

Matthew Elliott O'Neal

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EDUCATION

Ph.D. Michigan State University, Entomology, 2002.

M.S. University of Illinois, Entomology, 1998.

PROFESSIONAL EXPERIENCE

July, 2019

Professor,

**Dept. of Entomology, Iowa
State University.**

2010-June 2019

Associate Professor

2004-2010

Assistant Professor
Soybean Entomology
Department of Entomology
Iowa State University

March 2003 to March 2004

Post Doctoral Research
Associate
Dr. Rufus Isaacs, Supervisor
Department of Entomology
Michigan State University

October 2002 to March 2003

Post Doctoral Research
Associate
Dr. Douglas Landis, Supervisor
Department of Entomology
Michigan State University

August 1998 to October 2002

C.S. Mott Ph.D. Fellow
Department of Entomology
Michigan State University

- Developing pest management programs that are economically and environmentally sustainable for soybean production by exploiting pest interactions with their host-plant and natural enemies within a landscape context.
- Create best practices for conserving pollinators within an agricultural landscape.
- Developing ecologically sustainable insect pest management programs for soybean with a focus on the impact of chemical, biological and agronomic practices for soybean aphid (*Aphis glycines*) Matsumura (Hemiptera: Aphididae) management
- Program chair for the Graduate Program in Sustainable Agriculture at ISU, an interdepartmental program that provides MS and PhD training to students in four colleges and 22 departments.
- Conducted research within blueberry production systems undergoing transition from broad-spectrum insecticides to more selective insecticides that incorporate IPM-based management strategies. Focused on non-target impacts on natural enemies and native pollinators.
- Investigated the behavioral basis for the resistance of western corn rootworm to crop rotation.
- Studied predator, parasitoid and host plant interactions that affect soybean aphid establishment and population growth.
- Studied the spread of rotation-resistant corn rootworms and risk to growers in Michigan. Evaluated assays for the identification of rotation-resistant western corn rootworms,

Research activities

Dr. Chris DiFonzo and
Dr. Douglas Landis,
Co-Advisors

and characterized the role of corn phenology in the oviposition by rootworms in soybeans.

- Provided extension services to growers in need of information for western corn rootworm. Evaluated performance and measured emergence of adult corn rootworms from seed-treated corn.

January 1996 to August 1998

M.S. Graduate Research
Assistant
Department of Entomology
University of Illinois
Dr. Mike Gray, Advisor

- Studied the failure of crop rotation to protect corn from western corn rootworms. Developed an economic threshold for predicting injury to rotated corn by monitoring western corn rootworm in soybean fields.

B.S. University of Illinois, Honors Biology, 1992.

Service to Professional Societies

Entomological Society of America.

- Member, 1996-present.
- Chair, Student Affairs Committee – 2003.
- Vice-chair, Student Affairs Committee – 2002.

North Central Branch, ESA.

- Member, 1996-present.
- Chair, Student Affairs Committee, 2001-2002.
- Vice-chair, Student Affairs Committee, 2000-2001
- Student Awards Committee, 2004- present, Co-chair 2005-present
- Advisor, Iowa State University, Linnaean Games Team, 2005.
- Executive Committee, Member-at-Large, 2008-2011
- Program Chair for 2014 meeting.

Kansas Entomological Society/Central States Entomological Society

President, 2008.

Multistate Research Project: S1055, “Biology, impact, and management of soybean insect pests in soybean production systems”.

- State Representative since 2005.
- Committee Chair, 2008.

Multistate Research Project: NCERA125, “Biological Control of Arthropods and Weeds”. State Representative since 2004,

Committee Secretary, host for annual meeting 2006, Committee Chair, 2007.

Subject Editor- The Canadian Entomologist (2014-2018).

Service as External Reviewer for Federal Granting agencies:

I have served on panels for USDA-NIFA (most recently in January 2017), USDA-IPM national programs, 1890 Land-Grant Institutions, and regional USDA-IPM centers, for a total of nine since 2008.

Served on NIFA- Pollinator grant review panel in 2018, 2019.

Served as an ad-hoc reviewer for USDA National Program 305 proposals (October 2019)

Peer Reviewer for the following journals

Agronomy Journal	Environmental Entomology	
Biocontrol	Florida Entomologist	Pest Management Science
BioEnergy Research	Great Lakes Entomologist	PLoS ONE
Biological Control	Insect Conservation and Diversity	Weed Science
Bulletin of Entomological Research	International Journal of Molecular Sciences	
Canadian Entomologist	Journal of Economic Entomology	
Crop Science	Journal of Applied Microbiology	
Ecology		

AWARDS & SCHOLARSHIPS

- 2018 ISU College of Agriculture and Life Sciences Research Team award for the STRIPS project.
- 2018 International IPM Award of Excellence: North Central Soybean Entomology Research and Extension Team.
- 2012 NCB-ESA Educational Project Award: Field Guide, Soybean aphid management, 2nd edition (E. Hodgson, M. O’Neal, A. Sisson, and D. Wright)
- 2011 Prignitz, B., and 27 others including M. O’Neal. Team Achievement Award for the Crop Advantage Series, Presented at the ADVANCE 2011 Leadership Summit, Iowa State University Extension.
- 2010 YouTube Your Entomology (The Stinger award), Instruction Category, Entomological Society of America
(www.youtube.com/watch?v=mYTA_4tU6Io)
- 2009 M.E. Rice, M.E. O’Neal and D. Wright. “Soybean Aphid Management Guide: 2008” 2009 Entomology Educational Project Awards-Extension Publication, from The Board Certified Entomologists of Mid-America.
- 2007 T. Schultz, M. O’Neal, M. Rice, P. Pedersen, and B. Lang. “Soybean Aphid-2007”. A4 Educational Materials Awards Program-Software Division. 2007 ASA/SSSA/CSSA meeting in New Orleans, Louisiana.
- 2005 Marlin Rice, Matt O’Neal and Palle Pedersen. “Soybean Aphids in Iowa-2005” 2005 Educational Materials Award from the American Society of Agronomy at the 7 November 2005 ASA/SSSA/CSSA meeting in Salt Lake City Utah.
- 2003 R. C. Driesbach Award *for* Outstanding Doctoral Program.
Given by the Department Entomology, Michigan State University
- 2000 Gordon Guyer Award *for* Excellence in Extension.
Given by the Department of Entomology, Michigan State University.
- 1998-2002 C.S. Mott Graduate Fellowship in Sustainable Agriculture.
Granted by the C.S. Mott Chair for Sustainable Agriculture, Michigan State University.
- 1998 W.H. Luckman Award *for* Graduate Research in Insect Pest Management.
Given by the Illinois Natural History Survey.
- 1998 Outstanding / Innovation Program Award *for* “Western Corn Rootworms Adapt to Crop Rotation”.
Given by the Cooperative Extension Service, University of Illinois.
- 1992 High Distinction, University of Illinois.
Awarded by the Biology Distinction Committee, Department of Biology.

1991 Hughes Summer Research Fellowship.
 Granted by the University of Illinois, School of Life Sciences.

RESEARCH GRANTS

Awarded (~\$34.6 million from 57 grants) and Pending

Note: list does not include gifts from various agribusinesses (<\$5000).

When appropriate, I have noted those multi-state grants that had objectives that were solely conducted by me. In these cases, the amount of the grant sent to me is indicated.

\$90,000	2019-2020	Syngenta and BASF, “Estimating the exposure to neonicotinoid residues in pollinator attractive habitat adjacent to corn and soybean fields” O’Neal, Coats, and Bradbury
\$8,000	2019	Syngenta, “Evaluating neonicotinoid seed treatments for soybean aphid management”, O’Neal and Hohenstein.
\$20,000	2019	North Central Integrated Pest Management Program, “IPM4Bees” O’Neal, Cass, and Wu-Smart.
\$1,469,096	2018-2021	North Central Soybean Research Program, “Soybean Entomology in the North Central Region: management and outreach for new and existing pests”. Tilmon, K.J. and 16 other PIs including M. O’Neal. (\$90,000 to O’Neal)
\$898,389	2018-2021	USDA-Foundation for Food and Agriculture Research, “Impact of Prairie on Reducing Interacting Stressors on Pollinator Health.” Schulte-Moore, Bradbury, Dolezal, O’Neal, Toth, and Tyndall.
\$291,103	2017-2020	Iowa Soybean Association, “Extension and research to combat insecticide-resistant soybean aphids”. Hodgson, O’Neal, Coates and Coats.
\$406,000	2017-2019	Bayer Crop Science and Syngenta, “Estimating the exposure to neonicotinoid residue in pollinator-attractive habitat adjacent to corn and soybean fields.” O’Neal, Coats, Bradbury, and Toth.
\$999,317	2017-2019	USDA-AFRI, “Combining Crop Production and Conservation for Improved Bee Health.” Toth, A.L, M.E. O’Neal, E.W. Hodgson, and A.G. Dolezal.
\$1,471,133 (\$145,000 to O’Neal)	2016-2018	North Central Soybean Research Program, “Soybean Entomology in the North Central Region: management and outreach for new and existing pests”. Tilmon, K.J. and 16 other PIs including M. O’Neal.
\$823,860 (\$81,512 to O’Neal)	2016-2017	USDA Area Wide Management Program, “Integrated area-wide management of soybean aphid with biological control introductions and host plant resistance”. Hopper, G. E. Heimpel, A.P. Michel, M.E. O’Neal,
\$127,248	2015 – 2018	North Central Region- Sustainable Agriculture Research and Education, “Protecting soybeans from aphids, as easy as (Rag) 1, 2, and 3.”. Hodgson and O’Neal.
\$539,913	2015 – 2018	Monsanto Insect Knowledge Grant, “Extending durability of aphid-resistance by understanding the mechanisms of virulence to Rag-genes in soybeans.” O’Neal, Michel and Bansal.

Research activities

\$103,626	2015-2017	Leopold Center for Sustainable Agriculture, “Impacts of Landscape Diversity and Farming Practices on the Abundance and Health of Bee Pollinators”, Toth, A., A. Dolezal, M. O’Neal, E. Hodgson.
\$200,000	2014-2015	United Soybean Board, “Do soybeans benefit from honey bee pollination (and vice-versa)?”, O’Neal, M, A. Toth, and A. Dolezal.
\$2,127,000 (\$90,000 to O’Neal)	2012-2016	North Central Soybean Research Program, “Soybean Aphid management, resistance, and outreach in the north central region”, K. Tilmon and 25 collaborators (including M. O’Neal)
\$87,473	2012-2014	Leopold Center for Sustainable Agriculture, “Attracting pollinators and natural enemies to add value to Iowa agriculture”. O’Neal, M.E. and M. Gleason
\$188,370	2012-2014	Pioneer, “Survey of soybean insect pollinators: Community identification and sampling method analysis”, O’Neal, M.
\$13,213	2011	Pioneer, “Soybean insect pollinators”. O’Neal, M.
\$11,500	2011	Monsanto, “Evaluating soybean aphid resistant soybeans”. O’Neal, M.
\$116,947	2012-2014	Iowa Soybean Association, “Japanese beetle and brown marmorated stink bug: new threats to soybean yield.” O’Neal, M.E., E. Hodgson and R. Jurenka.
\$339,414	2012-2014	Iowa Soybean Association, “Exploring soybean aphid and soybean cyst nematode interactions for improved integrated management in Iowa.” O’Neal, M.E., G. Tylka, G. MacIntosh, E. Hodgson and M. McCarville.
\$250,000	2011-2012	PSI-Phase II award “Virus-Insect interactions” Bonning and Miller (lead PIs); \$62,841 to O’Neal.
\$20,000,000	2011-2016	USDA-NIFA, “Climate Change, Mitigation, and Adaptation in Corn-based Cropping Systems.” Lois Wright Morton (lead PI) et al. (41 co-PIs).
\$95,000	2010-2011	Bayer CropScience, “Evaluation of Spirotetramat as a reduced-risk insecticide.” O’Neal, M.E.
\$117,411	2010-2012	Iowa Soybean Association. “Testing Rag1 and Rag2 alone and together: Is one enough? .” O’Neal, M.E. , and E. Hodgson/
\$499,952	2010-2013	USDA-AFRI- Biology of Weedy and Invasive Species in Agroecosystems. “Common buckthorn as a keystone invader in agricultural landscapes.” Gardiner, M., D. Landis, A.P. Michel, M.E. O’Neal , and D P. Lusch.
\$107,720	2010-2012	Iowa Soybean Association. “Extension and Research to facilitate the incorporation of soybean-aphid resistant varieties into Iowa crop production.” O’Neal, M.E. , E. Hodgson, and A. Gassmann.
\$499,949	2009-2012	USDA-AFRI- Managed Ecosystems. “Biocomplexity of integrated perennial-annual agroecosystems.” Asbjornsen, H., M. Helmers, M. Liebman, M. O’Neal et. al.

