

Kristin L. Mercer

Department of Horticulture and Crop Science
The Ohio State University
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POSITIONS

Visiting Professor, 2023 – present

Institute of Sustainable Agroecosystem Services, Graduate School in Agricultural and Life Sciences, University of Tokyo, Japan

Professor, 2021 – present

Department of Horticulture and Crop Science, Ohio State University

Associate Professor, 2015 – 2021

Department of Horticulture and Crop Science, Ohio State University

Visiting Associate Professor, 2015 – 2016

Department of Botany, University of British Columbia, Canada

Assistant Professor, 2008 – 2015

Department of Horticulture and Crop Science, Ohio State University

Postdoctoral Researcher, 2006 – 2008

Department of Evolution, Ecology & Organismal Biology, Ohio State University

Fulbright-García Robles Postdoctoral Fellow, 2005

El Colegio de la Frontera Sur, Chiapas, Mexico

EDUCATION

PhD Applied Plant Sciences, University of Minnesota, 2000 – 2005
Research Advisors: Ruth Shaw and Donald Wyse

MS Agronomy and Plant Genetics, University of Minnesota, 1997 – 2000
Minor in Sustainable Agriculture
Research Advisors: Nicholas Jordan and Donald Wyse

BA Biology, Wesleyan University, Connecticut, 1993 – 1996
Research Advisor: Sonia Sultan

Dartmouth College, New Hampshire, 1991 – 1992

GRANTS AND FELLOWSHIPS

- Pending California Department of Food and Agriculture, Specialty Crop Multi-State Program (\$998,973, \$399,732 for OSU)
 “Understanding and breeding for yield under water and heat stress in pepper”
 Lead PI: A. Van Deynze (UC Davis)
 Multi-state Partners: L. McHale, K. Mercer, M. Kleinhenz (Ohio State University)
 Submitted: December, 2023
- Pending Agriculture and Food Research Initiative (AFRI), USDA (\$799,981)
 “Functional genetic dimensions of climate adaptation in Capsicum”
 Lead PI: K. Mercer
 Co-PIs: L. McHale (Ohio State University), J. McCoy (University of Illinois), L. Jardón Barbolla (National Autonomous University of Mexico), M. Kantar (University of Hawaii)
 Submitted August 22, 2023, GRANT13962349, NIFA #: 2023-08631
- 2023-2025 National Institute of Food and Agriculture (NIFA), USDA (\$117,837)
 “Genome-wide association to identify resistance to *Phytophthora capsici* root rot in landrace chile peppers”
 Predoctoral Fellowship
 PI: H. Scheppler (HCS PhD Student)
 Mentors: K. Mercer and L McHale
- 2022 – 2026 Agriculture and Food Research Initiative (AFRI), USDA (\$590,000)
 “Nitrogen fixation in *Zea* through domestication, spread, and improvement in the Americas”
 Lead PI: K. Mercer
 Co-PIs: R. Dick (Ohio State University), H. Perales (Ecosur, Mexico), V. Bernau (USDA)
- 2021-2024 USDA Forest Service (\$127,234)
 “American Elm Restoration: Investigating Elm Phenology”
 Lead PI: S. Matthews (Ohio State University)
 Co-PI: K. Mercer, K. Knight (USDA, Forest Service), C. Pinchot (USDA Forest Service)
- 2019 Center for Latin American Studies Faculty Travel Grant, Ohio State University (\$1,100)
 “Drought tolerance and domestication: collections of wild chile pepper in the Yucatán”
- 2018 – 2020 Office of Energy and Environment, Ohio State University (\$94,741)
 “Sustainable Food and Farming Systems in Practice on the OSU Student Farm”

Lead PI: C. Ratcliff (Ohio State University)
 Collaborators: K. Mercer, A. Gordon

- 2018 – 2024 Agriculture and Food Research Initiative (AFRI), USDA (\$475,000)
 “Genetic structure and mechanisms of drought adaptation in *Capsicum*”
 Lead PI: K. Mercer
 Co-PIs: L. McHale (Ohio State University), M. Kantar (University of Hawaii), L. Jardón-Barbolla (National Autonomous University of Mexico)
- 2017 – 2018 Initiative for Food and AgriCultural Transformation (InFACT) Linkage and Leverage Grant, Ohio State University (\$32,000)
 “Making Maya milpa: maize farming, agroecological research, and food security in Belize and OSU”
 PIs: J. Wainwright and K. Mercer (both Ohio State University)
 Collaborators: N. Kawa, K. Usher, H. Peller (PhD student) (all Ohio State University)
- 2017 – 2019 Initiative for Food and AgriCultural Transformation (InFACT) Linkage and Leverage Grant, Ohio State University (\$35,000)
 “Visioning and initiating the new student farm at Waterman”
 PIs: A. Gordon (undergraduate) and K. Mercer (both Ohio State University)
 Collaborators: C. Ratcliff, M. Krueger, E. Regnier, E. Grassbaugh (all Ohio State University)
- 2016 – 2017 U.S. Agency for International Development Borlaug Fellows in Global Food Security Graduate Research Grant (\$34,500)
 “Exploring drought tolerance: local adaptation of chile and maize in Guatemala”
 PI: K. Mercer (Ohio State University)
 Co-Investigators: V. Bernau (PhD Student, Ohio State University), D. Costich (CIMMYT, Mexico)
- 2016 – 2017 Sustainable and Resilient Economy Program at the Ohio State University (\$25,000)
 “Living from Urban Land – Enhancing Urban Agriculture through Soil Resilience”
 PI: K. Lorenz (Ohio State University)
 Collaborators: R. Lal, N. Basta, K. Mercer, and M. Kaiser (all Ohio State University), N. Stanich (Franklinton Gardens)
- 2016 – 2017 National Geographic Society's Committee for Research and Exploration Grant (\$20,000)
 “The changing Maya forest: agroecological change and land-use dynamics in the Maya communities of southern Belize”
 PI: Joel Wainwright (Ohio State University)

Collaborators: P. Esselman (U.S. Geological Survey), L. Jardon-Barbolla (National Autonomous University of Mexico, UNAM), S. Jiang (SUNY Albany), D. Liu (Ohio State University), K. Mercer (Ohio State University), T. Mesh (University of Florida), F. Penados (University of Belize)

- 2016 – 2018 Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program Grant (\$50,000)
 “Drought tolerance in chile pepper (*Capsicum annuum*): the genetic basis of adaptation in a center of crop diversity”
 PI: K. Mercer (Ohio State University)
 Collaborators: L. McHale (Ohio State University), L. Jardon-Barbolla (National Autonomous University of Mexico, UNAM)
- 2016 Price Teaching Grant, College of Food, Agriculture, and Environmental Sciences, OSU (\$1200)
- 2016 –2021 USDA Higher Education Challenge Grant Program (\$645,000)
 “A Statewide Network for Multiple Pathways to a Baccalaureate Degree in Sustainable Agriculture”
 PI: Casey Hoy
 Co-PIs: C. Anelli, R. Beil, J. Boswell, J. Clark, M. Gardiner, V. R. Haden, D. Heldman, S. Hill, G. Hitzhusen, E. Irwin, B. Joseph, S. Kumarappan, C. Lowell, R. MacDonald1, J. Martin, K. Mercer, S. Miller, M. Mercil, K. K. Nedunuri, J. Sharp, H. Zerby, R. Wharton (Ohio State University and other Ohio Institutions)
- 2015 – 2017 U.S. Agency for International Development Borlaug Fellows in Global Food Security Graduate Research Grant (\$23,000)
 “Adaptation of highland Mexican landraces: climate change and global food security”
 PI: K. Mercer (Ohio State University)
 Co-Investigators: B. Pace (PhD Student), H. Perales (Ecosur, Mexico), D. Costich (CIMMYT, Mexico)
- 2013 – 2014 National Geographic Society's Committee for Research and Exploration Grant (\$18,480)
 “Geographic patterns of adaptive diversity in Mexican maize landraces in an era of climate change”
 PI: K. Mercer (Ohio State University)
 Collaborator: H. Perales (Ecosur, Mexico)
- 2011 – 2013 Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program Grant (\$49,997)
 “Maize adaptation along an altitudinal gradient”
 PI: K. Mercer (Ohio State University)

Collaborators: H. Perales (Ecosur, Mexico), M. Kost (Ohio State University), J. Metzger (Ohio State University)

