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USDA Agricultural Research Service
Corn Insects & Crop Genetics Research Unit
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AREAS OF SPECIALIZATION:

Corn Insect Ecology and Genetics: transgenic corn, insect resistance management, plant-insect interactions, non-target insects

EDUCATION:

Ph.D. Entomology (honey bee genetics), The Ohio State University, Columbus, OH (1983)
M.S. Entomology (honey bee behavior), The Ohio State University, Columbus, OH (1980)
B.A. Zoology, DePauw (with distinction) University, Greencastle, IN (1977)

EXPERIENCE

USDA-ARS, Corn Insects and Crop Genetics Research Laboratory, Ames, IA

Research Entomologist: 1994-present.

Department of Entomology, Iowa State University, Ames, IA

Postdoctoral Research Associate: 1993-1994, USDA Collaborator, Assistant Professor:
1995-present

Department of Zoology and Genetics, Iowa State University

Postdoctoral Research Associate: 1991-1993 (Molecular Genetics)

USDA-ARS, Honey Bee Breeding, Genetics & Physiology Laboratory, Baton Rouge, LA

Research Entomologist: 1983-1991 (Africanized honey bee genetics and ecology)

Department of Entomology, The Ohio State University, Columbus, OH

Graduate Research Assistant: 1981-1983, Graduate Teaching Associate: 1979-1981

SCIENTIFIC ORGANIZATIONS

Entomological Society of America, American Association for Advancement of Science,
American Genetic Association

HONORS AND AWARDS

USDA Secretary's Group Award 2002, Group Leader, co-recipient with Adrianna D.
Hewings, Peoria, IL and Eldon E. Ortman, West Lafayette, IN: For contributions to a
science-based assessment of Bt corn and the monarch butterfly.

Scientist of the Year 2002, USDA, Agricultural Research Service, Midwest Area.

Mortar Board Society
Phi Kappa Phi Honor Society
Sigma Xi Research Honor Society
USDA-ARS Certificate of Merit, 1986, 1995, 1996, 1998 through 2010
USDA Extraordinary Effort Award for Serving as Acting Research Leader, 2009

PROFESSIONAL SERVICE

Member, Nominating Committee, North Central Branch, ESA - 1995-98
Chairman, Nominating Committee, North Central Branch, ESA - 1997
Member, Regional Project NC-205
(Ecology and Management of Stalkboring Lepidoptera) - 1994-present
Chair, Local Arrangements Committee, Regional Project NC-205 - 1997
Secretary, Regional Project NC-205 - 1997-2000
Chair, Regional Project NC-205 - 2000-2005
Member, Regional Project NCR-148 - 1994-present
(Migration and Dispersal of Insects and other Biota) - 1995-present
Chair, Regional Project NCR-148 - 2000 & 2005

SCIENTIFIC PUBLICATIONS (Total 177)

BOOK CHAPTERS (13)

REFEREED JOURNAL ARTICLES (121)

SUMMARY OF PUBLICATIONS

1. Honey bee genetics and ecology (41)
2. Insect ecology and insect resistance management (36)
3. Environmental effects of transgenic corn (38)
4. Corn insect genetics (17)

EXTRAMURAL FUNDING

Total 12 years in Ames, Iowa - \$4,810,000 (\$1,730,000 to ARS)

INVITED PRESENTATIONS

International - 30

National - 80

Regional and State - 35

CONTRIBUTED PAPERS

Approximately 50 presented

Co-author of approximately 50 papers presented by students

Symposia and Conferences Organized at National Meetings - 28

GRADUATE STUDENTS ADVISED

Co-major Professor for:

8 M.S. students

3 Ph.D. students

POSTDOCTORAL RESEARCH ASSOCIATES TRAINED - 4

INVITATIONS

- a. Invited to present a talk on "Evolution of Haplo-diploid Sex Determination in Hymenoptera" for the Entomology Department, The Ohio State University, 1979.
- b. Invited to present a talk on "Genetic Improvement of Beneficial Insects" for the Entomology Department, The Ohio State University, 1980.
- c. Attended Ohio State Beekeepers Association meeting (1981, 1982, 1991) and gave talks entitled "Relationship between different amounts of brood and the collection and utilization of pollen in the honey bee," "Preliminary results of two-way selection for high and low pollen-hoarding honey bees," and "Living with Africanized honey bees."
- d. Invited to present a talk on "Selection for high and low pollen-hoarding bees" for Entomology Department, The Ohio State University, 1983.
- e. Invited to present a talk on "Dwindling phenomenon in low pollen-hoarding honey bee" for the Ohio Historical Society, 1983.
- f. Invited to give two talks on "Overview of the African bee situation" and "Selection for improved bee stock" for Joint Meeting of American Bee Breeders and Georgia Beekeepers Association, Albany, GA, 1983.
- g. Invited to give a talk on "Genetic and behavior analyses of pollen hoarding in the honey bee" for Entomology Department, Louisiana State University, 1983.
- h. Invited to give a talk on "High and low pollen-hoarding honey bees" for Progressive Beekeepers Association of Louisiana, Alexandria, LA, 1983.
- i. Invited to give three talks on "Africanized bees - What we should know about them?", "Genetics of pollen hoarding - Why is it important to the beekeeper?" and "Review of current research in beekeeping" for Ohio Cooperative Extension Service, Cincinnati, OH, 1984.
- j. Invited by the Mexican Government through Office of International Cooperation and Development (OICD) to participate in workshops concerning the development of specific strategies against Africanized bees in Mexico. Mexico City and Toluca, Mexico, 1986.
- k. Invited to present a talk on "Breeding and maintaining acceptable bees in Venezuela" for the First Apicultural Congress of Venezuela. Merida, Venezuela, 1986.
- l. Invited to present a talk on "Influencing drone mating of honey bees" and participate in a panel discussion on Africanized honey bees for Tri-Country (US, Canada and Mexico) Symposium on Parasitic Mites and Africanized Bees, New Orleans, LA, 1987.

