

ELIZABETH DAVIDSON-LOWE, PHD

US Vegetable Lab
Charleston, SC 29414
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EDUCATION

The Pennsylvania State University, University Park PA PhD, Entomology	2021
Michigan State University, East Lansing MI MSc, Entomology	2016
Cornell University, Ithaca NY BSc, Natural Resources	2014
Phoenix College, Phoenix AZ ASc, General Studies with Honors	2012

GRANTS AWARDED

USDA-NIFA Pre-Doctoral Fellowship: Microbe Management – How cover-crop facilitated effects on arbuscular mycorrhizal fungi impact resistance against multiple pests of corn. <i>Award value: \$120,000</i>	2019
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OTHER AWARDS AND RECOGNITION

Michael E. Duke Memorial Scholarship in Entomology	2020
Ralph O. Mumma Graduate Award	2019
Tag-Along Award	2018
Dr. Zane Smilowitz Endowment for Student Excellence	2018
Vartkes Moriyani Memorial Award	2017
Academic Achievement Graduate Assistantship	2014-2015
Ray & Bernice Hutson Memorial Entomology Endowment Travel Grant	2014, 2015
Rhodes (Gene) Thompson Memorial Fellowship	2014
Thomas Wight McConkey Scholarship	2013-2014
Ruth H. Keen Scholarship	2012-2014
Francis M. & Fred E. Winch Scholarship	2012-2014
S-STEM Scholarship	2011-2012
Honors Achievement Award	2011-2012
Wilma Ulrick Memorial Scholarship	2011
Maricopa Grant	2009

PUBLICATIONS

Davidson-Lowe E, Zainuddin N, Ali JG (*In prep*). Consequences of AMF colonization on belowground multitrophic interactions between maize, root herbivores, and entomopathogenic nematodes.

Jones AG, **Davidson-Lowe E**, Hermann SL, Hoover K, Felton G (*In prep*). Natural enemy modulation of plant defenses: Mutualism, manipulation, or mistaken identity?. *Ecology Letters*.

Davidson-Lowe E, Swayamjit R, Murrell E, Kaye J, Ali JG (2021). Cover crop soil legacies alter phytochemistry and resistance to fall armyworm (Lepidoptera: Noctuidae) in maize, *Environmental Entomology*. <https://doi.org/10.1093/ee/nvab047>

Davidson-Lowe E & Ali JG (2021). Herbivore-induced plant volatiles mediate behavioral interactions between a leaf-chewing and a phloem-feeding herbivore. *Basic and Applied Ecology*, 53, 39–48. <https://doi.org/https://doi.org/10.1016/j.baae.2021.03.005>

Ray S, Helms AM, Matulis N, **Davidson-Lowe E**, Grisales W, Ali JG (2020). Asymmetry in herbivore effector responses: caterpillar frass effectors reduce performance of a subsequent herbivore. *Journal of Chemical Ecology*, 46: 76-83. <https://doi.org/10.1007/s10886-019-01131-y>

Davidson-Lowe E, Szendrei Z, Ali JG (2019). Asymmetric effects of a leaf-chewing herbivore on aphid population growth. *Ecological Entomology*. 44: 81-92. <https://doi.org/10.1111/een.12681>

Hermann SL, Xue S, Rowe L, **Davidson-Lowe E**, Myers A, Eshchanov B, Bahlai CA (2016). Thermally moderated firefly activity is delayed by precipitation extremes. *Royal Society Open Science*, 3(12). <https://doi.org/10.1098/rsos.160712>

Ali JG & **Davidson-Lowe E** (2015). Plant cues and factors influencing the behaviour of beneficial nematodes as a belowground indirect defense. In H. Bais & J. Sherrier (Eds.), *Plant Microbe Interactions* (pp. 191-214). <https://doi.org/10.1016/bs.abr.2015.08.003>

