

NICHOLAS T. BASTA
PROFESSOR OF SOIL AND ENVIRONMENTAL CHEMISTRY
Biographical Sketch
Updated Dec 29, 2007

Education

- Ph.D. 1989 Iowa State University, Soil Chemistry
Minor in Analytical Chemistry
Dissertation: Determination of metals in soil and sewage sludge by ion chromatography and the effect of cropping systems on metal adsorption by soils
- M.S. 1984 Iowa State University, Soil Chemistry
Thesis: Determination of selected alkali and alkaline earth metals in soils, plant materials, and natural waters by ion chromatography.
- B.S. 1981 The Pennsylvania State University, Chemistry
Thesis (undergraduate): Sulfide determination in soils affected by coal mining using ion selective electrodes

Professional Experience

- 7/03–present Professor of Soil and Environmental Chemistry, School of Environment and Natural Resources, The Ohio State University, Columbus, OH.
- 8/91-6/03 Professor of Soil Chemistry, Dept. of Plant and Soil Sciences, Oklahoma State University, Stillwater, OK
- 6/90-7/91 Research Soil Scientist, USDA ARS, North Central Soil Conservation Research Laboratory, Morris, MN

Select Society Membership

- The American Association for the Advancement of Science (AAAS)
American Chemical Society (ACS) (member 1989-present)
American Society of Agronomy (ASA) (member 1980-present)
Sigma Xi, The Scientific Research Society, 1995
Society for Environmental Toxicology and Chemistry (SETAC)
Contaminated Soil Advisory Group, 1997-present
Soil Science Society of America (SSSA) (member 1982-present)
Soil Science Society of America Fellows Committee, 2004-2006.
Board Representative for Environmental Soil Science (Division S-11), 2001-2004

Select Awards

- U.S. Environmental Protection Agency, Friend of Office of Solid Waste Award, 2008. In recognition of the “pathbreaking work on the Foundry Sand Risk Assessment” conducted by Drs. N. Basta and E. Dayton of OSU and Drs. R. Chaney and R. Dungan of USDA ARS.
- College of Food, Agricultural, and Environmental Sciences, Pomerene Departmental Teaching Excellence Award, The Ohio State University, 2006.
- Fellow, Soil Science Society of Agronomy, 2004.
- Fellow, American Society of Agronomy, 2003.
- James A. Whatley Award for Meritorious Research in Agricultural Science, Oklahoma State Univ., 1998
- Outstanding Teaching Award, Dept. of Agronomy, Oklahoma State Univ., 1996

Research Excellence Award, Iowa State University, 1989 (dissertation research designated as among top 10% at Iowa State)

Research

My research program focuses on environmental soil chemistry:

- Fundamental biogeochemical processes that affect heavy metal and trace element bioavailability, human health, and ecological risk in soil-water systems
- Development of innovative chemical methods and techniques to evaluate soil chemical processes and soil components that control bioavailability and/or risk of chemical species (e.g., nutrients, contaminants)
- Risk-based environmental chemistry of organic and inorganic pollutants in contaminated soils with emphasis on human (e.g., public health), agronomic (e.g., crop, animal), and ecotoxicity bioavailability and contaminant transmission pathways
- Development and evaluation of new technologies used for remediation of contaminated soils (e.g., *in situ* immobilization, bioremediation); development of innovative *in vitro* chemical methods to evaluate the ability of new remediation methods to reduce contaminant bioavailability and risk and to evaluate the long-term environmental fate (e.g., longevity) of remediation
- Beneficial use of agricultural, industrial, and municipal by-products through land application; soil and environmental chemistries of by-products in agronomic/environmental systems with emphasis on their risk and environmental impact

GRANTS AND CONTRACTS

Source	Number	Project Total
Extramural Sources	18	\$6,671,360
Okla. St. Univ. Sources	7	\$ 201,265
Ohio St. Univ. Sources	3	\$ 405,688
All	28	\$7,278,313

