

Matthew Elliott O'Neal

Iowa State University, Ames, Iowa
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EDUCATION

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

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

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

PROFESSIONAL EXPERIENCE

Present

Associate Professor
Soybean Entomology
Department of Entomology
Iowa 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.

March 2003 to March 2004

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

- 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.

October 2002 to March 2003

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

- 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.

August 1998 to October 2002

C.S. Mott Ph.D. Fellow
Department of Entomology
Michigan State University
Dr. Chris DiFonzo and
Dr. Douglas Landis,
Co-Advisors

- 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, and characterized the role of corn phenology in the oviposition by rootworms in soybeans.
- Provided extension services (grower meetings, bulletins and webpage) to growers in need of management and scouting 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.

AWARDS & SCHOLARSHIPS

- 2011 B. Prignitz, M. O’Neal et al., 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.

Service to Professional Societies

- Entomological Society of America.
Member, 1996-present.
Chair, Student Affairs Committee – 2003.
Vice-chair, Student Affairs Committee – 2002.
Student Affairs Committee member 2001-present.
- 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

Research activities

Advisor, Iowa State University, Linnaean Games Team, 2005.
 Executive Committee, Member-at-Large, 2008 to present.
 Kansas Entomological Society/Central States Entomological Society
 President, 2008.
 Multistate Research Project: S1039, “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.

Peer Reviewer for the Following Journals

<p>Agronomy Journal Biocontrol BioEnergy Research Biological Control Bulletin of Entomological Research Canadian Entomologist Crop Science Ecology Environmental Entomology</p>	<p>Florida Entomologist Great Lakes Entomologist Insect Conservation and Diversity Journal of Economic Entomology Journal of Applied Microbiology Weed Science Pest Management Science PLoS ONE</p>
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RESEARCH GRANTS

Awarded and Pending Note, list does not include gifts from various agribusinesses (<\$5000).

\$2,127,000 (<i>\$90,000 to O’Neal</i>)	2012-2014	<i>North Central Soybean Research Program, “Soybean Aphid management, resistance, and outreach in the north central region”, K. Tilmon, D. Diers, A. Michel, G. Heimpel, E. Hodgson, and , E. Hodgson, M. Gray, E. Cullen, G. Hiempel, D. Hogg, M. Gray, A. Michels, and 25 collaborators (including M. O’Neal)</i>
\$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.

Research activities

\$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.
\$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.” Asbjornsen, 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.

Research activities

\$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.
\$120,000	2007-2009	Iowa Soybean Association. "Refining soybean aphid economic thresholds." O'Neal, M.E.
\$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.
\$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.
\$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. Costamagna.
\$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.