Research activities

\$440,000	2009-2012	North Central Soybean Research Program. "Soybean Aphid: management, biocontrol, and host plant resistance". Ragsdale, D. et al. (O'Neal one of 15 co-PI's from 11 states)
\$75,000	2009-2012	Leopold Center for Sustainable Agriculture. "Optimizing buffer strips for improved ecosystem services." O'Neal, M.E. , and L.A. Schulte
\$174,819	2009-2012	North Central Sustainable Agriculture Research and Education. "Mixing reconstructed prairie with cropland to balance food and biofuel production with environmental quality." Asbornjsen, H. and M Helmers (O'Neal Participant).
\$12,000	2009-2010	Syngenta. "Soybean Aphid Management." M.E. O'Neal
\$17,250	2009	Monsanto. "Soybean Aphid Management Study." O'Neal, M.E.
\$5,750	2009	Monsanto. "Soybean Aphid Biotype Summer Study." O'Neal, M.E.
\$317,020	2009-2011	Iowa Soybean Association. "Optimizing pest management in soybeans." A. Robertson and M.E. O'Neal .
\$103,955	2008-2010	Iowa Soybean Association. "Releasing <i>Binodoxys communis</i> for soybean aphid suppression: delivering on the promise." M.E. O'Neal
\$300,326	2008-2010	Iowa Soybean Association. "Determining the impact of multiple pests on soybean yield and grain composition." MacIntosh, G., M.E. O'Neal , G. Tylka, P. Pedersen, and F. Avendano.
\$153,251	2008-2010	Iowa Soybean Association. "Aspects of integrated management for viruses and Phomopsis infection in soybean." Munkvold, G., J. Hill, A. Robertson, M.E. O'Neal , P. Pedersen and J. Bradshaw.
\$5750	2008	Monsanto. "Soybean aphid biotype study." O'Neal, M.E.
\$9,510	2008	North Central IPM Mini Grant. "Assessing the status of buffer zones in organic production: Is there room for improvement?" O'Neal, M.E. , and S. Sapp.
\$120,000	2007-2009	Iowa Soybean Association. "Refining soybean aphid economic thresholds." O'Neal, M.E.
\$200,000	2006-2008	North Central Soybean Research Program. "Soybean Aphid Management in the North Central States." Ragsdale et al (~15 co-PI's), \$67,689 contracted to M.E. O'Neal
\$67,748	2006-2008	Iowa Soybean Association. "Developing best management practices for soybean aphid control." O'Neal, M.E.
\$231,030	2006-2008	Iowa Soybean Association. "Investigations of interactions between the soybean aphid and soybean cyst nematode." G. Tylka and M.E. O'Neal
\$4,595	2006-2007	COA/PFI On-farm Research and Demonstration Program. "Diversifying the Iowa Farm Landscape for Improved Pest Management." O'Neal, M.E. and R. Hartman.

Research activities

\$71,210	2006-2007	Leopold Center for Sustainable Agriculture. "The Impact of Biodiversity Services in Rowcrop Production in Annual versus Perennial Landscapes." O'Neal, M.E. and L. Schulte.
\$652,217	2005-2007	North Central Soybean Research Program, Robert O'Neil et al. (12 co-PI's across 6 States) "Biological Control of the Soybean Aphid." \$127,770 contracted to M.E. O'Neal
\$46,200	2005-2006	Leopold Center for Sustainable Agriculture. "Living Mulch Research and Demonstration." O'Neal, M.E. and J. Singer.
\$1,005,050	2005-2007	USDA-RAMP, "Soybean aphid in north central US: implementing IPM at the landscape scale." Landis, D.A., et al. \$110,000 contracted to M.E. O'Neal
\$105,000	2004-2006	Iowa Soybean Promotion Board. "Combining soybean aphid and bean leaf beetle management for Iowan soybean production." O'Neal, M.E. , M. Rice, and P. Pedersen.
\$45,100	2003	USDA APHIS PPQ pre-proposal. "Interaction of predators and parasitoids in soybean aphid biological control." Landis, D.A., A. Costamagna, M.E. O'Neal , and M. Brewer.
\$54,000	2003	MSU Sustainable Agriculture, "Do predation and host plant quality interact to regulate soybean aphid?" Landis, D.A., K. Thelen, C. DiFonzo, M.E. O'Neal , A. Costamangna.
\$156,000	2001	USDA-NRI, Entomology and Nematology "Is corn phenology causing crop rotation's failure to manage western corn rootworm?" Landis, D.A., M.E. O'Neal , J.R. Miller, and C.D. DiFonzo.
\$35,000	2001	Project GREEN. "Use of microelectronics to develop an advanced harmonic radar system for tracking insects in Michigan agroecosystems." Landis, D.A., E. Rothwell, D. Reinhard, L. Kempel, M.E. O'Neal , and J.R. Miller.
\$8,500	2001	Corn Marketing Program of Michigan. "Quantifying the impact of rotation resistant rootworms to Michigan corn production." O'Neal, M.E. and C.D. DiFonzo.
\$8,000	1999	Corn Marketing Program of Michigan "Evaluating the efficacy of rotated corn in the face of changing corn rootworm behavior." DiFonzo, C.D., M.E. O'Neal , and D.A. Landis.
\$20,000	1999	Project GREEN. "Western corn rootworms in first-year corn: preparing growers for a new threat." O'Neal, M.E. , C.D. DiFonzo, and D.A. Landis.
\$8,000	1998	Corn Marketing Program of Michigan. "Rotation-resistant corn rootworm: thresholds and movement in Michigan corn production." DiFonzo, C.D., M.E. O'Neal , and D.A. Landis.
\$20,000	1998	Project GREEN. "Western corn rootworms in first-year corn: preparing growers for a new threat." O'Neal, M.E. , C.D. DiFonzo, and D.A. Landis.

Research activities

\$1,500	1998	Professor Hutson Awards for Graduate Research. “Western corn rootworm (<i>Diabrotica virgifera virgifera</i>) orientation between corn and soybean fields: unlocking the secrets of a behavioral resistance to crop rotation.” O’Neal, M.E. “
\$2,200	1993	U.S. Peace Corps Small Project Assistance Grant. “Small scale apiaries in community collaborative forestry initiative nurseries.” O’Neal, M.E.

Industry Sponsored Research

From 2004-2010, I organized an insecticide evaluation program focused on soybean aphid management. This is supported in part by small (>\$10,000) grants and gifts from Agribusiness. These include BASF Corp., Bayer Crop Science, Cheminova, Dow AgroSciences, FMC Corp., PQ Corp., Syngenta Crop Protection Inc., United Phosphorus Inc., and Valent. As of 2010, I received \$119,050 from a total of 24 individual gifts. Each year products tested within this program were evaluated at research stations throughout Iowa. Beginning in 2010, this program was transferred to Dr. Erin Hodgson. The results are shared with colleagues in extension, presented in at meetings throughout the Midwest and posted on line at www.soybeanaphid.info.

PUBLICATIONS**Patents**

U.S. Patent No. 9,700,052 (Jurenka and O'Neal)

Title: "Methods and Compositions Comprising Steroid Honey bee Feeding Inhibitors"

Issued: July 11, 2017

Description: The present invention relates to the use of novel honey bee feeding inhibitors to prevent honey bees from foraging on crops treated with an insecticide, fungicide, pesticide or other pest control system comprising the same. The feeding inhibitor keeps the bees off flowers and plants that were recently sprayed with the same and prevents the pest control system from adversely affecting honey bee colonies. Compositions including a pesticide, fungicide or insecticide with the feeding inhibitor of the invention are also disclosed as well as the use of the same in managing crop production and honey bee health.

Peer reviewed

- 1) **O'Neal, M.E.**, M.E. Gray, and C.A. Smyth. 1999. Population characteristics of a western corn rootworm (Coleoptera: Chrysomelidae) strain in east-central Illinois corn and soybean fields. *J. Econ. Entomol.* 92 (6): 1301-1310.
- 2) **O'Neal, M.E.**, M.E. Gray, K.L. Steffey, and S.T. Ratcliffe. 2001. Predicting western corn rootworm (Coleoptera: Chrysomelidae) larval injury to rotated corn with Pherocon AM traps in soybeans. *J. Econ. Entomol.* 94: 98-105.
- 3) **O'Neal, M.E.**, C.D. DiFonzo, and D.A. Landis. 2002. Western corn rootworm (Coleoptera: Chrysomelidae) feeding on corn and soybean leaves affected by corn phenology. *Environ. Entomol.* 31: 285-292.
- 4) **O'Neal, M.E.**, D.A. Landis, and R. Isaacs. 2002. An inexpensive, accurate method for measuring leaf area and defoliation through digital image analysis. *J. Econ. Entomol.* 95: 1190-1194.
- 5) **O'Neal, M.E.**, C.D. DiFonzo, D.A. Landis, and D. Meeks. 2002. Monitoring for rotation-resistant *Diabrotica virgifera virgifera* (Coleoptera: Chrysomelidae) in Michigan soybean fields and the pattern of subsequent adult emergence in rotated and continuous cornfields. *Great Lakes Entomol.* Great Lakes Entomol 35: 173-181.
- 6) Onstad, D.W., D.W. Crowder, S.A. Isard, E. Levine, J.L. Spencer, **M.E. O'Neal**, S.T. Ratcliffe, M.E. Gray, L.W. Bledsoe, C.D. DiFonzo, and B. Easley. 2003. Does landscape diversity slow the spread of rotation-resistant western corn rootworm (Coleoptera: Chrysomelidae)? *Environ. Entomol.* 32: 992-1001.
- 7) **O'Neal, M.E.**, D.A. Landis, J.R. Miller and C.D. DiFonzo. 2004. Corn phenology influences *Diabrotica virgifera virgifera* (LeConte, Coleoptera: Chrysomelidae) emigration and visitation to soybean. *Environ. Entomol.* 33: 35-44.

- 8) **O'Neal, M.E.**, E.L. Zontek, Z. Szendrei, D.A. Landis, R. Isaacs. 2005. Ground predator abundance affects prey removal in highbush blueberry (*Vaccinium corymbosum*) fields and is increased by ground covers. *BioControl* 50: 205-222.
- 9) **O'Neal, M.E.**, K.S. Mason, and R. Isaacs. 2005. Seasonal abundance of ground beetles in highbush blueberry (*Vaccinium corymbosum*) fields and response to a reduce-risk insecticide program. *Environ. Entomol.* 34: 378-384.
- 10) **O'Neal, M.E.**, D.A. Landis, E. Rothwell, L. Kempel, and D. Reinhard. 2005. Tracking insects with harmonic radar: a case-study with carabids in annual crop habitats. *Amer. Entomol.* 50: 212-218.
- 11) **O'Neal, M.E.**, J.R. Prasifka, N.P. Schmidt, J.W. Singer, R.L. Hellmich, and K.A. Kohler. 2005. Assessing carabid contribution to ecosystem services: Does it matter if there are more beetles? *Amer. Entomol.* 51(4): 231-233.
- 12) Prasifka, J.R., N.P. Schmidt, K.A. Kohler, **M.E. O'Neal**, R.L. Hellmich, and J.W. Singer. 2006. Effects of living mulches on predator abundance and sentinel prey in a corn-soybean-forage rotation. *Environ. Entomol.* 35: 1423-1431.
- 13) Isaacs, R. Mason, K.S., Brewer, M., Noma, T. and **M.E. O'Neal**, 2006. Does implementation of a selective blueberry insect control program enhance biological control? *IOBC wprs Bulletin* 29 (10), 7-12.
- 14) Song, S.M. Swinton, C. DiFonzo, **M. O'Neal**, and D.W. Ragsdale. Profitability analysis of soybean aphid control treatments in three north central states. Staff Paper 2006-24. On line at <http://krex.k-state.edu/dspace/bitstream/handle/2097/35618/rec132-song-2006.pdf?sequence=1>
- 15) Schmidt, N.P., **M.E. O'Neal**, and J.W. Singer. 2007. Alfalfa living mulch advances biological control of soybean aphid. *Environ. Entomol.* 36: 416-424.
- 16) Cai, L., J.A. Koziel, and **M.E. O'Neal**. 2007. Determination of characteristic odorants from *Harmonia axyridis* beetles using in vivo solid phase microextraction and multidimensional gas chromatography mass spectrometry-olfactometry. *J. Chromatogr. A.* 1147: 66-78.
- 17) Hodgson, E., B.P. McCornack, K.A. Koch, D.W. Ragsdale, Johnson, K.D, **M.E. O'Neal**, E. Cullen, H. Kraiss, C.D. DiFonzo, and L.M. Behnken. 2007. Field validation of Speed Scouting for soybean aphid. Online. *Crop Management* doi:10.1094/CM-2007-0511-01-RS.
- 18) Ragsdale, D., B.P. McCornack, R.C. Venette, B.D. Potter, I.V. Macrae, E.W. Hodgson, **M.E. O'Neal**, K. D. Johnson, R.J. O'Neil, C.D. DiFonzo, T.E. Hunt, P. Glogoza, and E.M. Cullen. 2007. Economic threshold for soybean aphid (Hemiptera: Aphididae). *J. Econ. Entomol.* 100: 1258-1267
- 19) Schmidt, N.P., **M.E. O'Neal** and P.M. Dixon. 2008. Aphidophagous predators in Iowa soybean: a community comparison across multiple years and sampling methods. *Ann. Ent. Soc. Amer.* 101: 341-350.

- 20) Johnson, K.D, **M.E. O’Neal**, J.D. Bradshaw and M.E. Rice. 2008. Is preventative, concurrent management of the soybean aphid (Hemiptera: Aphididae) and bean leaf beetle (Coleoptera: Chrysomelidae) possible? *J. Econ. Entomol.* 101: 801-809
- 21) Schulte, L.A., H. Asbjornsen, R. Atwell, C. Hart, M. Helmers, T. Isenhardt, R. Kolka, M. Liebman, J. Neal, **M.E. O’Neal**, R. Schultz, S. Secchi, J. Thompson, M. Tomer, and J. Tyndall. 2008. Targeted conservation approaches for improving water quality: multiple benefits for expanded opportunities. *PMR 1002*. Iowa State University Extension, Ames IA.
- 22) Gardiner, M.M, D.A. Landis, C. Gratton, C.D. DiFonzo, **M.E. O’Neal**, J.M. Chacon, T.M. Wayo, N.P. Schmidt, E.E. Mueller, and G.E. Heimpel. 2009a. Landscape diversity enhances biological control of an introduced crop pest in the north-central USA. *Ecological Applications*. 19: 143-154.
- 23) Gardiner, M.M, D.A. Landis, C. Gratton, N. Schmidt, **M.E. O’Neal**, E. Mueller, J. Chacon, G.E. Heimpel, and C.D. DiFonzo. 2009b. Landscape composition influences patterns of native and exotic lady beetle abundance. *Diversity and Distributions*. 15: 554-564.
- 24) Ohnesorg, W., Johnson, K.D, and **M.E. O’Neal**. 2009. Impact of reduced-risk insecticides on soybean aphid and associated natural enemies. *J. Econ. Entomol.* 102: 1816-1826.
- 25) Johnson, K.D., **M.E. O’Neal**, D.W. Ragsdale, C.D. DiFonzo, S.M. Swinton, P.M. Dixon, B.D. Potter, E.W. Hodgson, and A.C. Costamagna. 2009. Probability of economical management of soybean aphid (Hemiptera: Aphididae) in North America. *J. Econ. Entomol.* 102: 2101-2108.
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- Gray, M.E., E. Levine, **M.E. O'Neal**, J.L. Spencer, S.A. Isard, and K.L. Steffey. 1999. Crop rotation and western corn rootworm (*Diabrotica virgifera virgifera* LeConte) management: have we lost a pest management tool in the eastern corn belt? pp 155-163. *In*: Proceedings of the Sixth Australasian Applied Entomological Research Conference.
- O'Neal, M.E.**, M.E. Gray, K.L. Steffey, and J. Shaw. 1998. A preliminary threshold for western corn rootworms monitored in soybeans: a new management tool in the protection of first-year corn. p 3-9. *In*: 1998 Proceedings of the Illinois agricultural pesticides conference. Cooperative Extension Service, University of Illinois at Urbana-Champaign.
- O'Neal, M.E.**, M.E. Gray, J. Spencer, and K.L. Steffey. 1997. Western corn rootworm in corn after soybeans: efforts towards an economic threshold. pp 66-72. *In*: 1997 Proceedings of the Illinois agricultural pesticides conference. Cooperative Extension Service, University of Illinois at Urbana-Champaign.

