

## VITA

John G. Graveel

### PERSONAL DATA

Date of Birth: December 8, 1953  
Place of Birth: Mishawaka, Indiana

#### Business Address:

Purdue University  
Department of Agronomy  
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1101 W. Sunset Lane  
West Lafayette, IN 47906  
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### EDUCATION

Degree	Institution	Date	Major Field
	St. Edward's University	1972-1975	Biology
B.S.	Purdue University	1976	Natural Resources and Environmental Science
M.S.	Purdue University	1979	Soil Microbiology/Biochemistry
Ph.D.	Purdue University	1984	Soil Microbiology/Biochemistry

**Short Courses:** Curriculum Instruction (University of Tennessee)  
Conservation Biology and Bio-diversity (University of Tennessee)  
Soil Pollution and Soil Protection (Wageningen Agricultural  
University, Gent, Belgium)  
Fate and Transport of Toxic Organics (Brno, Czechoslovakia)  
Bioremediation of Hazardous Waste Sites: Practical Approaches (EPA,  
Chicago, IL)  
Case Studies (British Columbia)  
Case Studies (Jordan/Lebanon)  
Writing Across the Curriculum (Montana State University)  
Introductory Biology Project (Washington D.C.)  
Integrating Spatial Educational Experiences (Tampa, FL)  
Soil in the City (Chicago, IL)

### EXPERIENCE IN HIGHER EDUCATION

1976 Laboratory Assistant, Department of Bionucleonics, Purdue University  
1977-1979 Graduate Research Assistant, Department of Agronomy, Purdue University  
1979-1980 Assistant Director of the Natural Resources and Environmental Science  
Program, Purdue University  
Spring 1981 Instructor, Department of Biology, Indiana University-Purdue University  
Summer 1981 Research Assistant, Department of Environmental Engineering, Purdue  
University

1979-1984	Graduate Research Assistant, Department of Agronomy, Purdue University
1979-1984	Graduate Teaching Assistant, Department of Agronomy, Purdue University
1979-1984	Advised students in the Natural Resources and Environmental Science Program, Purdue University
1982-1984	David Ross Research Fellow, Purdue University
1984-1989	Assistant Professor of Plant and Soil Science, University of Tennessee
1989-1992	Associate Professor of Plant and Soil Science, University of Tennessee
1992	Visiting Associate Professor, Department of Soil Science, University of Florida
1992-1997	Associate Professor of Agronomy, Purdue University,
1995-2008	Director of the Natural Resources and Environmental Science Program, Purdue University
1997-present	Professor of Agronomy, Purdue University
2008	Sabbatical, Department of Soil and Crop Science, Colorado State University
2008-2010	Assistant Dean College of Agriculture, Purdue University
2010-2012	Interim Associate Dean and Director of Academic Programs, Purdue University

## MEMBERSHIP IN HONORARY ACADEMIC SOCIETIES

Gamma Sigma Delta  
Alpha Zeta  
Sigma Xi

## MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Society of Agronomy  
Soil Science Society of America  
Association for Environmental Studies and Sciences  
National Association of College Teachers of Agriculture  
ARCPACS certified  
Professional Soil Scientist  
Indiana Board Certified Registered Professional Soil Scientist

## ADMINISTRATIVE ACTIVITIES

### A. 2008 – 2010 Assistant Dean

Three year 0.5 FTE appointment to support academic and student success programs as the University transitioned to BANNER. Reported to the Associate Dean and Director and was primarily responsible for access, orientation and retention initiatives including: Coordinate/Teach AGR 10100 (Introduction to the College of Agriculture and Purdue University), Day on Campus, and Access to the College of Agriculture including: Dual Credit, Pathway to Purdue, Distance Education, articulation and relationships with Ivy Tech Community College, Purdue Regional Campuses, Vincennes University and other universities as needed. Responsible for transfer credits from non-land grant colleges of agriculture and retention and academic success programs.

### B. 2010 – 2011 Interim Associate Dean and Director of Academic Programs

The Director is responsible for articulating a clear, ambitious vision to students, faculty/administration, and stakeholders regarding academic programs within the College of Agriculture. Encourage and facilitate the creation of innovative learning environments to provide a world-class experience for students that is aligned with the College and University

vision and values. The Director oversees all academic programs in the College including curricula, instruction, recruitment and admissions, student services, scholarships, career services, student leadership development, and faculty development. I am engaged with strategic planning, recommend allocation of academic resources, and serve as the primary liaison with the University regarding academic program issues. In addition, as Director I work closely with other Colleges/Schools across the University as well as with two-year educational partners including Ivy Tech Community College and Vincennes University. I work closely with Agricultural Research Programs, Cooperative Extension, International Programs in Agriculture, state government, industry, and international institutions. I report directly to the Dean for the College of Agriculture.

## TEACHING ACTIVITIES

### A. Courses Taught (Purdue University):

Soil Science	Teach annually
Introduction to Environmental Science	Teach annually
Sophomore Seminar, (Environmental Careers)	Teach annually
Independent Research in Environmental Science	Teach annually
Pre-Environmental Studies	Teach, 2012-present
Internships	Teach, 2012-present
Learning Community	Teach, 2012-present
Soil Ecology	Taught, 1995-2008
Senior Seminar	Taught, 1993-2013
Soil, Plant, and Environmental Analysis	Taught, 1993
Bioremediation	Taught, 1993-1996
Contemporary Issues in Agriculture	Taught, 2003
Carbon Neutrality	Taught, 2007
Introduction to the College of Ag. and Purdue	Taught, 2008-2011
Introduction to the College of Ag. and Purdue (H)	Taught 2008-2011

### B. Courses Taught (University of Tennessee):

Introduction to Soil Science	Taught annually
Soil and Water Conservation	Taught annually
Practicum in Plant and Soil Science	Taught annually
Agricultural Management System Analysis	Taught, 1984
Soil Microbiology	Taught annually
Soils, Land Use, and the Environment	Taught annually
Technology, Society, and the Common Good (University Studies)	Taught annually
Special Problems in Plant and Soil Science	Taught annually
Senior Seminar	Taught, 1988-1992
Soil Productivity and Management	Taught, 1985
Soil and Water Pollution	Taught, 1986
Graduate Seminar	Taught, 1988-1990

### C. Courses Taught (University of Florida):

Introductory Soil Science	Taught in 1992
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#### **D. Other Teaching Activities (Purdue University):**

Co-authored (with Dr. Steve Thein from Kansas State University) a Laboratory Manual for Introductory Soil Science. This manual, published by Kendall Hunt Publishers in Dubuque, Iowa, is used extensively by colleges and universities such as the University of Florida, Kansas State University, Brigham Young University, and the University of Missouri to name a few.

Co-authored a textbook entitled, Soil Science Simplified with Drs. Don Franzmeier and William McFee. This textbook is used extensively by practicing professionals in the field.

Made major revisions in the Introductory Soil Science course by updating the study guides for each week and incorporating a new week on environmental soil science. Played an integral role in the computerization of the multimedia soils resource center by using macromedia Breeze and Adobe Presenter software. In lecture employ the use of personal response devices - "clickers". Demonstrated vision and leadership by developing two new courses in Bioremediation and Soil Ecology. Chaired the committee to revise the graduate and undergraduate curriculum in Soil Science. Developed meaningful case studies for use in the "Introduction to Environmental Science" course. Led the development of an environmental soil science option to meet the growing demand for graduates educated in environmental aspects of soil science. Chaired the teaching outcomes committee for the Agronomy Department and regularly advised undergraduates. Use CPR (Comparative Peer Review), CPS (Classroom Performance System), and SIGNALS in several undergraduate courses. Edited and revised Demonstrations in Soil Science for P-12 students.

Appointed Director of the Natural Resources and Environmental Science Program (NRES) in 1995. Responsible for supervising the individualized academic counseling and career placement of about 90 NRES students who come from a wide range of backgrounds including and beyond agriculture. Revised the Environmental Science Sophomore Seminar to become an effective counseling tool as well as a learning experience for students by bringing past graduates to class to discuss careers and techniques for finding positions. Developed an NRES Web site, which keeps students up to date with option information and provides NRES majors with easy access for counseling advice. Put together an advisory team, with representation from each department within the College of Agriculture including Political Science and the Earth and Atmospheric Sciences Departments.

#### **Other Teaching Activities (University of Tennessee):**

Made significant contributions to course and curriculum development at the departmental, college, and university-level. Developed three courses and initiated and developed the Environmental Sciences and Natural Resources concentration for the Plant and Soil Science Department. Co-chaired the committee to develop a campus-wide interdisciplinary environmental science program at the undergraduate level and helped to initiate the development of an interdisciplinary graduate program in environmental policy. Coordinated the advising of undergraduate students in the Plant and Soil Science Department and served on numerous university, college, and departmental committees related to student relations and academic programs.

## RESEARCH ACTIVITIES

Basic and applied cooperative research program in environmental soil science and soil management. Research has included: 1) mechanistic studies of toxicant complexation by soil organic matter, 2) transport of synthetic organics and nitrogen as influenced by diffuse versus channelized flow of solutes, 3) development of analytical techniques for monitoring the fate of volatile and non-volatile toxic organics in soils, 4) quantifying the effect of soil erosion on potential productivity of cropland, 5) cropping management systems, 6) understanding the role of *Lumbricus terrestris* ("nightcrawler") in sustainable no-till agriculture systems, 7) land application of biosolids and 8) phytoremediation of a contaminated U.S. Steel site in Northwestern Indiana.

## HONORS AND AWARDS

1982-1983	David Ross Research Fellowship recipient, Purdue University
1987	Outstanding Teacher, College of Agriculture, University of Tennessee
1988	Gamma Sigma Delta Teaching Merit Award, University of Tennessee
1990	Outstanding Teacher, College of Agriculture, University of Tennessee
1991	National Alumni Outstanding Teaching Award, University of Tennessee
1998	Outstanding Counselor, School of Agriculture, Purdue University
1998	American Society of Agronomy, Agronomic Resident Education Award
2000	American Society of Agronomy, Fellow
2000	Member of the Purdue University Teaching Academy
2000	Outstanding Teacher, School of Agriculture, Purdue University
2000	Charles B. Murphy Outstanding Teacher Award, Purdue University
2001	Soil Science Society of America, Education Award
2001	Teaching for Tomorrow Award, Purdue University
2003	Soil Science Society of America, Fellow
2003	Book of Great Teachers, Purdue University
2014	Nominated for the USDA Outstanding Teacher Award
2015	Nominated for the USDA Outstanding Teacher Award

## SERVICE

### **International/National (American Society of Agronomy/Soil Science Society of America):**

1986	Chair, Resident Education, Div., A-1, American Society of Agronomy
1986	Review committee for ARCPACS certification exam in soils
1987	Chair, Environmental Quality, Div., A-5, American Society of Agronomy
1988	American Society of Agronomy, Resident Education, Planning Committee
1989	Student Speech Committee
1989-1993	Associate Editor, Journal of Natural Resources and Life Science Education
1992	Ad Hoc Committee to Study JAE
1993-1996, 2003-2007	Editor, Journal of Natural Resources and Life Sciences Education
1993, 2006, 2012	Soil Science Education Award Committee
1994	Chair, Resident Education Division, A-1, American Society of Agronomy
1994, 1996	Resident Education Officers, Past Chair, Div. A-1
1994	Program Planning Committee
1995	Div. A-1, Resident Education Officers
1996	Chair, Nominations Committee