Research activities

\$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.
\$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 are 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**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. Eisley. 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 **O'Neal, M.E.** 2006. Does implementation of a selective blueberry insect control program enhance biological control? *IOBC wprs Bulletin* 29 (10), 7-12.
- 14) 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.
- 15) 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.
- 16) 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.
- 17) 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
- 18) 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.
- 19) 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
- 20) 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.
- 21) 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. 2009. Landscape diversity enhances biological control of an introduced crop pest in the north-central USA. *Ecological Applications.* 19: 143-154.
- 22) 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. 2009. Landscape composition influences patterns of native and exotic lady beetle abundance. *Diversity and Distributions.* 15: 554-564.
- 23) 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.
- 24) 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.
- 25) **O'Neal, M.E.**, and K.D. Johnson. 2010. Insect Pests of Soybean and Their Management. *In* "The Soybean: Botany, Production and Uses" G. Singh editor. CAB International. Oxfordshire UK.
- 26) Noma, T., C. Gratton, M. Colunga-Garcia, M.J. Brewer, E.E. Mueller, K.A.G. Wyckhuys, G.E. Heimpel, and **M.E. O'Neal**. 2010. Relationship of soybean aphid (Hemiptera: Aphididae) to soybean plant nutrients, landscape structure, and natural enemies. *Environ. Entomol.* 39: 31-41.
- 27) O'Neal, M.E., K. Johnson, E. Hodgson, D. Ragsdale, I. MacRae, B. Potter, C. DiFonzo, K. Tilmon, E. Cullen, P. Glogoza, and B.P. McCornack. 2010. Comments on "Soybean aphid population dynamics, soybean yield loss, and development of stage-specific economic injury levels." *Agron. J.* 102: 55-56.
- 28) Chiozza, M.V., **M.E. O'Neal**, and G.C. MacIntosh. 2010. Constitutive and Induced Differential Accumulation of Amino Acid in Leaves of Susceptible and Resistant Soybean Plants in Response to the Soybean Aphid (Hemiptera: Aphididae). *Environ. Entomol.* 39: 856-864.
- 29) Madorf, J.L., W.R. Fehr, and **M.E. O'Neal**. 2010. Agronomic and seed traits of soybean lines with the *Rag1* gene for aphid resistance. *Crop Science.* 50: 1891-1895.
- 30) Gardiner, M.M., D.A. Landis, C. Gratton, N. Schmidt, **M. O'Neal**, E. Mueller, J. Chacon, and G.E. Heimpel. 2010. Landscape composition influences the activity density of Carabidae and Arachnida in soybean fields. *Bio. Control.* 55: 11-19.
- 31) Schmidt, N.P., **M.E. O'Neal**, and L.A. Schulte. 2011. Effects of grassland habitat and plant nutrients on soybean aphid and natural enemy populations. *Environ. Entomol.* 40: 260-272.
- 32) McCarville, M., C. Kanobe, G.C. MacIntosh, and **M.E. O'Neal**. 2011. What is the economic threshold of soybean aphids *Aphis glycines* Matsumara (Hemiptera: Aphididae) in enemy free space. *Journal of Economic Entomology.* *J. Econ. Entomol.* 104: 845-852.
- 33) Gardiner, M.M., **M.E. O'Neal**, and D.A. Landis. 2011. Intraguild predation and native lady beetle decline. *Plos ONE.* 6(9): e23576 DOI: [10.1371/journal.pone.0023576](http://dx.doi.org/10.1371/journal.pone.0023576).
- 34) Tilmon, K. J., E. W. Hodgson, **M. E. O'Neal**, and D. W. Ragsdale. 2011. Biology of the soybean aphid, *Aphis glycines* (Hemiptera: Aphididae) in the United States. *Journal of Integrated Pest Management.* 2: 2011; DOI: <http://dx.doi.org/10.1603/IPM10016>.
- 35) Schmidt, N.P., **M.E. O'Neal**, P.F. Anderson, D. Lagos, D. Voegtlin, W. Bailey, P. Caragea, E. Cullen, C. DiFonzo, K. Elliott, C. Gratton, D. Johnson, C.H. Krupke, B. McCornack, R. O'Neil, D.W. Ragsdale, K.J. Tilmon, and J. Whitworth. 2012. Spatial distribution of *Aphis glycines* (Hemiptera: Aphididae): A summary of the suction trap network. *Journal of Economic Entomology.* 105: 259-271. DOI: <http://dx.doi.org/10.1603/EC11126>
- 36) Wiarda, S.L., W.R. Fehr, and **M.E. O'Neal**. 2012. Soybean aphid (Hemiptera: Aphididae) development on soybean with *Rag1* alone, *Rag2* alone and both genes combined. *J. Econ. Entomol.* 105: 252-258. DOI: <http://dx.doi.org/10.1603/EC11020>