- m. Invited to present two talks, "The Africanized bee" and "Beekeeping in Venezuela" for the Illinois State Beekeepers' Association, Peoria, IL, 1987.
- n. Invited to present three talks, "Greater wax moth", "Genetic selection for better pollinators" and "Maintaining European honey bees post Africanization" and participated on a panel discussion on Africanized honey bees for Texas Beekeepers Association, Galveston, TX 1987.
- o. Key Note Speaker, DePauw University, Science and Health Science Scholarship Day, 1988. (Successful alumni in the Science field are chosen to speak about their work to High School Seniors competing for University Scholarships.)
- p. Invited to present a talk entitled "Preparing for Africanized honey bees" for Progressive Beekeepers Association of Louisiana, Alexandria, LA, 1988.
- q. Invited to present two talks, "Objective and results of USDA's honey bee research" and "Africanized bees: Practical considerations from experiences in Venezuela" for Beekeepers of Tennessee, Knoxville, TN, 1988.
- r. Invited to present a talk on "Flight time differences between male reproductives of Africanized and European honey bees" for the Fourth International Conference on Tropical Apiculture, Cairo, Egypt, 1988.
- s. Invited to present a talk on "Education and the 'L' word: The Value of a liberal arts education" for DePauw University, Greencastle, IN, 1988.
- t. Invited to present a talk on "An overview of problems related to Africanized honey bees: A biologist's perspective" for the Department of Zoology, DePauw University, Greencastle, IN, 1988.
- u. Invited to present a talk on "Control of natural matings of honey bee queens" for Southern States Beekeepers Federation in Baton Rouge, LA, 1989.
- v. Invited to present a talk on "Evaluation of drone saturation procedures for the control of natural matings" for Texas Beekeepers at Houston, TX, 1989.
- w. Invited to present a talk on "Preparing for Africanized honey bees: Evaluating mating control" for American Bee Breeders Association in Mobile, AL, 1989.
- x. Invited to present a talk entitled "Update on the Africanized honey bees: Making a Beeline for Texas" for ARS Users' Advisory Board (Advisors to the president) Baton Rouge, LA, 1989.
- y. Invited to present a talk on "Ideas for bee Breeders: Evaluating mating control" for American Bee Federation in Las Vegas, NV, 1990.

- z. Invited to present a talk on "Living with Africanized honey bees" at the Beekeepers' Field Day in Baton Rouge, LA, 1990.
- aa. Invited to participate in symposia and conferences at the Entomological Society of America national meeting and presented talk related to honey bees entitled "The Queen breeders Challenge: Africanized Honey Bees," (1990)
- bb. Invited to present a talk entitled "Killer bees: Report from the front" to Department of Entomology, University of Minnesota, St. Paul, MN, 1991.
- cc. Invited to present a talk on "Queen mating control: Implications for Africanized honey bees" at California Beekeepers meeting, San Luis Obispo, CA, 1991.
- dd. Invited to present a talk entitled "Killer bees: Report from the front" to Department of Zoology and Genetics, Iowa State University, Ames, IA, 1991.
- ee. Invited to present a talk entitled "Killer bees: They are here" to Department of Entomology, Iowa State University, Ames, IA, 1992.
- ff. Invited to present a talk on "Producing acceptable queens in an Africanized area" at Iowa Honey Producers meeting, Ankeny, IA, 1992.
- gg. Invited to participate in meeting by Monsanto to present research results for Bt corn efficacy trials, St. Louis, MO, 1994
- hh. Invited to participate in the European corn borer Resistance Management Group meeting by seed company representatives, 1995.
- ii. Invited to participate in meeting by Monsanto to present research results for Bt corn efficacy trials and studies defining European corn borer interactions with weeds and transgenic corn plants, St. Louis, MO, 1995.
- jj. Invited to participate in meeting by Northrup King and Monsanto to present research results for Bt corn efficacy trials, studies defining European corn borer interactions with weeds and transgenic corn plants, and studies assessing European corn borer refuge potential of agronomic crops, St. Louis, MO, 1996.
- kk. Invited to present a seminar to the Department of Entomology at the University of Minnesota entitled "Bt Corn: New Challenges for Entomologists," St. Paul, MN, March 1998.
- ll. Invited to participate in the Fifth International Biosafety Symposium that was held in Braunschweig, Germany, September 1998. Could not attend because of schedule conflict, but colleague, Blair Siegfried, presented Dr. Hellmich's paper entitled "Establishing Research Priorities for Managing Insect Resistance to Transgenic Corn."

- mm. Invited to present a talk entitled “Building a science-based framework for managing insect resistance to transgenic corn” to Department of Entomology, Iowa State University, Ames, IA, October 1998.
- nn. Invited to participate in EPA/USDA Workshop on Bt Crop Resistance Management, and presented a talk entitled “Refuge Issues,” Rosemont, IL, June 1999.
- oo. Invited to Ceres Forum on “Environmental Benefits and Sustainable Agriculture through Biotechnology” to deliver paper entitled “Pesticides, IPM and Refugia: Resisting Resistance.” Georgetown University, Washington, D. C., November 1999.
- pp. Invited to participate in symposia and conferences at the Entomological Society of America national meeting and presented talk related to “Monarch Feeding Behavior and Bt Pollen exposure Risk to Monarchs in Iowa,” (1999) “Refuge Issues and Pest Management for Genetically Altered Crops in North America, USDA: A Perspective for Field Corn,” (1999)
- qq. Invited to present a talk entitled “Bt Pollen Effects on Monarch Butterfly Larvae” at the Monarch Butterfly Research Symposium, sponsored by the Agricultural Biotechnology in the Environment Working Group, Chicago, IL, November 1999.
- rr. Invited to present a talk entitled “Insect Resistance Management Problems and Solutions for Field Corn” at the International Plant Resistance to Insects - 14th Biennial Workshop, Fort Collins, CO, March 2000.
- ss. Invited to present talk entitled “Impact of Bt Transgenic Crops on Nontarget Organisms” at American Chemical Society annual meeting in San Francisco, CA, March 2000.
- tt. Invited to present talk entitled “Insect Resistance Initiatives and Monarch Butterfly Research” to Secretary of Agriculture’s Biotechnology Advisory Committee, Washington, D.C., March 2000.
- uu. Invited to present talk entitled “The Monarch Butterfly and Bt Corn Controversy” to Ames Lion’s Club. May 2000.
- vv. Invited by North American Millers Association to present talk entitled “Research Update on the Monarch Butterfly and Bt Corn,” Peoria, IL, June 2000.
- ww. Invited to present talk entitled “Consequences for non-target insects: Monarch butterfly update,” at annual meeting of the Society for Invertebrate Pathology and International Conference on *Bacillus thuringiensis*, Guanajuato, Mexico, August 2000.
- xx. Invited to present talk entitled “Practical aspects of managing transgenic crops to combat pest resistance: North American Corn.” R. L. Hellmich. Presented at XXI International Congress of Entomology in a symposium organized by Tim Dennehy, University of Arizona, USA, and Bruce Tabashnik, University of Arizona, Iguassu Falls, Brazil,

August 2000.

