Deborah A. Neher

Dept. of Plant and Soil Science Twitter: @SoilSuccess

College of Agriculture and Life Sciences Web:

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Education

PhD, University of California, Davis, Plant Pathology (1990)
MS, University of Illinois, Urbana-Champaign, Plant Biology (1986)

BS, McPherson College, Environmental Science (1984), summa cum laude

Appointments

Professor, University of Vermont (2008-present)

Department Chair of Plant and Soil Science, University of Vermont (2004-2018)

Associate Professor, University of Vermont (2004-2008)

Associate Professor, University of Toledo (2002-2004)

Assistant Professor, University of Toledo (1996-2002)

Graduate Faculty Affiliate, Bowling Green State University (1997-2004)

Visiting Assistant Professor, North Carolina State University (1993-1996)

Postdoctoral Research Associate, North Carolina State University (1990-1993)

Naturalist-Ecologist Fellow, University of Michigan Biological Station (1985),

Board (2020-2021)

Soil Health Institute, Measurements, Standards 2019)

Highfields Center for Composting, Advisory Boa 2013)

H. John Heinz III Center for Science, Economics the Nation's Ecosystems project, Farmlands

U.S. EPA Scientific Advisory Board Expert Panel Environment, 2007

U.S. EPA FIFRA Scientific Advisory Panel, Corn Rootworm Plant-incorporated Protectant Nontarget Insect and Insect Resistance Management Issues, 2002 Hired into the biology department which split during my pre-tenure years leaving the remaining molecular biology contingent to inherit the departmental name. We ecologists joined geology to create a new department of Environmental Science.

Co-lead curriculum development within the department and on College and Arts and Science Council navigating interdepartmental tensions regarding instruction and the central role of ecology in biology accreditation.

Executive Committee member for the Plant and Environmental Science Research Center, serving on six faculty hires (chairing two), and coordinating pest management in the new greenhouse.

Professional Societies

Ecological Society of America: Founder of two sections, one in Soil Ecology (1993) and another in Agroecology (2000) serving as inaugural section chair for both. Served as governing board representative to the American Institute for Biological Sciences workshop, "Research in Support of Sustainable Agriculture"; National Research Council-Board of Agriculture workshop, "Agriculture's Role in K-12 Education: A Forum on the National Science Education Standards"; and Council on Agricultural Science and Technology (1994-1996)

Organization of Nematologists for Tropical Americas: Vice President and Scientific Program Chair, Vice President, and President (2016-2019)

Society of Nematologists: Executive Board member, Ecology Committee officer (2002-2005) Soil Ecology Society: Secretary (1996-1997)

American Phytopathological Society: Epidemiology Committee Chair (1995-1996)

Sigma Xi, University of Toledo Chapter: President-Elect (2003-2004)

Editorial Boards

Ecological Applications, Subject Editor for soil ecology, biological indicators, (2017-present) Agroecology and Sustainable Food Systems, Associate Editor (2009-present) Journal of Nematology, Ecology Editor (2001-2004), Associate Editor (1999-2000) Plant Disease, Associate Editor (1994-1996)

Ad hoc reviewer for 30+ journals (https://publons.com/researcher/19617/deborah-neher/)

Research funding (Total External Funding 1992-present: \$10.4 million)

Current

Hatching a holistic and equitable roadmap for agroecology to address modern food system challenges. USDA-NIFA Sustainable Agroecosystems Conference, \$50,000, PI (11/1/22-10/31/23)

Food Systems Sustainability Starts with Soil, Food Systems Research Center planning grant, \$49,817, co-PI (11/1/22-8/31/23)

