

JEFFREY D. WOLT

Professor Emeritus, Agronomy
Iowa State University, Ames, Iowa

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Education

Ph.D., Agriculture (Soil Chemistry), Auburn University, 1979.
M.S., Agriculture (Agronomy and Soil Science), Auburn University, 1975.
B.S., Bio-Agricultural Science, Colorado State University, 1973.
Case Western Reserve University, Biology, 1969-71.

Academic Experience

Professor Emeritus, Agronomy, Iowa State University
Professor, Agronomy, Iowa State University, 2004-2018
Co-director, Crop Bioengineering Center, 2016-2018
Professor, Plant Biology Interdepartmental Program, Iowa State University, 2016-2018
Professor, Interdepartmental Toxicology Graduate Program, Iowa State University, 2004-2018
Professor, Interdepartmental Environmental Science Graduate Program, Iowa State University, 2004-2018
Adjunct Professor, Epidemiology, University of Iowa, 2013- present
Adjunct Professor, Agronomy, Purdue University, 1993-2004
Visiting Professor, Agronomy and Tropical Soils, University of Hawaii, 1988-1989
Associate Professor, Plant and Soil Science, University of Tennessee, 1984-1988
Assistant Professor, Plant and Soil Science, University of Tennessee, 1979-1984

Professional Experience

Advisor, Dow AgroSciences, 2003-2004
Risk Assessment Leader, DowElanco/Dow AgroSciences, 1997-2004
Environmental Issues Manager, DowElanco, 1995-1997
Senior Research Scientist, DowElanco, 1997-2002
Research Scientist, DowElanco, 1994-1997
Senior Scientist, DowElanco, 1991-1994
Technical Leader, Environmental Chemistry, Dow Agricultural Products/DowElanco, 1989-1995
Project Leader, Dow Agricultural Products, 1988-1991

Experience

Risk analyst for plant biotechnology, Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP) and Crop Bioengineering Center. Research on quantitative approaches to assessing human health and ecological safety for new technologies in agriculture. Specific areas of research emphasis include risks to non-target organisms; protein and xenobiotic environmental fate; protein characterization in relation to dietary exposure and risk; food safety risk assessment. Outreach responsibilities center on risk communication and formalized risk frameworks for risk management and public policy decision making with emphasis on genome edited crops. Applied soil solution chemistry, waste utilization and soil fertility. Environmental chemistry, toxicology and epidemiology.

Research Interests

Biotechnology safety analysis applied to risk management and science policy decision making. Environmental and ecotoxicological risk assessment. Food and feed safety risk assessment. Soil and environmental chemistry applied to exposure assessment, efficacy, environmental monitoring, environmental toxicology, and environmental fate of xenobiotics and genetically modified agricultural products. Applied soil solution chemistry.

Membership in Professional Societies

American Society of Agronomy
American Association for Advancement of Science (current)
American Chemical Society
Council for Agricultural Science and Technology
Crop Science Society of America
International Organization for Biological Control
International Society for Environmental Biosafety Research (current)
Society for Risk Analysis
Society of Toxicology
Soil Science Society of America

Honors and Awards

Member, National Academies of Science, Engineering and Medicine Committee on Future Biotechnology Products and Opportunities to Enhance Capabilities of the Biotechnology Regulatory System (2016)
Roster of Experts, Joint FAO/WHO Expert Committee on Food Additives (JECFA) (2016-2021)
Member, National Research Council Committee to Review of California's Risk Assessment Process for Pesticides (2015)
Fellow, American Society of Agronomy (2004)
Critical Contributions to Herculex™ Registration, Dow AgroSciences (2001)
Outstanding Mentor, DowElanco (1999)
Discovery Back Integration Team, DowElanco (1994)
Site Relocation Team, DowElanco (1991)
Sigma Xi (1978)
Phi Kappa Phi (1976)
Gamma Sigma Delta Honor Society of Agriculture (1975)

Professional Society & Association Activities

Emerging Issues in Soil Science Committee, Soil Science Society of America (2007)
Training and Continuing Education, Soil Science Society of America (2003 – 2007; Chair, 2007)
Sustaining Member Representative, ASA/CSSA/SSSA (2001 – 2004)
Non-target Organism Committee, CropLife, Agricultural Biotechnology Stewardship Technical Committee, ABSTC (2001 – 2004)
Steering Committee, CropLife, Agricultural Biotechnology Stewardship Technical Committee, ABSTC (2001 – 2004)
Applied Soil Sci Award Committee, Soil Science Society of America (2001 – 2004; Chair, 2004)
Co-leader, FIFRA Environmental Model Validation Task Force, FEMVTF (1995-2001)
AAAS Chemistry Division Liaison, Soil Science Society of America (1995 – 1998)
Membership Committee, American Society of Agronomy (1980 – 1983)