SELECT GRANTS AND CONTRACTS

Granting Source: USDA NRCS CIG

Project Title: Demonstrating the efficacy of a phosphorus sorbent to reduce agricultural phosphorus transport to protect surface and ground water

Principal Investigator(s): E.A. Dayton and N.T. Basta

Project Total: \$133,994

Grant Duration: 11/07 to 10/08

Granting Source: Environmental Security Technology Certification Program (ESTCP)

Project Title: The Effect of Soil Properties on Decreasing Toxic Metal Bioavailability: Field Scale Validation to Support Regulatory Acceptance

Principal Investigator(s): A.L. Hawkins, R.L. Biggers (Naval Facilities Engineering Service Center), P.M. Jardine (Oak Ridge National Laboratory), N.T. Basta, E.A. Dayton, R. P. Lanno (Ohio State Univ.), S.E. Fendorf (Stanford University), D.I. Bannon (US Army), and N.J. Navarro (US Army Corps of Engineers).

Project Total: \$1,241,495

Grant Duration: 8/05 to 8/08

Granting Source: USDA ARS, AMBL, Beltsville, MD. Foundry Sand Initiative
Project Title: Beneficial use of foundry sand as a nutrient and pesticide sorbent
Principal Investigator(s): N.T. Basta and E.A. Dayton (Ohio State Univ.)
Project Total: \$203,360
Grant Duration: 1/05 to 8/07

Granting Source: American Water Works Research Foundation
Project Title: Beneficial Use of Drinking Water Treatment Residuals to Reduce Phosphorus Loss from Agricultural Land and to Protect Surface Water Quality: An Interregional Study to Develop Land Application Guidelines
Principal Investigator(s): N.T. Basta; James DeWolfe (Sear-Brown, Inc., State College, PA)
Project Total (N. Basta): \$240,000
Grant Duration: 7/02 to 7/04

Granting Source: Strategic Environment Research and Development Program
Project Title: Determining the Bioavailability, Toxicity, and Bioaccumulation of Organic Chemicals and Metals for the Development of Ecological Soil Screening Levels
Principal Investigator(s): R.P. Lanno (Entomology, Ohio State Univ.) and N.T. Basta; R.T. Checkai (U.S. Army Edgewood Chemical Biological Center), and R. Kuperman (Geo-Centers, Inc. Aberdeen Proving Ground, MD)
Project Total (N. Basta): \$1,203,612
Grant Duration: 3/01 to 2/04 (no cost-extension to 4/07)

Granting Source: U.S.EPA-NCEA (National Center for Environmental Assessment)
Project Title: An Integrated Chemical and Toxicological Approach of Evaluating the Chemical and Biological Availability of Metals in Soil
Principal Investigator(s): R. Lanno (Zoology, Oklahoma State Univ.); N.T. Basta
Project Total (N. Basta): \$161,019
Grant Duration: 12/98 to 8/02

Granting Source: U.S. EPA-ORD (Office of Research and Development)
Project Title: Ecotoxicity Risks Associated With the Land Treatment of Petrochemical Wastes
Principal Investigator(s): R. Lochmiller (Zoology, Oklahoma State Univ.)
Project Total (N. Basta): \$406,229
Grant Duration: 1/98 to 12/00

Granting Source: USEPA-ORD (Office of Research and Development)
Project Title: Development of Chemical Methods to Assess the Availability of Arsenic in Contaminated Media
Principal Investigator(s): N.T. Basta and Robin Rodriguez; S.W. Casteel (Univ. of Missouri)
Project Total (N. Basta): \$431,677
Grant Duration: 11/96 to 10/00

Granting Source: U.S. Air Force (USAF-OSR/NL)
Project Title: *In Situ* Dose-Response Relationships for a Mammalian Multiparameter Model for Assessing Petrochemical-Induced Ecotoxicity
Principal Investigator(s): R. Lochmiller and Karen McBee (Zoology, Oklahoma State Univ.); Charles Quall, III (Vet. Pathology, Oklahoma State Univ.); and N.T. Basta
Project Total (N. Basta): \$649,330
Grant Duration: 4/95 to 3/98