PRESENTATIONS

Moderator/Symposium Organizer

- Program Symposium: “Soybean and Pollinators” **O’Neal, M.E.** and G. Lorenz. Annual meeting of the South Eastern Branch of the Entomological Society of America. Orlando, FL. 4-7 March, 2018.
- Program Symposium: “The interplay of host plant resistance and biological control in pest management”, Harmon, J.P., G.E. Heimpel, **M.E. O’Neal**, and J.A. White. Annual meeting of the North Central Branch of the Entomological Society of America. Indianapolis, IN. 4-7 June 2015.
- Member Symposium: “What are the costs and benefits for neonicotinoid seed treatments in field crops?” **O’Neal, M.E.**, and E.W. Hodgson, moderators and co-organizers. Annual meeting of the National Entomological Society of America. Minneapolis, MN. 15-18 November 2015.
- Program Symposium: “What are the costs and benefits for neonicotinoid seed treatments in field crops?” Hodgson, E.W. and **M. E. O’Neal** co- moderators and co-organizers. Annual meeting of the North Central Branch of the Entomological Society of America. Manhattan, KS. 31 May -3 June 2015.
- Program Symposium: “Pathogen, Insect, and Weed pests of soybeans: integrated management of multiple pests into a single crop”. **O’Neal, M.E.**, Moderator and co-organizer with P. Pedersen and A. Robertson., at the 5th National Integrated Pest Management Symposium 4-6 April 2006. St. Louis, Missouri.

Student Symposium: “Student Debate in Urban Entomology” O’Neal, M.E. and T.E. Reagan, Moderators. Entomological Society of America Annual Meeting. 26-29 October. 2002 Cincinnati, Ohio.

Student Affairs Symposium: “Tubenrope Workshop” Miller, J.R. and **M.E. O’Neal**, Moderators. Entomological Society of America, North Central Branch Meeting, 24-27 March, 2002. East Lansing, Michigan.

Invited Speaker

2020

Ograin conference

National ESA

2019

Fall line capitol

O’Neal, M.E. 2019. “Will conservation be enough to counter the decline of pollinators: lessons from the prairie STRIP project”. Seminar hosted by the Entomology Department at the University of Nebraska, Lincoln NE, March 5, 2018

O’Neal, M.E., J. Giese, and M. Stephenson. 2019. "Birds, pollinators, and other wildlife: New findings from Prairie Strips biodiversity research. 2019 Iowa Water Conference, Ames Iowa, 13 March, 2019. <http://www.aep.iastate.edu/iwc/workshops.html>

Ecological Restoration conference- Palle, Central College

"Is conservation enough to counter pollinator declines in landscapes committed to agriculture: Lessons from the prairie STRIPS project." O’Neal, M.E. Plant Sciences Seminar Series, University of Missouri, 11 September, 2019.

India

Organic seed workshop

ESA St Louis

2018

“Prairie STRIPS, a collaboration that provides more than just forage for bees”. O’Neal, M.E., ESA, Entomological Society of Canada and Entomological Society of British Columbia, Vancouver, Canada. 13 November, 2018. Invited to speak in the P-IE Symposium: Let’s do something! Implementing collaborative solutions for pollinators in the agricultural landscape)

- “Soybean aphids XXVII Brazilian Congress of Entomology and XV Latin American Congress of Entomology. Gramado, Rio Grande do Sul, Brazil. 6 September, 2018.(invited to speak about the soybean aphids ecology and management in the US and to the potential risk to Brazil).
- “Identifying Key Pest management practices for more sustainable soybean production”. **O’Neal, M.E.** Sustainable Agronomy Program hosted by the American Society of Agronomy.
- “Prairie STRIPS project: conserving pollinators and natural enemies.” **O’Neal, M.E.** Wisconsin Prairie STRIPS Second Annual Stakeholder meeting. Madison, WI. 25 June, 2018.
- “Prairie STRIPS project: conserving pollinators and much more.” **O’Neal, M.E.,** L.Schulte Moore, A. Toth and A. Dolezal. Pollinator Workshop hosted by the Pew Charitable Trusts. Washington D.C.. 16 May, 2018.
- “Can we grow soybeans and protect pollinators while managing invasive pests? (A: maybe).” **O’Neal, M.E.,** A. Toth, E. Hodgson, H.P. Hendriksma, A. St Clair, G. Zhang, and A. Dolezal North Central Branch of the Entomological Society of America. Madison, WI. 18-21 March, 2018.
- “Implementing best practices for conserving pollinators in soybeans: what will it help?”, **O’Neal, M.E.,** and A. Dolezal. South Eastern Branch of the Entomological Society of America. Orlando, FL. 4-7 March, 2018.

2017

- “Can Honey bees thrive in Iowa”. **O’Neal, M.E.** Iowa Honey Producers Association Annual Meeting, Oskaloosa IA, November 11, 2017.
- “What buffers can do for farmers: a summary of ten years of prairie strip research.” **O’Neal, M.E.** Minnesota Crop Pest management Short Course, Minneapolis MN, December 13, 2017
- “How adding prairies to field crops delivers multiple ecosystem services, including improved bee health.” **O’Neal, M.E.,** L. Schulte-Moore, A. Toth, A. Dolezal, A. St. Clair and G. Zhang. Bayer CropScience Bee Care Center, Raleigh, NC, October 17, 2017.
- “Conservation is Beautiful: the art of saving insects”. **O’Neal, M.E.,** Exhibition Lecture, University of Iowa Museum of Art, October 26, 2017.
- “10 years of STRIPing at ISU leads to the delivery of multiple ecosystem services”. **O’Neal, M.E.** and L. Schulte-Moore. Department of Entomology Seminar, Iowa State University, Ames, IA, September 25, 2017.
- “Neonicotinoid seed treatment use for soybean aphid: Opportunities and Limitations.”. **O’Neal, M.E.** World Soybean Research Conference, Savannah GA, 11 September, (NOTE: this meeting was cancelled due to a Hurricane that reached Savannah 24 hours before the meeting.)

- “Combing crop production and conservation for improved bee health: what can be learned from Iowa?”, **O’Neal, M.E.** Western Illinois Organic Field Day, Roseville, IL, August 11, 2017.
- “From regulation to production: how do bees impact soybean production (and vice-versa)?”, **O’Neal, M.E.**, A. Toth, A Dolezal, G. Zhang, and A. St. Clair. Annual meeting of the South Eastern Branch of the Entomological Society of America. Memphis, TN. 13 March, 2017.
- “Combining crop production and conservation for improved bee health: what can be learned from Iowa?”. **O’Neal, M.E.** Department of Entomology Seminar, University of Minnesota, March 30, 2017.

2016

- “Managing soybean aphid virulence: can we achieve an evolutionarily stable state within an agroecosystem?” **O’Neal, M.E.** and A.J. Varenhorst. In program symposium, ‘Rapid evolution in insect pests within agroecosystems’, XXV International Congress of Entomology, September 25-30, Orlando, FL, USA.
- “Finding Diversity in a Green Desert: How to conserve the pollinators that use crop fields”. **O’Neal, M.E.** South Dakota Pollinator Workshop, hosted by South Dakota State University Extension, Pierre Regional Extension Center, July 15, 2016.
- “Pollinators in Soybean Fields: What are they good for?” **O’Neal, M.E.**, A. Toth, A. Dolezal, A. St. Clair, and G. Zhang. 71st North Central Branch Meeting, June 5-8, Cleveland, OH.
- “All is not lost: Fitness costs are associated with virulence in a parthenogenetic pest of soybeans, and that’s a really good new.” **O’Neal, M.E.** and A. Varenhorst. 90th Southeastern Branch Meeting, March 13-16, Raleigh, NC.
- “Consequences from agricultural intensification and preventative pest management: an entomological perspective”, **O’Neal, M.E.** The True Cost of America Food. Hosted by the Sustainable Food Trust. 15 April, San Francisco, CA
- “Is there a place (and a value) for pollinator conservation in landscapes dominated by annual crops?” **O’Neal, M.E.** Bi-University Guest Seminar Series (BUGSS) at University of Idaho/Washington State University. April 14, Moscow, ID.
- “Hidden diversity in farm fields: conserving pollinators in a landscape dominated by agriculture”. **O’Neal, M.E.** Pollinator Session of the Delaware Department of Agriculture’s Agriculture Week, January 13, State Fair Grounds, Harrington, DE.
- “Prairie STRIPS: improving water quality and conserving wildlife (especially bees!)”. **O’Neal, M.E.** St. Croix Summit, ‘Resiliency in Action: Communities & Resources’, March 22-23, University of Wisconsin, River Falls, WI. <https://www.stcroixriverassociation.org/event/st-croix-summit-2/>

2015

- “Using the intermediate disturbance hypothesis to inform conservation biological control: where is the middle ground?” **O’Neal, M.**, and T. Heidel-Baker. Annual meeting of the North Central Branch of the Entomological Society of America. Manhattan, KS. 31 May -3 June 2015.
- “Incorporating prairie into cropland: Can conservation improve pest management for pests of annual crops?” **O’Neal, M.**, R. Cox, R. Hessel, L. Schulte-Moore, and M. Helmers. Annual meeting of the National Entomological Society of America. Minneapolis, MN. 15-18 November 2015.
- “Induced susceptibility affects *Aphis glycines* virulence on resistant soybean: Implications for managing this pest in the future.” Varenhorst, A.J., MT. McCarville, and **M. O’Neal**. 2015. Annual meeting of the National Entomological Society of America. Minneapolis, MN. 15-18 November 2015.
- “Do neonicotinoid seed treatments contribute to area-wide suppression of soybean aphids and multicolored Asian lady beetle?” Bahlai, C., W. van Der Werf, L. Hemerik, **M. O’Neal**, and D.A. Landis. Annual meeting of the National Entomological Society of America. Minneapolis, MN. 15-18 November 2015. (Although Dr. Bahlai was listed as the first author, I presented this material at the meeting)
- “The bees of corn and soybean fields of central Iowa: biodiversity within a green desert.” **O’Neal, M.E.** Dow AgriScience National Headquarters. Indianapolis, Indiana. April 20, 2015.
- “**STRIPS- The Movie**”.. Oneota Film Festival, Luther College, Decorah, Iowa. April 25, 2015. (I represented the STRIPS project and this movie at the film festival. After the movie was shown, I was on a panel of sustainability experts that made remarks and took audience questions (N=~75).

2014

- “How the agricultural landscape is used by pollinators and how their abundance and diversity in field crop systems can be improved” **O’Neal, M.E.** 2014.. USDA-sponsored Honey Bee Forage and Nutrition Summit, 20-21 October, Alexandria VA.
- “Is there a place for conservation (and bees) in annual crop production?” **O’Neal, M.E.** Pennsylvania State University Department of Entomology Seminar Series, 24 October, 2014. College Station PA.
- “Can soybean aphids be managed without insecticides?” **O’Neal, M.E.** International Symposium on Biodiversity Conservation for Food Security and Rural Development. Yunnan Agricultural University 13-19 July 2014, Kunming China.
- “Unlocking the Power of the Prairie.” **O’Neal, M.E.**, Lisa Schulte Moore, Matt Helmers, J. Arbuckle, Pauline Drobney, Mary Harris, Randy Kolka, Matt Liebman, Jeri Neal, and John Tyndall. Kansas Rural Committee. 8 November 2014. Manhattan, Kansas.

2013

It was a slow year, I spent a lot of time in the field.

2012

“Is there a place for conservation in annual crop production?” The Ohio State University, Ohio Agriculture Research and Development Center, Wooster, Ohio. Entomology Seminar Series. 12 September, 2012.

“Can conservation improve annual crop production?” Yunnan Agricultural University, Kunming, Yunnan Province, China. 13 August, 2012.

“Insect pollination in soybeans”. 2012 Soybean Breeders’ & Entomologists’ Workshop. St. Louis, MO. 27, February 2012.

“Is one enough?: combining Rag genes improves aphid resistance in soybeans.” 2012 Soybean Breeders’ & Entomologists’ Workshop. St. Louis, MO. 28, February 2012.

2011

“Soybean aphids from 2002 to 2011: Challenges-Approaches-Results”. National Soybean Aphid Summit 11-12 January 2011, Bloomington MN. (Sponsored by the United Soybean Board).

2010

“How should soybean aphid resistance be used?” American Seed Trade Association Annual Meeting, Chicago, IL, 8 December, 2010.

“Do we need to use insecticides with aphid-resistant soybeans? AGMasters Conference, University of Illinois at Urbana-Champaign, Urbana, IL 3 December, 2010.

“At the intersection of bottom-up and top-down: advances in the management of the soybean aphid. Entomology Seminar Series, Kansas State University, Manhattan, KS 12 November, 2010.

“Prairie Strips for Habitat Enhancement and Erosion Control”. Organic Farming Conference, La Crosse, WI. 25-27 February, 2010.

2009

“Integration of HPR into IPM Part 1: soybean aphid resistance performance and use with insecticides”. Annual meeting of the National Entomological Society of America. Indianapolis, IN. 13-16 December 2009.

“Soybean Aphid Management”. North Central Iowa Crop and Land Stewardship Clinic. Iowa Falls, IA. 30 December 2009.