- 2011 – 2013 Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program Grant (\$100,000)
 PI: Emilie Regnier (Ohio State University)
 Collaborators: K. Harrison, R. Vanketesh, R. Taylor, C. Holloman, L. McHale, K. Mercer (all Ohio State University)
- 2009 – 2011 Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program Grant (\$50,000)
 “Adaptive importance of flowering time for agricultural production under global change”
 PI: K. Mercer (Ohio State University)
 Collaborator: L. Campbell (Rice University)
- 2009 Seed Grant, Utah State University (\$19,092)
 PI: Karin Kettenring
 Collaborators: K. Mercer (Ohio State University), C. Reinhardt (University of Florida), J. Hines (Swiss Federal Institute of Aquatic Science and Technology)
- 2006 – 2011 USDA Biotechnology Risk Assessment Grant (\$397,000)
 “Effects of early life history stages and competition on crop gene introgression in wild sunflower”
 Co-PIs: Allison Snow (Ohio State University), K. Mercer (Ohio State University) and Helen Alexander (University of Kansas)
- 2006 Postdoctoral Fellowship, Ohio State University (\$42,000)
- 2005 Fulbright-García Robles Fellowship for Mexico, Institute of International Education (\$14,000)
- 2003 – 2004 Doctoral Dissertation Fellowship, Graduate School, University of Minnesota (\$15,000)
- 2003 Alexander and Lydia Anderson Research Fellowship, Graduate School, University of Minnesota (\$5,000)
- 2003 Doctoral Dissertation Research Grant, Graduate School, University of Minnesota (\$2,000)
- 2003 – 2004 Center for Community Genetics Grant, College of Biological Sciences, University of Minnesota (\$1,500)

- 2002 – 2004 Center for Community Genetics Summer Research Grant, College of Biological Sciences, University of Minnesota (\$6,000)
- 2002 – 2004 The Land Institute Fellowship, The Land Institute, Salina, Kansas (\$11,000)
- 2002 Heug-Harrison Fellowship, College of Agriculture, Food and Environmental Sciences, University of Minnesota (\$7,500)
- 2002 USDA, North Central Region Sustainable Agriculture Research and Education Graduate Research Grant (\$10,000)
- 2002 Pioneer Fellowship Department of Agronomy and Plant Genetics, University of Minnesota (\$6,000)
- 2002 Service-Learning Grant, Career and Community Learning Center, University of Minnesota (\$5,000)
- 2001 Center for Community Genetics Fellowship, College of Biological Sciences, University of Minnesota (\$12,000)
- 2000 Applied Plant Sciences Fellowship, University of Minnesota (\$2,000)
- 2000 Minnesota Institute for Sustainable Agriculture Fellowship, University of Minnesota (\$2,000)
- 1997 – 2000 Lambert Fellowship, Department of Agronomy and Plant Genetics, University of Minnesota (\$5,000)

PUBLICATIONS (*Denotes advisee)

- Yoshiyama, Y., Y. Wakabayashi, S. Kawabata, T. Kobayashi, T. Tabuchi, **K.L. Mercer**, W. Yamori. Natural genetic variation in dynamic photosynthesis correlated with stomatal anatomical traits in diverse tomato species across geographical habitats. Accepted at *Journal of Experimental Botany*.
- Pace, B.A.* , H. Perales, N. Gonzalez-Maldonado and **K.L. Mercer**. 2024. Functional traits contributing to growth and adaptation of Mexican maize landraces. *PLoS ONE* 9(2): e0290815. <https://doi.org/10.1371/journal.pone.0290815>
- Martínez-Ainsworth, N.E., H. Scheppler*, A. Moreno-Letelier, V. Bernau*, M.B. Kantar, **K.L. Mercer**, L. Jardón-Barbolla. 2023. Fluctuation of ecological niches and geographic range shifts along chile pepper's domestication gradient. *Ecology and Evolution* 13: e10731. <https://doi.org/10.1002/ece3.10731>

- Silva-Pumarada, G. Shrestha, R.K. Chiavegato, M., **Mercer, K.**, Agyei, B.K., Singh, M.P., and Lindsey, L.E. 2023. Effect of Biochar Application on Corn and Soybean Yield in Michigan and Ohio. *Crop, Forage & Turfgrass Management* 9(2): e20245. <https://doi.org/10.1002/cft2.20245>
- Bernau, V.M*., Kantar, M., Jardón Barbolla, L. McCoy, J.E.*, Mercer K.L., and McHale, L. 2023. Genomic signatures of adaptation to abiotic stress from a geographically diverse collection of chile peppers (*Capsicum* spp.) from Mexico. *bioRxiv*. <https://doi.org/10.1101/2023.08.13.553093> To be submitted to *Genetics*.
- McCoy, J.*, N. Martínez-Ainsworth, V. Bernau*, H. Scheppler*, G. Hedblom, A. Adhikari, A. McCormick, M. Kantar, L. McHale, L. Jardón-Barbolla, **K.L. Mercer**, and D. Baumler. 2023. Population structure in diverse pepper (*Capsicum* spp.) accessions. *BMC Research Notes*. <https://doi.org/10.1186/s13104-023-06293-3>.
- Martínez-Ainsworth, N.E., H. Scheppler*, A. Moreno-Letelier, V. Bernau*, M.B. Kantar, **K.L. Mercer**, and L. Jardón-Barbolla. 2022. Capturing the distribution as it shifts: chile pepper (*Capsicum annuum* L.) domestication gradient meets geography. *bioRxiv*. <https://doi.org/10.1101/2022.11.29.518324>
- Fenstemaker, S., J. Cho, J. McCoy*, **K. Mercer**, D. Francis. 2022. Selection strategies to introgress water deficit tolerance derived from *Solanum galapagense* accession LA1141 into cultivated tomato. *Frontiers in Plant Science* 13:947538. <https://doi.org/10.3389/fpls.2022.947538>
- McCoy, J.E.*, L. McHale, M. Kantar, L. Jardón-Barbolla, **K.L. Mercer**. 2022. Environment of origin and domestication affect morphological, physiological, and agronomic response to water deficit in chile pepper (*Capsicum* sp.). *PLoS ONE* 17(6): e0260684. <https://doi.org/10.1371/journal.pone.0260684>
- Pérez-Martínez, A.L., L.E. Eguiarte, K.L. Mercer, N.E. Martínez-Ainsworth, L. McHale, E. van der Knaap and L. Jardón-Barbolla. 2022. Genetic diversity, gene flow, and differentiation among wild, semiwild, and landrace chile pepper (*Capsicum annuum*) populations in Oaxaca, Mexico. *American Journal of Botany* 109(7): 1157-1176. doi.org/10.1002/ajb2.16019
- Khoury, C., S. Brush, D. Costich, H. Curry, S. de Haan, J. Engels, L. Guarino, S. Hoban, **K. Mercer**, A. Miller, G. Nabhan, H. Perales, C. Richards, C. Riggins, I. Thormann. 2022. Crop genetic erosion: understanding and responding to loss of crop diversity. *New Phytologist* 233:84–118 doi.org/10.1111/nph.17733
- Cleary, P., **K. Mercer**, K. Usher, R. Wilk and J. Wainwright. 2022. Changes in food consumption in an indigenous community in southern Belize, 1979-2019. *Food, Culture & Society*, doi.org/10.1080/15528014.2021.1884403

- Bernau, V.*, L. Jardón-Barbolla, L. McHale, and **K.L. Mercer**. 2020. Germination response of diverse wild and landrace chile peppers (*Capsicum* spp.) under drought stress under drought stress simulated with polyethylene glycol. *PLOS ONE* 15(11): e0236001. <https://doi.org/10.1371/journal.pone.0236001>
- Hernández, F., M. Poverene, **K.L. Mercer**, and A. Presotto. 2020. Genetic variation for the tolerance to extreme temperatures in wild and cultivated sunflower (*Helianthus annuus* L.) during early vegetative phases. *Crop and Pasture Science* 71(6): 578-591. <https://doi.org/10.1071/CP20005>
- Kost, M.*, H. Perales; S. Wijeratne, A. Wijeratne, E. Stockinger, E. Grotewold, and **K. Mercer**. 2020. Transcriptional differentiation of UV-B protectant genes in maize landraces spanning an elevational gradient in Chiapas, Mexico. *Evolutionary Applications* 13:1949–1967. doi: [10.1111/eva.12954](https://doi.org/10.1111/eva.12954)
- Khoury, C.K., D. Carver, D.W. Barchenger, G.E. Barboza, M. van Zonneveld, R. Jarret, L. Bohs, M. Kantar, M. Uchanski, **K.L. Mercer**, G.P. Nabhan, P.W. Bosland, S.L. Greene. 2020. Modeled distributions and conservation status of the wild relatives of chile peppers (*Capsicum* L.). *Diversity and Distributions* 26(2): 209-225. <https://doi.org/10.1111/ddi.13008>
- Presotto, A., F. Hernández, and **K. Mercer**. 2019. Phenotypic selection under two contrasting environments in wild sunflower and their crop-wild hybrids. *Evolutionary Applications* 12: 1703-1717. doi: [10.1111/EVA.12828](https://doi.org/10.1111/EVA.12828).
- Wade, J., S. W. Culman, S. Sharma, M. Mann, M. S. Demyan, **K. L. Mercer** and N. T. Basta. 2019. How does phosphorus restriction impact soil health parameters in Midwestern corn-soybean cropping systems? *Agronomy Journal* 111: 1682-1692. doi: [10.2134/agronj2018.11.0739](https://doi.org/10.2134/agronj2018.11.0739)
- Mercer, K.L.**, Y. Vigouroux, N.P. Castañeda-Álvarez, S. de Haan, R.J. Hijmans, C. Leclerc, D. McKey, and S. Vanek. 2019. Crop evolutionary agroecology: genetic and functional dimensions of agrobiodiversity and associated knowledge. In: *Agrobiodiversity: Integrating Knowledge for a Sustainable Future*, edited by K. S. Zimmerer and S. de Haan. Strüngmann Forum Reports, vol. 24, J. Lupp, series editor. Cambridge, MA: MIT Press.
- Pérez-Alquicira, J., A. Michel, E. vander Knaap, **K. Mercer**, L. McHale, T. Mitchell, J. Luna-Ruiz, E. Texocotitla-Vázquez, O. Vargas-Ponce. 2019. Genetic structure of *Liriomyza trifolii* (Diptera: Agromyzidae) associated to host plants and pepper landraces in Mexico. *Environmental Entomology* 48: 253-262. doi.org/10.1093/ee/nvy184
- Taitano, N., V. Bernau*, L. Jardón-Barbolla, B. Leckie, M. Mazourek, **K. Mercer**, L. McHale, A. Michel, D. Baumler, M. Kantar, and E. Vanderknaap. 2019. Genome-wide genotyping of novel Mexican chile pepper collection illuminates the history of

