

# William E. Klingeman, III

## Professor

Urban Landscape and Nursery Research and Teaching  
Department of Plant Sciences, The University of Tennessee

### BUSINESS ADDRESS

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### EDUCATION

1998	Ph.D.	Entomology	University of Georgia, Athens, GA
1995	M.S.	Entomology	North Carolina State University, Raleigh, NC
1991	B.A.	Biology	Hanover College, Hanover, IN

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### EMPLOYMENT EXPERIENCE

<i>2022- present</i>	Adjunct Professor, Tennessee State University (TSU)
<i>2020 - present</i>	Professor & Assistant Department Head: Department of Plant Sciences (PS), University of Tennessee (UT)
<i>2011 - 2020</i>	Professor: Department of Plant Sciences (PS), University of Tennessee (UT)
<i>2004 - 2010</i>	Associate Professor: Department of Plant Sciences (PS), University of Tennessee (UT)
<i>2001 - 2004</i>	Assistant Professor: Department of Plant Sciences and Landscape Systems (PSLS), University of Tennessee (UT)
<i>1999 - 2001</i>	Assistant Professor: Department of Ornamental Horticulture and Landscape Design (OHLD), University of Tennessee (UT)

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### ACADEMIC APPOINTMENT

<i>2009 – present</i>	63% Research; 27% Teaching; 10% Administration (Herbert College)
<i>2002 - 2008</i>	85% Research; 15% Teaching
<i>1999 - 2001</i>	100% Research

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### ADMINISTRATIVE RESPONSIBILITIES:

**PS Assistant Department Head:** 2020 – *present*  
**PS Graduate SACS Accreditation Coordinator:** 2008 – *present*  
**PS Graduate Student Director:** 2004 – *present*  
**PS Instructional Coordinator:** 2009 – *present*

## TEACHING RESPONSIBILITIES:

### Graduate Students Advised:

#### **Masters Students** [additional service to **35 MS student committees**]

1. Tammy Stackhouse, MS Thesis: Thousand cankers disease diagnosis with conventional electrophoresis and TaqMan probes, 2018-2019.
2. Drew Jeffers, PS Thesis: Buyer and grower perceptions of liner quality and associated production costs of nursery liner stock, 2006-2008
3. Wesley Powell, PS Thesis: Potential of *Beauveria bassiana* 11-98 as a biological control agent against tomato pests and detection of mycotoxic metabolite beauvericin in tomato plants using HPLC, 2004-2005
4. Chris Vaughn, PSLS Thesis: An evaluation of clearwing borer activity in East Tennessee in relation to color, growing degree-days and pheromone lure brands, 2002-2005
5. Deborah Ketchersid, PSLS Thesis: Challenges to dogwood production: budwood production and whitefringed beetle management, 2001-2003

#### **PhD Students** [additional service to **11 PhD student committees**]

1. Jason Hansen, co-advised w/ Dr. J. K. Moulton, PSI Dissertation: Identification and phylogenetic characterization of select species of Sesiidae (Lepidoptera) and Buprestidae (Coleoptera) wood boring insect families occurring across the southeastern U.S., 2006-2010.
2. Axel Gonzalez Murillo, co-advised w/ Dr. J. K. Moulton, PSES-PS Project, *Molecular Systematics of Chrysobothris beetles (Coleoptera: Buprestidae)*, 2021-present.

### Select Courses Taught:

*PLSC 443 Turfgrass Entomology* (Lecture: 2 credit hours, Spring Semester)

Year (number of students): 2015 (12), 2018 (15), 2020 (11), 2022 (12)

*PLSC 543 Turfgrass Entomology* (Lecture: 2 credit hours, Spring Semester)

Year (number of students): 2015 (1), 2020 (1)

*PLSC 343 Turfgrass Entomology* (Lecture: 1 credit hour, Spring Semester)

Year (number of students): 2006 (12), 2007 (17), 2009 (14), 2010 (12), 2011 (8), 2012 (4), 2013 (14)

*PLSC 410 Nursery Management & Production* (Lecture: 3 credit hours, Spring Semester)  
(starting 2009, this course was also a GenEd/VolCore course – WC credit)

Year (number of students): 2005 (22), 2007 (23), 2009 (19), 2011 (22), 2013 (28), 2015 (30), 2017 (28), 2019 (34), 2021 (28)

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## RESEARCH RESPONSIBILITIES:

### **Peer-Reviewed Journal Publications**

(Names with an asterisk "\*" were undergraduate or graduate students who were advised by WEK.

<sup>1</sup> WEK as corresponding author.)

1. Chahal, K., R. Gazis, W. Klingeman, P. Lambdin, J. Grant, M. Windham, and D. Hadziabdic, 2022. Differential virulence among *Geosmithia morbida* isolates collected across the U.S. occurrence range of thousand cankers disease. *Frontiers in Forests and Global Change* 5: 726388 <https://doi.org/10.3389/ffgc.2022.726388>

