

Sara Thomas-Sharma

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Education

Ph.D., Plant Pathology, University of Georgia (UGA), Athens, GA, USA, 2006-2012

B.Sc., Agriculture, University of Agricultural Sciences (UAS), Bengaluru, KA, India, 2002-2006

Professional appointments

Assistant Professor, Field Crop Pathology, Louisiana State University (LSU), Baton Rouge, LA, 2018-present

Postdoctoral Research Associate, University of Wisconsin (UW)-Madison, Madison, WI, USA 2015-2017

Postdoctoral Research Associate, Kansas State University (KSU), Manhattan, KS, USA, 2013-2015

Graduate Research Assistant, UGA

Research experience

- Characterized an emerging virus, Blueberry shock virus on cranberry, to provide disease management solutions to growers
- Conducted small RNA sequencing and assembly to identify known and unknown viruses in cranberry
- Developed insights into the poorly understood phenomenon of ‘symptom recovery’ in perennials, to better predict long-term consequences of virus infection
- Developed extension material for fruit growers in Wisconsin to guide disease management
- Developed a risk assessment model to provide decision support on integrated management of seed degeneration in vegetatively propagated crops
- Coordinated international research projects as a part of the CGIAR Research Program for Roots, Tubers and Bananas, to aid in information exchange and identifying synergies
- Interviewed scientists (in India and globally), translating experts’ qualitative knowledge into quantitative data that can supplement limitations in experimental data
- Synthesized literature to identify knowledge gaps and opportunities for research spillover
- Used network analyses to study the spread of disease epidemics in complex agricultural systems
- Evaluated fungicide activity at different flower stages to improve efficiency of fungicide applications against the mummy berry disease on blueberry
- Evaluated alternative management strategies for flower-infecting pathogens by studying efficacy of chemical resistance inducers

Research/analytical skills: Lab, greenhouse, and field experimentation, Statistical analysis and programming (SAS, R), Molecular techniques (ELISA, DNA/RNA extractions, cloning, qRT-PCR, Nested PCR, NGS), Aseptic culturing, Microscopy (light, confocal, epifluorescence), Bioinformatics

Teaching and mentoring experience

- Facilitator, Impact network analysis workshop, APS-North Central meeting (2013, KSU)
- Instructor, An introduction to R programming for biologists (2013, 2014, KSU)
- Teaching Assistant, Introductory Plant Pathology (2007, 2009, UGA)
- Teaching Assistant, Diagnosis and Management of Plant Diseases (2008, UGA)
- Mentored undergraduate students in conducting independent research projects
- Mentored high school student in plant pathology techniques to encourage interest in agricultural sciences, Young Scholars Summer Internship Program, UGA
- Mentored high school students for 'Planting Science' providing online guidance for scientific experimentation

Leadership and community service

- Books for the World Award Program Administrator, APS (2017-present)
- Served as reviewer for *Plant Disease*, *Plant Pathology*, *Tropical Plant Pathology*, *Scientia Agricola*
- Served as reviewer for Books for the world award, APS (2016)
- President (and Vice-President), The Society of Aspiring Plant Pathologists, graduate student association, UGA (2009-2011)
- Chapter coordinator, Asha for Education, Athens Chapter, an organization that works for education of underprivileged children in India (2007-2009)
- Invited to participate in the APS leadership forum, Providence, RI (2012)
- Selected to participate in the Emerging Leaders' Program, UGA (2010)
- Moderated technical sessions 'Diseases of Horticultural Crops and Forests', 'Virus Epidemiology', 'Virus Diseases' at the APS Annual Meetings
- Contributed to the Plantwise blog (<http://blog.plantwise.org/>), an initiative by CABI to improve food security and lives of the rural poor by reducing crop losses
- Conducted resume writing workshop during summer bridge program for incoming STEM students of color, UGA to prepare them early-on for professional expectations
- Participated in the Plant pathology stall of All-University Open House (2013, 2014, KSU)
- Reader for 34th Georgia Junior Science and Humanities Symposium evaluating student research
- Participated in Madison County Agricultural Day raising awareness on Plant Pathology research
- Served as judge for the MASTERS Science Fair for middle school students (May, 2017)