Teaching

Iowa State University

Risk Assessment for Food, Agriculture and Veterinary Medicine
Regulatory Toxicology
Issues in Sustainable Agriculture
Science, Policy and Food (contributor with A. O'Connor as lead)
Principles of Toxicology (as member of Toxicology team)
Agronomy Seminar
Soils Seminar

University of Iowa

Food Safety (contributor with J. Dickson as lead)

Purdue University

Environmental Soil Chemistry (co-taught with C. Johnston)

University of Tennessee

Plant Science for Agriculture
Soils
Soil and Plant Analysis
Senior Seminar
Soil Chemistry
Soil Fertility for Extension
Graduate Seminar
Soil Solution Chemistry

Institutional Service

Iowa State University

Coordinator and Director of Graduate Education, Soil Science (2015-2017)
Agronomy Graduate Advisory Council (2015-2017)
Search Committee – Soil-Plant Nutrient Dynamics (2015)
Agronomy Curriculum and Assessment Committee (2011-2018)
CALS Outcomes Assessment Committee (2016-2018)
Agronomy Promotion and Tenure Committee (2014-2017), Chair 2017
Chair, Environmental Science Graduate Program Admissions Committee (2013-2015)
Co-chair, Agronomy Research Training Fellows Program (2006-2013)
Supervisory Committee, Environmental Science Graduate Program (2010-2013)
Seed Science Center Expansion Committee (2007-2008)

University of Tennessee, Plant & Soil Science

Advisor, Plant Science Club
Undergraduate Recruitment Committee
Search Committee – Soil Microbiology
Search Committee – Agricultural Meteorology
Space and Facilities Committee

Training (12 visiting scientists/postdoctoral associates; 19 graduate students)

Individual	Program	Current (last known) Position
<i>University of Tennessee, Knoxville</i>		
Dr. Kein T. Luu	Postdoctoral Associate	Scientist, Waterways Experiment Station
Dr. Peiyuan Qian	Postdoctoral Associate	Research Professor, University of Saskatchewan (retired)
Dr. Frank Sikora	M.S., 1982	Professor, University of Kentucky
Jose Rangel	M.S., 1983	Farmer, Venezuela
Dr. M. Briggs Bauman	M.S., 1983	Doctor of Optometry, West Virginia
Mark Wolfe	M.S., 1984	Scientist, Tennessee Valley Authority
G. Wesley Hahn	M.S., 1987	Senior Agronomist, Tiger-Sul Products LLC
S. Duane Hardin	M.S., 1988	Deceased
Dr. J. David O'Dell	M.S., 1989 (co-advised w/ J. Graveel)	Professor of Chemistry, Glenville State College
<i>Purdue University</i>		
Kevin Hawes	M.S., 1999 (co-advised with L. Lee)	Director Corporate Quality Pharma Operations, Hospira
<i>Iowa State University</i>		
Dr. Saharah-Moon Chapotin	BIGMAP Policy Associate	Executive Director at Foundation for Food & Agriculture Research
Dr. Myhee Kim	Postdoctoral Associate	Director, Food Contaminants Division, Korea Food and Drug Administration
Dr. Sule Karaman	BIGMAP Policy Associate	Associate Director, Nonclinical Safety, Novartis Institutes for Biomedical Research
Dr. Vijay Maheshwari	Borlaug Fellow	University Professor and Vice Chancellor, North Maharashtra University
Dr. James Aketch Okeno	BIGMAP Policy Associate	Product Stewardship Manager, African Agricultural Technology Foundation
Dr. Yebing He	Borlaug Scholar	Deputy Division Director, Chinese Ministry of Agriculture Biotechnology Office
Dr. Zhongwen Fu	Borlaug Scholar	Assistant Professor, Chinese Ministry of Agriculture Technology Development Center
Dr. Assiya Turgenbayeva	Bolashak Scholar	Senior Researcher, Kazakhstan National Center for Biotechnology
Dr. AKM Quamruzzaman	Feed the Future (USAID)	Principal Scientific Officer, Bangladesh Agricultural Research Institute (BARI)
Dr. Hui Zhao	China Scholar	Lecturer, South China Agricultural University
Hirofumi Kosaki	M.S., Toxicology, 2007 (co-advised with J. Coats)	Health Care Manager, Mitsui Chemical, Inc.
Adam J. Kenny	M.S., Soil Sci. and Environmental Sci., 2012	Regulatory Director, Smarter Sorting
Huong Tran	M.S., Environmental Sci., 2013	Analyst, Solum Inc.
Matthew Cope	M.S., Seed Technology & Business,	Commercial Corn Volume Planner, Corteva