- 37) McCarville, M.T., **M.E. O'Neal**, G.L. Tylka, G. MacIntosh, and C. Kanobe. 2012. A nematode, fungus, and aphid interact via a shared host plant: implications for soybean management. *Entomologia Experimentalis et Applicata*. 143: 55-66. DOI: 10.1111/j.1570-7458.2012.01227.x
- 38) McCarville, M. T., and **M. E. O'Neal**. 2012. Measuring the benefit of biological control for single gene and pyramided host plant resistance for soybean aphid, *Aphis glycines* (Hemiptera: Aphididae) management. *Journal of Economic Entomology*. 105: 1835-1834. DOI: <http://dx.doi.org/10.1603/EC12043>
- 39) McCarville, M. T., C. Kanobe, **M. E. O'Neal**, G. C. MacIntosh, and G. L. Tylka. 2012. Effects of an insect-nematode-fungus pest complex on grain yield and composition of specialty low linolenic acid soybean. *Crop Protection*. 42: 210-216.
- 40) Varenhorst, A.J., and **M.E. O'Neal**. 2012. The response of natural enemies to selective insecticides applied to soybean. *Environmental Entomology*. 41: 1565-1574. DOI: <http://www.bioone.org/doi/full/10.1603/EN12068>
- 43) Hesler, L.S., M.V. Chiozza, **M.E. O'Neal**, G.C. MacIntosh, K.J. Tilmon, D.I. Chandrasena, N.A. Tinsley, S.R. Cianzio, A. C. Costamagna, E. Cullen, C.D. DiFonzo, B.D. Potter, K. Steffey, and K.J. Koehler. 2013. Performance and prospects of *Rag* genes for management of soybean aphid. *Entomologia Experimentalis et Applicata*. 147: 201-216
- 44) McCarville, M.T., and **M.E. O'Neal**. 2013. Soybean aphid (Aphididae: Hemiptera) population growth as affected by host plant resistance and insecticidal seed treatments. *Journal of Economic Entomology* 106: 1302-1309.
- 45) McCarville, M.T., D.H. Soh, G.L. Tylka, and **M.E. O'Neal**. 2014. Aboveground feeding by soybean aphid, *Aphis glycines*, affects soybean cyst nematode, *Heterodera glycines*, reproduction belowground. *PLoS ONE* 9: e86415. DOI: 10.1371/journal.pone.0086415
- 46) Gill, K.A., R. Cox, and **M.E. O'Neal**. 2014. Quality over quantity: buffer strips can be improved with select native plant species. *Environmental Entomology* 43:298-311.
- 47) McCarville, M.T., **M.E. O'Neal**, B.D. Potter, K.J. Tilmon, E.M.Cullen, B.P. McCornack, J.F. Tooker and D.A. Prischmann-Voldseth. One gene versus two: a regional study on the efficacy of single gene versus pyramided resistance for soybean aphid management. *Journal of Economic Entomology*. 107: 1680-1687 <http://dx.doi.org/10.1603/EC14047>
- 48) Cox, R., **M.E. O'Neal**, R. Hessel, L.A. Schulte, and M. Helmers. The impact of prairie strips on aphidophagous predator abundance and soybean aphid predation in agricultural catchments. *Environmental Entomology*. *In press*.

In review

- McCarville, M. and **M.E.O'Neal**. Investigating factors influencing the development of *Aphis glycines* (Hemiptera: Aphididae) virulence to host-plant resistance. *Journal of Economic Entomology*. In Review (reconsidered for publication after completion of major revisions).
- Gill, K.A., and **M.E. O'Neal**. Survey of soybean insect pollinators: Community identification and sampling method analysis. *Environmental Entomology*. In review.

Varenhorst, A.J., M.T. McCarville, and **M.E. O'Neal**. Avirulent and virulent soybean aphid feeding on resistant soybean results in induced susceptibility response. *Environmental Entomology*. *In review*

In prep

Hessel, R.J., and **M.E. O'Neal**. Amount and placement of prairie conservation strips within annual crops to support beneficial arthropod communities. In preparation for *Environmental Entomology*.

Schmidt, N., J. Petersen, **M.E. O'Neal**, K. Elliot, and P. Anderson. Coupling overwintering temperatures with the potential distribution of *Rhamnus cathartica* (Rosales: Rhanaceae) to predict overwintering success of *Aphis glycines* (Hemiptera: Aphididae). In preparation for *Environmental Entomology*.

Non-peer reviewed research publication and abstracts

Tylka, G.L., M.T. McCarville, C.C. Marett, G.D. Gebhart, D.H. Soh, M.P. Mullaney, and **M.E. O'Neal**. 2013. Direct comparison of soybean cyst nematode reproduction on resistant soybean varieites in greenhouse and field experiments. *Journal of Nematology* 45: 322-323.

McCarville, M.T., **M.E. O'Neal**, and W.R. Fehr, 2011. Assessing the benefits of pyramids and seed treatments for soybean aphid host plant resistance. Pg. 67-72 *In: 2011 Proceedings of the Integrated Crop Management Conference*. Cooperative Extension Service, Iowa State University. Ames, Iowa

Hodgson, E. W., C. Kuntz, **M. E. O'Neal**, and G. VanNostrand. 2011. Japanese beetle biology and management in corn and soybean, pp. 63-66. *In Proceedings: Iowa State University Integrated Crop Management Conference*, Ames, IA, 30 November - 1 December 2011.