Membership in professional societies

- The American Phytopathological Society (APS) (2007-present)
- The Sigma Xi Scientific Research Society (2009-2010, 2016-present)
- The Georgia Association of Plant Pathologists (GAPP) (2007-2012)
- The Blue Key Honor Society (2009)

Grants and scholarships

- NSF-BREAD Idea challenge award, National Science Foundation and Bill & Mellinda Gates foundation (2013, \$10000)
- Travel Scholarship, Department of Plant Pathology, UW-Madison (2015, 2016, \$500)

- Dissertation Completion Award, UGA graduate school (2012, stipend and tuition waiver)
- Malcolm C. Shurtleff Student Travel Award, American Phytopathological Society (2011, \$500)
- Grant-in-Aid of Research, Sigma-Xi (2009, \$400)
- UAS Scholarship (2002-2006, tuition waiver)

Honors and awards

- Invited to participate in the NIMBios workshop on Vectored Plant Viruses (2014)
- Outstanding graduate student presentation, GAPP (2011)
- Judge's Choice award for educational video 'Gene for gene hypothesis-demystified', Office of Public Relations and Outreach Video Contest, APS (2011)
- Kenneth E. Papa Award for Outstanding PhD student, GAPP (2010)
- Who's Who Among Students in American Universities and Colleges (2010)
- Three awards in the APS 'Art in Phytopathology' contest (2010)
- Outstanding Teaching Assistant Award, UGA (2009)
- Cedric Kuhn Award for Outstanding Masters student, GAPP (2008)
- UAS Employees Association Gold Medal for the best student in humanities, UAS (2006)

Publications

Book chapters

- J. F. Hernandez Nopsa, **S. Thomas-Sharma**, and K. A. Garrett. 2014. Climate change and plant disease. In: Encyclopedia of Agriculture and Food Systems. N. van Alfen, ed. Elsevier Ltd. 231-243
- K. A. Garrett, **S. Thomas-Sharma**, G.A. Forbes, and J. H. Hernandez Nopsa. 2014. Climate change and plant pathogen invasions. In Invasive Species and Global Climate Change. L. H. Ziska and J. S. Dukes, eds. CABI Publishing. 22-44

Peer-reviewed journal articles

- S. Thomas-Sharma** and H. Scherm. 2017. Pre- and post-anthesis activity of fenbuconazole and triforine against blueberry flower infection by *Monilinia vaccinii-corymbosi*. *Crop Protection* 96: 180-187 (doi: 10.1016/j.cropro.2017.02.016)
- S. Thomas-Sharma**, J. H. Leebens-Mack, and H. Scherm. 2017. Marker gene overexpression in flowers treated with resistance inducers does not correlate with protection against flower-infecting fungi in tomato and blueberry. *J Phytopathol* 165: 53–63 (doi:10.1111/jph.12536)
- S. Thomas-Sharma**, A. Abdurahman, S. Ali, J.L. Andrade-Piedra, S. Bao, A. O. Charkowski, D. Crook, M. Kadian, P. Kromann, P. C. Struik, L. Torrance, K. A. Garrett, and G. A. Forbes. 2016. Seed degeneration in potato: the need for an integrated seed health strategy to mitigate the problem in developing countries. *Plant Pathology* 65: 3-16 (doi: 10.1111/ppa.12439)
- J. F. Hernandez Nopsa, G. J. Daghli, D. W. Hagstrum, J. F. Leslie, T. W. Phillips, C. Scoglio, **S. Thomas-Sharma**, G. H. Walter, and K. A. Garrett. 2015. Ecological networks in stored grain: Identifying key nodes for emerging pests and mycotoxins in postharvest networks. *BioScience* 65:985-1002 (doi:10.1093/biosci/biv122)
- S. Thomas-Sharma**, J. Andrade-Piedra, M. Carvajal Yepes, J. Hernandez Nopsa, M. Jeger, R. Jones, P. Kromann, J. Legg, J. Yuen, G. A. Forbes, and K. A. Garrett. 2017. A risk assessment framework for seed degeneration: Informing an integrated seed health strategy for