2. Sapkota, S., S. L. Boggess, R. N. Trigiano, W. E. Klingeman, D. Hadziabdic, D. R. Coyle, and M. Nowicki. 2022. Microsatellite loci reveal high genetic diversity, mutation, and migration rates as invasion drivers of Callery pear (*Pyrus calleryana*) in the southeastern United States. *Frontiers in Genetics* 13: 861398. <https://doi.org/10.3389/fgene.2022.861398>
3. Stowell, D.R., M.J. Fly, W.E. Klingeman, C.A. Beyl, A.J. Wozencroft, D.L. Airhart, and P.J. Snodgrass. 2021. Advancing a contemporary horticultural therapy practice model. *Acta Horticulturae* 1330: 211-220. <https://doi.org/10.17660/ActaHortic.2021.1330.25>
4. Ony, M., W. E. Klingeman, J. Zobel, R. N. Trigiano, M. D. Ginzel, M. Nowicki, S. Boggess, S. Everheart, and D. Hadziabdic. 2021. Genetic diversity in North American *Cercis canadensis* reveals an ancient population bottleneck that originated after the last glacial maximum. *Scientific Reports-Nature* 11: 21803 <https://doi.org/10.1038/s41598-021-01020-z>
5. Moore, P.A., P.A. Wadl, R.N. Trigiano, J.A. Skinner, and W.E. Klingeman. 2021. Pollinators and other floral visitors to *Pityopsis ruthii* (Asteraceae: Asterales), an endangered aster native to the Southern Appalachians. *J. Kansas Entomol. Soc.* 93(4): 327-347. <https://doi.org/10.2317/0022-8567-93.4.327>
6. Stackhouse, T.\*, S. Boggess, D. Hadziabdic, R.N. Trigiano, M. Ginzel, and W.E. Klingeman. 2021. Conventional gel electrophoresis and TaqMan probes enable rapid confirmation for thousand cankers disease from diagnostic samples. *Plant Dis.* 105(10): 3171-3180. <https://doi.org/10.1094/PDIS-10-20-2258-RE>
7. Stowell, D.R., M.J. Fly, W.E. Klingeman, C.A. Beyl, A.J. Wozencroft, D.L. Airhart, and P.J. Snodgrass. 2021. Current state of the horticultural therapy profession in the United States. *HortTechnology* 31(4): 330-338. <https://doi.org/10.21273/HORTTECH04792-21>
8. Sapkota, S., S. L. Boggess, R. N. Trigiano, W. E. Klingeman, D. Hadziabdic, D. R. Coyle, B. A. Olukolu, R. D. Kuster, and M. Nowicki. 2021. Microsatellite loci reveal genetic diversity of Asian Callery pear (*Pyrus calleryana*) in the species native range and in the North American cultivars. *Life* 11(6): 531 [18 pgs.]. <https://doi.org/10.3390/life11060531>
9. Hamm, T.P., M. Nowicki, S. L. Boggess, W.E. Klingeman, D. Hadziabdic, M. L. Huff, M.E. Staton, and R.N. Trigiano. 2021. Development and characterization of 15 novel genomic SSRs for *Viburnum farreri*. *Plants* 10: 487 [10 pgs.]. <https://doi.org/10.3390/plants10030487>
10. Strange, N. C., J. K. Moulton, E. C. Bernard, W. E. Klingeman, B. J. Sampson, and R. N. Trigiano. 2020. Floral visitors of *Helianthus verticillatus*, a rare sunflower species in the southeastern United States. *HortScience* 55(12): 1980-1986. <https://doi.org/10.21273/HORTSCI15394-20>
11. Toennisson, A. T., W.E. Klingeman, and K.M. Vail. 2020. Odorous house ant, *Tapinoma sessile* (Hymenoptera: Formicidae), colony movement in response to moisture, shade, and food proximity. *Environ. Entomol.* 49(6): 1263-1269. <https://doi.org/10.1093/ee/nvaa131>
12. McDermott-Kubeczko, M.E., J. Juzwik, S.E. Reed, and W.E. Klingeman. 2020. Branch colonizing fungi associated with damage on branches of eastern black walnut in Indiana, Missouri, and Tennessee. *Plant Health Progress* 21: 135-141. <https://doi.org/10.1094/PHP-12-19-0088-RS>
13. Klingeman, W. E., Juang-Horng Chong, C. Harmon, L. Ames, A.V. LeBude and P.

