

Curriculum Vitae

Dr. Kerry E. Mauck

Contact Information

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Current Position & Affiliation

Assistant Professor of Vector Biology (October 2016-present)
University of California, Riverside, Department of Entomology

Education

Ph.D. Entomology August 2012

Penn State University, Dept. of Entomology Doctoral Program

B.S. Biology May 2005

The College of New Jersey, Dept. of Biology

Employment History

October 2013 to August 2016

Post-doctoral fellow, ETH Zürich, Institute for Agricultural Sciences Research Areas:

August 2012 to September 2013

Post-doctoral researcher, Penn State University, Dept. of Entomology

May 2005 to July 2006

Bio-Aide, Phillip Alampi Beneficial Insect Lab, NJ Dept. of Agriculture

Awards and Honors

- 2017 Early Career Award, International Society for Chemical Ecology.
- 2012 Entomological Society of America: First place in Student Competition for the President's Prize (Annual Meeting).
- 2011 Entomological Society of America, Eastern Branch: First place in student oral Competition (Annual Branch Meeting).
- 2010 Penn State Department of Entomology: Ralph O. Mumma Graduate Award.
Ecological Society of America: Outstanding Student Research in Ecology Award.
- 2009 Penn State Department of Entomology: Lloyd E. Adams Memorial Grant-in-Aid.
Entomological Society of America: First place in Student Competition for the President's Prize (Annual Meeting).
- 2008 PSU Dept. of Entomology: Vartkes Miroyan Memorial Award in Entomology.
- 2007 Penn State Department of Entomology: Michael E. Duke Memorial Award in Entomology
Entomological Society of America: Member of one of the winning ESA debate teams for Biosecurity: A student debate.
Entomological Society of America: Second place in Student Poster Competition for the President's Prize (Annual Meeting).

Research Publications

*Mauck KE, Sun P, Meduri V, & Hansen AK (2019) New Ca. *Liberibacter psyllae* haplotype resurrected from a 49-year-old specimen of *Solanum umbelliferum*: a native host of the psyllid vector. ***Scientific Reports***, 9(1), 9530.

Pulido H, Mauck KE, De Moraes CM, & Mescher MC (2019) Combined effects of mutualistic rhizobacteria counteract virus-induced suppression of indirect plant defences in soya bean. ***Proceedings of the Royal Society B***, 286(1903), 20190211.

Mauck KE, Kenney J, & Chesnais Q (2019) Progress and challenges in identifying molecular mechanisms underlying host and vector manipulation by plant viruses. ***Current Opinion in Insect Science*** 33: 7-18

Chesnais Q, Mauck KE, Bogaert F, Bamière A, Catterou M, Spicher F, Brault V, Tepfer M, Ameline A (2019) Virus effects on plant quality and vector behavior are species specific and do not depend on host physiological phenotype. ***Journal of Pest Science*** 92(2): 791-804

Shates TM, Sun P, Malmstrom CM, Dominguez C, & Mauck KE (2018) Addressing research needs in the field of plant virus ecology by defining knowledge gaps and developing wild dicot study systems. ***Frontiers in Microbiology***, 9, 3305.

Chesnais Q, & Mauck KE (2018) Choice of Tethering Material Influences the Magnitude and Significance of Treatment Effects in Whitefly Electrical Penetration Graph Recordings. ***Journal of Insect Behavior***, 31(6), 656–671.

Mauck KE, Chesnais Q, Shapiro LR (2018) “Evolutionary determinants of host and vector manipulation by plant viruses” ***Advances in Virus Research***, special issue on Environmental Virology. Editor: Carolyn Malmstrom. (invited book chapter)

Shapiro LR, Mauck KE (2018) “Chemically-mediated interactions among cucurbits, microbes, and insects” to appear in ***Chemical Ecology in Insects***, CRC Press. Editor: Jun Tabata. (invited book chapter)

Mauck KE (2016) Variation in virus effects on host plant phenotypes and insect vector behavior: what can it teach us about virus evolution? ***Current Opinion in Virology*** 21: 114-123. (invited review article)