- yy. Invited to present talk entitled “Developing practical recommendations for managing insect resistance to Bt transgenic maize.” R. L. Hellmich, R. A. Higgins, and E. E. Ortman. Presented at XXI International Congress of Entomology in a symposium organized by Blair Siegfried, University of Nebraska, and Paula Marcon, DuPont Agricultural Products, Brazil, Iguassu Falls, Brazil, August 2000.
- zz. Invited to present talk entitled “Consequences for non-target insects: Monarch butterfly update.” Presented at XXI International Congress of Entomology, Iguassu Falls, Brazil, August 2000.
- aaa. Invited to participate in Cornell University Conference on Agricultural Biotechnology: Informing the Dialogue about Agricultural Biotechnology and presented a talk entitled “Bt Corn Monarch Butterfly: Research Update,” Ithaca, NY, November 2000.
- bbb. Invited to present talk entitled “Reduced Mycotoxins in Transgenic (Bt) Maize” with coauthor Gary Munkvold that was presented at American Chemical Society Symposium on Agricultural Biotechnology, Chicago, IL, August 2001.
- ccc. Invited to present a talk entitled “Computer Models for IRM: Meeting Future Needs,” Entomological Society of America National Meeting, San Diego, CA, December 2001.
- ddd. Invited to present a talk entitled “Genetically Modified Pest-Protected Crops and Ecological Risk,” Entomological Society of America National Meeting, San Diego, CA, December 2001.
- eee. Invited to present a talk entitled “Genetically Modified Pest-Protected Crops and Ecological Risk,” Entomological Society of America National Meeting, San Diego, CA, December 2001.
- fff. Invited to present a talk entitled "Bt Corn and Monarch Butterfly: Story Behind the Science" at Pioneer Hi-Bred International, Johnston, IA, February 2002.
- ggg. Invited to present a talk entitled "Effects of Bt plants on non-target herbivores" at a "GMO's - Ecological Dimensions" conference sponsored by the Association of Applied Biologist in conjunction with the Royal Entomological Society and the British Ecological Society at the University of Reading, Reading, United Kingdom, September, 2002.
- hhh. Invited to present a talk “Bt Corn, Refuges and Monarchs: Challenges for Entomologists” and Growers at the University of Illinois Crop Protection Technology Conference, Urbana, Illinois, January 2003.
- iii. Invited to present a talk Insect Resistance Management for Transgenic Corn Hybrids: Lessons Learned and Future Options at the ESA, North Central Branch Meeting, Madison, WI, March 2003.

- jjj. Invited to organize a session “Images of Sustainable Agriculture: Landscapes, Pest Management and Biotechnology” and present a talk “Role of Biotechnology for Sustainable Agriculture” at the 4th National IPM Symposium, Indianapolis, IN, April 2003.
- kkk. Invited to be a steering committee member to organize a CAST symposium and to be a rapporteur for Management of Pest Resistance: Strategies Using Crop Management, Biotechnology and Pesticides, Indianapolis, IN, April 2003.
- lll. Invited to present Butterflies and Bt Corn: Allowing Science to Guide Decisions at a Carleton College convocation, Northfield MN, May 2003. During his presentation he was visited by “The Bust of Schiller”.
- mmm. Invited to present a talk entitled “Migration by Monarch Butterflies and Their Encounters with Bt-Corn Pollen” for the Importance of Migration and Dispersal for IPM symposium at 2003 Entomological Society of America Annual Meeting, Cincinnati, OH, October 2003.
- nnn. Invited to participate in EPA-sponsored conference on the Development of Strategic Monitoring Programs for Ecological Impact From Plant-Incorporated Protectants and present talk Challenges for Field Research on Non-Target Effects of Bt Crops; Jarrad Prasifka was coauthor, Washington, D.C., August, 2004.
- ooo. Invited to present a talk entitled "Appropriate Paths for Testing Possible Non-Target Impacts of Transgenic Crops" at the 8th International Symposium on the Biosafety of Genetically Modified Organisms in Montpellier, France, September, 2004.
- ppp. Invited to present a talk entitled "Bioseguridad y Plantas Transgenicas" at the Expo AgroAlimentaria Guanajuato 2004 in Irapuato, Mexico, November, 2004.
- qqq. Invited to present a talk entitled “Challenges in Monitoring Effects of Agricultural Practices on Insect Communities” for the Applied Taxonomy and Biodiversity: Assessment of Natural and Agricultural Ecosystems symposium at Entomological Society of America Annual Meeting, Salt Lake City, UT, November, 2004.
- rrr. Invited to participate in workshop entitled “Systematic Approaches to Biosafety Testing, Risk Assessment and Monitoring” and make three presentations related to risk insect resistance management and evaluating non-target effects of transgenic crops, Palic, Serbia, May, 2005.
- sss. Invited to participate in Ecological Impact of GMOs conference and make presentation entitled “A framework for evaluating possible non-target effects of transgenic corn in the United States: Standardizing laboratory tests,” Lleida, Catalonia, Spain, June, 2005.
- ttt. Invited to attend the International Symposium on Biological Control of Arthropods and

- present talk entitled “Integration of Bt maize in IPM systems: U.S. perspective,” Davos, Switzerland, September, 2005.
- uuu. Invited by the Division of Plant Sciences, University of Missouri to present talk entitled. “Bt Corn and Monarch Butterflies: Balancing Agricultural Realities with Ecological Unknowns,” September, 2005.
- vvv. Invited to participate in EPA USDA sponsored conference on Agricultural Biotechnology Risk Analysis for BRAG grant award winners and make presentation entitled “Unintended Biological Effects of Plant Incorporated Protectants,” Riverdale, MD, November, 2005.
- www. Invited to present a talk entitled “Remote Sensing Studies to Detect Damage from *Ostrinia nubilalis* (Lepidoptera: Crambidae) in Bt and non-Bt corn” at 2005 Entomological Society of America Annual Meeting, Fort Lauderdale, FL, December, 2005.
- xxx. Invited to participate in the 58th annual Crop Protection Technology Conference and make presentation “European Corn Borers: a Diminished Insect Threat from Now On?” January 2006.
- yyy. Invited to participate in symposium at NCB ESA meeting and present paper entitled “Remote sensing studies to detect damage from *Ostrinia nubilalis* (Lepidoptera: Crambidae) in Bt and non-Bt corn,” Bloomington, IL, March 2006.
- zzz. Invited to present a talk entitled "Establishing Genetic Foundations for Managing and Monitoring European Corn Borer Resistance to Transgenic Bt Maize" (co-authors Leslie C. Lewis, Thomas W. Sappington, Douglas V. Sumerford, Brad S. Coates, and Kyung Seok Kim) at the Resistance Management of Bt-Maize in Europe Workshop, Aachen, Germany, April 2006.
- aaaa. Invited to co-organized meeting for International Organization for Biological Control of Noxious Animals and Plants (IOBC) Working Group on ‘GMOs in Integrated Plant Production’ workshop on “Non-target risk assessment and regulation” Engelberg, Switzerland, May 2006.
- bbbb. Invited to participate in workshop entitled Environmental Risk Assessment, which is sponsored by the United State Trade and Development Agency (USTDA) and China Agricultural Biotechnology Project and present talks entitled “Non-target Risk Assessment: Lessons Learned from the Monarch Butterfly” and “Insect Resistance Management”, Beijing, China, September 2006.
- cccc. Invited to participate in 22nd Conference of the International Working Group on *Ostrinia* and other Maize Pests (IWGO) and to present paper entitled “Assessing non-target effects of *Bacillus thuringiensis* (Bt) maize: Lessons learned and new directions”; session organizer for this meeting, Vienna, Austria, November 2006.