PUBLICATIONS

Publication	Career Total
Refereed journal manuscripts	72
Books / Book chapters	8
Abstracts and proceedings	171
Research bulletins	1
Instructional	2
Extension Publications	3
Other Technical Publications	9
Book Reviews	4
Total	270

SELECT REFEREED JOURNALS

- Beak, Douglas G., Basta, Nicholas T., Scheckel, Kirk G., and Traina, Samuel J. 2008. Linking solid phase speciation of Pb sequestered to birnessite to Pb bioaccessibility and oral bioavailability. *Environ. Sci. Technol.* **In press.**
- Schroder, J.L., H. Zhang, D. Zhou, N. Basta, W.R. Raun, M.E. Payton, and A. Zazulak. 2008. The effect of long-term annual application of biosolids on soil properties, P, and metals. *Soil Sci. Soc. Am. J.* **In press.**
- Hurdzan, C.M., N.T. Basta, P.G. Hatcher, and O.H. Tuovinen. 2007. Revised BECT 344 Screening of Human Enteric Microorganisms for Potential Biotransformation of Polycyclic Aromatic Hydrocarbons. *Bulletin of Environmental Contamination and Toxicology.* 79:533-536.
- Basta, N.T., J. N. Foster, E.A. Dayton, R. R. Rodriguez, and S.W. Casteel. 2007. The effect of dosing vehicle on arsenic bioaccessibility in smelter-contaminated soils. Invited manuscript for the special JEHS publication "Bioaccessibility and human bioavailability of soil contaminants" *J. Environ. Health Sci. Part A.* 42:1275-1281.
- Brown, S.L., H. Compton, and N.T. Basta. 2007. Field Test of *In Situ* Soil Amendments at the Tar Creek National Priorities List Superfund Site. *J. Environ. Qual.* 36:1627-1634.
- Dayton, E.A., N.T. Basta, M.E. Payton, K.D. Bradham, J.L. Schroder, and R.P. Lanno. 2006. Evaluating the contribution of soil properties to modifying lead phytoavailability and phytotoxicity. *Environ. Toxicol. Chem.* 25(3):719-725. *Invited manuscript for the special ET&C publication "Assessing Risks of Metals added to Soils in Europe and North America."*
- Bradham, K.D., E.A. Dayton, N.T. Basta, J. Schroder, M. Payton, and R.P. Lanno. 2006. Effect of soil properties on lead bioavailability and toxicity to earthworms. *Environ. Toxicol. Chem.* 25(3):769-775. *Invited manuscript for the special ET&C publication "Assessing Risks of Metals added to Soils in Europe and North America."*
- Beak, D.G., N.T. Basta, K.G. Scheckel, and S.J. Traina. 2006. Bioaccessibility of lead sequestered to corundum and ferrihydrite in a simulated gastrointestinal system. *J. Environ. Qual.* 35:2075-2083.
- Beak, D.G., N.T. Basta, K.G. Scheckel, and S.J. Traina. 2006. Bioaccessibility of arsenic bound to corundum using a simulated gastrointestinal system. *Environ. Chem.* 3:208-214.
- Beak, D.G., N.T. Basta, K.G. Scheckel, and S.J. Traina. 2006. Bioaccessibility of arsenic (V) bound to ferrihydrite using a simulated gastrointestinal system. *Environ. Sci. Technol.* 40:1364-1370.