- Chandran. 2020. Diagnostic service records help prioritize resource development needs for scale insect management (Hemiptera: Sternorrhyncha: Coccoidea) on ornamental plants. *Plant Health Progress*. 21: 278-287. <https://doi.org/10.1094/PHP-05-20-0045-S>
14. Onufrak, A. J., G. M. Williams, W. E. Klingeman, M. A. Cregger, D. M. Klingeman, J. M. Debruyne, M. D. Ginzler, and D. Hadziabdic. 2020. Geographical structure in the *Juglans nigra* phytobiome reflects differences in Thousand Cankers Disease severity. *Phytobiomes* 4(4): 388-404. <https://doi.org/10.1094/PBIOMES-05-20-0044-R>
  15. Ony, M. A., M. Nowicki, S. L. Boggess, W. E. Klingeman, J. M. Zobel, R. N. Trigiano, and D. Hadziabdic. 2020. Fine-scale population structure of *Cercis canadensis* L. (Eastern redbud): the effect of habitat fragmentation on genetic diversity and differentiation. *Ecology and Evolution* 10(8): 3655-3670. <http://dx.doi.org/10.1002/ece3.6141>
  16. Yates, D.I., B.H. Ownley, N. Labbé, J.J. Bozell, W.E. Klingeman, E.K. Batson, and K.D. Gwinn. 2019. *Sciadopitys verticillata* resin: Volatile components and impact on plant pathogenic and foodborne bacteria. *Molecules* 24(20): 3767. <https://doi.org/10.3390/molecules24203767>
  17. Chahal, K., R. Gazis, W. Klingeman<sup>1</sup>, D. Hadziabdic, P. Lambdin, J. Grant, and M. Windham. 2019. Assessing alternative candidate subcortical insect vectors from walnut crowns in habitats quarantined for thousand cankers disease. *Environmental Entomology* 48(4): 882-893. <https://doi.org/10.1093/ee/nvz064>
  18. Seybold, S. J., W. E. Klingeman III, S. M. Hinushima, T. W. Coleman, and A.D. Graves. 2019. Status and impact of walnut twig beetle in urban forests, native forests, and orchards. *J. Forestry* 117(2): 152-163. <https://doi.org/10.1093/jofore/fvy081>.
  19. Klingeman, W. E., E. C. Bernard, S. L. Boggess, G. M. Pietsch, D. Hadziabdic and R. N. Trigiano. 2019. First report of honeysuckle leaf blight on Amur honeysuckle (*Lonicera maackii*) caused by *Insolibasidium deformans* in Tennessee. *Plant Disease*. 103(4): 772 <https://doi.org/10.1094/PDIS-10-18-1712-PDN>
  20. Pothula, R.; D. Shirley, O. P. Perera, W. E. Klingeman; H. M. Y. Abd-Elgaffar; B. R. Johnson, and J. L. Jurat-Fuentes. 2019. The digestive system in *Zygentoma* as a model for high cellulase activity. *PlosOne*: 14(2): e0212505. <https://doi.org/10.1371/journal.pone.0212505>.
  21. Klingeman W. E., E. C. Bernard, S. L. Boggess, G. M. Pietsch, and R. N. Trigiano. 2018. First report of powdery mildew on mountain-mints (*Pycnanthemum* sp.) caused by *Golovinomyces monardae* in the United States. *Plant Disease* 102(9): 1849. <https://apsjournals.apsnet.org/doi/pdf/10.1094/PDIS-01-18-0185-PDN>
  22. Pivar, R. J., L. C. Pinho, W. E. Klingeman, J. K. Moulton, and B. J. Sinclair. 2018. A new genus and the first record of the family Thaumaleidae (Diptera) from Brazil. *Canadian Entomologist* 150(4): 481-494. <https://doi.org/10.4039/tce.2018.29>
  23. Brand, P., H. M., Robertson, W. Lin, R. Pothula, W. E. Klingeman, J. L. Jurat-Fuentes, B. R. Johnson. 2018. The origin of the odorant receptor gene family in insects. *eLife* 7:e38340 DOI: [10.7554/eLife.38340](https://doi.org/10.7554/eLife.38340)

24. Yeary, W., A. Fulcher, W. Klingeman, H. Zhu, and J. Grant. 2018. Spray penetration and natural enemy survival into dense and sparse canopies treated with carbaryl: implications for conventional and biological control. *Journal of Environmental Horticulture*: 36(1): 21-29.
25. Blood, B. L., M. A. Paschen, W. E. Klingeman, D. Hadziabdic, J. J. Couture, and M. D. Ginzel. 2018. Behavioral responses of *Pityophthorus juglandis* (Coleoptera: Curculionidae: Scolytinae) to volatiles of black walnut and *Geosmithia morbida*, the causal agent of Thousand Cankers Disease. *Environmental Entomology* 47(1): 412-421. <http://doi:10.1093/ee/nvx194>.
26. Gazis, R., L. Poplawski, W. Klingeman, S. Boggess, R. Trigiano, A. Graves, S. Seybold, and D. Hadziabdic. 2018. Mycobiota associated with insect galleries in walnut with thousand cankers disease reveals a potential natural enemy against *Geosmithia morbida*. *Fungal Biology* 122: 241-253. <https://doi:10.1016/j.funbio.2018.01.005>
27. Oren E., W.E. Klingeman, R. Gazis, J. Moulton, P. Lambdin, M. Coggeshall, J. Hulcr, S.J. Seybold, and D. Hadziabdic. 2018. A novel molecular toolkit for rapid detection of the pathogen and primary vector of thousand cankers disease. *PLoS ONE* 13(1): e0185087. <https://doi.org/10.1371/journal.pone.0185087>
28. Fulcher, A., A.V. LeBude, S.A. White, M. Chappell, S.C. Marble, J.-H. Chong, W. Dunwell, F. Hale, W. Klingeman, G. Knox, J Derr, S.K. Braman, N. Gauthier, A. Dale, F. Peduto Hand, J. Williams-Woodward, and S. Frank. 2017. Advancing IPM Adoption and Achieving Extension Impact: A Working Group Success Story. *HortTechnology* 27: 759-764.
29. LeBude, A.V., A. Fulcher, J.-J. Dubois, S.K. Braman, M. Chappell, J.-H (J.C.) Chong, J. Derr, N. Gauthier, F. Hale, W. Klingeman, G. Knox, J. Neal, and A. S. Windham. 2017. Experiential Nursery IPM Workshop Series to Enhance Grower Practice Adoption. *HortTechnology* 27: 772-781.
30. Klingeman, W. E., E. C. Bernard, S. L. Boggess, G. M. Pietsch, J. T. Brosnan, and R. N. Trigiano. 2017. First report of powdery mildew on rescuegrass (*Bromus catharticus*) caused by *Blumeria graminis* in Tennessee. *Plant Disease* 102(2): 449. <http://doi.org/10.1094/PDIS-08-17-1175-PDN>
31. Klingeman, W.E., A.M. Bray, J.B. Oliver, C.M. Ranger, and D.E. Palmquist. 2017. Trap style, bait, and height deployments in black walnut tree canopies help inform monitoring strategies for bark and ambrosia beetles (Coleoptera: Curculionidae: Scolytinae). *Environmental Entomology* 46(5): 1120-1129. <https://doi.org/10.1093/ee/nvx133>
32. Klingeman, W.E., N.N. Youssef, J.B. Oliver and J.P. Basham. 2017. The Longhorned Beetles (Coleoptera: Cerambycidae) of Tennessee: Distribution, seasonal adult activity and new state records. *Florida Entomologist* 100(2): 292-302.  
*Supplemental Data*: Table 3 (26 pp.) & Suppl. Figs 1-231 (17 pp.)  
<http://journals.fcla.edu/flaent/article/view/88416/100410>
33. Audley, J. W.E. Klingeman, A. Mayfield III, S. Meyers and A. Taylor. 2017. *Pityophthorus juglandis* (Coleoptera: Curculionidae: Scolytinae) colonization of *Juglans nigra* nursery trees. *Journal of Insect Science* 17(3): 1-9. DOI: <http://doi:10.1093/jisesa/iex046>.