Hodgson, E.W. and **M.E. O'Neal**. 2010. Research update on host plant resistance for soybean aphid. p 53-58. *In: 2010 Proceedings of the Integrated Crop Management Conference*. Cooperative Extension Service, Iowa State University. Ames, Iowa

Wiarda, S.L., W.R. Fehr, and **O'Neal, M.E.** 2010. Influence of the Rag1 and Rag2 genes on aphid resistance and agronomic performance of soybean lines. p 59-64. *In: Proceedings of the Integrated Crop Management Conference*. Cooperative Extension Service, Iowa State University. Ames, Iowa

Ritson, R., A. Robertson, **M.E. O'Neal**, D. Mueller, and Bestor, N. 2010. Managing soybean aphid in Iowa: An economic analysis. p 65-68. *In: Proceedings of the Integrated Crop Management Conference*. Cooperative Extension Service, Iowa State University. Ames, Iowa

O'Neal, M.E., and M. Chiozza. 2009. Do aphid-resistant soybeans need insecticides for maximum yields? p 103-106 *In: 2009 Proceedings of the Integrated Crop Management Conference*. Cooperative Extension Service, Iowa State University. Ames, Iowa.

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. p 75-79 *In: 2009 Proceedings of the*

Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.

- M.E. O'Neal.** 2008. Aphid resistant soybeans: Will they prevent soybean aphid outbreaks? p 133-142 *In:* 2008 Proceedings of the Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.
- M.E. O'Neal** and M. Chiozza. 2007. The future of soybean aphid management? p 193-198 *In:* 2007 Proceedings of the Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.
- M.E. O'Neal** and K.D. Johnson. 2007. Soybean aphid Management Update: What to select from a variety of management tools? p 86-91 *In:* 2007 Proceedings of the Illinois Crop Protection Technology Conference. Cooperative Extension Service, University of Illinois Extension. Urbana-Champaign, Illinois.
- Song, F., S.M. Swinton, C. Difonzo, **M.E. O'Neal**, and R.W. Ragsdale. 2006. Profitability analysis of soybean aphid control treatments in three north-central states. Department of Agricultural Economics Staff Paper 2006-24. Michigan State University
- Johnson, K.D. and **M.E. O'Neal.** 2005. How well do current recommendations manage soybean aphids? p 93-112 *In:* 2005 Proceedings of the Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.
- O'Neal, M.E.** and K.D. Johnson. 2004. Soybean Aphid Management Update: What to Select From a Variety of Pest Management Tools? p 91-102 *In:* 2004 Proceedings of the Integrated Crop Management Conference. Cooperative Extension Service, Iowa State University. Ames, Iowa.
- Isaacs, R., **M.E. O'Neal**, Z. Szendrei, and J. Tuell. 2003. Potential of ground covers for manipulating pest, predator, and pollinator populations in highbush blueberry. Proceedings of the International Organization of Biological Control.
- O'Neal, M.E.**, D. Meek, C.D. DiFonzo, and D.A. Landis. 2002. New insights into an old problem: the view on western corn rootworms from Michigan. p 17-25. *In:* 2002 Proceedings of the Illinois Crop Protection Technology Conference. Cooperative Extension Service, University of Illinois at Urbana-Champaign.
- O'Neal, M.E.**, M.E. Gray, K.L. Steffey, and J. Shaw. 1999. Update on corn rootworm on-farm research efforts in east central Illinois. p 28-36. *In:* 1999 Proceedings of the Illinois agricultural pesticides conference, Cooperative Extension Service, University of Illinois at Urbana-Champaign.
- 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? p 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. p 66-72. *In*: 1997 Proceedings of the Illinois agricultural pesticides conference. Cooperative Extension Service, University of Illinois at Urbana-Champaign.

PRESENTATIONS

Moderator/Symposium Organizer

“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 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.

