

VITA OF ROBERT HORTON

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VITA

I. NAME AND ADDRESS

Robert Horton
Agronomy Department
Iowa State University
Ames, Iowa 50011
515-294-7843
rhorton@iastate.edu

II. TITLE

C. F. Curtiss Distinguished Professor of Agriculture and Life Sciences

III. DEGREES HELD

<u>Degree</u>	<u>Institution</u>	<u>Date</u>
B.S. Agronomy	Texas A&M University	1975
M.S. Soil Science	Texas A&M University	1977
Ph.D. Soil Physics	New Mexico State University	1981

IV. PROFESSIONAL EXPERIENCE

Graduate Teaching Assistant, Texas A&M	-	1976
Graduate Research Assistant, Texas A&M	-	1976 - 1977
Graduate Research Assistant, NMSU	-	1977 - 1981
Assistant Professor, ISU	-	1981 - 1985
Associate Professor, ISU	-	1985 - 1990
Professor, ISU	-	1990 - 2006
Chair of Water Resources Graduate Program, ISU	-	1994 - 2002
Distinguished Professor, ISU	-	2006 -
Senior Visiting Professor, Chinese Acad. of Sciences	-	2010
Pioneer Hi-Bred Professor of Agronomy	-	2010 - 2013

V. PROFESSIONAL ASSOCIATIONS

Gamma Sigma Delta
Phi Kappa Phi
Sigma Xi
American Geophysical Union
American Society of Agronomy
International Union of Soil Science
Soil Science Society of America

VI. AWARDS, HONORS, AND RECOGNITIONS

- Graduated Magna cum laude, Texas A&M University (1975).
- Outstanding technical reviewer for the Soil and Water Division of the American Society of Agricultural Engineers. (1989)
- Raymond and Mary Baker Agronomic Excellence Award. (1989)

- Iowa State University Outstanding Achievement in Research Award. (1991)
- Elected Chairman of Soil Physics Division of the Soil Science Society of America (1993)
- Fellow of the American Society of Agronomy (1993)
- Fellow of the Soil Science Society of America (1994)
- Appointed Chairman of the Soil Science Faculty Committee at ISU (1995-2002)
- Appointed to Agronomy Department Head's Advisory Council (1995-2002)
- Superior Paper Award of the American Society of Agricultural Engineers (1997)
- Soil Science Research Award of the Soil Science Society of America (2001)
- Don and Betty Kirkham Soil Physics Award of the Soil Science Society of America (2002)
- Campbell Lecturer, Washington State University (2004)
- Frontiers of Hydrologic Sciences Lecturer, American Geophysical Union (2005)
- Selected as Distinguished Professor, Iowa State University (2006)
- Honorary Professor at China Agricultural University (2007)
- Rossmann Manatt Faculty Development Award, ISU (2009)
- Senior Visiting Professor, Chinese Academy of Sciences (2010)
- Pioneer Hi-Bred Professor of Agronomy, ISU (2010-2013)
- Kingenta Agricultural Science Award from the American Society of Agronomy (2012)
- USDA Multistate Research Excellence Award for W-4188 (2021)
- Fellow, American Geophysical Union (2022)

VII. PROFESSIONAL RESPONSIBILITIES

A. Teaching and Advising

Dr. Horton has taught soil physics courses at Iowa State University since 1982. He has taught soil physics to over 900 graduate students. He served as Chair of the Water Resources Graduate Major at ISU for 8 years. As Chair of Water Resources, he instituted and taught graduate seminar courses twice a year. He also recruited and instructed graduate students within the program. The graduate water resources program averaged 35 graduate students each semester during the 8 year time period.

Dr. Horton led an undergraduate foreign travel course to Asia (Japan, China, S. Korea, Taiwan) in 1991. He served as faculty member on the College of Agriculture Honors Program for 3 years. He taught short courses on coupled heat and mass transfer in soil at the University of Hannover in Germany and at the Institute of Soil and Water Conservation in China. He served as a member of the Academic Advisory Committee for the Chinese Academy of Sciences National Laboratory of Soil Erosion and Dryland Farming. He has made annual visits to China since 1996. In 2010 he spent 5 months in China as a Chinese Academy of Sciences Visiting Professor. He has instructed a large number of Chinese graduate students. He has served several students through advising of thesis research projects. In collaboration with Chinese students and scientists, he has co-authored over 60 journal papers. In addition to the students he advised, he also served a large number of other students by providing English language editing as a courtesy. Dr. Horton also jointly advised two soil science PhD students at the University of Hannover in Germany.

Dr. Horton has given training sessions to extension personnel, agricultural consultants, industrial agronomists, and state agency personnel. He has made numerous presentations on soil water flow to gifted high school students as part of Iowa State University's recruitment effort.

Dr. Horton has served as a faculty advisor for four different Iowa State University student organizations. He taught short-courses at ISU, Germany, Brazil, and China.

Dr. Horton has taught the following courses:

1. **Soil Physics**, Agronomy 477/577, 3 credits, taught every spring semester (averages 18 students).
2. **Laboratory Methods in Soil Physics**, Agronomy 578, 1 credit, taught every spring semester (averages 8 students).
3. **Advanced Soil Physics**, Agronomy 677, 2 credits, taught alternate fall semesters (averages 6 students).
4. **Soils Seminar**, Agronomy 600B, 1 credit, taught once every 5 years (averages 10 students).
5. **Water Resources Seminar**, WR 690, 1 credit, taught every fall and spring semester from 1996-2002 (averages 35 students).
6. **Agronomic Scientific Presentations**, Agronomy 601, 2 credits, taught every spring semester from 2011 – 2017 (averages 20 students).

Dr. Horton's mean instructor and course ratings are as follows:

Agronomy 477: Instructor rating is (3.9/5.0); Course rating is (3.6/5.0)

Agronomy 577: Instructor rating is (4.4/5.0); Course rating is (4.3/5.0)

Agronomy 578: Instructor rating is (4.4/5.0); Course rating is (3.9/5.0)

Agronomy 601: Instructor rating is (4.4/5.0); Course rating is (4.0/5.0)

Agronomy 677: Instructor rating is (4.8/5.0); Course rating is (4.7/5.0)

Dr. Horton has served as research project advisor to three undergraduate research students and several graduate students. He has served as major professor for 22 Ph.D. students and as major professor for 13 M.S.-students who have completed their programs of study. He has directed the research efforts of 19 Postdoctoral researchers. Four of his graduate students have received university awards for thesis research, another was awarded "best paper presented" at a regional conference, and another student received the superior paper award from the American Society of Agricultural Engineers. Several of Dr. Horton's former Ph.D. students and Post Docs are now faculty members teaching students at other (national and international) universities.

Theses and Dissertations Completed

John F. McBride (1985) – Measured and predicted anion movement. (M.S. in soil physics and water resources).

Continued for a PhD at the University of North Carolina and works as an Environmental Consultant in the Chicago area.

William M. Klittich (1985) – Spatial analysis of soil temperature observations. (M.S. in

soil physics).

Completed a PhD in soil physics at Kansas State University and works in Ohio.

James M. Hamlett (1987) – Nitrate movement under a ridge configuration: A field and model Investigation. (PhD in soil physics and agricultural engineering).

Associate Professor at Penn State University - Retired. He received the Outstanding Teaching Award from the Penn State Engineering Society.

Ibrahim N. Nassar (1988) – Soil thermal diffusivity and water transport in unsaturated, nonisothermal, salty soil. (PhD in soil physics)

Professor at the University of Alexandria in Egypt - Retired. He received the Outstanding Research Award from the University of Alexandria.

Gerard J. Kluitenberg (1989) – Preferential solute transport in soil laboratory and field studies. (PhD in soil physics).

Professor at Kansas State University. He is a Fellow of the Soil Science Society of America (SSSA). He has served as Chair of the soil physics division of SSSA. He has served as Graduate Student Coordinator for the Agronomy Dept at KSU.

Masaaki Kiuchi (1991) – Using subsurface flow barriers to reduce nitrate leaching. (PhD in soil physics).

Hydrologist for the South Carolina Department of Natural Resources.

M. Zaki Mousli (1993) - Interrelationships among water, air, and chemical transport properties in soil. (PhD in soil physics).

Crop Specialist for the Santa Clara Valley Water District.

Jamie D. Green (1993) – Crop residue effects on the leaching of surface-applied chemicals. (M.S. in water resources).

Project Officer for the U.S. Environmental Protection Agency.

Daniel E. Ressler (1993) – Evaluation of horizontal wells for ground water and solute recovery. (M.S. in water resources).

Completed his PhD at Iowa State University, and he is an Associate Professor of Earth & Environmental Sciences at Susquehanna University in Pennsylvania.

James R. Bilskie (1994) – Dual probe methods for determining soil thermal properties: Numerical and laboratory studies. (PhD in soil physics).

Research Soil Physicist for Campbell Scientific, Inc., Retired.

Mingan Shao (1996) - Heat, water, and chemical transport in soils. (PhD in soil physics).

Academician of the Chinese Academy of Sciences, Director and Professor of the Soil Erosion and Dryland Farming on the Loess Plateau National Laboratory in Yangling, China. He has been awarded numerous national research awards in China. He is the Chair of the soil physics division of the Chinese Soil Science Society.

Francis X. Casey (1996) – Determining solute transport parameters in field soil. (M.S. in soil physics)

Completed a PhD at Iowa State University and is Professor and Department Head at North Dakota State University. He received the Outstanding Young Soil Physics Award from the Soil Science Society of America. He received an Excellence in Research Award from North Dakota State University.

Ibrahim Al-Salamah (1998) – Effect of surface mulch on evaporation and salinity management. (M.S. in water resources).

Completed his PhD at Iowa State University and is a Professor of Civil Engineering in Saudi Arabia.

Daniel E. Ressler (1998) - Localized soil compaction and soil doming of the fertilizer injection zone to control nitrate leaching. (PhD in soil physics).

Associate Professor of Earth & Environmental Sciences at Susquehanna University in Pennsylvania.

Fulin Shen (1999) – Estimation of soil water content and resident and effluent solute concentrations using time domain reflectometry. (PhD in soil science).

Continued his studies in Management Information Systems and works as a Software Scientist in Washington.

Jaehoon Lee (1999) – Characterization of preferential solute transport in soil. (PhD in water resources).

Associate Professor at the University of Tennessee.

Tyson Ochsner (2000) – Thermo-TDR measurements of thermal properties and volume fractions of water, solids, and air in soil. (M.S. in soil physics and water resources).

Completed a PhD at Iowa State University and worked as a Research Soil Scientist for USDA-Agricultural Research Service. Currently Sarkey's Distinguished Professor at Oklahoma State University.

Francis X. Casey (2000) - Field and laboratory investigations of solute transport through soil. (PhD in soil physics and water resources).

Professor and Department Head at North Dakota State University. He received the Outstanding Young Soil Physics Award from the Soil Science Society of America. He received an Excellence in Research Award from North Dakota State University.

Salem Al-Jabri (2001) – Field estimation of soil hydraulic and chemical transport properties. (PhD in water resources).