- dddd. Invited to give three presentations in Poland: Distinguish Lecture Series, Warsaw Agricultural University, “Integrating GM Crops in IPM with Emphasis on Biological Control”; Institute of Plant Breeding and Acclimatization, Radzików (Błonie) of the Ministry of Agriculture and Rural Development, “Environmental Risk Assessment and GM crop Registration Procedures in the U.S.A.” and presentation at the Institute of Crop Sciences (IUNG), Pulawy, October 2007.
- eeee. Invited to present a talk entitled “Far-Reaching and Enduring Contributions by Randy Higgins to Insect Resistance Management and Regional Research Committees” at Entomological Society of America National Meeting, November, Reno, NV, November 2008.
- ffff. Invited to give two presentations at the XXIII International Congress of Entomology: “Developing IRM strategies for the next generation of insect-resistant maize” for Symposium entitled “Development, barriers and use of insect resistant transgenic crops in developing countries” and “The present and future role of insect-resistant genetically modified maize in IPM” for symposium entitled “Integration of insect-resistant GM crops within IPM programs,” Durban, South Africa, July 2008.
- gggg. Invited to give a presentation at the XXII Congresso Brasileiro De Entomologia entitled “Managing Insect Resistance to *Bacillus thuringiensis* (Bt) Maize in the USA: Current Strategies and Future Options,” Uberlândia, Brazil, August 2008.
- hhhh. Invited to participate in 23rd Conference of the International Working Group on *Ostrinia* and other Maize Pests (IWGO) and to present paper entitled “Possible new approaches to manage insect resistance for the next generation of Bt maize”; session organizer for this meeting, Munich, Germany, April 2009.
- iiii. Invited to participate in a workshop at the 11th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO) and give presentation “Developing standardized test protocols - *Coleomegilla maculata*”, Buenos Aires, Argentina, November 2010.
- jjjj. Invited to attend SETAC North America 2010 Annual Meeting and give presentation “Experimental design considerations for early-tier laboratory studies used to evaluate impacts of genetically modified plants on non-target arthropods”, Portland, OR, November 2010.
- kkkk. Invited to participate in symposium “Refuge in a Bag Paradigm Shift” at the National Entomological Society of America meeting and give a presentation “Refuge in bag: Insights from larvae”, San Diego, CA, December 2010.
- llll. Invited to participate in 24th Conference of the International Working Group on *Ostrinia* and other Maize Pests (IWGO) and to present paper entitled “Opportunities and challenges with seed blends for managing insect resistance to Bt maize”; session organizer for this meeting, Freiburg, Germany, October, 2011.

- mmmm. Invited to present “Knee deep in hoopla: Demythologizing genetically-engineered crops” at the annual meeting of the Entomological Society of America, Reno, NV, November 2011.
- nnnn. Invited to present talk entitled “New challenges and opportunities for managing insect resistance to Bt maize” at the 12th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO, St. Louis, MO, September, 2012).
- oooo. Invited to give keynote address “Changing the face of agriculture with genetically-engineered crops” to Society of Environmental Toxicology and Chemistry (SETAC) Ozark-Prairie Chapter, Ankeny, IA May, 2012.
- pppp. Invited to present talk entitled “Practical considerations for surrogate species selection for semi-field and field tests” for the meeting, “Surrogate Species Selection for Assessing Adverse Environmental Impacts of Genetically Engineered Plants on Non-Target Organisms” sponsored by Center for Environmental Risk Assessment, Washington, D.C., June, 2012.

PARTIPATION IN NATIONAL SCIENTIFIC MEETINGS, CONFERENCES, WORKSHOPS, ETC.

- a. Attended National Meeting of the Entomological Society of America (1980, 1982, 1983, 1986, 1989, 1990, 1994 through 2013) and presented papers entitled “Selection for high and low pollen hoarders in the honey bee (*Apis mellifera*),” “Possible relationships between pollen-hoarding behavior and dwindling phenomenon in honey bees,” “Mating European honey bee queens, *Apis mellifera* L., in Africanized areas,” “Nuptial advantages: Success of the Africanized bee in the neotropics,” “The queen breeder's challenge: Africanized honey bees,” “Corn borer, *Ostrinia nubilalis* (Hübner), refugia in Iowa: A first look.” (Note: Dr. Hellmich organized and was invited to a number of symposia and conferences listed below or in Special Invitations.)
- b. Attended North Central Branch Meeting of the Entomological Society of America (1981, 1996, 1997, 1998, 1999, 2001, 2002, 2014) and gave talk entitled “Monarch Caterpillar Sensitivity to Bt Pollen: Laboratory Bioassays.” (Note: Dr. Hellmich organized and was invited to a number of symposia and conferences listed below or in Special Invitations.)
- c. Attended a Queen Production and Bee Breeding Workshop and presented lectures on Introductory Genetics, Basic Breeding Genetics, Population Genetics, Drone Saturation Techniques, Beekeeping in Venezuela and Management of Africanized Honey Bees sponsored by Beekeeping Education Service, Navasota, TX 1988.
- d. Attended ARS Africanized Honey Bee Workshop, Beltsville, MD, 1989.
- e. Attended Tri-Country Meeting on Africanized Honey Bees and presented a talk entitled "Controlling natural matings by managing drone populations" in Acapulco, Mexico, 1989.
- f. Attended International Union for the Study of Social Insects (IUSSI) and presented "A nuptial disadvantage for European honey bees in Venezuela" in Bangalore, India, 1990.
- g. Organized and participated in a workshop on "Producing quality honey bee queens in Africanized areas" for Peace Corps Beekeepers in Coatepeque, Guatemala, 1990.
- h. Organized symposium for American Bee Federation entitled "Breeding bees successfully despite the Africanized Bee" in Mobile, AL, 1991.
- i. Organized workshop with American Bee Breeder and California Bee Breeder Associations related to the Africanized honey bee problem. Mobile, AL, 1991.
- j. Attended 13th International Congress of Biometeorology, Calgary, Alberta, Canada, 1993.
- k. Organized, introduced, and moderated symposium for Entomological Society of America National meeting entitled “Managing European Corn Borer Resistance to Transgenic

