019

Australasian Plant Pathology Society

R MARKDOWN FOR SCIENTISTS

- Organiser and Lead Instructor

Melbourne, Victoria, AUS

Nov. 2019

Southern Cross University

R FOR SCIENTIFIC ANALYSIS

- Lead Instructor

Lismore, New South Wales, AUS

Jul. 2019

University of Southern Queensland

SOFTWARE CARPENTRIES PYTHON WORKSHOP

- Helper

Springfield, Queensland, AUS

Oct. 2019

University of Southern Queensland

SOFTWARE CARPENTRIES R FOR REPRODUCIBLE SCIENTIFIC ANALYSIS

- Co-organiser and Instructor

Toowoomba, Queensland, AUS

Jun. 2019

University of Southern Queensland

SOFTWARE CARPENTRIES PYTHON WORKSHOP

- Helper

Springfield, Queensland, AUS

Oct. 2018

University of Southern Queensland

SOFTWARE CARPENTRIES R FOR REPRODUCIBLE SCIENTIFIC ANALYSIS

- Co-organiser and Instructor

Toowoomba, Queensland, AUS

Jun. 2018

University of Southern Queensland

SOFTWARE CARPENTRIES R FOR REPRODUCIBLE SCIENTIFIC ANALYSIS

- Helper

Toowoomba, Queensland, AUS

Jun. 2017

Bureau of Rice Research and Development, Rice Department, Bangkok

WORKSHOP ON INTEGRATED RICE DISEASE MANAGEMENT AND TRAINING ON STATISTICAL ANALYSIS

- Co-organiser and Instructor

Chiang Mai, THL

Jun. 2012

Service

Tropical Plant Pathology

REPRODUCIBILITY EDITOR

Global

2020 – Present

University of Southern Queensland Hacky Hour

R PROGRAMMING HELPER

Toowoomba, Queensland, AUS

2019 – Present

MDPI Remote Sensing

GUEST EDITOR FOR SPECIAL ISSUE ON REMOTE SENSING AND CROP HEALTH

Global

2019 – Present

R4ds (<https://rfordatascience.slack.com>)

MENTOR

Global

2019 – Present

Open Plant Pathology (<https://openplantpathology.org>)

CO-FOUNDER AND CO-DIRECTOR

Global

2018 – Present

University of Southern Queensland Athena SWAN (Scientific Women's Academic Network) SAGE (Science in Australia Gender Equality) Submission Committee

MEMBER

2018 – Present

International Congress of Plant Pathology (ICPP) Crop Loss Committee

MEMBER

Global

2018 – Present

Tropical Plant Pathology

EPIDEMIOLOGY SECTION EDITOR

Global

2017 – Present

University of Southern Queensland Centre for Crop Health Advisory Committee

MEMBER

Toowoomba, Queensland, AUS

2016 – Present

Australia National Plant Biosecurity Diagnostic Network

MEMBER

AUS

2016 – Present

GRDC Communities of Practice: Field Crop Diseases

MEMBER

AUS

2018 – 2019

extensionAUS: Field Crops Diseases Community of Practice

MEMBER

AUS

2016 – 2018

International Congress of Plant Pathology (ICPP) Epidemiology Committee

MEMBER

Global

2013 – Present

IRRI Crop and Environmental Sciences Division Seminar Series

COORDINATOR

Los Baños, Laguna, PHL

2013 – 2015

IRRI One Corporate System (OCS) Advisory Committee

MEMBER

Los Baños, Laguna, PHL

2013 – 2015

IRRI National Employee Recognition Program Committee

MEMBER

Los Baños, Laguna, PHL

2013 – 2015

K-State Plant Pathology Graduate Student Club

PRESIDENT

Manhattan, Kansas, USA

2006 – 2007

K-State Plant Pathology Webpage Advisory Committee

MEMBER

Manhattan, Kansas, USA

2005 – 2007

Certifications

Carpentries

CERTIFIED INSTRUCTOR

Global

2019 - Present

PRINCE2 Foundation, HiLogic Pty Ltd.

CANDIDATE NUMBER: P2R/009385

Global

2014 – Present

Memberships

USQ Ally Network

MEMBER

Toowoomba, Queensland, AUS

2019 – Present

Australia New Zealand Open Research Network (ANZORN)

MEMBER

AUS and NZL

2019 – Present

rOpenSci

MEMBER

Global

2017 – Present

Australasian Plant Pathology Society

MEMBER

AUS and NZL

2013 – Present

Philippines R Users Group (RUG-PH)

FOUNDING MEMBER

Manila, PHL

2013 – Present