- Research landscape tool: multi-decadal annotated soil biology bibliography, Soil Health Institute, Cooperative Agreement, \$55,440, PI (2017-2018)
- Incentive Funds for Innovation on the Nexus of Food, Energy and Water, University of Vermont, \$5,000, Lead PI (2016-2017)
- Regional assessment of the quality control, food safety, environmental, user perception and marketing outlets of diverting food scraps from landfills, Northeastern Experiment Station Directors Planning Grant, \$10,000, Lead-PI (2015-2016)
- Plant toxicity tests, Green Mountain Power Corporation, \$4,240, PI (2013-2014)
- Compost biology for improving soil quality for Vermont agriculture, Vermont Agricultural Experiment Station Competitive Hatch, \$43,023, PI (2012-2014)
- Ecology of nematode-suppressive soils in Midwest soybean-cropping systems, USDA CSREES Arthropod and Nematode Biology and Management (A) Organismal and Population Biology, co- \$449,000, co-PI (2009-2013)
- Winter pasture and bedded pack management for Vermont dairy farms, USDA-NRCS Conservation Innovation, \$248,027, Lead PI (2008-2012)
- Compost biology for improving soil quality for Vermont agriculture, Vermont Agricultural Experiment Station Competitive Hatch, \$24,000, PI (2009-2012)
- Spatial extent of transported road materials on the ecological function of forested landscapes, University Transportation Center, DOT, \$233,585, co-PI (2008-2012)
- Compost for management of plant pathogens and weed seeds, NE-SARE Partnership, \$15,000, PI (2010-2012)

Assessing the health of agroecosystems in the United States, USDA-ARS Specific Cooperative Agreement, \$1,112,408, Lead PI (1993-1997)

Peer-Reviewed Publications (n = 120)

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Andrews T*, Neher DA, Weicht TR, Barlow JW (2019) Mammary microbiome of lactating organic dairy cows varies by time, tissue site, and infection status. PloS ONE 14(11): e0225001. doi.org/10.1371/journal.pone.0225001

Hu W, Kidane E, Neher DA, Chen S (2019) Field and greenhouse evaluations of soil suppressiveness to *Heterodera glycines* in the Midwest corn-soybean production systems. Journal of Nematology 51: e2019-32. doi.org/10.21307/jofnem-2019-032

Neher DA, Nishanthan T*, Grabau ZJ, Chen SY (2019) Crop rotation and tillage affect nematode communities more than biocides in monoculture soybean. Applied Soil Ecology 140: 89-97. doi.org/10.1016/j.apsoil.2019.03.016

Neher DA, Cutler AJ*, Weicht TR, Sharma M, Millner PD (2019) Composts of poultry litter or dairy manure differentially affect survival of enteric bacteria in fields with spinach. Journal of Applied Microbiology 126: 1910-1922. doi.org/10.1111/jam.14268

Shah MK, Bradshaw R, Nyarko E, Millner PD, Neher DA, Weicht TR, Bergholz TM, Sharma M (2019) Survival and growth of wild-type and rpoS-deficient *Salmonella* Newport strains in soil extracts amended with heat-treated poultry pellets. Journal of Food Protection 82: 501-506. doi.org/10.4315/0362-028X.JFP-18-465

2018

Neher DA, Weicht

Neher DA, Williams KM*, Lovell ST (2017)

Bao Y^* , Neher DA (2011) Survey of lesion and northern root-knot nematodes associated with vegetables in Vermont. Nematropica 41: 98-106.

(o)-8 Darby BJ*, Housman DC, Nessie (n) 2A, 9E (e) 12ap dj 0.VeQ (5) TeA en O O C (2 (d) 17] To f (e) 2A S ((e) 12 To f (e)) 2A S ((e) 15 to f (e)) 2A S ((e) 15 to f (e)) 2A S ((e) 15 to f (e)) 2A S ((e) 16 to f (e)) 2A S ((e) 17 to f (e))

(Collembola: Onychiuridae) populations exposed to paraquat. Ecotoxicology and Environmental Safety 69: 227-232.

2007

Housman DC, Yeager CM, Darby BJ*, Sanford RL Jr, Kuske CR, Neher DA, Belnap J (2007) Heterogeneity of soil nutrients and subsurface biota in a dryland ecosystem. Soil Biology and Biochemistry 39: 2138-2149.

attributes of nematode communities in forest soils. Functional Ecology 18: 584-591.

Neher DA, Fiscus DA*, Li F* (2004) Selection of sentinel taxa and biomarkers. Nematology Monographs and Perspectives 2: 511-514.