Mauck KE, De Moraes CM, Mescher MC (2016) Effects of pathogens on sensory-mediated interactions between plants and insect vectors. ***Current Opinion in Plant Biology*** 32: 53-61. (invited review article)

Peñaflor MFGV, Mauck KE, Alves KJ, De Moraes CM, Mescher MC (2016) Effects of single and mixed infections of *Bean pod mottle virus* and *Soybean mosaic virus* on host plant chemistry and host-vector interactions. ***Functional Ecology*** 30: 1648-1659. (peer-reviewed publication)

Mauck KE, De Moraes CM, Mescher MC (2015) Infection of host plants by *Cucumber mosaic virus* increases the susceptibility of *Myzus persicae* to the parasitoid *Aphidius colemani*. ***Scientific Reports*** 5: 10963. (peer-reviewed publication)

Mauck KE, Smyers E, De Moraes CM, Mescher MC (2015) Virus infection influences host plant interactions with non-vector herbivores and predators. ***Functional Ecology*** 29: 662-673. (peer-reviewed publication)

Mauck KE, De Moraes CM, Mescher MC (2014) Evidence of local adaptation in the effects of plant viruses on host-vector interactions. ***Integrative and Comparative Biology*** 54(2): 193-209. (peer-reviewed publication)

Mauck KE, De Moraes CM, Mescher MC (2014) Biochemical and physiological mechanisms underlying effects of *Cucumber mosaic virus* on host-plant traits that mediate transmission by aphid vectors. ***Plant, Cell & Environment*** 37(6), 1427-1439. (peer-reviewed publication)

Alexander HM, Mauck KE, Whitfield AE, Garrett KA, Malmstrom CM (2014) Plant-virus interactions and the agro-ecological interface. ***European Journal of Plant Pathology*** 138: 529-547. (invited review article)

Shapiro LR, Salvaudon L, Mauck KE, Pulido H, De Moraes CM, Stephenson AG, Mescher MC (2013) Disease interactions in a shared host plant: effects of pre-existing viral infection on cucurbit plant defense responses and resistance to bacterial wilt disease. ***PLoS ONE*** 8(10): e77393. (peer-reviewed publication)

Halloran ST, Mauck KE, Fleischer SJ, Tumlinson JH (2013) Volatiles from intact and *Lygus*-damaged *Erigeron annuus* (L.) Pers. are highly attractive to ovipositing *Lygus* and its parasitoid *Peristenus relictus* Ruthe. ***Journal of Chemical Ecology*** 39: 1115-1128. (peer-reviewed publication)

Kariyat RR, Mauck KE, Balogh CM, Stephenson AG, Mescher MC, De Moraes CM (2013) Inbreeding in horsenettle (*Solanum carolinense*) alters night-time volatile emissions that guide oviposition by *Manduca sexta* moths. ***Proceedings of the Royal Society B*** 280: 20130020. (peer-reviewed publication)

Mauck KE, Bosque-Pérez NA, Eigenbrode SD, De Moraes CM, Mescher MC (2012) Transmission mechanisms shape pathogen effects on host-vector interactions: evidence from plant viruses. ***Functional Ecology*** 26(5): 1162-1175. (peer-reviewed publication)

Kariyat RR, Mauck KE, De Moraes CM, Stephenson AG, Mescher MC (2012) Inbreeding alters volatile signaling phenotypes and influences tri-trophic interactions in horsenettle (*Solanum carolinense* L.). ***Ecology Letters*** 15(4): 301-309. (peer-reviewed publication)

Mauck KE, De Moraes CM, Mescher MC (2010) Effects of *Cucumber mosaic virus* infection on vector and non-vector herbivores of squash. ***Communicative and Integrative Biology*** 3(6): 579–582. (invited addendum)

Mauck KE, De Moraes CM, Mescher M (2010) Deceptive chemical signals induced by a plant virus attract insect vectors to inferior hosts. ***Proceedings of the National Academy of Sciences*** 107 (8): 3600-3605. (Faculty of 1000 Biology: Must Read for February 2010) (peer-reviewed publication)