- Mullen, R.W., W.R. Raun, N.T. Basta, J.L. Schroder, and K.W. Freeman. 2005. Effect of long-term application of biosolids on molybdenum content and quality of winter wheat forage. *J. Plant Nutr.* 28:405-420.
- Dayton, E.A., and N.T. Basta. 2005. A method for determining phosphorus sorption capacity and amorphous aluminum of Al-based drinking water treatment residuals. *J. Environ. Qual.* 34: 1112-1118.
- Dayton, E.A, N.T. Basta. 2005. Using Drinking Water Treatment Residuals as a Best Management Practice to Reduce Phosphorus Risk Index Scores. *J. Environ. Qual.* 2005 34: 2112-1117. Invited manuscript for the special JEQ publication "Phosphorus Workshop: 4th International Phosphorus Workshop:Critical Evaluation of Options for Reducing Phosphorus Loss from Agriculture, Wageningen, The Netherlands, August, 2004."
- Basta, N.T., J.A. Ryan, and R. L. Chaney. 2005. Trace element chemistry in residual-treated soil: Key concepts and metal bioavailability. *J. Environ. Qual.* 34: 49-63.
- Schroder, J.L., N.T. Basta, S.W. Casteel, T.J. Evans, M.E. Payton, and J. Si. 2004. Validation of the *in vitro* method to estimate bioavailable lead in contaminated soils. *J. Environ. Qual.* 33:513-521.
- Lanno, R., J. Wells, J. Condor, K. Bradham, and N. Basta. 2004. The bioavailability of chemicals in soil for earthworms. *Ecotoxicol. Environ. Safety* 57:39-47.
- Basta, N.T., and S.L. McGowen. 2004. Evaluation of chemical immobilization treatments for reducing heavy metal transport in a smelter-contaminated soil. *Environ. Pollut.* 127(1):73-82.
- Schroder, J.L., N.T. Basta, S.W. Casteel, and J. Si. 2003. An *in vitro* method to estimate 2004 bioavailable cadmium in contaminated soil. *Environ. Sci. Technol.* 37:1365-1370.
- Schroder, J.L., N.T. Basta, M. Payton, J.A. Wilson, R. I. Carlson, D. M. Janz, and R.L. Lochmiller. 2003. Ecotoxicological risks associated with land treatment of petrochemical waste: I. Residual soil contamination and bioaccumulation by cotton rats (*Sigmodon Hispidus*). *J. Tox. Environ. Health Part A* 66:305-325.
- Rodriguez, R.R., N.T. Basta, S.W. Casteel, F.P. Armstrong, and D.C. Ward. 2003. Chemical extraction methods to assess bioavailable As in contaminated soil and solid media. *J. Environ. Qual.* 32:876-884.
- Dayton, E.A., N.T. Basta, C.A. Jakober, and J.A. Hattey. 2003. Using water treatment residuals to reduce phosphorus in agricultural runoff. *J. AWWA* 95(4):151-158.
- O'Connor, G.A., T.C. Granato, and N.T. Basta. 2001. Bioavailability of biosolids-Mo to soybean grain. *J. Environ. Qual.* 30:1653-1658.
- McGowen, S.L., N.T. Basta, and G.O. Brown. 2001. Use of diammonium phosphate to reduce heavy metal solubility and transport in smelter-contaminated soil. *J. Environ. Qual.* 30:493-500.
- Dayton, E.A., and N.T. Basta. 2001. Characterization of drinking water treatment residuals for use as a soil substitute. *Water Environ. Res.* 73:52-57.
- Condor, J.M., R.P. Lanno, and N.T. Basta. 2001. Assessment of metal availability in smelter soil using earthworms and chemical extractions. *J. Environ. Qual.* 30:1231-1237.
- Basta, N.T., R. Gradwohl, K.L. Snethen, and J.L. Schroder. 2001. Chemical immobilization of lead, zinc, and cadmium in smelter-contaminated soils using biosolids and rock phosphate. *J. Environ. Qual.* 30:1222-1230.
- Schroder, J.L., N.T. Basta, R.L. Lochmiller, D.P. Rafferty, M. Payton, S. Kim, and C.W. Qualls, Jr. 2000. Soil contamination and bioaccumulation of inorganics on petrochemical sites. *Environ. Toxicol. Chem.* 19:2066-2072.
- Basta, N.T., R.J. Zupancic, and E.A. Dayton. 2000. Using soil tests and bermudagrass growth to evaluate drinking water treatment residuals with phosphorus fertilizer. *J. Environ. Qual.* 29:2007-2012.

