

Soybean Entomology Research and Extension in the North Central Region

Project Outputs 2019-2021

Scientific Journal Papers or Book Chapters: 58

1. Aita, R.C., A.V. Ribeiro and R.L. Koch. 2019. Efficacy of foliar insecticides for management of soybean aphid, 2019. *Arthropod Management Tests* 44(1): tsz089
2. Aita, R.C., D.T. Pezzini, E.C. Burkness, C.D. DiFonzo, D.L. Finke, T.E. Hunt, J.J. Knodel, C.H. Krupke, L.Marchi-Werle, B. McCornack, A.P. Michel, C.R. Philips, N.J. Seiter, A.J. Varenhorst, R.J. Wright, W.D. Hutchison and R.L. Koch. 2021. Presence-absence sampling plans for stink bugs (Hemiptera: Pentatomidae) in the Midwest Region of the U.S. *Journal of Economic Entomology* 114(3): 1362–1372
3. Anderson, P.A., D. T. Pezzini, N. M. Bueno, C. D. DiFonzo, D. L. Finke, T. E. Hunt, J. J. Knodel, C. H. Krupke, B. P. McCornack, C. R. Philips, A. J. Varenhorst, R. J. Wright, R. L. Koch. 2020. Parasitism of adult Pentatomidae by Tachinidae in soybean in the North Central Region of the United States. *Journal of Insect Science* 20(3): 1-4
<https://doi.org/10.1093/jisesa/ieaa030>
4. Anderson E. J., M. L. Ali, W. D. Beavis, P. Chen, T. E. Clementa, B. W. Diers, G. L. Graef, P. Grassini, D. L. Hyten, L. K. McHale, R. L. Nelson, W. A. Parrott, G. B. Patil, R. M. Stupar and K. J. Tilmon. 2019. Soybean [*Glycine max* (L.) Merr.] Breeding: History, improvement, production and future opportunities. In: Al-Khayri J., Jain S., Johnson D. (eds) *Advances in Plant Breeding Strategies: Legumes*. Springer.
5. Banerjee A, Valmorbidia I, O’Neal ME, and Parshad R. Exploring the dynamics of virulent and avirulent aphids: a case for a ‘within plant’ refuge. *Journal of Economic Entomology*. In press. arXiv:2109.00121
6. Brenner R, Prischmann-Voldseth DA. 2020. Influence of a neonicotinoid seed treatment on a nontarget herbivore of soybean (twospotted spider mite) and diet switching by a co-occurring omnivore (western flower thrips). *Environ. Ent.* 49: 461-472.
7. Bueno, A.F., A.R. Panizzi, T.E. Hunt, P.M. Dourado, R.M. Pitta, J. Gonçalves. 2021. Challenges for Adoption of Integrated Pest Management (IPM): The Soybean Example. *Neotropical Entomology* 50:5-20. <https://doi.org/10.1007/s13744-020-00792-9>
8. Calresso Aita, R., D. T. Pezzini, E. C. Burkness, C. D. DiFonzo, D. L. Finke, T. E. Hunt, J. J. Knodel, C. H. Krupke, L. Marchi-Werle, B. McCornack, A. P. Michel, C. R. Phillips, N. J. Seiter, A. J. Varenhorst, R. J. Wright, W. D. Hutchison, and R. L. Koch. 2021. Presence-absence sampling plans for stink bugs (Hemiptera: Pentatomidae) in the Midwest region of the United States. *Journal of Economic Entomology* 114(3): 1362-1372. <https://doi.org/10.1093/jee/toab076>.

9. Calvo-Agudo, M., Dregni, J.S., González-Cabrera, J., Dicke, M., Heimpel, G.E., Tena, A., 2021. Neonicotinoids from coated seeds toxic for honeydew-feeding biological control agents. *Environmental Pollution* 289: 117813.
10. Camargo, C., D. D. Snow, S. Onanong, T. E. Hunt, B. D. Siegfried. 2019. Residues of thiamethoxam and mfenoxam in vegetative and floral tissue of soybean at the early reproductive stage resulting from seed treatments. *Crop Protection*, 119: 134-140. doi.org/10.1016/j.cropro.2019.01.019
11. Casiraghi, A., J.S. Dregni, N.P. Hidalgo, J. Kaser, G.E. Heimpel, J. Selfa & M. Ferrer-Suay. Brachyptery analysis in *Alloxysta* (Hymenoptera: Figitidae): synonymy of *A. curta* as the brachypterous male of *A. ramulifera* in the Nearctic. *Proceedings of the Washington Entomological Society*; In review.
12. Conzemius, S. R., L. S. Hesler, A. J. Varenhorst, K. J. Tilmon. 2019. Resistance of soybean plant introductions to three colonies of soybean aphid (Hemiptera: Aphididae) Biotype 4. *Journal of Economic Entomology* 112: 2407-2417.
13. Conzemius, S. R., L. S. Hesler, A. J. Varenhorst, K. J. Tilmon. 2019. Resistance to soybean aphid biotype 4 in plant introductions of *Glycine soja*. *Euphytica* 215: 98-108.
14. Crossley, M.S., Smith, O.M., Davis, T.S., Eigenbrode, S.D., Hartman, G.L., Lagos-Kutz, D., Halbert, S.E., Voegtlin, D.J., Moran, M.D., Snyder, W.E. 2021. Complex life histories predispose aphids to recent decline. *Global Change Biology* <https://onlinelibrary.wiley.com/doi/10.1111/gcb.15739>
15. Crossley, M.S., Meier, A.R., Baldwin, E.M., Berry, L.L., Crenshaw, L.C., Hartman, G.L., Lagos-Kutz, D., Nichols, D.H., Patel, K., Varriano, S., Snyder, W.E., Moran, M.D. 2020. No net insect abundance and diversity declines across US long term ecological research sites. *Nature Ecology and Evolution*. <https://doi.org/10.1038/s41559-020-1269-4>
16. Crossley, M.S., Lagos-Kutz, D., Davis, T.S., Eigenbrode, S.D., Hartman, G.L., Voegtlin, D.J., Snyder, W.E. 2022. Precipitation change accentuates or reverses temperature effects on aphid dispersal. *Ecological Applications*. In press.
17. Dean, A.N., Niemi, J.B., Tyndall, J.C., Hodgson, E.W. and O'Neal, M.E. 2021. Developing a decision-making framework for insect pest management: a case study using *Aphis glycines* (Hemiptera: Aphididae). *Pest Manag Sci*, 77: 886-894. <https://doi.org/10.1002/ps.6093>
18. Esquivel CJ, Martinez EJ, Baxter R, Trabanino R, Ranger CM, Michel A, Canas LA. Thiamethoxam differentially impacts the survival of the generalist predators, *Orius insidiosus* (Hemiptera: Anthocoridae) and *Hippodamia convergens* (Coleoptera: Coccinellidae), when exposed via the food chain. *J Insect Sci*. 2020 Jul 1;20(4):13.

19. Esquivel, C. J., L. A. Canas, K. Tilmon and A. P. Michel. 2021. Evaluating the role of insecticidal seed treatment and refuge for managing soybean aphid virulence. *Pest Management Science*. <https://doi.org/10.1002/ps.6328>
20. Fanela, T.L.M., E.L.L Baldin, T.E. Hunt, R.D Faria. 2020. Baseline Plant-to-Plant Larval Movement of *Spodoptera eridania* in Bt and Non-Bt Soybean and Its Possible Impacts on IRM, *Journal of Economic Entomology*, 113(4): 1741–1752. <https://doi.org/10.1093/jee/toaa079>
21. Giordano, R., R. K. Donthu, A. V. Zimin, I. C. J. Chavez, T. Gabaldon, M. van Munster, L. Hon, R. Hall, J. H. Badger, M. Nguyen, A. Flores, B. Potter, T. Giray, F. N. Soto-Adames, E. Weber, J. A. P. Marcelino, C. J. Fields, D. J. Voegtlin, C. B. Hill, G. L. Hartman, T. Akraiko, A. Aschwanden, A. Avalos, M. Band, B. Bonning, A. Bretaudeau, O. Chiesa, A. Chirumamilla, B. S. Coates, G. Cocuzza, E. Cullen, P. Desborough, B. Diers, C. DiFonzo, G. E. Heimpel, T. Herman, Y. Huanga, J. Knodel, C. Ko, G. Labrie, D. Lagos-Kutz, J. Lee, S. Lee, F. Legeai, M. Mandrioli, G. C. Manicardi, E. Mazzoni, G. Melchiori, A. Micijevic, N. Miller, A. Nasuddin, B. A. Nault, M. E. O'Neal, M. Panini, M. Pessino, D. Prischmann-Voldseth, H. M. Robertson, S. Liu, H. Song, K. Tilmon, J. Tooker, K. Wu, and S. Zhan. 2020. Soybean aphid biotype 1 genome: Insights into the invasive biology and adaptive evolution of a major agricultural pest. *Insect Biochemistry and Molecular Biology* 120: <https://doi.org/10.1016/j.ibmb.2020.103334>.
22. Hesler, L., E.A. Beckendorf, and E. Taliercio. 2019. Resistance to soybean aphid in selected wild soybean accessions, 2018–2019. *Arthro. Manag. Tests* 44: tsz078, <https://doi.org/10.1093/amt/tsz078>
23. Hesler, L.S. and E. Taliercio. 2021. Resistance among selected wild soybean and associated soybean accessions against two virulent colonies of *Aphis glycines* (Hemiptera: Aphididae). *Phytoparasitica* 49:243-251.
24. Hesler, L.S.; and E.A. Beckendorf. 2020. Soybean aphids per plant among soybean lines containing various Rag genes. *Ag Data Commons* <https://doi.org/10.15482/USDA.ADC/1519177>.
25. Hesler, L.S. and E.A. Beckendorf. 2021. Soybean aphid infestation and crop yield in relation to cultivar, foliar insecticide, and insecticidal seed treatment in South Dakota. *Phytoparasitica* 49:971-981. <https://doi.org/10.1007/s12600-021-00914-y>
26. Hesler, L.S., K.J. Tilmon, A.J. Varenhorst, E. Taliercio and E.A. Beckendorf. 2021. Challenges and prospects of wild soybean as a resistance source against soybean aphid. *Annals Entomol. Soc. Am.*, saab033, <https://doi.org/10.1093/aesa/saab033>.

27. Hodgson, E. W., A. N. Dean, and Z. Wang. 2020. Using immediate feedback cards in extension. *Journal of Extension*. v58-4rb4.
28. Lagos-Kutz, D., Pawlowski, M. L., Diers, B. W., Purandare, S. R., Tilmon, K. J., and G. L. Hartman. 2020. Virulence of soybean aphid, *Aphis glycines* (Hemiptera: Aphididae) clones on detached leaves and whole plants. *Journal of the Kansas Entomological Society*, 92(3): 497-511.
29. Lagos-Kutz, D., and Hartman, G.L. 2021. Survivorship of soybean aphid biotypes (Hemiptera: Aphididae) on winter hosts, common and glossy buckthorn. *Insecta Mundi*. 0870:1-8.
30. Lagos-Kutz, D., D. J. Voegtlin, D. Onstad, D. Hogg, D. Ragsdale, K. Tilmon, E. Hodgson, C. DiFonzo, R. Groves, C. Krupke, J. Laforest, N. J. Seiter, E. Duerr, B. Bradford, and G. L. Hartman. 2020. The soybean aphid suction trap network: sampling the aerobiological “soup.” *American Entomologist* 66: 48-55.
31. Lagos-Kutz, D.M., C.D. DiFonzo, and G. Hartman. 2022. New Records of aphids (Hemiptera: Aphididae) in the US Midwest. *Great Lakes Entomologist*. In press.
32. Lin, C-H. Sponsler, D.B., Richardson, R.T., Watters, H.D., Glinski, D.A., Henderson, W.M., Minucci, J.M., Lee, E.H., Purucker, S.T., Johnson, R.M. 2021. Honey bees and neonicotinoid-treated corn seed: contamination, exposure, and effects. *Environmental Toxicology and Chemistry*. 40(4):1212–1221.
33. Lin, C.-H., S. Suresh, E. Matcham, P. Monagan, H. Curtis, R. Richardson, and R. Johnson. 2022. Soybean is a common nectar source for honey bees (Hymenoptera: Apidae) in a Midwestern agricultural landscape. *Journal of Economic Entomology* (in review)
34. Mourtzinis, S., C.H. Krupke, P.D. Esker, A. Varenhorst, N.J. Arneson, C.A. Bradley, A.M. Byrne, M. Chilvers, L.J. Giesler, A. Herbert, Y. Kandel, M.J. Kazula, C. Hunt, L.E. Lindsey, S. Malone, D. Mueller, S. Naeve, E. Nafziger, D.D. Reising, W.J. Ross, D. Rossman, S.V. Taylor and S.P. Conley. 2019. Neonicotinoid seed treatments of soybean provide negligible benefits to US farmers. *Nature Scientific Reports*. 9: 11207.
35. McMechan, J.A., E.W. Hodgson, A.J. Varenhorst, T.E. Hunt, R.J. Wright, and B. Potter. 2021. Soybean gall midge (Diptera: Cecidomyiidae), a new species causing injury to soybean in the United States, *JIPM* 12:1, 8, <https://doi.org/10.1093/jipm/pmab001>
36. McMinn-Sauder, H.; Richardson, R.; Eaton, T.; Smith, M.; Johnson, R. 2020. Flowers in conservation reserve program (CRP) pollinator plantings and the upper midwest agricultural landscape supporting honey bees. *Insects*. 11(7).
37. McMinn-Sauder, H., Lin, C.H., Eaton, T., Johnson, R. 2022. A comparison of

springtime pollen and nectar foraging in honey bees kept in urban and agricultural environments. *Frontiers in Sustainable Food Systems* (in review)