	2013	
Dr. James Delgado	Ph.D., Toxicology, 2014	Instructor, Southwest Texas Junior College
Tyler Steinkamp	M.S., Agronomy, 2015	Agronomist, Winfield United
Noel Peggs	M.S., Plant Breeding, 2015	Business Analyst, Corteva
Kent Kingbeil	M.S., Seed Technology & Business, 2016	Lead Agronomist, Advanced Agrilytics
Kimberly Beachy	M.S., Seed Technology & Business, 2017	Regional Agronomist, Agronomy 365
Kayla Cappelle	M.S., Toxicology, 2018	Data Analyst, General Dynamics Information Technology
Elliott Sully	M.S., Plant Biology, 2019	Research Associate, Corteva Agrisciences
Sarah Fleischmann	M.S., Plant Breeding, 2019	Trait Delivery Scientist, Syngenta

Publications and Reports

Book

Wolt JD, *Soil Solution Chemistry*, 1994, Wiley.

Articles Published in Refereed Journals (86)

Wolt JD. 2019. Current risk assessment approaches for environmental and food and feed safety assessment. *Transgenic Res* 28(Suppl 2):111-117. <https://doi.org/10.1007/s11248-019-00140-7>

Cappelle KN, Munkvold GP, Wolt JD. 2019. Meta-effect of insect resistant maize on fumonisin B1 in grain estimated by variance-weighted and replication-weighted analyses. *World Mycotoxin J* 12 (2):141-151.

Wolt JD, Wolf C. 2018. Policy and governance perspectives for regulation of genome edited crops in the United States. *Frontiers Plant Sci* 9:1606. doi10.3389/fpls.2018.01606.

Duensing N, Sprink T, Parrott WA, Fedorova M, Lema MA, Wolt JD, Bartsch D. 2018. Novel features and considerations for ERA and regulation of crops produced by genome editing. *Frontiers Bioengineer Biotechnol* 6(79):1-16.

Zhao H, Wolt JD. 2017. Risk associated with off-target plant genome editing and methods for its limitation. *Emerging Trends Life Science*, 1:231-240.

Wolt JD, Wang K, Sashital D, Lawrence-Dill, CJ. 2016. Achieving plant CRISPR targeting that limits off-target effects. *The plant genome*, 9(3).

Wolt JD, Yang B, Wang K, Spalding MH. 2016. Regulatory aspects of genome-edited crops. *In Vitro Cell Dev Biol-Plant* doi: 10.1007/s11627-016-9784-3.

Wolt JD, Wang K, Yang B. 2016. The regulatory status of genome-edited crops. *Plant Biotechnol J* 14:510-518.

Kenny AJ, Wolt JD. 2014. Persistence and ecological implications of maize-expressed transgenic endo-1,4- β -D-glucanase in agricultural soils. *Environ Toxicol Chem* 33:1996-2003.

Yennamalli RM, Rader AJ, Kenny AJ, Wolt JD, Sen TZ. 2013. Endoglucanases: Insights into thermostability for biofuel applications. *Biotechnol Biofuels* 6:136.

Kenny AJ, Wolt JD, Hurd HS. 2013. Collaborative Wikipedia projects in the virtual classroom. *Nat Sci Educ* 42:85-90.

Okeno JA, Wolt JD, Misra MK, Rodriguez L. 2013. Africa's inevitable walk to genetically modified (GM) crops: Opportunities and challenges for commercialization. *New Biotechnol* 30:124-130.

Okeno JA, Mutegi E, de Villiers S, Wolt JD, Misra MK. 2012. Morphological variability in the wild-weedy complex of sorghum bicolor in situ in Western Kenya: Preliminary evidence of crop-to-weed gene flow? *Int J Plant Sci* 173:507-515.