RESEARCH EXPERIENCE

USDA-ARS Vegetable Lab, *Charleston SC*

ORISE Postdoctoral Researcher

2021 - present

PI: Dr. Alvin Simmons

The Pennsylvania State University, *University Park PA*

Graduate Research Assistant

2016 - 2021

PI: Dr. Jared Ali

Michigan State University, *East Lansing MI*

Graduate Research Assistant

2014 - 2016

PI: Dr. Jared Ali

Cornell University, *Ithaca NY*

Research Technician

2013 - 2014

PI: Dr. Jennifer Thaler

Cornell University, *Ithaca NY*

Research Technician

2013 - 2014

PI: Dr. Anurag Agrawal

Cornell University, *Ithaca NY*

Laboratory Assistant

2012 - 2014

PI: Dr. Jed Sparks

Phoenix College, *Phoenix AZ*

Undergraduate Honors Project

2012

PI: Dr. Ed Ong

RELEVANT TRAINING

PR Statistics, *Virtual***Meta-analysis in Ecology, Evolution and Environmental Sciences** 2020The Pennsylvania State University, *University Park PA***International Short Course in Insect Chemical Ecology** 2017

TEACHING EXPERIENCE

The Pennsylvania State University, *University Park PA***Graduate Teaching Assistant: ENT316 Introduction to Entomology** 2019The Pennsylvania State University, *University Park PA***Graduate Teaching Assistant: ENT313 Field Crops Entomology** 2019The Pennsylvania State University, *University Park PA***Graduate Teaching Assistant: ENT2020 The Insect Connection** 2017Michigan State University, *East Lansing MI***Graduate Teaching Assistant: ISB201L Insects, Globalization and Sustainability** 2015Phoenix College, *Phoenix AZ***Undergraduate Teaching Assistant: MAT120 Intermediate Algebra** 2012Phoenix College, *Phoenix AZ***Undergraduate Tutor: Department of Mathematics** 2011 – 2012

RELEVANT TRAINING

The Pennsylvania State University, *University Park PA***Graduate Student Online Teaching Certificate** 2019The Pennsylvania State University, *University Park PA***Schreyer Institute Course in College Teaching** 2018

RESEARCH PRESENTATIONS

INVITED PRESENTATIONS

Davidson-Lowe E, Zainuddin N, Ali JG (2020). Opening a can of worms: Do AMF alter belowground interactions between plants, root herbivores, and their natural enemies? *Annual Meeting of the Entomological Society of America*. Virtual.

Davidson-Lowe E, Jones AG, Hermann S, Hoover K, Felton G (2020). Mutualism, manipulation, or mistaken identity: Natural enemy modulation of plant defenses and multitrophic effects. *Annual Meeting of the Entomological Society of America*. Virtual.

Davidson-Lowe E, Ray S, Murrell E, & Ali JG (2018). Cover-crop facilitated effects on arbuscular mycorrhizal fungi impacts resistance to herbivores from multiple feeding guilds. *Annual Meeting of the Entomological Society of America*. Vancouver, BC.

SUBMITTED PRESENTATIONS

- Davidson-Lowe E, Olaniyi O, Harty T, Andreason S, & Simmons A (2021).** Effects of selected biopesticides on the whitefly *Bemisia tabaci* and its natural enemies. *Annual meeting of the Entomological Society of America*. Virtual.
- Davidson-Lowe E, Ali JG, & Simmons A (2021).** Plant-herbivore communication: Chemical signaling in agroecology. *Annual meeting of the South Carolina Entomological Society*. Virtual.
- Davidson-Lowe E, Ray S, Murrell E, Kaye J & Ali JG (2019).** Managing herbivore attraction through cascading interactions between cover crops, AMF, and plant volatiles in maize. *Annual Meeting of the International Society of Chemical Ecology*. Atlanta GA.
- Davidson-Lowe E & Ali JG (2015).** Herbivore-induced responses mediate feeding guild interactions in potato (*Solanum tuberosum* L.). *Annual Meeting of the Entomological Society of America*. Minneapolis, MN.