1996, 2004-2006 Editorial Affairs, Policies & Practices Committee  
 1996, 2007 ACS-Editorial Policy Coordination Committee  
 1996 Chair, Nominations Committee for Div. A-1 Officers  
 1997 Training of Soil Scientist  
 1998 Nominations Committee for Div. A-1 Officers  
 2000 K-16 Education  
 2000 Agronomic Resident Education Award Committee  
 2001 K-16 Strategic Planning Committee  
 2001 Deere and Company Graduate Fellowship Committee  
 2001 Chair, Continuing Education for Soil Scientist.  
 2002 American Society of Agronomy General Awards Committee  
 2002 Chair, Training and Continuing Education for Soil Scientist  
 2002 Chair, Deere and Company Graduate Fellowship Committee  
 2003-2006 Council of Soil Science Examiners  
 2004-2006 ACS-Editorial Policy Coordination Committee  
 2005-2006 Digital Teaching Tools  
 2006-2011 Smithsonian Soil Science Exhibit Committee  
 2007-2008 ACS-Science Policy Advisory Committee  
 2007-2009 Fellow Committee  
 2007-2010 Board of Directors  
 2007-2010 Resident Education Officers  
 2008-2009 Fellows Selection Committee  
 2008-2010 Nominations Committee  
 2008-2010 Science Policy Advisory Committee  
 2008-2010 President Selection Committee  
 2010-2012 Francis and Evelyn Clark Soil Biology Scholarship Selection Committee  
 2010 Member, Irrrometer Professional Certification Service Award Committee  
 2011 Chair, Irrrometer Professional Certification Service Award Committee  
 2007, 2015 Chair, Soil Science Education Award Committee  
 2015-2017 Communications and Promotions Committee

**Regional:**

1986-1987 Secretary-Treasurer, Tennessee Council of Chapters, Soil and Water Conservation Society  
 1988-1991 President East Tennessee Chapter, Soil and Water Conservation Society  
 1991-1992 President, Gamma Sigma Delta

**University (Purdue University):**

1994 Environmental Sciences and Engineering Institute Planning Committee  
 1994-1996 Quick-Start Program  
 1997-2004 Global Studies Committee  
 2000-present Teaching Academy  
 2002-2003 Faculty Senate, Ad-Hoc Committee to Review Senate Committees  
 2003-2004 Chair, Student Affairs Committee  
 2002-2007, 2013-2015 Faculty Senate  
 2002-2007, 2013-2015 Student Affairs Committee  
 2005-2007, 2013-2015 Athletic Affairs Committee  
 2006-2007 Purdue University Student Disciplinary Process  
 2006-2008 NCAA Certification Self-Study Program

2006-present Udall Scholarship Committee  
2012-present Active Learning Committee

**University (University of Tennessee):**

1985-1992 Waste Management Research and Education Institute  
1986-1992 Learning Research Center, Seminar on Teaching and Learning, Steering Committee  
1986 Southeastern Symposium on In-Situ Treatment and Immobilization of Hazardous and Radioactive Waste, Planning Committee  
1989-1991 Senate/Chancellor Committee on the Evaluation of Teaching  
1990-1992 Center for Legume Research  
1991-1992 University Studies Committee  
1991-1992 Student Affairs Committee  
1991-1992 Environmental Program Curriculum Committee  
1991-1992 Faculty Senate  
1992 National Alumni Outstanding Teacher Award Selection Committee

**College (Purdue University):**

1993 1941 Teaching Innovation Grant Selection Committee  
1993-1995 Natural Resources and Environmental Science Advisory Committee  
1993-1998 Curriculum and Student Relations Committee  
1993-2006 Professor in the Classroom  
1999-2000 Rotten Log Display Committee  
1999-2005 College of Agriculture, Academic Council  
2000-2002 Tenure and Promotion Committee  
2001 Undergraduate Education Road Mapping Committee  
2001-present Recruitment and Retention Committee  
2001-present Curriculum and Student Relations Committee  
2003-present Teaching and Learning Improvement Committee  
2003-2008 Environmental Sciences Committee  
2004-2007 College Outcomes Committee  
2005-present Honors Committee  
2007 Chair, Curriculum and Student Relations Committee  
2008-2012 Dual Credit  
2009-2012 Pathway to Purdue Program

**College (University of Tennessee):**

1984-1985 State 4-H and FFA Land Judging Committee  
1984-1985 Co-Chair, Southeastern Regional Collegiate Soil Judging Contest  
1984-1985 Co-Chair, National Collegiate Soil Judging Contest  
1984-1988 Teaching/Learning Improvement Committee  
1984-1992 Computer Literacy Committee  
1985-1992 Student Advisory Council  
1986-1987 Student Advisory Council, Executive Committee  
1986-1988 Plateau Experiment Station Tillage Tract Research Planning Committee  
1986-1990 Varsity Visit Committee  
1988 Nonpoint Pollution Assessment Committee  
1989 Search Committee, Agricultural Engineering, Water Quality Position  
1989-1992 Agriculture Day Committee

1989-1992 Chair, Teaching/Learning Improvement Committee  
 1989-1992 Co-Chair, Tennessee Agricultural Experiment Station Water Quality Research Group  
 1990 Chair, Alumni Survey Review Committee  
 1992 Conservation Tillage Conference Committee

**Departmental (Purdue University):**

1993-1995 Space Committee  
 1993-1995 Grade Appeals Committee  
 1993-1996 Awards Committee  
 1993-2006, 2008-present Curriculum Committee  
 1994 Search Committee, Soil Microbial Geneticist position  
 1994 Teaching Coordinator  
 1995-present Undergraduate Recruitment Committee  
 1997 Agronomy Department Review Committee  
 1999-2000 Search Committee, Department Head position  
 1999-2000 Search Committee, Land Use position  
 1999-2006 Kohnke Award Committee  
 2001-2002 Corporate Document Committee  
 2002 CSREES Department Review Committee  
 2003 Alumni Evaluation Committee  
 2003 Chair, Promotion and Tenure Committee  
 2005-2006 Chair, Scholarship Committee  
 2007-present Co-Chair, Curriculum Committee  
 2009 CSREES Department Review Committee  
 2010 Search Committee, Department Head position  
 2014 Search Committee, Land Use position  
 2015 Chair, Search Committee, Soils Teaching position  
 2015 Search Committee, Animal Science Teaching/Advising position

**Departmental (University of Tennessee):**

1984-1987 Graduate Seminar  
 1984-1988 Semester Transition Committee  
 1985-1986 Course Evaluation Development Committee  
 1985-1986 Equipment Committee  
 1985-1990 Varsity Visit Representative  
 1985-1992 Curriculum Committee  
 1985-1992 Departmental Coordinator, Graduate Teaching Seminar  
 1986 Course Scheduling Committee  
 1986-1992 Comprehensive Exam Development Committee  
 1987 Search Committee, Soil Genesis and Classification Position  
 1987-1992 Undergraduate Seminar  
 1987-1992 Advising Coordinator  
 1988-1992 Agriculture Day, Display Committee  
 1989 Chair, Search Committee, Soil Chemistry Position  
 1989 Search Committee, Research Associate Position, Soil Genesis and Classification  
 1989 Library Committee  
 1989 Student Development Committee  
 1989 Search Committee, Soil Physics Position



1989-1992 Graduate and Staff Seminar Committee  
1990-1992 Graduate Review Committee

## **LEADERSHIP POSITIONS**

### **In addition to chairing numerous committees, I have held the following positions of leadership:**

1991-1992 President Gamma Sigma Delta  
1993-1996, 2004-2007 Editor, Journal of Natural Resources and Life Sciences Education  
1993-present Director of the Soils Resources Center  
1995-2008, 2012-2016 Director of the Natural Resources and Environmental Science Program  
2003-2004 Chair, Student Affairs Committee, Purdue University  
2007 Chair, Curriculum and Student Relations Committee  
2007 CSREES Review Committee, University of Florida  
2008-2010 Assistant Dean in the College of Agriculture, Assistant Director of Academic Programs  
2010-2012 Interim Associate Dean and Director of Academic Programs

## **OTHER INFORMATION**

### **Undergraduate Student advising/Student clubs:**

#### **(Purdue University)**

1992-present Advised over 200 undergraduates in the Agronomy Department  
1995-2008, 2012-present Advise over 650 students in the Natural Resources and Environmental Science Program  
1995-2008, 2012-present Purdue University Environmental Science Club, Faculty Advisor  
2008-2012 Agriculture Council, Faculty Advisor

#### **(University of Tennessee)**

1984-1992 Advised over 80 undergraduates in the Plant and Soil Science Department  
1984-1991 Plant and Soil Science Club  
1984-1992 The Student Advisory Council  
1985-1986 Assistant Coach of the Collegiate Soil Judging Team  
1986-1988 Farmhouse Fraternity  
1988-1991 Alpha Zeta

### **Graduate Advising:**

#### **Master's - Major Advisor/Co-Advisor**

#### **(Purdue University)**

1996 Ponciroli, Garrett. Effect of organic materials on soil properties.  
2001 Pelath, Anthony. Anaerobic biodegradation of three fungicides in wetland sediments. (Non thesis)  
2003 Stout, Heidi. Soils and onsite wastewater treatment system performance.  
2003 Meyers, Cathy. Soil education.  
2007 Lindville, Kristi. Environmental education. (Dropped)  
2009 Wolf, Sarah. Environmental education.  
2009 Atkinson, Ben. Phytoremediation.

- 2014 Rahmani, Shams. Creating initial digital properties map for Afghanistan.  
 2016 Meghan Moser. Nitrogen placement.

**(University of Tennessee)**

- 1989 O'Dell, James D. Transport of imazethapyr in undisturbed soil columns as related to imazethapyr persistence in soil solution. (Served as Major Professor for this student after the departure of Dr. Jeff Wolt from our department)  
 1990 Kawonga, Wickson T. Evaluation of nitrate distribution in long-term no tillage corn production under three cover situations and three rates of nitrogen.  
 1990 Jones, Jan R. Quantifying the effects of soil erosion on crop productivity.  
 1990 Bowen, John F. Grass and legume cover crop decomposition rates in no-tillage.  
 1991 Sutarman, Gufar. The effects of erosion, tillage, and winter cover crops on soil aggregate stability.  
 1993 Halfman, William. The effect of tillage practices and wheel traffic on cotton root development.  
 1993 Chandler, Dolores M. Transport of imazaquin through undisturbed soil columns.

**Post-Doctoral Students (University of Tennessee):**

- 1988-1991 Ononye, Aloysius. Aromatic amine complexation by soil humic substances

**Member of Advisory Committee:**

Served on 23 Ph.D. and 36 M.S. committees

**PROFESSIONAL DEVELOPMENT**

- 1982-present ASA Division A-1 (Resident Education) participant at annual meetings  
 1984-present Participated in numerous teaching workshops  
 1992 Visiting Professor, Department of Soil and Water Science, University of Florida  
 2008 Sabbatical, Department of Soil and Plant Sciences, Colorado State University

**Participant in international research and teaching activities at the following locations:**

Brno, Czechoslovakia	1992
Lille, France	1992
Gent, Belgium	1992
Godollo, Hungary	1995-2000 (annual visits)
Zamorano, Honduras	1997-2000 (annual visits)
Amman, Jordan	1998
Beirut, Lebanon	1999
England, Wales, and The Netherlands (Study Abroad)	2003
Ireland (Study Abroad)	2005
Mexico, Yucatan	2008
Costa Rica (Study Abroad)	2014
Costa Rica (Study Abroad)	2015

## TEACHING PUBLICATIONS

### Books:

1. Graveel, J. G., and S. F. Bringman. 1995. Demonstrations in Soil Science. Booklet #34. Purdue University. West Lafayette, IN 47906.
2. Thein, S.J., and J. G. Graveel. 1997. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 7<sup>th</sup> edition. Wm C. Brown/McGraw-Hill Publishers, Dubuque, IA.
3. Thein, S.J., and J. G. Graveel. 2002. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 8<sup>th</sup> edition. Wm C. Brown/McGraw-Hill Publishers, Dubuque, IA.
4. Thein, S.J., and J.G. Graveel, 2008. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 8<sup>th</sup> edition. Kendall/Hunt Publishers, Dubuque, IA.
5. Franzmeier, D. P, W.W. McFee, J. G. Graveel. 2015. Soil Science Simplified. 5<sup>th</sup> edition. Waveland Press. **In review by the Editor.**

### Refereed Publications:

1. Beyrouthy, C. A., and J. G. Graveel. 1985. Creating an effective environment for the development of a graduate teaching assistant. *J. Agron. Educ.* 14:112-115.
2. Graveel, J. G., and H. A. Fribourg. 1987. Using reading grade level to assess readability of plant and soil science textbooks. *J. Agron. Educ.* 16:24-29.
3. Habel, J. E., and J. G. Graveel. 1988. An instructional consultation service for graduate teaching assistants. *J. Agron. Educ.* 17:96-98.
4. Graveel, J. G., J. E. Foss, V. E. Reich, D. L. Coffey, T. W. Banta, J. J. Vorst, and D. C. Wolf. 1990. Faculty developed comprehensive examination for plant and soil science. *J. Agron. Educ.* 19:25-28.
5. Graveel, J. G., T. M. Young, M. Balbach, D. A. Munn, and J. S. Panter. 1993. Journal of Natural Resources and Life Sciences Education: Why the new title and scope? *J. Nat. Resour. Life Sci. Educ.* 22:81-86.
6. Grabau, L. and J. G. Graveel. 1995. Reinventing the College of Agriculture. *J. Nat. Resour. Life Sci. Educ.* 24:190-196.
7. Graveel, J.G., B.A. Burnett, S.A. Barker, D.B. Mengel, and W.W. McFee. 1997. NRES: 24 Years of an interdisciplinary program in environmental science. *J. Nat. Resour. Life Sci. Educ.* 26:29-33.
8. Biegel, C.M., J.G. Graveel, L.S. Lee, and J.J. Vorst. 1998. Eagle Creek Landfill: A Decision Case Study. *J. Nat. Resour. Life Sci. Educ.* 27:59-69.
9. Biegel, C.M., L.S. Lee, J.G. Graveel, and J.J. Vorst. 1998. The Midwest oil pipeline leak: a decision case study. *J. Nat. Resour. Life Sci. Educ.* 27:122-128.