Huesing J, Romeis J, Ellstrand N, Raybould A, Hellmich R, Wolt J, Ehlers J, Dabiré C, Fatokun C, Hokanson K, Ishiyaku MF, Margam V, Obokoh N, Mignouna J, Nangayo F, Ouedraogo J, Pasquet R, Pittendrigh B, Schaal B, Stein J, Tamò M,

- Murdock L. 2011. Regulatory considerations surrounding the deployment of Bt-expressing cowpea in Africa: Report of the deliberations of an expert panel. *GM Crops* 2:211-224.
- Yennamalli RM, Wolt JD, Sen TZ. 2011. Dynamics of endoglucanase catalytic domains: Implications towards thermostability. *J Biomol Struct Dyn* 29:509-526.
- Delgado JE, Wolt JD. 2011. Fumonisin B1 toxicity in grower-finisher pigs: A comparative analysis of genetically engineered Bt corn and non-Bt corn by using quantitative dietary exposure assessment modeling. *Int J Environ Res Public Health* 8:3179-3190; doi:10.3390/ijerph8083179.
- Yennamalli RM, Rader AJ, Wolt JD, Sen TZ. 2011. Thermostability in endoglucanases is fold-specific. *BMC Struct Biol* 11:10.
- Kim M, Wolt JD. 2011. Probabilistic risk assessment of dietary cadmium in South Korean population. *Food Addit Contam* 28:62-70.
- Wolt JD. 2011. A mixture toxicity approach for environmental risk assessment of multiple insect resistance genes. *Environ Toxicol Chem* 30:763-772.
- Delgado JE, Wolt JD. 2010. Fumonisin B₁ and implications in nursery swine productivity: a quantitative exposure assessment. *J Anim Sci* 88:3767-3777.
- Wolt JD, Peterson RKD. 2010. Prospective formulation of environmental risk assessments: probabilistic screening for Cry1A(b) maize risk to aquatic insects. *Ecotox Environ Safe* 73:1182-1188.
- Correia AP, Wolt JD. 2010. Graduate education in risk analysis for food, agriculture and veterinary medicine: challenges and opportunities. *J Nat Resour Life Sci Educ* 39:109-119.
- Wolt JD, Kees P, A Raybould, Fitzpatrick JW, Burachik M, Gray A, Olin SS, Schiemann J, Sears M, Wu F. 2010. Problem formulation in the environmental risk assessment for genetically modified plants. *Trans Res* 19:425-436.
- Shelton AM, Naranjo SE, Romeis J, Hellmich RL, Wolt JD, Federici BA, Albajes R, Bigler F, Burgess EPJ, Dively GP, Gatehouse AMR, Malone LA, Roush R, Sears M, Sehnal F, Ferry NA, Bell HA. 2009. Appropriate analytical methods are necessary to assess nontarget effects of insecticidal proteins in GM crops through meta-analysis. *Environ Entomol* 38(6): 1533-1538.
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- Shelton AM, Naranjo SE, Romeis J, Hellmich RL, Wolt JD, Federici BA, Albajes R, Bigler F, Burgess EPJ, Dively GP, Gatehouse AMR, Malone LA, Roush R, Sears M, Sehnal F. 2009. Setting the record straight: a rebuttal to an erroneous analysis on transgenic insecticidal crops and natural enemies. *Trans Res* 18:317-322.
- Kosaki H, Wolt JD, Wang K, Coats JR. 2008. Subacute effects of maize-expressed vaccine protein, *Escherichia coli* heat-labile enterotoxin subunit B (LTB), on the springtail, *Folsomia candida*, and the earthworm, *Eisenia fetida*. *J Agric Food Chem* 56:11342-11347.
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- Kosaki H, Coats J, Wang K, Wolt J. 2008. Persistence and degradation of maize-expressed vaccine protein, *Escherichia coli* heat-labile enterotoxin subunit B, in soil and water. *Environ Toxicol Chem* 27:1227-1236.
- Kim M, Wolt JD. 2008. Cadmium exposure in the South Korean population: Implications of input assumptions for deterministic dietary assessment. *Human Ecol Risk Assess* 14:835-850.
- Herzmann DE, Wolt JD, Arritt, R. 2008. Representativity of a mesoscale network for weather-related factors governing pollen dispersal. *Int J Biometeorol* 52:617-624.
- Wolt JD, Karaman S. 2007. Estimated environmental loads of alpha-amylase from transgenic high-amylase maize. *Biomass Bioenerg* 31:831-835.
- Beyer AJ, Wang K, Umble AN, Wolt JD, Cunnick JE. 2007. Low dose exposure and immunogenicity of transgenic maize expressing the *Escherichia coli* heat-labile toxin B subunit. *Environ Health Persp* 5:354-360.
- Wolt JD, Karaman S, Wang K. 2007. Risk assessment for plant-made pharmaceuticals. *CAB Reviews: Perspectives in Agriculture,*

Veterinary Science, Nutrition, and Natural Resources 2:1-7.