*Bachmann AC, Harris CM, Mauck KE, Schwartzberg EG (2008) Current APHIS/PPQ regulations on imported agricultural commodities are science-based and appropriately rigorous to protect U.S. agriculture while facilitating global trade. Con Position. W. Aponte-Cordero (ed.). Biosecurity, A student debate. ***American Entomologist*** 55: 148-150. (conference proceedings, not peer-reviewed)

*Bachmann AC, Harris CM, Mauck KE, and Schwartzberg EG (2008) Scientific journals and government agencies should review papers for biosecurity concerns and refrain from publishing information that may be helpful to bioterrorists. Non-biased Introduction. W. Aponte-Cordero (ed.). Biosecurity, A student debate. ***American Entomologist***, 55: 151-152. (conference proceedings, not peer-reviewed)

*Morrison JA, Mauck KE (2007) Experimental field comparison of native and non-native maple seedlings: natural enemies, ecophysiology, growth and survival. ***Journal of Ecology*** 95: 1036-1049. (peer-reviewed publication)

Morrison JA, Lubchansky HA, Mauck KE, McCartney K, and Dunn B (2007) Ecological comparison of two co-invasive species in eastern deciduous forests: *Alliaria petiolata* and *Microstegium vimineum*. ***Journal of the Torrey Botanical Society*** 134: 1-17. (peer-reviewed publication)

* indicates all authors contributed equally to this publication

Research Support

Research Support

- 2019 USDA NIFA Foundational Program Seed Grant (\$138,000)
Shipley-Skinner Endowment (\$16,253)
California Melon Research Board (\$13,670)
- 2018 USDA NIFA Emergency Citrus Disease Research Grant
(\$3.5 million, \$419,000 to K. Mauck)
CA Dept. of Food and Agr. Specialty Crop Block Grant (\$283,000)
UC Multicampus Research Grant
(\$1.1 million, \$67,000 to K. Mauck)
USDA-NIFA Organic Transitions Program (\$499,000 – to K. Mauck: \$75,000)
California Melon Research Board (\$21,508)
Shipley-Skinner Endowment (\$17,925)
UC Riverside Large Collaborative Seed Grant (\$65,000 – to K. Mauck: \$20,200)
UC Riverside Center for Infectious Disease Vector Research Seed Grant (\$17,495 – to K. Mauck: \$11,000)
UC Riverside Regents Faculty Fellowship (\$3,250)
USDA Cooperative Agreement: Characterization of Resistance in Melon to Sweet potato Whitefly (\$49,500)
Agricultural Experiment Station Mission Funding (HATCH) (Tier 1, \$17,500/year)
- 2017 Shipley-Skinner Endowment (\$16,000)
- 2014 ETH Zürich Postdoctoral Researcher Fellowship (220,000 CHF)
- 2012 Henry and Sylvia Richardson Research Grant, Entomological Foundation (\$800)
- 2012 Pennsylvania Soybean Board (\$18,000)
- 2011 USDA AFRI NIFA Predoctoral Fellowship (\$75,000)
- 2010 NSF Doctoral Dissertation Improvement Grant (\$15,000)
- 2009 Penn State College of Agriculture Competitive Grant (\$2,000)
- 2007 Sigma Xi Grant in Aid of Research (\$400)
- 2006 Competitive University Fellowship, Penn State University (1-yr stipend/tuition)