Assistant Dean and Professor at Sultan Qaboos University in Oman.

Tyson Ochsner (2003) – Heat pulse measurement techniques for soil water flux, soil water content and soil volumetric heat capacity. (PhD in soil physics).

Sarkey's Distinguished Professor at Oklahoma State University.

Anju Gaur (2004) – Using surface solute transport properties measured by time domain reflectometry to predict subsurface leaching. (PhD in water resources and agricultural engineering).

Senior Water Resources Management Specialist in World Bank's India Office.

Joshua Heitman (2007) – Measurement of coupled soil heat and water movement. (PhD in soil physics).

Professor at North Carolina State University.

Heath Gieselman (2007) – Effect of a subsurface hydrophobic layer on water flow to a freezing front. (MS in Geology and Environmental Science).

Assistant Scientist at Iowa State University.

Dedrick Davis (2012) -- Coupled heat, water, and solute transfer dynamics in wettable and non-wettable soils. (PhD in Soil Physics and Environmental Science).

Associate Professor at Alabama A&M University.

Jacob Prater (2012) -- The impacts of colloidal material on the fate and transport of 17 β -estradiol in three Iowa soils. (PhD in Soil Physics and Environmental Science, Mike Thompson was his co-major professor).

Associate Professor at the University of Wisconsin – Stevens Point.

Xinhua Xiao (2012) -- Heat transfer, evaporation and carbon dioxide transfer in soil. (PhD in Soil Physics).

Post-doc at Alabama A&M University.

Aaron Daigh (2013) – Soil physical properties, soil carbon dioxide fluxes, and soil drainage dynamics of select bioenergy cropping systems. (PhD in Soil Physics).

Associate Professor at North Dakota State University.

Sitha Ketpratoom (2014) – Soil hydraulic conductivity in a non-wheel traffic corn row, a wheel traffic corn row, and a reconstructed prairie (MS in Soil Physics).

Natural Resources Scientist for the government of Thailand.

Chenyi Luo (2015) -- Canopy chamber measurements of evapotranspiration in corn, soybean and reconstructed prairie (MS in Soil Physics).

Completed a PhD at Iowa State University and currently is a Post-doc in Beijing, China.

Zhuangji Wang (2015) -- Time domain reflectometry waveform analysis with second order bounded mean oscillation (MS in Soil Physics).

Completed a PhD at Iowa State University and currently is a post-doc at the University of Maryland.

Yuki Kojima (2015) -- Sensible heat balance method to determine rates of soil freezing and thawing (PhD in Soil Physics).

Associate Professor at Gifu University in Japan.

Zhuangji Wang (2017) -- Numerical methods in soil hydrology: TDR waveform analysis and water vapor diode simulation (PhD in Soil Physics)

Post-doc at the University of Maryland

Ohene Akuoko (2018) – Surface energy balance partitioning in tilled and non-tilled bare soils (MS in Environmental Science)

Agronomist with USDA-ARS in Florence, South Carolina.

Chenyi Luo (2019) – The effects of road surface concrete grinding residue (CGR) on selected soil properties and plant growth (PhD in Soil Science)

Postdoctoral researcher in Beijing, China.

Erica Neideigh (2019) – Evaluation of soil compaction and crop yield in a construction easement on agricultural production land and the benefits of deep tillage remediation (MS in Agricultural and Biosystems Engineering and Soil Science)

NRCS Soil Conservationist in Waterloo, IA

Alam Ramirez-Reyes (2022) -- Response of selected soil physical properties to various traffic loads at three field landscape positions (MS in Soil Science)

PhD student at NCSU

Current Graduate Students

Current Post-doctoral Researchers

Former Postdoctoral Researchers

Sang-Ok Chung (1986) -- Studied partial mulch effects on soil heat and water transfer.

Professor at Kyungpook National University in South Korea.

Mushtaque Ahmed (1989) -- Studied unsaturated hydraulic conductivity as measured with a tension infiltrometer.

Associate Professor at Sultan Qaboos University in Oman.

Ibrahim Nassar (1991) – Studied simultaneous heat, water, and chemical transport in soil.

Professor at the University of Alexandria in Egypt.

Joe Benjamin (1991) -- Studied preferential flow of water and chemicals.

Research Soil Scientist for USDA-ARS -- Retired.

Binayak Mohanty (1993) – Studied spatial variability of soil physical properties.

Professor at Texas A & M University.

Robert Ewing (1995) – Studied soil cracking and modeling of fracture flow.

Scientist at Climate Corp.

Tusheng Ren (1997) – Studied soil heat transfer with a thermo-TDR probe.

Professor at China Agricultural University.

Kosuke Noborio (1997) -- Studied soil heat, water, and chemical transfer.

Professor at Meiji University in Japan.

Victor Ella (1999) – Studied swine manure transport in soil.

Professor and Department Chair at the University of Philippines.

Hadi Tabbara (2000) -- Studied phosphorus transport in structured soil.

Vice-President of the Lebanese Economic Association.

Quanjiu Wang (2001) -- Studied soil water flow.

Professor and Associate Dean at Xian Technological University in China.

Jaehoon Lee (2001) – Studied organic pollutant transport in soil.

Associate Professor at the University of Tennessee.

Anju Gaur (2004) – Studied tillage effects on surface solute transport properties.

Senior Water Resources Management Specialist in World Bank's India Office.

Tusheng Ren (2004) -- Studied coupled heat and water flow in soil.

Professor at China Agricultural University.

Jian Zhou (2005) -- Studied soil heat transfer.

He works in Canada.

Dedrick Davis (2012-2013) – Studied soil heat transfer.

Associate Professor at Alabama A&M University.

Dilia Kool (2016-2018) – Studied soil hydraulic properties.

Senior Lecturer at Ben-Gurion University of the Negev, Israel.

Masrur Mahedi (2019-2020) – Studied compaction effects on soil hydraulic properties.

Engineer at Iowa Department of Transportation in Ames, IA.

Elnaz Ebrahimi (2019-2021) – Studied corn and soybean growth in pipeline disturbed soil.

Assistant Professor of Teaching in the Agronomy Department at Iowa State University.

B. Research

Dr. Horton performs fundamental research on coupled heat and mass transfer in soil. His fundamental research has applications to the following: hydrology, climatology; water quality; agricultural production; ecosystem products and services; environmental investigations; waste disposal; and building heating/cooling systems.

Dr. Horton has not only made advances in the science of coupled heat and mass transfer, he has led development of instruments used to measure this coupled phenomena. Dr. Horton and colleagues have developed and patented an instrument for determining hydraulic and chemical transport properties of field soil. The tension infiltrometer is the only practical device available for determination of surface soil hydraulic and chemical transport properties. Dr. Horton has advanced techniques for determining soil thermal properties *in situ*. The heat pulse methods provide a means for monitoring temperature, thermal properties, and water content of near surface soil. The thermo-TDR probe sends both electrical and heat pulses into soil. The device allows measurement of thermal properties, water content, and bulk electrical conductivity on the same volume of soil. This instrument is useful for measuring heat and mass transfer under highly dynamic near surface soil conditions.

Dr. Horton and colleagues have developed and tested a nitrogen fertilizer applicator that manages the soil around the fertilizer band in such a way as to minimize nitrate leaching from the band. The fertilizer applicator causes localized soil doming and compaction in order to redirect infiltrating water around the fertilizer band rather than through the fertilizer band. The

soil management leads to water management which reduces leaching of nitrogen fertilizer. The applicator method and device are both patented.

Current Multi-State (Regional) Project

W-4188 Characterizing mass and energy transport at different vadose zone scales

C. International activities

- Visited Guelph University (Canada) to present lecture and share research ideas (1984)
- Visited University of Brussels (Belgium) to present lecture (1988)
- Visited Agricultural University, Wageningen (The Netherlands) to present lecture
- Visited Hohenheim University near Stuttgart (Germany) to exchange research ideas
- Visited BSF Research Group in Munich (Germany) to exchange research ideas (1989)
- Visited Ascona (Switzerland) to present research at a workshop (1989)
- Visited Benidorm (Spain) to present a lecture at a symposium (1989)
- Visited Leningrad (U.S.S.R.) to exchange research ideas (1990)
- Visited Japan, China, Hong Kong, and S. Korea as part of the Agricultural Travel Course (1991)
- Hosted Alex Globus from Leningrad for joint research (1991)
- Hosted Dimitri Kurtener from Leningrad for joint research (1991)
- Hosted Keith Bristow from Australia for joint research (1991)
- Visited St. Petersburg (Russia) to continue research projects (1992)
- Visited University of Hannover (Germany) to present a lecture (1992)
- Visited University of Berlin (Germany) to present a lecture (1993)
- Visited University of Hannover (Germany) to continue research projects (1993)
- Visited several universities and institutions in Lithuania to exchange ideas, (1993)
- Visited CSIRO lab in Townsville, Australia to conduct research (1993)
- Hosted Rienk van der Ploeg for joint research (1993)
- Hosted Keith Bristow for joint research (1993)
- Hosted Alex Globus for joint research (1993)
- Visited University of Hannover (Germany) for research (1994)
- Visited University of Alexandria (Egypt) to present seminars (1994)
- Visited University of Assiut (Egypt) to present seminars (1994)
- Visited University of Philippines in Los Banos to present seminars (1995)
- Visited Benguet State University (Philippines) to present seminars (1995)
- Visited Xavier University (Philippines) to present seminars (1995)
- Visited St. Petersburg (Russia) to continue research projects (1995)
- Visited Presov University (Slovakia) to present seminar (1995)
- Visited CSIRO lab in Townsville, Australia to present seminar (1996)
- Presentation at W. Pacific Geophys. Conf. in Brisbane, Australia (1996)
- Hosted Ibrahim Nassar for joint research (1996)
- Hosted Alex Globus for joint research (1997)
- Hosted Jan Ilsemann for joint research (1997)
- Hosted Jurg Bachmann for joint research (1997)