- Chapotin SM, Wolt JD. 2007. Genetically engineered plants for the bioeconomy. *Trans Res* 16:675-688.
- Peterson RKD, Meyer SJ, Wolf AT, Wolt JD, Davis PM. 2006. Genetically engineered plants, endangered species, and risk: A temporal and spatial exposure assessment for kerner blue butterfly and Bt maize pollen. *Risk Anal* 26:845-858.
- Wolt JD, Wang K, and Peterson RKD. 2006. Risk of unintended antigen occurrence in food: A case instance for maize-expressed LT-B. *Human Ecol Risk Assess* 12:856-870.
- Wolt, JD, Conlin C, Majima K. 2005. An ecological risk assessment of Cry1F maize pollen impact to pale grass blue butterfly. *Environ Biosafety Res* 4:243-251.
- Schnepf HE, Lee S, Dojillo J, Burmeister P, Fencil K, Morera L, Nygaard L, Narva KE, Wolt JD. 2005. Characterization of Cry34/Cry35 binary insecticidal proteins from diverse *Bacillus thuringiensis* strain collections. *Appl Environ Microbiol* 71:1765-1774.
- Shan G, Embrey SK, Herman RA, Wolt JD, Weston D, Mayer LM. 2005. Biomimetic extraction of *Bacillus thuringiensis* insecticidal crystal proteins from soil based on invertebrate gut fluid chemistry. *J Agric Food Chem* 53:6830-6634.
- Wolt JD. 2004. A meta-effects-evaluation of nitrapyrin agronomic and environmental effectiveness with emphasis on corn production within the Midwestern USA. *Nutr Cycl Agroecosys* 69:23-41.
- Wolt JD, Shyy Y-Y, Christensen P, Dormin KS, Misra M. 2004. Quantitative exposure assessment for confinement of maize biogenic systems. *Environ Biosafety Res.* 3:1-14.
- Wolt JD, Peterson RKD, Bystrak P, Meade T. 2003. A screening level approach for non-target insect risk assessment: Transgenic Bt corn pollen and the monarch butterfly (Lepidoptera: Danaidae). *Environ Entomol* 32:237-246.
- Landry TD, Chew L, Davis L, Frawley N, Stelman SJ, Thomas J, Wolt J, Hanselman DS. 2003. Safety evaluation of archaeal α -amylase (BD 5088) enzyme preparation expressed by *Pseudomonas fluorescens* Biovar I. *Regul Toxicol Pharma* 37:149-168.
- Herman RA, Wolt JD, Halliday WR. 2002. Rapid degradation of the Cry1F insecticidal crystal protein in soil. *J Agric Food Chem* 50:7076-7078.
- Herman RA, Scherer PN, Wolt JD. 2002. Rapid degradation of a binary, PS149B1, δ -endotoxin of *Bacillus thuringiensis* in soil, and a novel mathematical model for fitting curve-linear decay. *Environ Entomol* 31:208-214.
- Wolt JD, Singh P, Cryer S, Lin J. 2002. Plackett-Burman sensitivity analysis in environmental modeling. *Environ Toxicol Chem* 21:1558-1565.
- Wolt JD, Nelson HP Jr, Cleveland CB, van Wesenbeeck IJ. 2001. Biodegradation kinetics for pesticide exposure assessment. *Rev Environ Contam Toxicol* 169:123-164.
- Wolt JD, Peterson RKD. 2000. Agricultural biotechnology and societal decision-making: The role of risk analysis. *AgBioForum* 3:291-298.
- Wolt JD. 2000. Nitrapyrin behavior in soils and environmental considerations. *J Environ Qual* 29:367-379.
- Wolt JD. 1999. Exposure endpoint selection in acute dietary risk assessment. *Regul Toxicol Pharma* 29:279-286.
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- Van Weesenbeeck IJ, Zabik JM, Wolt JD, Bormett GA, Roberts DW. 1997. Field dissipation of chloransulam-methyl at four sites in the U. S. soybean market. *J Agric Food Chem* 45:3299-3307.
- Grover R, Wolt JD, Cessna AJ, Schiefer HB. 1997. Environmental fate of trifluralin. *Rev Environ Contam Toxicol* 153:1-64.
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- Erhardt-Zabik S, Wolt JD. 1996. Design and interpretation of anaerobic aquatic metabolism studies. *Weed Technol* 10:191-201.
- Schneider RC, Green RE, Wolt JD, Loh RKH, Schmitt DP, Sipes BS. 1995. 1,3-Dichloropropene distribution in soil when applied by drip irrigation or injection in pineapple culture. *Pesticide Sci* 43:97-105.