10. Biegel, C.M., L.S. Lee, J.G. Graveel, and J.J. Vorst. 1998. Muskegon's land application of wastewater effluent: a decision case study. *J. Nat. Resour. Life Sci. Educ.* 27:137-144.
11. Vorst, J.J., and J.G. Graveel. 2002. International decision cases in natural resource management. *Interactive Teaching and Learning in a Global Context*:15:177-182.
12. Barker, S.A., and J.G. Graveel. 2004. Adapting curricula to fit environmental science positions. *J. Nat. Resour. Life Sci. Educ.* 33:131-133.
13. Graveel, J. G., and J.J. Vorst. 2007. Using alumni input as a reality check of agronomy teaching and advising. *J. Nat. Resour. Life Sci. Educ.* 36:76-86.
14. Bracke, S. M., and J.G. Graveel. 2014. Using Calibrated Peer Review™ to Teach Basic Research Skills. *Natural Sci. Educ.* 43:11-15

### **Proceedings:**

1. VanScoyoc, G.E., W.W. McFee, and J.G. Graveel. 1998. Expanding the audience for soil science. pp. 804-808. 16<sup>th</sup> World Congress of Soil Science, 20-26 Aug., Montpellier, France.
2. American University of Beirut, Jordan University of Science and Technology, and Purdue University. 1999. Environmental Curriculum Development for University and Professional Education in the Middle East and the United States. Case Workbook. May 1999, Beirut, Lebanon.
3. Van Scoyoc, G. E., J. G. Graveel and W.W. McFee. 2006. Simplified delivery system for internet-based soil science lessons. Philadelphia, PA. 17<sup>th</sup> World Congress of Soil Science, WCSS, Madison, WI.

### **Other Teaching Publications:**

1. Graveel, J. G. 1990. Curriculum revitalization and modification. In J. E. Foss (Ed). *Challenge for the future: developing a contemporary program in agriculture. A report to the Institute of Agriculture, Univ. of Tennessee.*
2. Graveel, J. G. 1992. Journal changes title and scope. *J. Nat. Resour. Life Sci. Educ.* 21: 1.
3. Graveel, J.G., and S. Ernst. 1995.A335.1 *Journal of Natural Resources and Life Sciences Education Editorial Board Minutes.* *J. Nat. Resour. Life Sci.* 24:100-102.
4. Graveel, J.G. 1995. JNRLSE welcomes cooperators. *J. Nat. Resour. Life Sci. Educ.* 24:103.
5. Graveel, J.G., and S. Ernst. 1996.A335.1 *Journal of Natural Resources and Life Sciences Education Editorial Board Minutes.* *J. Nat. Resour. Life Sci.* 25:95-97.
6. Ernst, S., and J.G. Graveel. 1996. K-16 Science: Welcome to the K-16 classroom. *J. Nat. Resour. Life Sci. Educ.* 26:105.
7. Hodges, T., J.G. Graveel, J.J. Vorst, and R. Joly. 1996. Agriculture Bioethics Forum. Iowa State Univ. Ames, Iowa.

8. Graveel, J. G., and W.W. McFee. 1996. Preparing soil monoliths. Purdue University, West Lafayette, IN VAY12.
9. Graveel, J. G. 1996. Teaching with decision case studies. *J. Nat. Resour. Life Sci. Educ.* 25: 1.
10. Graveel, J.G., and S. Ernst. 1997.A335.1 *Journal of Natural Resources and Life Sciences Education* Editorial Board. *J. Nat. Resour. Life Sci.* 26:92-94.
11. Beigel, C.M., J. Graveel, L.S. Lee, and J.J. Vorst. 1999. Environmental Curriculum Development for University and Professional Education in the Middle East and the United States. Case Workbook. Purdue University, West Lafayette, IN.
12. Graveel, J.G., and S. Ernst. 2005.A335.1 *Journal of Natural Resources and Life Sciences Education* Editorial Board Minutes. *J. Nat. Resour. Life Sci.* 34:131-132.
13. Graveel, J.G., and S. Ernst. 2006.A335.1 *Journal of Natural Resources and Life Sciences Education* Editorial Board Minutes. *J. Nat. Resour. Life Sci.* 35:246-248.
14. Graveel, J.G., and S. Ernst. 2007.A335.1 *Journal of Natural Resources and Life Sciences Education* Editorial Board Minutes. *J. Nat. Resour. Life Sci.* 36:168-169.
15. Graveel, J.G., Reflections on the *Journal of Natural Resources and Life Sciences Education*. 2007. *J. Nat. Resour. Life Sci. Educ.* 36:168-170.
16. Graveel, J.G., and S. Ernst. 2008.A335.1 *Journal of Natural Resources and Life Sciences Education* Editorial Board Minutes. *J. Nat. Resour. Life Sci.* 37: 172-174.

**Published Abstracts: Author or Co-Author of the following papers presented at the American Society of Agronomy Annual Meetings and NACTA:**

1. Beyrouthy, C. A., and J. G. Graveel. 1983. An effective environment for the evolution of a graduate instructor. p. 1. *Agronomy abstracts*, ASA, Madison, WI.
2. Graveel, J. G., and H. A. Fribourg. 1985. Readability of agronomic textbooks. p. 2. *Agronomy abstracts*, ASA, Madison, WI.
3. Graveel, J. G., J. E. Foss, D. L. Coffey, V. H. Reich, J. J. Vorst, and D. C. Wolf. 1987. Development of a comprehensive exam for plant and soil science. p. 2. *Agronomy abstracts*, ASA, Madison, WI.
4. Beyrouthy, C. A., and J. G. Graveel. 1987. Making the transition from teaching assistant to assistant professor. p. 1. *Agronomy abstracts*, ASA, Madison, WI.
5. Lessman, G., J. G. Graveel, and J. Logan. 1993. Early experiences with an environmental science and natural resources curriculum. p. 3. *Agronomy Abstracts*, ASA, Madison, WI.
6. Fulk-Bringman, S. S., G. E. Van Scoyoc, W. W. McFee, and J. G. Graveel. 1993. Putting soil science in the hands of the unexpected. p. 2. *Agronomy Abstracts*, ASA, Madison, WI.

7. Mengel, D. G., G. A. Burnett, and J. G. Graveel. 1993. An interdisciplinary program in environmental science. p. 3. Agronomy Abstracts, ASA, Madison, WI.
8. Graveel, J. G., and J. J. Volenec. 1993. Using Hands-on Agro-Environmental Laboratories stimulating interest in "Dirt" and "Plants". p. 5. Agronomy Abstracts, North Central Branch ASA, Madison, WI.
9. Hess, P.J., J.G. Graveel, W. W. McFee, G.G. VanScoyoc, and G.L. Willoughby. 1996. A suite of computer programs for an introductory soils course. p. 102. Agronomy Abstracts, ASA, Madison, WI.
10. Al-Ghazzawi, Z., M. Al-Lawzi, C.M. Biegel, and J.G. Graveel. 1998. Cases in reclaiming petroleum contaminated land in the U.S. and Middle East. p. 4. Agronomy Abstracts, ASA, Madison, WI.
11. Graveel, J.G., G.E. VanScoyoc, W.W. McFee, and S.S. Fulk-Bringman. 1998. Soil science outreach to non-university audiences. p. 3. Agronomy Abstracts, ASA, Madison, WI.
12. Graveel, J.G., S.S. Fulk-Bringman, G.E. VanScoyoc, and W.W. McFee. 1999. Demonstrations in Soil Science. p. 3. Agronomy Abstracts, ASA, Madison, WI.
13. Graveel, J.G., S.S. Fulk-Bringman, G.E. VanScoyoc, and W.W. McFee. 2000. Exciting young students about soil science. p.46. Agronomy Abstracts, ASA, Madison, WI.
14. Graveel, J.G., and W.W. McFee. 2000. Environmental Science Program: Thirty years of success. p.6. Agronomy Abstracts, ASA, Madison, WI.
15. McFee, W.W., G.E. VanScoyoc, and J.G. Graveel. 2002. Computer guided instruction in the multimedia soils resource center. CD-ROM, Indianapolis, IN. Agronomy Abstracts, ASA, Madison, WI.
16. Graveel, J.G., and J.M. Harbor. 2002. In-class exercises increase student involvement in introductory environmental science. CD-ROM, Indianapolis, IN. Agronomy Abstracts, ASA, Madison, WI.
17. Graveel, J.G., and S. Barker. 2003. Adopting curricula to fit environmental position needs. CD-ROM, Denver, CO. Agronomy Abstracts, ASA, Madison, WI.
18. Vorst, J.J., and J.G. Graveel. 2004. Alumni perceptions of Agronomy teaching and advising. CD-ROM, Seattle, WA. Agronomy Abstracts, ASA, Madison, WI.
19. Van Scoyoc, G.E., W.W. McFee, and J.G. Graveel. 2004. Simplified delivery system of internet-based audio-visual lesson. CD-ROM, Seattle, WA. Agronomy Abstracts, ASA, Madison, WI.
20. Graveel, J. G. 2005. The scholarship of teaching and learning in today's Land Grant University. CD-ROM, Salt Lake City, UT. Agronomy Abstracts, ASA, Madison WI.

