

PROFESSIONAL GOALS

To champion a shift in agriculture towards enhancing human health, ecosystem services, & producers' economic viability by utilizing carbon flows in a holistic regenerative system to synergize food, feed, & energy production.

PERSONAL INFORMATION

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Substack: @krisnichols?

YouTube: @krisnichols3631

TikTok: @KRIS.systems

PROFESSIONAL SKILLS

Adobe Acrobat, Chat GPT, Endnote, Google Earth, Google Meet, Google Suite, Mac OS, Microsoft Office Suite, Microsoft Teams, QGIS, What's App, Windows OS, Zoom

Author – Blogs, Fact Sheets, Peer-Reviewed Papers, Protocols
Basic and Applied Agricultural Research

Budget Management

Data Collection and Analyses

Photo/Video Production and Editing

Project Management

Public Speaker and Lecturer

Team Management

Workshop Developer and

Presenter

KRISTINE NICHOLS

Soil Microbiologist

EDUCATION

PhD – Soil Science/Agronomy 2003

College of Agriculture and Natural Resources

University of Maryland, College Park, MD

Dissertation Title: Characterization of Glomalin: A

Unique Soil Organic Matter Constituent

M.S. – Environmental Microbiology 1999

College of Agriculture, Forestry, and Consumer Sciences

West Virginia University, Morgantown, WV

Thesis: Role of Iron in the Accumulation of Glomalin, an

Arbuscular Mycorrhizal Fungal Glycoprotein

B.S. – Plant Biology; Genetics and Cell Biology 1995

College of Biological Sciences

University of Minnesota – Twin Cities, St. Paul, MN

PROFESSIONAL EXPERIENCE

Founder and Lead Soil Scientist 2017-Present

KRIS (Knowledge for Regeneration & Innovation in Soil) Systems

Education & Consultation

Soil Science Consultant/Lead Scientist 2019-Present

Food Water Wellness Canada Foundation (FWWF)

Olds, Alberta Canada

Soil Science Consultant/Lead Scientist 2019-Present

MyLand Company Inc., Phoenix, AZ

Consultant/Research & Extension Director 2020-2021

Canadian Organic Growers (COG)

Ottawa, Ontario Canada

Soil Science Consultant 2018-2019

Pachaterrae Inc. Calgary, Alberta Canada

Chief Scientist/Research Director 2014-2017

Rodale Institute; Kutztown, PA

Research Microbiologist (GS-11, 12, 13) 2003-2014

USDA-ARS-Northern Great Plains Research Laboratory

Mandan, ND

Biological Science Laboratory Technician (GS-09) 2000-2003

USDA-ARS-Sustainable Agricultural Systems Laboratory Beltsville, MD

Research Associate 1999-2000

Center for Agricultural Biotechnology

University of Maryland, College Park, MD

Senior Laboratory Technician 1994-1996

Department of Plant Biology

University of Minnesota, St. Paul, MN

TEACHING EXPERIENCE	Workshop Developer and Presenter (half or full day) 2008-present <i>Soil Aggregation: A Key Indicator of Soil Health</i> – Jan. 12, 2026 Pacific Northwest Direct Seed Association – Pre-Conference Workshop; Kennewick, WA <i>Regenerating Soil First Farming</i> – Oct. 2025 Alberta, Canada – Whitemud Creek; Valleyview; Savannah; Hawk Hills; St. Isidore; Hines Creek; Grande Prairie <i>Overcoming Challenges in Weed Management</i> – Feb. – March 2024 Alberta, Canada – Lacombe; Cheadle; Fort Macleod; Vilna; Barrhead <i>What's Regenerative? How Do I Measure?</i> – Aug. 2023 Rapid City, SD; Tuffnell, Saskatchewan, Canada <i>What Do On-Farm Tests Tell Us?</i> – July 18, 2023 Lacombe, Alberta, Canada <i>Practices on the Ground – Why Carbon?</i> – Feb. 2023 Alberta, Canada – Mallaig; Manning <i>Soil Biology Builds Resilience in Regenerative Agriculture</i> – Dec. 2022 Flat Lake, Alberta, Canada; ACRES Pre-Conference Workshop, Covington, KY <i>Building Carbon through Regenerative Agriculture</i> – 2021, 2022 Alberta, Canada –Jan.-April 2022: Taber; Whitecourt; Rycroft; Aug. – Nov. 2021: Lacombe; Whitecourt; Manning; Lethbridge; Westlock; St. Paul; Eagle Hill; Nanton <i>Get the Dirt on Soil</i> – Feb. 1-3, 2020 FWWF - 3-days, Leduc, Alberta, Canada <i>Get the Dirt on Soil</i> – June and October 2019 Alberta, Canada – Taber; High River; Lacombe; Red Deer; University of Alberta, Breton Plots; Barrhead; Hythe; Manning; Fort Vermilion <i>Regenerative Agriculture and Soil Biology</i> – Feb. 16, 2019 SD Soil Health Coalition, Brookings, SD <i>Soil Biology in Regenerative Systems</i> Soil Health Workshop - 2018 Understanding Ag Inc. (Soil Health Consulting Inc.) Manning, Alberta, Canada (July 7-15); Wellman, IA (Feb. 20-22) <i>Soil Health Assessment</i> – April 2018 Stone Barns Center for Food & Agriculture - 2-days, Pocantico Hills, NY <i>Organic Agriculture and Soil Health</i>– 2014-2017 Rodale Institute, Kutztown, PA <i>Soil Biology and Soil Health</i> – Jan. 31, 2008 Agriculture's Innovative Minds (AIM) Symposium No-Till on the Plains Winter Conference, Salina, KS
	Curriculum Developer 2020-2021 <i>ATG 1002 – Soil Health in Agricultural Ecosystems</i> Olds College of Agriculture & Technology; Olds, Alberta Canada
	Soil Health and Soil Biology Guest Lecturer 2003-2024 <i>Universities and Colleges</i> – Olds College, Olds, Alberta (2021-2024); Kutztown University (2017); West Virginia University (2015); Bismarck State College (2007); North Dakota State University (2003-2009); Dickinson State University (2004-2008); Colorado State University (2004) <i>Senior and Junior High Schools and Elementary Schools</i> - Commonwealth Charter Academy (2015); Circle of Seasons Elementary School (2015); Bismarck High School (2006-2010); Century High School (2007-2010); Flasher Elementary School (2006-2011)