Corn” (Section F, R. H. Nelson Memorial Symposium), Las Vegas, NV, December 1995.

- l. Helped organize the European corn borer Resistance Management Group, a consortium of seed corn companies, gene suppliers, academics and government representatives that met July 11, 1995 in Chicago and September 8, 1995 in Kansas City to discuss problems related to European corn borer resistance management. Dr. Hellmich was elected chairman of a committee responsible for formulating recommendations for monitoring and surveying European corn borer resistance.
- m. Organized joint meeting with NC-205 regional research committee, EPA and industry to address the issue of managing European corn borer resistance to transgenic corn, Kansas City, MO, September 1996.
- n. Co-organized symposium for North Central Branch Entomological Society of America meeting entitled “Management of the European corn borer: old and new techniques,” and presented talk entitled “European corn borers lurking in the weeds: A factor in resistance management,” Omaha, NE, March 1996.
- o. Organized and moderated an Informal Conference for Entomological Society of America National meeting entitled Managing European Corn Borer Resistance to Transgenic Corn: Progress Reports,” and presented paper “Iowa Research.” Louisville, KY, December 1996.
- p. Organized joint meetings with NC-205 regional research committee, NCR-46, Rootworm Technical Committee, EPA and industry (1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 and 2005) to address the issue of managing corn insects resistance to transgenic corn. The popularity of this multi-stakeholder IRM meeting resulted in this becoming an annual event coinciding with the NC205/NCR46 meetings.
- q. Organized informal conference for North Central Branch Entomological Society of America meeting entitled Open Discussion on Managing Resistance of European Corn Borer and Corn rootworm to Transgenic Corn,” Columbus, OH, March 1997.
- r. Organized symposium for North Central Branch Entomological Society of America meeting entitled “Managing European corn borer resistance to transgenic corn: Practical recommendations for producers,” and presented talk entitled “Refuge planting strategies,” Sioux Falls, SD, March 1998.
- s. Organized meeting with Entomologists, Ag Economists, and Crop Insurance representatives to discuss insuring corn refuge that is essential for managing European corn borer resistance to transgenic corn, Ames, IA, August 1998.
- t. Participated in Iowa State University Agronomy Day in the Crop and Pest Management walking tour with a presentation entitled “Bt Corn, European Corn Borer, and Resistance Management,” Ames, IA, September 1998.

- u. Helped organize special session of NC-205 regional research committee to reevaluate Insect Resistance Management recommendations for NCR-602 publication "Bt Corn & European Corn Borer: Long-Term Success Through Resistance Management," Omaha, Nebraska, September 1998.
- v. Organized informal conference for Entomological Society of America National meeting entitled "Practical Recommendations for Managing Insect Resistance to Transgenic Plants: Bt Corn Focus," and presented a paper entitled "Commonsense Resistance Management Recommendations," Las Vegas, NV, December 1998.
- w. Organized symposium for North Central Branch Entomological Society of America meeting entitled "Evaluating Options for Managing Insect Resistance to Transgenic Corn Hybrids," Des Moines, IA, March, 1999.
- x. Co-organized a meeting with growers, industry, NCGA, and academics concerning Insect Resistance Management Education, Kansas City, MO, August, 1999.
- y. Organized a workshop to prioritize information and research needs on nontarget Lepidoptera, primarily monarch butterfly, as it relates to Bt transgenic corn. EPA, USDA and 35 scientists participated, Kansas City, MO, February 2000.
- z. Organized a meeting to review 2000 research on monarch butterflies and Bt corn, and made three presentations. EPA, USDA and 20 scientists attended. Chicago, IL, November 2000.
- aa. Co-organized with Marlin Rice and Wai-Ki F. Lam a workshop entitled "Of Monarchs and Men: Possible Influences of Bt Corn in the Agricultural Community," at the ISU 12th Annual Integrated Crop Management Conference, Ames, IA, November 2000.
- bb. Co-organized Informal Conference at the Entomological Society of America annual meeting entitled "Effects of transgenic corn on monarch butterflies: Progress reports" and presented talk entitled "Sensitivity of monarch caterpillars to Bt corn pollen." Montreal, Canada, December 2000.
- cc. Chair of a subcommittee of NC205 to address high spray issues in the western and southwestern corn belt (2001).
- dd. Co-organized NC205/NCR46-sponsored Insect Resistance Management Meeting to address corn insect resistance to transgenic corn hybrids. EPA, USDA, growers, and industry participated, Indianapolis, IN, January 2002.
- dd. Co-organized symposium "Bt Corn and Corn Insects: Current Issues" at the ESA, North Central Branch Meeting, East Lansing, MI, and presented talk entitled "Summary of Bt corn and monarch butterfly research: Where do we go from here?" March 2002.
- ee. Attended National ESA meeting and present paper entitled "Video recordings and