21. Graveel, J. G., C.A. Beyrouy, G.E. Van Scoyoc, and W.W. McFee. 2005. Developing Teachers: Past Approaches at Purdue University. CD-ROM, Salt Lake City, UT. Agronomy Abstracts, ASA, Madison WI.
22. Graveel J. G., and J.J. Vorst. 2006. Opportunities and obstacles in developing international decision case studies. CD-ROM, Indianapolis, IN. Agronomy Abstracts, ASA, Madison WI.
23. Lindvill, K., and J.G. Graveel. 2006. K-12 outreach: Industry, university, and community cooperation. CD-ROM, Indianapolis, IN. Agronomy Abstracts, ASA, Madison WI.
24. Graveel, J.G., and G.E. Van Scoyoc. 2007. Use of personal response devices to engage students in lecture. CD-ROM, New Orleans, LA. Agronomy Abstract, ASA, Madison, WI.
25. Wolf, S.C., J.J King, and J.G. Graveel. 2008. BioBlitz. CD-ROM, Houston, TX. Agronomy Abstracts, ASA, Madison, WI.
26. Schulze, D. G., S. Mitzman, P. R. Owens, L. Unruh Snyder, G. E. Van Scoyoc, J. G. Graveel, G. C. Steinhardt, C. C. Miller, M. Stowell Bracke, R. J. Glotzbach and B. Benes. Abstracts. 2009 Integrating spatial educational experiences (Isee) into crop, soil, and environmental science curricula. ASA-CSSA-SSSA 2009 International Annual Meeting, November 1-5, 2009, Pittsburgh, PA. Available online at <http://a-c-s.confex.com/crops/2009am/webprogram/Paper55460.html> .
27. Schulze, D. G., P. R. Owens, S. Mitzman, L. Unruh Snyder, G. E. Van Scoyoc, J. G. Graveel, C. C. Miller, M. Stowell Bracke, R. J. Glotzbach, L. A. Kocur, B. Benes, T. Neely, M. Wiggington, and R. Nielson. 2010. Integrating Spatial Educational Experiences (Isee) into Crop, Soil, and Environmental Science Curricula. Abstracts – 2010 NACTA/SERD Conference, Pennsylvania State University, State College, PA. Abstract No. 315.
28. Schulze, D. G., P. R. Owens, S. Mitzman, L. Unruh Snyder, G. E. Van Scoyoc, J. G. Graveel, G. C. Steinhardt, C. C. Miller, M. Stowell Bracke, R. J. Glotzbach, L. A. Kocur, B. Benes, T. Neely, M. Wiggington, and R. Nielson. 2010. Isee - Integrating spatial educational experiences into soil, crop, and environmental sciences. Proceedings of the 19<sup>th</sup> World Congress of Soil Sciences, Brisbane, Australia, August 1-6, 2010. Available online at <http://www.iuss.org/19th%20WCSS/symposium/pdf/1714.pdf>
29. Graveel, J. G. 2010. STEM-Based Peer Tutoring: Students Teaching Students Online. CD-ROM, Long Beach, CA. Agronomy Abstracts, ASA, Madison, WI.
30. Graveel, J. G., and M.S. Bracke. 2011. Using Calibrated Peer Review to Teach Basic Research Skills. ASA, Madison, WI. October 18th, San Antonio, TX.
31. Fulk-Bringman, S., J. G. Graveel, and G.E. VanScoyoc. 2011. Soil has a Charge and Cation Exchange. ASA, Madison, WI. October 18th, San Antonio, TX.
32. Fulk-Bringman, S., J.G. Graveel, and G.E. VanScoyoc. 2011. Soil Chromatography and Nitrate Leaching. ASA, Madison, WI. October 18th, San Antonio, TX.

33. Bracke, S. M., and J. G. Graveel. 2011. Using Calibrated Peer Review to Teach Information Skills in AGR 10100. American Libraries Association. June 27th (Science & Technology Section), New Orleans, LA.
34. Graveel, J. G., and G.E. VanScoyoc. 2012. Innovative Approach to Active Learning. ASA, Madison, WI. October 22nd, Cincinnati, Ohio.
35. Graveel, J. G., D. G. Schulze, and G.E. Van Scoyoc. 2013. Instructional Technologies and Their Impact on Soil Science Education. American Society of Agronomy, Madison WI, Tampa Florida
36. Darrell G. Schulze, Alfred E. Hartemink, Minerva J. Dorantes, David Evans, John G. Graveel, Phillip R. Owens and George E. Van Scoyoc. 2013. Teaching Soils and Telling Stories with Digital Maps. 20th World Congress of Soil Science. Jeju, Korea
37. Schulze, D.G., A. Hartemink, M. Dorantes, D. Evans, J.G. Graveel, P.R. Owens, and G.E. Van Scoyoc. 2014. Teaching soils and telling stories with digital maps. 20th World Congress of Soil Science, Jeju, Korea.
38. Graveel, J.G. and G.E. Van Scoyoc. 2014. Isee facilitates learning in an Introductory Soil Science Course. American Society of Agronomy, Madison, WI, Long Beach, Ca.
39. Graveel, J.G. 2014. Learning communities: An approach to fostering a student's sense of community at the University. American Society of Agronomy, Madison, WI, Long Beach, Ca. (Invited Presentation)

**International, National or State Meetings:**

1. Graveel, J. G. 1992. Do we treat our soils like dirt? In M. Painter (ed.). Landscaping with Native Plants. Abstr. Conf., 23-25 July. Cullowhee, NC.
2. Graveel, J. G., and G. E. Van Scoyoc. 1993. High school teacher internships. North Central Teaching Symposium Abstr. Conf., 21-23 June. Purdue University, West Lafayette, IN.
3. Fulk-Bringman, S. S., G. E. Van Scoyoc, W. W. McFee, and J. G. Graveel. 1993. Putting soil science in the hands of the unexpected. Indiana Academy of Science. Abstr. Conf., 4-5 Nov., Purdue University, West Lafayette, IN.
4. VanScoyoc, G.E., W.W. McFee, and J.G. Graveel. 1997. Expanding the audience for soil science. 16<sup>th</sup> World Congress of Soil Science. Abstr. Conf., 20-26 Aug., Montpellier, France.
5. Vorst, J.J., and J.G. Graveel. 2001. Global Seminar. Spring Planning Conference. Abstr. Conf., 1-3 June, Chicago, Illinois.
6. Graveel, J.G. 2001. Global Seminar. Planning Conference. Abstr. Conf., 14-16 Sept., Cornell University, Ithaca, New York.
7. Van Scoyoc, G. E., J. G. Graveel and W.W. McFee. 2006. Simplified delivery system for internet-based soil science lessons. 17<sup>th</sup> World Congress of Soil Science. Abstr. Conf., 14-15 July, Philadelphia, PA.



8. Knobloch, N. A., Hains, B., Keefe, L., Chang, S., Espinoza Morales, C., Welsh, M., Balschweid, M., Ballard, T., Liceaga, A., Orvis, K., Snyder, L., Zanis, M., Rossano, M., Silvia, W., Brady, C., Esters, L. T., Latour, M., and Graveel, J. 2013. Enhancing Introductory College Courses Using Educational Games in Animal, Plant, and Food Sciences. Presented at the International Congress of Innovation in Learning Agriculture and Natural Resources in Higher Education Universidad Nacional Agraria LaMolina, Peru.

**Book Reviews:**

1. Graveel, J. G. 1985. A review - Future Agricultural Technology and Resource Conservation. 1st Edition by B. C. English, J. A. Maetzold, B. R. Holding, and E. O. Heady. NACTA J. 28:36-37.
2. Graveel, J. G. 1987. A review - Microbial Communities in Soil. 1st Edition by V. Jensen, A. Kjoller, and L. H. Sorensen. NACTA J. 31:48-49.

**Invited Lectures/Workshops/Presentations:**

1. Graveel, J. G. 1984-1992. Numerous invited lectures within the College of Agricultural Sciences and Natural Resources on various environmental topics.
2. Graveel, J. G. 1987-1991. Annual lecture entitled "Tips on Laboratory Instruction" for Graduate Teaching Assistants at the University of Tennessee.
3. Graveel, J. G. 1990-1992. Presentation on "Life in the Classroom", Freshman Orientation. University of Tennessee, Knoxville, TN.
4. Graveel, J.G. 1992-present. Numerous invited lectures within the College of Agriculture at Purdue University on various agronomic and environmental topics.
5. Graveel, J. G., W.W. McFee, and J.J. Volenec. 1995. EDCI 643. Current Issues in agricultural education. Indiana Higher Education Network. 20 Aug., Purdue University, West Lafayette, IN.
6. Graveel, J.G. 1996. Natural Resources and Environmental Science Program. Sustainable Land Use Conference. 4-6 Sept., Godollo, Hungary.
7. Graveel, J.G., and S. Fulk-Bringman. 1996. Environmental Science. Developing Environmental Partnerships. Environmental Education Association of Indiana. 11-12 Oct., Milford, Indiana.
8. Graveel, J.G., W.W. McFee, and G.E. VanScoyoc. 1997. EDCI 640. Course of study in Agricultural Education Programs. Indiana Higher Education Network. 24 Aug., Purdue University, West Lafayette, IN.
9. Stohl, M.S., and J.G. Graveel. 1998. Global Studies Program. 10 Feb., Dow Corning. Midland, MI.
10. Graveel, J.G. 1998. Enrichment in the classroom: Natural resources. 15 June. EDCI 589. Course of study in Agricultural Programs. Indiana Higher Education Television Network. Purdue University, West Lafayette, IN.

11. Graveel, J.G. 1998. NRES curriculum development. 8 Sept., Zamorano, Honduras.
12. Graveel, J.G. 1998. Academic advising and the difference between High School and College. 5 Dec., Golden Honors Day. Purdue University, West Lafayette, IN.
13. Graveel, J.G. 2001. Environmental case studies. Science in Agriculture. 25 Oct., Purdue University, West Lafayette, IN.
14. Graveel, J.G. 2002. Managing The Classroom, Planning Classroom Teaching, and Leading Classroom Discussions. All-Campus Graduate Teaching Assistant Orientation. Committee for the Education of Teaching Assistants (CETA) and Center of Instructional Excellence (CIE), 14 Aug., Purdue University, West Lafayette, IN.
15. Graveel, J.G., and G.E. Van Scoyoc. 2003. Computer guided instruction in a multimedia soils resource laboratory. 1 Oct., ITap, Purdue University.
16. Graveel, J. G., and S. F. Bringman. 2010. Demonstrations in Plant and Soil Science. National FFA meeting. SYNGENTA. 22 October, Indianapolis, IN.
17. Graveel, J. G. 2011. Graduate Student Orientation. Teaching opportunities. Agronomy Department. Purdue University, West Lafayette, IN.
18. Graveel, J. G. 2012 Graduate Student Orientation. Teaching opportunities. Agronomy Department. Purdue University, West Lafayette, IN.
19. Graveel, J. G. 2013 Graduate Student Orientation. Teaching opportunities. Agronomy Department. Purdue University, West Lafayette, IN.
20. Graveel, J. G. 2013. Higher Education in the United States presentation. Herat Partnership Student Exchange Program- Afghanistan.
21. Graveel, J. G. 2014. Graduate Student Orientation. Teaching opportunities. Agronomy Department. Purdue University, West Lafayette, IN.
22. Graveel, J. G. 2014. Higher Education in the United States presentation. Herat Partnership Student Exchange Program- Afghanistan.
23. Graveel, J. G. 2015. Natural Resources and Environmental Science program. 2014. New Zealand - Massey University.
24. Graveel, J. G. 2015. Natural Resources and Environmental Sciences program and the Agronomy Department. France, Purpan – Ecole d'Ingenieurs.
25. Graveel, J. G. 2015. Higher Education in the United States presentation. Herat Partnership Student Exchange Program- Afghanistan.
26. Graveel, J. G. 2015. K-12 Workshop on Environmental Science. Martell Forest, West Lafayette, IN.

27. Graveel, J. G. 2015. Population Growth: The global challenge. Dean Scholar AGR 29000. Purdue University, West Lafayette, IN.
28. Graveel, J. G. 2015. Graduate Student Orientation. Teaching opportunities. Agronomy Department. Purdue University, West Lafayette, IN.
29. Graveel, J. G. 2015. Environmental Studies Learning Community. Learning Communities. Purdue University, West Lafayette, IN.
30. Graveel, J. G. 2015. Production Ag Roundtable. Introductory Soil Science and Isee. Purdue University, West Lafayette, IN.
31. Graveel, J. G. 2015. Innovative Approach to Active Learning. Teaching Academy. Purdue University, West Lafayette, IN
32. Graveel, J. G. 2015. Effective Ways to Engage Students. College of Agriculture, Academic Programs. Purdue University, West Lafayette, IN.
33. Graveel, J. G. 2015. Urban Dirt. Master Gardener. Indianapolis, IN.