34. Daniels, D.A., R.J. Lord, K.A. Nix, P.A. Wadl, L.M. Vito, G.J. Wiggins, M.T. Windham, B.H. Ownley, P.L. Lambdin, J.F. Grant, P. Merten, W.E. Klingeman, D. Hadziabdic. 2016. Thousand Cankers Disease Complex: A forest health issue that threatens *Juglans* species across the U.S. Forests 7(260): doi:10.3390/f7110260.
35. Audley, J., A.E. Mayfield III, S.W. Meyers, A. Taylor and W.E. Klingeman. 2016. Insecticide dip treatments to prevent walnut twig beetle colonization of black walnut logs. For. Prod. J. 66 (3/4): 233-240.
36. Moore, P.A., P.A. Wadl, J.A. Skinner, W.E. Klingeman, A.J. Dattilo. 2016. Current knowledge, threats and future efforts to sustain populations of *Pityopsis ruthii* (Asteraceae), an endangered southern Appalachian species. J. Torrey Bot. Sci. 143(3): 117-134.
37. Audley, J., A.E. Mayfield III, S.W. Meyers, A. Taylor and W.E. Klingeman. 2016. Phytosanitation methods influence post-treatment colonization *Juglans nigra* logs by *Pityophthorus juglandis* (Coleoptera: Curculionidae). J. Econ. Entomol. 109(1): 213-221. DOI: <http://dx.doi.org/10.1093/jee/tov252>
38. Dean, D., P. A. Wadl, D. Hadziabdic, W. E. Klingeman, B. H. Ownley, T. A. Rinehart, A. J. Dattilo, B. Scheffler, and R. N. Trigiano. 2015. Analysis of genetic diversity and population structure for the native tree *Viburnum rufidulum* occurring in Kentucky and Tennessee. Journal of the American Society for Horticultural Science 140(6): 523-531.
39. Klingeman, W.E., J.A. Hansen\* J.P. Basham, J.B. Oliver, N.N. Youssef, W. Swink, C.A. Nalepa, D.C. Fare, and J.K. Moulton. 2015. Seasonal flight activity and distribution of metallic wood-boring beetles (Coleoptera: Buprestidae) collected in North Carolina and Tennessee. Florida Entomologist 98(2): 579-587. <http://purl.fcla.edu/fcla/entomologist/browse>
- Supplemental Data:*  
Table 1 (11 pp.) & Suppl. Figs 1-3 (6 pp.), <http://journals.fcla.edu/flaent/article/view/84887/81929> & Map Supplements for the Metallic Woodboring Beetles (Coleoptera: Buprestidae) of Tennessee. Figs 1-107 (9 pp.): [http://trace.tennessee.edu/utk\\_planpubs/91/](http://trace.tennessee.edu/utk_planpubs/91/)
40. Fulcher, A., N. Ward Gauthier, W. Klingeman, F. Hale. 2015. Blueberry culture and pest, disease, and abiotic disorder management during nursery production in the southeastern U.S.: A review. J. Envir. Hort.: 33(1): 33-47.
41. Hansen, J.A.\*, J.K. Moulton, W.E. Klingeman, J.B. Oliver, M.T. Windham, R.N. Trigiano, and M.E. Reding. 2015. Molecular phylogeny of *Chrysobothris femorata* species group (Coleoptera: Buprestidae). Ann. Entomol. Soc. Amer. 108(5): 950-963. DOI: <http://dx.doi.org/10.1093/aesa/sav080>.
42. Hadziabdic, D., P. A. Wadl, M. E. Staton, W. E. Klingeman, J. K. Moulton, J. W. Pscheidt, G. J. Wiggins, J. F. Grant, P. L. Lambdin, M.T. Windham, M. Faccoli, P. Marten, and R. N. Trigiano. 2015. Development of microsatellite loci in *Pityophthorus juglandis*, a vector of thousand cankers disease in *Juglans* spp. Conserv. Genet. Res. 7(2): 431-433. DOI: 10.1007/s12686-014-0388-0
43. Klingeman, W.E., S.A. White, A. LeBude, A. Fulcher, N. Ward-Gauthier, and F. Hale. 2014. A review of arthropod pests, plant diseases and abiotic disorders and their management on

*Viburnum* species in the southeastern U.S. J. Environ. Hort. 32(2): 84-102.