Research Talks and Posters Presented

Invited Oral Presentations

- 2019 **International Society for Chemical Ecology Annual Meeting: Symposium on Honest Signaling, Atlanta, GA.** **Title:** Virus manipulation of hosts and vectors depends on pathogen traits and host context (Symposium plenary).
- 14th International Plant Virus Epidemiology Symposium**, Seoul, South Korea. **Title:** Ecology of host and vector manipulation by plant viruses: new perspectives on a rapidly expanding field (Keynote).
- Entomological Society of America: Pacific Branch Annual Meeting**, San Diego, CA, USA. **Title:** Hunting for *Candidatus Liberibacter* in the forgotten corners of the UC Riverside Herbarium.
- Gordon Research Conference on Plant-Herbivore Interactions**, Ventura, CA, USA. **Title:** How plant virus ecology provides insights into hemipteran feeding behavior.
- California Melon Research Board annual symposium**, San Diego, CA, USA. *Delivered updates on my own board-supported research and additional talks on other research projects for grant awardees unable to attend due to the government shutdown.*
- 2018 **Entomological Society of America Annual Meeting**, Vancouver, BC, CAN. **Title:** Understanding plant virus biodiversity and impacts on cucurbit hosts in extreme habitats.
- UCR Department of Microbiology and Plant Pathology**, Riverside, CA, USA. **Title:** Ecology of plant pathogens and their vectors in managed and unmanaged ecosystems.
- International Congress of Plant Pathology**, Boston, MA, USA. **Title:** Elucidating complex interactions between viruses and vectors: Virus impacts on biology and behavior
- European Congress of Entomology**, Naples, Italy. **Title:** Evolutionary determinants of host and vector manipulation by plant viruses
- Entomological Society of America: Pacific Branch Annual Meeting**, Reno, NV, USA. **Title:** Use of commercially available plant elicitors to disrupt virus manipulation of hosts and vectors
- University of California, Davis Weekly Seminar Series.** **Title:** Plant viruses manipulate host chemistry and insect vectors.
- 2017 **International Society for Chemical Ecology/Asia-Pacific Association for Chemical Ecology** joint meeting, Kyoto, Japan. **Title:** How plant viruses use chemistry to manipulate hosts and vectors. Keynote.
- ASM Microbe**, New Orleans, USA. Symposium on Virus Manipulation of Plants and Insects. **Title:** Do prior evolutionary relationships between viruses and hosts influence virus effects on plant chemical cues and vector behavior?
- 2016 **SDAR/INRA research facility**, Colmar, France. **Title:** "Alteration of plant phenotypes by microbes: implications for disease transmission and pathogen evolution"
- International Society for Chemical Ecology/Latin American Association of Chemical Ecology** joint meeting, Iguassu Falls, Brazil. Symposium on Chemical Ecology of Vector-Host Interactions. **Title:** "Alteration of plant phenotypes by microbes: implications for vector-borne disease transmission and multi-trophic plant-insect interactions"

- 2014 **American Phytopathological Society** Annual Meeting, Minneapolis, MN. Special session on Interconnected Lifecycles: Multitrophic Interactions Between Plants, Pathogens and Insects. **Title:** “Cucumber mosaic virus-induced changes in volatile production and plant quality: implications for disease transmission and multitrophic interactions”
- 2010 **Emory University PBEE Seminar Series**, Atlanta, GA. **Title:** “Chemical ecology of pathogen-host-vector interactions: small molecules with big effects.”
- 2008 **Ecological Society of America** Annual Meeting, Milwaukee, WI. Plant-Pathogen Interactions Organized Oral Session. **Title:** “Virus-induced changes in host chemistry: Do plant viruses manipulate insect vectors through a shared host?”

Submitted Oral Presentations and Posters

- 2017 **Entomological Society of America** Annual Meeting, Denver, CO, presentation.
Entomological Society of America Pacific Branch Annual Meeting, Portland, OR, presentation.
- 2014 **Zürich-Basel Plant Science Center Symposium** “Rooted: Successful Strategies of Sessile Beings” ETH Zürich, poster.
2014 Wisconsin Plant Proteomics Workshop, Madison, WI, poster.
- 2013 **Ecological Society of America** Annual Meeting: Disease and Epidemiology III, Minneapolis, MN, presentation.
- 2012 **Entomological Society of America** Annual Meeting: Plant-insect interactions IV, Knoxville, TN, presentation.
Gordon Research Conference: Plant Volatiles, Ventura, CA, poster.
- 2011 **Entomological Society of America** Annual Meeting: Plant-Insect Ecosystems I, Reno, NV, presentation.
- 2011 **Entomological Society of America Eastern Branch** Annual Meeting, Harrisburg, PA, presentation.
- 2010 **Ecological Society of America** Annual Meeting: Parasitism and host-parasite interactions, Pittsburgh, PA, presentation.
11th International Plant Virus Epidemiology Symposium and 3rd Workshop of the Plant Virus Ecology Network, Ithaca, NY, presentation.
Penn State Graduate Student Exhibition, University Park, PA, poster.
- 2009 **Entomological Society of America** Annual Meeting: Chemical Ecology and Plant Defense, Indianapolis, IN, presentation.
Ecological Society of America Mid-Atlantic Chapter Annual Meeting, Ewing, NJ, presentation.
- 2008 **International Society for Chemical Ecology** Annual Meeting, University Park, PA, poster.
- 2007 **Entomological Society of America** Annual Meeting, Plant Disease, Behavior, and Ecology, San Diego, CA, poster.