#### **Teaching Grants:**

1. Graveel, J. G. 1984. Enriching soils with microcomputers. Idea grant. Institute of Agriculture. Univ. of Tennessee, Knoxville, TN. \$500.
2. Ononye, A. I., and J. G. Graveel. 1991. American Chemical Society Project SEED. A summer research experience for underprivileged high school students. \$3,200.
3. ALO/USAID program. Developing an environmental sciences and policy curriculum with Novgorod State University. 1998-1999. Purdue University, University of Maryland and Novgorod State University, Russia. \$99,734.
4. ALO/USAID program. Higher education partners for development in Honduras. 1998-1999. Purdue University, Cornell University and the Pan American School of Agriculture. \$100,000.
5. Boyd, S.A., B. Ellis, W.F. Bleam, L.E. Lee, D.G. Schulze, and J.G. Graveel. USDA, Higher Education Challenge Grant. 1998-2001. Teaching environmental soil chemistry to undergraduates. \$160,000.
6. Vorst, J.J., J.G. Graveel, and L.S. Lee. USAID, United States Information Agency through the American University of Beirut. 1996-1998. Environmental curriculum development for university and professional education in the Middle East and the United States. \$65,116.
7. Schumann, J., J. G. Graveel, and S. Bonney. 2001. New Community School Education Center. Indiana Parks and Recreation Association. \$10,000.
8. Lee, B.D., J.G. Graveel, G.E. Van Scoyoc, and W.W. McFee. 2001. Soil Resource Center Conversion to a Fully Computer -Based Facility. School and Instructional Computing Funds. Purdue University, West Lafayette, IN. \$38,400.

9. Van Scoyoc, G.E., J.G. Graveel, and W.W. McFee. 2003. Development of a web-based distance education course in "Intermediate Soil Science". ITaP. Digital content development grant. Purdue University, West Lafayette, IN. \$18,960.
10. Van Scoyoc, G.E., J.G. Graveel, and C. Bigelow. 2004. Soils-The foundation of Quality turf. San Diego, CA. Golf Course Superintendents Association of America. \$1,000
11. Graveel, J. G. 2005. Tippe Wildlife Habitat, Eli Lilly, Indianapolis, IN. \$30,002.
12. Graveel, J. G. 2006. Tippe Wildlife Habitat, Eli Lilly, Indianapolis, IN. \$36,164.
13. Graveel, J. G. 2006. Afghan faculty exchange program. Purdue University, West Lafayette, IN. \$1,000.
14. Graveel, J. G. 2007. Tippe Wildlife Habitat, Eli Lilly, Indianapolis, IN. \$38,002.
15. D. G. Schulze, P. R. Owens, L. Unruh Snyder, G. E. Van Scoyoc, J. G. Graveel, G. C. Steinhardt (Department of Agronomy), C. C. Miller, M. Stowell Bracke (Purdue University Libraries), R. J. Glotzbach, B. Benes (Department of Computer Graphics Technology). Integrating Spatial Educational Experiences (ISEE) into Crop, Soil, and Environmental Science Curricula. USDA – CSREES – Higher Education Challenge Grant Program. 8/15/2008 to 8/14/2011. \$132,227.
16. Knobloch, N.A., M. Balschweid, T. Ballard, C. Brady, L. Esters, J. G. Graveel, M. Latour, A. Liceaga, K. Orvis, M. Rossano, L. Snyder, W. Sylvie, and M. Zanis. Enhancing Science Capacity in Introductory Animal, Plant, and Food Sciences Courses. USDA – CSREES – Higher Education Challenge Grant Program. 8/01/2010 to 07/31/2013. \$466,074.
17. Schulze, D. G., and J. G. Graveel. 2012. Enhancing Soil Visualization, Evaluation, and Management in a Spatial Context. College of Agriculture Instructional Equipment Allocation proposal. \$16,990. Purdue University.
18. Schulze, D.G., P.R. Owens, G.E. Van Scoyoc, J.G. Graveel, M.J. Minerva, N.N. Kong, D. Branch, M.S. Bracke, R.J. Glotzbach, B. Benes, W.D. Burgess, O., Adedokun, A. Bessenbacher, J.A. Thompson, T. Mueller, T. Karanthanasis, B.K. Slater, R.G. Darmondy, J. Fraterrigo, A.E. Hartemink, C.L.S. Morgan. USDA, National Institute of Food and Agriculture (NIFA) Higher Education Challenge (HEC) Grants Program. Integrating Spatial Educational Experiences (Isee) – Mapping a New Approach to teaching and Learning Soil Science. June 11, 2013. \$629,619
19. Purdue University Equipment Grant. Enhancing Soil Visualization, Evaluation and Management in a Spatial Context. December 4, 2013. Schulze, D. G., J.G. Graveel, B.C. Joern, C. Johnston, L. S. Lee, P. R. Owens, G. C. Steinhardt, R. Turco, and G.E. Van Scoyoc. \$33,555
20. Erickson, B. J. and J. G. Graveel. 2015. Instructional Teaching Grant: Enhancing Crop and Soil Science in the Resource Centers. \$16,360. Purdue University

21. Mashtare, M. L. J. G. Graveel and D. G. Schulze. 2015 Building on Impact: Integrating technology into the foundation of agronomic and environmental sciences engineering. Instructional Innovation Proposal. \$81,826. Purdue University. **In Review.**

#### **Other Important Teaching Related Activities:**

1. **NRES Scholarship**

A recommendation of the December 2013 NRES alumni advisory council meeting, which I organized, was to create an NRES scholarship foundation. I facilitated and developed a scholarship program for NRES students. This was a challenging and rewarding experience. The result was the John Ditmar Scholarship fund for NRES students. This is the first scholarship fund established specifically for NRES students. Jon was a student in the NRES program in the early 70's. The Jon Ditmar scholarship was advertised in a university wide mailing in November, 2014.

2. **Active Learning Center**

The Active Learning Center will be built on the site of the old power plant. My charge on the committee was to assist in the development of classrooms that facilitate active learning.

3. **IMPACT: Instruction Matters: Purdue Academic Course Transformation**

The overarching goal of IMPACT is to partner with faculty and develop a network of individuals committed to the transformation of ten to twenty courses per year for three years, integrating a more enhanced student-centered approach to learning and retention. AGRY 25500 is an IMPACT course.

4. **Pathway to Purdue**

Increase access to Purdue College of Agriculture Bachelor of Science (B.S.) degree  
Increase readiness for successful completion of an Associate of Science and B.S. degree  
To engage the students in the university community and academic culture of Purdue as freshmen and sophomores

5. **Dual Credit**

In 2006 HB 1347 established Dual Credit in Indiana. Dual credit courses are defined as courses that are taken by high school students that can satisfy requirements for earning both a high school diploma and a college degree. Three Advanced Life Science (ALS) courses, ALS: Animals, ALS: Plants and Soils, and ALS: Foods were easily converted to Dual Credit courses. Enrollment in College of Agriculture Dual Credit courses has increased exponentially since 2007.

#### **RESEARCH PUBLICATIONS**

##### **Books:**

1. Graveel, J. G. 1984. Retention of heavy metals by sewage sludge. p. 230-273. In J. A. Ryan (ed.) Characterization of sewage sludge and sewage sludge soil systems. USEPA Rep. 600/52-84-046 (NTIS PB84-1558898). U.S. Gov. Print. Office, Washington, DC.

### Referred publications:

1. Graveel, J. G., L. E. Sommers, and D. W. Nelson. 1985. Sites of benzidine, A-naphthylamine and p-toluidine retention in soils. *Environ. Toxicol. Chem.* 4:607-613.
2. Graveel, J. G., L. E. Sommers, and D. W. Nelson. 1986. Decomposition of benzidine, A-naphthylamine and p-toluidine in soils. *J. Environ. Qual.* 15:53-59.
3. Wolt, J. D., and J. G. Graveel. 1986. A rapid routine method for obtaining soil solution using a combination of vacuum and displacement. *Soil Sci. Soc. Am. J.* 50:602-605.
4. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1987. Direct determination of benzidine in unaltered soil solution by liquid chromatography. *Bull. Environ. Contam. Toxicol.* 39:524-532.
5. Wolt, J. D., G. N. Rhodes, Jr., J. G. Graveel, E. M. Glosauer, M. K. Amin, and P. L. Church. 1989. Activity of imazaquin in soil solution as affected by incorporated wheat, *Triticum aestivum*, straw. *Weed Sci.* 37:254-258.
6. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1989. Kinetic and spectroscopic investigations of the covalent binding of benzidine to quinones. *Environ. Toxicol. Chem.* 8:303-308.
7. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1989. Kinetic studies of the reactions of benzidine with humic acid. *Soil Sci. Soc. Am. J.* 53:981-983.
8. Graveel, J. G., J. R. Overton, F. F. Bell, H. A. Fribourg, and W. L. Sanders. 1989. Response of corn to soil variation in West Tennessee. *J. Prod. Agric.* 2:300-305.
9. Walker, D. S., J. D. O'Dell, J. D. Wolt, G. N. Rhodes, Jr., and J. G. Graveel. 1990. A tractor mounted sampler for obtaining large undisturbed soil columns. *Weed Tech.* 4:913-917.
10. Graveel, J. G., and A. I. Ononye. 1994. A model study of the reactions of 1-naphthylamine and p-toluidine with humic acid: spectroscopic investigations of the covalent linkages. *Environ. Toxicol. Chem.* 13:537-541.
11. Madari, B., E. Micheli, C.T. Johnston, J.G. Graveel, and I. Czinkota. 1998. Long-term effects of tillage on the composition of soil organic matter: Spectroscopic characterization. *Agrokemia ES Talajtan (J. Agricultural Chemistry and Soil Science)*. 46:127-134.
12. Madari, B., E. Micheli, I. Czinkota, C.T. Johnston, and J.G. Graveel. 1998. Soil organic matter as indicator of changes in the environment. Anthropogenic influences: tillage. *Agrokemia ES Talajtan (J. Agricultural Chemistry and Soil Science)*. 47:121-132.
13. Green, V.S., D.E. Stott, D. Norton, and J.G. Graveel. 1999. Polyacrylamide molecular weight and charge effects on infiltration under simulated rainfall. *Soil Sci. Am. J.* 64:1786-1791.
14. Hui, L., L.S. Lee, C.T. Jafvert, and J.G. Graveel. 2000. Effect of substitution on irreversible binding and transformation of aromatic amines with soils in aqueous systems. *Environ. Sci. Technol.* 34:3674-3680.

15. Graveel, J.G., D.D. Tyler, J.R. Jones and W.W. McFee. 2002. Crop yield and rooting as affected by fragipan depth in loess soils in the Southeast USA. *Soil Tillage Res.* 68:153-161.
16. Green, V.S., D.E. Stott, D. Norton, and J.G. Graveel. 2003. Stability analysis of soil aggregates treated with anionic polyacrylamides of different molecular formulations. *Soil Sci.* 169:573-581.

