

VITA

John G. Graveel

PERSONAL DATA:

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

Business Address:

Purdue University
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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)
Bioremediation of Hazardous Waste Sites: Practical Approaches (EPA)
Case Studies (British Columbia)
Writing Across the Curriculum (Montana State University)

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-present	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

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
National Association of College Teachers of Agriculture
ARCPACS certified
Professional Soil Scientist
Indiana Board Certified Registered Professional Soil Scientist

RESEARCH ACTIVITIES:

Basic and applied 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, and 7) land application of biosolids.

TEACHING ACTIVITIES:

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|-----------|---|---------------------|
| A. | Courses Taught (Purdue University) | |
| | Soil Science | Teach annually |
| | Introduction to Environmental Science | Teach annually |
| | Soil Ecology | Teach annually |
| | Sophomore Seminar, (Environmental Careers) | Teach annually |
| | Senior Seminar | Teach annually |
| | Soil, Plant, and Environmental Analysis | Taught in 1993 |
| | Bioremediation | Taught in 1993-1996 |
| | Independent Research in Environmental Science | Teach annually |
| | Contemporary Issues in Agriculture | Taught in 2003 |
| | Carbon Neutrality | Taught in 2007 |
| 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 in 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 4 times
Soil Productivity and Management	Taught in 1985
Soil and Water Pollution	Taught in 1986
Graduate Seminar	Taught 2 times

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, Brigham Young University, and the University of Missouri to name a few.

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 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.

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 60 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.

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

SERVICE:

National/Regional (Purdue University)

- 1994 Chair, Resident Education Division, A-1, American Society of Agronomy
- 1995 Chair, Committee to develop a K-16 education section in the Journal of Natural Resources and Life Sciences Education
- 1993-1996 Training of Soil Scientist Committee (S571)
- 1993-1996 Editor, Journal of Natural Resources and Life Sciences Education
- 1999 Agronomic Resident Education Award Committee
- 1999-2005 Soil Science Education Committee
- 2000 Deere and Company Graduate Fellowship Committee
- 2002-2006 Smithsonian Soil Science Exhibit Committee
- 2002-2007 Council of Soil Science Examiners
- 2002 Chair, Deere and Company Graduate Fellowship Committee
- 2001-2003 Chair, Training and Continuing Education for Soil Scientist (S587)
- 2005-2006 American Society of Agronomy, Digital Teaching Tools
- 2006 American Society of Agronomy, Undergraduate Poster Awards Committee
- 2007 Soil Science Education Award Selection Committee
- 2003-2007 Editor, Journal of Natural Resources and Life Sciences Education
- 2008-present American Society of Agronomy, Fellows Selection Committee
- 2008-present American Society of Agronomy, Science Policy Advisory Committee
- 2008-present American Society of Agronomy, Board of Directors

National/Regional (University of Tennessee)

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
1986-1987	Secretary-Treasurer, Tennessee Council of Chapters, Soil and Water Conservation Society
1988-1989	American Society of Agronomy, Resident Education, Planning Committee
1988-1989	American Society of Agronomy, Student Speech Contest Committee
1988-1991	President East Tennessee Chapter, Soil and Water Conservation Society
1990-1991	Chair, Ad Hoc Committee to Study the Journal of Agronomic Education
1991-1992	President, Gamma Sigma Delta
1992	Soil Science Education Award Selection Committee
1985-1992	Associate Editor, Journal of Agronomic Education/Journal of Natural Resources and Life Sciences Education

University (Purdue University)

1994	Environmental Sciences and Engineering Institute Planning Committee
1994-1996	Quick-Start Program
1997-2004	Global Studies Committee
2002-2003	Faculty Senate, Ad-Hoc Committee to Review Senate Committees
2003-2004	Chair, Student Affairs Committee
2006-2007	Purdue University Student Disciplinary Process
2002-2007	Faculty Senate
2002-2007	Student Affairs Committee
2005-2007	Athletic Affairs Committee
2006-2008	NCAA Certification Self-Study Program
2006-2008	Udall Scholarship 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-present	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-present	Environmental Sciences Committee
2004-2007	College Outcomes Committee
2005-present	Honors Committee
2007	Chair, Curriculum and Student Relations Committee

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	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
2001-2002	CSREES Review Committee
2002	Agronomy Department Review Committee
2003	Alumni Evaluation Committee
2003	Chair, Promotion and Tenure Committee
2005-2006	Chair, Scholarship Committee
2007-2008	Co-Chair, Curriculum Committee
2008-present	Chair, Curriculum Committee

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	Editor, Journal of Natural Resources and Life Sciences Education
1993-present	Director of the Soils Resources Center
1995-present	Director of the Natural Resources and Environmental Science Program
2003-2004	Chair, Student Affairs Committee, Purdue University
2004-2007	Editor, Journal of Natural Resources and Life Sciences Education
2005-2007	Member of the Athletic Affairs Committee
2007	Chair, Curriculum and Student Relations Committee
2007	CSREES Review Committee, University of Florida