- analysis of tunneling behavior of *Ostrinia nubilalis* (Lepidoptera: Crambidae) larvae”, December 2006.
- ff. Organize and moderated a session "Honey Bee Colony Collapse Disorder" at the 9th International Pollination Symposium on Plant-Pollinator Relationships – Diversity in Action, June 24–28, 2007, Ames, IA, which was followed by an invitation by Iowa Honey Producers to present a talk entitled “Update on Colony Collapse Disorder”, November 2007.
 - gg. Primary organizer of symposium for Entomological Society of America National Meeting entitled “Harmonizing Laboratory Methods to Evaluate Potential Effects of GM Crops on Non-target Arthropods”, also organizer of a follow-up meeting with symposium participants, San Diego, CA, Dec. 2007.
 - hh. Invited to present talk “Far-Reaching and enduring contributions by Randy Higgins to insect resistance management and regional research committees” at the National ESA meeting, Reno, NV, December 2008.
 - ii. Invited to present talk “Challenges managing insect resistance for the next generation of Bt maize hybrids” at the National ESA meeting, Indianapolis, IN, December 2009.
 - jj. Co-organized Symposium at the Entomological Society of America annual meeting entitled “Regulation of transgenic crops: The state of the science”, Indianapolis, IN, December 2009.
 - kk. Invited to attend American Chemical Society meeting and present talk entitled “What does the agroecosystem look like? Stacks, pyramids and chemicals”, San Francisco, CA, March, 2010.
 - ll. Invited to present a talk at the Society of Environmental Toxicology and Chemistry (SETAC) North America 31st Annual Meeting entitled “Experimental design considerations for early-tier laboratory studies used to evaluate impacts of genetically modified plants on non-target arthropods”, Portland, OR, November 2010.
 - mm. Invited to participate in 11th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO) and present a talk “Developing standardized test protocols – *Coleomegilla maculata*”, Buenos Aires, Argentina, November 2010.
 - nn. Invited by the Department of Biology, Grinnell College to gave a talk entitled “Bees, Butterflies and Bt Corn: Challenges for a Research Entomologist”, Grinnell, IA, February 2011.
 - oo. Invited to present a talk “Halo Effects of Bt Crops” at the 8th Biosafety Institute for Genetically Modified Agricultural Products (BIGMAP) Symposium, Ames, IA, April 2011.

- pp. Co-organized symposium for the Entomological Society of America entitled “Improving the Global Regulation of Transgenic Organisms” that was accepted as a Plant-Insect Ecosystems Section Symposium, Knoxville, TN, November 2011.
- qq. Member of Organizing Committee for the workshop “Surrogate Species Selection for Assessing Adverse Environmental Impacts of Genetically Engineered Plants on Non-Target Organisms” sponsored by Center for Environmental Risk Assessment. Presented talk entitled “Practical considerations for surrogate species selection for semi-field and field tests”, Washington, D.C., June, 2012.
- rr. Co-organized symposium for the XIV International Congress of Entomology: “The effects of GM crops on non-target organisms” and was invited to make a presentation entitled “Bt maize in the Americas- from 1996 to 2012” for a symposium entitled “The role of present and future genetically-engineered insect-resistant crops in IPM,” Daegu, South Korea, August, 2012.
- ss. Co-organized symposium for the Entomological Society of America entitled “Improving the Global Regulation of Transgenic Organisms” that was accepted as a Plant-Insect Ecosystems Section Symposium, Knoxville, TN., November, 2012.
- tt. Invited to give keynote address “Changing the face of agriculture with genetically-engineered crops” to Society of Environmental Toxicology and Chemistry (SETAC) Ozark-Prairie Chapter, Ankeny, IA May, 2012.
- uu. Co-organized symposium for the XIV International Congress of Entomology: “The effects of GM crops on non-target organisms” and was invited to make a presentation entitled “Bt maize in the Americas- from 1996 to 2012” for a symposium entitled “The role of present and future genetically-engineered insect-resistant crops in IPM,” Daegu, South Korea, August, 2012.
- vv. Organized symposium for the Entomological Society of America entitled “Improving the Global Regulation of Transgenic Organisms” selected for Plant-Insect Ecosystems Section Knoxville, TN, November, 2012.
- ww. Invited to present talk entitled “Role of surrogate species in testing non-target effects of GM crops” at the Entomological Society of America annual meeting, Knoxville, TN, November 2012.
- xx. Invited by China Agricultural University to give presentations entitled “Control of maize insect pests in the United States before and after the introduction of Bt maize”, “Introduction to USDA Ames location and Iowa State University” and “Western corn rootworm challenges in the U.S.”; also invited by Shanghai Jiao tong University to give the first mentioned presentation, December, 2012.
- yy. Attended regional research meetings NC205 and NCR46 and summarized larval movement studies, New Orleans, LA January 2013.

- zz. Invited to present talks at Environmental Risk Assessment Workshop: Non-target Organism Testing entitled “Introduction to tiered testing: early tier, semi-field and field testing”, “Introduction to non-target studies”, Introduction to field techniques”, Introduction to field organisms and identification” Ames, IA, June, 2013.

PROFESSIONAL ADVISORY AND CONSULTING ACTIVITIES

- a. As a member of a bee research laboratory, both as a graduate student and after joining the agency, Dr. Hellmich was called upon to provide information on bees and wasps. This has included such things as presentations at local, regional and national beekeepers' meetings, answering phone inquiries, presenting talks to schools and public interest groups, and being interviewed by the media about bees in general and the Africanized bee in particular. Activities have included:
1. interviews with ARS information services for production of a film on Africanized bee research entitled "Africanized Bee Alert".
 2. twelve interviews for various articles in newspapers, journals and magazines including *Nature* and *Discover* and provided photos for print media articles.
 3. four television interviews for local television stations in Baton Rouge, Louisiana, Knoxville, Tennessee and Houston, Texas (2 stations).
 4. one live radio interview in New Orleans.
 5. interview with Voice of America for a 5-7 minute feature on Africanized honey bees.
 6. interview for a movie "Africanized bees and bee mites: Challenges facing U.S. beekeeping" produced by the Extension Service from The Ohio State University.
 7. interview with BBC (England) concerning Africanized honey bees impact on the United States
 8. interview with television crew from CBS's West 57th Street in Venezuela on Africanized honey bees, 20 minute feature.
 9. interview with television crew from USA Today TV on Africanized honey bees, 3 minute feature.
- b. Invited by FERRO to review proposed honey bee projects (US-India Fund) in Palampur, Hisar and Manali India.
- c. Consulted with scientists from Venezuelan Universities of Los Andes, Guanare and Barquisimeto about the Africanized bee problem.