- landrace differentiation after *Capsicum annuum* L. domestication. *Evolutionary Applications* 12: 78-92. doi: org/10.1111/eva.12651
- Mercer, K.L.** and H.R. Perales. 2019. Structure of local adaptation across the landscape: flowering time and fitness in Mexican maize (*Zea mays* L. ssp. *mays*) landraces. *Genetic Resources and Crop Evolution* 66: 27-45. doi:10.1007/s10722-018-0693-7
- Correction: *Genetic Resources and Crop Evolution* 66: 289-290.
- Mercer, K. L.** and J. D. Wainwright. 2018. Science in ‘the storm’: Reflections on politics and plant sciences today. *Human Geography* 11: 1-10.
- Mercer, K.L.** 2018. Towards evolutionary agroecology. *Interdisciplina* 6(14): 51-68.
- Kost, M.A.*, H.R. Perales, S. Wijeratne, A.J. Wijeratne, E. Stockinger and **K.L. Mercer**. 2017. Differentiated transcriptional signatures in the maize landraces of Chiapas, Mexico. *BMC Genomics* 18:707. doi: 10.1186/s12864-017-4005-y
- Espeland, E. K., N. C. Emery, **K. L. Mercer**, S. A. Woolbright, K. M. Kettenring, P. Gepts, and J. R. Etterson. 2017. Evolution of plant materials for restoration: Insights from the applied and basic evolutionary literature. *Journal of Applied Ecology* 54: 102-115. doi: 10.1111/1365-2664.12739
- Campbell, L. G., K. Shukla, M. E. Sneek, C. A. Chaplin, and **K. L. Mercer**. 2016. The effect of altered soil moisture on hybridization rate in a crop-wild system (*Raphanus spp.*). *PLOS ONE* 11(12): e0166802. doi:10.1371/journal.pone.0166802
- Pace, B.*, H.A. Alexander, D.J. Emery, **K.L. Mercer**. 2016. Reliable method for assessing seed germination, dormancy, and mortality under field conditions. *Journal of Visualized Experiments* 117: e54663 doi:10.3791/54663 (Written and video components)
- Kantar, M. B., J. E. Anderson, S. A. Lucht, **K. L. Mercer**, V. Bernau*, K. A. Case, N. C. Le, M. K. Frederiksen, H. C. DeKeyser, Z. Wong, J. C. Hastings, and D. J. Baumler. 2016. Vitamin variation in *Capsicum* spp. provides opportunities to improve nutritional value of human diets. *PLOS ONE* 11(8): e0161464. doi:10.1371/journal.pone.0161464
- Beniston, J., R. Lal, and **K. Mercer**. 2016 Assessing and managing soil quality for urban agriculture in a degraded vacant lot soil. *Land Degredation and Development*, doi: 10.1002/ldr.2342.
- Kost, M.A.*, H.M. Alexander, D. J. Emry, and **K.L. Mercer**. 2015. Life history traits and phenotypic selection among sunflower crop-wild hybrids and their wild counterpart: implications for crop allele introgression. *Evolutionary Applications* 8: 510-524. (Includes cover photo)

- Wainwright, J.D., S. Jiang, **K. Mercer**, and D. Liu. 2015. The political ecology of a highway through Belize's forested borderlands. *Environment and Planning A* 47: 833-849.
- Campbell, L.G., R.J. Parker, G. Blakelock, N. Pirimova, and **K.L. Mercer**. 2015. Maternal environment influences propagule pressure of an invasive plant, *Raphanus raphanistrum* (Brassicaceae). *International Journal of Plant Science* 176: 393-403.
- Pace, B.A.* , H.M. Alexander, D. J. Emry, and **K.L. Mercer**. 2015. Seed fates in crop-wild hybrid sunflower: crop allele and maternal effects. *Evolutionary Applications* 8: 121-131. doi:10.1111/eva.12236.
- Campbell, L.G., J. Luo, and **K.L. Mercer**. 2014. Effect of water availability and genetic diversity on flowering phenology, synchrony and reproductive investment in maize. *Maydica* 59: 293-289.
- Mercer, K.L.**, D.J. Emry, A.A. Snow, M.A Kost*, B.A. Pace*, and H.M. Alexander. 2014. Fitness of crop-wild hybrid sunflower under competitive conditions: implications for crop-to-wild introgression. *PLOS ONE* 9(10): e109001.
- Alexander, H. M., J. Emry, B. A. Pace*, M. A. Kost*, K. Sparks, and **K. L. Mercer**. 2014. Roles of maternal effects and nuclear genetic composition change across the life cycle of crop-wild hybrids. *American Journal of Botany* 101: 1176-1188.
- §Kettenring, K. M., **K. L. Mercer**, C. Reinhardt Adams, and J. Hines. 2014. Application of genetic diversity—ecosystem function research to ecological restoration. *Journal of Applied Ecology* 51: 338-348.
- §Named Editor's Choice for *Journal of Applied Ecology* 51:2. Editorialized [here](#)
- Weiss, A. N.* , S. B. Primer*, B. A. Pace*, and **K. L. Mercer**. 2013. Maternal effects and embryo genetics: germination and dormancy of crop-wild sunflower hybrids. *Seed Science Research* 23: 241-255.
- Campbell, L. G., J. Luo, and **K. L. Mercer**. 2013. Effect of water availability and genetic diversity on flowering phenology, synchrony, and reproductive investment in summer squash. *Journal of Agricultural Science* 151: 775-786.
- Mercer, K. L.**, H. R. Perales, and J. D. Wainwright. 2012. Climate change and the transgenic adaptation strategy: Smallholder livelihoods, climate justice, and maize landraces in Mexico. *Global Environmental Change* 22: 495-504.
- Mercer, K. L.**, H. M. Alexander, and A. A. Snow. 2011. Selection on seedling emergence timing and size in an annual plant, *Helianthus annuus* (common sunflower, Asteraceae). *American Journal of Botany* 98(6): 975-985.

Wainwright, J. and **K. Mercer**. 2011. Transnational transgenes: the political ecology of Mexican maize. In *Global Political Ecologies*. R. Peet, P. Robbins, and M. Watts, eds. New York: Routledge, 412-430.

†**Mercer, K. L.** and H. R. Perales. 2010. Evolutionary response of landraces to climate change in centers of crop diversity. *Evolutionary Applications* 3:480-493.

†Included in a virtual issue on [Evolutionary Applications to Climate Change](#)

Mercer, K. L. 2009. Adaptive nature of crop cytoplasm. *New Phytologist* 183:925-928. (Invited commentary; editor-reviewed)

Wainwright, J. and **K. Mercer**. 2009. The dilemma of decontamination: A Gramscian analysis of the Mexican transgenic maize dispute. *Geoforum* 40: 345-354.

Mercer, K. L., A. Martínez-Vásquez, and H. Perales. 2008. Asymmetrical local adaptation of maize landraces along an altitudinal gradient. *Evolutionary Applications* 1: 489-500.

Mercer, K. L. and J. D. Wainwright. 2008. Gene flow from transgenic maize to landraces in Mexico: an analysis. *Agriculture, Ecosystems, and Environment* 123: 109-115.

Mercer, K. L., D. A. Andow, D. L. Wyse, and R. G. Shaw. 2007. Stress and domestication traits increase the relative fitness of crop-wild hybrids in sunflowers. *Ecology Letters* 10: 383-393.

Mercer, K. L., D. L. Wyse and R. G. Shaw. 2006. Effects of competition on fitness of wild and crop-wild hybrid sunflower from a diversity of wild populations and crop lines. *Evolution* 60 (10): 2044-2055.

Mercer, K. L., R. G. Shaw and D. L. Wyse. 2006. Increased germination of diverse crop-wild hybrid sunflower seeds. *Ecological Applications* 16 (3): 845-854.

Jordan, N., D. Andow and **K. L. Mercer**. 2005. New concepts in agroecology: a service-learning course. *Journal of Natural Resources and Life Sciences Education* 34: 83-89.

Mercer, K. L., N. Jordan, D. L. Wyse and R. G. Shaw. 2002. Multivariate differentiation of quackgrass (*Elytrigia repens*) from three farming systems. *Weed Science* 50 (5): 677-685.