	Soil Health Unit Instructor Organic Farming Certificate Program (2014-2017) Delaware Valley University and Rodale Institute, Kutztown, PA USDA-NRCS, Agent Training (in-person and virtual) (2006-2008)	2006-2017
	Train-the-Trainer Aug. 5, 2008 – <i>Tools for Understanding Soil Biology</i> Post-Secondary Educators; Bismarck, ND 2008 – <i>Soil Quality Test Kit</i> NDSU & FAARMS (Foundation for Agricultural and Rural Resources Management and Sustainability) Richardton, ND (July 22); Medina, ND (Sept. 23) March 31, 2006 – <i>Soil Microbiology at NGPRL</i> ND Science Teachers Association, Mandan, ND March 22, 2006 – <i>Soil Microbiology at NGPRL</i> NDSU Extension Service Conference, Mandan, ND July 6, 2005 – <i>Managing Supply and Demand with Soil Biology – How Effective Soil Management Can Increase your Rates of Return</i> NRCS/NDSU Extension Train-the-Trainer Conference, Mandan, ND	2005-2008
	Teaching Assistant – Plant Pathology Course West Virginia University; Morgantown, WV	1997, 1998
	Assistant Instructor <i>Classification & Identification of Arbuscular Mycorrhizal Fungi</i> ICOM I Pre-conference workshop; Berkley, CA USA	1996
ADVISORY AND CONSULTING ACTIVITIES	Research Collaboration <i>Project Collaborator and Co-Developer</i> 2017-2019 Dr. Arjun Makhijani, President, Institute for Energy and Environmental Research (IEER) – Regenerative Agriculture and Renewable Energy (RARE) Project <i>Visiting Scientist – Glomalin training/Glomalin antibody recipient</i> Dr. Karen Berry, University of Tasmania, Australia (2013); Dr. Ibrahim Ortas, University of Cukurova, Turkey (2012); Dr. Erica Cline, University of Washington-Tacoma (2009); Drs. Shannon Osborne and Sarah Stetson, USDA-ARS-Northern Insect and Grain Laboratory (2008); Dr. Guojie Wang, North Dakota State University (2006, 2007); Dr. Marcia Toro, University of Central Venezuela, Venezuela (2006); Dr. Keith Vogelsang, Indiana University (2005) <i>Visiting Scientist – Water stable soil aggregation training</i> 2010 Dr. Kurt Reinhardt, USDA-ARS, Miles City, Montana <i>Visiting Scientist – Soil health analyses training</i> 2007 Ms. Bobbi Bingeman, Bismarck State College <i>Remote glomalin training/Glomalin antibody recipient</i> Mr. Christopher Schultz, Southern Louisiana State University (2009); Dr. Huang Yi, Peking University, China (2009); Ms. Michele de Oliveira Macedo, Embrapa-Agrobiologia, Brazil (2005); Drs. Nicola Hall and Julia Wilson – UK Centre for Ecology and Hydrology, Scotland (2005)	2005-2019
	Adjunct Professor Nutrition Sciences Department, Drexel University, Philadelphia, PA (2016-2017); Delaware Valley University, Doylestown, PA (2014-2017); Department of Soil Science, North Dakota State University, Fargo, ND (2004-2014)	2004-2017

	Mentor MESA (Multinational Exchange for Sustainable Agriculture) Mentor Program (2018); Marla Reedy, Capstone Senior Research Project, Dickinson State University, Dickinson, ND USA (2004-2005)	2004-2018
	Graduate Student Committee Member M.S. Student, Nutrition Sciences Department, Drexel University, Philadelphia, PA (2015-2016); PhD, Department of Soil Science, North Dakota State University, Fargo, ND USA (2006-2010)	2006-2016
	Committee, Board, or Advisory Group Membership <i>Scientific Advisory Board</i> (2020-present) Savory Institute, Ecological Outcome Verified <i>Carbon Underground</i> – Advisor (2014-2016) <i>Non-GMO Working Group</i> , Green America (2015-2018) <i>Regenerative Ag Council</i> , General Mills, Minneapolis, MN (2017-2020) <i>His Royal Highness Land Use & Agriculture Task Force</i> (2020-2021) HRH Sustainable Markets Initiative, London, United Kingdom <i>Carbon Sync</i> – Research Advisor (2020-2022) Freemantle, Western Australia <i>Understanding Ag</i> – Advisor and workshop co-instructor (2017-2025) <i>Real Organic Project</i> – advisor (2018-present) <i>Health First</i> – advisor (2020-present) <i>Farm of the Future Grower Advisory Board</i> McCain Foods (2022-2024) Frederickson, New Brunswick, Canada <i>Pulse Health Initiative Strategic Planning Group</i> (2010) U.S. Pea and Lentil Association and USDA-ARS <i>USDA-ARS, Northern Plains Area Diversity Task Force</i> (2009-2014) <i>USDA-ARS-NGPRL Committees, Mandan, ND</i> (2004-2014) Civil Rights Committee (2012-2014); Labor-Management Partnership Committee (2011-2014); Laboratory Director Search Committee (2010); Space Committee, chair, (2008-2011); Safety Committee, Biological Safety Officer (2005-14); Animal Nutritionist 3 pt Search Committee (2004); Plant Physiologist Search Committee (2004) <i>USDA-ARS, Groups Beltsville, MD</i> (2000-2014) Pyrolysis Task Force (2009-2014); Global Climate Change Working Group (2000-2002)	2000-present
	Ad-hoc reviewer Peer-reviewed journals: Canadian Journal of Soil Science (2010); Canadian Journal of Plant Science (2010); Agroforestry Systems (2009); Agronomy Journal (2008); Plant & Soil (2006; 2009); Soil Science Society of America Journal (2007; 2008); Soil Science (2007); Soil Biology & Biochemistry (2007; 2009); European Journal of Soil Biology (2007); Environmental Science & Technology (2007) NSF Structure of Natural Organic Matter as an Emergent Characteristic Program (2009)	2006-2010
PROFESSIONAL AFFILIATIONS	Soil Science Society of America Soil and Water Conservation Society International Humic Substances Society Mycological Society of America International Soil Science Society Botanical Society of America	1998-2025 2004-2022 2002-2006 1995-2005 1998-1999 1994-1996