38. Menger, J., P. Beauzay, A. Chirumamilla, C. Dierks, J. Gavloski, P. Glogoza, K. Hamilton, E.W. Hodgson, J.J. Knodel, I.V. MacRae, D.T. Pezzini, B.D. Potter, A.J. Varenhorst and R.L. Koch. 2020. Implementation of a diagnostic-concentration bioassay for detection of susceptibility to pyrethroids in soybean aphid (Hemiptera: Aphididae). *Journal of Economic Entomology* 113(2): 932-939
39. Musser, F. R., A. L. Catchot, Jr., S. P. Conley, J. A. Davis, C. DiFonzo, J. K. Greene, G. M. Lorenz, D. Owens, T. Reed, D. D. Reising, P. Roberts, T. Royer, N. J. Seiter, S. D. Stewart, S. Taylor, K. Tilmon, R. T. Villanueva, and M. O. Way. 2019. 2018 Soybean insect losses in the United States. *Midsouth Entomologist* 12: 1-24.
40. Musser, F. R., A. L. Catchot, Jr., S. P. Conley, J. A. Davis, C. DiFonzo, J. K. Greene, G. M. Lorenz, D. Owens, D. D. Reising, P. Roberts, T. Royer, N. J. Seiter, R. Smith, S. D. Stewart, S. Taylor, K. Tilmon, R. T. Villanueva, and M. O. Way. 2020. 2019 Soybean insect losses in the United States. *Midsouth Entomologist* 13: 1-23.
41. Musser, F.R., A.L. Catchot, S. Conley, J. A. Davis, C. DiFonzo, S. Graham, J. Greene, R. Koch, D. Owens, D.D. Reising, P. Roberts, T. Royer, N. Seiter, S.D. Stewart, S. Taylor, B. Thrash, K. Tilmon, R.T. Villanueva, and M.O. Way. 2021. 2020 Soybean Insect Losses in the United States. *Midsouth Entomologist* 14 (1): 1-25.
42. Ongaratto, S. E., C. M. Silveira, M. C. Santos, J. E. R. Gorri, M. M. P. Sartori, T. E. Hunt, A. L. Lourenção, E. L. L. Baldin. 2021 Resistance of soybean genotypes to *Anticarsia gemmatilis* (Lepidoptera: Erebidae): antixenosis and antibiosis characterization. *J. Econ. Entomol.* XX, 1-10, <https://doi.org/10.1093/jee/toab0197>
43. Ongaratto, S. E., E.L.L. Baldin, T.E. Hunt, D.G. Montezano, E.A. Robinson, M.C. dos Santos. 2021. Effects of intraguild interactions on *Anticarsia gemmatilis* and *Chrysodeixis includens* larval fitness and behavior in soybean. *Pest Manag. Sci.* 77: 2939 – 2947, <https://doi.org/10.1002/ps.6330>.
44. Pannuti, Luiz E. R., Edson L. L. Baldin, Silvana V. Paula-Moraes, Thomas E. Hunt, Vinicius F. Canassa, José P. G. F. Silva, Ivana F. da Silva. 2019. External Marking and Behavior of Early Instar *Helicoverpa armigera* (Lepidoptera: Noctuidae) on Soybean. *Florida Entomologist*, 102: 90-95, doi.org/10.1653/024.102.0114
45. Pezzini, D.T., C.D. DiFonzo, D.L. Finke, T.E. Hunt, J.J. Knodel, C.H. Krupke, B. McCornack, A.P. Michel, C.R. Philips, A.J. Varenhorst, R.J. Wright and R.L. Koch. 2019. Community composition, abundance and temporal dynamics of stink bugs (Hemiptera: Pentatomidae) in soybean in the North Central Region of the U.S. *J. Econ. Entomol.* doi: 10.1093/jee/toz099.

46. Pezzini, D.T., C.D. DiFonzo, D.L. Finke, T.E. Hunt, J.J. Knodel, C.H. Krupke, B. McCornack, A.P. Michel, R.D. Moon, C.R. Philips, A.J. Varenhorst, R.J. Wright and R.L. Koch. 2019. Spatial patterns and sequential sampling plans for estimating densities of stink bugs (Hemiptera: Pentatomidae) in soybean in the North Central Region of the U.S. *J. Econ. Entomol.* <https://doi.org/10.1093/jee/toz100>
47. Raudenbush, A.L., A.J. Pekarcik, V.R. Haden, and K.J. Tilmon. 2021. Evaluation of slug refuge traps in a soybean no-till cover crop system. *Insects* 12: <https://doi.org/10.3390/insects12010062>
48. Richardson, R. T., H. R. Curtis, E. G. Matcham, C.-H. Lin, S. Suresh, D. B. Sponsler, L. E. Hearon, and R. M. Johnson. 2019. Quantitative multi-locus metabarcoding and waggle dance interpretation reveal honey bee spring foraging patterns in Midwest agroecosystems. *Mol. Ecol.* 28(3):686-697.
49. Richardson, R.T., Eaton, T.D., Lin, C-H., Cherry, G., Johnson, R.M., Sponsler, D.B. 2020. Application of plant metabarcoding to identify diverse honeybee pollen forage along an urban-agricultural gradient. *Molecular Ecology.* 30(1):310-323.
50. Silva, P.R. da, A.N. Istchuk, T.E. Hunt, C.S. Bastos, J.B. Torres, K.L. Campos and J. Foresti. 2019. Susceptibility of corn to stink bug (*Dichelops melacanthus*) and its management through seed treatment. *Australian Journal of Crop Science*, 13(12):2015-2021, doi: 10.21475/ajcs.19.13.12.p2021
51. Silva, P.R., A.N. Istchuk, J. Foresti, T.E. Hunt, T.A. Araújo, F.F. Lemes, E.R. Alencar, C.S. Bastos. 2021. Economic injury levels and economic thresholds for *Diceraeus* (*Dichelops*) *melacanthus* (Hemiptera: Pentatomidae) in vegetative maize, *Crop Protection.* <http://doi.org/10.1016/j.cropro.2020.105476>.
52. Smith, J.L., CD Difonzo, TS Baute, AP Michel, CH Krupke. 2019. Ecology and Management of the Western Bean Cutworm (Lepidoptera: Noctuidae) in Corn and Dry Beans—Revision With Focus on the Great Lakes Region *Journal of Integrated Pest Management*, Vol. 10.
53. Tavares, C.S., S. V. Paula-Moraes, A. Valencia-Jimenez, T. E. Hunt, A. M. Vélez, E.J.G. Pereira. 2019. Egg albumin as a protein marker to study dispersal of Noctuidae in the agroecosystem. *Environ. Entomol.*48(6):1260-1269, doi: 10.1093/ee/nvz118
54. Thekke-Veetil, T., Hobbs, H.A., Nelson, B.D., McCoppin, N.K., Lagos-Kutz, D., Hartman, G.L., Lambert, K.N., Walker, D.R., Domier, L.L. 2019. *Aphis glycines* virus 1, a new bicistronic virus with two functional internal ribosome entry sites, is related to a group of unclassified viruses in the Picornavirales. *Journal of General Virology.* <https://doi.org/10.1099/jgv.0.001355>
55. Thekke-Veetil, T., Lagos-Kutz, D.M., McCoppin, N.K., Hartman, G.L., Ju, H., Lim, H., Domier, L.L. 2020. Soybean thrips (Thysanoptera: Thripidae) harbor highly diverse

populations of arthropod, fungal and plant viruses. *Viruses*. 12:1376.
<https://doi.org/10.3390/v12121376>.

56. Tilmon, K. J., A. Michel and M. E. O'Neal. 2021. Aphid resistance is the future for soybean production, and has been since 2004: Efforts towards a wider use of host plant resistance in soybean. *Current Opinion in Insect Science*. 45:53-58
<https://doi.org/10.1016/j.cois.2021.01.003>.
57. Yates-Stewart AD, Daron J, Wijeratne S, Shahid S, Edgington HA, Slotkin RK, Michel A. 2020. Soybean aphids adapted to host-plant resistance by down regulating putative effectors and up regulating transposable elements. *Insect Biochem Mol Biol*. 121:103363.
58. Yates-Stewart AD, Pekarck A, Michel A, Blakeslee JJ. 2020. Jasmonic Acid-Isoleucine (JA-Ile) Is Involved in the Host-Plant Resistance Mechanism Against the Soybean Aphid (Hemiptera: Aphididae). *J Econ Entomol*. 113(6):2972-2978.

Scientific Meeting Presentations: 42

1. Ademokoya, B., Hunt, T., Wright, R. 2019. We are parasitoids. November 18, 2019. Entomological Society of America Annual Meeting, St. Louis, MO.
2. Ademokoya, Blessing, Thomas Hunt, and Robert Wright. 2019. Species composition and abundance of stink bugs (Hemiptera: Heteroptera: Pentatomidae) in Nebraska. March 18, 2019. Entomological Society of America North Central Branch Annual Meeting, Cincinnati, OH, March 17-20, 2019.
3. Ademokoya, B., Hunt, T., Wright, R. 2019. Seasonal dynamics and spatial distribution pattern of stink bugs (Hemiptera: Pentatomidae) in Nebraska corn and soybean. November 18, 2019. Entomological Society of America Annual Meeting, St. Louis, MO.
4. Ademokoya, B. F., Hunt, T. E., Wright, R. J.. 2021. Parasitism of stink bugs by native parasitoids in Nebraska. 2021 Entomology Society of America Annual Conference, Entomology Society of America, Denver, CO, November 3, 2021.
5. Baldin, E. L., Ongarotto, S., Hunt, T. E., Montezano, D., Robinson, E. 2021. Using a video tracking system to assess intraguild interaction between *Anticarsia gemmatalis* (Lepidoptera: Erebidae) and *Chrysodeixis includens* (Lepidoptera: Noctuidae) in soybean. 2021 Entomology Society of America Annual Conference, Entomology Society of America, Denver, CO, November 3, 2021.
6. Bradshaw, J., Peterson, J., Wright, R., Hunt, T., McMechan, J. 2019. Improving IPM adoption through clientele collaboration in applied ecology. Entomological Society of America Annual Meeting, St. Louis, MO, November 19, 2019.

7. Dregni, J. A. Casiraghi, M. Ferrer Suay & G.E. Heimpel. 2019. Hyperparasitoids on soybean aphids in North America: thelytoky in the hyperparasitoid *Alloxysta brevis* cured with antibiotics. Poster presentation at the Annual meeting of the Entomological Society of America, St. Louis, MO
8. Hearon, L.E. 2019. Establishing a correlation between soybean presence and soybean foraging by *A. mellifera*. Talk, American Bee Research Conference, Tempe, AZ.
9. Hesler, L.S. and E. Taliercio. 2019. "Elite Glycine soja accessions with newly-identified resistance to soybean aphid," internal seminar, North Central Agricultural research Laboratory, USDA-ARS, Brookings, SD.
10. Hesler, L.S. and E. Taliercio. 2019. "Elite Glycine soja accessions with newly-identified resistance to soybean aphid," national meeting, Entomological Society of America, St. Louis.
11. Hesler, L.S. 2020. "Challenges and prospects of wild soybean as a resistance source against soybean aphid," International Plant Resistance to Insects Workshop, Mexico City.
12. Hohenstein J, Kaiser M, Tilmon K, Varenhorst A, Prischmann-Voldseth D, Potter B, Hodgson E, O'Neal M. 2019. Interspersed refuge for sustainable management of virulent *Aphis glycines*. Talk. Regional ESA meeting. Cincinnati OH.
13. Hohenstein, J. M. Kaiser, K. Tilmon, A. Varenhorst, D. Prischmann-Voldseth, B. Potter, E. Hodgson and M. O'Neal. 2019. Interspersed refuge for sustainable management of virulent *Aphis glycines*. Entomological Society of America North Central Branch Meeting, Cincinnati, OH.
14. Hunt, T.E., T.M. Heng-Moss. 2019. Soybean Tolerance to the Soybean Aphid, *Aphis glycines*. November 12. XIX International Plant Protection Congress, November 10-14, 2019, Hyderabad, India.
15. Knoell, E. A., McMechan, A. J., Hunt, T. E., Tilmon, K., Potter, B., Koch, R., Conley, S., Hesler, L. S., Seitler, N. J., Rice, K. 2021. Effect of rye cover crop termination timing on arthropods in soybean. 2021 Entomology Society of America Annual Conference, Entomology Society of America, Denver, CO, November 2, 2021.
16. Koch, R.L. 2019, March. Responding to pyrethroid-resistant soybean aphid: How limited is our tool box? Symposium talk. Meeting of the North Central Branch of the Entomological Society of America. Cincinnati, OH.
17. Koch, R.L. 2021, February. Rethinking insecticide-based management for soybean aphid. Soybean Breeders' Workshop. Virtual Meeting (20-minute presentation).
18. Lagos-Kutz, D., Voegtlin, D.J., Hartman, G. 2019. Suction Trap Network in the USA Midwest. Entomological Collection Network. St. Louis, Missouri.
19. Lagos-Kutz, D. 2020. A journey of a Peruvian entomologist in the Midwest US. Virtual Annual Meeting of Entomological Society of America: 'Powerful Voices: Overcoming

Challenges in Entomology' 8th Latin American/ Hispanic Symposium'. Presented through online at the National Entomological Society meeting.