Neher DA[§], Powers TO (2004) Nematodes. Pages 1-5 in Encyclopedia of Soils in the Environment Vol. 3. Edited by Hillel D, Rosenzweig C, Powlson D, Scow K, Singer M, Sparks, D, Academic Press, New York.

2003

Neher DA, Walters T*, Tramer E, Weicht TR, Veluci RM*, Saiya-Cork K*, Will-Wolf, Toppin J, Traub J,(T)-2BDC 0.0 Tc 0 Tw 2.61 0dsLh[(R)6 119.205 Tc9.205 Tc9.205s 0 Td0 T(g)4.009 Tc 0.013 T4.5823 0 Td[(J)4.009 Tc 0.013 T4.5823 0 Td]

Neher DA (2001) Nematode communities as ecological indicators of agroecosystem health. Pages 105-120 in: Agroecosystem Sustainability: Developing Practical Strategies. Edited by Gliessman SR, CRC Press, Boca Raton, Florida.

1999

Neher DA, Olson RK* (1999) Nematode communities in soils of four farm cropping management systems. Pedobiologia 43: 430-438.

Neher DA[§] (1999) Soil community composition and ecosystem processes: Comparing agricultural ecosystems with natural ecosystems. Agroforestry Systems 45:159-185. [also published as Pages 215-241 in: Lefroy EC, Hobbs RJ, O'Connor MH, Pate JS (editors). Agriculture as a Mimic of Natural Ecosystems. Kluwer Academic Publishers, Dordrecht, Netherlands].

Görres JH, Savin M*, Neher DA, Weicht TR, Amador JA (1999) Grazing in a porous environment 1. Interaction between grazing and soil structure on nutrient mineralization. Plant and Soil 212: 75-83.

Neher DA, Weicht TR, Savin M*, Görres JH, Amador JA (1999) Grazing in a porous environment 2. Nematode community structure. Plant and Soil 212: 85-99.

Neher DA, 1999. Nematode communities in organically and conventionally managed agricultural soils. Journal of Nematology 31: 142-154.

1998

Neher DA, Easterling, KN*, Fiscus DA*, Campbell CL (1998) Comparison of nematode communities in agricultural soils of North Carolina and Nebraska. Ecological Applications 8: 213-223.

Neher DA[§], Noffsinger M, Campbell CL (1998) Nematode communities of North Carolina and Nebraska (USA). Pages 321-334 in Nematode Communities of Northern Temperate Grassland Ecosystems. Diversity Effects in Grassland Ecosystems of Europe. Edited by DeGoede R, Bongers T. Wageningen, The Netherlands.

Neher DA[§], Barbercheck ME (1998) Diversity and role of soil mesofauna. Pages 27-47 in Biodiversity in Agroecosystems. Edited by Collins W, Qualset CO, Lewis Publishers, Chelsea, Michigan.

1997

Francl L, Neher DA (editors) (1997) Exercises in Plant Disease Epidemiology. American Phytopathological Society Press, St. Paul, Minnesota.

Book review by Šindelár, L. 1997. Biologia Plantarum 40(4): 498.

Co-authored six chapters: Application of life tables to infection-chain components, Statistical comparison of epidemics, Multiple-point models of yield loss, Analysis of

Research featured in popular press

2022

<u>Soil Steaming: Research by UVM Extension in Support of Vermont's Commercial Vegetable</u>
<u>Growers</u>, Across the Fence (aired November 1, WCAX-TV, Channel 3
Sustainable Winegrowing Podcasts, Interviewed

Weiser CJ et al. (1998). Agriculture's role in K-12 education: A forum on the national science standards. National Academy Press, Washington, DC. (co-author)

Michigan State University, Department of Entomology, Cropping Systems and Nematode Management (2000)

Duke University, Belowground Ecosystems (1995, 1996)

National Agricultural Statistics Service

Current graduate students

Noah Olson, MS (UVM)