Mercer, K. L. and J. D. Wainwright. 2000. Disuse of agricultural diversity in Minnesota, USA. In *Encouraging Diversity: the conservation and development of plant genetic*

resources. Pages 76-80. C. Almekinders and W. de Boef (eds.) Intermediate Technology Publications, Ltd: London.

Reports

Wainwright, J., H. Peller, P. Esselman, S. Jiang, F. Herce, **K. Mercer** & T. Mesh. 2017. Changes on the Land: History, Forests, Soil and Water, A Report to Aguacate, Jalacte, and Santa Cruz Villages, Belize. Unpublished manuscript: Ohio State University.

Mercer, K. and M. Krueger. 2016. UBC Farm: as inspiration for the future of Waterman. A Report to the College of Food, Agriculture, and Environmental Sciences at Ohio State University. Unpublished manuscript: Ohio State University

Mercer, K.L., C.R. Linder, J. Brunet, and R.L. Hellmich. 2009. Response to charge question D.1 on gene flow. In Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) Scientific Advisory Panel (SAP) Minutes (2009-04) entitled, *A Set of Scientific Issues Being Considered by the Environmental Protection Agency Regarding: The Data Required to Register Plant-Incorporated Protectants*. Pages 29-40. Environmental Protection Agency: Washington, DC.

TEACHING AND STUDENT ADVISING

At Ohio State University, unless otherwise specified

Courses taught

Evolution under Domestication, HCS 8830 (2023)

Seminar and Colloquium, HCS 7890 (2021, 2x 2022, 2023)

Ecological and Genetic Dimensions of Domestication, HCS 8830 (2021)

Abiotic Stress Response and Adaptation, HCS 8830 (2020)

Visioning the New Student Farm, HCS 5194 (2017)

Techniques in Experimental Design, HCS 8887 (2009 – 2015, 2017, 2019, 2020-2023)

Genetic Resources and Climate Change, HCS 830 (2012, 2016)

Cannabis: Past, Present, and Future Cultivation for Fiber, Food, and Medicine, HCS 8830 (2015)

The Ecology of Agriculture, HCS 5602 (2009 – 2014)

Ecology and Evolution of Weedy and Invasive Species, HCS 8830 (2014)

Introduction to Ecology, EEOB 413 (2006)

Agricultural Biotechnology, AGRO 8900 (2000), University of Minnesota

Courses TAed

Ecology of Agricultural Systems, AGRO 5321 (2002) University of Minnesota
Introduced service-learning into the curriculum.

Precision Agriculture, AGRO 4040 (1999) University of Minnesota

Invited Guest Lectures

Ohio State University, University of Minnesota, College of Santa Fe, Leech Lake Tribal College, and El Colegio de la Frontera Sur.

Training in Teaching and Mentoring

Endorsement, Research Mentoring Training, Autumn 2020

- Michael V. Drake Institute for Teaching and Learning, Ohio State University

Workshop, Scientific Communication Advances Research Excellence (SCOARE), Nov 2020

- Six hours of training by grant-funded team, University of Texas MD Andersen Cancer Center

Workshop, Addressing Equity and Inclusion in your Research Mentoring, Oct 2020

- Two and a half hours of training by Office of Postdoctoral Affairs, Ohio State University
- Program is part of the National Research Mentoring Network (NRMN) model

Workshop, Better Research Through Better Mentoring II, September 2019

- Four hours of training by Office of Postdoctoral Affairs, Ohio State University
- Program is part of the National Research Mentoring Network (NRMN) model

Workshop, Better Research Through Better Mentoring I, May 2019

- Four hours of training by Office of Postdoctoral Affairs, Ohio State University
- Program is part of the National Research Mentoring Network (NRMN) model

Mentoring and research advising

Visiting Scholar: host and collaborator

Lev Jardón-Barbolla, Mexico (2023)

Alejandro Presotto, Argentina (2017)

Postdoctoral researchers: advisor

Jing Luo (2009 – 2011)
Lesley Campbell (2010)

PhD candidates: advisor

Keyvan Maleki (2022 – present)

- Received a Diversity Fellowship from CFAES at OSU
- Published three papers in 2022 on seed dormancy as first or second author from work done before coming to OSU
- Published one paper in *Plants* in 2023 on modeling weed population dynamics based on germination synchrony as first author from work done before coming to OSU.
- Attended the AFRI Breeding Panel PI meeting at the National Association of Plant Breeders meeting at Clemson University in my stead, 2023.
- Peer reviewed for seven plant and ecology journals in 2023, including as an invited reviewer for a special issue.

Hannah Scheppler (2021 – present), co-advised with Leah McHale

- Received ENGIE Fellowship
- Received University Fellowship
- Co-author of a poster presentation entitled, “Ecogeographic evolution of chili pepper (*Capsicum annuum*) through its domestication gradient” at the 2021 1st Latin American Conference of Evolution.
- Served as vice president of the BLM begonias graduate student organization (2021).
- Served as PR chair for the HCS Graduate Student Association (2021).
- Selected to serve as the Graduate Student Representative for the HCS Executive Advisory Committee (2021).
- Served as the Graduate Student Representative for the HCS chair search (2021).
- Co-author “Capturing the distribution as it shifts: chile pepper (*Capsicum annuum* L.) domestication gradient meets geography”, published on *bioRxiv*, December 2022
- Flash talk for Dissertation Proposal at OSU HCS Graduate Research Symposium 2022
- Achievement of Doctoral Candidacy in June 2022
- Served as the Departmental Executive Advisory Committee Graduate Student Representative
- Served as the Departmental Faculty Meetings Graduate Student Representative
- Vice-president Graduate Student Organization “Black Lives Matter Begonias”
- Awarded a USDA NIFA AFRI Education and Workforce Development Pre-doctoral Fellowship Grant Proposal for \$117,837 in May, 2023

- Awarded \$5,000 of funding from the Internal Grants Program of the Ohio Agricultural Research and Development Center at Ohio State University for dissertation research, May 2023
- Co-author "Population structure in diverse pepper (*Capsicum* spp.) accessions", published in *BMC Research Notes* 2023
- Co-author "Fluctuation of ecological niches and geographic range shifts along chile pepper's domestication gradient" published in *Ecology and Evolution*, 2023
- Presented at the HCS Graduate Research Symposium, Wooster, OH, March 2023
- Was the Graduate Teaching Assistant for HCS 5411, Domestication and Utilization of Agronomic Crops

Ignacio Fanna (2019 – present), co-advised with Alejandro Presotto
University of the South, Bahía Blanca, Argentina

Jack McCoy (2018 – 2023), co-advised with Leah McHale

- President, Horticulture and Crop Science Council of Graduate Students
- Received the Tinker Field Research Grant from the Center for Latin American Studies, Ohio State University
- Co-organizer of the Plant Science Symposium, Ohio State University, March, 2019
- Presented his work in a poster entitled, "Origin and domestication affect morphological and physiological response to water deficit in chile pepper (*Capsicum* sp.)" in the 2021 CFAES annual research conference.
- Won third place within CFAES at the Hayes Research Forum at OSU
- Awarded 3rd Place, Oral Presentations, Hayes Graduate Research Forum, OSU, 2022
- Presented at American Society for Horticultural Science Annual Conference, Chicago, IL, 2022, "Environment of Origin and Domestication Affect Root Morphology, and Response to Water Deficit in Chile Pepper (*Capsicum annuum* L.)"
- Presented a seminar at University of Tennessee, UT, Knoxville, 2022, as part of the graduate student exchange. Entitled, "Exploring the Effects of Environment of Origin and Domestication on Drought Adaptation and Water Deficit Tolerance in Chile Pepper (*Capsicum* sp.)"
- Presented a flash talk, HCS Graduate Research Symposium, OSU, 2022, entitled, "Environment of origin and domestication affect root morphology and response to water deficit in chile pepper (*Capsicum annuum* L.)"
- Presented at Hayes Graduate Research Forum, OSU, 2022. Talk entitled, "Environment of Origin and Domestication Affect Seed Germination, Root Morphology, and Response to Water Deficit in Chile Pepper (*Capsicum annuum* L.)"