20. Lagos-Kutz, D., Hartman, G. 2021. Aphid suction trap network in the US Midwest at Entomology. Presented through online at the National Entomological Society meeting.
21. Lin, C.-H. 2020. Floral characteristics and attractiveness to bees in soybeans. Entomological Society of American Annual Meeting (virtual livestream).
22. Lin, C.-H., H. McMinn-Sauder, N. Sammons, and R. M. Johnson. 2021. Factors affecting attractiveness of soybeans to honey bees. American Bee Research Conference (virtual livestream)
23. Lin, C.-H., W. Passifume, and R. M. Johnson. 2022. Show me the honey (and soybeans, too). American Bee Research Conference (virtual livestream)
24. McKenzie, H., C.-H. Lin, and R. M. Johnson. 2021. Developing a methodology to detect honey bee foraging using bioacoustics analysis. Entomological Society of America Annual Meeting.
25. McMechan, J., Varenhorst, A., Hodgson, E., Hunt, T., Wright, R., Montezano, D., Potter, B. 2019. Soybean gall midge: Observations on an emerging pest of soybean. Entomological Society of America Annual Meeting, Entomological Society of America Annual Meeting, St. Louis, MO, November 20, 2019.
26. McMechan, J. Hodgson, E., Varenhorst, A., Potter, B., Hunt, T., Wright, R., 2019. Soybean gall midge, a new pest in the north central region. Entomological Society of America North Central Branch Annual Meeting, Cincinnati, OH, March 19, 2019.
27. McMechan, A.J., E. Hodgson, A. Varenhorst, B. Potter, T. Hunt, and R. Wright. 2020. Soybean gall midge: Multi-state field observations from the 2020 season. Annual Entomological Society of America Meeting. November. Online
28. McMechan, A. J., Hodgson, E., Potter, B., Varenhorst, A., Hunt, T. E., Wright, R. 2021. Soybean gall midge: Understanding a new and emerging pest of soybean. 2021 Entomology Society of America Annual Conference, Entomology Society of America, Denver, CO, November 2, 2021.
29. McMechan, A., Hodgson, E., Potter, B., Vanderhorst, A., Wright, R., Hunt, T. 2021. Soybean gall midge: Observations and challenges from the 2020 season. NCB-ESA Annual Conference, NCB-ESA, Virtual, June 2021.
30. Menger, J., A.V. Ribeiro and R.L. Koch. 2021, October. Lack of evidence for fitness tradeoffs in soybean aphid (Hemiptera: Aphididae) with resistance to pyrethroid insecticides in the Upper Midwestern United States .10-minute presentation. Meeting of the Entomological Society of America. Denver, CO.
31. Montezano, D., McMechan, J., Hunt, T., Wright, R., 2019. Evaluating the impact of planting date on soybean gall midge infestation and injury to soybean. Entomological

Society of America Annual Meeting, Entomological Society of America, St. Louis, MO, November 20, 2019.

32. Montenegro, V. and A. J. McMechan. 2020. Soybean gall midge: understanding larval abundance on soybean plants during the growing season. Annual Entomological Society of America Meeting. November. Online.
33. Montenegro, V., A.J. McMechan, R. Wright, and D. Montezano. 2020. Soybean Gall Midge: Evaluating the efficacy of insecticide timing relative to adult emergence. North Central Branch Meeting. April 20th. Online.
34. Oliveras A, Prischmann-Voldseth D, Rider D. 2020. A multi-method approach to investigating the subspecific designation of the *Euchistus servus* species complex. National ESA meeting, virtual meeting, Nov 11-25 2020.
35. Overmyer, K., A. Dorrance, L. E. Lindsey and K. Tilmon. 2019. Impact of cover crops on disease and insect pressure and yield in continuous soybean production systems. ASA, CSSA and SSSA Annual Meeting, San Antonio, TX.
36. Possebom, T., D. Montezano, J. Knodel, K. Anderson, M. Harris, V. Montenegro, T. Hunt and A.J. McMechan. 2020. The distribution of soybean gall midge (*Resseliella maxima*) larval cocoons in soil from infested soybean fields. Annual Entomological Society of America Meeting. November. Online.
37. Ribeiro, A.V., R.C. Aita, D.T. Pezzini, C.D. DiFonzo, T.E. Hunt, J.J. Knodel, C. Krupke, L. Marchi-Werle, A. Michel, N.J. Seiter, R. Wright, W.D. Hutchison, and R. Koch. 2021. Optimizing sample unit size for sampling stink bugs in Midwest soybean. ESA National Meeting, Denver, CO.
38. Seiter, N. J. 2019. Developing IPM practices for invasive and emerging pests of agronomic crops. University of Illinois Department of Entomology Colloquium. Urbana, IL.
39. Tilmon, K. J., A. Pekarcik and A. Raudenbush. 2019. *Harmonia axyridis* immigration and oviposition in response to variable aphid density. International Symposium on the Ecology of Aphidophaga 14. Montreal, Canada.
40. Tilmon, K. J. 2020. Plenary Address: The road from discovery to commercialization of aphid resistant soybean varieties. 24th International Plant Resistance to Insects Symposium. Texcoco, Mexico.
41. Tilmon, K. J. 2021. *Harmonia axyridis* immigration and oviposition in response to variable aphid density. Oklahoma State University Seminar Series.
42. Zhang, Z., S. Khanal, C. Stewart, A. Raudenbush and K. Tilmon. 2021. UAV based monitoring of soybean leaf defoliation from insects. American Society of Agricultural and Biological Engineers Annual Meeting.

Scientific Symposia Organized: 3

1. Hunt, T. E. Co-Organizer, 2019 Symposium at the XIX International Plant Protection Congress, 10-14 November, 2019 Hyderabad, Telangana, India titled “Conventional and omic approaches to integrate host plant resistance in IPM.”
2. Lin, C.-H., K. Parys and H. Levenson. 2020. “Pollinators and soybeans: impacts, complications, and future directions.” 2020 Entomological Society of America Annual Meeting.
3. Seiter, N., R. T. Villanueva, and B. McCornack. (Co-organizer and moderator). Insect Resistance: Challenges to Current Technologies. Symposium – Entomological Society of America North Central Branch 74th Annual Meeting. Cincinnati, OH. March 20, 2019.

Leveraged Grants

35 Grants, totaling \$2,561,974

1. Bond, J., G. Hartman, K. Estes, N. Seiter. 2021-2022. Illinois Soybean Association. Soybean stem pests: survey, impact, and education. Project total: \$90,000.
2. Hartman, G. Identify aphids and other virus vectors in the suction trap samples. Iowa State University. \$25,000
3. Hartman, G. Determine the effect of soybean vein necrosis virus on plant productivity and evaluate soybean germplasm for resistance. Cooperative agreement with Southern Illinois University. Funded through the United Soybean Board. \$40,000
4. Hartman, G. Monitor and model the spatial and temporal movement of whiteflies through agroecosystems from south to northern dispersal by using suction traps samples and molecular approaches to measure genetic diversity. University of Georgia. \$5,000
5. Hearon, L., Lin, C.-H. and Johnson, R. Ohio State Beekeepers Association. 2018-2019. Soybean or Clover: Pollen Analysis to Determine Floral Source of Ohio Summer Honey. \$2998
6. Heimple, G. E. 2019-2021. University of Minnesota Rapid Agricultural Response Fund. How Parasitoid Mortality Limits Biological Control of Soybean Aphid. Amount Awarded: \$178,610
7. Johnson, R.M., Lin, C.-H. and Goodell, K. 2019-2022. USDA-NIFA. Benefits and risks for pollinators in the corn-soybean agroecosystem. \$467,000
8. Khanal, S., D. Lavell, K. J. Tilmon. 2020 - 2021. Monitoring and managing soybean

- defoliation by pests using unmanned aerial vehicles. Ohio Soybean Council. \$5,661
9. Knodel, J. and V. Calles Torrez. 2019-2020. Identification of Pyrethroid Resistant Soybean Aphids and Use of Drones for Insect Scouting, North Dakota Soybean Council. \$40,000.
 10. Knodel, J. and V. Calles Torrez. 2020-2021. Pyrethroid Resistant Soybean Aphids and Soybean Gall Midge Survey, North Dakota Soybean Council. \$31,670.
 11. Knodel, J. and V. Calles Torrez. 2021-2022. Best Pest Management of Pyrethroid Resistant Soybean Aphids and Soybean Gall Midge Survey, North Dakota Soybean Council. \$35,500.
 12. Lin, C.-H. and Johnson, R.M. 2018-2020. SEEDS: The OARDC Research Enhancement Competitive Grants Program. Honey bees and Soybeans: Better Together? \$49,526
 13. McMechan, A.J., T. Hunt, R. Wright. “Soybean Gall Midge: Planting Date and Seed Treatment Interactions”. NSB, \$102,943. 2020-2022.
 14. McMechan, A.J., T. Hunt, R. Wright. . 2020-2023. “Understanding the temporal and spatial dynamics of soybean gall midge” USDA-NIFA CPPM, \$194,506
 15. McMechan, J., Graef, G., Hunt, T., Wright, R. 2019-2022. “Soybean Gall Midge: Surveying the North Central Region, Adult Monitoring and Host Plant Resistance”, NCSRP, \$307,953 ((NE funding of \$798,546 for multi-yr, multi-state project).
 16. McMechan, J., Hunt, T.E., Wright, R. "IPM for Soybean Gall Midge: understanding pest ecology and identifying management practices", NCIPMC – Critical Issues Grant Program. \$50,000, 2019-2020.
 17. McMechan, J., Yuen, G., Hunt, T.E., Wright, Glewen, K., Nygren, A. “Soybean Gall Midge: Evaluating Pest Management Tactics and Plant Disease Interactions”, NSB, \$141,392. 2019-2022.
 18. McMinn-Sauder, H. and Johnson, R.M. 2020. Ohio State Beekeepers Association. Flowers supporting honey bees in the Ohio agroecosystem. \$3,000.
 19. O’Neal, M. and J. Hohenstein. 2019. Syngenta Canada, “Evaluating neonicotinoid seed treatments for soybean aphid management.” \$8,000.
 20. O’Neal, M., E. Hodges, and B. Coates. 2021-2023. USDA-NIFA-CPPM, Detecting Insecticide-Resistant Aphids before Field Failures Cost Farmers. \$200,000.
 21. Reberg-Horton, C. et al. (45 PIs); Seiter, N. (funded collaborator). USDA-NIFA, AFRI Sustainable Ag Systems CAP project. Sep. 2019-Aug. 2024. Enhancing the sustainability of U.S. cropping systems through cover crops and an innovative information and technology network. Project total: \$9,994,404. Seiter portion: \$84,984.

22. Reberg-Horton, C. et al. (45 PIs); Seiter, N. (funded collaborator). USDA-NIFA, AFRI Sustainable Ag Systems CAP project. Sep. 2019-Aug. 2024. Enhancing the sustainability of U.S. cropping systems through cover crops and an innovative information and technology network. Project total: \$9,994,404. Tilmon portion: \$60,000.
23. Rice, K.B. 2019. Missouri Soybean Merchandising Council, Refining monitoring traps for 2019 invasive stink bugs \$8,775.
24. Seiter, N. 2019-2021. Illinois Nutrient Research and Education Council. Insect Management in Cover Crop Systems. Total/Seiter portion: \$125,318.
25. Seiter, N. J. . 2019-2021. Illinois Soybean Association. How long do insecticide applications provide effective control of soybean pests? Project total: \$48,742. Seiter portion: \$48,742
26. Seiter, N., D. Friend, N. Johannig, K. Johnson. Jan. 2019-Dec. 2020. University of Illinois Extension. Pest and Beneficial Insects in Illinois Cover Crops. Total: \$35,914. Seiter portion: \$9,000.
27. Spencer, J., N. J. Seiter, K. A. Estes. 2019-2020. North Central Soybean Research Program. Soybean gall midge: surveying the North Central region, adult monitoring, and host plant resistance. Project total: \$10,000.
28. Tilmon, K. J. 2020 – 2021. Graduate student soybean research support program FY21. Ohio Soybean Council. \$20,000
29. Tilmon, K. J. and A. Dorrance. 2019 – 2020. Graduate student soybean research support program. Ohio Soybean Council. \$20,000
30. Tilmon, K. J. and A. Michel. 2018-2019. Monitoring and management of soybean insect pests FY19. The Ohio Soybean Council. \$58,000.
31. Tilmon, K. J. and A. Michel. 2019 – 2020. Monitoring and management of soybean insect pests FY20. Ohio Soybean Council. \$59,731.
32. Tilmon, K. J. and A. Michel. 2020 – 2021. Monitoring and management of soybean insect pests FY21. Ohio Soybean Council. \$50,000.
33. Tilmon, K. J. and A. Michel. 2021 – 2022. Monitoring and management of soybean insect pests FY22. Ohio Soybean Council. \$59,000.
34. Tilmon, K. J. and S. Cullman. 2019 – 2020. Agronomic Crop Research Experience Summer Internship Program. Ohio Soybean Council. \$40,000
35. Wright, R., Golick, D., Hunt, T., McMechan, J., Peterson, J., Rice, K., Weissling, T.,

Wu-Smart, J. “Developing conservation skills in students through beneficial insect protection in community agroecosystems”, EPA, \$100,000. 2019-2021.