**Proceedings:**

1. Graveel, J. G. 1989. Environmental factors affecting food availability: water, soil, and pesticides. pp. 29-35. In *Navigating nutrition in the 90's - charting your way.* 29 Sept., Baptist Memorial Health Care Systems, Inc. Memphis, TN.
2. Tyler, D. D., B. N. Duck, J. G. Graveel, and J. F. Bowen. 1987. Estimating yield response curves of legume nitrogen contribution to no-till corn. pp.50-51. In *The Role of Legumes in Conservation Tillage Systems.* Proc. Natl. Conserv. Tillage Conf., Athens, GA. 17-29 Apr. Soil Conservation Society of America, Ankeny, IA.
3. Ononye, A. I., J. D. Wolt, and J. G. Graveel. 1989. Degradation and partitioning of naphthalene in soil. pp. 60-75. In J. F. McCarthy (ed.). *Mobility of colloidal particles in the subsurface: chemistry and hydrology of colloid-aquifer interactions.* 4-6, Oct., Maneo, North Carolina. DOE summary Report/ER/0425.
4. Wilson, G. V., D. D. Tyler, J. D. O'Dell, J. G. Graveel, and D. M. Chandler. 1990. An overview of subsurface transport studies in the vadose zone. pp. 42-47. In M. J. Sale and P. M. Presley (ed.). *The Third Tenn. Water Resources Symposium.* 7-9 Aug., Nashville, TN.
5. Fribourg, H. A., D. D. Tyler, V. W. Benson, J. R. Williams, J. G. Graveel, J. Logan, and G. R. Wells. 1991. Environmentally sound agricultural soil use--prediction of yield, erosion and other off-site effects from corn production. pp. 174-184. In *Proceedings of the Conference on Environmentally Sound Agriculture.* 16-18, Apr., Orlando, FL.
6. Tyler, D. D., J. G. Graveel, and J. R. Jones. 1992. The effect of erosion on soil characteristics and crop yield. *The Southern Loess Belt. Southern Cooperative Series Bull.* No. 174.
7. Graveel, J.G. 1996. Factors affecting mobility of pesticides. p. 484-527. *Herbicide action course.* 27 Oct. - 1 Nov., Purdue University, West Lafayette, IN.
8. Micheli, E., J. G. Graveel, I. Czinkota, and B. Madari. 1996. The effect of long term fertilization on soil organic matter quantity and quality. In *"Bridge Between Science, Industry and Practice"-IXth International Symposium of CIEC.* 25-30 Sept., Kusadsi-Aydin, Turkey.
9. Madari, B., E. Micheli, I.Czinkota, C.T. Johnson, and J.G. Graveel. 1996. The effect of tillage systems on soil organic matter. In *proceedings of the International Humic Society.* 9-13 Sept., Warsaw Poland.
10. Graveel, J.G. 1997. Factors affecting mobility of pesticides. P. 505-553. *Herbicide action course.* 19 - 31 Oct., Purdue University, West Lafayette, IN.

11. Graveel, J.G., and R. Turco. 1998. Soil principles, herbicide properties and interactions with soil. p. 540-607. Herbicide action course. 18 - 23 Oct. and 25 - 30 Oct., Purdue University, West Lafayette, IN.
12. Graveel, J.G. 1999. Herbicide properties and interactions with soil. p. 578-641. Herbicide action course. 10 - 15 Oct. and 17 - 22 Oct., Purdue University, West Lafayette, IN.
13. Graveel, J.G. 2000. Herbicide properties and interactions with soil. p. 613-625. Herbicide action course. 15 - 20 Oct., Purdue University, West Lafayette, IN.
14. Ryan, K.E., E.J. Kladvko, M.V. Hickman, S.M. Brouder, C. Nakatsu, J.G. Graveel, and J. Santini. 2000. Soil quality improvement with cover crop mixtures. 15th International Soil Tillage Research Organization (ISTRO) Conference. 2-7 July, Ft. Worth, Texas 14.
15. Graveel, J.G. 2002. Herbicide properties and interactions with soil. p. 645-705. Herbicide action course. 20 Oct.- 1 Nov., Purdue University, West Lafayette, IN.
16. Graveel, J.G. 2004. Herbicide properties and interactions with soil. p. 667-731. Herbicide action course. 19-24 Oct., Purdue University, West Lafayette, IN.
17. Graveel, J.G. 2005. Herbicide properties and interactions with soil. p. 667-731. Herbicide action course. 17-21 Oct., Purdue University, West Lafayette, IN.

**Published abstracts: Author or Co-Author of the following papers presented at the American Society of Agronomy Annual Meetings:**

1. Graveel, J. G., D. W. Nelson, and L. E. Sommers. 1982. The degradation of benzidine in soils. p. 30. Agronomy abstracts, ASA, Madison, WI.
2. Graveel, J. G., D. W. Nelson, and L. E. Sommers. 1983. The degradation of aromatic amines in soils. p. 33. Agronomy abstracts, ASA, Madison, WI.
3. Graveel, J. G., D. W. Nelson, and L. E. Sommers. 1984. Retention of aromatic amines by soils. p. 27. Agronomy abstracts, ASA, Madison, WI.
4. Wolt, J. D., and J. G. Graveel. 1984. A rapid routine method for obtaining soil solution using a combination of vacuum and displacement. p. 181. Agronomy abstracts, ASA, Madison, WI.
5. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1986. Determination of benzidine in displaced soil solution by HPLC. p. 34. Agronomy abstracts, ASA, Madison, WI.
6. Bowen, J. F., D. D. Tyler, and J. G. Graveel. 1986. Grass and legume cover crop decomposition rates in no-tillage corn. p. 86. Agronomy abstracts, ASA, Madison, WI.
7. Jones, J. R., D. D. Tyler, and J. G. Graveel. 1986. Root development on a fragipan soil with varying degrees of erosion. p. 245. Agronomy abstracts, ASA, Madison, WI.
8. Tyler, D. D., F. E. Rhoton, J. G. Graveel, J. R. Jones, and W. T. Brown. 1986. Comparative measurements on virgin versus eroded fragipan soils. p. 254. Agronomy abstracts, ASA, Madison, WI.
9. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1987. A mechanistic study of the reactions of benzidine with humic acids and quinones. p. 189. Agronomy abstracts, ASA, Madison, WI.
10. Ononye, A. I., J. G. Graveel, and J. D. Wolt. 1988. Henry's law and the partitioning of naphthalene in soil. p. 44. Agronomy abstracts, ASA, Madison, WI.



11. O'Dell, J. D., J. D. Wolt, J. G. Gravel, and G. N. Rhodes, Jr. 1989. Transport of imazethapyr in undisturbed soil columns. p. 3. Agronomy Abstracts, Southern Branch ASA, Madison, WI.
12. Tyler, D. D., B. N. Duck, and J. G. Gravel. 1989. Management and economics of legume cover crops in no-tillage agriculture. p. 296. Agronomy abstracts, ASA, Madison, WI.
13. Chandler, D. M., J. G. Gravel, G. V. Wilson, and D. D. Tyler. 1990. Transport of imazaquin through undisturbed soil columns. p. 34. Agronomy Abstracts, ASA, Madison, WI.
14. Kawonga, W. T., J. G. Gravel, D. D. Tyler, and B. N. Duck. 1990. Cover crop and nitrogen rate effects on nitrate movement. p. 318. Agronomy Abstracts, ASA, Madison, WI.
15. Gravel, J. G., G. Sutarman, D. D. Tyler, and H. P. Denton. 1991. Erosion tillage, and cover crop effects on aggregate stability. p. 342. Agronomy Abstracts, ASA, Madison, WI.
16. D. D. Tyler, F. E. Rhoton, and J. G. Gravel. 1991. Properties and productivity of fragipan soils with various degrees of erosion. p. 343. Agronomy Abstracts, ASA, Madison, WI.
17. Ononye, A. I., J. G. Gravel, and G. V. Wilson. 1993. The reactions and transport of benzidine, A-naphthylamine and *p*-toluidine in soil. p. 43. Agronomy Abstracts, ASA, Madison, WI.
18. Stair, D., G. V. Wilson, D. D. Tyler, J. G. Gravel. 1993. The effects of rainfall intensity and duration on preferential flow. p. 217. Agronomy Abstracts, ASA, Madison, WI.
19. Gravel, J.G. 1994. Soils, contaminants, and their interaction. p. 59. Agronomy Abstracts, ASA, Madison, WI.
20. E. J. Kladvko, and J. G. Gravel. 1994. Seeding *Lumbricus terrestris* ("Night crawlers") on farmers' no-till fields. p. 353. Agronomy Abstracts, ASA, Madison, WI.
21. Goebel, D.D., S.E. Hawkins, B.C. Joern, J. G. Gravel, and W.T. Semmel. 1994. Utilization of tree leaves in cropping systems: effects of N immobilization and mineralization. p. 361. Agronomy Abstracts, ASA, Madison, WI.
22. Ponciroli, G. R., J.G. Gravel, B.C. Joern, and S.E. Hawkins. 1994. Controlling nitrogen release with carbon rich organic materials. p. 365. Agronomy Abstracts, ASA, Madison, WI.
23. Gravel, J. G., T.D. West, D.R. Griffith, and G.C. Steinhardt. 1995. Tillage and rotational effects on soil carbon after 20 years in central Indiana. p. 18. Agronomy Abstracts, ASA, Madison, WI.
24. Willoughby, G.L., E.J. Kladvko, and J.G. Gravel. 1995. Survival of seeded night crawlers and their effects on infiltration rates in farmer's no-till fields. p. 298. Agronomy Abstracts, ASA, Madison, WI.
25. Madari, B., E. Micheli, C.T. Johnston, and J.G. Gravel. 1996. Composition of soil organic matter under different tillage systems. p. 193. Agronomy Abstracts, ASA, Madison, WI.
26. Willoughby, G.L., E.J. Kladvko, and J.G. Gravel. 1996. Infiltration rates following introduction of *L. terrestris* into farmers no-till fields. p. 233. Agronomy Abstracts, ASA, Madison, WI.
27. Cinkota, I., E. Micheli, J.G. Gravel, and B. Madari. 1997. Titration methods for soil organic matter characterization. p. 150. Agronomy Abstracts, ASA, Madison, WI.

28. Al-Ghazzawi, Z., M. Al-Lawzi, C.M. Biegel, and J.G. Graveel. 1998. Cases in reclaiming petroleum contaminated land in the U.S. and Middle East. p. 4. Agronomy Abstracts, ASA, Madison, WI.
29. Kladivko, E.J., J.G. Graveel, and G.L. Willoughby. 1998. Reintroduction of *Lumbricus terrestris* into no-till fields in Indiana. p. 273. Agronomy Abstracts, ASA, Madison, WI.
30. Green, V.S., D.E. Stott, and J.G. Graveel. 1998. Slaking analysis of aggregates treated with anionic polyacrylamide of different molecular configurations. p. 281. Agronomy Abstracts, ASA, Madison, WI.
31. Ryan, K.E., E.J. Kladivko, M. Hickman, S. Brouder, C. Nakatsu, and J.G. Graveel. 1999. Soil Quality Improvement with Cover Crop Mixtures. p. 280. Agronomy Abstracts, ASA, Madison, WI.
32. Tombacz, E., E. Micheli, I. Csanadi, S. Buttner, and J. G. Graveel. 1999. Microaggregate Studies Using Rheology. p. 347. Agronomy Abstracts, ASA, Madison, WI.
33. Stout, H.M., B.D. Lee, and J.G. Graveel. 2002. Spatial distribution of onsite wastewater treatment system: Failure and environmental impact. CD-ROM, Indianapolis, IN. Agronomy Abstracts, ASA, Madison, WI. 9.
34. Rahmani, S.R., P.R. Owens, and J.G. Graveel. 2014. Creating an initial digital soil map of Afghanistan. American Society of Agronomy, Madison, WI, Long Beach, Ca. 11/02/2014-11/05/2014.

#### **International, National or State Meetings:**

1. Tyler, D. D., J. R. Jones, and J. G. Graveel. 1985. Productivity losses on a fragipan soil. *Soil Cons. Soc. Am.* 40:10.
2. Graveel, J. G. 1986. The fate of man-made organic compounds in the soil environment. Science Association of Tennessee. Abstr. Conf., 14-15 Nov., Knoxville, TN.
3. Graveel, J. G. 1987. Soil attenuation studies: benzidine. p. 45. In *Ground Water: Tennessee's Hidden Asset*. Tennessee Dept. Health and Environment. Abstr. Conf., 6-7 May, Nashville, TN.
4. Walker, D. S., J. D. O'Dell, J. D. Wolt, G. N. Rhodes, Jr., and J. G. Graveel. 1989. A tractor mounted sampler for obtaining large undisturbed soil columns for leaching studies. *Weed Sci. Soc. Am. Abstr.* 29: 106.
5. Amin, M. K., G. N. Rhodes, Jr., J. D. Wolt, and J. G. Graveel. 1989. Wheat straw influence on soil reception of imazaquin. *Southern Weed Sci. Soc.* 42:342.
6. Ononye, A. I., J. D. Wolt, and J. G. Graveel. 1989. A simplified EPICS procedure for measurement of Henry's Law Constant. 19th International Symposium on Environmental Analytical Chemistry. Abstr. Conf., 22-24 May, Jekyll Island, Georgia.