- Coauthored a manuscript with the Francis lab published in *Frontiers of Plant Science* (2022) entitled, “Selection strategies to introgress water deficit tolerance derived from *Solanum galapagense* accession LA1141 into cultivated tomato.”
- Published a manuscript as first author in *PLoS ONE* entitled, “Environment of origin and domestication affect morphological, physiological, and agronomic response to water deficit in chile pepper (*Capsicum* sp.)” 2022.
- Published a manuscript entitled, “Population structure in diverse pepper (*Capsicum* spp.) accessions” in *BMC Research Notes*, 2023.
- Presented at OSU three times in 2023:
 - “Drought adaptations in chile pepper (*Capsicum* sp.): Exploring the roles of origin and domestication on response to soil water deficit”, Seminar, Kowlett Seminar Series, Department of Plant Pathology, OSU, April 2023
 - “An overview of response to water deficit in chile pepper and the influences of origin and domestication”, Oral presentation, Chile Convergence, March 2023
 - “Evaluation of Phenotyping Methods and Physiological Adaptations to Water Deficit in Chile Pepper (*Capsicum annuum* L.)”, Flash talk, HCS Graduate Research Symposium, OSU, March 2023. Garnered 2nd Place
- Served on multiple committees in 2023:
 - Graduate Student Representative, Diversity Equity and Inclusion Committee, Department of Horticulture and Crop Sciences, OSU
 - Graduate Panel Reviewer, CFAES Internal Grants Proposals, OSU
- Defended doctoral dissertation entitled, “Exploring the morphophysiology, ecology, and genotypic variation of drought adaptation and water deficit response in chile pepper (*Capsicum* sp.)”, April, 2023.
- Presented at two universities: University of Arkansas and University of Illinois, 2023
- Current employment: Horticulture Lecturer in the Department of Crop Science at University of Illinois, Urbana-Champaign

Vivian Bernau (2014 – 2018), co-advised with Leah McHale

- Received the International Associateship, College of Food, Agriculture, and Environmental Science
- Received a SEEDS grant for her collaborative research (with Nathan Taitano) for a proposal entitled, 'Finding the Genetic Basis of Use Traits and Climate Adaptations in Chile Peppers (*Capsicum* spp.) of Southern Mexico'
- Chosen to participate in the International Rice Research Institute's (IRRI's) course, entitled Rice: Research to Production (Philippines, 2015).
- Presented her research at the National Plant Breeders Association Meeting (2015)

- Chosen to attend the Borlaug Summer Institute on Global Food Security at Purdue University (2016)
- Received a US Borlaug Fellows in Global Food Security Graduate Research Fellowship Grant from USAID (2016 – 2018) (\$34,700); spent one and a half years in Guatemala and Mexico for field work.

Brian Pace (2013-2018)

- Received the International Associateship, College of Food, Agriculture, and Environmental Science (2013-2014).
- Chosen to attend the Borlaug Summer Institute on Global Food Security at Purdue University, 2013.
- Received a US Borlaug Fellows in Global Food Security Graduate Research Fellowship Grant from USAID (\$23,000); spent one year in Mexico for field work.
- First-authored manuscripts published in *Evolutionary Applications* and the *Journal of Visualized Experiments*; co-author on multiple manuscripts in the lab.

Matthew Kost (2009 – 2014)

- Received the Environmental Graduate Research Fellowship, College of Food Agriculture and Environmental Sciences.
- Won the University Fellowship, Graduate School.
- Granted the Whitmeyer-Knox Fellowship, Department of Horticulture and Crop Science.
- Chosen to attend the Borlaug Summer Institute on Global Food Security at Purdue University, 2013
- Came in 2nd place in the Hayes Graduate Forum, OSU Graduate School, for his oral presentation “Early life history traits and survival of wild and crop-wild hybrid *Helianthus annuus* (sunflower) generations: implications for introgression and genetic assimilation”, 2012
- Received a SEEDS grant for his research.
- First-authored three manuscripts published in *Evolutionary Applications* and *BMC Genomics* and co-authored multiple manuscripts in the lab

PhD candidates: committee member

Amy Campbell (2006 – 2012)
 Josh Beniston (2008 – 2013)
 Natasha Woods (2008 – 2015)
 Hsiao-chi Chang (2008 – 2015)
 Destiny Palik (2013 – 2017)
 Michele Bigger (2014 – 2015)
 Corrie Pieterse (2013 – 2018)
 Raleigh Ricart (2014 – 2017)
 Rachel Capouya (2014 – 2018)
 Zac Beres (2015 – 2019)

Jordan Wade (2017 – 2019)
Henry Peller (2015 – 2021)
Maayan Kreitzman, University of British Columbia (2016 – 2020)
Nall Moonilall (2016 – present)
Daniel Williams (2020 – 2021)
Hannah Scheppler (2020 – 2021)
Kali Mattingly (2021)
Alexis Wafer (2021 – present)

PhD candidates: preliminary exam committee member

Chia-Hua Lin (2009)

Lamine Diop (2015)

MS candidates: advisor

Rosemary Koontz (2021 – 2023), co-advised with Steve Matthews in SENR

- Presented “Evaluating phenological variation of DED-tolerant American elm selections to inform landscape-level restoration opportunities” at the International Association for Landscape Ecology - North America meeting, 2023.
- Presented “Evaluating phenological variation of DED-tolerant American elm selections to inform landscape-level restoration opportunities” at the OSU, School of Environment and Natural Resources, Student Research Symposium, 2023
- Successfully defended Masters thesis entitled, “Evaluating phenological variation of Dutch elm disease-tolerant American elm (*Ulmus americana*) selections”, OSU, School of Environment and Natural Resources, October 26, 2023

Chee Gang Ngui (2021 – 2023), co-advised with Leah McHale

- Held a graduate teaching assistantship AU22 and AU23 and taught HCS 2200, The World of Plants, with Pamela Sherratt
- Presented at the HCS Graduate Research Symposium, 2023
- Successfully defended his thesis entitled, “Root phenotyping of chili pepper (*Capsicum* spp.) grown in rhizoboxes in well-watered and water deficit treatments”, November, 2023

Brian Pace (2009 – 2012)

- Received the Whitmeyer-Knox Fellowship, Department of Horticulture and Crop Science
- Garnered the Tinker Field Research Grant, Center for Latin American Studies.
- Granted a scholarship to attend the Future Leaders Forum (one of 12 chosen of >100 applicants) through the Association for International Agriculture and Rural Development, Washington, DC, 2012.
- Presented his work at the International Ecosummit, 2012

MS candidates: committee member

Daniel Thomas (2011 – 2012)
 Tyler Johnson (2013 – 2014)
 Samantha Konkle (2013 – 2015)
 Nall Moonilall (2015)
 Gabriela Silva-Pumarada (2020 – 2022)
 Charlotte Solomon (2022 – present)
 Tuny Amphonechit (2022 – present)

Undergraduate students: research supervisor

Katie Fulcher (2022 – 2023)

- Frances Sylvia Zverina 2022 Ohio Plant Sciences Scholarship, Western Reserve Herb Society, May 2022 (\$14,000)
- Katharine M. Grosscup Scholarship in Horticulture, Garden Club of America, March 2022 (\$3,500)
- Honors and Scholars Enrichment Grant, The Ohio State University, College of Food, Agriculture, and Environmental Sciences, January 2022 (\$3,000)
- Wilhelm and Eleanor Beckert Scholarship, The Ohio State University, Department of Horticulture and Crop Science, June 2022 (\$3000)
- Undergraduate Research Apprenticeship Program, The Ohio State University, March 2022 (\$5,928)
- Presented poster entitled, “Seed and seedling characteristics of chile pepper (*Capsicum annuum* L.) across a domestication gradient” at the Autumn Undergraduate Research Festival at OSU, November, 2023.
- Attended the International Plant Propagator Society Eastern Regional Conference 2023
- Invited to serve on the International Plant Propagator Society Eastern Regional Conference Organizational Committee for 2024
- Successfully defended her Undergraduate Honors Thesis entitled, “Seed and seedling characteristics of chile pepper (*Capsicum annuum* L.) across a domestication gradient”, 2023
- Graduated with honors and research distinction December 2023 from the Sustainable Plant Systems major, Agroecology track.
- Was awarded the Controlled Environment Agriculture scholarship, 2023 for graduate work in Chieri Kubota’s lab starting January, 2024

Anna Baltisberger (2020 – 2022)

- Honors thesis: “Effect of inoculation on nitrogen fixation on aerial roots in conventional and landrace maize in the greenhouse”

Katie McNamara (2019 – 2021)

- Honors thesis: “Effect of water stress on root architecture in chile peppers (*Capsicum annuum*) from contrasting origins”.
- Graduated *Suma Cum Laude*

- Received the Beckert Scholarship and Research Grant from the Department of Horticulture and Crop Science, 2019 (\$2,500)

Noah Kayafas (2018 – 2021)

- Undergraduate thesis: “Growth of aerial roots on and relationship to plant performance in highland maize landraces from Mexico”
- Graduated with Research Distinction
- Received a grant from the Undergraduate Research Apprenticeship Program (URAP) through the Office for Undergraduate Research and Creative Expression at Ohio State University for the summer 2019
- Received the Beckert Scholarship and Research Grant from the Department of Horticulture and Crop Science, 2019 (\$2,500)
- Received an iCAPS research fellowship from the Center for Applied Plant Sciences, Ohio State University, for the summer of 2020.