Teaching Experience

At UC Riverside, Riverside CA

ENTM060W: Scicomm: Exploring Effective Communication Strategies in the Life Sciences (Fall 2019, 50%, enrollment: 30 students). *Used iterative assignments, activities, self-assessments, and peer-review to teach life-science majors how to read and interpret research articles and translate them into accessible popular science pieces. Course is a discipline-specific substitute for ENGL 001C, a required undergraduate writing course at UCR.*

ENTM010: Insect Natural History (Spring 2018/2019 100% average enrollment 165/300 students). *Used active learning and real-life demonstrations to teach non-science majors about insects.*

BIOL 005A: Cell & Molecular Biology (Spring 2017, Winter 2018/2019 50%, Winter 2018 50% average enrollment 400 students). *I prepared for this course through a ten-week workshop in course transformation. Subsequently, I developed an active-learning based lecture and activity series to engage life sciences majors in their first general biology course.*

ENTM 252: Seminar in Insect Behavior (Spring annually 50% - average enrollment 5-10 graduate students)

ENTM 251: Seminar in Plant-Insect Interactions (Winter annually 50%, Winter 2018 50% - average enrollment 5-10 graduate students)

BIOL 002: Introduction to Cell and Molecular Biology (non-majors) (Fall 2016 20% - average enrollment 250 undergraduate students)

At the ETH Zürich in Zürich, Switzerland

Plant Volatiles in Plant-Insect Interactions (Fall 2015 - 30% - average enrollment 5 undergraduate students). *I worked as part of a team with two other post-doctoral researchers to develop an intensive laboratory-based short course on plant volatile collection, quantification, and statistical analysis.*

Insects in Agroecosystems (Spring 2014 50%, Spring 2015 50% - average enrollment 30 master's level students)

At The Pennsylvania State University Altoona Campus in Altoona, PA

BIOL 417: Invertebrate Zoology lecture and laboratory (Fall 2008 50% - average enrollment 15 undergraduate students). *Along with one other graduate student, I volunteered to serve as an adjunct professor for this course while the primary instructor was on sabbatical. The course covered invertebrate taxonomy, morphology, and evolution using hands-on demonstrations, writing assignments, and student presentations.*

At The Pennsylvania State University Main Campus in University Park, PA

ENT 316: Field Crop Entomology (Spring 2008 50% - average enrollment 14 undergraduate students).

ENT 313: Introduction to Entomology Laboratory Section (Spring 2007 100% - average enrollment 18 undergraduate students).

Outreach

Insects are the Best! (2019) – Hands-on presentation with live insects for UC Riverside Early Childhood Development Center.

UC Riverside Insect Fair (2018) – worked with my laboratory to design an educational booth on insect chemical ecology for the annual insect fair (approximately 12,000 attendees).

Presentation and Laboratory Tour (2018) – UC Riverside Board of Trustees – delivered an overview of research activities and interactive, hands-on laboratory tour to showcase research in the Department of Entomology at UCR.

JUMP Program seminar series (2017) – invited to advise incoming graduate students on time management in graduate school.

Undergraduate Research Seminar (2017) – invited to present on research opportunities in the field of entomology to students in the UCR PERSIST program.