7. Rhodes, Jr. G. N., J. D. Wolt, and J. G. Graveel. 1988. Effect of incorporated wheat straw on imazaquin in soil solution. p. 354. In D. Worshana (ed.). Environmental Legislation and its Effects on Weed Science. Proc. Southern Weed Sci. Soc. 18-20 Jan., Tulsa, OK.
8. Graveel, J. G., and G. V. Wilson. 1990. Characterize the mobility of imazaquin in soil as influenced by wheat straw. Tennessee Soil and Water Research and Education Symposium. Abstr. Conf., 28-29 Nov., Pigeon Forge, TN.
9. Graveel, J. G., and D. D. Tyler. 1990. Nitrate leaching under legume cover crops in no-tillage corn production. Tennessee Soil and Water Research and Education Symposium. Abstr. Conf., 28-29 Nov., Pigeon Forge, TN.
10. Graveel, J. G. 1990. Fate and transport of xenobiotics in the soil environment. Tennessee Soil and Water Research and Education Symposium. Abstr. Conf., 28-29 Nov., Pigeon Forge, TN.
11. Graveel, J. G., and A. I. Ononye. 1990. Graphical EPICS procedure for measurement of Henry's Law constant. Tennessee Soil and Water Research and Education Symposium. Abstr. Conf., 28-29 Nov., Pigeon Forge, TN.
12. Graveel, J. G. 1990. Composting and land application of sewage sludge. Twenty-Ninth Annual Convention of the Tennessee Council of Chapters, Soil and Water Conservation Society. Abstr. Conf., 7-9 June, Gatlinburg, TN.
13. Mullins, C. A., C. R. Mote, R. A. Straw, D. L. Coffey, G. M. Lessman, and J. G. Graveel. 1990. Vegetable tillage methods and water quality. Hort. Sci. Soc. 25:1115.
14. Graveel, J. G. 1991. Spectroscopic investigations of the covalent binding of aromatic amines to quinones. Tennessee Natural Resources Research and Educators Symposium. Abstr. Conf. 21-22 Nov., Knoxville, TN.
15. Graveel, J. G. 1991. Transport of imazaquin through undisturbed soil columns. Tennessee Natural Resources Research and Educators Symposium. Abstr. Conf. 21-22 Nov., Knoxville, TN.
16. Ononye, A. I., and J. G. Graveel. 1991. A model study of the reactions of the A-naphthalene and *p*-toluidine with humic acid; spectroscopic investigations of the covalent linkages. Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN.
17. Fribourg, H. A., D. D. Tyler, J. G. Graveel, V. W. Benson, J. R. Williams, J. Logan, and G. R. Wells. 1991. Sound agriculture soil use -- prediction of on-site and off-site effects. Environmentally Sound Agriculture. Abstr. Conf., 17-18 April, Orlando, FL.
18. Graveel, J. G. 1992. Do we treat our soils like dirt? In M. Painter (ed.). Landscaping with Native Plants. Abstr. Conf., 23-25 July, Cullowhee, NC.
19. Graveel, J. G., 1993. Modeling the reactions of 1-naphthylamine and 4-methylaniline with humic acids: spectroscopic investigations of the covalent linkages. First Purdue University Environmental Workshop. Abstr. Conf., 20 Aug., West Lafayette, IN.
20. Fulk-Bringman, S. S., G. E. Van Scoyoc, W. W. McFee, and J. G. Graveel. 1993. Putting soil science in the hands of the unexpected. Indiana Academy of Science. Abstr. Conf., 4-5 Nov., Purdue University, West Lafayette, IN.

21. Graveel, J. G. and A. I. Ononye. 1993. Modeling the reactions of 1-naphthylamine and 4-methylaniline with humic acids: spectroscopic investigations of the covalent linkages. 16th Midwest Environmental Workshop. Abstr. Conf., 17-18, Oct., University of Notre Dame, Notre Dame, IN.
22. Madari, B., E. Micheli, I. Czinkota, C.T. Johnston, and J.G. Graveel. 1996. The effect of tillage systems on soil organic matter. International Humic society. Warsaw, Poland.
23. Li, Hui., J. Fabrega, L.S. Lee, C. Jafvert, and J.G. Graveel. 1998. Effect of substitution on the interaction of aromatic amines with soils in aqueous systems. Midwest Environmental Chemistry Workshop. 16-18 Oct., The University of Michigan, Ann Arbor, MI.
24. Madari, B., E. Micheli, I. Czinkota, C.T. Johnston, and J.G. Graveel. 1998. Soil organic matter as indicator of changes in the environment. Anthropogenic influences: tillage. p. 146. 16<sup>th</sup> World Congress of Soil Science. 20-26 Aug., Montpellier, France.
25. Graveel, J.G. 2000. In-situ bioremediation of soils. In maintaining soil quality. Abstracts of a conference, 22-24 May, Godollo, Hungary
26. Stout, H.M., B.D. Lee, and J.G. Graveel. 2002. Spatial distribution of onsite wastewater treatment system: Failure and environmental impact. Soil and Water Conservation Society. Abstr. Conf. Indianapolis, IN. J. Soil and Water Conser. 57:300.
27. Van Scoyoc, G.E., J.G. Graveel, and C. Bigelow. 2004. Soils-The foundation of Quality turf. San Diego, CA. 10 Feb., Golf Course Superintendents Association of America.
28. Van Scoyoc, G.E., J.G. Graveel, and C. Bigelow. 2005. Soils-The foundation of Quality turf. Indianapolis, IN. 18 Jan., Golf Course Superintendents Association of America.
29. Van Scoyoc, G.E., J.G. Graveel, and C. Bigelow. 2005. Soils-The foundation of Quality turf. Orlando, FL. 9 Feb., Golf Course Superintendents Association of America.
30. Graveel, J.G., and C. Bigelow. 2005. Soils-The foundation of Quality turf. Baton Rouge, LA. 15 May, Golf Course Superintendents Association of America.
31. Van Scoyoc, G.E., J.G. Graveel, and C. Bigelow. 2006. Soils-The foundation of Quality turf. Atlanta, GA. 8 Feb., Golf Course Superintendents Association of America.
32. Graveel, J. G., and C. Bigelow. 2006. Soils-The foundation of Quality turf. Denver, CO. 6-7 Nov., Golf Course Superintendents Association of America.

**Extension/Field Days:**

1. Graveel, J. G. 1983. Physical properties of soils. Intensive short course taught by an Indiana Cooperative Extension Service Team for the Indiana Higher Education Television System. West Lafayette, IN.
2. Graves, C. R., and J. G. Graveel. 1984. Grain sorghum varieties evaluated no-till vs. conventional seedbed. Milan No-Till Field Day, Milan, TN.
3. Duck, B. N., and J. G. Graveel. 1985. Grain sorghum - tillage and fertilization. Milan No-Till Field Day, Milan, TN.

4. Buntley, G., and J. G. Graveel. 1986. Wheat straw management for no-till soybeans: To burn or not to burn. Milan No-Till Field Day, Milan, TN.
6. Tyler, D. D., and J. G. Graveel. 1987. Nitrogen fertilization of corn and fescue. Southeastern Forage and Grassland Exposition. Greenville, TN.
7. Tyler, D. D., and J. G. Graveel. 1987. Crop productivity losses from erosion. Milan No-Till Field Day, Milan, TN.
8. Tyler, D. D., and J. G. Graveel. 1988. No-till effects on soil structure compaction, and organic matter. Milan No-Till Field Day, Milan, TN.
9. Tyler, D. D., and J. G. Graveel. 1990. Soil erosion and soybean productivity. Milan No-Till Field Day, Milan, TN.
10. Graveel, J. G., and H. P. Denton. 1991. Fate of nutrients and pesticides after application. Milan No-Till Field Day, Milan, TN.
11. Graveel, J. G. 1991. Cover crop influence on nutrient leaching. Martin Field Day, Martin, TN.
12. Graveel, J.G. 1993. Basic physical properties of soil. Integrated Crop Management Workshop/Certified Crop Advisor Workshop. 12 Dec., Purdue University, West Lafayette, IN.
13. Kladvko, E. J., and J. G. Graveel. 1993. Earthworms quiet benefactors of conservation tillage. Agronomy Field Day, Purdue University, West Lafayette, IN.
14. Graveel, J.G. 1994. Basic physical properties of soil. Integrated Crop Management Workshop/Certified Crop Advisor Workshop. 12 Dec., Purdue University, West Lafayette, IN.
15. Graveel, J.G. 1994. Cation exchange capacity. Integrated Crop Management Workshop/Certified Crop Advisor Workshop. 14 Dec. Purdue University, West Lafayette, IN.
16. Graveel, J. G. 1995. Factors affecting mobility of pesticides. p. 484-527. Herbicide Action Short Course, Purdue University, West Lafayette, IN.
17. Graveel, J. G. 1995. Soil properties. Ornamental Horticulture and Turf Seminar. Purdue University.
18. Graveel, J.G. 1995. Soil texture, structure, drainage, and organic matter. Certified Crop Advisor Workshop. 15 Jan., Purdue University, West Lafayette, IN.
19. Graveel, J.G. 1996. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 19-23 Feb., Merrillville, IN.
20. Graveel, J.G., and Z. Reicher. 1996. Soil Sampling. Ornamental Horticulture and Turf Seminar. 21 Nov., Purdue University, West Lafayette, IN.
21. Hill, P., and J.G. Graveel. 1996. Residue and tillage management workshop. 17-18 Sept., Jordan University of Science and Technology, Jordan.
22. Graveel, J.G. 1996. Soil chemical properties. 10 June, Dow-Elanco, Indianapolis, IN.

23. Graveel, J.G. 1996. Soil texture, structure, drainage, and organic matter. Certified Crop Advisor Workshop. 15 Jan., Purdue University, West Lafayette, IN.
24. Graveel, J.G. 1997. Soil formation. Agronomy Field Day, Purdue University, West Lafayette, IN.
25. Graveel, J.G. 1997. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 25 Feb., St. Charles, IL.
26. Graveel, J.G. 1997. Golf course soils. IGCSA Golf course maintenance. 4 March, Old Oakland Golf Club. Indianapolis, IN.
27. Graveel, J.G. 1997. Remediation and bioremediation. Environmental Soil Science Course. 14 May, Purdue University, West Lafayette, IN.
28. Graveel, J.G. 1997. The cation exchange story. Certified Crop Advisory Workshop. 1 Dec., Purdue University, West Lafayette, IN.
29. Graveel, J.G. 1998. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 24 Feb., Willowbrook, IL.
30. Graveel, J.G. 1998. Soil testing. Turf and Ornamental Seminar. 12 Nov., Lafayette, IN.
31. Graveel, J.G. 1998. Proper and improper irrigation and its effects on pesticide application. Indiana State Lawn Care Association. 10 Dec., Oak Hill Mansion, Carmel, IN.
32. Graveel, J.G. 1998. CEC, pH, and Base Saturation. Certified Crop Advisor Workshop. 5 Jan., Purdue University, West Lafayette, IN.
33. Graveel, J.G. 1998. Soil organic matter and organisms. Certified Crop Advisor Workshop. 5 Jan., Purdue University, West Lafayette, IN.
34. Graveel, J.G. 1999. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 22-26 Feb., Willowbrook, IL.
35. Graveel, J.G. 1999. Principles of soils and herbicide interactions. National Railroad Contractors Association. 25 -28 Jan., Indianapolis, IN.
36. Graveel, J.G. 1999. The cation exchange story. Certified Crop Advisor Workshop. 5 Jan., Purdue University, West Lafayette, IN.
37. Graveel, J.G. 1999. Soil organic matter and organisms. Certified Crop Advisor Workshop. 5 Jan., Purdue University, West Lafayette, IN.
38. Graveel, J.G. 2001. Understanding soil testing. Midwest Turf Expo. 9-10 Jan., Indiana Convention Center, Indianapolis, IN.
39. Graveel, J. G. 2001. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 26-29 Feb., Willowbrook, IL.
40. Graveel, J.G. 2002. Understanding basic soil fertility. Midwest Turf Expo. 14-16 Jan., Indiana Convention Center, Indianapolis, IN.
41. Graveel, J.G. 2002. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 25 Feb.-1Mar., Willowbrook, IL.