Alyssa Gordon (2017 – 2019)

- Undergraduate thesis: “Effects of water scarcity on seed germination in chile peppers from Mexico”
- Graduated with Research Distinction

John Brett (2016 – 2017)

- Independent research: “Determining trait adaptations in landraces of chile pepper under drought”
- Presented at college-wide undergraduate research forum

Tanner Cole (2016)

Adam Kaddoura (2014 – 2017)

- Undergraduate thesis: “Effects of UV and elevation on flavonoid production in juvenile landrace maize leaf tissue”
- Presented at two college- and one university-wide undergraduate research forums
- Graduated with Research Distinction, May 2017

Steph Verhoff (2013 – 2014): co-advised with Allison Snow

- Received a SEEDS Grant for Undergraduate Research, Ohio Agriculture Research and Development Center
- Presented research at OSU-wide undergraduate research forum
- Wrote an Undergraduate Honors Thesis to graduate May 2014

Meggie Hanzlik (2011)

- Wrote a proposal to study genetic variation within species used as cover crops

Kelly Lewis (2011 – 2013)

- Independent research on, “The effect of temperature on germination behavior and seedling morphology in locally adapted maize landraces from Chiapas, Mexico”
- Received the SEEDS Grant for Undergraduate Research, Ohio Agriculture Research and Development Center.
- Presented research at college-wide and OSU-wide undergraduate research forums

- Wrote an Undergraduate Honors Thesis, graduated August 2013 with Research Distinction

Alexa Weiss (2010 – 2012)

- Received Beckert Fellowship, Department of Horticulture and Crop Science and the SEEDS Grant for Undergraduate Research, Ohio Agriculture Research and Development Center
- Presented research at college-wide and OSU-wide undergraduate research forums
- Wrote an undergraduate thesis and graduated with Research Distinction, March 2012
- Published her thesis in *Seed Science Research*

Samantha Primer (2010)

- Received Beckert Fellowship, Department of Horticulture and Crop Science
- Presented research at college-wide and OSU-wide undergraduate research forums

Brian Maxwell (2007 – 2008)

- Presented research at college-wide undergraduate research forum

Undergraduate Summer Research Opportunity Program Scholars

Patricia Leon (2019)

Noelymar Gonzalez (2014)

Sandra Arce (2013)

Student workers on the OSU Student Farm: employer and mentor

Kristoffer Tovar (2023)

Sabriyah Abdullah (2023)

Lily Dixon (2023)

Keely Kocur (2023)

Annika Alpers (2022-2023)

Matt Savoy (2022)

Samantha Lehr (2022 – present)

Garrett Reigle (2022-2023)

Liv White (2022 – present)

Exer Thurston (2021 – 2023)

Audrey Hollerich (2021 – 2023)

Izabelle Vose (2021 – 2022)

Mary Stroemple (2021)

Coraline Nagy (2020 – 2023)

Jillian Horan (2020 – 2022)

Anna Baltisberger (2019 – 2020)

Hannah Sorrel (2019 – 2021)

Andrew Yates (2019 – 2022)

Riley Sayers (2019 – 2020)

Rachel Kopniske (2019 – 2021)

Noah Kayafas (2019)

Liv Halterman (2019)
Parker Clarke (2019)
Mary Boltri (2018 – 2019)
Teagan Pfister (2018 – 2019)
Maria Fredericks (2018 – 2019)
Rachael Birri (2018 – 2020)
Bonnie Sutherland (2018 – 2019)
Madison Taylor (2018)
Madeline Marshall (2018)
Charis Ramsing (2017 – present)
Alyssa Gordon (2017 – 2018)
Sally Doyle (2017 – 2018)
Clayton Michael Dowdell Chiimeh (2017)

Undergraduate students: research employer

As a faculty member

Matthew Lincicome (2023)
Edison Cigany (2021 – 2023)
Anna Baltisberger (2020 – 2022)
Noah Kayafas (2018 – 2021)
Lillyann Kimberly (2018)
Olivia Petryszyn (2016)
Gina Cerimele (2016 – 2017)
John Brett (2016 – 2017)
Tanner Cole (2016)
Salonas Ayad (2015 – 2016)
Adam Kaddoura (2014 – 2017)
Riya Vyas (2014)
Lauren Simon (2011)
Kelly Lewis (2010 – 2013)
Mithra Doddi (2010)
Andrew Bond (2010)
Emma Sanchez (2010)
Alexa Weiss (2010 – 2011)
Samantha Primer (2009 – 2010)
Brian Snow (2009 – 2010)
Katie Everson (2009 – 2010)
Grace Park (2009 – 2010)
Ruby Harrison (2009)

As a postdoc

I employed six students from three countries.

As a graduate student

I employed eleven students from six countries during my MS and PhD degrees.

RESEARCH PRESENTATIONS

Invited lectures (since 2004)

2021

University of Georgia, Department of Plant Biology

2020

XLVIII Congreso Argentino de Genética (Argentine Genetics Conference), Symposium, Plant Evolutionary Ecology in Agricultural Systems, Virtual Conference

2018

ConCiencias por la Humanidad II (Sciences for Humanity II), San Cristóbal de Las Casas, Chiapas, Mexico

University of New Hampshire, Department of Agriculture, Nutrition, and Food Systems

2017

ConCiencias por la Humanidad (Sciences for Humanity), San Cristóbal de Las Casas, Chiapas, Mexico

2016

Ohio State University, Department of Horticulture and Crop Science

ConCiencias por la Humanidad (Sciences for Humanity), San Cristóbal de Las Casas, Chiapas, Mexico

National Autonomous University of Mexico (UNAM), Center for Interdisciplinary Investigations in the Sciences and Humanities (CEIICH), Mexico City, Mexico

2015

University of British Columbia, Biodiversity Research Center

2014

National Autonomous University of Mexico (UNAM), Department of Ecology

Ohio State University, Center for Applied Plant Sciences

2013

Michigan State University, Plant Breeding, Genetics, and Biotechnology Symposium

University of Minnesota-Duluth, Department of Biology

University of Maryland, Department of Plant Sciences and Landscape Architecture

2012

Ohio State University, School of Environment and Natural Resources

Crop Science Society of America Meeting, Cincinnati, Putting collections to work: focused and adaptive strategies (C-8 symposium)

4th International EcoSummit, Columbus, Ecological Sustainability: Restoring the Planet's Ecosystem Services (symposium)

W.K. Kellogg Biological Station, Michigan State University

2011

Symposium and Workshop entitled, The New 2,4-D and Dicamba-Tolerant Crops: Managing Risks to Farms and Communities, Ohio State University

2010

Ecological Society of America Meeting, Pittsburgh, Global warming, smallholder agriculture and environmental justice: making critical connections (symposium)

Purdue University, Department of Biology

2009

The Ojibwe Nation and the University of Minnesota, Conference on Issues Surrounding Genetically Modified Wild Rice

2008

Mexican Ecology Society, Merida (symposium, in Spanish)

National Institute of Ecology (INE), Ministry of Environment and Natural Resources (SEMARNAT), Mexico (in Spanish)

USDA, APHIS, Biotechnology Regulatory Service

Ohio State University, Department of Horticulture and Crop Science

2007

University of Wisconsin-Madison, Department of Geography

University of Vermont, Department of Plant and Soil Science

University of Kansas, Department of Ecology & Evolutionary Biology

Ohio State University, Department of Evolution, Ecology & Organismal Biology

University of Kansas, Field Station & Ecological Reserves

Ohio State University, Ohio Master Gardener Conference

University of Wyoming, Department of Plant Sciences

University of California-Santa Cruz, Department of Ecology & Evolutionary Biology

2006

Denison University, Department of Biology

2005

El Colegio de la Frontera Sur, Chiapas, Department of Agroecology (in Spanish)

Ohio State University, Department of Evolution, Ecology & Organismal Biology

2004

University of British Columbia, Department of Zoology laboratory group

University of Minnesota, Applied Plant Sciences Program

Presentations at academic meetings (since 2004) (=graduate student; **=undergraduate student)*

2023

“Nitrogen fixation in landrace, heirloom, and improved *Zea mays* in Ohio.” 2023 ASA-CSSA-SSSA International Annual Meeting, St. Louis, MO.

First Author: N. Lorenz (presented poster)

Coauthors: R. Dick, K. Mercer

2020

“Potential for nitrogen fixation in highland corn landraces from Mexico.” Northeastern Corn Improvement Conference, Ohio State University, Columbus, Ohio.

Coauthor: N. Kayafas**

2019

“Phenotypic selection under two contrasting environments in wild and crop-wild hybrid sunflower.” Ecological Society of America Annual Meeting, Louisville, KY

Coauthors: A. Presotto and F. Hernández

“Evaluating drought tolerance in pepper (*Capsicum* sp.) from the US and Mexico” American Society of Horticultural Science Annual Meeting, Las Vegas, NV

Coauthors: J. McCoy (presenting), L. McHale

“Evaluation of *in situ* crop diversity: why do it in diversity cold spots?” American Association of Geographers Annual Meeting, Washington, DC

Coauthors: H. Peller, L. Jardón, N. Leon, and J. Wainwright

“Dynamics of Maya Forest.” American Association of Geographers Annual Meeting, Washington, DC

Coauthors: S. Jiang (presenting), H. Peller, J. Wainwright, D. Liu, and P. Esselman

2018

“Zapatista ConCiencias: reflections on the politics of scientific research.” International Congress, Latin American Studies Association (LASA), Barcelona

Coauthors: Joel Wainwright

“Reflections on scientific research with (and emancipatory struggles of) indigenous Maya communities of Belize.” International Congress, Latin American Studies Association (LASA), Barcelona

Coauthors: Joel Wainwright (presenting) and Henry Peller

2017

“Can genetic variation in crops improve agricultural resilience and facilitate adaptation to climate change?” Meeting of the American Association of Geographers, Boston, MA