PROFESSIONAL TRAINING	Management and Supervisory Training: <i>Grant Writing</i> , USDA-ARS Training (2010); <i>How to Become a Better Communicator</i> , SkillPath Management Seminar (2005); <i>Excelling as a First-Time Manager or Supervisor</i> , SkillPath Management Seminar, (2005); <i>I'm a Supervisor: Now What?</i> The Professional Development Group, Texas A&M University (2004)	
	Research Skills: <i>Isolation and Culture of E. coli 0157:H7 from Manure</i> , Food Safety and Health Research Unit, USDA-ARS Western Regional Research Center, Albany, CA (2004); <i>New Capabilities for LC/MS – Advances in 2002</i> , Waters Corporation, Greenbelt, MD (2002); <i>Analytical Techniques for Carbohydrate Structure Determination and Separation and Characterization of Glycoconjugate Oligosaccharides</i> , Complex Carbohydrate Research Center, University of Georgia, Athens, GA (2001)	
PROFESSIONAL HONORS AND AWARDS	No-Till Innovator Award – Research & Education	2026
	No-Till Farmer	
	Conservation Research Award	2012
	International Soil and Water Conservation Society	
	40 Under 40 Top Business Professionals	2011
	Bismarck Tribune Business Weekly	
	The World Food Prize, Co-nominee	2010
	Co-nominated with Drs. Sara Wright, Matthias Rillig, and Katherine Treseder by Western Counties Alliance, Utah Cattlemen's Association, North Dakota Grazing Lands Coalition, and Burleigh County Soil Conservation District	
	Professional Development Award	2009
	Soil and Water Conservation Society – North Dakota Chapter	
	Certificates of Merit, Superior Performance	2005, '10, '11
	USDA-ARS-Northern Great Plains Research Laboratory	
	Best Poster Award,	2002
GRANT FUNDING	International Humic Substances Society Conference	
	Certificates of Merit, Superior Performance	2001, '02
	USDA-ARS-Beltsville Agricultural Research Center	
	President's Leadership and Service Award	1995
	University of Minnesota	
	Eloise Newcomb Pittman Scholarship	1994
	University of Minnesota	
	Food Water Wellness Foundation	2021-2025
	2022/04/01-2027/03/31 - <i>Maximizing Alberta's agricultural climate solutions by integrating beneficial management practices through a Living Lab Agriculture and Agri-Food Canada – Agricultural Climate Solutions Program</i> \$5,541,174 CAD (Canadian Dollar)	
	2021/01/31-2024/01/31 - <i>Soil health, nutrient availability and carbon sequestration outcomes of management practices to advance farm profitability and sustainability</i> Results Driven Agriculture Research (RDAR) \$499,701 CAD	
	Rodale Institute	2014-2017
	2018/01/01-2023/12/31 – <i>Evaluating How Conventional, Conservation, and Organic Farming Management Practices Enhance Soil Health and Improve Water Quality</i> William Penn Foundation \$5,994,500	
	2017 – <i>The Northeast Climate Adaptation Fellowship: Encouraging Strategies for Vegetable Growers</i> NE SARE Professional Development \$6,136	

2017/09/01-2019/08/30 – *Disease-Proof Vests: Microbial Seed Treatments for Protection Against Soil-Borne Plant Pathogens* UNFI Foundation. \$20,577

2017/01/01-2017/09/30 – *Developing a Microbial Seed Treatment for Protection Against Soil-Borne Plant Pathogens* Pennsylvania Department of Agriculture Research Grant \$75,000

2017/01/01-2017/09/30 – *A Long-Term Vegetable Systems Trial in Pennsylvania to Track Soil, Ecosystem, Human and Planetary Health* Pennsylvania Department of Agriculture Ag Research Grant, \$74,000

2017 – *A Longterm Vegetable Systems Trial in Pennsylvania to Track Soil, Ecosystem, Human and Planetary Health* Pennsylvania Department of Agriculture \$181,454

2017 – *Value-Added Organic Vegetable Production Based on Nutritive Quality* Simply Organic 1% Fund \$74,789

2016/05-2017/05 – *Evaluating Long-Term Organic and Conventional Farming Effects on Soil Carbon Stocks, Nutrient Quality and Environmental Impacts* Patagonia Foundation \$15,000

2016/02/12-2018/04/14 – *Investigating Bat Activity in Various Agricultural Landscapes to Develop Organic Insect Pest Management* NE SARE Partnership \$14,936

2016-2017 – *Demonstrating Soil Health* Farm Aid \$10,000.00

2016-2018 – “Investigating Bat Activity in Various Agricultural Landscapes to Develop Organic Insect Pest Management” USDA NRCS Conservation Innovation Grants – Pennsylvania. K. Harms and K. Nichols. \$19,032

2015/10/01-2017/09/30 – “Using Roller Crimper Technology, Cover Crops, and Insectary Strips to Improve Organic Vegetable Cropping Competitiveness in Pennsylvania” G. Zinati, K. Nichols and J. Moyer, Pennsylvania Department of Agriculture Specialty Crop Block Grant, \$90,000

2015/09/01-2017/08/31 – “Farming Systems Trial: Nutrient Analysis of Organic Versus Conventional Oats” The Chipotle Cultivate Foundation. K.A. Nichols and J. Moyer. \$98,036.