- Visited University of Hannover (Germany) to continue research projects (1997)
- Visited University of Warsaw (Poland) to present seminar (1997)
- Visited Hungarian Academy of Sciences (Budapest) to present seminar (1997)
- Visited Henan Inst. of Science and Tech. (China) to present seminar (1997)
- Visited Yangling Inst. of Soil Science (China) to teach short course (1997)
- Presentation at Intl. Symp. on Soil Erosion & Dryland Farming (China) (1997)
- Visited Xian Institute of Soil Science (China) to give seminar (1997)
- Visited ETH-Zurich (Switzerland) to give seminar (1997)
- Visited University of Vienna (Austria) to give seminar (1997)
- Visited Presov University (Slovakia) to give seminar (1997)
- Visited Slovakia Inst. of Hydrology (Bratislava) to give seminar (1997)
- Visited University of Hannover (Germany) to give a seminar and to continue research
- Visited China Institute of Environmental Science (Beijing) to present seminar (1998)
- Visited Zhengzhou University (China) to present seminar (1998)
- Visited Zhengzhou Agricultural University (China) to present seminar (1998)
- Visited Henan Inst. of Science and Tech. (China) to present a seminar (1998)
- Visited Yangling Inst. of Soil Science (China) to present seminar and continue research (1998)
- Visited University of Hannover (Germany) to teach a short course on mass and heat
- Visited Hungarian Academy of Sciences (Budapest) to present seminar (1999)
- Visited Yangling Inst. of Soil Science (China) to present seminar series and continue research (1999)
- Visited Beijing Agricultural University to present a seminar (1999)
- Visited University of Hannover (Germany) to present a seminar and continue research (1999)
- Hosted Dirk Hermsmeyer from Germany (1999)
- Hosted Tusheng Ren from China (1999)
- Visited University of Philippines in Los Banos to present seminar (2000)
- Visited Benguet State University (Philippines) to present seminar (2000)
- Visited IRRI (Philippines) to present a seminar (2000)
- Visited Yangling Inst. of Soil Science (China) to present seminar series and continue research (2000)
- Visited University of Hannover (Germany) to present a seminar and continue research (2000)
- Visited Hungarian Academy of Sciences (Budapest) to present seminar (2000)
- Hosted Nandor Fodor from Hungary (2000)
- Hosted Aleksandr Globus from Russia (2000)
- Hosted Q. Wang from China (2000-2001)
- Hosted Mingan Shao from China (2000)
- Hosted Jan Ilseman from Germany (2000)
- Visited Yangling Inst. of Soil Science (China) to continue research (2001)
- Visited China Agricultural University (Beijing) to present seminar (2001)
- Spent 6 month Sabbatical in Yangling, China (2002 - 2003)
- Visited University of Hannover to continue research (2004)
- Visited Iwate University in Japan to continue research (2004)

- Hosted Tusheng Ren from China (2004)
- Hosted Mingan Shao from China (2004)
- Visited Sultan Qaboos University in Oman to present a seminar and to review the Dept. of Soil, Water and Agricultural Engineering (2005)
- Visited University of Hannover to continue research (2005)
- Visited China Agricultural University (Beijing) to continue research (2005)
- Visited Yangling Inst. of Soil Science (China) to present a seminar and to continue research (2005)
- Visited China Agricultural University (Beijing) to continue research (2006)
- Visited Sultan Qaboos University in Oman to present a seminar and to review the Dept. of Soil, Water and Agricultural Engineering (2006)
- Visited Yangling Inst. of Soil Science (China) to continue research (2006)
- Keynote Speaker at the International Symposium on Soil Erosion and Dryland Farming held in Yangling, China (2006)
- Presented seminars at China Agricultural University, Institute of Atmospheric Physics, and the Institute of Soil and Water Conservation, in China (2007)
- Visited Israel to serve on the Technical Advisory Committee of BARD (2008)
- Presented a seminar at Technion Institute in Haifa, Israel (2008)
- Presented a seminar at the Institute of Soil and Water Conservation, in China (2008)
- Visited China Agricultural University (Beijing) to continue research (2008)
- Presented a seminar at the Institute of Soil and Water Conservation, in China (2009)
- Presented a seminar at China Agricultural University (Beijing) (2009)
- Chinese Academy of Sciences Visiting Professorship for Senior Scientists (2010)
- Seminars at the Institute of Soil and water conservation in Yangling, China (2010)
- Seminar at the University of the Philippines in Los Banos (2010)
- Seminar at China Agricultural University, Beijing, China (2010)
- Taught a Short Course at the Institute of Soil and Water Conservation, Yangling, China (2010)
- Seminar at Xian University of Science and Technology, Xian, China (2010)
- Seminar at Chinese Academy of Sciences Conference for Foreign Visiting Scientists, Beijing, China (2010)
- Seminar at Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China (2010)
- Seminar at NW China Agricultural and Forestry University, Yangling, China (2010)
- Hosted Xiao Zhang (2011)
- Hosted Jing-hui Xu (2011-2012)
- Seminar at Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China (2012)
- Seminar at Xian University of Science and Technology, Xian, China (2013)
- Seminar at the Institute of Soil and Water Conservation, Yangling, China (2013)
- Keynote address at the Hydropedology Conference in Beijing, China (2013)
- Continued soil physics research projects at China Agricultural University (2014)
- Continued soil physics research projects at China Agricultural University (2015)
- Hosted Yili Lu (2016)
- Continued soil physics research projects at China Agricultural University (2016)

- Keynote address at the Kirkham Conference in Israel (2016)
- Seminar at Nanjing Soil Science Institute, China (2016)
- Seminar at Nanjing University of Information and Science, China (2016)
- Seminar at China Agricultural University, Beijing, China (2016)
- Hosted Minmin Wen (2017)
- Hosted Bing Tong (2017)
- Hosted Junko Nishiwaki (2017)
- Seminar at China Agricultural University, Beijing, China (2017)
- Keynote address in Shenyang, China (2016)
- Invited talk at JpGU Conference in Tokyo, Japan (2017)
- Seminar at Meiji University, Japan (2017)
- Seminar at Tokyo University, Japan (2017)
- Seminar at Nagoya University, Japan (2017)
- Seminar at Mie University, Japan (2017)
- Seminar at Gifu University, Japan (2017)
- Seminars (2) at China NW A&F University (2018)
- Visited China Agricultural University (2019)
- Visited NW China A&F University (2019)
- Visited Meiji University in Japan (2019)
- Invited presentation at University of Naples (2023)
- Invited talk at the South American Soil Science Congress (2023)
- Invited short course at Federal University of Parana, Brazil (2023)

D. Service

Departmental committees

- Basic soil properties research panel (1981-)
- Equipment and machinery (1982)
- Soil Science uniform preliminary exam (1982-)
- Computer (1983-1995) (co-chair 1988-1990)
- Greenhouse and growth chamber (1985-1995)
- Quaker Oats Peace Corps. Scholarship (1985-1987)
- Pierre lecture committee (1984-)
- Undergraduate Curriculum Revision Committee (1993-1994)
- Strategic Planning (1995)
- Chair of soil panel (1995-2002)
- Agronomy Department Head Advisory Council (1995-2002)
- Search committee for Extension Soil Scientist (1997)
- Chair, search committee for Soil Chemist (1997)
- Search committee for Agronomy Department Head (1998)
- Chair of Pierre Lecture Committee (2004-2006)
- Chair of Faculty Awards Committee (2005-2010)
- Member of Promotion & Tenure Committee (2004-2007)
- Chair of a grievance committee (2005)
- Chair of a post-tenure evaluation committee (2005, 2006, 2007)

- Chair of Promotion & Tenure Committee (2007)
- Faculty Search Committee (2010)
- Chair of Soil Panel (2011-)
- Promotion & Tenure Committee (2014)
- Faculty Search Committee (2015)
- Chair, Faculty Search Committee (2015)
- Promotion & Tenure Committee (2017-8)
- Jr/Sr Agronomy Course Committee (2019-)
- Promotion & Tenure Committee (2020)
- Awards Committee (2022-)

College committees

- Agricultural Honors (1992-1995)
- P&T Committee (2010-2013)
- Awards (2014, 2015, 2017, 2019, 2022 Distinguished Professors)

University committees

- Research planning activity-management and use of natural resources, section B. water (1983)
- Planning committee for the U.S.A.-Arab Chamber of Commerce and ISU conference
- Steering committee for International Center of Theoretical Physics (1992)
- Chair of steering committee for Water Resources Program (1996-2002)

Regional Research Project W-155

- Secretary (1986)
- Chairman (1987)

National committees

- University delegate to the Universities Council on Water Resources (1988-)

International committees

- Advisory committee for China National Key Laboratory of Soil Erosion and Dryland Farming of the Loess Plateau (1996-2016)
- Technical Advisory Committee for BARD (US-Israel Bi-national Agricultural Research and Development Fund) (2007-2010)
- Curriculum review committee for the Dept. of Soil, Water and Agricultural Engineering, Sultan Qaboos University, Oman (2005 -2006)

Federal Agencies

- Panel evaluating research proposals for USDA-National Research Initiative (1995)
- Panel on US-Environmental Protection Agency guidelines for pesticide use (1998)
- Panel evaluating the soils program of USDA-Agricultural Research Service (2005)

Professional society committees and activities

Soil Science Society of America

- Presiding chair of S1 session at annual meetings (1983)
- Presiding chair of S1 session at annual meetings (1985)
- Presiding chair of S1 session at annual meetings (1986)
- Presiding chair for Symposium-Transport of water and solutes in macropores-III (1988)
- Planning committee for workshop on Perspectives on the Contamination of Groundwater from Agriculture (1986)
- Book Series Committee (1987-1989)
- Soil Science Education Award Committee (1987)
- Elected Program Chair of Soil Physics, S-1, (1994)
- Presidential Nomination Committee of Soil Science Society of America (1995)
- Chair, Feasibility study for revision of Agronomy 9, Part 1 (1995)
- Editorial Committee for revision of Methods of Soil Analysis (1998)
- Don and Betty Kirkham Conference Committee (1998)
- Book Series Committee (1999-2002)
- Associate Editor for Soil Science Society of America Journal (2001-2002)
- Don and Betty Kirkham Soil Physics Award Committee (2005-2006 and 2008-)
- Represented the Soil Science Society of America by meeting with Congressman Tom Latham to ask him to Co-Chair a Congressional Soils Caucus. Rep. Latham agreed to do it (2005).
- Chair, Don and Betty Kirkham Soil Physics Award Committee (2006)
- Bouyoucos Committee (2008-)
- Rapid response team (2007-2010)
- Awards recognitions (2020)

American Society of Agronomy

- Secretary-Treasurer for Iowa Chapter (1983)
- Vice-President for Iowa Chapter (1986)
- President for Iowa Chapter (1989)
- Planning Committee for regional meeting (1987)
- Membership Committee (1983-1992)
- Associate Editor for Agronomy Journal (1989-1995)

American Geophysical Union

- Session organizer (2005)
- Frontiers of Hydrologic Sciences Lecturer (2005)

**VIII. PUBLICATIONS (Google scholar web info can be viewed at:
http://scholar.google.com/citations?view_op=list_works&hl=en&user=Hrofz70AAAAJ)**