2008

“If I only knew then what I know now: An applied entomologist on the Tenure track.” Student Affairs Symposium: Walking the Entomological Line: Making the Transition from Student to Professional. North Central Branch of the Entomological Society of America meeting, Columbus, OH. 24-27 March 2008.

“Is there a limit to what IPM can contribute to increasing pest pressure in North Central U.S. field crop production?” Program Symposium: At the Forefronts of Entomology. North Central Branch of the Entomological Society of America meeting, Columbus, OH. 24-27 March 2008.

“Insect control in organic row crops” Organic University, Advanced Row Crop Management. Hosted by the Midwest Organic and Sustainable Education Service (MOSES). 21 February 2008.

“Integrated pest management and biocontrol of aphids, spider mites and bean leaf beetle”. Northern Great Plains Soybean IPM Forum. Hosted by the Universities of North Dakota and South Dakota State University, 7-8 February 2008.

2007

“The promise and limitation of seed treatments: Impacts on pest and beneficial arthropods.” Program Symposium: The seed treatment revolution. Annual meeting of the National Entomological Society of America. San Diego, CA. 9-12 December 2007.

“The future of soybean aphid management?” Indiana Certified Crop Advisor Conference, Indianapolis IN. 18-19 December 2007

2006

“At the Intersection of Top-down and Bottom-up: Development of Soybean Aphid IPM”. Seminar presented to the Department of Entomology at Nebraska Lincoln. 17 April 2006.

“Managing the Soybean Aphid in Light of Multiple Sources of Plant Stresses”, presentation as part of the symposium *Interaction between Invasive Species and Plant Stress: Mexican Rice Borer and Soybean Aphid* at the 5th National Integrated Pest Management Symposium at St. Louis, Missouri, Bloomington, IL. 4-6 April 2006.

“Aphids at Risk? Potential Non-target Impacts of a Classical Biological Control Program”. Oral presentation as part of the symposium *Ecology and Management of the Soybean Aphid* at the North Central Branch of the Entomological Society of America meeting, Bloomington, IL. 26-29 March 2006.

“At the Intersection of Top-down and Bottom-up: Development of Soybean Aphid IPM”. Oral presentation as part of the symposium *2006 Symposium: The Young and Promising of NCB-ESA* at the North Central Branch of the Entomological Society of America meeting, Bloomington, IL. 26-29 March 2006.

“The Peace Corps Experience: The Toughest Bug Job You’ll Ever Love”. Oral presentation as part of the symposium *Thinking Outside the Borders: Entomology and the International Experience* at the North Central Branch of the Entomological Society of America meeting, Bloomington, IL. 26-29 March 2006.

“At the Intersection of Top-down and Bottom-up: Development of Soybean Aphid IPM”. Oral presentation as part of the Iowa State University Department of Horticulture weekly seminar series.

2005

- “How to prepare for an interview: perspective from an applied entomologist at a land grant university. Oral presentation at the North Central Branch Entomological Society of America meeting, West Lafayette, Indiana, March 2005.
- “Assessing ground beetle contribution to ecosystem services: Does it matter if there are more ground beetles?” Oral presentation at the North Central Branch Entomological Society of America meeting, West Lafayette, Indiana, March 2005.
- “Variant Corn Rootworm” Member of a Panel discussion of rotation-resistant corn rootworms at the 2005. Commodity Classic, Austin, TX. 24-27 February.

2004

- “Conserving natural enemies in Michigan blueberry fields using multifunctional cover crops. Entomological Society of America, North Central Branch Meeting, 28-31 March 2004. Kansas City, Missouri. Oral presentation in symposium; Conserving natural enemies in urban and agricultural landscapes.

2003

- “Suitability of hand-held harmonic radar technology for mark and recapture studies in field crops.” 23 March 2003. Seminar presented at the Pacific Branch Meeting of the ESA, as part of the Symposium entitled, “Techniques for Marking Insects for Dispersal Studies.”
- “From research to recommendations: the failure of crop rotation to manage western corn rootworms.” 16 December 2002. Seminar presented to the Department of Entomology, University of Wisconsin-Madison.
- “The loss of crop rotation as a management tool for western corn rootworm.” 12 December 2002. Weekly seminar series for the Michigan Sustainable Agriculture Network, Michigan State University, East Lansing Michigan.
- “Western corn rootworm: new insights into an old problem.” 9 January 2002. 2002 Proceedings of the Illinois Crop Protection Technology, Cooperative Extension Service, University of Illinois at Urbana-Champaign.
- “Is corn phenology responsible for the failure of crop rotation to manage western corn rootworm?” 8 October 2001. Weekly seminar series for the Department of Entomology, University of Missouri, Columbia Missouri.
- "Teaching and Beekeeping in Ghana." 2000. Entomology and Peace Corps Experience Symposium. Entomological Society of America Annual Meeting, 3-6 December. Montreal, Canada.

Poster / Oral Presentation

2018

- Varenhorst, A., S. Pritchard, **M. O’Neal**, E. Hodgson, and A. Singh. 2018. Managing biotype-4 soybean aphids using a Rag1+Rag2+Rag4 pyramid. 73rd Annual North Central Branch Entomological Society of America Meeting, Madison, WI, 6-9 March 2018

Rodbell, E. A., E. W. Hodgson, M. Z. Leibman, and **M. E. O’Neal**. 2018. Effect of crop rotation on soybean aphid. 73rd Annual North Central Branch Entomological Society of America Meeting, Madison, WI, 6-9 March 2018.

Dean, A., S. Pritchard, E. W. Hodgson, and **M. E. O’Neal**. 2018. Optimizing yield environments and soybean genetics for soybean aphid (Hemiptera: Aphididae) management. 73rd Annual North Central Branch Entomological Society of America Meeting, Madison, WI, 6-9 March 2018.

Hohenstein, J., M. Kaiser, K. Tilmon, A. Varenhorst, E. Hodgson, and **M. O’Neal**. 2018. “Refuge-in-a-bag” approach for sustainable management of virulent soybean aphids (*Aphis glycines*, Hemiptera: Aphididae) in the field. 73rd Annual North Central Branch Entomological Society of America Meeting, Madison, WI, 6-9 March 2018.

2017

Ge Zhang, **M.E. O’Neal**, J. Coats, S. Bradbury, and M. Hall. Field sampling in prairie strips. Meeting for IA State neonic-residues in bee-relevant matrices research project (Bayer company). 17th October 2017, Charlotte, North Carolina.

Ge Zhang, A. St. Clair, A. Dolezal, A. Toth, **M. O’Neal**. Does landscape complexity affect honey bee pollen forage?, ESA 2017 North Branch Meeting, 4th-7th June 2017, Indianapolis, Indiana.

Ge Zhang, A. Dolezal, A. Toth, and M. O’Neal. Does landscape complexity affect pollen foraging by honey bees?, 5th Graduate and Professional Student Research Conference, ISU, 12th April 2017, Ames, IA.

Rodbell, E., E. W. Hodgson, M. Liebman, and **M. E. O’Neal**. Effect of crop rotation on the population growth rate of soybean aphid. PI-E Student Paper Competition. 65th Annual Entomological Society of America Meeting, Denver, CO, 5 November 2017.

Rodbell, E., E. W. Hodgson, M. Liebman, and M. E. O’Neal. Effect of crop rotation on the population growth rate of soybean aphid. M.S. Student Competition. 72nd Annual North Central Branch Entomological Society of America Meeting, Indianapolis, IN, 5 June 2017

Dean, A., S. Pritchard, M. O’Neal, and E. Hodgson. Optimizing yield environments and soybean genetics for soybean aphid management. PI-E Student Poster Competition. 65th Annual Entomological Society of America Meeting, Denver, CO, 6 November 2017

2016

Ge Zhang, Matthew O’Neal, Amy Toth, Ashley St. Clair, Adam Dolezal, Edward Hseih, 2016. Does landscape complexity affect forage resources and health of honey bees? ICE 2016 meeting, Sept. 24-30, Orlando, FL.

Pritchard, S. R., M. E. O’Neal, A. Singh, A. K. Singh, A. J. Varenhorst and I. Valmorbidia. Effect of soybean trichome density on *Aphis glycines* and its natural enemies. 3rd Annual Graduate and Professional Student’s Research Conference. 12 April 2016. Ames, Iowa.

St. Clair, A., G. Zhang, S. R. Pritchard, M. E. O’Neal, A. L. Toth, and A. Dolezal. Impact of soybean on wild and managed bee health within a landscape context. 63rd Annual Meeting of the Entomological Society of America. 15-18 November 2015. Minneapolis, Minnesota.

2015

- St. Clair, A., G. Zhang, S. Pritchard, **M. O’Neal**, and A.L. Toth. 2015. Impact of soybean on wild and managed bee health within a landscape context. Poster presentation at the Entomological Society of America Annual National Meeting, Minneapolis, MN.
- Dunbar, M.W., R.B. Shrestha, M. O’Neal, and A.J. Gassmann. 2015. The effects of crop rotation on western corn rootworm adult abundance, root injury and Bt resistance. Annual meeting of the National Entomological Society of America. Minneapolis, MN. 15-18 November 2015.
- Pritchard, S., A. Varenhorst, A. Singh, A. Singh, I. Valmorbidia and **M. O’Neal**. 2015. Effect of soybean trichome density on soybean aphid and its natural enemies. Poster presentation at the Entomological Society of America Annual National Meeting, Minneapolis, MN.
- Hodgson, E.W., M. O’Neal, and J. VanDyk. 2015. Using podcasts to promote research and extension. Poster presentation at the Entomological Society of America Annual National Meeting, Minneapolis, MN.
- Dunbar, M.W., A. Varenhorst, E.W. Hodgson, M. O’Neal, and A.J. Gassmann. 2015. True armyworm, rye cover and no-till: An unfortunate combination in 2015. Poster presentation at the Entomological Society of America Annual National Meeting, Minneapolis, MN.

2014

- McCarville, M.T., G.L. Tylka, and M.E. O’Neal. 2014. Integrating aboveground-belowground herbivore interactions into pest management: Should aphids be a target for better nematode management?. Oral presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017
- Lasley, P., J. Arbuckle, A. Gassmann, E.W. Hodgson, M.E. O’Neal, and W. Wintersteen. Pest management concerns among Iowa row-crop farmers. Oral presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017
- Wheelock, M.J. and M.E. O’Neal. 2014. Defining the community of insect pollinators found in Iowa corn and soybean fields Oral presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017
- Varenhorst, A.J., M.T. McCarville and M.E. O’Neal. Does induced susceptibility occur between virulent and avirulent soybean aphids on resistant soybean? Oral presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017. (First place, Presidents prize)

Dunbar, M.W., M.E. O'Neal, and A. Gassmann. Effect of crop management on root injury and adult abundance of western corn rootworm. Oral presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017. (Second place, Presidents prize)

Heidel-Baker, T., M.E. O'Neal, M. Gleason, and J. Batzer. 2014. Impact of floral resource provisioning on beneficial insects in agricultural crops. Poster presentation at the Entomological Society of America Annual National Meeting, Portland, OR. November 16-19, 2017

2013

Dunbar, M. W., A. J. Gassmann, and **M. E. O'Neal**. 2013. Impacts of Rye Cover Crop on Ground-Dwelling, Beneficial Arthropods. Oral presentation at the North Central Branch Entomological Society of America Meeting, Rapid City, SD.

Kuntz, C.D., M.T. McCarville, and **M.E. O'Neal**. 2013. Are Japanese beetles (*Popillia japonica*) attracted to neonicotinoid seed treated soybeans? Oral presentation at the Entomological Society of America Annual National Meeting, Austin, TX.

Kuntz, C.D. and **M.E. O'Neal**. 2013. The impact of landscape diversity on the seasonal abundance of Japanese beetles in soybean. Oral presentation at the Entomological Society of America North Central Branch Meeting, Rapid City, SD.(1st place MS PIE section).

McCarville, M., D. Soh, G. Tylka, G. MacIntosh, E. Hodgson, and **M. O'Neal**. 2013. Soybean aphid feeding affects soybean cyst nematode reproduction. North Central Branch Entomological Society of America Meeting, Rapid City, SD. (1st place Ph.D. PIE section).

Wheelock, J. and **M.E. O'Neal**. 2013. Conserving bees using native plantings. Presented at the Iowa Living Road Ways Trust yearly meeting. November 15; Ames Iowa.

Wheelock, J. and **M.E. O'Neal**. 2013. Insect pollinators in Iowa cornfields: Community identification and trapping methods analysis. Oral presentation at the Entomological Society of America Annual National Meeting, Austin, TX.

Wheelock, J. and **M.E. O'Neal**. 2013. Insect pollinators in Iowa cornfields: Community identification and trapping methods analysis. Oral presentation at the Entomological Society of America North Central Branch Meeting, Rapid City, SD.(3rd place M.S. PIE section)

Varenhorst, A. J., and **M. E. O'Neal**. 2013. Induced susceptibility: a density dependent response that explains *Aphis glycines* populations on resistant soybean in field research plots. Oral presentation at the Entomological Society of America North Central Branch Meeting, Rapid City, SD. (Received 2nd place in the Ph.D. PIE student competition)

2012

Dunbar, M. W., A. J. Gassmann, and **M. E. O'Neal**. 2012. Effects of Rye Cover crop on Arthropod Communities. Poster presented at the Entomological Society of America Annual National Meeting. Knoxville TN.