Graduate Students Trained: 14

1. Alyssa Lucas, MS in progress, University of Missouri
2. Hicks, J.D., MS, 2021. South Dakota State University
3. Ademokoya, Blessing. PhD. 2021. University of Nebraska
4. Thiago Luis Martins Fanela, PhD. 2019. University of Nebraska/Brazil Co-Training Program
5. Tamiris Alves de Araújo, PhD. 2019. University of Nebraska/Brazil Co-Training Program
6. Sabrina Ongaratto, PhD. 2019. University of Nebraska/Brazil Co-Training Program
7. Muriel Soares, PhD. 2021. University of Nebraska/Brazil Co-Training Program
8. Ivair Valmorbida, PhD. Iowa State University
9. Jonathan Bell-Clement, MS. North Dakota State University.
10. Vincent Aron Oliveras, M.S. North Dakota State University
11. Ashley Yates-Stewart, PhD. 2019. Ohio State University
12. Harper McMinn-Sauder, PhD in progress, Ohio State University
13. Hannah McKenzie, MS in progress, Ohio State University
14. James Menger, MS. 2022. University of Minnesota

Postdocs Trained: 2

1. Déia Montezano, University of Nebraska
2. Jessica Hohenstein, Iowa State University

Undergraduates Trained in Soybean Research: 44

1. Markos McAulife, University of Missouri
2. Justice Boyes, University of Missouri

3. Chris Kalogeris, University of Missouri
4. Hannah Ritter, Purdue University
5. Taylor Nelson, Purdue University
6. Gina Hanko, Purdue University
7. Otavio Xavier, University of Nebraska
8. Taynara Possebom, University of Nebraska
9. Joana Schroeder de Souza, University of Nebraska
10. Taynara Possebom, University of Nebraska
11. Regina Sonete Stacke, University of Nebraska
12. Juan David Betancurt Cardona, University of Nebraska
13. Vilma Montenegro, University of Nebraska
14. Dania Vieira Branco Ozorio, University of Nebraska
15. Tauana Ferreira de Almeida, University of Nebraska
16. Isai Enrique Sosa Cal, University of Nebraska
17. Genereuse Turabawe, University of Nebraska
18. Earl Agpawa, University of Nebraska
19. Three undergraduates at Michigan State University
20. Sarah Wood, University of Minnesota
21. Mia Ross, University of Minnesota
22. Sierra Baum, University of Minnesota
23. Luke Hearon, Ohio State University
24. Will Passifume, Ohio State University
25. Nicole Sammons, Ohio State University
26. Isabel Nazarian, Ohio State University
27. Lauren Johnson, Ohio State University
28. Matthew Lorentz, Ohio State University
29. Kimberly Gault, Ohio State University

30. Kelsey Shepherd, North Dakota State University
31. Matthew Weiser, North Dakota State University
32. Sarah Schroeder, North Dakota State University
33. Nathan Kreuter, Iowa State University
34. Galvin McQuellon, University of Illinois
35. Maddie Poole, University of Illinois
36. 9 additional undergraduate students at University of Illinois

Awards: 7

1. Hunt, T. E. 2019. Excellence in Extension Team Award 2019, Soybean Management Field Day Program, University of Nebraska Extension.
2. Hunt, T.E. 2020 CAPES-PRINT Teaching/Bridge Building Fellowship, Universidade Federal Rural De Pernambuco, Brasil
3. Johnson, R. 2019. Eastern Apicultural Society of North America, James I. Hambleton Award for Outstanding Research.
4. McKenzie, H. 2021. First Place, Graduate Student Presentation, PI-E Pollinators. Entomological Society of America Annual Meeting.
5. O'Neal, M. 2022. Iowa State University College of Agriculture and Life Sciences Team Award.
6. Tilmon, K. J. 2019 Award of Merit, Entomological Society of America North Central Branch
7. Tilmon, K. J. 2019 ASA Extension Education Community Educational Material Award, to the editorial team of the OSU Corn, Soybean, Wheat, and Alfalfa Field Guide

Extension Publications: 82

Fact sheets, Field guides, ID/Alert cards, Trade journal articles, Popular press, and other Extension deliverables

1. Calles-Torrez, V., P. Beauzay, T.J. Prochaska and J.J. Knodel. 2021. Common Natural Enemies of Insect Pests E2013. NDSU Ext., Fargo, ND.

<https://www.ndsu.edu/agriculture/extension/publications/common-natural-enemies-insect-pests>

2. Casey, Mary Anne, Kevin B. Rice, Thomas E. Hunt. 2021. Farmers Needs Related to Soybean Insect Pests: Focus Group Interviews with Soybean Growers & Crop Consultants. (pp. 42). North Central Soybean Research Program.
3. Corona, C., A. Dean, and E. Hodgson. 2020. "Getting to know popular insecticides used in Iowa field crops." In ICM Encyclopedia Article. 14 April 2020.
4. Dean, A., E. Hodgson, and M. Helton. 2020. "Soybean gall midge larvae active in Iowa." In ICM News. 2 July 2020.
5. Dean, A., and E. Hodgson. 2020. "Corteva™ to end chlorpyrifos production: what does this mean for Iowa farmers?" In ICM News. 21 February 2020.
6. Dean, A., and E. Hodgson. 2020. "Summary of 2019 insecticide evaluations for soybean pests." In ICM News. 13 January 2020.
7. Dean, A., and E. Hodgson. 2021. "Summary of 2020 insecticide evaluations for soybean pests." In ICM News. 10 January 2021.
8. DiFonzo, C.D. and K. Tilmon. 2021. MSU-OSU Field Crops Insect Pest Management Guide
9. Dregni, J., Stenoien, C., Heimpel, G., Koch, R. 2020. Low soybean aphid numbers were coupled with scarcity of a parasitic wasp in 2019: What does this mean for biological control of soybean aphid in 2020? Minnesota Crop News, February 5, 2020.
10. Estes, K., Kleczewski, N., K. Ames, N. Seiter, and A. Vance. 2019. Applied Research Results Field Crop Disease and Insect Management. (Summary of insect and disease control trials). University of Illinois Department of Crop Sciences, Urbana, IL. <https://uofi.box.com/v/2019PestPathogenARB>.
11. Estes, K., J. Spencer, N. Kleczewski, K. Ames, N. Seiter, and A. Decker (Vance). 2020. Applied Research Results Field Crop Disease and Insect Management. (Summary of insect and disease control trials for the 2020 growing season). University of Illinois Extension, Urbana, IL. <https://go.illinois.edu/2020PestPathogenARB>.
12. Hodgson, E. 2019. "2018 Insecticide evaluation for soybean aphid." In ICM News. 28 January 2019.
13. Hodgson, E. 2019. "Soybean aphid egg hatch starting in northern Iowa." In ICM News. 2 May 2019.
14. Hodgson, E. 2019. "Will the insects survive this winter?" In ICM News. 20 February 2019.
15. Hodgson, E. W., A. Dean, N. Seiter, and V. Schmitt. 2020. Insect and Mite Management. in Field Crop Production Handbook: An Introduction to Farming Practices (CROP3162).

(ed. E. W. Hodgson, M. A. Licht, A. J. Sisson). Iowa State University Extension and Outreach, Ames, IA.

16. Hodgson, E. W., G. VanNostrand, A. Dean, and M. Helton. 2019. 2019 Yellow Book Report of insecticide evaluation for soybean pests, 36 pp. ISU, Publication CROP 3197.
17. Hodgson, E. W., G. VanNostrand, A. Dean, and M. Helton. 2020. 2020 Yellow Book Report of insecticide evaluation for soybean pests, 34 pp. ISU, Publication CROP 3198.
18. Hohenstein, J. & O'Neal, M. E. & Diers, B., 2020. "Evaluation of Aphid-Resistant Soybean", Iowa State University Research and Demonstration Farms Progress Reports 2019.
19. Hohenstein, J. & O'Neal, M. E. & Ryan, M., 2020. "Public-Private Partnership to Evaluate Aphid-Resistant Soybeans", Iowa State University Research and Demonstration Farms Progress Reports 2019
20. Knodel, J.J. 2019. 2019 ND IPM survey results in soybean and sunflower. NDSU Extension Crop and Pest Report #16 (September 12, 2019).
21. Knodel, J.J. 2019. Cereal aphids and soybean aphids in ND. NDSU Extension Crop and Pest Report #8 (June 27, 2019).
22. Knodel, J.J. 2019. Good bugs helping us out with pest control. NDSU Extension Crop and Pest Report #13 (August 1, 2019).
23. Knodel, J.J. 2019. Insect management in soybean. In Soybean Production Field Guide for North Dakota. A-1172 (revised). H. Kandel and G. Endres (editors), NDSU Ext., Fargo, ND. <https://www.ndsu.edu/agriculture/ag-hub/ag-topics/crop-production/crops/soybeans/soybean-production-field-guide-north-dakota>
24. Knodel, J.J. 2019. New insecticides registered in ND. NDSU Extension Crop and Pest Report #13 (August 1, 2019).
25. Knodel, J.J. 2019. No soybean aphids. NDSU Extension Crop and Pest Report #14 (August 15, 2019).
26. Knodel, J.J. 2019. Pyrethroid resistant soybean aphids in ND. NDSU Extension Crop and Pest Report #15 (August 29, 2019).
27. Knodel, J.J. 2019. Scout for cereal aphids and soybean aphids. NDSU Extension Crop and Pest Report #9 (July 4, 2019).
28. Knodel, J.J. 2019. Soybean aphids continue low. NDSU Extension Crop and Pest Report #13 (August 1, 2019).
29. Knodel, J.J. 2019. Soybean aphids very low. NDSU Extension Crop and Pest Report #12 (July 25, 2019).
30. Knodel, J.J. 2019. Transform insecticide received federal EPA registration. NDSU Extension Crop and Pest Report #11 (July 18, 2019).

31. Knodel, J.J. 2020. No soybean aphids. NDSU Extension Crop and Pest Report #13 (July 23, 2020).
32. Knodel, J.J. 2020. Scout for soybean aphids. NDSU Extension Crop & Pest Report #9 (June 25, 2020).
33. Knodel, J.J. 2020. Soybean aphid low. NDSU Extension Crop and Pest Report #10 (July 2, 2020).
34. Knodel, J.J. and V. Calles-Torrez. 2020. Common Arthropod Pests of Soybean E2005. NDSU Extension, Fargo, ND. <https://www.ndsu.edu/agriculture/ag-hub/publications/common-arthropod-pests-soybeans-north-dakota>
35. Knodel, J.J., Friskop, A., Beauzay, P.B., and Markell, S. 2020. 2020 soybean and sunflower IPM survey. NDSU Extension Crop and Pest Report #19 (September 24, 2020).
36. Knodel, J.J. 2021. Soybean aphids and spider mites starting. NDSU Extension Crop and Pest Report #8 (June 17, 2021).
37. Knodel, J.J., Friskop, A., Beauzay, P., and Markell, S. 2021 IPM survey - soybean and sunflower. NDSU Extension Crop and Pest Report #19 (September 23, 2021).
38. Knodel, J.J., P. Beauzay, M.A. Boetel, T.J. Prochaska and A. Chirumamilla. 2020. 2021 North Dakota Field Crop Insect Management Guide E1143 (revised). NDSU Ext., Fargo, ND.
39. Koch, R.L. and B. Potter. 2019. Guidance for insecticide rotations for pyrethroid-resistant soybean aphid. Minnesota Crop News, University of Minnesota Extension. August 13, 2019 <https://blog-crop-news.extension.umn.edu/2019/08/guidance-for-insecticide-rotations-for.html>
40. Koch, R.L. and B. Potter. 2019. Insecticide options for resistant soybean aphid. University of Minnesota Extension. <https://extension.umn.edu/soybean-pest-management/insecticide-options-resistant-soybean-aphid>
41. Koch, R.L., B. Potter, E. Hodgson, J. Knodel and A. Varenhorst. 2019. Management of insecticide-resistant soybean aphids. North Dakota State University Extension, Publication number: E1878 <https://www.ndsu.edu/agriculture/ag-hub/publications/management-insecticide-resistant-soybean-aphids>
42. Koch, R.L. and B. Potter. 2020. Reminders for soybean aphid management: Scouting, thresholds and insecticide selection. Minnesota Crop News, University of Minnesota Extension. July 21, 2020. <https://blog-crop-news.extension.umn.edu/2020/07/reminders-for-soybean-aphid-management.html>
43. Koch, R.L., T. Cira, R. Mann, B. Potter and A. Hanson. 2021. The Environmental Protection Agency's cancellation of chlorpyrifos tolerances: Alternatives for management of key crop pests. Minnesota Crop News, University of Minnesota Extension. August 19, 2021. <https://blog-crop-news.extension.umn.edu/2021/08/environmental-protection->