- vegetatively-propagated crops. *Phytopathology* 107: 1123-1135 (doi: 10.1094/PHYTO-09-16-0340-R)
- C. E. Buddenhagen, J. F. Hernandez Nopsa, K. F. Andersen, J. Andrade-Piedra, G. A. Forbes, P. Kromann, **S. Thomas-Sharma**, P. Useche, and K. A. Garrett. 2017. Epidemic network analysis for mitigation of invasive pathogens in seed systems: Potato in Ecuador. *Phytopathology* 107: 1209-1218 (doi: 10.1094/PHYTO-03-17-0108-FI)
- S. Thomas-Sharma**, L. Wells-Hansen, R. Page, V. Kartanos, E. Saalau-Rojas, B.E.L. Lockhart, P. McManus. 2018. Characterization of *Blueberry shock virus*, an emerging *Illavirus* in cranberry. *Plant Disease*: 102:91-97 (doi:10.1094/PDIS-04-17-0551-RE)

Extension publications

- S. Thomas-Sharma** and P. S. McManus. 2017. Blueberry shock virus in cranberry. UW Extension publication A4147
- S. Thomas-Sharma** and P. S. McManus. 2017. Soil-borne diseases of fruit crops: Introduction. Wisconsin Fruit News, Volume 2, Issue 4
- S. Thomas-Sharma** and P. S. McManus. 2017. Phytophthora diseases of berry crops. Wisconsin Fruit News, Volume 2, Issue 5
- S. Thomas-Sharma** and P. S. McManus. 2017. Verticillium on stone fruits. Wisconsin Fruit News, Volume 2, Issue 5
- S. Thomas-Sharma** and P. S. McManus. 2017. Nematode diseases of berry crops. Wisconsin Fruit News, Volume 2, Issue 9
- S. Thomas-Sharma** and P. S. McManus. 2017. Armillaria root rot on tree fruits. Wisconsin Fruit News, Volume 2, Issue 11
- S. Thomas-Sharma** and P. S. McManus. 2017. Peach leaf curl and plum pockets. Wisconsin Fruit News, Volume 2, Issue 12

Selected presentations

Extension experience

- Moderated ‘Apple track’ at the Wisconsin Fresh Fruit and Vegetable conference
- ‘Apple disease management’ at the 2015 Apple School, Madison, WI
- ‘Soil-borne diseases of fruit trees’ at the 2015 UW peninsular research station fruit school, Sturgeon bay, WI
- ‘Strawberry – back to basics: disease management’ at the Wisconsin berry grower association field day, Helenville, WI
- Worked with growers in India as a part of Rural Agricultural Work Experience Program, interviewing local farmers, assessing agricultural practices and suggesting improvements
- Conducted regional survey of biodiversity and indigenous technical knowledge in Karnataka India, to compile ancestral solutions to problems in agriculture, animal, and human health

Scientific meetings

- Reducing the element of surprise: Linking molecular biology and epidemiology to inform farmers of virus disease outbreaks, Poster Presentation, Young Investigator Meeting, Chicago, IL (2016)
- Epidemiological insights into an emerging virus disease: *Blueberry shock virus* on cranberry, Oral Presentation, APS Annual meeting, Tampa, FL (2016)

- Virus recovery in cranberry. Seminar, UW-Madison, Madison, WI (2016)
- 'Shiny' interfaces for interactive data collection and reporting in Plant Pathology, Poster presentation, APS Annual meeting, Pasadena, CA (2015)
- Seed degeneration risk assessment: Optimizing the success of management strategies, Oral presentation, Conceptual Framework and Seed Degeneration Workshop, Wageningen, Netherlands (2014)
- Expert elicitation: A complement to traditional experimental data, Poster presentation, APS-CPS meeting, Minneapolis, MN (2014)
- Estimating the effectiveness of management strategies to reduce seed degeneration in vegetatively-propagated crops, Oral presentation, Asia-Pacific Congress on Virology, Noida, UP, India (2013)
- Viruses in social-ecological systems: Strategies for farmer selection in smallholder seed systems, Poster presentation, International Plant Virus Epidemiology symposium, Arusha, Tanzania (2013)
- Pre- and post-bloom activity of fenbuconazole and triforine against blueberry flower infection by *Monilinia vaccinii-corymbosi*, Oral Presentation, Southeast Professional Fruit Workers Conference, Mills River, NC (2010)
- Induced resistance in flowers and its effectiveness in suppressing flower-infecting fungi, Oral presentation, Annual Meeting of APS, Portland, OR (2009)