A. Journal Articles (bold indicates student or post-doc colleague)

1. Horton, R., F. Beese, and P. J. Wierenga. 1982. Physiological response of chile pepper to trickle irrigation. *Agron. J.* 74:551-555.
2. Beese, F., R. Horton, and P. J. Wierenga. 1982. Growth and yield response of chile pepper to trickle irrigation. *Agron. J.* 74:556-561.
3. Horton, R., P. J. Wierenga, and D. R. Nielsen. 1982. A rapid technique for obtaining uniform water content distributions in unsaturated soil columns. *Soil Sci.* 133:397-399.
4. Horton, R., P. J. Wierenga, and D. R. Nielsen. 1983. Evaluation of methods for determining the apparent thermal diffusivity of soil near the surface. *Soil Sci. Soc. Am. J.* 47:25-32.
5. Horton, R., and P. J. Wierenga. 1983. Estimating the soil heat flux from observations of soil temperature near the surface. *Soil Sci. Soc. Am. J.* 47:14-20.
6. Horton, R., and P. J. Wierenga. 1983. Determination of the mean soil temperature for evaluation of heat flux in soil. *Agric. Meteorol.* 28:309-320.
7. Horton R., and P. J. Wierenga. 1984. The effect of column wetting on soil thermal conductivity. *Soil Sci.* 138:102-108.
8. Horton, R., O. Aguirre-Luna, and P. J. Wierenga. 1984. Observed and predicted two-dimensional soil temperature distributions under a row crop. *Soil Sci. Soc. Am. J.* 48:1147-1152.
9. Horton, R., O. Aguirre-Luna, and P. J. Wierenga. 1984. Soil temperature in a row crop with incomplete surface cover. *Soil Sci. Soc. Am. J.* 48:1225-1232.
10. **Modaihsh**, A. S., R. Horton, and D. Kirkham. 1985. Soil evaporation suppression by sand mulches. *Soil Sci.* 139:357-361.
11. **Hill**, R. L., R. Horton, and R. M. Cruse. 1985. Tillage effects on soil water retention and pore size distribution of two mollisols. *Soil Sci. Soc. Am. J.* 49:1264-1270.
12. **Potter**, K. N., R. M. Cruse, and R. Horton. 1985. Tillage effects on soil thermal properties. *Soil Sci. Soc. Am. J.* 49:968-973.
13. **McBride**, J. F., and R. Horton. 1985. An empirical function to describe measured water distributions from horizontal infiltration experiments. *Water Resour. Res.* 21:1539-1544.
14. **Mukhtar**, S., J. L. Baker, R. Horton, and D. C. Erbach. 1985. Soil water infiltration

as affected by use of the Paraplow. Transactions ASAE, 28:1811-1816.

15. Thompson, M. L., J. F. **McBride**, and R. Horton. 1985. Effects of drying treatments on porosity of soil materials. Soil Sci. Soc. Am. J. 49:1360-1364.
16. **Hamlett**, J. M., R. Horton, and N. A. C. Cressie. 1986. Resistant and exploratory techniques for use in semivariogram analysis. Soil Sci. Soc. Am. J. 50:868-875.
17. Cressie, N. A. C., and R. Horton. 1987. A robust-resistant spatial analysis of soil water infiltration. Water Resour. Res. 23:911-917.
18. Horton, R., M. L. Thompson, and J. F. **McBride**. 1987. Method of estimating the travel time of noninteracting solutes through compacted soil material. Soil Sci. Soc. Am. J. 51:48-53.
19. **Potter**, K. N., R. Horton, and R. M. Cruse. 1987. Soil surface roughness effects on radiation reflectance and soil heat flux. Soil Sci. Soc. Am. J. 51:855-860.
20. **Chung**, S. O., and R. Horton. 1987. Soil heat and water flow with a partial surface mulch. Water Resour. Res. 23:2175-2186.
21. **McBride**, J. F., R. Horton, and M. L. Thompson. 1987. Evaluation of three Iowa soil materials as liners for hazardous-waste landfills. Proc. Iowa Acad. Sci. 94:73-77.
22. **Sanchez**, C. A., A. M. Blackmer, R. Horton, and D. R. Timmons. 1987. Assessment of errors associated with plot size and lateral movement of nitrogen-15 when studying fertilizer recovery under field conditions. Soil Sci. 144:344-351.
23. **Ankeny**, M. D., T. C. Kaspar, and R. Horton. 1988. Design for an automated tension infiltrometer. Soil Sci. Soc. Am. J. 52:893-896.
24. **van Es**, H. M., M. L. Thompson, S. J. Henning, and R. Horton. 1988. Tillage studies on reclaimed surface-mined land: Use of geostatistics and the effect of landscape position. Soil Sci. 145:173-179.
25. **Kluitenberg**, G. J., R. Horton, M. L. Thompson, and J. F. **McBride**. 1988. Recompact Iowa soil materials before using as liners for waste containment. J. Iowa Acad. Sci. 95:114-116.
26. **Nassar**, I. N. and R. Horton. 1989. Determination of the apparent thermal diffusivity of a nonuniform soil. Soil Sci. 147:238-244.
27. **Kluitenberg**, G. J., and R. Horton. 1989. Pressurized layer reduces transport through compacted clay liners. J. Environ. Qual. 18:228-232.

28. Horton, R. 1989. Canopy shading effects on soil heat and water flow. *Soil Sci. Soc. Am. J.* 53:669-679.
29. **Nassar**, I. N., and R. Horton. 1989. Composition of soil apparent thermal diffusivity from multiharmonic temperature analysis for nonuniform soils. *Soil Sci.* 149:125-130.
30. **Nassar**, I. N., and R. Horton. 1989. Water transport in unsaturated nonisothermal, salty soil: 1. Experimental results. *Soil Sci. Soc. Am. J.* 53:1323-1329.
31. **Nassar**, I. N., and R. Horton. 1989. Water transport in unsaturated nonisothermal, salty soil: 2. Theoretical development. *Soil Sci. Soc. Am. J.* 53:1330-1337.
32. **Kluitenberg**, G. J., and R. Horton. 1990. Effect of solute application method on preferential transport of solutes in soil. *Geoderma* 46:283-297.
33. Kanwar, R. S., H. A. **Rizvi**, M. **Ahmed**, R. Horton, and S. J. Marley. 1989. Measurement of field-saturated hydraulic conductivity by using Guelph and Velocity Permeameters *Trans. ASAE* 32:1885-1890.
34. **Hamlett**, J. M., S. W. Melvin, and R. Horton. 1990. Traffic and soil amendment effects on infiltration and compaction. *Trans. ASAE* 33:821-826.
35. **Ankeny**, M. D., T. C. Kaspar, and R. Horton. 1990. Characterization of tillage effects on unconfined infiltration measurements. *Soil Sci. Soc. Am. J.* 54:837-840.
36. **Kluitenberg**, G. J., and R. Horton. 1990. Analytical solution for two-dimensional heat conduction beneath a partial surface mulch. *Soil Sci. Soc. Am. J.* 54:1197-1206.
37. **Hamlett**, J. M., J. L. Baker, and R. Horton. 1990. Water and anion movement under ridge tillage: A field study. *Trans ASAE* 33:1859-1866
38. **Ankeny**, M. D., M. **Ahmed**, T. C. Kaspar, and R. Horton. 1991. A simple field method for determining unsaturated hydraulic conductivity. *Soil Sci. Soc. Am. J.* 55:467-470.
39. **Kluitenberg**, G. J., J. R. **Bilskie** and R. Horton. 1991. Rubberized asphalt sealing for cores of shrinking soil. *Soil Sci. Soc. Am. J.* 55:1504-1507.
40. **Mohanty**, B. P., R. S. Kanwar, and R. Horton. 1991. A robust-resistant approach to interpret spatial behavior of saturated hydraulic conductivity of a glacial till soil under no-tillage system. *Water Resour. Res.* 27:2979-2992.
41. Kirkham, D. and R. Horton. 1992. The stream function of potential theory for a dual pipe subirrigation-drainage system. *Water Resour. Res.* 28:373-387.

42. **Czapar**, G. F., R. Horton, and R. S. Fawcett. 1992. Herbicide and tracer movement in soil columns containing an artificial macropore. *J. Environ. Qual.* 21:110-115.
43. **Nassar**, I. N., A. M. Globus, and R. Horton. 1992 Simultaneous soil heat and water transfer. *Soil Sci.* 154:465-472.
44. **Nassar**, I. N., and R. Horton. 1992. Simultaneous transfer of heat, water, and solute in porous media: I. Theoretical development. *Soil Sci. Soc. Am. J.* 56:1350-1356
45. **Nassar**, I. N., R. Horton, and A. M. Globus. 1992. Simultaneous transfer of heat, water, and solute in porous media: II. Experiment and analysis. *Soil Sci. Soc. Am. J.* 56:1357-1365.
46. Kirkham, D., and R. Horton. 1993. Modeling water flow from subirrigation with drainage. *Soil Sci. Soc. Am. J.* 57:1451-1457.
47. **Kiuchi**, M., R. Horton, and T. C. Kaspar. 1994. Leaching characteristics of repacked soil columns as influenced by subsurface flow barriers. *Soil Sci. Soc. Am. J.* 58:1212-1218.
48. **Nassar**, I. N., H. M. Shafey, and R. Horton. 1994. Heat, water, and solute transfer in compacted soil beneath plastic cover. *Bull. Fac. Engr. Part 2, Assiut University, Egypt*, 22:61-75.
49. **Mohanty**, B. P., M. D. **Ankeny**, R. Horton, and R. S. Kanwar. 1994. Spatial analysis of hydraulic conductivity measured using disc infiltrometers. *Water Resour. Res.* 30:2489-2498.
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51. Bristow, K. L., G. J. Kluitenberg, and R. Horton. 1994. Measurement of soil thermal properties with a dual-probe heat-pulse technique. *Soil Sci. Soc. Am. J.* 58:1288-1294.
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54. **Green**, J. D., R. Horton, and J. L. Baker. 1995. Crop residue effects on the leaching of

surface applied chemicals. *J. Environ. Qual.* 24:343-351.

55. Jaynes, D. B., S. D. Logsdon, and R. Horton. 1995. Field method for measuring mobile/immobile water content and solute transfer rate coefficient. *Soil Sci. Soc. Am. J.* 59:352-356.
56. **Green**, C. J., A. M. Blackmer, and R. Horton. 1995. Nitrogen effects on conservation of carbon during corn residue decomposition in soil. *Soil Sci. Soc. Am. J.* 59:1411-1415.
57. Horton, R., K. L. Bristow, G. J. Kluitenberg, and T. S. Sauer. 1996. Crop residue effects on surface radiation and energy balance. *Theor. and Appl. Climat.* 54:27-37.
58. Bristow, K. L., and R. Horton. 1996. Modeling the impact of partial surface mulch on soil heat and water flow. *Theor. and Appl. Climatol.* 54:85-98.
59. **Mohanty**, B. P., R. Horton, and M. D. **Ankeny**. 1996. Infiltration and macroporosity under a row crop agricultural field in a glacial till field. *Soil Sci.* 161:205-213.
60. **Nassar**, I. N., J. G. **Benjamin**, and R. Horton. 1996. Thermally induced water movement in uniform clay soil. *Soil Sci.* 161:471-479.
61. **Kiuchi**, M., T. C. Kaspar, and R. Horton. 1996. Managing soil water and chemical transport with subsurface flow barriers. *Soil Sci. Soc. Am. J.* 60:880-887.
62. **Shao**, M., and R. Horton. 1996. Soil water diffusivity determination by general similarity theory. *Soil Sci.* 161:727-734.
63. **Casey**, F. X., S. D. Logsdon, R. Horton, and D. B. Jaynes. 1997. Immobile water content and mass exchange coefficient of a field soil. *Soil Sci. Soc. Am. J.* 61:1030-1036.
64. Kirkham, D., R. R. van der Ploeg, and R. Horton. 1997. Potential theory for dual-depth subsurface drainage of ponded land. *Water Resour. Res.* 33:1643-1654.
65. **Nassar**, I. N., and R. Horton. 1997. Heat and water transfer in compacted and layered soils. *J. Environ. Qual.* 26:81-88.
66. **Nassar**, I. N., and R. Horton. 1997. Heat, water, and solute transfer in unsaturated porous media: I. Theory development and transport coefficient evaluation. *Transp. Porous Media* 27:-17-38.
67. **Nassar**, I. N., R. Horton, and A. M. Globus. 1997. Thermally induced water transfer in salinized, unsaturated soil. *Soil Sci. Soc. Am. J.* 61:1293-1299.