44. Klingeman, W.E., G.R. Armel, T.E. Hines, H.P. Wilson, J.J. Vargas, and P.C. Flanagan. 2014. Evaluation of HPPD inhibiting herbicides for controlling mugwort. HortTechnology 24(4): 433-438.
45. Yeary, W., A. Fulcher, W. Klingeman, J. Grant and S. Xiaocun. (2015). Responses of three natural enemy species to contact and systemic insecticide exposures in confined assays. J. Entomol. Sci. 50(1): 35-46.
46. Vargas, J.J., J.T. Brosnan, T.C. Mueller, D.A. Kopsell, W.E. Klingeman, and G.R. Armel. 2014. Biokinetics and efficacy of aminocyclopyrachlor-methyl ester as influenced by diflufenzopyr. Weed Sci. 62(3): 538-547. <http://dx.doi.org/10.1614/WE-S-13-00174.1>.
47. Boggess, S.L., P.A. Wadl, D. Habdziabdic, B. Scheffler, A.S. Windham, W.E. Klingeman, and R.N. Trigiano. 2014. Characterization of 12 polymorphic microsatellite loci of *Pityopsis graminifolia* var. *latifolia*. Conserv. Genet. Res. 6(4): 1043-1045. <http://dx.doi.org/10.1007/s12686-014-0282-9>
48. Shirley, D., C. Oppert, T. Reynolds, B. Miracle, B. Oppert, W.E. Klingeman, and J.L. Jurat-Fuentes. 2014. Expression and characterization of an endoglucanase from *Tribolium castaneum* (TcEG1) in *Saccharomyces cerevisiae*. Insect Science: (2013) 21(5): 609-618. DOI: <http://onlinelibrary.wiley.com/doi/10.1111/1744-7917.12069/pdf>.
49. Thomas, J.W., G.R. Armel, M.D. Best, J.T. Brosnan, W.E. Klingeman, D.A. Kopsell, H.E. Bostic, J.J. Vargas, and C. Do-Thanh. 2013. Herbicidal activity of heterocyclic dichlobenil analogues. Journal of Pesticide Science 38(4): 220-222.
50. Moore, M.R., D.S. Buckley, W.E. Klingeman, and A.M. Saxton. 2013. Distribution and growth of autumn olive in a managed forest landscape. Forest Ecology and Management 310: 588-599. DOI: <http://dx.doi.org/10.1016/j.foreco.2013.08.056>.
51. Fulcher, A., J.H. Chong, S. White, J. Neal, J. Williams-Woodward, C. Adkins, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, S. Gill, F. Hale, W. Klingeman, A. LeBude, K. Rane, A. Windham. 2013. Developing an App as an Extension tool: A case study using IPMPro. HortTechnology 23: 399-401.
52. Fulcher, A., S. White, J.H. Chong, J. Neal, J. Williams-Woodward, C. Adkins, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, S. Gill, F. Hale, W. Klingeman, A. LeBude, K. Rane, A. Windham. 2013. Testing, promoting and launching an App as an Extension tool: A case study with IPMPro. HortTechnology 23: 402-406.
53. Frank, S.D., W.E. Klingeman, S.A. White, and A. Fulcher. 2013. Biology, injury, and management of maple tree pests in nurseries and urban landscapes. J. Integrated Pest Management 4(1): 1-14. DOI: <http://dx.doi.org/10.1603/IPM12007>.
54. Cutulle, M., G.R. Armel, J. Brosnan, D. Kopsell, W.E. Klingeman, P.C. Flanagan, G. Breeden, J.J. Vargas, R.M. Koepke-Hill, and M.A. Halcomb. 2013. Evaluation of various *p*-hydroxyphenylpyruvate dioxygenase (HPPD) inhibiting herbicides for postemergence weed control in container ornamentals. HortTechnology 23(3): 319-324.
55. Beeler, J.E., G.R. Armel, J.T. Brosnan, J.J. Vargas, W.E. Klingeman, R.M. Koepke-Hill,

- G.E. Bates, D.A. Kopsell, and P.C. Flanagan. 2012. Trumpetreeper control with various indole-3-acetic acid mimics and diflufenzopyr. *HortTechnology* 22(5): 677-681.
56. Fulcher, A., W.E. Klingeman<sup>1</sup>, J.-H. Chong, A. LeBude, G.R. Armel, M. Chappell, S. Frank, F. Hale, J. Neal, S. White, J. Williams-Woodward, K. Ivors, C. Adkins, A. Senesac, and A. Windham. 2012. Stakeholder vision of future direction and strategies for southeastern U.S. nursery pest research and Extension programming. *Journal of Integrated Pest Management*: 3(2): D1-D8. DOI: 10.1603/IPM11030. (<sup>1</sup>corresponding author)
57. Knox, G.W., W.E. Klingeman, M. Paret, and A. Fulcher. 2012. Management of pests, plant diseases and abiotic disorders of *Magnolia* species in the Southeastern U.S.: A review. *J. Environ. Hort.* 30(4): 223-234.
58. Hansen, J.A.\*, J.P. Basham, J.B. Oliver, N.N. Youssef, W.E. Klingeman, J.K. Moulton, and D.C. Fare. 2012. New state and host plant records of metallic wood boring beetles (Coleoptera: Buprestidae) in Tennessee. *Coleopterists Bulletin*: 66(4): 1-7.
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### **Books and Book Chapters**

1. Pothula, R., B. R. Johnson, W. E. Klingeman, M. Huff, M. E. Staton, and J. L. Jurat-Fuentes. 2020. Differential transcriptome profiling for identification of cellulose degrading enzymes in *Ctenolepisma longicaudata*. Pp. 136-163. *In: Shelomi, M. (ed.), Transcriptomics in Entomological Research*, 214 Pages. ISBN: 978-178924-313-0. Centre for Agriculture and Biosciences International (CABI).
2. Chong, J.C., J. Williams Woodward, J. C. Neal, M.T. Springer. 2017. 2017 Southeastern US Pest Control Guide for Nursery Crops and Landscape Plantings, (W. Klingeman, contributor). SNIPM Working Group/NC State Extension. University of North Carolina Press. ISBN: 978-1-4696-3900-0.
3. Klingeman, W.E., A. LeBude, A. Rateike, J. Williams Woodward and G.M. Weaver. 2017. A review of arthropod pests, plant diseases and abiotic disorders and their management on *Rhododendron* in the southeastern U.S. *IPM for Shrubs in Southeastern US Nursery Production (Vol. II)*, pp. 134-204. Chappell, M. & G. Knox, Eds. Clemson, SC. Southern

Region IPM Center. Print ISBN: 978-0-9854998-4-6.