POSTER PRESENTATIONS

- Davidson-Lowe E, Ray S, Murrell E, Kaye J & Ali JG (2019).** Cover crop legacies alter AMF colonization and resistance to chewing herbivores in maize. *Annual Meeting of the Entomological Society of America*. St. Louis, MS
- Davidson-Lowe E, Ray S, Murrell E, Kaye J & Ali JG (2019).** Cover crop legacies alter subsequent AMF colonization and herbivore resistance in maize. *Gordon Research (Conference) for Plant-Herbivore Interactions*. Ventura, CA.
- Davidson-Lowe E, Ray S, Murrell E, Kaye J & Ali JG (2019).** Cover crop legacies alter subsequent AMF colonization and herbivore resistance in maize. *Gordon Research (Seminar) for Plant-Herbivore Interactions*. Ventura, CA.
- Davidson-Lowe E, Ray S, Ali JG (2018).** Arbuscular mycorrhizal associations impact plant resistance to a belowground feeding herbivore. *Annual Meeting of the International Society of Chemical Ecology*. Budapest, Hungary.
- Davidson-Lowe E, Ray S, Ali JG (2018).** Impact of mycorrhizal associations on plant resistance to a belowground feeding herbivore. *21st Biennial Penn State Plant Biology Symposium: Wild and Tamed Phytobiomes*. University Park, PA.
- Davidson-Lowe E & Ali JG (2017).** Herbivore induced responses in *Solanum tuberosum* mediate interactions between herbivores from different feeding guilds. *BExME Behavioral Ecology and Experimental Methods Workshop*. University Park, PA.
- Davidson-Lowe E & Ali JG (2017).** Herbivore induced responses in *Solanum tuberosum* mediate interactions between herbivores from different feeding guilds. *Gordon Research (Conference) for Plant-Herbivore Interactions*. Ventura, CA.
- Davidson-Lowe E & Ali JG (2017).** Herbivore induced responses in *Solanum tuberosum* mediate interactions between herbivores from different feeding guilds. *Gordon Research (Seminar) for Plant-Herbivore Interactions*. Ventura, CA.

Davidson-Lowe E & Ali JG (2015). Plant induced responses mediate interactions between herbivores from different feeding guilds. *Kellogg Biological Station LTER Annual All Scientist Meeting*. East Lansing, MI.

EXTENSION PRESENTATIONS

Davidson-Lowe E, Ray S, Murrell E, Kaye J & Ali JG (2019). Cover crop legacies alter subsequent AMF colonization and herbivore resistance in maize. *Russell E Larson Agricultural Research Center*. Rock Springs, PA.

PROFESSIONAL SERVICE

Secretary – <i>South Carolina Entomological Society</i>	2021
Reviewer – <i>Trends in Plant Science</i>	2021
Symposium Organizer – <i>The Entomological Society of America: Mutualism, Manipulation or Mistaken Identity – Natural Enemy Modulation of Plant Defenses and Multitrophic Effects</i>	2020
Reviewer - <i>Oecologia</i>	2020
Reviewer - <i>Bulletin for Environmental Entomology</i>	2019
Symposium Organizer - <i>The Entomological Society of America: The Dirt on Plant-Insect Interactions</i>	2018
Reviewer - <i>Environmental Entomology</i>	2017
Co-reviewer - <i>The New Phytologist</i>	2016, 2019, 2020

OUTREACH

Outreach volunteer – <i>The Great Insect Fair, The Pennsylvania State University</i>	2016, 2018, 2019
Camp Leader – <i>Bug Camp, The Pennsylvania State University</i>	2017, 2018
Outreach Volunteer – <i>Bee Palooza, Michigan State University</i>	2016
Volunteer – <i>Student Organic Farm, Michigan State University</i>	2016

MEMBERSHIPS

The International Society of Chemical Ecology
 Entomological Society of America
 South Carolina Entomological Society