- Qian P, Wolt JD, Tyler DD. 1994. Soil solution composition as influenced by tillage and time of nitrogen fertilization. *Soil Sci* 158:141-149
- Wolt JD. 1993. Dynamics of nematicide distribution and degradation in soil subjected to long-term pineapple culture. *Acta Horticulturae*. 334:361-371.
- Qian P, Wolt JD. 1993. Drying and time of incubation effects on ionic activities and ion activity products of soil solution components. *J Nanjing Agric Univ* 17:52-58.
- Wolt, J. D., J. D. Schwake, F. R. Batzer, S. M. Brown, L. H. McKendry, J. R. Miller, G. A. Roth, M. A. Stanga, D. Portwood, and D. L. Holbrook. 1992. Anaerobic aquatic metabolism of flumetsulam [N-(2,6-difluoro-phenyl) -5-methyl(1,2,4)triazolo(1,5a)pyrimidine-2-sulfonamide]. *J Agric Food Chem* 40:2302-2308.
- O'Dell JD, Wolt JD, Jardine PM. 1992. Transport of imazethapyr in undisturbed soil columns as related to persistence in soil solution. *Soil Sci Soc Am J* 56:1711-1715.
- Vass AA, Bass WM, Wolt JD, Foss J., Ammons JT. 1992. Time since death determinations of human cadavers using soil solution. *J Forensic Sci*. 37:1236-1253.
- Wolt JD, Hue NV, Fox RL. 1991. Solution sulfate chemistry in three sulfur-retentive Hydrandepts from Hawaii. *Soil Sci Soc Am J* 56:89-95.
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- Hue NV, Fox RL, Wolt JD. 1990. Sulfur status of volcanic ash-derived soils in Hawaii. *Comm Soil Sci Plant Anal* 21-299:310.
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- Hardin JD, Howard DD, Wolt J. 1989. Critical soil phosphorus of a low-P loess-derived soil as affected by storage temperature. *Comm Soil Sci Plant Anal*. 20:1525-1543.
- Wolt JD. 1989. SOILSOLN: A computer program for teaching equilibria modeling of soil solution composition. *J Agron Educ* 18:40-42.
- Ononye AI, Graveel JG, Wolt JD. 1989. Kinetic studies of the reactions of benzidine with humic acid. *Soil Sci Soc Am J* 53:981-983.
- Ononye AI, Graveel JG, Wolt JD. 1989. Kinetic and spectroscopic investigations of the covalent binding of benzidine to quinones. *Environ Toxicol Chem* 8:303-308.
- Wolt JD, Rhodes GN Jr., Graveel JG, Glosauer EM, Amin MK, Church PL. 1989. Activity of imazaquin in soil solution as affected by incorporated wheat (*Triticum aestivum*) straw. *Weed Sci* 37:254-258.
- Haun GW, Wolt JD, Reynolds JH. 1988. Effects of stimulated acid rain on soil solution composition and orchardgrass seedling viability. *Soil Sci Soc Am J* 51:524-1046.
- Ononye AI, Graveel JG, Wolt JD. 1987. Direct determination of benzidine in unaltered soil solution by liquid chromatography. *Bull Environ Contam Toxicol* 39:524-632.
- Wolfe MH, Kelly JM, Wolt JD. 1987. Soil pH and extractable SO₄-S distribution as influenced by tree species and distance from the stem. *Soil Sci Soc Am J* 51:524-1046.
- Wolt JD, Graveel JG. 1986. A rapid routine method for obtaining soil solution using vacuum displacement. *Soil Sci Soc Am. J* 50:602-605.
- Sikora FJ, Wolt JD. 1986. Effect of cadmium-and zinc-treated sludge on yield and Cd-Zn uptake of corn. *J Environ Qual* 15:340-345.
- Wolt JD, Safley LM Jr., Lessman GM, Smith MC. 1984. Influence of time of injection of liquid swine waste on silage yield and nutrient content of corn. *Trans Amer Soc Agric Engin* 217:1135-1139.
- Lohr VI, Wang SH, Wolt JD. 1984. Physical and chemical characteristics of fresh and aged spent mushroom compost. *Hortscience* 19:681-683.
- Milne CG, Deyton DE, Wolt JD. 1984. The effect of calcium and boron applied through microjet irrigation on nutrition of