2015/07/01-2016/06/30 – “Motivating Students in Water Resource Management and Conservation at Rodale Institute” PA Department of Environmental Protection (DEP) Environmental Education. K. Nichols and K. Harms. \$4500

USDA-ARS-Northern Great Plains Research Laboratory 2003-2014

2009/01/01-2011/12/31 – “Crop Productivity and Carbon Sequestration with Biochar+” New Jersey Audubon Society, K. Nichols, \$12,000

2008 – “Soil Quality Monitoring for Beginning Organic Farmers, ND Organic Advisory Board Farmer Education” North Central Region – SARE Partnership \$3487

2008 – “Organic No-Till –The Ultimate Cropping System for Soil Health and Farm Sustainability” North Central Region – SARE Partnership \$18,000

2004/10/01-2009/09/30; 2009/10/01-2014/09/30 – “Evaluation of Perennial Herbaceous Biomass Crops in North Dakota for Production of Ethanol and Other Value-Added Products” K. Nichols and M. Liebig, ND Natural Resources Trust, \$33,369; \$40,000

PUBLICATIONS
Peer-Reviewed

Hengl, T., Sorenson, P., Parente, L., Cornish, K., Battigelli, J., Bonannella, C., Gorzelak, M., **Nichols, K.**, & Geiss, C. E. (2023). Assessment of soil organic carbon stocks in Alberta using 2-scale sampling and 3D predictive soil mapping. *Facets*, 8, 1-17. <https://doi.org/10.1139/facets-2023-0040>

Hendrickson, J. R., Liebig, M. A., Archer, D. W., Schmer, M. R., **Nichols, K. A.**, & Tanaka, D. L. (2021). Late-seeded cover crops in a semiarid