- d. Requests for information on, and samples of Africanized bees have come from university personnel and researchers (B. Furgala - U. Minnesota, B. Vassier - Texas A & M, G. Hall - U. Florida, D. Smith - U. Michigan, C. Milne - Washington State, D. Carlson - USDA, Gainesville, FL, G. Loper - USDA, Tucson, Arizona and S. Sheppard - USDA Beltsville, MD).
- e. Principal advisor to three students from Universidad Maracay in Venezuela in experiments related to drone development and mating biology.
- f. Dr. Hellmich was asked by Mexican officials to write a proposal, "Suggestions for breeding and maintaining European-like honey bees in Mexico," 1987.
- g. Participated in research related to overwintering of Africanized honey bees in Europe at the Bienenkunde Oberursel, West Germany (two weeks 1988).
- h. Reviewed four articles for the journal *Apidologie*, and approximately 25 peer reviews for agency requirements.
- i. Reviewed 15 grant proposals for USDA Competitive Research Grants.
- j. Principal advisor to Dr. Gwen Davis, a professor from Tuskegee University, who developed an apiculture program for her University in which needs of small queen breeders and hobbyist beekeepers are emphasized.
- k. Made recommendations to APHIS concerning "Management of Africanized Honey Bees" literature to be distributed in Guatemala, Belize and Mexico.
- l. Developed survey strategies with Jim Sands and Howard Holden, USDA, National Agricultural Statistics Service, Des Moines, IA, for determining percentage of transgenic corn planted in defined areas.
- m. Invited to participate in meeting by Dekalb Genetics and Monsanto to present research results for Bt corn efficacy trials, studies assessing European corn borer refuge potential of agronomic crops, and studies evaluating movement of late instar European corn borer into transgenic corn hybrids, St. Louis, MO, 1997.
- n. Invited to participate in EPA Science Advisory Panel on *Bacillus thuringiensis* (Bt) Plant-Pesticides and Resistance Management. Washington, D. C., February 1998.
- o. Interviewed by Peter Berle host of the National Public Radio (NPR), The Environment Show. Talking Green show on Bt corn and insect resistance management. This 15 minute interview on the "Talking Green" part of the show concerned Bt corn and insect resistance management. It was broadcast on NPR & ABC Radio Network, 200 stations, Voice of America, and Armed Forces Radio (March 1998).

- p. Invited by National Corn Growers Association to participate in an Insect Resistance Management Roundtable discussion, Omaha, NE, September 1998.
- q. Dr. Hellmich was featured in an interview with Dan Charles November 13, 1998 on NPR "Morning Edition." Mr. Charles reported on the increasing popularity of genetically engineered crops, in particular corn. Dr. Hellmich was asked several questions related to managing corn borer resistance to Bt corn. A RealAudio version of this interview can be downloaded at <http://www.npr.org/programs/morning/archives/index.html>.
- r. Invited to participate the Agricultural Biotechnology in the Environment Working Group to address concerns of monarch butterflies and Bt corn. Kansas City, MO, June 1999.
- s. Invited to participate on an EPA Science Advisory Panel for "Characterization and Non-Target Organism Data Requirements for Protein Plant-Pesticides," Washington, D.C., December, 1999.
- t. Invited by National Corn Growers Association (NCGA) to participate in a farm media question and answer session regarding insect resistance management. 125 media sources (radio stations, farm press etc.) were asked to participate. (January 2000).
- u. Interviewed by Pioneer Hybrid representative about Bt corn and insect resistance management for a brochure they were sending to growers. (January 2000).
- v. Invited to participate in a task force sponsored by Agricultural Biotechnology Stewardship Technical Committee to address Bt corn and resistance monitoring issues. June 2000.
- w. Interviewed by Dr. Mark Winston for book he is writing about agricultural biotechnology. Dr. Winston was interested in Bt corn IRM and the Bt corn and monarch butterfly issue (April 2000).
- x. Dr. Hellmich had several newspaper and magazine interviews regarding Bt corn and insect resistant management including Farm Industry News, Farm Futures, Chicago Tribune, Farm & Dairy Newspaper, St. Louis Post Dispatch, American Scientist, Soybean Digest, Progressive Farmer, Farm Progress Co.(representing several farm magazines).
- y. Dr. Hellmich had several newspaper, magazine and radio interviews regarding Bt corn and monarch butterflies including ABC Radio News, National Geographic News, Wallace Farmer, WHO Des Moines Radio Station, Data Transmission Network (DTN), Bureau of National Affairs, Science, Minneapolis Star Tribune.
- z. Invited by Agricultural Biotechnology Stewardship Technical Committee to participate on Industry Advisory Panel on Resistance Monitoring. Chicago, IL, September 2000.
- aa. Invited to participate on two EPA Science Advisory Panels for Bt Plant-Pesticides Risk and Benefit Assessments "Insect Resistance Management" and "Gene flow, Outcrossing, Environmental fate in the soil, and Non-target Organisms Effects," Washington, D.C.,

October, 2000.

- bb. Interviewed by Dr. Mark Winston for book he is writing about agricultural biotechnology. Dr. Winston was interested in Bt corn IRM and the Bt corn and monarch butterfly issue (April 2001).
- cc. Invited to participate on two EPA Science Advisory Panels for Corn Rootworm Plant-incorporated Protectant Plants "Non-target Insect Issues" and "Insect Resistance Management Issues," Washington, D.C., August, 2002. He was asked to serve as the report coordinator for the Non-target Insect Issues Panel.
- dd. Invited by USDA Biotechnology Regulatory Services to join an expert panel to address National Research Council (NRC) recommendations for Monitoring for Environmental Effects of Transgenic Crops, Riverdale, MD, March 2003.
- ee. Invited to participate as a panel member for a USDA-CSREES, Stakeholder Workshop: Future Directions and Research Priorities for the USDA Biotechnology Risk Assessment Research Grants Program, Washington, DC, June 2003.
- ff. Invited to participate in a Mexican/U.S. Workshop on Plant Biotechnology and Biosafety/Risk Assessment Research, Irapuato, Mexico, June 2003.
- gg. Invited to participated in a meeting entitled "A Regional Monitoring Program to Determine *Bacillus thuringiensis* Susceptibility in Heliethines from North America," Mexico City, MX, April 2004.
- hh. Invited to participate on a Peer Review Panel "Tier-Based Testing for Potential Effects of Introduced Traits on Non-Target Invertebrates in the Context of Regulatory Risk Assessments" sponsored by USDA, APHIS, Biotechnology Regulatory Services and EPA, Biopesticides and Pollution Prevention Division, Riverdale, MD, December, 2004.
- ii. Invited by Canadian Food Inspection Agency, Plant Biosafety Office to participate in meeting for "Technical Consultation on Stewardship of Herbicide Tolerant and Insect Resistant." Ottawa, Ontario, Canada, February, 2005.
- jj. Invited to participate in EPA technical workshop to Explore Ecological Impacts from Plant-Incorporated Protectants (PIPs) and Research Project Development, Corvallis, OR, December 2006.
- kk. Co-chair of a (IOBC) Working Group subgroup focusing on developing protocols for evaluating non-target lab tests, 2006.
- ll. Invited to participate in Workshop on Genetically Engineered Organisms, Wildlife, and Habitats, sponsored by the National Research Council, Irvine, CA, November 2007.
- mm. Hosted (5 weeks) and advised, Julia Górecka, a Borlaug Fellow from the Department of