Service on graduate student committees

Bailey Kretzler (Plant and Soil Science PhD expected 2023); Caitlin Jeffrey (Animal and Veterinary Sciences PhD expected 2023); Kamruzzaman Khan Sakib (Civil and Environmental Engineering PhD expected 2023); Michelle Lacasse (UVM Animal Science DNF); Eva Kinnebrew (UVM Natural Resources PhD 2022); Kara Gibson (University of Northern Arizona, PhD 2022); Maryam Nouri Aiin (UVM Plant and Soil Science PhD 2022); Allen Wilder (UVM Plant and Soil Science MS 2020); Brendan O'Brien (UVM Natural Resources MS 2018); Samuel Gorton (UVM Natural Resources PhD-ABD); Marie Limoges (UVM Food and Nutrition Science PhD 2018); Dana Christel (UVM Plant and Soil Science MS 2016); Chenin Limback (UVM Natural Resources PhD 2016); Ryan Melnichuk (UVM Plant and Soil Science PhD 2015); Gemille Brion (UVM Food Systems MS 2015); Victor Izzo (UVM Plant and Soil Science PhD 2013); Katherine Goodall (UVM Plant and Soil Science PhD 2013); Jie Zhao (S China Botanical Garden PhD 2011); Samir Doshi (UVM Natural Resources PhD 2010); Rosemary Mosco (UVM Field Naturalist MS 2010); William J. Landesman (Rutgers University, PhD 2009); Homer Elliot (UVM Natural Resources MS 2018); Walter Auch III (UVM Plant and Soil Science PhD 2009); Aminder Kaur (UVM Plant and Soil Science PhD 2009); Manisha Patel (UVM Plant Biology MS 2007); Abigail E. Hood (UVM Ecological Planning MS 2006); Kerry McKenna (Toledo PhD 2006); Karen Hills (UVM Plant and Soil Science MS 2005); Soung-Ryoul Ryu (Toledo Ph.D. 2005); Barry E. Muller (Toledo PhD 2004); Jim LeMoine (Toledo 2004); Susan Tran (Toledo 2004); Mary Bresee (Toledo MS 2004); Siyan Ma (Toledo PhD 2003); Kevin Diego (Toledo MS 2003); Erin Moan (Toledo MS 2003); Mandy Sturgill Comes (Toledo 2003); Todd Tarrant (Toledo PhD 2002); Christian Lauber (Toledo MS 2001); Jamie Schmeling (Toledo MS 2001); Greg D. Taylor (Toledo MS 2001); Laura Burnett (Toledo MS 2000); Michael T. Homsher (Toledo PhD 2000); Kerry McKenny (Toledo MS 2000); Nancy Hatfield (Toledo PhD 1999); Michele Grigore (Toledo PhD 1998); Kathryn Nelson (Toledo MS 1997); Timothy Walters (Toledo PhD 1997)

External examiner for PhD students

Biological Science Honors 2018); Amy Davis (UVM Environmental Science Honors 2016); Flore Costumé (UVM 2014); Patrick Dunseith (UVM Honors College 2011); Henrietta Oakley (UVM 2006-2007); Jeff Connell (Toledo 2003); Andrew Hosken (REU Toledo 2001); Stephen Meininger (REU Toledo 2001); Kelly Ketcham (REU Toledo 2001); Catherine Buchanan (REU Toledo 2001); Fahim Malik (Toledo Honors College 2000); Mohammad Moussa (Toledo Honors College 2000); Natalie Gottschall (REU Toledo 2000); Yvette L. Phillips (Toledo 1999); Jennifer Kurek (Toledo 1997); Brian S. Marlow (Toledo 1997)

Undergraduate thesis examiner

Emily Piersiak (Environmental Science 2020); Beck Morrows (Plant and Soil Science 2020); Sean Pease (Plant and Soil Science 2020)

Undergraduate research assistants Asa Hurd (2020); Charlotte A. Brodie (2019-2020); Emma Wright (2018-2019); Sydney Stegman (2018-2020); Olivia Shrantz (2016-2018); Russell Frisch (2015); Michael Street (2009- 2010); Nicholas LeBlanc (2009- 2010); Patricia Brousseau (2007-2009); Hannah Cady (2007- 2009); Sarah Kearsley (2006- 2007); Sarah Sterling (2006); Nick LaValley (2006); Jennifer Cooksen (2006); Alison Lauze (2005); Sara Moussa (2000-2001); Anja Sachse (1999-2000); Muhammad Ali Haider (1999-2000); Ann Steck (1999); Lona Haas (1997-1999); Vakindi Unvu (1997-1998); Charlotte I. A. Moss (1996-1997)