42. Graveel, J.G. 2002. Soil texture, color, and drainage. Certified Crop Advisor Workshop. 8 Jan., Purdue University, West Lafayette, IN.
43. Graveel, J.G. 2002. Cation exchange capacity. Certified Crop Advisor Workshop. 8 Jan., Purdue University, West Lafayette, IN.
44. Graveel, J.G. 2002. Soil organic matter and organisms. Certified Crop Advisor Workshop. 8 Jan., Purdue University, West Lafayette, IN.
45. Graveel, J.G. 2003. Turfgrass soils. Indiana-Illinois Turfgrass Short Course. 24-28 Feb., Willowbrook, IL.
46. Graveel, J.G. 2003. The Nature and properties of soils. Clark County and Orange County. 23 Jan., Master Gardener Training.
47. Graveel, J.G. 2003. Soil texture, color, and drainage. Certified Crop Advisor Workshop. 7 Jan., Purdue University. West Lafayette, IN.
48. Graveel, J.G. 2003. Soil organic matter and organisms. Certified Crop Advisor Workshop. 7 Jan., Purdue University, West Lafayette, IN.
49. Graveel, J. G. 2004. Soils and Pesticide Behavior. 28 Nov. Turf and Ornamental Workshop, Marion Co. IN.
50. Graveel, J. G. 2005. Soils and Pesticide Behavior. 29 Nov., Turf and Ornamental Workshop, Marion Co. IN.
51. Graveel, J. G. 2006. Soils and Pesticide Behavior. 27 Nov., Turf and Ornamental Workshop, Marion Co. IN.
52. Graveel, J. G. 2007. Soils and Pesticide Behavior. 28 Nov., Turf and Ornamental Workshop, Marion Co. IN.
53. Graveel, J. G. 2008. Soils and Pesticide Behavior. 20 Nov., Turf and Ornamental Workshop, Marion Co. IN.
54. Graveel, J. G. 2009. Soils and Pesticide Behavior. 19 Nov., Turf and Ornamental Workshop, Marion Co. IN.
55. Graveel, J. G. 2010. How soils affect Pesticide Fate. 18 Nov., Turf and Ornamental Workshop, Marion Co. IN.
56. Graveel, J. G., and S. Fulk-Bringman. 2013. Water and Water Conservation. Syngenta. Louisville, KY.
57. Graveel, J.G. 2013. Interpreting Soil Test. White County Agriculture Winter School. Jan. 28th. Frontier High School. Chalmers, IN.
58. Graveel, J.G. 2013. Scientific Resources for Soil Health. Soil Health and Sustainability for Midwestern NRCS Field Staff. DTC-ACRE. August 29th. Purdue University. West Lafayette, IN.

59. Graveel, J. G. 2013. Basic Soil Review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. February 12th. VUJC/Jasper, IN.
60. Graveel, J.G. 2013. Basic Soil review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. February 20th. DTC-ACRE. West Lafayette, IN.
61. Graveel, J. G. 2014. Basic Soil Review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. February 12th. Lawrence County Fairgrounds. Mitchel, IN.
62. Graveel, J.G. 2014. Basic Soil Review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. February 13th. Miami County Fairgrounds, Peru, IN.
63. Graveel, J.G. 2014 Scientific Resources for Soil Health. Midwestern NRCS Field Staff. 08/21/2014. DTC-ACRE. West Lafayette, IN.
64. Graveel, J. G. 2014. Aggregate Stability and Soil Microbes. Hoosier Chapter Soil and Water Conservation Society. Ball State University, Muncie, IN.
65. Graveel, J. G. 2015. Basic Soil Review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. SEPAC, Jennings County, IN.
66. Graveel, J.G. 2015. Basic Soil Review. Soil Health and Sustainability for Midwestern NRCS Field Staff. Introductory Soil Health Training Workshop. February 13th. ACRE, West Lafayette, IN.
67. Graveel, J. G. 2015. Soil Microbes. White County Farmers Association. White County, IN.

**Invited Lectures:**

1. Graveel, J. G. 1984-2008. Invited to represent the University of Tennessee College of Agricultural Sciences and Natural Resources and Institute of Agriculture, and Purdue University Department of Agronomy at numerous campus and state-wide programs such as Board of Trustee Meetings, Institute Development Board Meetings, Alumni Council, Farm Bureau, High School visitations and 4-H Academic Conferences.
2. Graveel, J. G., and A. I. Ononye. 1986. Presented a seminar on "The Sorption and Binding of Aromatic Amines by Soils" to the Environmental Sciences Division at Oak Ridge National Lab., Oak Ridge, TN.
3. Graveel, J. G. 1987. Lecture on "Chemical Properties of Soils" at Hiwassee College, Madisonville, TN.
4. Graveel, J. G. 1987-1991. Annual lecture entitled "Tips on Laboratory Instruction" for Graduate Teaching Assistants at the University of Tennessee.
5. Graveel, J. G. 1984-1991. Numerous invited lectures within the College of Agricultural Sciences and Natural Resources on various environmental topics.



6. Graveel, J. G. 1992. Lecture on "The Fate of Agricultural Chemicals in the Environment" to the McClanahan Scholars University of Tennessee.
7. Graveel, J.G. 1999. Soil conservation. Summer course in Tropical Agriculture and Sustainable Development. 7 June - 2 July, Zamorano, Honduras.
8. Graveel, J. G. 1992-present. Numerous invited lectures within the College of Agriculture and the School of Science on various agronomic and environmental topics.

#### **Research Reports:**

1. Graveel, J. G., and C. A. Beyrouty. 1983. Physical and chemical properties of soils. In Planning to Harvest. Purdue University, Department of Horticulture.
2. Graveel, J. G., and R. E. Lambert. 1986. Estimating soil erosion in Tennessee using the Universal Soil Loss Equation. Univ. of Tenn., Ag. Exp. Sta. Res. Rpt. 86-16.
3. Wolt, J. D., A. I. Ononye, J. D. O'Dell, D. S. Walker, J. G. Graveel, and G. N. Rhodes, Jr. 1988. Fate and transport of synthetic organics as influenced by diffuse vs. channelized flow of solutes. United States Geological Survey Research Project Technical Completion Report No. 115. Tennessee Water Resources Research Center, Knoxville, TN.
4. Graveel, J. G. 1990. Curriculum revitalization and modification. In J. E. Foss (Ed). Challenge for the future: developing a contemporary program in agriculture. A report to the Institute of Agriculture, Univ. of Tennessee.
5. Graveel, J. G., D. M. Chandler, G. V. Wilson, and D. D. Tyler. 1991. The effects of conservation tillage on transport of pesticides through unsaturated soil profiles. United States Geological Survey Research Project Technical Completion Report No. 145. Tennessee Water Resources Research Center, Knoxville, TN.
6. Reynolds, J., and J. G. Graveel. 1991. Characteristics of the first twenty-five years of the Ph.D. program in Plant and Soil Science. Univ. of Tenn., Ag. Exp. Sta. Res. Rpt. 91.
7. Graveel, J. G., H. A. Fribourg, J. B. Overton, F. F. Bell, and W. L. Sanders. 1991. The effect of soil variation on corn yields in West Tennessee from 1957 to 1980. Tenn. Farm and Home Sci. 157:20-28.
8. Reicher, Z., C. Throssell, and J.G. Graveel. 1997. Interpreting soil test reports for professional turf managers.

#### **Grants and Sponsored Research:**

1. Graveel, J. G. 1984. Enriching soils with microcomputers. Idea grant. Institute of Agriculture. Univ. of Tennessee, Knoxville, TN. \$500.
2. Graveel, J. G., and J. D. Wolt. 1985. Decomposition and binding of benzidine, A-naphthylamine, and *p*-toluidine in soils. Waste Management Research and Education Institute. Univ. of Tennessee, Knoxville, TN. \$24,962.
3. Graveel, J. G., and J. D. Wolt. 1986. Retention of benzidine, A-naphthylamine, and *p*-toluidine in soils. Waste Management Research and Education Institute. Univ. of Tennessee, Knoxville, TN. \$23,970.
4. Rhodes, G. N., J. G. Graveel, and J. D. Wolt. 1987-1988. Movement, sorption, and persistence of imazaquin in soil as affected by wheat straw. Southern Region Pesticide Impact Assessment Program. \$27,000.

5. Wolt, J. D., G. N. Rhodes, and J. G. Graveel. 1987-1988. Fate and transport of synthetic organics by diffuse versus channelized flow of solutes. United States Geological Survey. Tennessee Water Resources Research Center. \$18,000.
6. Graveel, J. G., and C. R. Graves. 1987-1988. Evaluation of *Bradyrhizobium japonicum* inoculants on soybean. Agracetus. \$10,000.
7. Graveel, J. G., and O. J. Schwarz. 1987-1989. Fate and Transport of Organic pollutants in the Terrestrial Environment. Waste Management Research and Education Institute, Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN. \$95,600.
8. Mullins, C. A., C. R. Mote, J. G. Graveel, D. L. Coffey, G. M. Lessman, and G. N. Rhodes, Jr. 1989-1991. Effects of conservation tillage methods on soil and water quality and production of alternative agricultural crops. Soil Conservation Service, TN. \$20,000.
9. Graveel, J. G., and A. I. Ononye. 1989-1990. Degradation, distribution, and transport of toxicants in soil microcosms and intact soil profiles. Waste Management Research and Education Institute. Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN. \$31,000.
10. Graveel, J. G., G. V. Wilson, D. D. Tyler, and C. R. Mote. 1990-1991. The effects of conservation tillage on transport of pesticides through unsaturated soil profiles. United States Geological Survey. Tennessee Water Resources Research Center. \$16,000.
11. Davis, W., J. G. Graveel, T. Miller, J. Smoot, and B. Robinson. 1990. Development of a comprehensive risk assessment methodology for waste disposal. Waste Management Research and Education Institute. Univ. of Tennessee, Knoxville, TN. \$20,000.
12. Graveel, J. G. 1990-1991. Fate and transport of xenobiotics in the soil environment. Waste Management Research and Education Institute. Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN. \$14,000.
13. Graveel, J. G. 1991-1992. Complexation of A-naphthylamine and *p*-toluidine with humic acid. Waste Management Research and Education Institute. Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN. \$12,684.
14. Graveel, J. G. 1992. Soil pollution and soil protection. Univ. of Tennessee, Development Award. \$2,400.
15. Graveel, J. G. and A. I. Ononye. 1992-1993. The reactions and transport of benzidine, A-naphthylamine and *p*-toluidine in soil. Waste Management Research and Education Institute. Center for Environmental Biotechnology. Univ. of Tennessee, Knoxville, TN. \$15,750.
16. Kladviko, E.J., J.G. Graveel, and D. R. Griffith. Purdue Agricultural Experiment Station, "Crossroads"-Seeding deep-burrowing earthworms on no-till fields. Oct. 1993-Sept. 1995. \$68,000.
17. Turco, R., M. Bischoff, and J. Graveel. Dow Elanco. Understanding the fate of sulfonamides in soil. 1993. 1995. \$165,000.
18. Vorst, J.J., and J.G. Graveel. Global Initiative Grant. 1996. Collaborative course on tillage/residue management in Jordan. \$5,000.
19. Hickman, M., E. Kladviko, C. Nakatsu, S. Brouder, and J.G. Graveel. USDA, North Central Region Sustainable Agriculture Research and Education Program (SARE). 1998 - 1999. Soil quality improvement with cover crop mixtures. \$93,256.

20. Lee, L.S., C. Jafvert, and J.G. Graveel. Environmental Protection Agency. 1995-1998. Predictive models for the mobility of ionizable organics in soil systems. \$311,203.
21. Micheli, E., C. Johnston, and J.G. Graveel. U.S.-Hungarian Science and Technology Joint Fund. 1994-1998. The effects of cultivation on soil organic matter functional groups and earthworm activity. \$30,000.