- Basta, N.T., and R. Gradwohl. 2000. Estimation of Cd, Pb, and Zn bioavailability in smelter-contaminated soils by a sequential extraction procedure. *J. Soil Contam.* 9:149-164.
- Schroder, J.L., N.T. Basta, D.P. Rafferty, R.L. Lochmiller, S. Kim, C.W. Qualls, Jr., and K. McBee. 1999. Soil and vegetation fluoride exposure pathways to cotton rats on a petrochemical-contaminated landfarm. *Environ. Toxicol. Chem.* 18:2028-2033.
- Rodriguez, R.R., N.T. Basta, S.W. Casteel, and L.W. Pace. 1999. An *in vitro* gastrointestinal method to estimate bioavailable arsenic in contaminated soils and solid media. *Environ. Sci. Technol.* 33:642-649.
- Gallimore, L.E., N.T. Basta, D.E. Storm, M.E. Payton, R.H. Huhnke, and M.D. Smolen. 1999. Water treatment residual to reduce nutrients in surface runoff from agricultural land. *J. Environ. Qual.* 28:1474-1478.
- Peters, J.M., and N.T. Basta. 1996. Reduction of excessive bioavailable phosphorus in soils by using municipal and industrial wastes. *J. Environ. Qual.* 25:1236-1241.
- Sloan, J.J., N.T. Basta, and R.L. Westerman. 1995. Aluminum transformations and soil solution equilibria induced by banded P fertilizer in acid soil. *Soil Sci. Soc. Am. J.* 59:357-364.
- Basta, N.T., D.J. Pantone, and M.A. Tabatabai. 1993. Path analysis of heavy metal adsorption by soil. *Agron. J.* 85:1054-1057.
- Basta, N.T., and M.A. Tabatabai. 1992. Effect of cropping systems on adsorption of metals by soils. I. Single-metal adsorption. *Soil Sci.* 153(2):108-114.
- Basta, N.T., and M.A. Tabatabai. 1992. Effect of cropping systems on adsorption of metals by soils. II. Effect of pH. *Soil Sci.* 153(3):195-204.
- Basta, N.T., and M.A. Tabatabai. 1992. Effect of cropping systems on adsorption of metals by soils. III. Competitive adsorption. *Soil Sci.* 153(4):331-337.

BOOKS / BOOK CHAPTERS

- Basta, N.T., R.R. Rodriguez, and S.W. Casteel. 2001. Bioavailability and risk of arsenic exposure by the soil ingestion pathway. *In* W.T. Frankenberger (ed.) *Environmental Chemistry of Arsenic*. Marcel Dekker, Inc., New York.
- McGowen, S.L., and N.T. Basta. 2001. Heavy metal solubility and transport in soil contaminated by mining and smelting. p. 89-107. *In* H.M. Selim and D.L. Sparks (eds.) *Heavy Metal Release in Soils*. CRC Press, Inc., Boca Raton, FL.
- Baird, J.H., N.T. Basta, R.L. Huhnke, G.V. Johnson, M.E. Payton, D.E. Storm, C.A. Wilson, M.D. Smolen, D.L. Martin, and J.T. Cole. 2000. p. 268-293. Best management practices to reduce pesticide and nutrient runoff from turf. *In* J.M. Clark and M.P. Kenna (eds.) *Fate and Management of Turfgrass Chemicals*. ACS Symp. Ser. No. 743, American Chemical Society, Wash., DC.
- Basta, N.T. 2000. Examples and case studies of beneficial reuse of municipal by-products. p. 481-504. *In* J.F. Power (ed.) *Land Application of Agricultural, Industrial, and Municipal By-products*. Book Series No. 6, Soil Science Society of America, Madison, WI.

OTHER TECHNICAL PUBLICATIONS

- Hawkins, A., Jardine, P. Basta, N., Dayton, E., Lanno, R., Barnett, M., Casteel, S, and Fendorf, S. 2006. The Use of *In Vitro* Soil Metal Bioavailability Methodologies to Adjust Human and Ecological Risk Assessment, Workshop White Paper, Environmental Security Technology Certification Program Project ER-0517.
- Janz, D.M., R.L. Lochmiller, and N.T. Basta. 2003. Ecotoxicity risks associated with the land treatment of petrochemical wastes. U.S. Environmental Protection Agency National Center for Environmental Research. EPA Grant Number R826242. Final Report. 111pp.