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69. **Ressler**, D. E., R. Horton, J. L. Baker, and T. C. Kaspar. 1997. Testing a nitrogen fertilizer applicator designed to reduce leaching losses. *Applied Engineering in Agric.* 13:345-350.
70. **Shao**, M., and R. Horton. 1997. Reply to Comments on "Soil water diffusivity determination by general similarity theory". *Soil Sci.* 162:769-770.
71. **Shao**, M., and R. Horton. 1998. Integral method for estimating soil hydraulic properties. *Soil Sci. Soc. Am. J.* 62:585-592.
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73. **Shao**, M., R. Horton, and R. Miller. 1998. An approximate solution to the convection-dispersion equation of solute transport in soil. *Soil Sci.* 163:339-345.
74. **Bilskie**, J. R., R. Horton, and K. L. Bristow. 1998. Test of a dual-probe heat-pulse method for determining thermal properties of porous materials. *Soil Sci.* 163:346-355.
75. **Ressler**, D. E., R. Horton, J. L. Baker, and T. C. Kaspar. 1998. Evaluation of localized compaction and doming to reduce anion leaching losses using lysimeters. *J. Environ. Qual.* 27:910-916.
76. **Casey**, F. X., S. L. Logsdon, R. Horton, and D. B. Jaynes. 1998. Measurement of field soil hydraulic and solute transport parameters as a function of water pressure head. *Soil Sci. Soc. Am. J.* 62:1172-1178.
77. **Ressler**, D. E., R. Horton, and G. J. Kluitenberg. 1998. Laboratory study of zonal management effects on preferential movement in soil. *Soil Sci.* 163:601-610.
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79. **Shao**, M. and R. Horton. 1999. Reply to comments on integral method for estimating soil hydraulic properties. *Soil Sci. Soc. Am. J.* 63:253.
80. **Casey**, F. X. M., D. B. Jaynes, R. Horton, and S. D. Logsdon. 1999. Comparing field methods that estimate mobile-immobile model parameters. *Soil Sci. Soc. Am. J.* 63:800-806.

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84. **Nassar**, I. N., L. Ukrainczyk, and R. Horton. 1999. Transport and fate of volatile organic chemicals in unsaturated, nonisothermal salty porous media:II. Experimental and numerical studies for benzene. *J. Hazardous Materials* 69:169-185.
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86. **Ren**, T., K. Noborio, and R. Horton. 1999. Measuring soil water content, electrical conductivity, and thermal properties with a thermo-TDR probe. *Soil Sci. Soc. Am. J.* 63:450-457.
87. **Ressler**, D. E., R. Horton, T. C. Kaspar, and J. L. Baker. 1999. Crop response to localized compaction and doming. *Agron. J.* 90:747-752.
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95. **Nassar, I. N., R. Horton, and G. N. Flerchinger.** 2000. Simultaneous heat and mass transfer in soil columns exposed to freezing/thawing conditions. *Soil Sci.* 165-208-216.
96. **Ren, T., G. J. Kluitenburg, and R. Horton.** 2000. Determining soil water flux and pore water velocity by a heat pulse technique. *Soil Sci. Soc. Am. J.* 64:552-560.
97. **Shao, M., and R. Horton.** 2000. Exact solution for horizontal water redistribution by general similarity. *Soil Sci. Soc. Am. J.* 64:561-564.
98. **Shao, M., Q. Wang, and R. Horton.** 2000. A simple infiltration method for estimating soil hydraulic properties of unsaturated soils: I. Theory. *Acta Pedologica Sinica* 37: 1-8.
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100. **Bachmann, J., R. Horton, T. Ren, and R.R. van der Ploeg.** 2001. Comparison of the thermal properties of four wettable and four water-repellent soils. *Soil Sci. Soc. Am. J.* 65:1575-1679.
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111. **Ella**, V. B., S. W. Melvin, R. S. Kanwar, L. C. Jones, R. Horton. 2002. Inverse three-dimensional groundwater modeling using the finite-difference method for recharge estimation in a glacial till aquitard. *Transactions of the ASAE*. Vol. 45(3): 703–715.
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X. GRANTS AND CONTRACTS (funded)

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- 1984-1987 Principal Investigator for "Effect of Soil Technologies Amendment on the Mass Transport Properties of Soil", funded by Soil Technologies Corporation. (\$35,000).
- 1984-1989 Principal Investigator for "Crop Responses to Fly Ash Applications on Sand Soils at Muscatine Island", funded by Iowa-Illinois Gas and Electric Company. (\$150,000 shared with S. Henning and H. Taber).

- 1984-1985 Principal Investigator for "Develop and Test a Method to Predict Miscible Displacement in Porous Media", funded by ISU Achievement Foundation. (\$2,000).
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- 1985-1988 Principal Investigator for a National Needs Graduate Research Fellowship funded by USDA. (\$45,000).
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- 1987-1990 Principal Investigator for "Demonstration of a Water and Nutrient Management System to Improve Nitrogen Efficiency and Reduce Environmental Stress", funded by State Ag. Energy Mgmt. Fund (\$150,000 shared with S. Melvin and R. Kanwar).
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- 1990-1992 Principal Investigator for "Use of Horizontal Wells for Soil Venting", funded by Department of Energy, Ames Lab (\$40,000 shared with L. C. Jones and T. A. Austin)
- 1990-1991 Principal Investigator for "Soil Heat, Water, and Chemical Transport in Soil", funded by Department of Energy, Ames Lab (\$30,000)
- 1991-1993 Co-Principal Investigator for "A Regional Assessment of Soil Nitrogen Tests in Iowa, Minnesota, and Wisconsin", funded by C.S.R.S. (\$60,000 shared with R. Killorn)
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- 1999-2001 Principal Investigator for "Field assessment of groundwater quality beneath cracking soil with surface-applied hog manure", funded by US-Geological Survey through Iowa State Water Resources Research Institute (\$57,440).
- 2000-2002 Principal Investigator for "Reclamation of ammonium contaminated soil", funded by United Agri Products (\$220,000, shared with B. Evangelou, M. Thompson, and L. Halvorson).
- 2000-2003 Principal Investigator for "Managing Interactive Stresses to Increase Soybean Yields", funded by Soybean Research and Development Council (\$905,000, shared with W. Batchelor, M. Owen, M. Westgate, G. Tylka, G. Munkvold, B. Meyer).
- 2001-2003 Principal Investigator for "Field determination of soil hydraulic and chemical transport properties", funded by USDA - National Research Initiative (\$103,000 shared with D. Jaynes).
- 2001-2003 Principal Investigator for "Coupled Heat and Water Flow Near the Soil Surface", funded by Agronomy Department Endowment Funds (\$28,000 shared with T. Sauer).
- 2001-2004 Principal Investigator for "An Agroecosystem Water Management Model: Coupling of Plant, Soil, and Climate Component", funded by Agronomy Department Endowment Funds (\$150,000 shared with Z. Pan).
- 2004-2008 Principal Investigator for "Coupled heat and water transfer in soil", funded by US - National Science Foundation (\$350,000 shared with R. Ewing and T. Ochsner).
- 2007-2007 Principal Investigator for "Lignocellulosic Feedstock Production Systems: Environmental Impacts of Contrasting Cropping Systems", funded by ConocoPhillips (\$105,000 for 2007 shared with M. Thompson and R. Cruse).
- 2007-2010 Principal Investigator for "Colloid-Mediated Transport of Hormones with Land-Applied Manure", funded by USDA - National Research Initiative (\$300,000 shared with M. Thompson).
- 2008-2008 Principal Investigator for "Lignocellulosic Feedstock Production Systems: Environmental Impacts of Contrasting Cropping Systems", funded by ConocoPhillips (\$140,000 shared with M. Thompson and R. Cruse).
- 2008-2011 Principal Investigator for "Determining Soil Water Evaporation and Subsurface

Evaporation Zones”, funded by US - National Science Foundation (\$380,000 shared with J. Heitman and R. Ewing).

2009-2009 Principal Investigator for “Lignocellulosic Feedstock Production Systems: Environmental Impacts of Contrasting Cropping Systems”, funded by ConocoPhillips (\$140,000 shared with M. Thompson, R. Cruse, and M. Helmers).

2009-2011 Principal Investigator for “Land Use Conversion to Perennial Vegetation: Quantifying Soil Water Regime and Aeration and the Implications for Enhancing Soil Resilience to Climate Change”, funded by Leopold Center (\$83,000 shared with T. Sauer and H. Asbjornsen).

2010-2010 Principal Investigator for “Lignocellulosic Feedstock Production Systems: Environmental Impacts of Contrasting Cropping Systems”, funded by ConocoPhillips (\$140,000 shared with M. Thompson, R. Cruse, and M. Helmers).

2011-2015 Co-Principal Investigator for “Biofuel Cropping Systems for Feedstock Production and Greenhouse Gas Mitigation” funded by USDA (\$726,508 shared with Thompson et al.).

2012-2014 Principal Investigator for “Quantifying Field Water Balance Components as Affected by Shifts in Land-Use Patterns: Implications for Minimizing Agricultural Impacts on Water Quality in Iowa”, funded by the Iowa Water Center (\$35,000 shared with M. Helmers and T. Sauer).

2012-2016 Principal Investigator for “Measuring soil water fluxes due to evaporation and freezing”, funded by National Science Foundation (\$364,910 shared with J. Heitman).

2013-2016 Co-Investigator for “Environmental Fate of Endocrine-Disrupting Chemicals: Association with Biosolids-Derived Dissolved Organic Matter”, funded by BARD (\$300,000 shared with M.L. Thompson et al.).

2016-2018 Co-Investigator for “Concrete Grinding Residue: It’s effect on roadside vegetation and soil properties,” funded by MnDOT Office of Environmental Stewardship (\$130,000, shared with Halil Ceylan).

2016-2020 Co-Investigator for “Transient Soil Density: Measuring Change and Developing Models that Account for its Effects,” funded by US Army Research, Development and Engineering Command, Army Research Office (\$300,000 shared with J. Heitman).

2016-2021 Principal Investigator for “Is Static Soil Density a Viable Assumption for Studying

Surface Hydrologic Processes?,” funded by National Science Foundation (\$419,530 shared with J. Heitman).