- smoothee apple-trees. Hortscience 19: 530-530.
- Mullins CA, Wolt JD. 1983. Effects of calcium and magnesium lime sources on yield, fruit quality and elemental uptake of tomato. *J Am Soc Hort Sci* 108:850-854.
- Wolt JD, Lietzke DA. 1982. The influence of anthropogenic sulfur inputs upon soil properties in the Copper Basin region of Tennessee. *Soil Sci Soc Am J* 46:651-656.
- Wolt JD. 1981. Sulfate retention by acid sulfate-polluted soils in the Copper Basin area of Tennessee. *Soil Sci Soc Am J* 45:283-121.
- Wolt JD, Adams F. 1979. The release of sulfate from soil-applied basaluminte and alunite. *Soil Sci Soc Am J* 45:384-387.
- Wolt JD, Adams F. 1979. Critical levels of soil and nutrient solution calcium for vegetative growth and fruit development of Florunner peanuts. *Soil Sci Soc Am J* 43:1159-1164.

Book Chapters (12)

- Wolt JD. 2017. Safety, security, and policy considerations for plant genome editing, pp. 215-241, In Donald P. Weeks and Bing Yang, editors: *Gene Editing in Plants*, Vol 149, PMBTS, UK: Academic Press.
- Sears MK and JD Wolt. 2012. Ecological considerations in biotechnology: Ecological concerns and environmental risks of transgenic crops. Ch 8. In JS Popp, M Matlock, NP Kemper, M Jahn (eds.) *The Role of Biotechnology in a Sustainable Food Supply*. Cambridge University Press. New York.
- Wolt JD, J Prasifka, and R Hellmich. 2008. Ecological safety assessment of insecticidal proteins introduced into biotech crops. p. 103-126. In B Hammond (ed.) *Safety of Food Proteins in Agricultural Biotechnology*. CRC Press. Boca Raton.
- Whitford F, Wolt J, Urban D, Mayes M. 2002. The evolution of pesticide regulations: The shift from benefits to risks. Ch. 1, pp. 1-7, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
- Whitford F, J Kronenberg, C Lunchick, R Tomerlin, J Wolt, J Driver, KS Rao, G Acre, H Spencer, C Winter, and J Klaunig. 2002. Human health risk assessment: Evaluating potential effects of pesticides on humans. Ch. 2, pp. 8-115, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
- Whitford F, M Mayes, D Urban, J Wolt, R Bennett, R Turco, M Jones, BK Miller, and L Bledsoe. 2002. Ecological risk assessment: Evaluating pesticide risks to nontarget species. Ch. 4, pp. 140-195, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
- Whitford F, J Wolt, J Frankenberger, R Bennett, H Nelson, I van Wesenbeeck, R Turco, and S Brichford. 2002. Water quality risk assessment: Interactions between pesticides and the environment. Ch. 5, pp. 196-230, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
- Whitford F, D Barber, A Breedlove, and J Wolt. 2002. Product development and registration: Blending scientific information into public policy decisions. Ch. 6, pp. 231-257, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
- Whitford F, R Feinberg, T Neltner, J Wolt, R Tinsworth, and A-J Williams. 2002. Today's discussions, tomorrow's issues. Ch. 10, pp. 749-767, In F. Whitford, *The Complete Book of Pesticide Management*. John Wiley & Sons, New York.
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External Grants and Contracts Awarded

Iowa State University

Identifying Gaps in Public Trust and Governance Recommendations for Gene Edited Foods, USDA-NIFA-AFRI, C Bain, T Selfa, M Dahlstrom, D Peters, C Wolf, J Wolt, 1/18/2018 to 12/31/2020. \$494,513.

A Data-Driven Approach to CRISPR Design for Reduced Off-Target Activity in Plant Genome Editing, USDA-NIFA-BRAG, K Wang, JD Wolt, DG Sashital, C Lawrence-Dill, 10/1/2016 to 9/30/2019, \$465,000

Toxicology Mentoring and Skills Development Training Program, NIH-R25-IPERT, W Rumbelha, J Wolt, A Correia, D Alexander, E Gilbreath, P Leigh, 3/1/2016 to 2/28/2017, \$700,772

Meta-analysis of Enhanced Efficiency Fertilizers in Corn Systems in the Midwest, International Plant Nutrition Institute, R Cook, J Wolt, A Trlica, 2/1/2014 to 1/31/2015, \$30,500.