Lanno, R.P., and N.T. Basta. 2003. An integrated chemical and toxicological approach of evaluating the chemical and biological availability of metals in soil. U.S. Environmental Protection Agency National Center for Environmental Research. EPA Grant Number CR 827230-01-0. Final Report. 129pp.

Basta, N.T., R.R. Rodriguez, and S.W. Casteel. 2001. Development of chemical methods to assess the bioavailability of arsenic in contaminated media. U.S. Environmental Protection Agency National Center for Environmental Research. EPA Grant Number R825410. Final Report. 40pp.
http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/676/report/F

Professional Activities

Presentations	Meetings Attended	Presentations	Invited Presentations‡
International Scientific Meetings	14	29	19 (16)
National Annual Society & Scientific Meetings	46	72	20 (10)
National Scientific Committee Meetings†	15	14	--
Regional Scientific Meetings	23	24	24 (10)
Other Scientific Audiences	11	11	11 (4)
General Audience/Seminars	11	11	11 (1)
Total	120	161	85 (41)
† Includes Annual W-170 CSREES Meeting			
‡ invited presentations in the last 5 yr in parentheses			

Select International Scientific Meetings Invited Presentations

Basta, N.T., K.G. Scheckel, and K.D. Bradham. 2007. Assessing contaminant bioavailability in soil when *in vitro* gastrointestinal methods are the only option. Abstract Book, abstract 516, p.30. International Society for Exposure Assessment, Durham, NC, Oct. 14-18, 2007.

Linking arsenic speciation in smelter contaminated soil to oral bioavailability. Society of Toxicology and Environmental Chemistry, North America 27th Annual Meeting, Montréal, Quebec, Canada. San Francisco, Ca, November 29-30, 2006.

The use of *in vitro* methods to examine mechanisms of bioaccessibility assessment of a unified *in-vitro* bioaccessibility method for arsenic, cadmium and lead in soils. Society of Toxicology and Environmental Chemistry, North America 27th Annual Meeting, Montréal, Quebec, Canada. San Francisco, Ca, November 29-30, 2006. Presentation delivered by D. Beak

Using *in vitro* gastrointestinal methods to measure contaminant bioaccessibility and risk from soil ingestion. 89th Canadian Chemistry Conference, Halifax, Nova Scotia, Canada, May 27-31, 2006.

Keynote Lecture: Quantifying Efficacy of In Situ Remediation Treatments: Recent Advances and Remaining Obstacles. Current Developments in Remediation of Contaminated Lands Conference, Institute of Soil Science and Plant Cultivation, Pulawy, Poland, October 26-29, 2005.

Using *In Vitro* Gastrointestinal Bioaccessibility Methods to Quantify Trace Element Bioavailability and Risk from Soil Ingestion: A Perspective on Research Needs and Activities in the USA. Canadian Workshop on Bioavailability and Creation of the Canadian Bioavailability Working Group, Toronto, Canada, August 30-31, 2005.

Quantifying Reduction In Bioavailability And Human And Ecological Risk In Treated Heavy Metal Contaminated Soils Using *In Vitro* Methods And Bioassays, 8th International Conference on the Biogeochemistry of Trace Elements, Adelaide, Australia, April 3-7, 2005.

Ecotoxicological risks associated with land treatment of petrochemical wastes. Toxicological Measurements and Remediation Symposium, Joint Soil Science Society of America and Canadian Soil Science Meeting, Seattle, WA, Oct. 31-Nov 4, 2004.

Plenary Speaker: Heavy metal and trace element chemistry in residual-treated soil: Implications on metal bioavailability and sustainable land application. Sustainable Land Application Conference, Lake Buena Vista, FL., Jan. 4-8, 2004.

Bioavailability assays for risk based remediation in contaminated ecosystems. 7th International Conference of the Biogeochemistry of Trace Elements, Uppsala, Sweden, June 15-19, 2003.