Dunbar, M. W., A. J. Gassmann, and **M. E. O'Neal**. 2012. Effects of cover crop and extended

- rotation on insect taxa and plant disease pressure. Oral presentation at the Annual Meeting Entomological Society of America- North Central Branch, Lincoln, NE Ph.D. Student Competition. (3rd place, Ph.D. PIE Section)
- Kuntz, C.D. and **M.E. O'Neal**. 2012. The impact of landscape diversity on the seasonal abundance of Japanese beetles and stink bugs in soybean. Poster presented at the Entomological Society of America Annual National Meeting. Knoxville TN
- Wheelock, J. and **M.E. O'Neal**. 2012. Native pollinators in Iowa cornfields: Community identification and trapping methods analysis. Poster presented at the Annual Conference of the Entomological Society of America. Knoxville TN
- McCarville, M., **M. O'Neal**, K. Tilmon, B. Potter, B. McCornack, J. Tooker, E. Cullen, A. Michel, and D. Prischmann-Voldseth. 2012. Is pyramiding resistance the answer for soybean aphid management? Annual Meeting of the Entomological Society of America, Knoxville, TN. (First place, Presidents prize)
- McCarville, M., **M. O'Neal**, K. Tilmon, B. Potter, B. McCornack, E. Cullen, and J. Tooker. 2012. Are two genes better than one for soybean aphid management? North Central Branch Entomological Society of America Meeting, Lincoln, NE.
- McCarville, M., **M. O'Neal**, K. Tilmon, B. Potter, B. McCornack, E. Cullen, and J. Tooker. 2012. Are two genes better than one for soybean aphid management? International Plant Resistance to Insects Workshop, Minneapolis, MN.
- McCarville, M., **M. O'Neal**, and E. Hodgson. 2012. Update on soybean aphid research in Iowa. 2011 S1039 Annual Meeting, Williamsburg, VA.
- O'Neal, M. E.**, and M. McCarville. 2012. Is one enough?: Combining *Rag* genes improves aphid resistance in soybeans. Commercial Soybean Breeders Meeting, St. Louis, MO.
- Varenhorst, A. J., and **M. E. O'Neal**. 2012. Which aphids are important vectors of *Soybean mosaic virus*? Annual Meeting of the Entomological Society of America, Knoxville, TN.
- Varenhorst, A. J., and **M. E. O'Neal**. 2012. What role do alate soybean aphids (*Aphis glycines*) play in the spread of Soybean mosaic virus? North Central Branch Entomological Society of America Meeting, Lincoln, NE. (Received 2nd in the Ph.D. PIE student competition)

2011

- Bruner, R.F., A.J. Gassmann, E.W. Hodgson, and M.E. O'Neal. 2011. Preference and performance of two lepidopteran species on Rag1.Cultivars. 59th Annual Conference of the Entomological Society of America. 2011 November 14; Reno, Nevada
- Bruner, R., A. J. Gassmann, M. E. O'Neal, and E. W. Hodgson. Evaluating the performance and preference of soybean herbivores on Rag1 Soybean. M.S. Student Paper Competition. 66th Annual North Central Branch Entomological Society of America Meeting, Minneapolis, MN, 14 March 2011
- Dunbar, M., A.J. Gassmann, M. O'Neal. 2011. Effects of cover crop and extended rotation on insect communities. 59th Annual Conference of the Entomological Society of America. 2011 November 14; Reno, Nevada
- Gill, K.A., **M.E. O'Neal** and L.A. Schulte. 2011. Optimizing buffer strips for insect derived ecosystem services. Graduate student paper presented at: Plant-insect ecosystems:

- ecology symposium. 59th Annual Conference of the Entomological Society of America. 2011 November 14; Reno, Nevada.
- Hodgson, E. W., and M. E. O’Neal. Using the suction trapping network to describe aphid migration. 3rd Biennial ISU Aphid Research Symposium, Ames, IA, 15 February 2011
- Hodgson, E. W., M. McCarville, and M. O’Neal. 2011. Soybean aphid management for organic production. Albert Lee Seed House Open House, Albert Lea, MN [45 people] 18 November 2011
- Hodgson, E. W., M. E. O’Neal, G. VanNostrand, and K. D. Johnson. Soybean aphid efficacy evaluation program. 66th Annual North Central Branch Entomological Society of America Meeting, Minneapolis, MN, 15 March 2011.
- Hodgson, E. W., and M. E. O’Neal. Sustainable soybean aphid management for the next decade 66th Annual North Central Branch Entomological Society of America Meeting, Minneapolis, MN, 15 March 2011
- Hodgson, E. W., **M. O’Neal**, M. McCarville, and G. VanNostrand. 2011. Adapting changes to soybean aphid management for the next decade. University of Minnesota Extension Crop Pest Management Short Course, Minneapolis, MN.
- McCarville, M., **M. E. O’Neal**, and W. R. Fehr. 2011. Assessing the benefits of pyramids and seed treatments for soybean aphid host plant resistance. Annual Integrated Crop Management Conference, Ames, IA.
- McCarville, M., **M.E. O’Neal**, B.P. McCornack, K. Tilmon, E.M. Cullen, B.D. Potter, and J. Tooker. 2011. Assessing the benefits of pyramids and seed treatments for soybean aphid host plant resistance. Annual Meeting of the Entomological Society of America, Reno, NV. (First place, Presidents prize)
- McCarville, M., **M. O’Neal**, G. Tylka, G. MacIntosh. 2011. Interactions among a nematode, a fungus and an aphid: implications for soybean management. Annual Meeting of the Entomological Society of America, Reno, NV.
- McCarville, M., **M. O’Neal**, G. Tylka, G. MacIntosh. 2011. Interactions among a nematode, a fungus and an aphid: implications for soybean management. North Central Branch Entomological Society of America, Minneapolis, MN.
- McCarville, M., **M. O’Neal**, G. Tylka, G. MacIntosh. 2011. Who is interacting with whom: soybean aphids and soybean cyst nematode. ISU Aphid Research Symposium, Ames, IA.
- Ohde, R.A. and M.E. O’Neal. 2011. “Do reconstructed prairies affect predation rates of soybean aphids (*Aphis glycines*) at the watershed scale?” Entomological Society of America Annual Meeting. Reno, NV
- O’Neal, M. E.**, E. W. Hodgson, and J. VanDyk. Podcasting for dummies: Or how we learned to use iTunes to deliver soybean aphid recommendations. 66th Annual North Central Branch Entomological Society of America Meeting, Minneapolis, MN, 15 March 2011
- Seman, K.A., **M.E. O’Neal** and L.A. Schulte. 2011. Optimizing buffer strips for insect derived ecosystem services. Graduate student poster presented at: Sustainable Agriculture Graduate research symposium. 2011 April; Iowa State University, Ames Iowa.
- Seman, K.A., **M.E. O’Neal** and L.A. Schulte. 2011. Optimizing buffer strips for insect derived ecosystem services. Graduate student poster presented at: Plant-insect ecosystems:

ecology symposium. 66th Annual Conference of the Entomological Society of America, North Central Branch. 2011 March 13; Minneapolis, Minnesota.

Varenhorst, A.J., and M.E. O'Neal. 2011 Managing soybean aphids with selective insecticides results in a bioresidual. 59th Annual Conference of the Entomological Society of America. 2011 November 14; Reno, Nevada.

2010

Bruner, R. F., A. J. Gassmann, E. W. Hodgson, and M. E. O'Neal. Extension and research to facilitate the incorporation of soybean-aphid resistant varieties into Iowa crop production. 58th Annual Entomological Society of America Meeting, San Diego, CA, 13 December 2010.

Hessel, R. J., and **O'Neal, M.E.** 2010. Abundance of pest insect natural enemies in watersheds consisting of annual crop systems intercropped with perennial tallgrass prairie systems. Entomological Society of America Annual Meeting. San Diego, CA

Hodgson, E. W., M. E. O'Neal and J. VanDyk. Podcasting out of our garage: A 2-year review. 58th Annual Entomological Society of America Meeting, San Diego, CA, 13 December 2010.

O'Neal, M.E., M. McCarville, N. Schmidt. 2010. Are we managing the soybean aphid (Heteroptera: Aphididae) in enemy free space? Entomological Society of America Annual Meeting. San Diego, CA

McCarville, M., C. Kanobe, **M.E. O'Neal**, G. MacIntosh. 2010. Unintended impacts of value added plant breeding: linolenic acid and soybean. Entomological Society of America Annual Meeting. San Diego, CA

McCarville, M., C. Kanobe, **M.E. O'Neal**, G. MacIntosh. 2010. Unintended impacts of value added plant breeding: linolenic acid and soybean. Midwest Ecology and Evolution Conference, Ames, IA.

McCarville, M., C. Kanobe, **M.E. O'Neal**, G. MacIntosh. 2010. Unintended impacts of value added plant breeding: linolenic acid and soybean. North Central Branch Entomological Society of America, Louisville, KY.

Ritson, R., A. Robertson, **M.E. O'Neal**, D. Mueller, and Bestor, N. 2010. "Efficacy of insecticide-fungicide tank mixes for control of soybean aphid." Entomological Society of America Annual Meeting. San Diego, California.

Ritson, R., A. Robertson, **M.E. O'Neal**, D. Mueller, and Bestor, N. 2010. "Fungicide impacts on soybean aphid (*Aphis glycines*) populations and soybean yield in Iowa." Midwest Ecology and Evolution Conference. Ames, IA.

Seman, K.A., **M.E. O'Neal** and L.A. Schulte. 2010. Optimizing buffer strips for insect derived ecosystem services. Graduate student poster presented at: Plant-insect ecosystems: ecology symposium. 58th Annual Conference of the Entomological Society of America. 2010 December 13; San Diego, California.

Varenhorst, A.J. and **O'Neal, M.E.** 2010. Can selective insecticides control soybean aphid populations without harming natural enemies? Entomological Society of America Annual Meeting, San Diego, CA.

2009

Bestor, N.R.C., Mueller, D.S, Ritson, R., **O'Neal, M.**, and Robertson, A. 2009. "The effect of foliar fungicide timing on yield and grain fill in high and low aphid pressure environments." Annual Meeting, North Central Division – American Phytopathological Society. Ames, IA.

Ritson, R.M., **O'Neal, M.**, Robertson, A., Mueller, D., and Bestor, N. 2009. "Impact of Foliar Fungicides on Entomopathogenic Fungi of Soybean Aphid (Hemiptera: Aphididae) in Iowa." Graduate Program in Sustainable Agriculture Colloquium. Ames, IA.

Ritson, R., **O'Neal, M.**, and Robertson, A. 2009 "Impact of Fungicides and Fungicide-Insecticide Tank Mixes on Soybean Aphid (Hemiptera: Aphididae) Populations and Soybean Yield." ISU Biennial Aphid Symposium. Ames, IA.

Ritson, R.M., **O'Neal, M.**, Robertson, A., Mueller, D., and Bestor, N. 2009. "Impact of Foliar Fungicides on Soybean Aphid (Hemiptera: Aphididae) in Iowa." Annual Meeting, North Central Branch – Entomological Society of America. Saint Louis, MO.

Ritson, R., Bestor, N., Robertson, A., **O'Neal, M.**, Mueller, D., and Pedersen, P. 2009. Impact of fungicide-insecticide tank mixes on soybean in Iowa. Integrated Crop Management Conference. Ames, IA.

Ritson, R.M., **O'Neal, M.**, Robertson, A., Mueller, D., and Bestor, N. 2009. "Impact of fungicides on soybean aphids (*Aphis glycines*) and soybean yield in Iowa." Entomological Society of America. Indianapolis, IN.

2008

O'Neal, M.E. and M. Chiozza. 2008. Aphid resistant soybeans: Will they prevent soybean aphid outbreaks? Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.

Johnson K.D. and **M.E. O'Neal.** 2008. Management of soybean aphid in narrow-row soybean production. Oral Paper presented at the ESA Entomological Society of America, Reno, Nevada, November 2008.

Johnson K.D. and **M.E. O'Neal.** 2008. What have we learned over five years of soybean aphid management using insecticides? Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.

Johnson K.D. and **M.E. O'Neal.** 2008. Insecticide evaluations for soybean aphid management the good, the bad and their residual times. Crop Advantage Series. Cooperative Extension Service, Iowa State University. Osceola, Iowa.

Schmidt, N. P., **M. E. O'Neal,** and L. Schulte. 2008. Impact of landscape heterogeneity on soybean aphid and natural enemy abundance in Iowa. Entomological Society of America Annual Meeting, Reno, Nevada, November 2008.

Schmidt, N. P., **M. E. O'Neal**, and L. Schulte. 2008. Impact of landscape heterogeneity on soybean aphid and natural enemy abundance in Jasper County, Iowa. Kansas Entomological Society, Ames, IA.

Schmidt, N. P., **M. E. O'Neal**, and L. Schulte. 2008. Impact of landscape heterogeneity on soybean aphid and natural enemy abundance in Jasper County, Iowa. United States Regional Association for Landscape Ecology, Madison, WI.

2007

Johnson K.J. and **M.E. O'Neal**. 2007. Comparison of IPM management alternatives for soybean aphid. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA.

Schmidt, N. and **M.E. O'Neal**. 2007. Impact of landscape heterogeneity on soybean aphid and natural enemy abundance in Jasper County, Iowa. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA. (First place, Presidents prize)

Gardiner, M.M., D.A. Landis, C. DiFonzo, C. Gratton, **M.E. O'Neal**, G.E. Heimpel, E. Mueller, N. Schmidt, and J.Chacon. 2007. Landscape diversity impacts predation of soybean aphid across the north-central region. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA.

Heeren, J.R., N.A. Tinsley, R.E. Estes. J.B. Schroeder, M.E. Gray, K.L. Steffey, T.L. Niblack, **M.E. O'Neal**, M.F. Avendano, and G.L. Tylka. The interaction of soybean aphid (*Aphis glycines*) and soybean cyst nematode (*Heterodera glycines*): Responses of selected resistant and susceptible soybean varieties. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA.

O'Neal, M.E., K.D. Johnson, W. Ohnesorg, J. Bradshaw, and M.E. Rice. 2007. The promise and limitations of soybean seed treatments: Impacts on pest and beneficial arthropods. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA.

O'Neal, M.E., K.D. Johnson and W. Ohnesorg. 2007. The promise and limitations of soybean seed treatments: Impacts on pest and beneficial arthropods. Entomological Society of America National Meeting 9-12 December 2007 San Diego CA,

Ohnesorg, W.J. and **M.E. O'Neal**. 2007. Are Iowa prairies a source for soybean aphid (*Aphis glycines*) predators? Entomological Society of America National Meeting 9-12 December 2007 San Diego CA.

Ohnesorg, W.J., J.M. Orlofske, and **M.E. O'Neal**. 2007. Survey of aphids in Iowa prairies: Potential impacts from an Asian parasitoid wasp released for soybean aphid biological control. 17th Annual Prairie Invertebrate Conference October 20, 2007.

Ohnesorg, W.J. and **M.E. O'Neal**. 2007. Survey of aphids in Iowa prairies. Iowa Prairie Network Winter Conference January 2007.