4. Fulcher, A.F., J. Derr, W.E. Klingeman, C. Marble, J. Neal, A. Windham and G. Weaver. 2017. A review of arthropod pests, plant diseases and abiotic disorders and their management on *Hydrangea* species in the southeastern U.S. *IPM for Shrubs in Southeastern US Nursery Production (Vol. II)*, pp. 9-52. Chappell, M. & G. Knox, Eds. Clemson, SC. Southern Region IPM Center. Print ISBN: 978-0-9854998-4-6.
5. White, S.A. and W.E. Klingeman. 2014. IPM for Shrubs in Southeastern US Nursery Production (Vol. I). White, SA & WE Klingeman, Eds. Clemson, SC. Southern Region IPM Center. Print ISBN: 978-0-9854998-3-9
6. Fulcher, A., N. Ward Gauthier, W.E. Klingeman, and F. Hale. 2014. Blueberry (*Vaccinium* spp.). *IPM for Shrubs in Southeastern US Nursery Production (Vol. I)*, pp. 91-116. White, SA & WE Klingeman, Eds. Clemson, SC. Southern Region IPM Center. Print ISBN: 978-0-9854998-3-9
7. Klingeman, W.E., S.A. White, A. LeBude, A. Fulcher, N. Ward-Gauthier, and F. Hale. 2014. Viburnum (*Viburnum* spp.). *IPM for Shrubs in Southeastern US Nursery Production (Vol. I)*, pp. 121-160. White, SA & WE Klingeman, Eds. Clemson, SC. Southern Region IPM Center. Print ISBN: 978-0-9854998-3-9
8. Klingeman, W.E. 2014. Building a plant propagator's integrated pest management toolkit, Chapter 15, pp. 183-199. *In: Plant Propagation: Concepts and Laboratory Exercises, 2<sup>nd</sup> Ed.* C.A. Beyl and R.N. Trigiano [eds.]. CRC Press, LLC. Boca Raton, FL.
9. Frank, S.D., W.E. Klingeman, N. Ward, S.A. White, and A. Fulcher. 2012. Optimizing plant health and pest management for maple (*Acer* spp.) production in U.S. southern states, pp. 211-258. *In: IPM for Select Deciduous Trees in Southeastern US Nursery Production.* Fulcher, AF, SA White, Eds. Knoxville, TN. Southern Region IPM Center. Print ISBN: 978-0-9854998-1-5
10. Knox, G.W., W.E. Klingeman, M. Paret, and A. Fulcher. 2012. Optimizing plant health and pest management for *Magnolia* species production in the U.S. southern states, pp. 181-210. *In: IPM for Select Deciduous Trees in Southeastern US Nursery Production.* Fulcher, AF, SA White, Eds. Knoxville, TN. Southern Region IPM Center. Print ISBN: 978-0-9854998-1-5
11. Klingeman, W.E. 2008. Integrated pest management for plant propagation systems, pp. 113 – 124. *In: Plant Propagation: Concepts and Laboratory Exercises*, C.A. Beyl and R.N. Trigiano [eds.]. CRC Press, LLC. Boca Raton, FL.
12. Klingeman, W. E. and C. R. Hall. 2007. Risk, trust, and consumer acceptance of plant biotechnology: implications for genetically modified ornamental plants, pp. 451-486. *In: Plant biotechnology for ornamental horticulture*, Yi Li & Yan Pei [eds], Univ. Conn., Storrs, CT.
13. Ownley, B. H., R. M. Pereira, W. E. Klingeman, N. B. Quigley, and B. M. Leckie. 2004. *Beauveria bassiana*, a dual purpose biocontrol organism with activity against insect pests and plant pathogens. pp. 255-269. *In: Emerging Concepts in Plant Health Management*, R. T. Lartey and A. J. Caesar [eds]. Research Signposts, T.C. Kerala, India.
14. Behe, B.K., W.E. Klingeman, J.R. Brooker, D.B. Eastwood, C.R. Hall, J.B. Riley and P. Knight. 2004. Chapter 8. Marketing insect- and disease-resistant plants. *In: Management*

Practices for Michigan Wholesale Nurseries, R.T. Fernandez (Ed.). 209 pp. Michigan State University, East Lansing, MI.