agency.html

44. Lagos-Kutz, D., Hartman, G. L. 2021. Aphid suction trap network. Iowa State University, Northeast Research and Demonstration Farm ISRF20-13: 62-64.
45. Lucas, L.A., Leake, L.B., Rice, K.B. 2020. Brown marmorated stink bug in Midwest field crops. University of Missouri Extension factsheet.
46. Lucas, L.A., McMechan, J., and Rice, K.B. 2021. Soybean Gall Midge. University of Missouri Extension factsheet.
47. McMechan, A., T. Hunt, R. Wright, E. Knoell, S. Spicka, K. Glewen, 2021. Cover Crop Termination Timing Impact on Arthropod Abundance, Defoliation, and Soybean Yield. Lincoln, NE, In Soybean Management Field Day Research Update, University of Nebraska Extension, Nebraska Soybean Board.
48. McMechan, A.J., T. Hunt, and R. Wright. 2019. Impact of Cover Crop Termination Timing on Arthropod Abundance, Defoliation, and Soybean Yield. 2019 Soybean Management Field Days Research Update. <http://enrec.unl.edu/soydaysresearch>
49. McMechan, A.J., T. Hunt, and R. Wright. 2020. Impact of Cover Crop Termination Timing on Arthropod Abundance, Defoliation, and Soybean Yield. 2020 Soybean Management Field Days Research Update. <http://enrec.unl.edu/soydaysresearch>
50. McMechan, Justin, Thomas Hunt, and Robert Wright. 2021. Soybean Gall Midge in Nebraska. (pp. 7). Lincoln NE: University of Nebraska Extension NebGuide G2331.
51. Michel, A. and K. Tilmon. 2019. Where's the bean? missing seed in soybean pods. Ohio State University Crop Observation and Recommendation Network Newsletter 2019-38. November 5 – 18. <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-38/where%E2%80%99s-bean-missing-seed-soybean-pods> (724 views)
52. Michel, A. and K. Tilmon. 2020. Are stink bugs in your soybean? Ohio State University Crop Observation and Recommendation Network Newsletter 2020-27. August 18 – 24. <https://agcrops.osu.edu/newsletter/corn-newsletter/2020-27/are-stink-bugs-your-soybean> (300 views)
53. Michel, A. and K. Tilmon. 2020. Watch for spider mites in dry areas. Ohio State University Crop Observation and Recommendation Network Newsletter 2020-22. July 14 – 20. <https://agcrops.osu.edu/newsletter/corn-newsletter/2020-22/watch-spider-mites-dry-areas> (516 views)
54. Raudenbush, A. and K. J. Tilmon. 2019. Common Bees of Ohio Soybean. The Ohio State University IPM Program.
55. Raudenbush, A. C. DiFonzone and K. Tilmon. Soybean gall midge info and identification card. 75,000 cards printed, direct-mailed to every grower in IL plus several thousand copies to each state in the NCSRP
56. Raudenbush, A., A. Michel, and K. Tilmon. 2018. Stink bugs of Ohio Soybean. Ohio

State University Extension.

57. Seiter, N. 2020. Dectes Stem Borer Biology and Management in Illinois Soybean Production. University of Illinois Extension Bulletin CSEN-0120.
<https://uofi.box.com/v/csen-0120dectes>
58. Seiter, N. 2021. Managing insect pests. University of Illinois Agronomy Handbook.
<https://go.illinois.edu/agronomyhandbook>
59. Sisson, A. J., D. S. Mueller, S. P. Conley, C. K. Gerber, S. H. Graham, E. W. Hodgson, T. R. Leglieter, P. P. Price, K. J. Schaefer, E. J. Sikora, T. H. Wilkerson, and K. L. Wise. Crop scouting basics for corn and soybean. Crop Protection Network. CPN 4007. DOI: 10.31274/cpn-20201214-0.
60. Specht, J.E., T. Hoegemeyer, and T.E. Hunt, plus 30 other co-authors. 2019. Nebraska Soybean & Corn Pocket Field Guide. Nebraska Soybean and Corn Boards and United Soybean Board.
61. Tilmon, K. and A. Michel. 2019. Insecticidal seed treatments in late-planted crops. Ohio State University Crop Observation and Recommendation Network Newsletter 2019-16. June 4 - 10. <https://agcrops.osu.edu/newsletter/corn-newsletter/201916/insecticidal-seed-treatments-late-planted-crops> (336 views)
62. Tilmon, K. and A. Michel. 2019. Japanese beetles and other defoliators. Ohio State University Crop Observation and Recommendation Network Newsletter 2019-24. July 30 – August 5. <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-24/japanese-beetles-and-other-defoliators> (235 views)
63. Tilmon, K. and A. Michel. 2019. Watch for slug damage on seedling plants (when there are plants to watch). Ohio State University Crop Observation and Recommendation Network Newsletter 2019-14. May 21 -27. <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-14/watch-slug-damage-seedling-plants-when-there-are-plants-watch> (177 views)
64. Tilmon, K. and A. Michel. 2019. What non-uniform crop stages means for stink bug management in soybean. Ohio State University Crop Observation and Recommendation Network Newsletter 2019-23. July 23 -29. <https://agcrops.osu.edu/newsletter/corn-newsletter/2019-23/what-non-uniform-crop-stages-means-stink-bug-management-soybean> (275 views)
65. Tilmon, K. J. 2019 Contributed to: Ohio's Country Journal, "Tillage and pest management"
66. Tilmon, K. J. 2019 Contributed to:Field Leader, "Tips for managing Ohio's invasive soybean pests"
67. Tilmon, K. J. and A. Michel. 2019. Field crop insect update: Stink bug, corn earworm, Mexican bean beetle. Proceedings of the Ohio Private Pesticide Applicator

- Recertification Conference. Ohio State University Extension.
68. Tilmon, K. J. and A. Michel. 2019. Field crop insect update: Stink bug, corn earworm, Mexican bean beetle. Proceedings of the Ohio Private Pesticide Applicator Recertification Conference. Ohio State University Extension.
 69. Tilmon, K. J. and A. Michel. 2020. Update on field crop insects: Asiatic garden beetle and soybean gall midge. Proceedings of the Ohio Private Pesticide Applicator Recertification Conference. Ohio State University Extension.
 70. Tilmon, K. J. and A. Michel. 2020. Update on field crop insects: Asiatic garden beetle and soybean gall midge. Proceedings of the Ohio Private Pesticide Applicator Recertification Conference. Ohio State University Extension.
 71. Tilmon, K. and A. Michel. 2020. Leafhoppers, grasshoppers, and beetles, oh my! Ohio State University Crop Observation and Recommendation Network Newsletter 2020-23. July 21 – 27. <https://agcrops.osu.edu/newsletter/corn-newsletter/2020-23/leafhoppers-grasshoppers-and-beetles-oh-my> (444 views)
 72. Tilmon, K. J. 2020 Contributed to: CropLife Magazine, “California loses chlorpyrifos: What’s next?”
 73. Tilmon, K. J. 2020 Contributed to: Ohio's Country Journal, “Soybean gall midge”
 74. Tilmon, K. J. 2020 Contributed to: Chemical and Engineering News, “Chlorpyrifos alternatives”
 75. Tilmon, K. J. 2020 Contributed to: NHK/Japan Broadcasting Corporation, “Chlorpyrifos banned in parts of U.S.”
 76. Tilmon, K. J. 2020 Contributed to: Soybean Research and Information Network, “New entomology efforts underway in the north central region”
 77. Tilmon, K. J. 2021 Contributed to: American Agriculturist Magazine, “Fearsome foes: Top crop pests”
 78. Valmorbidia, I. & O'Neal, M. E. & Ryan, M., 2021. “Public-Private Partnership to Evaluate Aphid-Resistant Soybeans”, Iowa State University Research and Demonstration Farms Progress Reports 2020.
 79. Valmorbidia, I. , O'Neal, M. E. & Diers, B. 2021. “Evaluation of Aphid-Resistant Soybean”, Iowa State University Research and Demonstration Farms Progress Reports 2020.
 80. Watters, H. D., S. W. Culman, A. E. Dorrance, G. A. LaBarge, E. M. Lentz, L. E. Lindsey, M. M. Loux, P. Michel, H. E. Ozkan, P. A. Paul, A. L. Raudenbush, L. H. Rhodes, R. M. Sulc, N. J.
 81. Taylor, P. R. Thomison, K.J. Tilmon and J. F. Tooker. 2019. Corn, Soybean, Wheat, and Alfalfa Field Guide. Ohio State University Extension. Publication 827.

82. Welty, C., J. Jasinski, and K. Tilmon. 2021. Brown marmorated stink bug. Ohio State University Extension, <https://ohioline.osu.edu/factsheet/ent-90>

Extension Presentations: 185

1. Dean, A., M. O'Neal, E. W. Hodgson, J. Hohenstein, and B. Coates. 2019. Building a budget for pest resistance. ISUEO ICM Annual Conference, Ames, IA. [2 sessions; 125 people] 4 December 2019
2. DiFonzo, C. D. 2019. AgroExpo 2-day Farm Trade Show, St Johns. 13-14 Aug 2019. Insect booth (~300)
3. DiFonzo, C. D. 2019. AgroLiquid grower spray clinic, 2019 St Johns (40)
4. DiFonzo, C. D. 2019. IPM Meeting, Richville MI, 21 Feb 2019. General pest update (100)
5. DiFonzo, C. D. 2019. MSUE video - Soybean aphids: Do I have to throw insecticides in the tank? July 11, 2019 <https://www.canr.msu.edu/news/soybean-aphids-do-i-have-to-throw-insecticides-in-the-tank>
6. DiFonzo, C. D. 2019. MSUE Virtual Breakfast, July 2019. Insect Issues featuring soybean defoliators
7. DiFonzo, C. D. 2020. Golden Harvest Live Spring Update. March 2020. Insect portion. (31 via Zoom)
8. DiFonzo, C. D. 2020. IPM meeting Dowagiac, MI, 10 Feb 2020 (65)
9. DiFonzo, C. D. 2020. IPM Meeting, Peck MI, 6 Feb 2020 (120)
10. DiFonzo, C. D. 2020. IPM Meeting, West Olive, MI 3 Feb 2020 (20)
11. DiFonzo, C. D. 2020. MSUE Field Crops Team Virtual Breakfast, 16 July 2020. Sucking pests (90 via zoom)
12. DiFonzo, C. D. 2020. MSUE Field Crops Webinar Series. 2 March 2020. Emergent insects (85 via Zoom)
13. DiFonzo, C. D. 2020. MSUE Soybean Virtual Field Day. 26 Aug 2020. Defoliation measurement (80 via zoom)
14. DiFonzo, C. D. 2021. 'In the Weeds' podcast - "The Art of Scouting". Jan 2021. Field Crops IPM Meeting, SW Michigan. 29 Jan 2021. Neonic profitability (56)
15. DiFonzo, C. D. 2021. B&M Grower Field Day, Coldwater. 27 July 2021. Insect update (65)

16. DiFonzo, C. D. 2021. Field Crops IPM Meeting, Central area. 7 Jan 2021. Insect open mic
17. DiFonzo, C. D. 2021. Field Crops IPM Meeting, SE Michigan. 26 Jan 2021. Neonic profitability (43)
18. DiFonzo, C. D. 2021. Field Crops IPM Meeting, Thumb area. 13 Jan 2021. Neonics & soil insects (47)
19. DiFonzo, C. D. 2021. Michigan Agribusiness Assoc MiCENT training in field crops entomology. 3 Feb 2021 (7)
20. DiFonzo, C. D. 2021. MSU Field Crops Virtual Breakfast. 5 Aug 2021. Insect update (140)
21. DiFonzo, C. D. 2021. Soybean Field Day, MSU Campus. 26 Aug 2021. Insect update (60)
22. DiFonzo, C. D. 2021. SW Ag Conference Tek Talk, Ontario. 19 Jan 2021. Q&A about insects and IPM. (167)
23. DiFonzo, C. D. 2021. SW Ontario Ag Conference. 6 Jan 2021. IPM Mythbusters (n= live session via zoom)
24. Hesler, L.S. 2021. "Seed treatment, foliar insecticide and a resistant cultivar for managing soybean aphid," Feb. 22, Field Day presentation (virtual), Eastern South Dakota Soil & Water Research Farm, Brookings, SD.
25. Hodgson, E. 2019. Field crop pest updates. Northeast Research Farm, ISU, Nashua, IA. [2 sessions; 75 people] 28 August 2019
26. Hodgson, E. 2019. Field crop pest updates. Northern Research Farm, ISU, Kanawha, IA. [45 people] 5 September 2019
27. Hodgson, E. 2019. Insect updates. Dekalb Field Day, FEEL, ISU, Ames, IA. [2 sessions; 25 people] 8 August 2019
28. Hodgson, E. W., and A. Dean. 2020. Soybean pest updates. ISUEO CropsTV, Virtual Delivery. 1 December 2020
29. Hodgson, E.W. and R.L. Koch. 2020, July. Soybean aphid IPM. Essential Rowcrop Management Series. Iowa State University Extension and University of Minnesota Extension. Webinar (30-minute presentation with 72 attendees)
30. Hodgson, E., McMechan, A., Vanderhorst, A., Koch, B., Potter, B., Hunt, T., Wright, R., 2021. Soybean Gall Midge: Distribution and Scouting Tips. Midwest Soybean Gall Midge Discussion Series, Session 1: Identification and Distribution, University of Minnesota, University of Nebraska, Virtual, January 5, 2021.