2017-2024 Co-Principal Investigator for “Low-Cost Rural Surface Alternatives Phase IV: Frost Depth Monitoring and Prediction,” funded by Iowa-Department of Transportation (\$308,000 shared with J. Ashlock).

2019-2019 Principal Investigator for “Compaction Factors Investigation,” funded by Deere and Company (\$29,000 shared with Matt Darr).

2019-2024 Co-Principal Investigator for “Evaluation of Utilities Construction Activities and Deep Tillage Remediation on Soil Compaction and Crop Yield,” funded by Dakota Access LLC (\$720,000 shared with Mehari Tekeste).

2020-2021 Co-Principal Investigator for “Technical Evaluation: Soil Properties Measurement, Phase 2.” Funded by Deere and Company (\$85,000 shared with Matt Darr).

2021-2024 Co-Principal Investigator for “Revealing Soil Hydraulic Properties,” funded by National Science Foundation (\$495,359 shared with Joshua Heitman).

XI. MENTORING

A. Faculty

1. Ljerka Ukrainczyk (1994)
2. Michael Castellano (2010)
3. Marshall McDaniel (2016)

B. Visiting Scientists

1. Rienk van der Ploeg, Hohenheim University, Stuttgart, Germany, worked on soil drainage (1989)
2. Alexander Globus, Agrophysics Institute, Leningrad, Soviet Union, worked on coupled heat and water transfer in soil (1991)
3. Dimitri Kurtener, Agrophysics Institute, Leningrad, Soviet Union, worked on soil heat transfer (1991).
4. Keith Bristow, CSIRO, Townsville, Australia, worked on soil heat transfer (1991).
5. Rienk van der Ploeg, University of Hannover, Germany, worked on soil drainage (1993).

6. Alexander Globus, Agrophysics Institute, Leningrad, Soviet Union, worked on coupled heat and water transfer in soil (1993-1994)
7. Keith Bristow, CSIRO, Townsville, Australia, worked on soil surface modeling (1993)
8. Ibrahim Nassar, University of Alexandria, Egypt, worked on soil heat and mass transfer (1995)
9. Alexander Globus, Agrophysics Institute, St. Petersburg, Russia, worked on soil heat and mass transfer (1997)
10. Jan Ilsemann, University of Hannover, Germany, worked on preferential flow (1997)
11. Joerg Bachmann, University of Hannover, Germany, worked on soil heat and mass transfer (1997)
12. Ibrahim Nassar, University of Alexandria, Egypt, worked on soil heat and mass transfer (1997)
13. Mingan Shao, Chinese Academy of Sciences, worked on soil water flow (1998)
14. Tusheng Ren, worked on soil heat transfer (1999)
15. Dirk Hermsmeyer, University of Hannover, Germany, worked on water flow modeling (1999)
16. Joerg Bachmann, University of Hannover, Germany, worked on heat and mass transfer (2000)
17. Alexander Globus, worked on heat and mass transfer (2000)
18. Jan Ilsemann, University of Hannover, Germany, worked on preferential flow (2000)
19. Mingan Shao, Chinese Academy of Sciences, worked on soil erosion (2000)
20. Nandor Fodor, Hungarian Academy of Sciences, worked on soil water flow (2000)
21. Quanjiu Wang, Xian Technological University, China, worked on transport in soil (2000-2001)
22. Mingan Shao, Chinese Academy of Sciences, worked on soil water retention (2004)

23. Baiqun Wang, Chinese Inst. Soil & Water Conservation (2006)
24. Yi Li, Northwest China Agricultural and Forestry University (2008-2009)
25. Xiaoli Fu, China Institute of Soil and Water Conservation (2009)
26. Jing-hui Xu, Northwest China Agricultural and Forestry University (2010)
27. Xiao Zhang, China Agricultural University (2011)
28. Yili Lu, China Agricultural University (2014-2015)
29. Bing Tong, Nanjing University of Information Science and Technology (2016-2018)
30. Minmin Wen, China Agricultural University (2016-2017)
31. Junko Nishiwaki, Japan (2017-2018)
32. Yuki Sunakawa, Meiji University, Japan (2018)
33. Xiaoting Xie, China Agricultural University (2018)
34. Sen Lu, Chinese Academy of Forestry (2019-2020)
35. Xuefung Bai, Northeast Agricultural University (2019-2020)
36. Kosuke Noborio, Meiji University, Japan (2022–2023)

XII. PRESENTATIONS

A. Invited (USA)

1. Hydraulic conductivity of compacted Iowa soil materials. 1984. US-Environmental Protection Agency Workshop on Hydraulic Conductivity Testing of Compacted Clay Soils, held in Atlanta, GA.
2. Estimating transit times of non-interacting pollutants through compacted soil materials. 1985. US-Environmental Protection Agency Sponsored Research Symposium for Land Disposal of Hazardous Waste, held in Cincinnati, OH.
3. Soil physics research. 1985. Agronomy Department, New Mexico State University.

4. Determination of effective porosity of soil materials. 1986. E.P.A. Sponsored Research Symposium for Land Disposal of Hazardous Waste, held in Cincinnati, OH.
5. Nitrate movement in soil. 1986. Iowa Fertilizer and Ag. Chemical Dealers sponsored Groundwater Conference in Ames, IA.
6. Does anion leaching occur in Iowa soils? 1986. Fertilizer and Ag. Chemical Dealers Conference in Des Moines, IA.
7. Preferential flow of water and solutes in structured soils. 1986. Soil Science Society of America Workshop on Perspectives on the Contamination of Groundwater from Agriculture, held in New Orleans, LA.
8. Modeling soil heat flow. 1987. Symposium - Modeling of Plant and Soil Systems, American Society of Agronomy, Annual Meetings in Atlanta, GA.
9. Tillage and compaction effects on hydraulic properties and water flow. 1988. NATO Advanced Research Workshop on mechanics and related processes in structured agricultural soils, St. Paul, MN.
10. Mulch and canopy effects on surface energy and water exchange. 1990. Agronomy Dept., Kansas State Univ., Manhattan.
11. Sensible and latent heat flux at the soil surface. 1990. NCR-160 Meeting, Ames, IA
12. Mechanisms of Soil heat transfer. 1991. US-National Science Foundation sponsored Soil-warming workshop, Woods Hole, Massachusetts.
13. Soil temperature. 1991. Soil Science, University of Hawaii, Honolulu.
14. Subsurface flow barriers to reduce nitrate leaching. 1992. Crop production and protection conference, Ames, Iowa.
15. Surface crop residue effects on radiation and energy balances. 1993. American Society of Agronomy Symposium, Cincinnati, Ohio.
16. Coupled heat and water flow in compacted clay liners. 1993. US-Environmental Protection Agency Research Conference, Cincinnati, Ohio.
17. Measuring solute transport parameters. 1994. US Salinity Laboratory, Riverside, California.

18. Subsurface compaction to reduce nitrate leaching. 1994. USDA-Agricultural Research Service, Watkinsville, Georgia
19. Heat, water, and chemical movement in freezing soil. 1994. USDA-ARS Frozen soil workshop. Morris, Minnesota.
20. Determining hydraulic properties and solute transport parameters of field soil. 1997. USDA-Agricultural Research Service, Beltsville, Maryland.
21. Method to reduce leaching losses of nitrogen fertilizer. 1997. Agronomy Dept. University of Maryland.
22. Preferential flow of chemicals in soil. 1998. American Geophysical Union Conference, Boston, MA.
23. Methods to artificially warm soil. 1999. US-National Science Foundation sponsored workshop on global warming, Santa Barbara, California.
24. Temperature effects on soil hydraulic properties. 2001. Soil Science Society of America annual meeting, Charlotte, NC.
25. Controlling fertilizer nitrogen leaching. Natural Resources Seminar. University of Illinois.
26. A vision for soil science. 2002. University of California, Riverside.
27. Measuring soil hydraulic and chemical transport properties. Natural Resources Seminar. University of Illinois.
28. Advancing environmental investigations by taming the challenges posed by dynamic surface soil properties. 2004. Campbell Lecture, Washington State University.
29. Determining solute transport properties of soil and predicting solute transport to tile drains. 2005. School of Natural Resources. Ohio State University.
30. Advancing environmental investigations by taming the challenges posed by dynamic surface soil properties. 2005. Environmental Graduate Program. Ohio State University.
31. Advancing Hydrological Investigations by Addressing Some Challenges Posed by Dynamic Surface Soil Properties. 2005. Frontier Lecture in Hydrological Science. American Geophysical Union.

32. Congressional Soils Caucus 15 House Staffers March 27, 2006 Cannon House Office Building Washington, DC Making a case for a house soils caucus.
33. FFA – Ames 70 youth 6/8/2006 Welcome to the Agronomy Department at Iowa State University.
34. World Food Prize Laureates 10/16/2006 40 people The Importance of Soils.
35. Deans COA – 3 June 23, 2006 Wintersteen, Coletti, and Acker Making a case for a soils institute at Iowa State University.
36. St. Louis University April 20, 2006 Advancing Environmental Investigations by Addressing Some Challenges Posed by Dynamic Surface Soil Properties. 30 attendees. Geological and Atmospheric Sciences.
37. OBP –ISU 10/10/2006 Making a case for a soils institute at Iowa State University.
38. Measuring soil water evaporation. 2008. Texas A & M University.
39. Science and religion. 2008. Sacred Heart Seminary. Detroit, MI.
40. Horton, R. and R. P. Ewing. 2013. Soil structure and transport processes across scales. ASA-CSSA-SSSA annual meeting, Tampa, FL.
41. Horton, R. 2014. Priority on God in the Workplace – study, prayer, and evangelization. Oklahoma State University Christian Faculty and Staff Assoc.
42. Horton, R. 2014. Reasons to Believe in God. Oklahoma State University Christian Graduate Student Club.
43. Horton, R. 2014. Coupled Heat and Water Movement in Soil: advances on measuring and modeling soil properties and fluxes. Oklahoma State University Plant and Soil Sciences Department.
44. Horton, R. 2016. Heat Pulse Sensors and Sensible Heat Balance Measurements Provide New Details on Soil Physical Properties and Processes. ASA-CSSA-SSSA annual meeting, Phoenix, AZ.
45. Horton, R. 2016. Sensible Heat Balance Determines Subsurface Evaporation or Freezing and Thawing Rates. Michigan State University.
46. Horton, R. 2016. Soils are a Critical Component of Earth’s Critical Zone. Michigan State University.