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- environment: overyielding, dominance and subsequent crop yield. *Renewable Agriculture and Food Systems*, 36(6), 587-598.
<https://doi.org/10.1017/s174217052100020x>
- Omondi, E. C., Wagner, M., Mukherjee, A., & **Nichols, K.** (2021). Long-term organic and conventional farming effects on nutrient density of oats. *Renewable Agriculture and Food Systems*, 37(2), 113-127.
<https://doi.org/10.1017/s1742170521000387>
- Halvorson, J. J., **Nichols, K. A.**, & Crisafulli, C. M. (2018). Soil Carbon and Nitrogen and Evidence for Formation of Glomalin, a Recalcitrant Pool of Soil Organic Matter, in Developing Mount St. Helens Pyroclastic Substrates. In *Ecological Responses at Mount St. Helens: Revisited 35 years after the 1980 Eruption* (pp. 97-112). https://doi.org/10.1007/978-1-4939-7451-1_5
- Liebig, M. A., Hendrickson, J. R., Franco, J. G., Archer, D. W., **Nichols, K.**, & Tanaka, D. L. (2018). Near-Surface Soil Property Responses to Forage Production in a Semiarid Region. *Soil Science Society of America Journal*, 82(1), 223-230. <https://doi.org/10.2136/sssaj2017.07.0237>
- Bhosekar, V., **Nichols, K. A.**, & Moyer, J. (2017). Organics for Sustainable Food Security. *Modern Concepts & Developments in Agronomy*, 1(1), 5-6.
- Liebig, M.A., Wang, G. J., Aberle, E., Eriksmoen, E., Nyren, P.E., Staricka, J., & **Nichols, K. A.** (2017). Soil response to perennial herbaceous biofeedstocks under rainfed conditions in the Northern Great Plains. *Geoderma*, 290(15), 10-18. <https://doi.org/10.1016/j.geoderma.2016.12.013>
- Moyer, J., **Nichols, K.A.**, & Bhosekar, V. (2017). A fifteen-year review summarizing effects of conventional and organic farming systems on soils, nutrition, environment, economics and yields (1981-1995). *Austrian Journal of Science Technology*, 8, 4628-4634.
- Hendrickson, J. R., Liebig, M. A., Archer, D. W., Schmer, M. A., **Nichols, K. A.**, & Tanaka, D. L. (2015). Responses of crop yield to late-seeded cover crops in a semi-arid environment. *Agronomy Journal*, 107, 2011-2019.
- Liebig, M. A., Hendrickson, J. R., Archer, D. W., Schmer, M. A., **Nichols, K. A.**, & Tanaka, D. L. (2015). Short-Term Soil Responses to Late-Seeded Cover Crops in a Semi-Arid Environment. *Agronomy Journal*, 107(6), 2011-2019. <https://doi.org/10.2134/agronj15.0146>
- Pothula, A. K., Igathinathane, C., Shen, J., **Nichols, K.**, & Archer, D. (2015). Milled industrial beet color kinetics and total soluble solid contents by image analysis. *Industrial Crops and Products*, 65, 159-169.
<https://doi.org/10.1016/j.indcrop.2014.12.001>
- Reinhart, K. O., **Nichols, K. A.**, Petersen, M., & Vermeire, L. T. (2015). Soil aggregate stability was an uncertain predictor of ecosystem functioning in a temperate and semiarid grassland. *Ecosphere*, 6(11), 1-16.
<https://doi.org/10.1890/es15-00056.1>
- Seidel, R., Moyer, J., **Nichols, K.**, & Bhosekar, V. (2015). Studies on long-term performance of organic and conventional cropping systems in Pennsylvania. *Organic Agriculture*, 7(1), 53-61. <https://doi.org/10.1007/s13165-015-0145-z>
- Liebig, M., Archer, D., Hendrickson, J., **Nichols, K.**, Sanderson, M., Tanaka, D., Merrill, S., Harner, L., & Olsen, D. (2014). The Area IV Soil Conservation District Research Farm: Thirty years of collaborative research to improve cropping system sustainability in the Northern Plains. *Journal of Soil and Water Conservation*, 69(4), 99A-103A. DOI: 10.2489/jswc.69.4.99A
- Wang, G. J., Nyren, P., Xue, Q. W., Aberle, E., Eriksmoen, E., Tjelde, T., Liebig, M., **Nichols, K.**, & Nyren, A. (2014). Establishment and Yield of
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- Perennial Grass Monocultures and Binary Mixtures for Bioenergy in North Dakota. *Agronomy Journal*, 106(5), 1605-1613.
<https://doi.org/10.2134/agronj14.0068>
- Liebig, M. A., Johnson, H. A., Archer, D. W., Hendrickson, J. R., **Nichols, K. A.**, Schmer, M. R., & Tanaka, D. L. (2013). Cover Crop Chart: An intuitive educational resource for extension professionals. *Journal of Extension*, 51(3), 1-5.
- Nichols, K. A.**, & Millar, J. (2013). Glomalin and Soil Aggregation under Six Management Systems in the Northern Great Plains, USA. *Open Journal of Soil Science*, 03(08), 374-378. <https://doi.org/10.4236/ojss.2013.38043>
- Nichols, K. A.**, Caesar, T., & Halvorson, J. (2013). Roles of biology, chemistry, and physics in soil macroaggregate formation and stabilization. *Open Agriculture Journal*, 7, 107-117.
<http://dx.doi.org/10.2174/1874331520131011003>
- Sanderson, M. A., Archer, D., Hendrickson, J., Kronberg, S., Liebig, M., **Nichols, K.**, Schmer, M., Tanaka, D., & Aguilar, J. (2013). Diversification and ecosystem services for conservation agriculture: Outcomes from pastures and integrated crop-livestock systems. *Renewable Agriculture and Food Systems*, 28(2), 129-144. <https://doi.org/10.1017/s1742170512000312>
- Spokas, K. A., Cantrell, K. B., Novak, J. M., Archer, D. W., Ippolito, J. A., Collins, H. P., Boateng, A. A., Lima, I. M., Lamb, M. C., McAloon, A. J., Lentz, R. D., & **Nichols, K. A.** (2012). Biochar: a synthesis of its agronomic impact beyond carbon sequestration. *J Environ Qual*, 41(4), 973-989.
<https://doi.org/10.2134/jeq2011.0069>
- Banks, J. E., Cline, E., Castro, S., Urena, N., **Nichols, K.**, Hannon, L., Singer, R., & Chandler, M. (2011). Effects of Synthetic Fertilizer on Coffee Yields and Ecosystem Services: Parasitoids and Soil Glomalin in a Costa Rican Coffee Agroecosystem. *Journal of Crop Improvement*, 25(6), 650-663.
<https://doi.org/10.1080/15427528.2011.599919>
- Nichols, K. A.**, & Samson-Liebig, S. (2011). An Inexpensive and Simple Method to Demonstrate Soil Water and Nutrient Flow. *Journal of Natural Resources and Life Sciences Education*, 40(1), 51-57.
<https://doi.org/10.4195/jnrlse.2009.0033>
- Nichols, K. A.**, & Toro, M. (2011). A whole soil stability index (WSSI) for evaluating soil aggregation. *Soil and Tillage Research*, 111(2), 99-104.
<https://doi.org/10.1016/j.still.2010.08.014>
- Stetson, S. J., Osborne, S. L., Schumacher, T. E., Eynard, A., Chilom, G., Rice, J., **Nichols, K. A.**, & Pikul, Jr., J. L. (2011). Impact of corn residue removal on soil carbon pools in a no-till corn soybean rotation in South Dakota. *Soil Tillage Research*, 76(4), 1399-1406.
<http://dx.doi.org/10.2136/sssaj2011.0420>
- Xue, Q., Nyren, P. E., Wang, G., Eriksmoen, E., Bradbury, G., Halverson, M., Aberle, E., **Nichols, K.**, & Liebig, M. (2011). Biomass composition of perennial grasses for biofuel production in ND. *Biofuels*, 2(5), 515-528.
<http://dx.doi.org/10.4155/bfs.11.123>
- Buyer, J. S., Zuberer, D. A., **Nichols, K. A.**, & Franzluebbers, A. J. (2010). Soil microbial community function, structure, and glomalin in response to tall fescue endophyte infection. *Plant and Soil*, 339(1-2), 401-412.
<https://doi.org/10.1007/s11104-010-0592-y>
- Nichols, K. A.** (2010). Glomalin production and accumulation in soilless pot cultures. *Canadian Journal of Soil Science*, 90, 567-570.
<http://dx.doi.org/10.4141/cjss09041>
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- Pikul, J. L., Chilom, G., Rice, J., Eynard, A., Schumacher, T. E., **Nichols, K.**, Johnson, J. M. F., Wright, S., Caesar, T., & Ellsbury, M. (2009). Organic Matter and Water Stability of Field Aggregates Affected by Tillage in South Dakota. *Soil Science Society of America Journal*, 73(1), 197-206. <https://doi.org/10.2136/sssaj2007.0184>
- Liebig, M. A., Wikenheiser, D. J., & **Nichols, K. A.** (2008). Opportunities to Utilize the USDA-ARS Northern Great Plains Research Laboratory Soil Sample Archive. *Soil Science Society of America Journal*, 72(4), 975-977. <https://doi.org/10.2136/sssaj2007.0324N>
- Nichols, K. A.**, & Wright, S. F. (2006). Carbon and nitrogen in operationally defined soil organic matter pools. *Biology and Fertility of Soils*, 43(2), 215-220. <https://doi.org/10.1007/s00374-006-0097-2>
- Nichols, K.A.**, & Wright, S.F. (2005). Comparison of glomalin and humic acid in eight native U.S. Soils. *Soil Science*, 170(12), 985-997. <http://dx.doi.org/10.1097/01.ss.0000198618.06975.3c>
- Wright, S. F., **Nichols, K. A.**, & Schmidt, W. F. (2006). Comparison of efficacy of three extractants to solubilize glomalin on hyphae and in soil. *Chemosphere*, 64(7), 1219-1224. <https://doi.org/10.1016/j.chemosphere.2005.11.041>
- Gonzalez-Chavez, M. C., Carrillo-Gonzalez, R., Wright, S. F., & **Nichols, K. A.** (2004). The role of glomalin, a protein produced by arbuscular mycorrhizal fungi, in sequestering potentially toxic elements. *Environmental Pollution*, 130(3), 317-323. <https://doi.org/10.1016/j.envpol.2004.01.004>
- Lovelock, C. E., Wright, S. F., & **Nichols, K. A.** (2004). Using glomalin as an indicator for arbuscular mycorrhizal hyphal growth: an example from a tropical rain forest soil. *Soil Biology and Biochemistry*, 36(6), 1009-1012. <https://doi.org/10.1016/j.soilbio.2004.02.010>
- Rillig, M.C., Wright, S. F., **Nichols, K. A.**, Schmidt, W. F., & Torn, M.S. (2001). Large contribution of arbuscular mycorrhizal fungi to soil carbon pools in tropical forest soils. *Plant and Soil*, 233, 167-177. <http://dx.doi.org/10.1023/A:1010364221169>
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Book Chapters