Bolashak Presidential Scholarship Program Host Support, Republic of Kazakhstan, J Wolt, 9/1/2013 to 9/1/2014, \$21,950.

Subagreement for Building Functional Biosafety Systems, International Food Policy Institute, M Misra, A Harries, J Wolt, J Cortes, J Aketch, H Hurd, 10/1/2010 to 9/30/2012, \$268,204.

Food and Fuel Initiative: Iowa, USDA Special Grant, M Misra, G Munkvold, J Wolt, 10-01-2009 to 09-30-2010, \$277,339.

Scientific Exchanges for China: Agricultural Biotechnology Regulation and Policy Opportunities at Iowa State University, USDA-FAS, J Wolt, D Bjelland, 8/21/2009 to 9/30/2010, \$43,749.

Environmental Fate and Effects Assessment for a Genetically Engineered Biofeedstock Crop, USDA-NIFA, J Wolt, M Tabatabai, T Sen, M Sticklen, 9/1/2008 to 8/31/2011, \$207,556.

Evaluating Food Safety of GM Crops - Opportunities for India Borlaug Fellow at Iowa State University, USDA-FAS, J Wolt, D Bjelland, 1/31/2008 to 12/31/2008, \$24,156.

A Pilot to Explore GRAS Status Determination of Foods from Nutritionally Modified GM Crops, Pioneer Hi-Bred International, Inc., J Wolt, 10/1/2007 to 10/1/2008, \$15,435.

Enabling Graduate Learning in Risk Analysis with Emphasis on Food, Agriculture and Veterinary Medicine, USDA Higher Education Challenge, J Wolt, H Hurd, H Jensen, A Carriquiry, A O'Connor, L Rodriguez, 9/1/2006 to 8/31/2008, \$146,813.

Technical Training: Environmental Safety and Biotechnology Risk Communication, Iowa Farm Bureau, D Acker, J Wolt, 1/1/2006 to 12/31/2006, \$41,895.

Coupling Lagrangian Stochastics and Large Eddy Simulation to Predict Long Distance Dispersal of Pollen, USDA Biotechnology Risk Assessment Grants, M Westgate, R Arritt, A Goggi, J Wolt, 9/1/2005 to 8/31/2007, \$390,360.

University of Tennessee

Movement, sorption, and persistence of imazaquin in soil as affected by wheat straw, Southern Region Pesticide Impact Assessment Program, G Rhodes, J. Graveel, J Wolt, 1987-1988, \$27,000.

Fate and transport of synthetic organics by diffuse versus channelized flow of solutes, United States Geological Survey, Tennessee Water Resources Research Center, J Wolt, G Rhodes, J Graveel, 1987-1988, \$18,000.

Predicting yield responses of soybean cultivars to acid precipitation from measured yield responses of their ancestral lines exposed to simulated acid rain. National Atmospheric Deposition Program, F Allen, J Wolt, G Lessman, 1986-1988, \$100,000.

Retention of benzidine, a-naphthylamine, and p-toluidine in soils, Waste Management Research and Education Institute. Univ. of Tennessee, Knoxville, TN. J Graveel, J.Wolt, 1986, \$23,970.

Decomposition and binding of benzidine, a-naphthylamine, and p- toluidine in soils, Waste Management Research and Education Institute, Univ. of Tennessee, Knoxville, TN. J Graveel, J Wolt, 1985, \$24,962.

Effect of acid precipitation on establishment of cool season forage grasses, North Carolina Agricultural Research Service, USDA Special Grants for Acid Precipitation, J Wolt, J Reynolds, 1983-1985, \$128,000.

Reclamation of an industrial sludge spray field, E. I. DuPont de Nemours & Co., J Wolt, LM Safley, 1979-1981, \$125,000.

Internal Support

Sorghum Gene Flow, Western Kenya (travel support), Department of Agronomy, 6/23/2009, \$7,500.

Fumonisin Fate in Corn: Implications for Swine Health (diversity student support), Food Safety Consortium, 1/8/2006, \$51,102.

Biological Safety Cabinet. IFFS Affiliate Faculty Research Supplement Request, JD Wolt, GP Munkvold, S Goggi, Institute for Food, Safety and Security, 2007, \$8,000.

570X Distance Learning, Brenton Center, 1/31/2007 to 7/31/2009, \$6,000.

Biopharma Corn, Plant Sciences Institute, 7/1/2005, \$83,920.

Project start-up, Plant Sciences Institute, 2/1/2004, \$90,000.