“Tubenrope Workshop” Student Affairs Symposium. 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

2013

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

Research activities

“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.
- “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.
- “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

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.
- 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. Evaluating seasonal exposure to soybean aphid (Hemiptera: Aphididae) and yield for Rag1 soybeans. 59th Annual Conference of the Entomological Society of America. 2011 November 14; Reno, Nevada
- 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., 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., C. Kuntz, M. E. O’Neal, and G. VanNostrand. 2011. Japanese beetle biology and management in corn and soybean, and M. E. O’Neal. 2010. Iowa State University Extension Integrated Crop Management Annual Conference, Ames, IA. [2 sessions; 250 people] 30 November 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.
- 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
- 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

- 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

- 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.

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.

Research activities

- 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.
- 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.
- 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 verses 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.

- Adam Varenhorst, 2011-present, Ph.D. candidate.
- Michael Dunbar, 2012, Ph.D. candidate.
- Michael Joe Wheelock, 2013, M.S. candidate.
- Cody Kuntz, 2012, M.S. candidate.

Completed degrees (3 Ph.D., 9 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, Iowa State University Ames Iowa.

- 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”.
- 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. Currently employed by the Instituto de Agrobiotecnologie Rosario in Argentina.
- 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.; 2006-2010, Ph.D. Both awarded from the Department of Entomology. Thesis topic: “Should IPM be altered for the management of insect pests attacking low-lin soybeans?”
- Rebekah Ritson, 2008-2013. M.S. awarded from the Graduate Program in Sustainable Agriculture. Thesis topic: “Impact of insecticide-fungicide tankmixes on soybean aphids.”
- Rene Cooklin, 2009-2013. M.S. awarded from the Department of Entomology. Thesis topic: “Release of *Binodoxys communis* for soybean aphid management.”
- 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, Fall 2009 -2012. M.S. student awarded from the Department of Entomology. Thesis topic: “Optimizing buffer strips for improved ecosystem services.”

Graduate Student Committee Service

2004-2006, M.S. degree committee member for Guillermo Arce, Department of Agronomy, Iowa State University, Ames, IA.

2005-present, Ph.D. degree committee member for Rebecca Sam, Department of Entomology, Iowa State University, Ames, IA.

2005-2009, M.S. degree committee member for Jessica Orlofske, Department of Natural Resources and Environmental Management, Iowa State University, Ames, IA.

2005-2010, Ph.D. degree committee member for Jessica Petersen, Department of Entomology, Iowa State University, Ames, IA.

2007-2009, Ph.D. degree committee member for Jeff Bradshaw, Department of Entomology, Iowa State University, Ames, IA.

2007-2011, Ph.D. degree committee member for Adam Kuester, Department of Ecology, Evolution and Organismal Biology, Iowa State University, Ames, IA.

2007-2009, M.S. degree committee member for Justin Mardorf, Department of Agronomy, Iowa State University, Ames, IA.

2008-2010, M.S. degree committee member for Michael Dunbar, Department of Entomology, Iowa State University, Ames, IA.

2008-2010, M.S. degree committee member for Nicholas Behrens, Department Entomology, Iowa State University, Ames, IA.

2008-2012, Ph.D. degree committee member for Charles Kanobe, Department of Biochemistry, Biophysics and Molecular Biology, Iowa State University, Ames, IA.

2009-2012, M.S. degree committee member for Erika Saalau-Rojas, Department of Plant Pathology, Iowa State University, Ames, IA.

2009-2012, M.S. degree committee member for Stephen Thompson, Department Entomology, Iowa State University, Ames, IA.

Undergraduate Interns and Advisees

Rachael Cox –2007-2009.

Iowa State University, Undergraduate Honors program
Reviewing conservation practices for improving biological control within an organic vegetable production system.

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 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.

OUTREACH ACTIVITIES

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

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/2008/0730tolleffsonriceoneal.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/freeze.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>).

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, 13, 18, and 19 July 2005. Soybean aphid management demonstration at the FEEL laboratory 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:

“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.

“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.

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Podcast

Since July 2009 I began publishing a weekly podcast that can be downloaded at www.soybeanaphid.info or through iTunes. The later site allows listeners to subscribe to the podcast for automatic downloads to their computer and mp3 listening device. This is the first podcast of its kind devoted to the research and management of an insect pest.