2006

- Ohnesorg, W.J. and **M.E. O'Neal**. 2006. Effects of reduced-risk insecticides on the soybean, *Glycine max*, natural enemy community. Entomological Society of America National Meeting 2006.
- O'Neil, Robert J., D. Voegtlin, **M.E. O'Neal**, C. Gratton, T.T. Heidel, and W.J. Ohnesorg. 2006. Evaluation of potential non-target risks as part of a classical biological control program for the soybean aphid. Entomological Society of America National Meeting 2006.
- Ragsdale, D. W., E. W. Hodgson, B. P. McCornack, R. C Venette, L. M. Behnken, **M. O'Neal**, K. Johnson, E. Cullen, H. Kraiss, C. D. DiFonzo, K. Koch, T. Hunt, B. Potter, P. Glogoza, and R. O'Neil. Soybean aphid and the challenge of integrating recommendations within an integrated pest management system. 5th National IPM Symposium, St. Louis, MO, 4 April 2006.
- Ragsdale, D. W., E. W. Hodgson, B. P. McCornack, R. C. Venette, L. M. Behnken, **M. O'Neal**, K Johnson, E. Cullen, H. Kraiss, C. D. DiFonzo, K. Koch, T. Hunt, B. Potter, P. Glogoza, and R. O'Neil. Soybean aphid: A regional approach to management of an invasive insect. 60th Annual North Central Branch Entomological Society of America Meeting, Bloomington, IL, 27 March 2006
- Schmidt, N.P. and **M.E. O'Neal**. 2006. Sampling natural enemies in soybean. Entomological Society of America Annual Meeting, Indianapolis, IN. 2006
- Gardiner, M., N.P. Schmidt, E. Mueller, Emily Mueller, Jeremy Chacon, D. Landis, **M.E. O'Neal**, C. DiFonzo, Claudio Gratton, G. Heimpel, C. Gratton, and M. Brewer. 2006. Landscape complexity impacts soybean aphid biological control. Entomological Society of America Annual Meeting, Indianapolis, IN.
- 2005**
- O'Neal, M.E.**, J. Koziel, and L.S. Cai. 2005. Volatile response of soybeans to *Aphis glycines* Matsumura (Homoptera: Aphididae) herbivory. Oral Paper presented at the Entomological Society of America, National Meeting. Ft. Lauderdale, Florida. December 2005.
- Johnson, K.D.** and M.E. O'Neal. 2005. Soybean aphid (*Aphis glycines*) management; the importance of coverage. Oral Paper presented at the Entomological Society of America, National Meeting. Ft. Lauderdale, Florida. December 2005.
- Schmidt, N., **M.E. O'Neal**, J. Singer, and K. Kohler. 2005. Can the addition of a living mulch to soybeans improve biological control of soybean aphids? Oral Paper presented at the Entomological Society of America, National Meeting. Ft. Lauderdale, Florida. December 2005.
- Hodgson, E. W., D. W. Ragsdale, B. P. McCornack, K. A. Koch, C. D. DiFonzo, M. Jewett, E. Cullen, H. Kraiss, M. O'Neal, and K. Johnson. Field validation of Speed Scouting for Soybean Aphid. 53rd Annual Entomological Society of America Meeting, Fort Lauderdale, FL, 18 December 2005

Ohnesorg, W.J., **M.E. O'Neal**, and K.D. Johnson. 2005. Effects of Reduced-Risk Insecticides on the Soybean Natural Enemy Community. Entomological Society of America National Meeting 2005.

Schmidt, N.P., Johnson, K.D., and **M.E. O'Neal**. 2005. Ecology of aphidophagous predators in soybeans: sampling, phenology, and impact on *Aphis glycines*. Oral presentation at the North Central Branch Entomological Society of America meeting, West Lafayette, Indiana, March 2005.

Johnson, K.D., and **M.E. O'Neal**. 2005. Soybean aphid (*Aphis glycines*) management in Iowa: coverage versus compound. Oral Paper presented at the ESA Entomological Society of America North Central Branch, West Lafayette, Indiana, March 2005.

2004

Schmidt, N.P., **O'Neal, M.E.**, Singer, J., Kohler, K., Prasifka, J., Hellmich, R. 2004. The effect of perennial cover crops on natural enemy communities in corn and soybeans. Poster presented at the ESA Entomological Society of America, Salt Lake City, Utah, November 2004.

Johnson, K. D., **O'Neal M.E.**, Bradshaw, J.D., Rice, M.E. 2004. Soybean aphid management in Iowa; the importance of planting date, seed treatments, and insecticide coverage. Poster presented at the ESA Entomological Society of America, Salt Lake City, Utah, November 2004.

M.E. Gray, C.M. Pierce, and, **M.E. O'Neal**. 2004. How does crop diversity and phenology influence variant western corn rootworm population dynamics? Entomological Society of America, North Central Branch Meeting, 28-31 March. Kansas City, Missouri.

9 presentations from 1995 to 2003

TEACHING**Mentoring and Graduate Student Education**

*Current students. Co-advisors = * Amy Toth, ** Lisa Schulte-Moore, # Erin Hodgson, %John Tyndall*

- Ge Zhang*, started 2015, Ph.D. candidate so close to graduation it's sick
- Ashley St. Clair*, started 2015, Ph.D. candidate graduated
- Jordan Giese**, started 2016, Ph.D. candidate
- Erika Rodbell#, started 2016, M.S. candidate graduated
- Ashley Dean#, started 2017, M.S. candidate graduated
- Ivair Valmorbida#, started 2018, Ph.D. candidate
- Caroline Murray%, started 2018, M.S. candidate

Completed degrees (6 Ph.D., 14 M.S. degrees):

- Nicholas Schmidt, 2004-2006, M.S.; 2006-2010, Ph.D. Both awarded from the Department of Entomology. Thesis title: "Management and Ecology of Aphidophagous Natural Enemies in Iowa Soybeans". Notable accomplishments-lead or co-author of five peer-reviewed manuscripts. Awarded 2007 International Organization of Biological Control Outstanding M.S. Student. Awarded 2006 Henry Osborne Outstanding Professional Conduct from the Department of Entomology, 2011 Entomology Student Scholarship for Student Excellence.
- Kevin Johnson, 2004-2006, M.S.; 2006-2010, Ph.D. Both awarded from the Department of Entomology. Thesis title: "Management of the Soybean Aphid in Iowa". Notable accomplishments: Winner of the 2008 Entomological Foundation Pioneer Hi-Bred International Graduate Student Fellowship. Currently employed by Dow Agriscience.
- Mariana Chiozza, 2007-2009. M.S. awarded from the Department of Entomology. Thesis topic: "Soybean aphid response to aphid-resistant soybeans." Notable accomplishments- lead author of two manuscripts currently being peer-reviewed. Awarded third place for oral presentation at the 2009 NCB-ESA meeting. Immediately employed by the Instituto de Agrobiotecnologie Rosario in Argentina, recently returned to ISU as a PhD candidate.
- Wayne Ohnesorg, 2005-2008. M.S. awarded from the Department of Entomology. Thesis title: "Non-target effects of soybean aphid, *Aphis glycines* Matsumura (Hemiptera: Aphididae), management in Iowa". Currently employed by University of Nebraska-Lincoln, Agriculture Extension.
- Mike McCarville, 2008- 2010, M.S.; Awarded from the Department of Entomology. Thesis topic: "Should IPM be altered for the management of insect pests attacking low-lin soybeans?" Notable Accomplishments: 2011 Entomology Alumni Scholarship. 2011 ISU Entomology Research Excellence Award.
- Rebekah Ritson, 2008-2013. M.S. awarded from the Department of Entomology and the Graduate Program in Sustainable Agriculture. Thesis topic: "Impact of insecticide-fungicide

tankmixes on soybean aphids.”. Currently employed by the Minnesota Department of Agriculture

- Rene Cooklin, 2009-2013. M.S. awarded from the Department of Entomology. Thesis topic: “Release of *Binodoxys communis* for soybean aphid management.”. Employed immediately after graduation by USDA Soybean Breeding program at ISU.
- Adam Varenhorst, Summer 2009-2011. M.S. awarded from the Department of Entomology. Thesis topic: “Comparison of selective and broad spectrum insecticides for managing the soybean aphid?”.
- Kelly Semen (formerly Gill), Fall 2009 -2012. M.S. awarded from the Department of Entomology. Thesis topic: “Optimizing buffer strips for improved ecosystem services.” Notable Accomplishments: 2011 Entomology Student Scholarship for Student Excellence, 2011 Jim Oleson Scholarship in Entomology. 2012 Dr. Jean L. Laffon Memorial Scholarship. Currently employed by the Xerces Society.
- Cody Kuntz, 2012-2014 M.S. awarded from the Department of Entomology. Thesis Title: “Japanese beetles and stink bugs in Iowa soybean fields.” Currently employed by Integrated DNA Technologies, Coralville IA.
- Michael Joe Wheelock, 2012-2014, M.S. awarded from the Department of Entomology and the Graduate Program in Sustainable Agriculture. Thesis Title: “Insect pollinators in corn and soybean agricultural fields”. Currently employed at SynTech in Kansas City MO.
- Michael McCarville, 2010-2014, Ph.D. awarded from the Department of Entomology. Dissertation Title: “Integrating soybean aphid and soybean cyst nematode management”. Notable accomplishments- lead author of seven manuscripts, two 1st place presidential prize awards for oral presentations at the National ESA meeting, 2010 Jim Oleson Scholarship in Entomology 2011 Entomology Student Scholarship for Student Excellence, 2014 Comstock Award winner for NCB Region, Entomological Society of America. 2014 ISU Entomology Research Excellence Award. Currently employed by Bayer CropScience.
- Adam Varenhorst, 2011-2015, Ph.D. awarded from the Department of Entomology. Dissertation Title: “Beyond biotypes: *Aphis glycines* (Hemiptera: Aphididae) biology and the durability of aphid resistant soybean.” Notable accomplishments, 2011 Wayne Rowley Scholarship, 2013 & 2014 Jim Oleson Scholarship in Entomology 1st place presidential prize award for an oral presentation at the 2014 National ESA meeting. 2015 Departmental teaching award. Cover photo for an edition of Environmental Entomology. Currently employed at South Dakota State University, Assistant Professor.
- Michael Dunbar, 2012-2016, Ph.D. awarded from the Department of Entomology. Dissertation Title: Effects of diversity on beneficial and pest arthropods. Notable accomplishments 2nd and 3rd place Presidents’ prizes for presentations at national ESA meetings. 2014 Larry Pedigo Graduate Scholarship, 2013, 2015 Wayne Rowley Scholarship, Entomology Alumni Scholarship. Currently employed at Emory University, postdoctoral scientist.

Teaching activities

- Shelby Pritchard, started 2015-2017, M.S. awarded from the Department of Entomology. Thesis Title: “Impact of soybean trichomes on *Aphis glycines* (Hemiptera: Aphididae) and their interaction with natural enemy abundance and predation”. Notable accomplishments, 3rd place presidential prize for an oral presentation at the 2017 NCB meeting.
- Erika Rodbell (2016-Spring 2018), , M.S. awarded from the Department of Entomology, co-major in the Graduate Program in Sustainable Agricultural. Co-advised with Erin Hodgson
- Ashley St. Clair (2015-2019). Ph.D. awarded from the Department of Entomology and E.E.O.B. Co-advised with Amy toth
- Ashley Dean (2017-2019). , M.S. awarded from the Department of Entomology. Co-advised with Erin Hodgson.

Graduate Student Committee Service (total of 28 since 2004 at ISU)

(The students final year at ISU is indicated)

- 2006, M.S. degree committee member for Guillermo Arce, Department of Agronomy, Iowa State University, Ames, IA.
- 2007, Ph.D. degree committee member for Jeff Bradshaw, Department of Entomology, Iowa State University, Ames, IA.
- 2008, M.S. degree committee member for Jessica Orlofske, Department of Natural Resources and Environmental Management, Iowa State University, Ames, IA.
- 2010, Ph.D. degree committee member for Zachary Regelin, Department of Entomology, Iowa State University, Ames, IA.
- 2010, M.S. degree committee member for Jose Soto Arias, Department of Entomology, Iowa State University, Ames, IA.
- 2010, M.S. degree committee member for Nicholas Behrens, Department of Entomology, Iowa State University, Ames, IA.
- 2010, M.S. degree committee member for Justin Mardorf, Department of Agronomy, Iowa State University, Ames, IA.
- 2010, Ph.D. degree committee member for Jessica Petersen, Department of Entomology, Iowa State University, Ames, IA.
- 2011, M.S. degree committee member for Shaylyn Wiarda, Department of Agronomy, Iowa State University, Ames, IA.
- 2011, Ph.D. degree committee member for Adam Kuester, Department of Ecology, Evolution and Organismal Biology, Iowa State University, Ames, IA.
- 2011, Ph.D. degree committee member for Rebecca Sam, Department of Entomology, Iowa State University, Ames, IA.
- 2011, Ph.D. degree committee member for Nathan Bestor, Department of Plant Pathology, Iowa State University, Ames, IA.
- 2012, Ph.D. degree committee member for Charles Kanobe, Department of Biochemistry, Biophysics and Molecular Biology, Iowa State University, Ames, IA.
- 2012, M.S. degree committee member for Robert Bruner, Department of Entomology, Iowa State University, Ames, IA.