“Adaptación de cultivos frente la tormenta y cambio climático (Crop adaptation facing the storm and climate change)” [Invited] ConCiencias por la Humanidad II (Science for Humanity II), Chiapas, Mexico

2016

“Reflexiones en la ciencia, la economía política capitalista, y el Zapatismo (Reflections on science, capitalist political economy & Zapatismo)” [Invited] ConCiencias por la Humanidad (Science for Humanity), Chiapas, Mexico

Co-author: Joel Wainwright

“Germination of diverse chile peppers (*Capsicum* spp.) under simulated drought conditions”, Crop Science Society of America Meetings, Phoenix, AZ

Co-author: Vivian Bernau* (presenting), Nathan Taitano, Esther van der Knaap, Lev Jardón, Leah McHale

“Growth characteristics of landrace maize across an elevation gradient in Mexico”, Crop Science Society of America Meetings, Phoenix, AZ

Co-authors: Brian Pace* (presenting), Hugo Perales

“Flowering and fitness: local adaptation to an environmental gradient in maize landraces”, Crop Science Society of America Meetings, Phoenix, AZ

Co-author: Hugo Perales

“Breaking barriers on university-affiliated urban farms: synergy of research, student learning, and community engagement”, Sustainable Agriculture Education Association Meeting, Santa Cruz, CA

Co-authors: Hannah Wittman, Meredith Krueger, Julie Grossman, and Peyton Genakes

“The Urban Edge: The Role of Urban Student Organic Farms in Raising Awareness of Food System Inequities”, Urban Food System Symposium, Olathe, Kansas

Coauthors: Peyton Genakes (presenting), Hannah Wittman, Meredith Krueger, Julie Grossman

2015

“Potential evapotranspiration (PET) estimators as a tool for indicating drought tolerance in chile peppers of southern Mexico”, National Association of Plant Breeders, Pullman, WA

Co-authors: Vivian M. Bernau* (presenting) and Leah K. McHale

“Flowering and fitness: plasticity and local adaptation in maize landraces in Chiapas, Mexico”, Botany Society of America Meeting, Edmonton, Canada

Co-author: Hugo R. Perales

“Flowering and fitness: local adaptation and plasticity responses to an environmental gradient in maize landraces in Chiapas, Mexico”, Agronomy, Crop Science, and Soil Science Societies Meeting, Minneapolis, MN

Co-author: Hugo R. Perales

2013

“Mapping forest-cultivation transition using spatial-temporal classification of multi-temporal Landsat images: the Maya forest of southern Belize”, Ecological Society of America Meeting, Minneapolis, MN

Co-authors: J.D. Wainwright (presenting), S. Jiang, and D. Liu

“Integrating recent advances in genetic diversity-ecosystem function research to improve ecological restoration”, Ecological Society of America Meeting, Minneapolis, MN

Co-authors: K.M. Kettenring (presenting), C. Reinhardt Adams, and J. Hines

“Fitness of crop-wild sunflower hybrids affected by a range of competitive conditions”, Ecological Society of America Meeting, Minneapolis, MN

Co-authors: H.M. Alexander, J. Emry, M.A. Kost*, B.A. Pace*, A.A. Snow

“¿Existe efecto de herencia materna fenotípica cuando estudiamos colectas de maíces nativos?” (Are there phenotypic maternal effects when we study collections of native maize?) National Meeting of the Mexican Society of Plant Breeding, San Cristobal de Las Casas, Chiapas.

Co-authors: H. Perales Rivera (presenting) and B. Coutiño Estrada

“Patrones de variación adaptativa de cultivares nativos: implicaciones para el cambio climático” (Patterns of adaptive variation of native cultivars: implications for climate change) National Meeting of the Mexican Society of Plant Breeding, San Cristobal de Las Casas, Chiapas.

Co-authors: H. Perales Rivera (presenting) and B. Coutiño Estrada

“Soil quality evaluation of urban market gardens” International Annual Meeting of the ASA-CSSA-SSSA, Tampa.

Co-authors: J. Beniston* (presenting) and R. Lal

2012

“Maize landrace genetic diversity in a changing climate: temperature adaptation in the maize landraces of southern Mexico”, 4th International Ecosummit, Columbus.

Co-authors: M.A. Kost* (presenting), E.J. Stockinger, and H.R. Perales

“Photosynthetic Rate and Biomass Accumulation in Landrace Maize Across an Altitudinal Gradient”, 4th International Ecosummit, Columbus.

Coauthors: Brian A. Pace* (presenting) and Hugo Perales Rivera

“Patterns of adaptive variation in landrace crops: implications for climate change,” in invited symposium. 4th International Ecosummit, Columbus.

Coauthor: Hugo R. Perales

“Patterns of adaptive variation in landrace crops: implications for climate change,” in invited symposium. Meetings of the Crop Science Society of America, Cincinnati.

Coauthor: Hugo R. Perales

“Do hybridization rates vary with water availability?” Meetings of the Canadian Society of Evolution and Ecology.

Coauthors: Lesley G. Campbell (presenting), Colleen Chaplin, and Kenneth D. Whitney

2011

“Response of flowering phenologies of *Raphanus* and *Helianthus* to variation in water availability: predicting hybridization rates,” Meetings of the Canadian Society of Evolution and Ecology

Coauthors: Lesley G. Campbell (presenting) and Kenneth D. Whitney

2010

“Climate change, transgenes, and the prospects for environmental justice: smallholder livelihoods and the evolution of maize landraces in Mexico” in invited symposium, Meetings of the Ecological Society of America, Pittsburgh

Coauthors: Hugo Perales and Joel Wainwright.

“Climate change may reduce fecundity of monoecious crops through altered investment in male and female flowers”, Meetings of the Ecological Society of America, Pittsburgh

Coauthors: Jing Luo (presenting), Lesley G. Campbell.

“Adaptive nature of seed emergence timing in common sunflower (*Helianthus annuus*)”, Meetings of the Society for the Study of Evolution, Portland

Coauthors: Helen Alexander, Allison Snow

“Climate change and maize diversity”, Meetings of the Association of American Geographers, Washington, DC.

2009

“The landscape of maize in southern Mexico: present and future patterns of diversity” in invited symposium, Meetings of the Crop Science Society of America, Pittsburgh

Coauthor: Hugo Perales (presenting)

“Effects of early life history on lifetime fitness in wild sunflower”, Meetings of the Ecological Society of America, Albuquerque

Coauthors: Helen Alexander, Allison Snow

“The dilemma of decontamination: a Gramscian analysis of the Mexican transgenic maize dispute”, Meetings of the Ecological Society of America, Albuquerque

Coauthor: Joel Wainwright (presenting)

2008

“Evolutionary ecology of transgene introgression” (in Spanish) in invited symposium, Meeting of the Mexican Society of Ecology, Merida

“Potential impacts of climate change on locally adapted maize landraces in Mexico”, Meetings of the Society for the Study of Evolution, Minneapolis

Coauthor: Hugo R. Perales

“Impacts of climate change on conservation of crop genetic diversity”, Meetings of the Association of American Geographers, Boston

“Variable ALS herbicide tolerance in crop-wild sunflower hybrids”, Meetings of the Weed Science Society of America, Chicago

2007

“Herbicide resistance in diverse sunflower crop-wild hybrids”, Crop Gene Flow Conference, St. Louis

“Stress and domestication traits increase relative fitness of crop-wild hybrids”, Meetings of the Ecological Society of America, San Jose

Coauthors: Ruth Shaw, Donald Wyse, David Andow

“Maize landraces: current distribution and local adaptation to environmental gradients”, Meetings of the Association of American Geographers, San Francisco

Coauthor: Hugo Perales

“Local adaptation of maize landraces to an environmental gradient”, International Summit on Evolutionary Change in Human-Altered Environments, Los Angeles

Coauthor: Hugo Perales

2006

“Increased potential for introgression of crop genes into wild populations under stress”, Meetings of the Crop Science Society of America, Indianapolis

Coauthors: Ruth Shaw, Donald Wyse

“Local adaptation of maize (*Zea mays* ssp. *mays*) landraces to environmental gradients”, Ecological Society of America Meeting, Memphis

Coauthor: Hugo Perales

“Increases in relative fitness of crop-wild hybrids under stressful conditions”, Society for the Study of Evolution Annual Meeting, Stony Brook

Coauthors: Ruth Shaw, Donald Wyse

“The dilemma of decontamination: Gene flow from transgenic maize to landraces in Southern Mexico”, 26th International Congress of the Latin American Studies Association, San Juan

Coauthor: Joel Wainwright

2005

“Importance of using diverse germplasm and multiple conditions to understand the evolutionary consequences of crop-wild gene flow”, Crop Gene Flow Conference, Kansas City

“The dilemma of decontamination: gene flow from transgenic maize to landraces in Southern Mexico”, Conference of Latin American Geographers, Morelia, Mexico

Coauthor: Joel Wainwright

“Effects of competition on fecundity and relative fitness of wild and crop-wild hybrid sunflowers of diverse origin”, Meetings of the Ecological Society of America, Montreal