31. Hunt, T., McMechan, J., Hodgson, E., Vanderhorst, A., Potter, B., Wright, R. 2019. Soybean Gall Midge: A New and Emerging Pest of Soybean. Ag Update, Nebraska Agri-Business Association, Inc., Lincoln, NE, December 6, 2019.
32. Hunt, T. E., 2019 CPM Short Course and Minnesota Crop Production Retailers Trade Show, University of Minnesota Extension, Minneapolis, MN, "Understanding Insect Defoliation of Soybean"
33. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge & Dectes Stem Borer, Pioneer Crop Shop, March 10, 2020, Pierce, NE.
34. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge & Dectes Stem Borer, Pioneer Crop Shop, March 10, 2020, Pierce, NE.
35. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings, 2020 Haskell Ag Field Day (virtual), August 5, 2020, Concord, NE.
36. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings, 2020 Haskell Ag Field Day (virtual), August 5, 2020, Concord, NE.
37. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings. Kyle Korth Crop Shop, February 24, 2020, Magnet, NE.
38. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings. Kyle Korth Crop Shop, February 24, 2020, Magnet, NE.
39. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings. Rick Korth Crop Shop, March 17, 2020, Randolph, NE.
40. Hunt, Thomas, Justin McMechan, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Current Understandings. Rick Korth Crop Shop, March 17, 2020, Randolph, NE.
41. Hunt, T., McMechan, A., Hodgson, E., Vanderhorst, A., Potter, B., Koch, B., Wright, R., 2021. Soybean Gall Midge: Background and Distribution. Midwest Soybean Gall Midge Discussion Series, Session 1: Identification and Distribution, University of Minnesota, University of Nebraska, Virtual, January 5, 2021.
42. Hunt, T., McMechan, J., Hodgson, E., Vanderhorst, A., Koch, B., Potter, B., Wright, B. 2021. Soybean Gall Midge: An Uphill Road to Management. Korth Pioneer Seed Meeting, Kyle Korth, Corteva, Magnet, NE, May 8, 2021)

43. Hunt, T., McMechan, J., Hodgson, E., Vanderhorst, A., Koch, B., Potter, B., Wright, R.. 2021. Soybean Gall Midge. UNL Haskell Ag Lab Family Field Day, Haskell Agricultural Laboratory, UNL Haskell Ag Lab, Concord, NE, June 30, 2021.
44. Hunt, T., Wright, B., McMechan, J. 2021. What's New in Entomology. 2021 UNL Crop Production Clinic, University of Nebraska Extension, Eastern Nebraska - virtual 3 dates, January 2021.
45. Johnson, R.M. 2021. Identifying benefits of soybean bloom for bees and bee pollination for soybean production. 2021 Ohio State Beekeepers Association Fall Conference
46. Knodel, J.J. 2019. Field Crop Insect Pest Management. Class lecture Plant Science 225 Principles of Crop Production, NDSU campus, Fargo, ND – April 17, 2019. Total audience = 55.
47. Knodel, J.J. 2019. Field Crop Insects & Integrated Pest Management. Certified Crop Advisor Training, NDSU campus, Fargo, ND – Jan. 4, 2019. Total audience = 32.
48. Knodel, J.J. 2019. Field Scouting for Insect Pests of Field Crops, Field tour at NDSU campus, ND State College of Science and Bismarck State College, Fargo, ND – July 19, 2019. Total audience = 80 people.
49. Knodel, J.J. 2019. Hands-on Laboratories: Insects of Wheat, Corn, Soybeans, Dry Beans, Sunflower and Canola (3 talks); 2019 Eastern Crop & Pest Management School, Fargo, ND – Feb. 26-27, 2019. Total audience = 75 people.
50. Knodel, J.J. 2019. IPM Scout Training – Review of Scouting Protocols, NDSU IPM Survey Scout Training, Carrington, ND – May 30, 2019. Total audience = 25.
51. Knodel, J.J. 2019. Soybean Aphid Resistance and Other Crop Pests in 2019, NDSU Agronomy Seed Farm Field Tour, Casselton, ND - July 15, 2019. Total audience = 145.
52. Knodel, J.J. 2020. Certified Crop Advisor Training, January 10, 2020. Total audience = 21.
53. Knodel, J.J. 2020. Hands-on Laboratories: Insects of Wheat, Corn, Soybeans, Dry Beans, Sunflower and Canola (3 talks); 2020 Eastern Crop & Pest Management School, Fargo, ND – February 25, 2020. Total audience = 63 people.
54. Knodel, J.J. 2020. North Dakota Ag Consultant Annual Meeting, Fargo, ND, February 10, 2020. Total audience = 25.
55. Knodel, J.J. 2020. Northern Corn & Soybean Expo, Fargo, ND, February 4, 2020. Total audience = 200.
56. Knodel, J.J. 2020. The International Crops Expo, February 20, 2020, Grand Forks, ND. Total audience = 80 people.

57. Knodel, J.J. 2020. Webinar. Virtual Central Dakota Ag Day. Soybean Midges. December 3, 2020. Total audience = 33 people.
58. Knodel, J.J. 2020. Webinar. Virtual Field Day – Langdon Research Extension Center. July 16, 2020. Total audience = 100.
59. Knodel, J.J. 2020. Webinar. Virtual Guest Lecture in Plant Sciences 225, Principles of Crop Production, April 2, 2020, Fargo, ND. Total audience = 90.
60. Knodel, J.J. 2020. Webinar. Virtual NDSU / UM Commercial Pesticide Applicator Training. Insect Pest Update. December 2, 2020. Total audience = 280 people.
61. Koch, R.L. 2019, December. Guidance for insecticide rotations for pyrethroid-resistant soybean aphid. Crop Pest Management Short Course. Minnesota Crop Production Retailers and University of Minnesota Extension. Minneapolis, MN (two 50-minute talks with 300 and 50 attendees).
62. Koch, R.L. 2019, February. Managing soybean aphid with current tools. Best of the Best. University of Minnesota Extension and North Dakota State University Extension. (30-minute talk; Grand Forks, ND: 140 attendees; Moorhead, MN: 113 attendees).
63. Koch, R.L. 2019, July. Management options for insecticide-resistant soybean aphid. Field School for Agricultural Professionals. Institute for Agricultural Professionals, University of Minnesota Extension. St. Paul, MN (three 60-minute presentations with 15, 15 and 20 attendees).
64. Koch, R.L. 2020, February. Soybean insect updates: aphids, gall midges and defoliators. Annual Meeting of Minnesota Independent Crop Consultants Association. Hutchinson, MN (90-minute talk with 35 attendees).
65. Koch, R.L. 2021, February. Managing soybean aphid and insecticide resistance. County Crops Day on the Radio (KDHL), University of Minnesota Extension Rice and Steele Counties (30-minute presentation via radio)
66. Koch, R.L. 2021, January. Soybean aphid management: Insecticide resistance and treatment decisions. Wisconsin Ag Business Classic. (25-minute presentation with 305 attendees)
67. Koch, R.L. and S. Naeve. 2020, January. Soybean management for 2020 and beyond. Strategic Farming Series, University of Minnesota Extension. Webinar (60-minute talk with 61 attendees).
68. Krupke, C. K. August 22, 2019. Northeast Purdue Agricultural Center Field Day: soybean insect defoliators: identification and management. Ca. 350 attendees
69. Krupke, C. K. December 16, 2019: Putnam County Pesticide Applicator Training: soybean insect defoliators management. Ca. 40 attendees

70. Krupke, C. K. December 19, 2019: Indiana State Fairgrounds, Pesticide applicator training: Pros and cons of prophylactic soybean insect management. Ca. 60 attendees.
71. Krupke, C. K. June 18, 2019. Pinney Purdue Agricultural Center Field Day: soybean insect defoliators: identification and management. Ca. 500 attendees
72. McMechan A.J. 2019. Cover Crops and Soybean Gall Midge. Nebraska Independent Crop Consultants Association Winter Meeting. December 3rd, 2019.
73. Krupke, C. K. January 16, 2020: Wisconsin Crops Conference: Pros and cons of prophylactic soybean insect management. Ca. 400 attendees.
74. Krupke, C. K. July 9, 2020: Webinar, Illinois PARM Progressive farmers: Pros and cons of prophylactic soybean insect management. Ca. 200 attendees.
75. Krupke, C. K. February 9, 2021. IPM for new farmers, soybean insect defoliators. Ca. 120 attendees.
76. Krupke, C. K. January 3, 2021. North American Wildlife Conference, symposium presentation. Management of field crop insects with systemic insecticides. Ca. 400 attendees.
77. McMechan, A.J., R. Wright, T. Hunt, E. Knoell, and K. Glewen. 2019. Insects, Cover Crops, and Hail: Making Good Management Decisions. Soybean Management Field Days. August 13-16th. Sargent, Pilger, Plymouth and Waverly, NE.
78. McMechan A.J. 2020. Midwest Soybean Clinic Field Day. Eastern Nebraska Research and Extension Center. August 26th. Virtual Event.
79. McMechan, A.J. 2020. Insects in Soybeans. Undergraduate Class AGRO 308. Guest Lecture. March 12. University of Nebraska-Lincoln.
80. McMechan, A.J. 2020. Managing Insects in Cover Crop Systems. LENRD No-till, Cover Crops, and Planned Grazing Systems. Feb. 12th.
81. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: A New Pest in the Midwest. Winfield Solutions. Minnesota and South Dakota. Total Participants: 209.
82. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: A new threat to soybean. Nebraska Independent Crop Consultants Association Meeting. Grand Island, NE. Total Participants: 42.
83. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: A New Threat to Soybean. Pioneer Agronomy Conference. Des Moines, Iowa. Total Participants: 96.
84. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: An emerging threat to soybean. UNL Crop

- Production Clinics (Beatrice, York, Mead). January 8, 14, 15, 17. Total Participants: 403.
85. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Observations, Biology and Management of a New Pest. Wilber Ellis. Total Participants: 80.
 86. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Understanding a new pest of soybean. Wilber Crop Clinic. Wilber, NE. Total Participants: 84.
 87. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Understanding a New Pest. Rain and Hail. Total Participants: 310 Online.
 88. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Understanding a New Threat in the Midwest. Soybean Gall Midge Roundtable. Total Participants: 96.
 89. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. The Dreaded Soybean Gall Midge. Soybean Expo. Total Participants: 82 Online.
 90. McMechan, Justin, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Updates on Soybean Gall Midge Research. North Central Soybean Research Program Meeting. Total Participants: 43 Online.
 91. McMechan, A.J., R. Wright, T. Hunt, E. Knoell, and K. Glewen. 2020. Managing Insects in Cover Crop Systems. Soybean Management Field Days. Virtual Field Day Recorded. <https://extension.unl.edu/statewide/enre/2020-soybean-management-field-days/>
 92. McMechan, A., Hunt, T., Wright, R., Jackson-Ziems, T., Mane, A. 2021. Strategies for Soybean Gall Midge and Insect/Disease management in Cover Crops. Soybean Management Field Days, University of Nebraska and Nebraska Soybean Board, Eastern Nebraska - 4 locations, August 2021.
 93. McMechan, A., Montenegro, V., Hodgson, E., Vanderhorst, A., Koch, B., Potter, B., Hunt, T., Wright, R., 2021. Soybean Gall Midge : Cultural, Genetic, and Chemical Management. Midwest Soybean Gall Midge Discussion Series, Session 3: Management, University of Minnesota, University of Nebraska, Virtual, January 19, 2021.
 94. McMechan, A., Montenegro, V., Hodgson, E., Vanderhorst, A., Koch, B., Potter, B., Hunt, T., Wright, R., 2021. Soybean Gall Midge: Lifecycle and Ecology. Midwest Soybean Gall Midge Discussion Series, Session 2: Biology and ecology, University of Minnesota, University of Nebraska, Virtual, January 12, 2021.