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Abstracts (Last 5 Years)	Faramazi, R. et al. (2023). How do management practices across ecoregions impact soil microbial diversity and aggregate stability indicators of soil health? 2023 Annual Meeting of the Canadian Geophysical Union. Banff, Alberta Canada Faramazi, R., et al. (2023). How can microbial diversity be used as an indicator of soil health in different land management conditions? 59th Annual Alberta Soil Sciences Workshop. Calgary, Alberta Fonville, T., et al. (2023). What is the impact of regenerative management practices in Alberta on soil macronutrients (C-N-P-K)? 60th Alberta Soil Science Workshop. Lethbridge, Alberta Canada Gorzelak, M., et al. (2023). Introducing the Regenerative Alberta Living Lab: A Soil Carbon Perspective. 60th Alberta Soil Science Workshop. Lethbridge, Alberta Canada Neuberger, P., et al. (2023). On-farm comparison of microbial community diversity and associated organic matter in Chernozemic. 59th Annual Alberta Soil Sciences Workshop. Calgary, Alberta Canada Fonville, T., et al. (2022). Nutrient availability of management practices to advance farm profitability and sustainability. Joint Canadian Society of Soil Science (CSSS) Annual Meeting – Alberta Soil Science Workshop (ASSW). Edmonton, Alberta Canada
Others	Nichols, K. A. (2020). Live native microalgae enhances soil health. (White paper) MyLand https://myland.ag/soilregeneration-whitepaper/ Liebig, M. A., Johnson, H. A., Hendrickson, J. R., Nichols, K. A., Schmer, M. R., Tanaka, D. L. (2010). Cover crop chart: an outreach tool for agricultural producers. Web software: https://www.ars.usda.gov/plains-area/mandan-nd/ngprl/docs/cover-crop-chart/ Nyren, P. E., Eriksmoen, E., Bradbury, G., Halvorson, M., Aberle, E., Nichols, K., Liebig, M., and Patton, B. (2009). Composition and production of perennial Grasses for Biofuel Production in Central and Western ND. 2009 Annual Report. Central Grassland Research Extension Center, ND State University.

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POPULAR PRESS ARTICLES (Last 5 Years)	Mar. 11, 2024 – <i>Fungi Are Helping Farmers Unlock the Secrets of Soil Carbon</i> Civil Eats, Grey Moran Feb. 10, 2023 – <i>Build soil by putting microbes to work, scientist says</i> Tri-State Neighbor, Janelle Atyeo Feb. 7, 2023 – <i>Soil Regeneration</i> Tri-State Neighbor, Janelle Atyeo Dec. 17, 2022 – <i>Conference speakers: Solving ag problems begins with the soil</i> Agupdate.com, Stan Wise Dec. 1, 2022 – <i>Researchers use tighty whities to test soil health</i> The Western Producer, William DeKay Oct. 12, 2022 – <i>Regenerative agriculture is all the rage, but what is it exactly?</i> Alberta Farmer Express, Alexis Kienlen Aug. 18, 2022 – <i>Regenerative Agriculture Reaches a Crossroads</i> Farms.com
Invited Keynote or Breakout Presentations (Last 5 Years)	Jan. 13, 2026 – <i>Regenerating Soil with Soil Biology</i> 2026 Cropping Systems Conference, Pacific Northwest Direct Seed Association, Kennewick, WA Jan. 7, 2026 – <i>On-Farm Soil Health Testing</i> 34th Annual National No-Tillage Conference, St. Louis, MO Jan. 5, 2026 – <i>Regenerating Soil by Managing Carbon Flows</i> 34th Annual National No-Tillage Conference – Pre-Conference Breakout, St. Louis, MO Dec. 2, 2025 – <i>Regenerating Soil First Farming</i> Premier Soil Health Event, MN Soil Health Coalition, Mankato, MN USA Sept. 5-6, 2025 – <i>Regenerating Soil with Soil Biology</i>, Soil Health Field Day and <i>Soil Microbiome and Gut Microbiome</i>, Food Health Field Day, MN Soil Health Coalition, Tom Cotter’s Farm, Austin, MN April 2, 2025 - <i>Regenerating Soil with Soil Biology</i> Symposium on Regenerative Agriculture, Reykjavik, Iceland Feb. 13, 2025 – <i>Regenerating Soil with Soil Biology</i> BASE UK 2025 Annual Conference, Newcastle Upon Tyne, UK Nov. 15, 2024 - <i>Regenerating Soil with Soil Biology</i> 2nd International Congress of Regenerative Agriculture, Guanajuato, Mexico Feb. 14, 2024 – <i>Back to Basics: Closing the Nutrient Loop with Soil Biology</i> Saskatchewan Soil Conservation Association, Soil Health Conference, Saskatoon, Saskatchewan, Canada Dec. 13, 2023 – <i>Regenerative Agriculture – Closing the Nutrient Loop with Biology</i> 2023 Big Soil Health Event, Soil Regen, Cedar Falls, IA https://www.youtube.com/watch?v=05G9HLTNs60&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=2 Dec. 5, 2023 – <i>Soil Health with Microalgae – The Future of Food Production</i> The Future We Grow - International Farming’s Food Summit, Chapel Hill, NC Nov. 13, 2023 – <i>Regenerative Agriculture Economics – Part 1 – Why I Can’t Meet My Goals</i> and <i>Part 2 – A New Economy to Achieve My Bottom Line</i> Central NE Regenerative Agriculture Conference, Holdredge, NE Nov. 3, 2023 – <i>Unlocking your Soil’s Secrets: Soil Testing and Interpretation</i> Organic Alberta Conference, Sherwood Park, Alberta Canada Feb. 25, 2023 – <i>Regenerative Agriculture Builds Soil Resilience with Soil Biology</i> Pistachio Growers Conference, Carlsbad, CA Feb. 8, 2023 – <i>CEC and the pH conundrum</i> Soil Health & Wealth Workshop, Belowground Soil Health & Wealth; Peace Region Living Lab, Rycroft, Alberta, Canada