Undergraduate internships

Ellie Green (Food Systems 2019); Greg Daniels (Environmental Science 2014); Mackenzie Hart (Environmental Science 2012); Nicholas LeBlanc (Ecological Agriculture 2009); Kate Turcott (Food Systems 2009); Patricia Brousseau (Environmental Science 2007); Kate Riley (Environmental Science 2006); Will Harrigan-Anderson (Environmental Science 2006); Amber Waery (Sustainable Landscape Horticulture 2005-2006)

Previous postdoctoral scholars

Won II Choi, now Korea Forest Service Agnes Muthumbi, now University of Nairobi Osama Anas, now Senior Scientist at BASF, North Carolina

Select invited speaker, seminars and workshops

2021: International Congress of Nematology (symposium coordinator and invited speaker, Antibes Juan-Les-Pins, France)

2021: University of Northern Arizona (Flagstaff), International Society for Horticultural Science (keynote speaker, Ghent, Belgium)

2020: University of Florida (Gainesville)

2019: Organization of Nematologists of Tropical America (Costa Rica), Brazilian Congress of Nematology (Caldas Novas, Goiás)

2018: Organization of Nematologists of Tropical America (Peru), Ecological Society of America (New Orleans, Louisiana)

2017: Organization of Nematologists of Tropical America (Puerto Rico)

2016: Our Food, Our Future: Research that Feeds Newfoundland and Labrador (plenary speaker)

2015: Organization of Nematologists of Tropical America (Cuba), Tri Societies (Minneapolis, Minnesota)

2014: Compost symposium, California Polytechnic State University (Keynote speaker)

2013: Society of Nematologists symposium (Knoxville, Tennessee), Michigan State University (Horticulture student speaker choice)

2012: Plant Protection Research Institute, Stellenbosch, South Africa (Keynote speaker) International Symposium on Nematodes as Environmental Bio-indicators, University of Ghent, Ghent, Belgium (Keynote speaker)

2011: Organization of Nematologists of Tropical A,FBa,GBAá*n8 2011: lyef 3.9 (oc()4 (-3.93 Tw 2.54 0 Td[(So)-

1995: Tri-Societies (St. Louis, Missouri)

1994: American Phytopathological Society (Albuquerque, New Mexico), Tri-Societies (Seattle, Washington)

1993: American Phytopathological Society (Nashville, Tennessee), Rodale Institute Research Center (Kutztown, Pennsylvania)

1991: U.S. Environmental Protection Agency, Arlington, Virginia

Symposia and workshops organized

Sentinel Taxa symposium, Society of Nematologists (2004)

Computation of Nematode Community Indices workshop, Society of Nematologists (2004)

Nutrient Mineralization in Soil: Integration of Soil Ecology, Biogeophysics and Biogeochemistry workshop, Ecological Society of America, co-organizer (1996)

Professional service

State government

Vermont Joint Committee of Natural Resources, Testimony on microplastics in soil, 2021

College service

University of Vermont College of Agriculture and Life Sciences

Distinguished Undergraduate Research Committee (2018-2021)

HW Vogelmann Award for Excellence in Research & Scholarship Committee (2010-present)

Nutrition and Food Science Five Year Review, chair (2015)

CALS Dean Five-Year Review, Provost-appointed member (2014)

Animal Science Chair Search Committee, chair (2008-2009)

Dean Search Committee, member (2008-2009)

University service

University of Vermont

Natural Resources School Dean Five-Year Review, Provost-appointed member (2019)

President's Distinguished Senior Lecturer Award Selection Committee, member (2017)

Advisory Committee for the Associate Provost for Faculty Affairs, member (2015)

Advisory Committee for the Pre and Post Grant Award Integration, member (2010-2011)

Dairy Center for Research Excellence Advisory Board, member (2009-2010)

Campus Kitchen Program, Advisory Board, member (2008m 1 6 6 p u s 9 [(C 1 1