Coauthors: Ruth Shaw, Donald Wyse

2004

“Fitness of crop-wild sunflower hybrids from diverse genetic backgrounds”, Meetings of the Agronomy Society of America, Seattle

Coauthors: Ruth Shaw, Donald Wyse

“Genetic variation for seed germination and dormancy among crop-wild hybrids in sunflower”, Ecological Society of America Meeting, Portland

Coauthors: Ruth Shaw, Donald Wyse

“Gene flow from crop to wild sunflowers: genetic variation for seed germination and herbicide resistance”, National Sunflower Association Research Forum, Fargo

Coauthors: Ruth Shaw, Donald Wyse

LEADERSHIP, PROFESSIONAL ACTIVITIES, AND SERVICE

International and governmental activities

Invited Rapporteur, Ernst Strüngmann Forum, Frankfurt Institute for Advanced Studies, Frankfurt, Germany

Evolutionary Ecology Group within the forum entitled, “*Agrobiodiversity in the 21st Century: Foundations and Integration for Sustainability*,” October, 2016

Leader, Environmental Protection Agency (EPA), Scientific Advisory Panel for FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act), Gene Flow Group, Ad Hoc Panel (the Food Quality Protection Act Science Review Board – FQPA-SRB), Washington, DC

Advised EPA on changes in policy involving plant incorporated protectants (i.e., transgenic crops producing pesticidal proteins), 2009 – 2011

Reviews of proposals for international granting agencies

Biotechnology and Biological Sciences Research Council (BBSRC), UK, Newton Fund—*Ad hoc*, 2018

Mexican National Commission for the Study and Use of Biodiversity (CONABIO), *Ad hoc*, 2012, 2013, 2016 (In Spanish)

Reviews of proposals for US granting agencies

NIFA, AFRI, Physiology of Agricultural Plants, Conference Proposal—*Ad hoc*, 2020

The University of California, Multicampus Research Programs and Initiatives (MRPI)

Environmental, Earth and Agricultural Sciences Panel—Panelist, 2018, 2020

NSF, Research Coordination Networks Program—*Ad hoc*, 2016

Ohio Agricultural Research and Development Center Research Enhancement Competitive Grants Program, OARDC—*Ad hoc*, 2014, 2016

Maryland Sea Grant—*Ad hoc*, 2015

NSF, Plant Genome Research Program—*Ad hoc*, 2012

NSF, Evolution of Developmental Mechanisms Program—*Ad hoc*, 2009

NSF, Evolutionary Genetics Program—*Ad hoc*, 2008

USDA, Biotechnology Risk Assessment Program—Panelist, 2008

USDA, Biology of Weedy and Invasive Species in Agroecosystems Program—*Ad hoc*, 2007

USAID, Biotechnology and Biodiversity Initiative—Panelist, 2006

Reviews of manuscripts for 40 academic journals

Agricultural Systems

Agriculture and Human Values

Agriculture, Ecosystems, and Environment

Agriculture and Sustainable Food Systems

Agronomía Colombiana

Agronomy Journal

Agronomy – Open Access

American Journal of Botany

Annals of Applied Biology

Annals of Botany
Basic and Applied Ecology
Biological Invasions
BMC Biotechnology
BMC Plant Biology
Climate and Development
Climate Change
Conservation Genetics
Critical Policy Studies
Ecological Applications
Environment, Development, and Sustainability
Environmental Biosafety Research
Evolutionary Applications
Experimental Agriculture
Frontiers in Plant Science
Genetic Resources and Crop Evolution
Geoforum
Heredity
Journal of Agricultural and Food Chemistry
Journal of Linnean Society of London
Molecular Ecology
Molecular Ecology Notes
Molecular Plant-Microbe Interactions
Nature Climate Change
New Phytologist
Plant Ecology
Plant Genetic Resources
Plant Science
PLoS ONE
SABRAO Journal of Breeding and Genetics
Weed Research

Review of manuscripts for book chapters

CABI Publishing, UK. *Environmental Risk Assessment of Genetically Modified Organisms: Challenges and Opportunities with Bt Cotton in Vietnam*
MIT Press, Cambridge, MA. *Agrobiodiversity: Integrating Knowledge for a Sustainable Future*, Strüngmann Forum Reports, vol. 24.

University Service

Advisor, OSU Student Farm at Waterman Agriculture and Natural Resources Laboratory and associated student group (Student Growing Collective), 2016 – 2023
Managed 30 student employees
Provided strategic thinking

Acquired funding
Helped students successfully turn ideas into action

Contributions to InFACT, the Initiative for Food and AgriCultural Transformation, funded through the Discovery Themes

Executive Committee, Member, 2017 – 2021

InFACT Educational Garden and Landscape Design Committee, 2019 – present

Climate Change and Food Production Cluster, Member, 2016 – 2021,

Ecology and Physiology of Plant and Animal Food Production Cluster, Co-chair, led authoring of three faculty position descriptions, 2014 – 2015

Leadership Council, Member, 2014 – 2015

Climate Change Mitigation and Adaptation Cluster, Member, 2014 – 2015

Discovery Themes proposal working groups, member, 2013 – 2014

Contributed to two interdisciplinary proposals to the University for clusters of faculty positions in core priority areas by attending meetings and editing the proposals. One was funded and has become InFACT (see above)

Proposal Reviewer, Center for Latin American Studies, Tinker grant program—Panelist, 2018

Proposal Reviewer, Center for Applied Plant Sciences—*Ad hoc*, 2018

Judge, Denman Undergraduate Research Forum, 2014, 2015, 2017

Member of Changing Environment Working Group through the Center for Latin American Studies, 2010 – 2014

Graduate Faculty Representative, College of Social Work, Jin Hyun (PhD), 2010

College

Member, Advisory Committee to the Sustainable Agriculture Major, 2021 – 2023

CFAES Education Abroad Advisory Committee, Horticulture and Crop Science Representative, 2019 – present

Ad Hoc Committee to develop sustainable agriculture and agroecological major in the College, Member, 2016 – 2020

Report to the College on the farm at University of British Columbia (UBC Farm) to inform long-term planning for Waterman Agricultural and Natural Resources Laboratory, the largest urban, university-affiliated farm in the country, 2016

Ohio Sustainable Agriculture Education Network (OSAEN), Member, funded through USDA

Establishing state-wide standards in sustainable agriculture education in Ohio
Representative from Horticulture and Crop Science, 2015 – 2021

College International Advisory Committee, Member, 2012 – 2015

Working group to coordinate and improve statistical training in the college, Leader, 2011

Attended conference entitled, “Implications of Increasing Climate Variability on Agriculture in the Great Plains”, as an invited representative of OSU, Kansas City, 2010

Departmental

Mentoring Committee of Assistant Professor, O. Ortez, Member, 2022 – present

Graduate Studies Committee, Chair-Elect, 2021 – 2023

Diversity Equity and Inclusion Committee, Member, 2021 – present

Urban Farming Horticulturalist Search Committee, Member, 2021 – 2023

Executive Advisory Committee, Member, 2020 – 2023

Mentoring Committee of Assistant Professor, M. Chiavegato, Member, 2020 – present

Search Committee for Agroecosystems Management position, Member, 2017 – 2018

Academic Affairs Committee, Associate Professor Member, 2017 – 2018

P&T Committee, Associate Professor Member, 2016 – 2018

Mentoring committee of Assistant Professor, J. Fresnedo, Member, 2016 – 2023

Chair of *Ad Hoc* Committee for Faculty Hires in 'Systems', 2015

Graduate Studies Committee, Member, 2013 – 2015

Awards Committee, Member, 2012 – 2016

Field Operations Committee, Member, 2011 – 2015

Ad hoc committee for Landscape Ecology Faculty Position, Member, 2011

Safety and Security Committee, Member, 2010 – 2012

Peer Review of Teaching (8x), 2009 – 2021

Judge, Graduate Research Retreat, 2009, 2010, 2014, 2016, 2017, 2018, 2020

Other activities

Student Poster Competition, Judge, Crop Science Society of America meeting, 2016

International Project on Genetically Modified Organism Environmental Risk Assessment Methodologies (GMO ERA), Core Group Member, (2007 – 2009)

Review of manuscripts for foreign scientists to improve their presentation in English through Ecological Society of America program (2007).

Presider over sessions at academic meetings

Ecological Society of America: 2006, 2007, 2009

Society for the Study of Evolution: 2008

Crop Science Society of America: 2006

Member of Society for the Study of Evolution (2006 –2011); Association of American Geographers (2006 –2011, 2017); Crop Science Society of America (2006 – 2008, 2015, 2016); Ecological Society of America (2001 – 2014); Weed Science Society of America (2000-2008); American Society of Agronomy (2004 – 2005, 2014, 2015); Botanical Society of America (2015)

Minnesota Center for Community Genetics, Member, 1997 – 2004

Sustainable Agriculture Minor Advisory Committee, Member, 1999 – 2003

Agronomy and Plant Genetics Graduate Club, Vice President, 1999 – 2000

Sustainable Agriculture Reading Group, Vice President, 1998 – 1999

Languages

English	native
Spanish	fluent
Italian	beginner
Q'eqchi Maya	beginner
Japanese	beginner