Contaminant fractionation and bioavailability of As, Cd, Pb, and Zn-polluted soil. 6th International Conference of the Biogeochemistry of Trace Elements, Guelph, Canada, July 29-Aug 3, 2001.

Remediation of As-, Pb-, Cd-, and Zn-contaminated soils. 5th International Conference on the Biogeochemistry of Trace Elements, Vienna, Austria, July 11-15, 1999. 5th International Conference on the Biogeochemistry of Trace Elements, Vienna, Austria, July 11-15, 1999.

In vitro gastrointestinal method to estimate bioavailable arsenic in contaminated soils. 5th International Conference on the Biogeochemistry of Trace Elements, Vienna, Austria, July 11-15, 1999. 5th International Conference on the Biogeochemistry of Trace Elements, Vienna, Austria, July 11-15, 1999.

SELECT INVITED NATIONAL ANNUAL SOCIETY & SCIENTIFIC MEETINGS

Basta, N.T., and E.A. Dayton. 2007. Evaluating Byproducts for Beneficial Use in Soil Applications. In "Risk Evaluations for Recycling and Beneficial Uses of Industrial Byproducts" at the Annual Meeting of the Society for Risk Analysis, San Antonio, TX, Dec. 9-12, 2007.

Dayton, E.A. and N.T. Basta. 2006. Approaches for evaluating byproducts for beneficial use in soil applications. 2006 Byproducts Beneficial Use Summit. San Francisco, Ca, November 29-30, 2006.

Terrestrial land application of byproducts: Ecological paradigms. Philosophies and approaches for developing environmental guidelines and regulation for land-applied waste symposium. Soil Science Society Annual Meeting, Salt Lake City, UT, Nov. 6-10, 2005.

Plenary Speaker: State of existing and potential biosolids research outside the NRC scope. WERF/USEPA Biosolids/Treated Sewage Sludge Research Summit. Alexandria, VA. July 27-30, 2003. Water Environment Federation, Alexandria, VA.

Advances in WTR research to manage P, in soil, runoff, manure, and biosolids. Joint Residuals and Biosolids Management Conference (CD-ROM), Water Environment Federation, Baltimore, MD, Feb. 19-22, 2003.

Using chemical methods to estimate bioavailability of As, Cd, Pb, and Zn in contaminated soils and media. Interstate Technology Regulatory Cooperation Annual Conference, San Antonio, TX, Oct. 16-20, 2000.

SELECT CONFERENCE SYMPOSIA ORGANIZED (12)

"Linking Contaminated Soil to Human and Ecosystem Health Impacts." Society of Toxicology and Environmental Chemistry, North America 27th Annual Meeting, Montréal, Quebec, Canada, Nov. 5-9, 2006. Organizers: N.T. Basta, S. Siciliano, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, Chris Ollson, Jacques Whitford Limited, Oakville, Ontario, Canada.

"The Use of *In Vitro* Soil Metal Bioavailability Methodologies to Adjust Human and Ecological Risk Assessment Workshop," Environmental Security Technology Certification Program, September 15, 2005, San Diego, CA. Organizers: Naval Facilities Engineering Service Center, Oak Ridge National Laboratory and The Ohio State University (N. Basta and E.A. Dayton).

"Quantifying Reduction In Bioavailability And Human And Ecological Risk In Treated Heavy Metal Contaminated Soils Using In Vitro Methods And Bioassays," 8th International Conference on the

Biogeochemistry of Trace Elements, Adelaide, Australia, April 3-7, 2005. Organizers: N.T. Basta and G.M. Pierzynski (Kansas State Univ.).

"Integration of Toxicology in the Remediation of Contaminated Soils," Environmental Soil Science Division S-11, Annual National Meeting of the American Society of Agronomy, the Soil Science Society of America, and the Crop Science Society of America, Seattle, WA, Oct. 31 to Nov. 4, 2004. Organizers: A.P. Schwab (Purdue University) and N.T. Basta.