Jan. 19, 2023 – *Soil Context as a Decision Tool* South Dakota Soil Health Coalition Conference, Sioux Falls, SD
<https://www.youtube.com/watch?v=x5RpTVOEjLE>

Jan. 18, 2023 – *Soil Regeneration by Managing Carbon Flows* South Dakota Soil Health Coalition Conference, Sioux Falls, SD USA
<https://www.youtube.com/watch?v=1mCQdFTm36g>

Dec.14, 2022 – *Soil Biology Builds Resilience in Regenerative Agriculture* Soil Health and Grazing Conference, Leduc, Alberta, Canada

Dec. 8, 2022 – *Soil Biology Builds Resilience in Regenerative Agriculture* ACRES Annual Conference, Covington, KY

Dec. 5, 2022 – *Soil Biology Builds Resilience in Regenerative Agriculture* ILVO Soil Health Conference. Brussels, Belgium

Nov. 16, 2022 – *Enhancing Farm Resilience Through Better Soil Health* Organic Connections Conference, Saskatoon, Saskatchewan, Canada

Aug. 3, 2022 – *Building Carbon through Regenerative Agriculture* Acres Summer Workshop, Sacramento, CA

June 1, 2022 – *Microalgae in Regenerative Viticulture* Moet Hennesey – Louis Vitan Regenerative Ag Conference, Arles, France

Feb. 8, 2022 – *Soil Regeneration Using Organic Management* Prairie Organic Conference, Brandon, Manitoba, Canada

**INVITED
WEBINARS
(Last 5 Years)**

Mar. 25, 2024 – *Regenerating Soil with Biology* Ukraine Conservation Agriculture Conference - Roots vs Iron

Jan. 17, 2024 – *Soil First Farming – Microbial Communities and Impacts on Soil Health* Soil Health Webinar Series; Prince Edward Island Department of Agriculture

Sept. 22, 2022 - *Soil Health Testing – The Why, How and What* Canadian Organic Growers
<https://www.youtube.com/watch?v=ljibYDvpFOE&list=PL9jy9UbYV7EzHX9m7j6srMWaUIF7YQhd&index=15>

Mar. 16, 2022 – *The Carbon Key: GHG Emissions & Regenerative Organic Agriculture* Canadian Organic Growers
<https://www.youtube.com/watch?v=FnRSXX35dwM&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=18>

Feb. 22, 2022 – *Soil Regeneration using Organic Management* Manitoba Organic Alliance, Prairie Organics 2022: Keynote
<https://www.youtube.com/watch?v=-xfj6ZpAvsk>

Feb. 22, 2022 – *From the Soil Up – Protecting Your Soil After Drought* Ranching Opportunities Conference, Olds, Alberta, Canada

Feb. 3, 2022 – *Ranching Opportunities* Foothills Forage and Grazing Association

Jan. 7, 2022 – *Building Carbon through Regenerative Agriculture* Minnesota Organic Conference

Nov. 3, 2021 – *Building Carbon through Regenerative Agriculture* Mackenzie Applied Research Association

June 2021 – *Soil Health and Soil Biology* BASE UK (3 webinars)

May 22, 2021 – *Soil Health with Dr. Kris Nichols* Rural Routes to Climate Solutions
<https://www.youtube.com/watch?v=4Q5rYW77NLQ&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=28>