### **Funded Grants:**

1. Jenkins, D., C. Bates, and D. Stone [South Carolina, Georgia, and Alabama State Forestry Commission Leads] (with Hartshorn, J., D. Coyle, N. Loewenstein, C. Barger and Nowicki, M., D. Hadziabdic, W. Klingeman, and Q. Wu (University of TN). (2021-2023). Enhanced Pear-spectives: Proactive sky-scouting to detect areas at high-risk from spread of invasive Callery pear. USDA Forest Service – Landscape Scale Restoration Grant. \$135,000 (\$5,745 *WEK*).
2. Klingeman, W., D. Hadziabdic, M. Staton, A. Taylor, and M. Ginzel. 2020. Sustainable Agricultural Products from Healthy Oaks: Protecting the economy of American oak resources. USDA NIFA-CPPM Proposal. Requested \$299,704 (\$72,620 *WEK*)/Funded \$299,704.
3. Adesso et al. (Klingeman W, Jensen K, Fulcher A, Moulton K, Olukolu [UT Co-PIs]) (2020-2023) Flatheaded borer management in specialty tree crops. USDA-SCRI Proposal. Funded: \$6,058,955 (\$892,965 UT Subcontract).
4. Hadziabdic, D., A. Taylor, R. Gazis, R. Trigiano, M. Ginzel, and W. Klingeman. 2020. USDA-FS. National Urban and Community Forest Challenge. Extending the Reach of Rapid Diagnostics with Detection Tools for Oak Wilt and Laurel Wilt Diseases in Urban Forests. 2020-22 Funded: \$92,143.
5. Hadziabdic, D. and W. Klingeman. (2019-2021). Assessing Thousand Cankers Disease Mitigation of Walnut-associated *Trichoderma* spp. USDA-FS. Funded: \$30,000.
6. Hadziabdic, D., J. DeBruyn, W. Klingeman, and M. Staton. (2019-2020) Validation of diagnostic methods for *Geosmithia morbida* and development of new *G. pallida* diagnostic methods. USDA APHIS-PPQ CPHST. Funded: \$73,000.
7. Hadziabdic, D., W.E. Klingeman, M. Ginzel and R.N. Trigiano. 2018. Helping Urban Foresters and Diagnosticians by Optimizing a Molecular Toolkit to Provide Rapid Diagnosis of Thousand Cankers Disease. US Forest National Urban and Community Forestry Challenge Cost-Share Grant. Requested: [\$184,287] /Funded: \$92,143
8. Chen, Feng, Vincent Pantalone, William Klingeman, and John Skinner. 2018. Increasing Soybean Yield by Enhancing Flower Visitation of Insect Pollinators using a Molecular Genetic Approach (16-83-R). TN Soybean Promotion Board. Funded: \$41,900
9. Hadziabdic, D. W. Klingeman, B. Ownley and R. Trigiano. 2017. Collaborative Planning Trip: Cultivation and conservation of native crops in West Africa. UTIA Seed Grant. Funded: \$4,000.
10. Klingeman, W. and P. Wadl. 2016. Rescue propagation of TN threatened wood lily plants. TVA Contract. Funded: \$4,984.
11. Klingeman, W.E. 2017. Potential for Two Scolytine Beetle Predators as Biomonitoring Aides to Walnut Twig Beetle Detection. Office of Undergraduate Research, Faculty Research Assistantship Support. Funded: \$2,250.

12. Chen, Feng, Vincent Pantalone, William Klingeman, and John Skinner. 2016. Increasing Soybean Yield by Enhancing Flower Visitation of Insect Pollinators using a Molecular Genetic Approach (16-83-R). TN Soybean Promotion Board. Funded: \$44,450
13. Jean-Philippe, S., A. Pulte, and W. Klingeman. 2016. City of Bristol Street Tree Inventory. City of Bristol TN. Funded: \$9,454.
14. Ginzel, M., W.E. Klingeman, D. Hadziabdic, and J.J. Juzwik. 2015. USDA-NIFA – Crop Protection & Pest Management: ARDP. “Enhanced detection of *Pityophthorus juglandis* – the insect vector of Thousand Cankers Disease.” Funded: \$280,000.
15. Chappell, M. [w/ K. Braman, J.-H. (JC) Chong, J. Derr, W. Dunwell, S. Frank, A.F. Fulcher, F. Hale, F. Hand, W. Klingeman, G.W. Knox, A. LeBude, C. Marble, J. Neal, N. Ward, S. White, J. Williams-Woodward, and A. Windham as cooperators]. 2015. USDA-NIFA – Southern Region IPM. “IPM for Shrubs in Southeastern U.S. Nursery Production (Vol. II).” Funded: \$39,532.
16. Chen, F., V. Pantalone, W.E. Klingeman, and J. Skinner. 2015. TN Soybean Promotion Board. Increasing soybean yield by enhancing flower visitation of insect pollinators using a molecular genetic approach. UTIA. Funded: \$42,450.
17. LeBude, A. [w/ S. White, J.-H. (JC) Chong, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, A.F. Fulcher, S. Gill, F. Hale, W. Klingeman, G.W. Knox, J. Neal, N. Ward, J. Williams-Woodward, A. Windham and C. Adkins as cooperators]. 2013. USDA-NIFA – Southern Region IPM. “Experiential Nursery IPM Workshop Series to Enhance Grower Adoption and Extension Agent Facilitation.” Funded: \$39,982.
18. White, S.A. [w/ J.-H. (JC) Chong, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, A.F. Fulcher, S. Gill, F. Hale, W. Klingeman, G.W. Knox, A. LeBude, J. Neal, N. Ward, J. Williams-Woodward, A. Windham and C. Adkins as cooperators]. 2013. USDA-NIFA – Southern Region IPM. “IPM for Shrubs in Southeastern U.S. Nursery Production (Vol. 1).” Funded: \$29,983.
19. Klingeman, W.E., C. Oppert, J.L. Jurat-Fuentes and B. Oppert. 2013. UT AgResearch Innovation Grant. “Identification of novel, highly active insect cellulases that can overcome inefficiencies in biofuel synthesis.” Funded: \$19,888.
20. Klingeman, W.E. 2012. U.S.-FS Cost reimbursable agreement. Walnut twig beetle rearing and trapping project. Funded: \$5,225.
21. Fulcher, A, and W.E. Klingeman. 2012. Center for Applied Nursery Research (CANR). “Understanding the impact of systemic and contact insecticides on beneficial insect populations: possible implications for scale problems during nursery production”. Funded: \$2,000.
22. Ginzel, M., J. Juzwik, S. Reed, J. English, and W.E. Klingeman. 2012. USDA-NIFA – North Central Regional IPM Center. “Enhanced detection methods for the walnut twig beetle and Thousand Cankers Disease.” Funded: \$98,409.
23. Fulcher, A.F., J.C. Horng, S. White, W.E. Klingeman, J. Neal, F.A. Hale, S. Frank, and A.S. Windham. 2011. USDA-NIFA - Southern Region Integrated Pest Management. “Enhancing nursery crop research and extension with a multi-state working group.” Funded: \$24,232.