95. McMechan, A.J., R. Wright, T. Hunt, E. Knoell, and K. Glewen. 2021. Insect and Disease Management in Cover Crop Systems. Soybean Management Field Days. Wilcox, Elgin, Rising City, and Arlington, NE.
96. McMechan, J., Hunt, T., Wright, B. 2021. Soybean Gall Midge: Battling a New Pest of Soybean. 2021 UNL Crop Production Clinic, University of Nebraska Extension, Eastern Nebraska - virtual 3 dates, January 2021.
97. Montezano, Deia, Justin McMechan, Thomas Hunt, Erin Hodgson, Adam Varenhorst, Bruce Potter, and Robert Wright. 2020. Soybean Gall Midge: Understanding a New Threat to Soybean. Successful Farmers Series. Total Participants: 43.
98. Potter, B. 2019. "2019 in review: Impacts on 2020". County soybean grower annual meetings. Sleepy Eye, Olivia, MN. December 3,4,16, 2019.
99. Potter, B. 2019. "2019 in review: Impacts on 2020". Trimont, Mankato, Willmar, MN. December 2,3,4, 2019. (Consultant and industry-sponsored meetings)
100. Potter, B. 2019. "2019 Insect Pests: A preliminary report" Fall 2019 CCA Update. Paynesville, MN. September 11, 2019.
101. Potter, B. 2019. "Assessing crop production inputs and the 2019 spring" 2019 Ag Lenders Conference. Lamberton, MN. August 18, 2019.
102. Potter, B. 2019. "Expect the unexpected in insect and disease management." 2019 ROC Research Update. Morris, Lamberton, Waseca, and Luverne, MN. February 12, 13, 14, and 27, 2019.
103. Potter, B. 2020. "Keeping ahead of insect and disease pests" UM Southern Research and Outreach Center Winter Crops Day January 17, 2020
104. Potter, B. 2020. "Can scouting crops for pests pay?" Winter Crops and Small Grains Update. Slayton, MN. February 20, 2021. Winter Crops Update. Fairmont, MN. March 10, 2020.
105. Potter, B. 2020. "Guidance for insecticide-resistant soybean aphids, soybean gall midge and ..." Commercial, non-commercial ag pesticide applicator training. January 21, 2020.
106. Potter, B. 2020. "Pest management in a changing economic and biological landscape" UM Southwest Research and Outreach Center Winter Crops and Soils Day. Lamberton, MN and Luverne, MN. February 5, 6 2020.
107. Potter, B. 2020. "Upcoming Insect and disease issues for 2021". 2020 Crop Management Input Seminar, Hutchinson, MN. December 4, 2020. (virtual meeting)
108. Potter, B. 2021. "Invertebrates in your cover crops" - 2021 Soil health management summit. Dec. 14, 2021. Mankato, MN. Cover crop project and possible implications for SBA management

109. Potter, B. 2021. "Some insect and disease Issues in 2021" - Several county extension and grower-based meetings, Crop consulting group annual meeting. Included soybean aphid management. (Some presentations were live and some virtual).
110. Prischmann-Voldseth D. Hosted Wisenden B (MSUM Moorhead MN, Professor & Chair of Biol Dept.) and his Invertebrate Zoology BIOL 321 class. Along with Fauske G (NDSU ENT), did a presentation, presented specimens, and talked about insects and agricultural research (11-18-19)
111. Prischmann-Voldseth D. Provided entomological specimens and training to support the Fessenden-Bowdon ND High School Future Farmer of America Agronomy team competing at Nationals, coach Moellenkamp L (10-17-19)
112. Prischmann-Voldseth D. Provided entomological specimens to support Future Farmers of America Little 'I' Agronomy Career Development Event (yearly).
113. Rice, K.B. 2019. Current and establishing insect pests of field crops. Crop Management Field Day.
114. Rice, K.B. 2019. Insect pest in Missouri field crops. Bradford Field Day, Columbia, Missouri.
115. Rice, K.B. 2019. Soybean insect identification. St Joseph Field Day, St. Joseph, Missouri.
116. Rice, K.B. 2019. Soybean insect scouting and identification. Sikeston Scouting School.
117. Rice, K.B. 2020. Emerging Issues in Missouri Entomology. Commercial Pesticide Applicator Recertification Training. Five lectures (Springfield, Kansas City, Columbia, Cape Girardeau, St Louis).
118. Rice, K.B. 2020. Entomology Pests and IPM. Commercial Pesticide Applicator Training. Five lectures (Springfield, Kansas City, Columbia, Cape Girardeau, St Louis).
119. Rice, K.B. 2020. Insect herbivory on soybean. CCA Delta Virtual Meeting
120. Rice, K.B. 2020. Insect IPM and novel management. Missouri Agricultural Aviators Association.
121. Rice, K.B. 2020. Missouri insect pest updates. Virtual Field Day.
122. Rice, K.B. 2020. New insects in Missouri crops. Barton County Soils and Crops Conference.
123. Rice, K.B. 2020. Soybean gall midge. Town Hall Meeting (Virtual).
124. Rice, K.B. 2020. Soybean insects. Cape Girardeau Soybean Crop Management Conference

125. Rice, K.B. 2021. Emerging Issues in Missouri Entomology. Commercial Pesticide Applicator Recertification Training. Five lectures (Springfield, Kansas City, Columbia, Cape Girardeau, St Louis).
126. Rice, K.B. 2021. Soybean insect update (Virtual).
127. Seiter, N. 2019. Are cover crops shifting your insect populations? Dec. 13, 2019. Effingham Cover Crop Meeting, Effingham, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests in cover crops and discussed ongoing research. Contact: Jennifer Woodyard. Audience: 30.
128. Seiter, N. 2019. Entomology and pest management. Aug. 15, 2019. Pioneer Sales Rep Agronomy Training, Carmi, IL (Sailer Farms). Audience: Pioneer seed sales reps. Impact: discussed dectes stem borer and corn earworm management in detail for seed salesmen. Contact: Eric Alinger (external, Corteva AgriScience). Audience: 40 (2 presentations).
129. Seiter, N. 2019. Insect management in corn and soybean. Feb. 20, 2019. Illinois Extension Crop Management Conference, Malta, IL. Audience: certified crop advisors in Illinois. Impact: provided management recommendations on northern and western corn rootworm, soybean defoliators, and other pests in Illinois corn and soybean. Contact: Russ Higgins. Audience: 74.
130. Seiter, N. 2019. Insect management in corn and soybean. Feb. 6, 2019. Illinois Extension Crop Management Conference, Champaign, IL. Audience: certified crop advisors in Illinois. Impact: provided management recommendations on corn rootworm, soybean defoliators, and other pests in Illinois corn and soybean. Contact: Dennis Bowman. Audience: 101.
131. Seiter, N. 2019. Insect management in corn and soybean. Jan. 30, 2019. Illinois Extension Crop Management Conference, Springfield, IL. Audience: certified crop advisors in Illinois. Impact: provided management recommendations on corn rootworm, dectes stem borer, stink bugs, and others in Illinois corn and soybean. Contact: Dennis Bowman. Audience: 49.
132. Seiter, N. 2019. Insect management in corn and soybean. Sept. 11, 2019. Will County Corn and Soybean Growers Association Meeting, Manhattan, IL (Kiefner Farms). Audience: famers and crop consultants. Impact: provided management recommendations and a summary of 2019 impacts for major insect pests. Contact: Russ Higgins. Audience: 80.
133. Seiter, N. 2019. Insect management: what are we learning from a challenging season? Aug. 22, 2019. University of Illinois Crop Sciences Agronomy Day, Champaign, IL. Audience: certified crop advisors and farmers. Impact: provided management recommendations and scouting instructions for corn rootworm, stink bugs, and other insect pests. Contact: Allen Parrish. Audience: 200 (est., 5 presentations)

134. Seiter, N. 2019. Insect scouting school and management tips. July 25, 2019. Ewing Demonstration Center Field Day, Ewing, IL. Audience: farmers and crop consultants. Impact: discussed management of stink bugs, dectes stem borer, and soybean defoliators, and demonstrated insect scouting techniques/identification in the field. Contact: Talon Becker. Audience: 40.
135. Seiter, N. 2019. Protect your wheat and soybean crop from pests. Jan. 31. 2019. Illinois Double Crop Farmers' Forum, Mt. Vernon, IL. Audience: certified crop advisors and soybean/wheat farmers in Illinois. Impact: provided management recommendations on the dectes stem borer, stink bugs, and aphids in wheat for double-crop production in Illinois. Contact: Dan Davidson (external, Illinois Soybean Association). Audience: 106.
136. Seiter, N. 2019. Scouting insects in corn and soybean. Aug. 29, 2019. Informal scout training, Franklin County, IL. Audience: Kaskaskia Community College ag students who assisted with a field experiment. Impact: trained students studying agriculture at a two-year community college on proper monitoring techniques and identification of major insect pests. Contact: Talon Becker. Audience: 20.
137. Seiter, N. 2019. Are cover crops shifting your insect populations? Dec. 14, 2019. Jacksonville Cover Crop Meeting, Effingham, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests in cover crops and discussed ongoing research. Contact: Duane Friend and Kenneth Johnson. Audience: 5.
138. Seiter, N. 2020. Early season insect pests to look out for in 2020. May 13, 2020. Commercial Ag Webinar Series. Audience: farmers and crop consultants. Impact: provided scouting and management recommendations for seedling pests of corn and soybean. Contact: Chelsea Harbach. Total participation (live + archive): 61
139. Seiter, N. 2020. Insect Management in Corn and Soybean. Feb. 12, 2020. Illinois Crop Management Conference, Malta, Malta, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests of corn and soybean in northern Illinois. Contact: Russ Higgins. Attendance: 110.
140. Seiter, N. 2020. Insect Management in Corn and Soybean. Feb. 4, 2020. Illinois Crop Management Conference, Champaign, Champaign, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests of corn and soybean in east-central Illinois. Contact: Dennis Bowman. Attendance: 100.
141. Seiter, N. 2020. Insect Management in Corn and Soybean. Jan. 22, 2020. Illinois Crop Management Conference, Mt. Vernon, Mt. Vernon, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests of corn and soybean in southern Illinois. Contact: Talon Becker. Attendance: 39.
142. Seiter, N. 2020. Insect Management in Corn and Soybean. Jan. 29, 2020. Illinois Crop Management Conference, Springfield, Springfield, IL. Audience: farmers and crop

- consultants. Impact: provided management recommendations for insect pests of corn and soybean in central Illinois. Contact: Jesse Soule. Attendance: 43.
143. Seiter, N. 2020. Insect Management in Rye Cover Crops. December 15, 2020. Indiana CCA Conference (Virtual). Audience: crop consultants Impact: provided management recommendations for rye cover crops based on recent applied research results to CCAs in a neighboring state. Contact: John Obermeyer (Purdue University Extension). Total participation (live + archive): 218
 144. Seiter, N. 2020. Insect pest management in soybeans: what to look out for in 2020. June 04, 2020. Illinois Soy Advisor Webinar Series. Audience: farmers and crop consultants. Impact: provided management recommendations for dectes stem borer, stink bugs, and defoliators in soybean. Contact: Todd Steinacher/Megan Miller (Illinois Soybean Association). Total participation (live + archive): 200
 145. Seiter, N. 2020. Insect Pests: What to Watch For in Cover Crops and Conservation Tillage. Feb. 7, 2020. NEMO/Western IL Soil Health and Conservation Conference, Quincy, IL. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests in cover crop and conservation tillage systems. Contact: Gary Shupe (Highland Community College). Attendance: 21.
 146. Seiter, N. 2020. Scouting and managing mid-season insect pests in corn and soybean. July 23, 2020. Commercial Ag Webinar Series. Audience: farmers and crop consultants. Impact: provided management recommendations for ear-feeding pests in corn and defoliating insects in soybean. Contact: Chelsea Harbach. Total participation (live + archive): 8
 147. Seiter, N. 2021. Bean leaf beetle biology and management. February 01, 2021. CropFlix Virtual Crop Management Conference. Audience: farmers and crop consultants. Impact: provided management recommendations for bean leaf beetle in soybean. Contact: Chelsea Harbach Total participation (live + archive): 78
 148. Seiter, N. 2021. Cover crops and insect management. February 01, 2021. CropFlix Virtual Crop Management Conference. Audience: farmers and crop consultants. Impact: provided management recommendations for insect pests following a cover crop. Contact: Chelsea Harbach Total participation (live + archive): 91
 149. Seiter, N. 2021. Dectes Stem Borer Biology and Management. December 20, 2021. Bayer Southern IL Academic Roundtable. Audience: Industry personnel, Extension personnel. Impact: discussed dectes stem borer biology and its use in management with Bayer and Extension personnel in southern IL. Contact: Talon Becker. Attendance: 35. State focus area: Food and Environment.
 150. Seiter, N. 2021. Dectes stem borer management. February 01, 2021. CropFlix Virtual Crop Management Conference. Audience: farmers and crop consultants. Impact: provided management recommendations for dectes stem borer in soybean Contact: Chelsea Harbach Total participation (live + archive): 82