"Heavy Metal and Trace Element Chemistry in Byproduct-Treated Soils." Sustainable Land Application Conference, University of Florida, Jan. 4-8, 2004. Organizers: N.T. Basta and G.O. O'Connor (Univ. of Florida).

"Terrestrial Ecological Risk Assessment: Regulatory Status and a Framework for Risk-Based Bioavailability Guidelines." 7th International Conference on the Biogeochemistry of Trace Elements, Uppsala, Sweden, June 15-19, 2003. Organizers: N.T. Basta, G. Pierzynski (Kansas State Univ.), S. McGrath (IACR, Herts, England), M. McLaughlin (CSIRO, Glen Osmond, South Australia), and Erik Smolders (Katholieke Universiteit Leuven, Belgium).

"Emerging Uses of Water Treatment Residuals for Phosphorus Control in the Environment." WEF/AWWA/CWEA Joint Residuals and Biosolids Management Conference, Baltimore, MD, Feb 19-22, 2003. Organizers: J.R. DeWolfe and N.T. Basta.

"Chemistry and Ecotoxicology of Contaminated Soils," Environmental Soil Science Division S-11, Annual National Meeting of the American Society of Agronomy, the Soil Science Society of America, and the Crop Science Society of America, Charlotte, NC, Oct. 21-26, 2001. Organizer: N.T. Basta.

"Nutrient Management With Water Treatment Residuals." Joint Residuals and Biosolids Management Conference (CD-ROM), Water Environment Federation, San Diego, CA, Feb. 22-24, 2001. Organizer: N.T. Basta.

EDITORIAL BOARDS

J. Environmental Quality

Technical Editor, 2002-2004; re-appointed 2005-2007.

Associate Editor, 1997-2000; re-appointed 2000-2002

Editorial Board, J. Soil and Sediment Contamination; 2003-present

Editorial Board, Critical Reviews in Environmental Science and Technology (2004-2006).

COMPETITIVE GRANT REVIEW PANELS

National Institute of Environmental Health Sciences (NIEHS), "Innovative Approaches to Remediation of Recalcitrant Hazardous Substances in Sediments." June 5-6, 2007, Research Triangle Park, NC.

INTERNATIONAL COMMITTEES

Executive Committee, International Society of Trace Element Biogeochemistry, ISTEBS (2003-2007).

ISTEB Nomination Committee, Chair

Bioavailability Research Group of Europe, 2004-present.

Bioavailability Research Group of Canada, 2007-present.

NATIONAL COMMITTEES

USDA CSREES Review Panel, Program Review of the University of Florida / Institute of Food and Agricultural Sciences Soil and Water Sciences Department, Apr. 15-20, 2007.

U.S. EPA Emergency Response Team, Office of Solid Waste-Superfund. Amendments for Ecological Restoration, 2006-present.

USDA CSREES Technical Committee, Project W1170- Chemistry, Bioavailability, and Toxicity of Constituents in Residuals and Residual-Treated Soils.

Contaminated Soil Advisory Group, Society for Environmental Toxicology and Chemistry, 1997-present

Residuals Management Research Committee, American Water Works Association, 1996-2004.

REGIONAL / STATE COMMITTEES

Ohio Environmental Protection Agency Phosphorus Task Force, 2007-present.

Graduate Student Degree Programs Chaired

Completed or in progress; 28 Total

10 Ph.D., 18 M.S. chaired or co-chaired

GRADUATE M.S. THESES AND PH.D. DISSERTATIONS

Scott, T.D. 1994. M.S. Thesis. Distribution, speciation, and bioavailability of heavy metals in soils of Oklahoma.

Sloan, J.J. 1994. Ph.D. Dissertation. Use of phosphorus fertilizer or lime-stabilized sewage sludge to remediate acid soils and alleviate aluminum toxicity.

Anderson, J.A. 1996. M.S. Thesis. Remediation of heavy metal contaminated soil by *in situ* immobilization.

Peters, J.M. 1996. M.S. Thesis. Use of municipal and industrial waste amendments to reduce bioavailable phosphorus from agricultural land treated with animal manures.

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