Freshman Learning Community Seminar (2017) – invited to present on pathways to becoming a scientist studying entomology.

UC Riverside Annual Insect Fair, Riverside, CA (2017)

Girls Excelling in Math and Science (GEMS) program participant, UC Riverside (2016)

Display presenter for “Forschung Live” interactive museum outreach event, ETH Zürich Entomological Collection, Zürich, Switzerland (2015)

Display presenter/logistics coordinator for “The Smell Lab” interactive display, World Science Festival, New York, NY (2012)

Organizer & Zoo Coordinator, Annual Great Insect Fair, Penn State University (2008-2011)

Display presenter, Penn State BioDays/Exploration Days Festival, Penn State University (2007, 2009, 2010)

Camp leader/instructor, Bug Camp for Kids (2008-2009) and Advanced Bug Camp for Kids (2010), Penn State University

Display presenter, Penn State Women in Science and Engineering (WISE) Camp, Penn State University (2007-2009)

Display presenter, Library Outreach Program – “Catch the Reading Bug”, various locations, PA (2008)

Presentations at Extension Meetings

2019 – “Developing sustainable solutions for plant virus and insect vector control in melons.” California Melon Research Board – *Presented an update on research to improve virus tolerance in melons through external application of plant hormone mimics.*

2018 - “Research Overview” California Melon Research Board - *Presented information on my research program and background as part of my new role as the UC Liaison to the California Melon Research Board.*

2009 - “Management Strategies for Cucurbit Viruses: Risks, Benefits, and Modes of Action” Mid-Atlantic Fruit and Vegetable Growers Convention, Hershey, PA, presentation.

Media Contact

Popular Press Coverage of Research

Science: Editors Choice. A quick sniff and she's off. February 29, 2010.

Nature: Research Highlights. Aphid deception. February 10, 2010.

Wired Science: Plant virus tricks teach evolutionary pest management. February 2, 2010.

Penn State Live: Newswire Virus pulls bait and switch on insect vectors. February 1, 2010.

ScienceNews: Virus makes plants lie to insects. January 16, 2010.

Service:

Societies

Pacific Branch of the Entomological Society of America - *Operations Coordinator for the 2017 Annual Meeting. Organized all electronic equipment and student volunteers. Provided technical support for presentation rooms.*

ASM Microbe - Along with Dr. Marilyn Roossinck, I co-organized a symposium on Virus Manipulation of Plants and Insects.

Editor/Reviewer

Associate editor for the Journal of Insect Behavior, guest editor for the Journal of Chemical Ecology and Virus Research

Reviewer for: Scientific Reports, Arthropod-Plant Interactions, Animal Behavior, PLoS One, Entomologia Experimentalis et Applicata, Insect Science, Functional Ecology (BES), Plant Disease (APS), Journal of Virology, Functional Plant Biology, Proceedings of the Royal Society of London B: Biological Sciences, Journal of Economic Entomology (ESA), Environmental Entomology (ESA), Frontiers in Ecology and Evolution, Journal of Chemical Ecology (ISCE), Applied and Environmental Microbiology, PNAS, Plant Health Progress

Public

UC Liaison to the California Melon Research Board - *I oversee the administration of the call for proposals, the review process, and the summarizing of reviewer comments into a technical recommendation for the California Melon Research Board.*

State, National, and International Agencies

Panel member: 2018 AFRI-NIFA Foundational Program. Pests and Beneficials.

Panel member: 2017 AFRI-NIFA ELI Fellowship program.

Ad-hoc reviewer for NSF DEB (2017).

Institutional

Faculty representative to the HUB (student union) governing board.

Judge for the UC Riverside Undergraduate Student Research Symposium

Reviewer for Undergraduate Student Mini-Grant program (UCR College of Agricultural and Natural Sciences).

Seminar Committee - Coordinate seminar speaker schedules and invites.

Teaching Committee - Provide external review of colleague's teaching through observations.

Search Committee - Subtropical Tree Fruit IPM Assistant Cooperative Extension Specialist.