	Feb. 11, 2021 – <i>Regenerating Soil – A Microbial Story</i> NFUniversity Climate Class: Regenerative Agriculture, Emissions Reduction and Climate Resilience https://www.youtube.com/watch?v=r7I5lucdzN0&t=26s
BOOKS FEATURING RESEARCH	<i>Soil: The incredible story of what keeps the earth, and us, healthy</i> Matthew Evans, 2021 <i>Regenerative Agriculture: Farming with Benefits. Profitable Farms. Healthy Food. Greener Planet</i> Marianne Landzettel, 2021 <i>Quality Agriculture</i> John Kempf, 2020 <i>Dirt to Soil</i> Gabe Brown, 2018 <i>Growing a Revolution: Bringing our Soils Back to Life</i> David R. Montgomery, 2017 <i>World Hunger: Ten Myths</i> Frances Moore Lappe and Joseph Collins, 2015 <i>Soil Will Save Us</i> Kristin Ohlson, 2014 <i>Cows Save the Planet</i> Judith Schwartz, 2013 <i>Les mycorhizes: la nouvelle revolution</i> J.A. Fortin, C. Plenchette, and Y. Piché, 2008 <i>The Nature and Property of Soils</i> 14th Edition (Mycorrhizal Fungi and Soil Aggregates insert), Nyle C. Brady and Ray R. Weil, 2007
DOCUMENTARY FILMS	Carnivore (currently filming) Organic Rising (2023) Kiss the Ground (2020)
PODCASTS (Last 5 Years)	Dec. 12, 2025 – <i>Hungry for Good Soil: Why soil health is essential to your health</i> The Dark Side of Dining https://www.youtube.com/watch?v=Hyo93CpTM2U Oct. 19, 2025 – <i>E20: Dr. Kris Nichols on the carbon cycle and soil biology</i> Regenerate Outcomes https://www.youtube.com/watch?v=tsg7ITkD0sw Oct. 19, 2025 – <i>E13: Talking about the link between soil and gut health</i> Regenerate Outcomes https://www.youtube.com/watch?v=84EAqy1u5Yk Aug. 5, 2025 – <i>Ep. 29: Building Soil by Building Biology</i> Ruminating with RealAgriculture https://www.youtube.com/watch?v=0wzfG5Tz0M4 May 24, 2024 – <i>Farming Forward: Exploring the Why of Cover Crops</i> Real Agriculture https://www.realagriculture.com/2024/05/farming-forward-exploring-the-why-of-cover-crops/ Mar. 15, 2024 – <i>Regenerative agriculture, and what soil tells us about our food stories</i> Food Stories https://podcasts.apple.com/us/podcast/dr-kris-nichols-regenerative-agriculture-and-what/id1707942305?i=1000651673851 Mar. 21, 2023 – <i>On-farm laboratories: Managing carbon flow</i> Wednesday Night Networking – Greener Pastures https://podcasts.apple.com/us/podcast/wnn-on-farm-laboratories-managing-carbon-flow/id1545447837?i=1000605198564 Sept. 27, 2022 – <i>Farm Green podcast with John Kempf and Kris Nichols</i> Farm Green Podcast https://www.farmgreen.land/podcast/episode/7af6b048/farm-green-podcast-with-john-kempf-and-kris-nichols July 22, 2022 – <i>Farm Green with Kris Nichols</i> Farm Green Podcast https://www.farmgreen.land/podcast/episode/769dffa4/farm-green-podcast-with-kris-nichols Jan. 18, 2022 – <i>Part Two: Carbon sequestration is our responsibility</i> Real Organic Project https://realorganicproject.org/kris-nichols-part-two-carbon-sequestration-is-our-responsibility/

Jan. 11, 2022 – *Part One: Farm-geeking out on soil biology* Real Organic Project <https://realorganicproject.org/kris-nichols-part-one-farm-geeking-out-on-soil-biology/>

Dec. 3, 2021 – *Food security series: From the ground up, Soil talk* AGI SureTrack CoffeeTalk <https://creators.spotify.com/pod/profile/agisuretrack-coffee-talk/episodes/Food-Security-Series-From-the-Ground-Up--Soil-Talk-with-Dr--Kristine-Nichols-e1b745u>

Aug. 6, 2021 – *Climate change: Build resilience with soil biology* MOSES Organic Farming <https://podtail.com/en/podcast/moses-organic-farming-podcast/climate-change-build-resilience-with-soil-biology/>

July 6, 2021 – *Uncovering the science in your soil* Organics Unpacked <https://podcasts.apple.com/us/podcast/012-uncovering-the-science-in-your-soil-w-dr-kris-nichols-phd/id1560882195?i=1000528016430>

April 23, 2021 – *Carbon sequestration* Grain on the Brain <https://www.iheart.com/podcast/966-grain-on-the-brain-45926693/episode/carbon-sequestration-81577245/>

April 15, 2021 – *The six principles of soil health* Green Pastures Wednesday Night Networking – Greener Pastures <https://gatewayresearchorganization.podbean.com/?s=nichols>

April 15, 2021 – *Soil Carbon Goddess: A Conversation with Kiss the Ground Star Dr. Kris Nichols* Regeneration International <https://www.youtube.com/watch?v=0EJcrQ5HcW0&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=29>

Jan. 25, 2021 – *Soil Health U with Dr. Kris Nichols* HPJ talk <https://podtail.com/podcast/soil-solutions-with-jessica-gnad-hpj-talk/hpj-talk-1-18-21-inauguration-day-soil-health-u-wi/>

VIDEOS (Last 5 Years)

Sept. 28, 2025 – *What does mixed species, water and carbon cycles have in common?* Farming Revolution YouTube channel <https://www.youtube.com/watch?v=Rgmm7R2FKvU>

May 24, 2024 – *Farming Forward: Exploring the Why of Cover Crops* Real Agriculture <https://www.realagriculture.com/2024/05/farming-forward-exploring-the-why-of-cover-crops/>

Dec. 5, 2023 - *Senators and Soil Health: A study takes root* Senate of Canada <https://www.youtube.com/watch?v=IWIBA82qdwo&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=4>

Oct. 6, 2023 - *Soil Health Animation* Lake Area Research Association (LARA) <https://www.youtube.com/watch?v=c7BQesqvQz0&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=5>

Dec. 4, 2022 – *Regenerative Agriculture and Soil Health* ILVO farm visit. Brussels, Belgium https://www.youtube.com/watch?v=C2S7kw_LKSE&list=PL9jy9UbYV7EzHXC9m7j6srMWaUIF7YQhd&index=15

June 13, 2022 – *Kris Nichols on nodules* Farmers for Climate Solutions <https://vimeo.com/719880397>

Dec. 8, 2021 – *Biodiverse Benefits with Dr. Kris Nichols* Gateway Research Organization https://www.youtube.com/watch?v=a-FsmTS_WnM

REFERENCES

Available upon request