24. Fulcher, A.F. and W.E. Klingeman. 2011. Center for Applied Nursery Research (CANR) "Evaluation of the effect of systemic and contact insecticides on natural enemy populations in a woody plant production system: Implications for enhanced conservation biological control." Funded: \$2,000.
25. Klingeman, W.E., A. Taylor, G. Armel, A. Wszelaki, and R. Evans. 2010. TN Dept. of Agriculture Specialty Crop Block Grant, "Bioactive wood mulches: a renewable weed management alternative for ornamental plant and small crop producers." Funded: \$30,000.
26. Klingeman, W.E., B. Babbit, F. Hale and R. Evans. 2009. AgResearch and Extension Innovative Project, "A Pilot Study for Phenology Gardens in Tennessee: Integrating plant flowering and foliar phenology into best management practices (BMPs) pest and disease management." Funded: \$25,000.
27. Jurat-Fuentes, J.L., C. Oppert, W.E. Klingeman, and B. Oppert. 2009. SunGrant Initiative, "Identification and characterization of insect cellulolytic systems for plant biomass degradation." Funded: \$75,000.
28. Hansen, J.A.\*, J.K. Moulton and W.E. Klingeman. 2008. Discover Life in the Appalachians (DLIA). "Cataloging metallic wood boring beetles (Coleoptera: Buprestidae) and clearwing moths (Lepidoptera: Sesiidae) of the Great Smoky Mountains National Park (GSMNP)." Funded: \$3,500.
29. Armel, G.R., G.N. Rhodes, J.S. McElroy and W.E. Klingeman\*. 2008. "Characterization and Identification of TDOT Right-of-Way Vegetation and Correlation of Management Practices to Vegetation Persistence." TN Department of Transportation. Funded: \$150,769. [\*In August 2009, WEK was added as a subcontractor replacing J.S. McElroy].
30. Braman, S.K., R. Mizell, W.E. Klingeman, D. Boyd and D. Held. 2005. Southern SARE Research and Education Grant Pre-Proposal. "Increasing Use of Sustainable Plants in Production and Landscape Design." Funded: \$154,000.
31. Bergh, J.C., T.C. Leskey, J. Walgenbach, A. Zhang and W.E. Klingeman. 2005. Southern Region IPM Research Grant. "Pheromone-based management of dogwood borers." Funded: \$70,000.
32. Klingeman, W. E. and D. K. Robinson. 2004. Tennessee Nursery and Landscape Association Research Committee. "Competitive Assessment of New Weedy Plants That Will Challenge Tennessee Container Grower Profitability." Funded: \$1,500.
33. Klingeman, W. E. and C. R. Hall. 2003. UTIA Idea Grant. "Perception and market evaluation of genetically modified ornamentals for consumer markets." Funded: \$3,000.
34. Oliver, J., D. Fare, W.E. Klingeman, and J. Altland. 2003. Horticultural Research Institute (HRI) Grant Program. "Species of Flatheaded Borer Impacting the Ornamental Industry and a Method to Survey for Borer Activity within Field Nurseries". Funded: \$16,000.
35. Ownley, B. B., W. E. Klingeman, and N. B. Quigley. 2002. National Research Initiative Competitive Grants Program (NRI). "*Beauveria bassiana*, a Dual Biocontrol against Plant Pathogens and Insect Pests". Funded: \$201,500.

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### **IT Applications:**

1. Fulcher, A., J.-H. (JC) Chong, S.A. White, J. Williams-Woodward, C. Adkins, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, S. Gill, F. Hale, W. Klingeman, A. LeBude, J. Neal, K. Rane and A. Windham. 2012. *IPMPro* App. Android and iPhone, iPod Touch, and iPad-compatible Green Industry app on major pests and plant care practices.
2. Fulcher, A., J.-H. (JC) Chong, S.A. White, J. Williams-Woodward, C. Adkins, K. Braman, M. Chappell, J. Derr, W. Dunwell, S. Frank, S. Gill, F. Hale, W. Klingeman, A. LeBude, J. Neal, K. Rane and A. Windham. 2012. *IPMLite* App. Android and iPhone, iPod Touch, and iPad-compatible app on major pests and plant care practices for gardeners.

### **Provisional Patent Application:**

1. Hadziabdic-Guerry, D., S. Boggess, W. E. Klingeman, T. L. Stackhouse, R. N. Trigiano. 2019. Fast and efficient method to detect thousand cankers disease. UTRF 19114.

### **Honors, Awards & Professional Development:**

- LEAD 21 Class 18. 2022. UTIA Representative.
- Graduate Student Senate Graduate Director of the Year Award. 2022. UTK.
- ASHS Outstanding Education Publication Award. 2018. ASHS. Co-author with LeBude et al. "Experiential Nursery Integrated Pest Management Workshop Series to Enhance Grower Practice Adoption" [HortTechnology 27(6):772-781].
- W.S. Overton Faculty Award of Merit & NACTA Teaching Award of Merit. 2015. CASNR/NACTA.
- Bright Ideas Award, SNIPM Working Group Members. 2014. Southern Region IPM Center.
- Committee Chairman of the Year Award. 2014. Tennessee Nursery and Landscape Association.
- T.J. Whatley Distinguished Young Scientist Award. 2007. UTIA.
- Gamma Sigma Delta Team Award. 2000. The Dogwood Research Team