OTHER INFORMATION:

Undergraduate Student advising/Student clubs:

(Purdue University)

- 1992-present Advised over 120 undergraduates in the Agronomy Department
- 1995-present Advised over 475 students in the Natural Resources and Environmental Science Program
- 1995-present Purdue University Environmental Science Club, 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
- 2009 Fulk-Bringman, Sherry. Demonstrations in soil science

(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

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

Member of Advisory Committee

Served on 23 Ph.D. and 32 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	2003
Ireland	2005
Mexico, Yucatan	2008

TEACHING PUBLICATIONS:

Books:

1. Thein, S.J., and J. G. Graveel. 1997. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 7th edition. Wm C. Brown/McGraw-Hill Publishers, Dubuque, IA.
2. Thein, S.J., and J. G. Graveel. 2002. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 8th edition. Wm C. Brown/McGraw-Hill Publishers, Dubuque, IA.
3. Thein, S.J., and J.G. Graveel, 2008. Laboratory Manual for Soil Science: Agricultural & Environmental Principles. 8th edition. Kendall/Hunt Publishers, Dubuque, IA. (New publisher)

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.

Proceedings:

1. VanScoyoc, G.E., W.W. McFee, and J.G. Graveel. 1998. Expanding the audience for soil science. pp. 804-808. 16th 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. 17th 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.. Gaveel, 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: (In press)

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

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. Beyrouthy, 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.

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. 16th 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. 17th World Congress of Soil Science. Abstr. Conf., 14-15 July, Philadelphia, PA.

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:

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 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.

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. Schulze, D.G., P.R. Owens, L.U. Snyder, G.E. Van Scoyoc, J.G. Graveel, G.C. Steinhardt, C.C. Miller, M.S. Bracke, R.J. Glotzbach, and B. Benes. 2008. Integrating Spatial Educational Experiences (Isee) into Crop, Soil, and Environmental Science Curricula. USDA, Higher Education Challenge Grant. \$176,000. (In review)

Participant in the Following Teaching Related Activities:

International Science Fair
 Career Days
 Chemistry Camp
 School of Agriculture Recruitment video program
 Day on Campus Advising; NRES program
 Day on Campus Advising; Agronomy Department
 Professor in the Classroom
 Project Future
 Golden Honors Day
 Presentations to visiting elementary and high school students
 Fall Preview Days
 Parents Day
 Horizon student support program
 Independent class visitation program
 Purdue Agricultural Alumni Association Chili Supper
 Food, Agriculture, and Natural Resources Career Fair
 Purdue's for Me
 Placement Coordinator Meetings
 Agriculture Awards Banquet
 Hoosier Heartland

P-CARET Program
Environmental Workshop for elementary school teachers
Eagle Creek Park Foundation Focus Group discussions, Indianapolis, IN
Minority Student Program
Russian Curriculum Conference
Eli Lilly Curriculum Conference
FFA Academic Conference
Judge in local school (K-12) science fairs

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., Manco, 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. Gravel, 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. Gravel, 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. Gravel, 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. Gravel, 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. Gravel. 1996. The effect of tillage systems on soil organic matter. In proceedings of the International Humic Society. 9-13 Sept., Warsaw Poland.
10. Gravel, J.G. 1997. Factors affecting mobility of pesticides. P. 505-553. Herbicide action course. 19 - 31 Oct., Purdue University, West Lafayette, IN.
11. Gravel, 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. Gravel, 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. Gravel, 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. Gravel, 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. Gravel, 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. Gravel, J.G. 2004. Herbicide properties and interactions with soil. p. 667-731. Herbicide action course. 19-24 Oct., Purdue University, West Lafayette, IN.
17. Gravel, J.G. 2003. Herbicide properties and interactions with soil. p. 667-731. Herbicide action course. 19-24 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. Gravel, 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. Graveel, 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. Graveel. 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. Graveel, 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. Graveel, 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. Graveel, 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. Graveel. 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. Graveel, 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. Graveel. 1993. The effects of rainfall intensity and duration on preferential flow. p. 217. Agronomy Abstracts, ASA, Madison, WI.

19. Graveel, J.G. 1994. Soils, contaminants, and their interaction. p. 59. Agronomy Abstracts, ASA, Madison, WI.
20. E. J. Kladvko, and J. G. Graveel. 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. Graveel, 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. Graveel, B.C. Joern, and S.E. Hawkins. 1994. Controlling nitrogen release with carbon rich organic materials. p. 365. Agronomy Abstracts, ASA, Madison, WI.
23. Graveel, 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. Graveel. 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. Graveel. 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. Graveel. 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. Graveel, 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. Kladvko, 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. Kladvko, 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.

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. 16th 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. Kladviko, 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.

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. 1984-91. 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. 1992-2008. 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. Beyrouy. 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.