Teaching activities

- 2012, M.S. degree committee member for Rachael Cox, Department of Agronomy, Iowa State University, Ames, IA.
- 2012, Ph.D. degree committee member for Ryan Brace, Department of Agronomy, Iowa State University, Ames, IA.
- 2013, Ph.D. degree committee member for Amy Alesch, Sustainable Agriculture through GPSA, Iowa State University, Ames, IA.
- 2011, M.S. degree committee member for Michael Dunbar, Department of Entomology, Iowa State University, Ames, IA.
- 2011, M.S. degree committee member for Erika Saalau-Rojas, Department of Plant Pathology, Iowa State University, Ames, IA.
- 2013, Ph.D. degree committee member for Erika Saalau-Rojas, Department of Plant Pathology, Iowa State University, Ames, IA.
- 2013, M.S. degree committee member for Shari Sweeney, Department of Sociology, Iowa State University, Ames, IA.
- 2014, M.S. degree committee member for Stephen Thompson, Department of Entomology, Iowa State University, Ames, IA.
- 2014, M.S. degree committee member for Edward Zaworski, Department of Entomology, Iowa State University, Ames, IA.
- 2015, Ph.D. degree, external examiner for Rabia Raheed, Department of Agricultural Entomology, Bahauddin Zakariya University, Multan Pakistan.
- 2016, M.S.. degree committee member for Luke Higgins, Department of Agronomy, Iowa State University, Ames, IA.
- 2017. Ph.D. degree committee member for Jessica Hohenstein. Interdepartmental Genetics program, Iowa State University, Ames, IA.
- 2017. Ph.D. degree committee member for Martha Ibore. Interdepartmental Genetics program, Iowa State University, Ames, IA.
- 2018-present. Ph.D. degree committee member for Anna Talcott,. Horticulture Department, Iowa State University, Ames, IA.
- 2018-present. Ph.D. degree co-advisor for Peter Mokumo, Entomology, University of Limpopo, South Africa.
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Undergraduate Interns and Advisees (14 since coming to ISU)

Tamara Ford, Summer 2018,

Animal Science, summer research intern

Dionei Schmidt Muraro,

Mestrando na Universidade Federal de Santa Maria, Brazil, 6 month visiting scholar, August-December.

Lori Beth Croghan- Spring 2018

Hort/AGLS (Soph), Honors Research Program experience

Hanna Theresa Garland-

Spring 2018 Hort/AGLS (Soph), Honors Research Program experience

- Rachel Geneser, Fall 2017-
Biological and Pre-Medical Illustration internship. Supported financially by the Honey bee Health Coalition (HBHC), with content provided by HBHC and Dr. O'Neal.
- Mary Albert, Fall 2017-
Biological and Premedical illustration internship. Supported financially by the Honey bee Health Coalition (HBHC), with content provided by HBHC and Dr. O'Neal.
- Zoe Pritcahrd- Fall 2016, Summer 2018
ISU Honors Research Program
- Aviana Pingel Spring – Spring 2017
Freshman Honors Research Intern
- Quyn Westfall – Spring 2017
Freshman Honors Research Intern
- Madison McQueen – Spring 2017
Freshman Honors Research Intern
- Taylor Heinrichs – Spring-Summer 2017
Science with Practice Intern, summer research technician
- Sydney Edwards Fall – 2014-2015
Freshman Honors Research Intern, summer research technician
- Katherine (Kate) Russell – 2011-2014
Iowa State University, conducted field research related to botanical-based repellents on herbivores and honey bees, which was included in a peer-reviewed publication and a first-place oral presentation and poster presentation at the 2013 and 2014 North Central Branch meetings, respectively
- Patrick Wagner– 2011-2014
Iowa State University, conducted field research related the ecology and management of the soybean aphid.
- Rachael Cox – 2007-2009.
Iowa State University, Undergraduate Honors program
Co-PI on grant awarded from NC-IPM Center.
Reviewed conservation practices for improving biological control within an organic vegetable production system, co-author on a peer-reviewed publication.
- Theresa Horton – Summer 2004
University of Iowa, Iowa City, Iowa
Professional Women in Science and Engineering summer fellowship/internship
Characterized olfactory response of bean leaf beetles to soybean volatiles, revealed importance of host plant volatiles for host location.
Currently still enrolled in Biology BS program at U of I.
- Edward Mauch – Summer 2004
Luther College, Decorah Iowa
Conducted soybean aphid survey comparing phenology of soybean aphid and bean leaf beetle phenology
Applying for graduate program in dental medicine.
- Paul O'Neal – Summer 2004

Augustana College, Peoria Illinois

Developed assay and tested seed treatments for efficacy against soybean aphids.

Currently applying for graduate school in evolutionary ecology programs.

Erica Zontek – Summer 2003

Kalamazoo College, Kalamazoo Michigan

Measured impact of ground predator abundance on prey removal in a perennial cropping habitat.

Published work in BioControl

Currently attending graduate school at the University of Michigan for Environmental Management.

David Meek-Summer 2002

Kalamazoo College, Kalamazoo Michigan

Compared adult western corn rootworm emergence patterns between wild-type and rotation-resistant strains.

Published work in Great Lakes Entomologist and Michigan State University CATALert.

Graduated with BS in biology and served in US Peace Corps.

Undergraduate /Graduate Courses

Entomology 376. “Fundamentals of Entomology and Pest Management”. Three credit, lecture and laboratory based course taught every Spring semester. Introduction to entomology and insect pest management including life processes, ecology, economics, tactics of population suppression and ecological backlash. Non-major graduate credit available.

Entomology 671. “Insect Ecology”. Three credit, lecture and laboratory based course taught every other Fall semester. Through readings, discussion and laboratory activities students will become familiar with insect ecology and its importance for ecosystem services like pest control, pollination, and nutrient cycling. In addition, students will learn how to estimate and model these contributions while developing insight into the potential for applied ecology to improve human endeavors like agriculture.

Throughout the course students will be presented with examples of various techniques used to test models and hypotheses of ecological phenomena. These techniques will include mathematical and conceptual models, literature review, and field/laboratory based experiments. In addition, students will review literature where these and other techniques are used to test hypotheses and refute or justify various ecological models.

Sustainable Agriculture/Entomology 530. “Ecologically Based Pest Management Strategies”.

This three-credit course is designed to introduce graduate students to the principles and practices of ecologically based pest management. The course emphasizes the management of weeds, insects, mites, fungi, bacteria, viruses and nematodes interfering with crop production. Students will gain familiarity with basic concepts of population and community ecology relevant to pest management. They will also gain experience with systemic thinking using a modeling program called STELLA. Case studies will address the ecology

Teaching activities

and management of weeds, arthropods, and pathogens in a range of agricultural systems. Students will design and examine the feasibility of systems for managing multiple pests.

Entomology 590C. “Special Topics in Insect Ecology”.

Graduate students in the Entomology Department are required to take a series of special topics courses (ENT 590) that enrich the students understanding of the discipline of entomology. My contribution to this series is a course that focuses on the general field of insect ecology, with a focus on aspects that could contribute to the management of insect pests. For example, in one iteration the focus was the ecology of invasive insects, with case studies that includes pests of corn and soybeans. The most recent version focused on using meta-analyses to address hypotheses using previously published data. After an initially introduction into the theory and statistical tools for conducting a meta-analysis, the students explored a topic that I provided by collecting data from the literature. The students successfully conducted the meta-analysis, and a subset presented the results at the annual meeting of the North Central Branch of the Entomological Society of the America.

OUTREACH ACTIVITIES

Best Management Practices for Conserving Pollinators in Soybeans

In October of 2016 and throughout 2017, Dr. O’Neal served on a technical committee organized by the United Soybean Board, the USDA, and the Honey Bee Health Coalition (HBHC). The committee was charged with summarizing the state of pest management, pollinator conservation and soybean production. This summary was then used to develop a series of Best Management Practices (BMP) for soybean farmers to limit the negative impact to pollinators such that benefits provided by these insects could be realized by both farmer and beekeeper alike. Dr. O’Neal recommended Dr. Adam Dolezal, then a post-doctoral scientists working with him at ISU, who was later hired to lead the writing of the summary of the technical committee. The full document can be found at:

Brochure of the National BMPs for Conserving Pollinators in Soybeans

In an effort to make the BMP document more accessible, Dr. O’Neal was contacted by the HBHC to develop a brochure that would both advertise the larger document and highlight the key points. He contacted the Biological and Pre-Medical Illustration (BPMI) program at ISU in the Fall of 2017. With funding from the HBHC, two undergraduate students within the BPMI were selected (Mary Albert and Rachel Geneser). Dr. O’Neal oversaw the content and design features that highlighted key points. The document has been submitted to HBHC and will be printed for the Commodity Classic, a national meeting of farmers that produce crops in large acreage, including soybean.

ISU Annual Pollinator Fest- (Started in 2016)

Working with Drs. Amy Toth, Erin Hodgson, and Riemann Gardens, Dr. O’Neal has helped organize and conduct an event during the national Pollinator Awareness week. This one-day event features several hands-on activities with scientists, beekeepers and conservationists that are interested in pollinators, with a focus on bees and honey bees.

Publications – peer reviewed

Schulte, L.A., H. Asbjornsen, R. Atwell, C. Hart, M. Helmers, T. Isenhardt, R. Kolka, M. Liebman, J. Neal, **M. O’Neal**, S. Secchi, R. Schultz, J. Thompson, M. Tomer, and J. Tyndall. 2008. A targeted conservation approach for improving environmental quality: multiple benefits and expanded opportunities. Iowa State University, University Extension. PMR 1002. 23 pp

Publications – books/field guide

McCarville, M.T., E.W. Hodgson, 2012. Soybean aphid-resistant soybean varieties for Iowa. Iowa State University Extension and Outreach.

Hodgson, E.W.. and **M. O'Neal**. 2011. Soybean Aphid Management Field Guide.2nd Edition Iowa State University. University Extension, CSI 0011. 43 pp.

Rice, M.E. and **M. O'Neal**. 2008. Soybean Aphid Management Field Guide 2008. Iowa State University. University Extension, CSI 0011. (Printing costs covered by Iowa Soybean Association, 20,000 copies made in first printing during 2008. Pioneer and Monsanto both requested permission to pay for an additional 4000 copies each in January 2009). 44 pp.

Publications – Bulletins

Gardiner, M.M., S.P. Prajzner, D.A. Landis, A.P. Michel, **M.E. O'Neal**, and J.M. Woltz. 2011. Buckthorn Watch: Studying the Invasive Plant Common Buckthorn. The Ohio State University Extension, Iowa State University Extension and Michigan State University Extension (Joint Extension Bulletin). Michigan State University Bulletin E-3146.

Prajzner, S.P., M.M. Gardiner, D.A. Landis, A.P. Michel, **M.E. O'Neal**, J.M. Woltz. 2010. Common Buckthorn (*Rhamnus cathartica*). The Ohio State University Extension, Iowa State University Extension and Michigan State University Extension (Joint Extension Bulletin). Michigan State University Bulletin E-3139.

Hodgson, E. W., and **M.E. O'Neal**. 2009. Host plant resistance to the soybean aphid, 4 pp

Rice, M.E., **M.E. O'Neal**, and P. Pedersen. 2007. Soybean Aphids in Iowa-2007 Update. Iowa State University, University Extension, SP-247.

Rice, M.E., **M. O'Neal**, and P. Pedersen. 2005. Soybean Aphids in Iowa-2005 Update. Iowa State University, University Extension, SP-247.

Rice, M.E., **M. O'Neal**, and P. Pedersen. 2004. Soybean Aphids in Iowa-2004. Iowa State University, University Extension, SP-247.

O'Neal, M.E., C.D. DiFonzo, and D.A. Landis. 2001. Western corn rootworms in soybeans: update on 2000 season. 3500 printed. Internally produced.

O'Neal, M.E., C.D. DiFonzo, and D.A. Landis. 2000. Rootworm management for Michigan growers: recommendations for rotated corn. 4000 copies printed. Internally produced.

O'Neal, M.E., C.D DiFonzo, and D.A. Landis. 1998. Western corn rootworms in first-year corn; a new twist on an old pest. 2000 copies printed. Internally produced.

Ratcliffe, S.T., **M.E. O'Neal**, M.E. Gray, and K.L. Steffey. 1998. Western corn rootworm information sheet (No. 1).

Newsletters

2012

Mueller, D., A. Robertson, S. Wiggs, **M. O'Neal**, and E. Hodgson. 2012. Evaluation of foliar fungicides and insecticides on soybean in 2011. 3 January 2012.

<http://www.extension.iastate.edu/CropNews/2012/0103mueller.htm>

McCarville, M., E. Hodgson, and **M. O'Neal**. 2012. Options for Soybean Aphid host plant resistance. 14 March 2012

<http://www.extension.iastate.edu/CropNews/2012/0314mccarvillehodgsononeal.htm>

Varenhorst, A., **M. O'Neal**, and E. Hodgson. 2012. Early Confirmation of Twospotted Spider Mite. 8, June 2012.

<http://www.extension.iastate.edu/CropNews/2012/0607varenhorstonealhodgson.htm>

McCarville, M., E. Hodgson, and **M. O'Neal**. 2012. New options for soybean aphid host plant resistance. 4 December 2012.

<http://www.extension.iastate.edu/CropNews/2012/1204mccarvillehodgsononeal.htm>

2011

2010

McCarville, M., E. Hodgson and **M. O'Neal**. 2010. Green cloverworm appear in soybean. *In* Integrated Crop Management News. 12 July 2010.

2009

Hodgson, E. and **M.E. O'Neal**. 2009. Aphids on the move; Remember to scout in August! Integrated crop management news. Iowa State University. University Extension. online at <http://www.extension.iastate.edu/CropNews/2009/0813hodgsononeal.htm>. August 13, 2009.

Hodgson, E. and **M.E. O'Neal**. 2009. Are late-season soybean aphid treatments worth it? Integrated crop management news. Iowa State University. University Extension. online at <http://www.extension.iastate.edu/CropNews/2009/0813hodgsononeal2.htm>. August 13, 2009.

2008

Tollefson, J., **M. O'Neal**, and Rice, M. 2008. Reviewing decision thresholds for pest insect control. Integrated crop management news. Iowa State University. University Extension. online at <http://www.extension.iastate.edu/CropNews/2008/0730tollefsonriceoneal.htm>. July 30, 2008.