47. Horton, R. 2017. Mentoring students in a manner to help them grow academically and personally. Utah State University.
48. Horton, R. 2017. Mentoring students in a manner to help them grow academically and personally. Iowa State University.
49. Horton, R. 2017. Measuring Soil Properties and Processes with Thermo-TDR Sensors. Soil Science. Soc. Amer. Annual Meetings. Tampa, FL.
50. Horton, R. 2018. Mentoring students in a manner to help them grow academically and personally. University of Delaware.
51. Horton, R. 2018. Coupled Heat and Water Movement in Soil: advances on measuring and modeling soil properties and fluxes. University of Delaware.
52. Horton, R. 2018. Mentoring students in a manner to help them grow academically and personally. Texas A&M University.
53. Horton, R. 2018. Coupled Heat and Water Movement in Soil: advances on measuring and modeling soil properties and fluxes. Texas A&M University.
54. Horton, R. 2019. Mentoring students in a manner to help them grow academically and personally. South Dakota State University.
55. Horton, R. 2019. Coupled Heat and Water Movement in Soil: advances on measuring and modeling soil properties and fluxes. South Dakota State University.
56. Horton, R. 2019. Mentoring students in a manner to help them grow academically and personally. ASA-CSSA-SSSA annual meeting, San Antonio, TX.
57. Horton, R. et al. 2019. Thermo-TDR sensors-measurement of soil properties and processes. ASA-CSSA-SSSA annual meeting, San Antonio, TX.
58. Horton, R. 2022. Students Taught Me How to Interpret Tension Infiltrometer and Thermo-TDR Measurements. ASA-CSSA-SSSA annual meeting, Baltimore, MD.

Dr. Horton has also presented invited seminars at Iowa State University to the Agronomy Department, Agricultural Engineering Department, Civil Engineering Department, Mathematics Department, Meteorology Faculty/Graduate Seminar, Physics Department, Water Resources Program, Osborn Faculty Research Club, and the Christian Faculty and Staff Association.

B. Invited (international)

1. Soil heat transfer. 1984. Department of Land Resource Science at Guelph University, Canada.
2. Spatial variability of field-measured solute transport properties. 1989. Workshop on Field-scale water and solute flux in soils. Monte Verita, Ascona, Switzerland.
3. Field estimates of hydraulic conductivity from unconfined infiltration measurements. 1989. Workshop on Field-scale water and solute flux in soils. Monte Verita, Ascona, Switzerland.
4. Soil-water infiltration, subirrigation and drainage, and hazardous waste storage. 1989. Civil Engineering Department at the University of Brussels, Belgium
5. Dual-pipe subirrigation and unsaturated infiltration. 1989. Soil physics researchers at the Agricultural University, Wageningen, The Netherlands.
6. Soil heat transfer and solute transport in structured soils. 1989. Institute of Soil Ecology, Munich, Germany.
7. Groundwater management by a dual-pipe subirrigation system. 1989. IAHS International Symposium on Groundwater Management: Quantity and Quality, Benidorm, Spain.
8. Coupled transport of heat, moisture and solutes in soil. 1990. Agrophysics Institute, Leningrad, USSR.
9. Soil-aggregate mulches for conserving water. 1991. Soil Science Dept., Shenyang Agricultural University, Shenyang, China.
10. Solute leaching in soil. 1991. Soil Science Dept., Wuhan Agricultural University, Wuhan, China.
11. Coupled heat, water, and chemical transport in soil. 1992. Soil Science Institute. University of Hannover, Germany.
12. Soil science opportunity for young scientists. 1992. University of Klaipeda. Lithuania.
13. Heat and water transfer in compacted soil material. 1993. University of Berlin, Germany.

14. Managing chemical transport in soil. 1994. Soil Science Dept., Assiut University, Egypt.
15. Determining soil thermal properties. 1994. Mechanical Engineering Dept., Assiut University, Egypt.
16. Nitrogen and salt leaching. 1994. Soil Science Dept., University of Alexandria, Egypt.
17. Managing nitrate leaching. 1994. Soil Science Institute, University of Hannover, Germany.
18. Reducing nitrogen fertilizer leaching. 1995. Agrophysics Institute. St. Petersburg, Russia.
19. Holistic teaching of soil science students. 1995. Presov University, Slovakia.
20. Managing nitrogen fertilizer. 1995. Soil Science Dept., University of Philippines, Los Banos, Philippines.
21. Measuring soil water infiltration. 1995. Soil Science Dept., University of Philippines, Los Banos, Philippines.
22. Water and chemical transport in soil. 1995. Soil Science Dept., University of Philippines, Los Banos, Philippines.
23. Soil erosion factors. 1995. Soil Science, Benguet State University, Philippines.
24. Determining soil particle size distribution. 1995. Soil Science, Benguet State University, Philippines.
25. Controlling nitrogen leaching losses. 1995. College of Agriculture, Benguet State University, Philippines.
26. Localized compaction and doming to reduce fertilizer leaching. 1995. College of Agriculture, Xavier University, Philippines.
27. Water and chemical movement in field soil. 1996. CSIRO Davies Laboratory, Townsville, Australia.
28. Field method to determine hydraulic and solute transport parameters. 1996. Western Pacific Geophysics Conf. Brisbane, Australia.

29. Water and solute transport in field soil. 1997. Soil Science Institute, University of Hannover, Germany.
30. Field method to determine hydraulic and solute transport properties. 1997. Environmental Engineering Faculty, University of Warsaw, Poland.
31. Soil water and chemical transport. 1997. Soil Science Institute, Hungarian Academy of Sciences, Budapest, Hungary.
32. Tension infiltrometer for determining water and chemical properties of field soil. 1997. Soil Science Institute, ETH-Zurich, Switzerland.
33. Coupled heat and water movement in soil. 1997. University of Vienna, Austria.
34. Quality education for university students. 1997. University of Presov, Slovakia.
35. Vadose zone hydrology. 1997. Institute of Hydrology, Bratislava, Slovakia.
36. Controlling solute transport in soil. 1998. Soil Science Institute, University of Hannover, Germany.
37. Soil water flow. 1998. Hydrology group. Xian Technological University. China
38. Localized compaction and doming method to reduce fertilizer leaching. 1998. Institute of Environmental Science, Beijing, China.
39. Environmental soil physics. 1998. Physics Dept., Zhengzhou University, China.
40. Reducing fertilizer leaching in soil. 1998. Environmental Science, Zhengzhou University, China.
41. Managing fertilizers in soil. 1998. Zhengzhou Agricultural University, China.
42. Method to reduce nitrate leaching. 1998. Henan Inst. of Science & Technology, China.
43. Chemical transport in soil. 1998. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
44. Gave a series of lectures as a short course on mass and heat transfer in soil. 1998. Soil Science Institute, University of Hannover, Germany.

45. New instruments to measure soil water. 1999. Hungarian Academy of Sciences, Budapest, Hungary.
46. New instruments to measure soil water. 1999. Soil Science Institute, University of Hannover, Germany.
47. New instruments to measure soil water. 1999. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
48. Measuring soil hydraulic and chemical transport properties. 1999. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
49. Coupled heat and water movement in soil. 1999. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
50. Method to reduce leaching of nitrogen fertilizer. 1999. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
51. Method to reduce leaching of nitrogen fertilizer. 1999. China Agricultural University, Beijing, China.
52. Solute transport in soil. 2000. Benguet State University, Baguio, Philippines.
53. Measuring soil hydraulic and chemical transport properties. 2000. International Rice Research Institute, IRRI, Philippines.
54. Method to reduce leaching of nitrogen fertilizer. 2000. Univ. of Philippines. Los Banos.
55. Measuring soil hydraulic and chemical transport properties. 2000. Hungarian Academy of Sciences, Budapest.
56. Measuring soil hydraulic and chemical transport properties. 2000. Chinese Academy of Sciences, Institute of Soil Science, Yangling, China.
57. Measuring soil hydraulic and chemical transport properties. 2000. Soil Science Institute, University of Hannover, Germany.
58. Measuring soil hydraulic and chemical transport properties. 2001. China Agricultural University. Beijing, China.
59. A vision for soil science. 2002. Chinese Academy of Science Conference, Yangling, China.

60. Heat method to determine soil water velocity. 2003. Hydrology Dept., Xian Technological University, China.
61. Soil temperature and wettability. 2003. Hydrology Dept., Xian Technological University, China.
62. Solute transport in soil. 2003. Hydrology Dept., Xian Technological University, China.
63. Developing as a young scientist. 2003. Soil Science graduate seminar. Northwest Agricultural University, China.
64. Developing as a young scientist part 1. 2003. Soil Science graduate seminar. Northwest Agricultural University, China.
65. Developing as a young scientist part 2. 2003. Soil Science graduate seminar. Northwest Agricultural University, China.
66. Developing as a young scientist. 2003. College of Agriculture graduate seminar. Northwest Agricultural University, China.
67. Determining soil water flux with a thermo-TDR. 2004. Soil science seminar. Iwate, University, Morioka, Japan.
68. Determining soil solute transport properties. 2004. Soil science seminar. Iwate, University, Morioka, Japan.
69. Addressing the challenges posed by dynamic surface soil properties. 2005. Soils, Water, and Agricultural Dept., Sultan Qaboos University. Muscat, Oman.
70. Determining water and solute transport properties. 2005. Chinese Academy of Sciences, Institute of Soil and Water Conservation. Yangling, China.
71. Yangling, China keynote address. 2006. Making a case for expanding soils research. 2nd International Symposium of Soil Erosion and Dryland Farming".
72. Temperature, Salinity, and Wettability Effects on Soil Water. 2006. Sultan Qaboos University, Muscat, Oman.
73. Institute of Soil and Water Conservation Yangling, China. 2007. Workshop on Soils Research.

74. China Agricultural University. 2007. Importance of soils research.
75. China Institute of Atmospheric Sciences. 2007. Measuring soil water evaporation.
76. Measuring soil water evaporation. 2008. Institute of Soil and water conservation, Yangling, China.
77. Measuring soil water evaporation. 2008. Technion Institute. Israel.
78. Soil physics research. 2009. Institute of Soil and water conservation, Yangling, China.
79. Soil physics research. 2009. China Agricultural University, Beijing, China.
80. Soil Physics Research Update – heat, water, and chemical transfer in soil. 2010. Institute of Soil and Water Conservation, Yangling, China.
81. Advancing Soil Science by Addressing Some Challenges Posed by Dynamic Soil Surface Conditions. 2010. NW China Agricultural and Forestry University, Yangling, China.
82. Advancing Soil Science by Addressing Some Challenges Posed by Dynamic Soil Surface Conditions. 2010. University of the Philippines in Los Banos.
83. Soil Physics Research Update – heat, water, and chemical transfer in soil. 2010. China Agricultural University, Beijing, China.
84. Short-course on Soil Heat Transfer. 2010. Institute of Soil and Water Conservation, Yangling, China. Six lecture topics, including – Soil Temperature and Mechanisms of Soil Heat Transfer; Soil Thermal Properties; Soil Heat Transfer by Combined Conduction and Liquid Water Flow; Coupled Heat and Mass Transfer in Soil – Measurements; Coupled Heat and Mass Transfer in Soil – Model Results; Heat-Pulse Probe Method for Measuring Soil-Water Evaporation.
85. Coupled heat, water, and solute transfer in soils of the China Loess Plateau. 2010. Chinese Academy of Sciences Conference for Foreign Visiting Scientists, Beijing, China.
86. Soil Physics Research Update – heat, water, and chemical transfer in soil. 2010. Xian University of Science and Technology, Xian, China.
87. Soil Physics Research Update – heat and water transfer in soil. 2010. Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.