151. Seiter, N. 2021. Insect management in corn and soybean. July 22, 2021. Ewing Field Day. Audience: Farmers, Crop Advisors. Impact: instructed farmers and crop consultants how to identify soybean insects and make appropriate management decisions. Contact: Talon Becker. Attendance: 81. State focus area: Food and Environment.
152. Seiter, N. 2021. Insect management in cover crops. June 10, 2021. Cover Crop Field Day. Audience: Farmers. Impact: discussed insect management following a cover crop with farmers. Contact: Jean Brokish. Attendance: 15. State focus area: Food and Environment.
153. Seiter, N. 2021. Insect management: what did we learn in 2020?. February 17, 2021. ILSoyAdvisor Soybean Summit. Audience: farmers and crop consultants. Impact: provided management recommendations for bean leaf beetle and dectes stem borer, and an applied research update in soybean. Contact: Todd Steinacher Total participation (live + archive): 109
154. Seiter, N. 2021. Regional impact and management of fall armyworm. December 02, 2021. Crop Protection Network Webinar Series. Audience: farmers and crop consultants. Impact: trained crop advisors and scouts on fall armyworm biology and identification. Contact: Daren Mueller Total participation (live + archive): 271
155. Tilmon, K. J. 2019. Corn and soybean insect update. Top Farmers of Ohio Annual Meeting
156. Tilmon, K. J. 2019. Diagnostic demonstration of soybean insect pests. Southwest Ohio Corn Growers Field Day
157. Tilmon, K. J. 2019. Field crop insect update. Ohio Commercial Pesticide Applicator Recertification Conference – Columbus
158. Tilmon, K. J. 2019. Field crop insect update. West Ohio Agronomy Day
159. Tilmon, K. J. 2019. Insect pressure on today's genetics and future control. Western Ohio Corn College
160. Tilmon, K. J. 2019. Insect updates for wheat and soybeans. 84th Annual Ohio Professional Seed Grower's School, Ohio Seed Improvement Association
161. Tilmon, K. J. 2019. Insecticidal seed treatments: what can you expect? Ohio Commercial Pesticide Applicator Recertification Conference – Columbus
162. Tilmon, K. J. 2019. Insecticidal seed treatments: what can you expect? Ohio Commercial Pesticide Applicator Recertification Conference, Dayton
163. Tilmon, K. J. 2019. Insects we need to be on the lookout for this fall. Crawford County Summer Corn and Soybean Scouting Night Crawford

164. Tilmon, K. J. 2019. Soybean insect management. Ohio Intensive Soybean Management Workshop, Kenton
165. Tilmon, K. J. 2019. Soybean insect management. Ohio Intensive Soybean Management Workshop, Wilmington
166. Tilmon, K. J. 2019. Soybean insect pests. Ohio Department of Agriculture Inspector Training
167. Tilmon, K. J. 2019. Stink bugs and 'hole punchers'. Western Agronomy Field Day
168. Tilmon, K. J. 2019. Stink bugs and soybean defoliators. Farm Science Review/Ohio Agribusiness Association Agronomy College
169. Tilmon, K. J. 2020. Agronomic pest update. Pesticide Inservice for OSU Extension Educators [virtual]
170. Tilmon, K. J. 2020. Asiatic garden beetle and soybean gall midge. Commercial ScarletCanvas Commercial Pesticide Recertification Course [virtual]
171. Tilmon, K. J. 2020. Field crop insect update. Ohio Commercial Pesticide Applicator Recertification Conference, Columbus
172. Tilmon, K. J. 2020. Insect pest management. North Central Soybean Research Program Board Meeting [virtual]
173. Tilmon, K. J. 2020. Insecticidal seed treatments: back to basics. Ohio Private Applicator Recertification Training [virtual]
174. Tilmon, K. J. 2020. Insecticidal seed treatments: what can you expect? Ohio Commercial Pesticide Applicator Recertification Conference, Akron
175. Tilmon, K. J. 2020. Insecticidal seed treatments: what can you expect? Ohio Commercial Pesticide Applicator Recertification Conference, Akron
176. Tilmon, K. J. 2020. Insecticidal seed treatments: what can you expect? Ohio Commercial Pesticide Applicator Recertification Conference, Columbus
177. Tilmon, K. J. 2020. Soybean Pest Management. Agricultural Crops Production Council, Ukraine [virtual]
178. Tilmon, K. J. 2020. Stink bugs, European corn borer, and soybean defoliators. Auglaize County Agronomy Day
179. Tilmon, K. J. 2020. Agronomic insect pest update. Kansas State University Integrated Pest Management and Pesticide Safety Education Commercial Pesticide Applicator Training Program [virtual]
180. Tilmon, K. J. 2021. Insecticidal seed treatments – back to basics. OSU Conservation Tillage and Technology Conference [virtual]

181. Tilmon, K. J. 2021. Insecticidal seed treatments – back to basics. TMK Bakersville Winter Learning Series [virtual]
182. Tilmon, K. J. 2021. Pest management panel discussion. OSU Conservation Tillage and Technology Conference [virtual]
183. Tilmon, K. J. 2021. Slug pest management in field crops. Michigan State University Field Crops Virtual Breakfast Series.
184. Tilmon, K. J. 2021. Soybean insect management. OSU Virtual Corn College and Soybean School [virtual]
185. Wright, R., T. Hunt, J. McMechan. 2020. Management of Defoliating Insects in Nebraska Soybeans. Proceedings of the 2020 Nebraska Extension Crop Production Clinics, University of Nebraska Extension, Lincoln, NE.

Extension Other: 32

Scouting videos, podcasts, training programs, etc.

1. Difonzo, C. D. DiFonzo’s Field Crops Entomology Email Blast ‘Fast Fonz Facts’ Email blast to +200 major agribusiness, commodity, and extension personnel emailed in the summer during insect outbreaks.
2. Difonzo, C. D. Media interview - DTN Progressive Farmer, 13 July 2021. “Treated Seed Troubles. Seed Treatment Overload: The Unintended Consequences of a Popular Practice” by Emily Unglesbee
<https://www.dtnpf.com/agriculture/web/ag/crops/article/2021/07/13/seed-treatment-overload-unintended>
3. Difonzo, C. D. Media interview - Michigan Farm Bureau’s Morning Ag Clips, 14 July 2019. Do I have to throw insecticides in the tank? <https://www.morningagclips.com/do-i-have-to-throw-insecticides-in-the-tank/>
4. Hester, J. L. 2020. To study pesky aphids, scientists suck them from the sky.
<https://www.atlasobscura.com/articles/studying-insect-pests-with-vacuum-towers>
5. Knodel, J.J. 2021. Spider mites come with drought. The North Dakota Soybean Grower Magazine. 10(4): 27 (August 2021). [Trade magazine]
6. Koch, K.G., Donze-Reiner, T., Hunt, T.E., Heng-Moss, T.H., Baldin, E.L.L. 2019. Tolerância. In: Baldin, E.L.L.; Vendramim, J.D.; Lourenção, A.L. (Eds.). Resistência de plantas a insetos: fundamentos e aplicações. Fealq, Piracicaba, São Paulo, (Portuguese).
7. Koch, R.L. 2020. Challenges in soybean aphid management. University of Minnesota Extension. YouTube video. <https://youtu.be/TzxCBjbrpY>

8. McMechan et. al. 2019-2021. Soybean Gall Midge Alert Network: Developed the multi-state soybeangallmidge.org with over 2,200 unique visitors, 3,994 page views from 26 countries and 39 states within the USA since it became live in May of 2020. Strong on-farm research collaborations built from roundtable discussions in 2019 and 2020 with 83 and 96 clientele, respectively (growers, co-op, agronomists, chemical reps). Blackboard connect alert system (phone, text, and email) with 344 registered across a eight-state area to coordinate multi-state soybean gall midge monitoring network.
9. McMechan, Justin, Thomas Hunt, Robert Wright. 2019. Soybean Gall Midge: An Emerging Pest of Soybeans. Proceedings of the 2019 Nebraska Extension Crop Production Clinics, University of Nebraska Extension, Lincoln, NE.
10. Quinn, L. 2020. Aerial insect trap network describes life in the skies.
<https://aces.illinois.edu/news/aerial-insect-trap-network-describes-life-skies>
11. Raudenbush, A. and K. Tilmon. 2019. Estimating percent leaf defoliation electronic kit. Ohio State University Extension.
12. Rice, K. 2021. KRES Regional Radio “Stem borer making a return to Missouri Soybean”
13. Rice, K. Contributed to: Brownfield Agriculture News, Steever, T. “Dectes stem borer could potentially hurt 10/14/20
14. Rice, K. Contributed to: Missouri Ruralist, Ward, M. “Dectes stem borer trapping back on in Missouri” 2/1/21
15. Rice, K. Contributed to: Missouri Ruralist, Ward, M. “Study to track soybean stem borer in Missouri” 1/2/20
16. Seiter, N. 2019. Extension in the Field: Soybean Insects.
<https://www.youtube.com/watch?v=8d-hDNQp93Y&feature=youtu.be>. Posted Dec. 12, 2019. Instructional scouting video produced by Noah Capps (undergraduate student intern), Adena Wilson, Matt Wiley, and Talon Becker. [Views as of 2/10/21: 129]
17. Seiter, N. 2019. Illinois Nutrient Loss Reduction Podcast Episode 15: Pests and Pathogens, Oh My! March 1, 2019. Interviewed as part of a segment for an ongoing podcast produced by Jennifer Woodyard, Haley Haverback, and Todd Gleason.
18. Seiter, N. 2021. 5-Min Crop Central: Dectes stem borer in southern Illinois.
<https://www.youtube.com/watch?v=sJAYajsOW3Q&t=1s>. Posted Feb. 28, 2020. Video on dectes stem borer biology, management strategies in southern Illinois, produced by Jim Baltz (ACE). [Views as of 1/21/2021: 96]
19. Seiter, N. 2021. 5-Min CropCentral: Dealing with slugs in corn and soybean.
<https://www.youtube.com/watch?v=RamzkEs5KDw>. Posted July 6, 2020. Video on slug management recommendations for corn and soybean. Produced by Jim Baltz (ACE). [Views as of Jan. 21, 2021: 81]

20. Seiter, N. 2021. 5-Min CropCentral: Insect management following a rye cover crop. <https://www.youtube.com/watch?v=1651eYu420E>. Posted July 1, 2020. Video on insect pests that are more likely after a cover crop in corn and soybean. Produced by Jim Baltz (ACE). [Views as of Jan. 21, 2021: 68]
21. Seiter, N. Aphids data has been stored in excel files and website <https://www.eddmaps.org>, and shared with our collaborators and extension personnel through <https://suctiontrapnetwork.org/data/>
22. Seiter, N. 2019. Insect management in corn and soybean. Posted May 23, 2019. Instructional module course developed by Talon Becker, Adena Wilson, Jesse Soule, and Phillip Alberti from a presentation at the 2019 Champaign Illinois Extension Crop Management Conference. Certified Crop Advisors can view the course and pass the exam to receive 1 CCA credit.
23. Suszkiw, Jan. 2020. Bug Vacuum Captures Unidentified Flying Insects—and Valuable Data. <https://www.ars.usda.gov/news-events/news/research-news/2020/bug-vacuum-captures-unidentified-flying-insects-and-valuable-data/>
24. Swoboda Bhattarai K, R Wright, T Hunt, J Peterson & W Ohnesorg. 2019. The Biology and Management of Ear-Feeding Lepidopteran Pests of Corn in Nebraska. Proceedings of the 2019 Nebraska Extension Crop Production Clinics, University of Nebraska Extension, Lincoln, NE.
25. Tilmon, K. J. 2019. College of Food, Agricultural, and Environmental Sciences Research Review and Field Tour
26. Tilmon, K. J. 2019. Ohio State University Agronomy Workshop for Crop Consultants
27. Tilmon, K. J. 2019. Ohio State University Agronomy Workshop for Extension Educators
28. Tilmon, K. J. 2019. Soybean gall midge slide set for OSU Extension Educators
29. Tilmon, K. J. and A. Raudenbush. 2017 - present. OSU Agronomic Crop Insects Website. OSU College of Food, Agriculture, and Environmental Science. <https://aginsects.osu.edu/>
30. Tilmon, K. J. and A. Raudenbush. 2019. Seedcorn maggot management. The Ohio State University IPM Program. <https://www.youtube.com/watch?v=p5mPonCbMVg>
31. Tilmon, K. J. and A. Raudenbush. 2020. Soybean Defoliation and Defoliator Complex. <https://youtu.be/XoLauojqSi4>
32. Wright, R., J. McMechan, T. Hunt. 2019. What's New in Entomology: Eastern Nebraska. Proceedings of the 2019 Nebraska Extension Crop Production Clinics, University of Nebraska Extension, Lincoln, NE.