2007

O'Neal, M.E., M.E. Rice, and K. Johnson. 2007. Aphids attack! IC-498 (22). August 6, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/8-6/aphids.html>

- Rice, M.E. and **M.E. O'Neal**. 2007. Extension agronomists update soybean aphid situation. IC-498 (21). July 30, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/7-30/aphidupdate.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Mid-July aphid update. IC-498 (19). July 16, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/7-16/soybeanaphid.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Soybean aphids exceed the economic threshold in northeast Iowa. IC-498 (18). July 9, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/7-9/soybeanaphids.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Soybean aphids numbers increase...and decrease. IC-498 (17). July 2, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/7-2/soybeanaphid.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Soybean aphids found in Minnesota and Wisconsin. IC-498 (13). June 4, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/6-4/soybeanaphid.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Soybean insecticides for 2007. IC-498 (3). March 26, 2007. <http://www.ipm.iastate.edu/ipm/icm/2007/3-26/insecticides.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Biological control of soybean aphids: A Web-based resource. Iowa State University, University Extension Integrated Crop Management newsletter IC-498(3) March 26, 2007 <http://www.ipm.iastate.edu/ipm/icm/2007/3-26/biocontrol.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. Purdue University identifies the #1 predator of soybean aphids. Iowa State University, University Extension Integrated Crop Management newsletter IC-498(3) March 26, 2007 <http://www.ipm.iastate.edu/ipm/icm/2007/3-26/freezem.html>
- Rice, M.E. and **M.E. O'Neal**. 2007. It was a cold day in Iowa, but did the soybean aphids freeze out? Iowa State University, University Extension Integrated Crop Management newsletter IC-498(3) March 26, 2007 <http://www.ipm.iastate.edu/ipm/icm/2007/3-26/insidious.html>

2006

- Ohnesorg, Wayne, **M. O'Neal**, and M. Rice. 2006. Aphids in the air: What is the risk for 2007? Iowa State University, University Extension Integrated Crop Management newsletter IC-496(27) December 18, 2006 <http://www.ipm.iastate.edu/ipm/icm/2006/12-18/aphids.html>

2006 Integrated Crop Management Newsletter: Soybean Aphid Special Issue

For the 23, January edition I contributed the following 7 articles that highlighted my research and that of my regional collaborators and colleagues regarding the biology and management of the soybean aphid.

- O'Neal, M.** 2006. 2005 Wrap-up. Integrated Crop Management Newsletter IC-496 (1). URL: <http://www.ipm.iastate.edu/ipm/icm/2006/1-23/wrapup.html>.

O’Neal, M. 2006. Soybean aphids on the go: Results from the suction trap network. Integrated Crop Management Newsletter IC-496 (1)
<http://www.ipm.iastate.edu/ipm/icm/2006/suction.html>

O’Neal, M. 2006. Soybean aphids and K-deficient soybeans: Why are there aphids in my field and not my neighbor’s? Integrated Crop Management Newsletter IC-496 (1).
<http://www.ipm.iastate.edu/ipm/icm/2006/1-23/k.html>

O’Neal, M. 2006. Different thresholds, different states: Why? Integrated Crop Management Newsletter IC-496 (1). <http://www.ipm.iastate.edu/ipm/icm/2006/1-23/thresholds.html>

O’Neal, M. 2006. A soybean is a soybean is a soybean: Do aphids reproduce the same on all varieties? Integrated Crop Management Newsletter IC-496 (1).
<http://www.ipm.iastate.edu/ipm/icm/2006/1-23/varieties.html>

O’Neal, M. 2006. Insecticide evaluations for soybean aphid management. Integrated Crop Management Newsletter IC-496 (1). <http://www.ipm.iastate.edu/ipm/icm/2006/1-23/insecticide.html>

O’Neal, M. 2006. Risk assessment of soybean aphid damage—a seasonal timeline. Integrated Crop Management Newsletter IC-496 (1). <http://www.ipm.iastate.edu/ipm/icm/2006/1-23/risk.html>

2005

O’Neal, M. 2005. Insecticide use for soybean aphid control up again in 2005. Iowa State University, Integrated Crop Management Newsletter IC-494 (24). URL:
www.ipm.iastate.edu/ipm/icm/2005/10-19/aphid.html.

O’Neal, M. 2005. Soybean aphid suction trap network up and running in Iowa. Iowa State University, Integrated Crop Newsletter IC-494 (23).
<http://www.ipm.iastate.edu/ipm/icm/2005/9-19/aphidtrap.html>

O’Neal, M. and K. Johnson. 2005. Soybean aphids attack: Does it pay to spray low populations? Iowa State University, Integrated Crop Newsletter IC-494 (22).
<http://www.ipm.iastate.edu/ipm/icm/2005/8-22/aphidlowpop.html>

O’Neal, M., K. Johnson, and W. Ohnesorg. 2005. 2005 Preliminary insecticide evaluations. Iowa State University, Integrated Crop Newsletter IC-494 (22).
<http://www.ipm.iastate.edu/ipm/icm/2005/8-22/insecticides.html>

O’Neal, M. 2005. That soybean pest mite not be an aphid: Spider mites infest dry Iowa. Iowa State University, Integrated Crop Newsletter IC-494 (19).
<http://www.ipm.iastate.edu/ipm/icm/2005/7-18/mitesnaphids.html>

- O’Neal, M.** 2005. Hot, dry weather mite be a problem: Two-spotted spider mites infesting soybeans. Iowa State University, Integrated Crop Newsletter IC-494 (19).
<http://www.ipm.iastate.edu/ipm/icm/2005/7-18/spidermite.html>.
- Rice, M.E. and **M. O’Neal**. 2005. Management options for soybean aphids. Iowa State University, Integrated Crop Newsletter IC-494 (17).
<http://www.ipm.iastate.edu/ipm/icm/node/114>
- O’Neal, M.** and K. Johnson. 2005. Survey: Are insecticide/herbicide tank mixes commonly used? Iowa State University, Integrated Crop Newsletter IC-494 (16).
<http://www.ipm.iastate.edu/ipm/icm/2005/6-27/survey.html>
- O’Neal, M.E.** 2002. Western corn rootworm emergence in both rotated and continuous cornfields. MSU Field Crop Advisory Team Alert, 17:14.
- Meek, D., **M.E. O’Neal**, C.D. DiFonzo, and D.A. Landis, 2001. Western corn rootworm emergence in Michigan rotated cornfields. MSU Field Crop Advisory Team Alert, 16:17.
- O’Neal, M.E.** 2001. Impacts of western corn rootworm in soybeans during 2000. MSU Field Crop Advisory Team Alert, 16:2
- O’Neal, M.E.**, C.D. DiFonzo, and D.A. Landis. 2000. “Root-rating clinics” for continuous and rotated corn growers. MSU Field Crop Advisory Team Alert, 15:12.
- O’Neal, M.E.** 1999. Michigan rootworm survey results: tracking western corn rootworms in soybean fields. MSU Field Crop Advisory Team Alert, 14:18.
- O’Neal, M.E.** 1999. August survey results for western corn rootworms in soybeans. MSU Field Crop Advisory Team Alert, 14:16.
- O’Neal, M.E.** 1999. Results from rootworm survey. MSU Field Crop Advisory Team Alert, 14:15.
- O’Neal, M.E.** 1999. How to measure rootworm larval injury. MSU Field Crop Advisory Team Alert, 14:12
- O’Neal, M.E.** 1997. Two girls for every boy: Sex ratios of western corn rootworms in soybean fields. Pest Management and Crop Development Bulletin, Cooperative Extension Service, University of Illinois. No. 16.

Websites

“Soybeanaphids.info” (<http://soybeanaphid.info>).

Outreach activities

Developed and maintained content for website that provides information about the biology and management of the soybean aphid. Features a summary of research conducted by the Soybean Entomology Laboratory at Iowa State University by my colleagues and me.

“Western Corn Rootworms in Soybeans”, (<http://www.cips.msu.edu/cips/rootworm/index.htm>)

Developed and maintained content for website featuring current research and recommendations for managing rootworms, focusing on the recent failure of rotation.

“Michigan State Sustainable Agriculture Network”,

(<http://www.msue.msu.edu/misanet/msan01.html>)

Developed and maintained the website for the Michigan Sustainable Agriculture Network (MSAN) website (1999-2000).

Presentations

Field days/Demonstrations

11, August 2017. **Managing Resistance for Key Pests of Soybeans.** This was a day-long event held at the FEEL facility at Iowa State University for 30 participants from Iowa. I collaborated with Drs. Hodgson and Tylka to develop a day long event to highlight how resistance management is an important topic for soybean production, highlighting the soybean cyst nematode and the soybean aphid.

25, July 2013. **Conserving Beneficial Insects with Native Plants.** This was a day-long event held at the FEEL facility at Iowa State University for 25 participants from 3 states. The day began with a series of lectures on the benefits of insects for crop production, methods for identifying these insects and best practices for conserving them. Research conducted by O’Neal and his graduate student Kelly Gill was featured at the end of the event, with a tour of the plots of perennial plants selected for their ability to attract beneficial insects.

11, 13, 18, and 19 July 2005. **Soybean aphid management.** A series of demonstration at the FEEL facility at Iowa State University. During multiple 1-hour sessions, I provided a lecture, hands-on activity and discussion of soybean aphid biology, scouting techniques and management tactics. The hands-on activity included an experiment that was prepared 1 week in advance to demonstrate the remarkable reproductive ability of soybean aphids to reproduce and how one should scout for them.

Oral Presentations:

2017

O’Neal, M.E. Virulence to aphid resistant soybeans: it’s not as bad as you think. SCN and Soybean aphid Workshop, Field Extension Education Laboratory, Iowa State University, Ames, IA [20 people] 17 August 2017

2016

Hodgson, E. W., M. Dunbar, **M. O'Neal**, and A. Gassmann, Managing cover crop pests for corn and soybean production. 2016 Iowa State University Extension and Outreach Crop Advantage Series Workshops.

- Atlantic, IA, [110 people] 19 January 2016
- Waterloo, IA, [40 people] 21 January 2016

2015

Hodgson, E. W., M. Dunbar, **M. O'Neal** and A. Gassmann. Managing cover crop pests for corn and soybean production. Iowa State University Extension and Outreach Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 60 people] 2 December 2015

2011

Hodgson, E. W., C. Kuntz, **M. E. O'Neal**, and G. VanNostrand. Japanese beetle biology and management in corn and soybean, and M. E. O'Neal. Iowa State University Extension Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 250 people] 30 November 2011

Hodgson, E. W., and M. O'Neal. Soybean aphid host plant resistance update. 2011 Iowa State University Extension Crop Advantage Series Workshops.

- Ottumwa, IA. [25 people] 6 January 2011
- Carroll, IA. [30 people] 25 January 2011
- Waterloo, IA. [2 sessions; 50 people] 26 January 2011
- Atlantic, IA. [150 people] 27 January 2011

Hodgson, E. W., and M. E. O'Neal. Host plant resistance for soybean aphid. Iowa State University Extension Ag Chemical Dealer Update Series, Ames, IA. [180 people] 8 December 2011

Hodgson, E., and M. O'Neal. Soybean insect management updates. Iowa Soybean Association Field Day, Field Extension Education Laboratory, Ames, IA. [60 people] 26 August 2011

O'Neal, M., and E. Hodgson Host plant resistance update for soybean aphid. Plot tour, Ron Rossman Organic Farm, Harlan, IA. [45 people] 18 August 2011

2010

O'Neal, M., and E. Hodgson Host plant resistance for organic production. Plot tour, Ron Rossman Organic Farm, Harlan, IA. [30 people] 11 September 2010

Hodgson, E. Host plant resistance research for soybean aphid. Field day, Kanawha Research Farm, Iowa State University, Kanawha, IA. [3 sessions; 75 people] 9 September 2010

Outreach activities

O’Neal, M., and E. Hodgson Host plant resistance for organic production. Plot tour, Paul Mugge Organic Farm, Sutherland, IA. [25 people] 28 August 2010

2009

Hodgson, E. W., M. E. O’Neal, and N. P. Schmidt. Landscape summary of aphid suction trapping network since 2005. Iowa State University Extension Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 60 people] 3 December 2009.

Hodgson, E. W., M. E. O’Neal, and K. D. Johnson. A new chemistry for managing soybean aphid Iowa State University Extension Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 320 people] 2 December 2009

Hodgson, E. W., and M. E. O’Neal. Research update on host plant resistance for soybean aphid. Iowa State University Extension Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 190 people] 1 December 2010

Hodgson, E. W., K. D. Johnson, and M. E. O’Neal. Managing soybean pests with seed treatments. Valent USA Seed Treatment Workshop, Ames, IA. [30 people] 21 July 2009

“Aphid management, including host plant resistance.” Joint presentation by Dr. Hodgson and I. Soybean CSI Field Day, Field Extension Education Laboratory, Ames, IA. [2 sessions; 50 people] 25 August 2009.

“Soybean aphid scouting” joint presentation by Dr. Hodgson and I. Iowa Soybean Association Field Day, Field Extension Education Laboratory Ames, IA. [2 sessions; 50 people] 24 July 2009

“Aphid resistant soybeans: Will they prevent soybean aphid outbreaks?”. 10 December 2008. 20th Annual Integrated Crop Management Conference. Iowa State University, Ames Iowa State University

“The Future of soybean aphid management?”. 29 November 2007. 19th Annual Integrated Crop Management Conference. Iowa State University, Ames Iowa State University

“2006 Soybean Aphid Update” 15 February 2006. Commercial Applicators Video Conference. Iowa State University, Ames Iowa.

“How Well Do Current Recommendations Manage Soybean Aphids?”. 30 November 2005. 17th Annual Integrated Crop Management Conference. Iowa State University, Ames Iowa State University

“Will Soybean Aphids be Back in 2005?” At the Invitation of Virgil Schmitt, Field Crop Extension Agent.

Outreach activities

“2004 soybean aphid update: what to select from a variety of pest management tools?” Illinois Crop Protection Technology Conference, 12-13 January, 2005. Cooperative Extension Service, University of Illinois at Urbana-Champaign.

“2005 Soybean Aphid Update” 16 February 2005. Commercial Applicators Video Conference. Iowa State University, Ames Iowa.

Popular/Trade

O’Neal, M.E., C.D. DiFonzo, and D.A. Landis. 2000. 1999 Michigan rootworm survey results: tracking western corn rootworms in soybean fields. *Michigan Farm News*. 76(20): 8.

Podcast

Since July 2009, Dr. Erin Hodgson and I publishing a weekly to monthly podcast that can be downloaded at <https://www.ent.iastate.edu/soybeanresearch/podcasts/soybean-pest-podcast> or through iTunes, and other podcasting aggregator websites. The later site allows listeners to subscribe to the podcast for automatic downloads to their computer and mp3 listening device. This was the first podcast of its kind devoted to the research and management of an insect pest.