88. Coupled Heat and Water Movement in Soil: recent advances on measuring dynamic soil water content, temperature, vapor fluxes and liquid water fluxes. 2011. Brazil Soil Physics Conference. Sao Paulo, Brazil.
89. Soil Physics Research Update – heat and water transfer in soil. 2012. Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.
90. Horton, R. 2013. Soil physics research update – heat, water, and chemical transfer in soil. Xian University of Science and Technology, Xian, China.
91. Horton, R. 2013. Soil physics research update – heat, water, and chemical transfer in soil. China Agricultural University, Beijing, China.
92. Horton, R. 2013. Soil physics research update – heat, water, and chemical transfer in soil. Institute of Soil and Water Conservation, Yangling, China.
93. Horton, R. 2013. What’s wrong with soil physics? China Agricultural University, Beijing, China.
94. Horton, R. 2013. Workshop for young scientists - communication, finances, and relationships. China Agricultural University, Beijing, China.
95. Horton, R. 2014. Sensors For Measuring: Soil Water Content, Soil Water Content/Bulk Density, Soil Water Content/Matric Potential, Soil Water Evaporation, Soil Ice Content, and Crop Evapotranspiration. Xian University of Science and Technology, Xian, China.
96. Horton, R. 2014. Sensors For Measuring: Soil Water Content, Soil Water Content/Bulk Density, Soil Water Content/Matric Potential, Soil Water Evaporation, Soil Ice Content, and Crop Evapotranspiration. China Agricultural University, Beijing, China.
97. Horton, R. 2014. Sensors For Measuring: Soil Water Content, Soil Water Content/Bulk Density, Soil Water Content/Matric Potential, Soil Water Evaporation, Soil Ice Content, and Crop Evapotranspiration. Institute of Soil and Water Conservation, Yangling, China.
98. Horton, R. 2014. Sensors for Measuring: Soil Water Content, Soil Water Content/Bulk Density, Soil Water Content/Matric Potential, Soil Water Evaporation, and Crop Evapotranspiration. Keynote address at the Evapotranspiration Conference, 111 Plan, Beijing, China.

99. Horton, R. 2016. Heat transfer in the root zone: measurements, models, and unresolved questions. Kirkham Conference, Sede Boqer, Israel.
100. Horton, R. 2016. Surface Soil Processes. Nanjing University of Information Science and Technology.
101. Horton, R. 2016. Measuring Soil Properties and Processes with Thermo-TDR Sensors. Nanjing Institute of Soil Science.
102. Horton, R. 2016. Root Zone Soil Temperature. China Agricultural University.
103. Horton, R. and Y. Kojima. 2017. Sensible Heat Balance Determines Subsurface Evaporation or Freezing and Thawing Rates. Joint JpGU-AGU Conference, Tokyo, Japan.
104. Horton, R. 2017. Recent Advances in Soil Physics. Meiji University, Japan.
105. Horton, R. 2017. Recent Advances in Soil Physics. Gifu University, Japan.
106. Horton, R. 2017. The Importance of Soils. Nagoya University, Japan.
107. Horton, R. 2017. Soils are a Critical Component of Earth's Critical Zone. Tokyo University, Japan.
108. Horton, R. 2017. The Importance of Soils. Mie University, Japan.
109. Horton, R. 2017. Mentoring students in a manner to help them grow academically and personally. China Agricultural University.
110. Horton, R. 2017. Heat transfer in the root zone: measurements, models, and unresolved questions. International Workshop: Soil Physics & the Nexus of Food, Energy and Water. Shenyang, China.
111. Horton, R. 2018. Mentoring students in a manner to help them grow academically and personally. China NW A&F University, Yangling, China.
112. Horton, R. 2018. Coupled Heat and Water Movement in Soil: advances on measuring and modeling soil properties and fluxes. China NW A&F University, Yangling, China.
113. Horton, R. 2019. Measuring soil properties and processes with thermo-TDR sensors. Loess Plateau-Loess Hills Workshop, Yangling, China.

114. Horton, R. 2019. Soil thermal and hydraulic properties and heat and water fluxes. NW China A&F University. Yangling, China.
115. Horton, R. 2019. Soil structure and transport processes across scales. China Agricultural University. Beijing, China.
116. Horton, R. 2019. Soils are a critical component of Earth's critical zone. China Agricultural University. Beijing, China.
117. Horton, R. 2019. Measure and manage soil ice contents. Meiji University, Japan.
118. Horton, R. 2019. Mentoring students in a manner to help them grow academically and personally. Meiji University, Japan.
119. Horton, R. 2019. The importance of soils. Meiji University, Japan.
120. Horton, R. 2019. Soil physics measurements. Meiji University, Japan.
121. Horton, R. 2019. Faith and science - living as a whole person. Meiji University, Japan.
122. Horton, R. 2022. Soil Physics Short-Course. China Agricultural University.
123. Horton, R. 2023. Soil Physics Short-Course. Federal University of Parana, Brazil.

C. Volunteered

1. Water use of chile peppers. 1979. Inter-American Conference in El Paso, TX.
2. Chile pepper growth as affected by high frequency deficit irrigation. 1979. American Society of Agronomy annual meetings.
3. Estimating the apparent thermal diffusivity of soil near its surface. 1981. Soil Science Society of America annual meetings.
4. Two-dimensional soil temperature distribution in a row crop. 1983. Soil Science Society of America annual meetings.
5. A method of modeling soil porosity using Markov statistics. 1985. Soil Science Society of America annual meetings.
6. Water table control with subirrigation systems. 1986. Soil Science Society of America annual meetings.

7. Water flow analysis of a dual pipe subirrigation-drainage system. 1987. Soil Science Society of America annual meetings.
8. Water flow analysis of a dual pipe subirrigation-drainage system. 1988. Iowa Academy of Science Annual Meetings.
9. Simultaneous transfer of heat, moisture, and solute in porous media. 1989. Soil Science Society of America annual meetings.
10. Subirrigation and drainage by ditches. 1989. Soil Science Society of America annual meetings.
11. Water flow in soil. 1990. Science in Agriculture Day: Science Experience. Iowa State University, Ames, Iowa.
12. Soil water flow. 1991. Sciences in Agricultural Day: Science Experience, Iowa State University, Ames, Iowa.
13. Salinity and compaction effects on soil water evaporation and solute transport. 1992. Soil Science Society of America annual meetings.
14. Soil water flow. 1992. Sciences in Agriculture Day: Science Experience, Iowa State University, Ames, Iowa.
15. Soil water and chemical movement. 1993. Sciences in Agriculture Day: Science Experience, Iowa State University, Ames, Iowa.
16. Soil water and chemical movement. 1994. Sciences in Agriculture Day: Science Experience, Iowa State University, Ames, Iowa.
17. Soil water and chemical movement. 1995. Sciences in Agriculture Day: Science experience, Iowa State University, Ames, Iowa.
18. Coupled heat, water, and chemical transport in soil. 1996. Soil Science Society of America annual meetings.
19. Determining soil hydraulic properties from horizontal infiltration. 1996. Soil Science Society of America annual meetings.
20. Determining preferential flow properties of field soil. 1996. American Geophysical Union annual meetings.

21. Heat and mass transfer in freezing soil. 1997. Soil Science Society of America annual meetings.
22. Instrument for simultaneous measurement of soil water content and pressure potential. 1998. Soil Science Society of America annual meetings.
23. Effects of soil wettability on coupled heat and water movement. 2000. American Geophysical Union annual meetings.
24. Field determination of soil hydraulic and chemical transport properties. 2001. American Society of Agricultural Engineers, Preferential Flow Symposium.
25. Opportunities Exist for Soil Science to Become a Major Player in the Education and Training of Future Environmental and Ecological Scientists. 2005. ASA-CSSA-SSSA International Annual Meetings.
26. Heitman, J.L., X. Xiao, P. Deol, R. Horton, and T. Ren. 2013. Advances in Sensible Heat Balance Characterization of Soil Water Evaporation. Am. Geophys. Union Meeting of the Americas, Cancun, Mexico.

XIII. REVIEWER AND EDITOR RESPONSIBILITIES

A. Editing

1. Associate Editor for *Agronomy Journal* (1989-1995)
2. Consulting Editor for *Soil Science* (1994-)
3. Associate Editor for *Soil Science Society of America Journal* (2001- 2002)
4. Editorial Committee for Methods of Soil Analysis. Part 4. ASA and SSSA, Madison, WI. (2002)
5. Editorial Board for Bulletin of Soil and Water Conservation (2001 – 2004)

B. Reviewing or Examining

1. Dr. Horton has served national and international journals as a reviewer for an average of one manuscript per month for the past 20+ years.
2. Ph.D. dissertation, "Some fluctuating flow problems in hydro-dynamics and hydromagnetics", Dept. of Mathematics, Utkal University, India. (1982).
3. US-Environmental Protection Agency research project proposals. (1985, 1986, 1988).

4. USDA research project proposals. (1985, 1987, 1992, 2008).
5. US-Environmental Protection Agency research project. (1986).
6. Ph.D. dissertation, "Effects of mulching on the surface energy balance and soil thermal regimes", Dept. Soil Science, Univ. British Columbia, Canada. (1988).
7. Virginia Water Resources Research Center research project documents. (1988).
8. USDA Small Business Innovation Research Proposals (1990-1993).
9. National Sciences and Engineering Research Council for Canada research project proposal (1990, 2000, 2009).
10. Panel reviewer for C.S.R.S. Water Quality Program (1991)
11. B.A.R.D. research project proposal (1992, 1993, 2000)
12. National Research Council research project proposal (1992)
13. U.S. Air Force research proposal (1993)
14. Ph.D. dissertation for the University of Hannover, Germany (2001)
15. Ph.D. dissertation for the University of Hannover, Germany (2004)
16. NSF proposals (2004, 2005, 2007, 2009, 2010, 2011)
17. Numerous national and international evaluations for faculty promotion and tenure

C. Program reviews

1. USDA-CSREES reviewer of the Soil Science Department at North Dakota State University. (1989).
2. Reviewer of the National Soil Tilth Laboratory of the USDA-ARS. (1999)
3. Reviewer of the Key State Laboratory of Soil Erosion and Dryland Farming, Yangling, China (2003)

4. Examiner of the Soils, Water, and Agricultural Engineering Department of Sultan Qaboos University in Muscat, Oman (2005 and 2006).
5. Reviewer of the entire United States Department of the entire USDA–Agricultural Research Service Soil Science research program. A review of five years of soil science research (2005).
6. Member of Technical Advisory Committee for USA-Israel Bi-national Agricultural Research and Development, BARD (2007-2010).
7. Member of External Review Team for Environmental Science Department at UC-Riverside (2020).

XIV. CONSULTING

1. Advised Bolton and Menk, Inc. (Consulting Engineers) on the Wisconsin DNR proposed regulations for land application systems (1989).
2. Worked on a one-step outflow device for Daniel B. Stephens and Assoc. (1993).
3. Advised Daniel B. Stephens and Assoc. on soil physical measurements (1996).