- Applied Entomology, Warsaw Agricultural University, Warsaw, Poland on a project related to evaluating non-target effects of Bt corn, 2007.
- nn. Hosted (6 months) and consulted with a Visiting Scholar from China, Dr. Zhenying Wang, a Senior Scientist at the Institute of Plant Protection, Chinese Academy of Agricultural Sciences in Beijing, China, on projects related to evaluating non-target effects of Bt corn and managing insect resistance to Bt corn, 2007.
 - oo. Invited to attend the European Food Safety Authority (EFSA) Scientific Colloquium: Environmental Risk Assessment of Genetically Modified Plants – Challenges and Approaches, Tabiano, Italy, June 2007.
 - pp. Invited to give a presentation to the Polish Farm Delegation to the United States entitled “*Bacillus thuringiensis* (Bt) Maize in the U.S.A.” September 2008.
 - qq. Invited to participate on EPA FIFRA Science Advisory Panel “A Set of Scientific Issues Being Considered by the Environmental Protection Agency Regarding: The Data Required to Register Plant-Incorporated Protectants”. Washington, D. C., February 2009.
 - rr. Invited to participate on Cowpea Expert Panel by members of the African Agricultural Technology Foundation (AATF) and the Danforth Foundation to evaluate the possibility of introducing Bt cowpea into Africa and to present paper entitled “Insect Resistance Management Considerations for Bt-Expressing Crops”, St. Louis, MO, March 2009.
 - ss. Invited to participate in VI Brazilian Biosafety Congress and 1st Latin American Symposium on Biotech Products and to present paper entitled “Challenges for managing insect resistance for the next generation of *Bacillus thuringiensis* (Bt) maize hybrids” and to participate on Expert’s Panel “Biosafety of Bt maize – more than 15 years of published experience” Rio de Janeiro, Brazil, September 2009.
 - tt. Invited to attend workshop on Problem Formulation for Biotech Crops and Aquatic Ecosystems co-sponsored by International Life Sciences Institute (ILSI) Research Foundation and Agricultural Biotechnology Stewardship Committee (ABSTC) on Non-Target Organisms, Washington, D.C., October 2009.
 - uu. Invited by EPA to discuss Insect Resistance Management modeling project and provide recommendations based on this project, Washington, D.C., July, 2010.
 - vv. Invited by Chinese scientists to visit research institutions (Northwest A & F University, Yangling, Shaanxi province, Plant Protection Institute, Hebei Academy of Agricultural and Forest Sciences, Baoding, Hebei Province, Agricultural University of Hebei, Baoding, Hebei Province, Langfang Experimental Station for Crop Pests, Hebei Province and Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing) and present two talks “Assessing risk of genetically-engineered crops on non-target organisms” and “Bt maize: challenges and opportunities”, China, September 2010.

- ww. Reviewed numerous manuscripts for the Entomological Society of America journals: J. Econ. Entomol., and Environ. Entomol., plus reviewed manuscripts from PNAS, Nature Biotech, Proc. Royal Soc., J. Appl. Ecol., J. Appl. Entomol., Crop. Protect., Maydica, Bio Conserv., Agri. Ecosystm. Environ., Entomologia Exper. et Applicata, Biodiver. Sci and Manag. among others.
- xx. Ames Center for Childcare Resources Board Member (1995-2001), Treasurer (1997-2000).
- yy. Member of the “European corn borer Team” that won the 2011 Annual IPM Team Award, sponsored by the ESA Foundation, and Dow AgroSciences, which was recognized at the annual Entomological Society of America meeting, Reno, NV, November, 2011.
- zz. Co-organizer and member of ad hoc Insect Resistance Management (RM) committee with EPA to follow development of insect resistance to Bt corn. This has particularly been an active group this summer because of multiple instances of unexpected damage for corn rootworm on Cry3Bb1 hybrids.
- aaa. Co-organizer of international five-day workshop entitled “Environmental Risk Assessment Workshop: Non-target Organism Testing” attended by scientists and regulators from Argentina, Bangladesh, Kenya, Paraguay, Tanzania, Uganda, Uruguay, and Vietnam, Ames, IA, June, 2012
- bbb. Invited by Iowa State University Dean of Agriculture to be on an ad hoc committee to address corn rootworm resistance to Cry3Bb1 Bt corn, 2012
- ccc. Member of Advisory Committee (key experts across academia and agricultural organizations) for the Corn Rootworm Knowledge Research Program sponsored by Monsanto, 2012-2014
- ddd. Consulted Ag Attaché at American Embassy, Beijing, China, on crop biotechnology in U.S. and China, December, 2012
- eee. Member of the “Risk Assessment of Bt Plants on Beneficial Non-target Arthropods” team that won the 2013 Annual IPM Team Award, sponsored by the ESA Foundation, and Dow AgroSciences, which will be recognized at the annual Entomological Society of America meeting, Austin, TX, November, 2013.
- fff. Co-organizer and member of ad hoc Insect Resistance Management (RM) committee with EPA to follow development of insect resistance to Bt corn. This committee has particularly been an active group because of multiple instances of unexpected damage for corn rootworm on Cry3Bb1 hybrids. 2012-2014.
- ggg. Invited by National Program Staff to a 30-day detail to help write a five-year Retrospective Report on the National Program 304 (Crop Protection and Quarantine), Beltsville, MD, September, 2013.

FUNDING

1. Co-investigator with scientists from ARS and APHIS on “Producing European-like honey-bee queens in an area with Africanized honey bees in Guatemala.” Agency for International Development (AID). \$250,000, 1989-1991.
2. Principle investigator on “BT Corn: Insect efficacy, yield and refuge evaluation.” Monsanto Co. \$18,000, 1995.
3. Principle investigator on “Assessing refugia’s role in managing European corn borer resistance to transgenic corn.” Center for Integrated Pest Management (CIPM), North Carolina State University. \$14,000, 1996. Two-year extension \$30,000, 1997-1998.
4. Principle investigator on “BT Corn: Insect efficacy, yield and refuge evaluation.” Monsanto Co. \$15,000; Northrup King \$16,000; Mycogen \$2,000, 1996.
5. Principle investigator on “Dynamics of European corn borer refugia: natural and man-made.” CSREES, North Central Region, Integrated Pest Management (NC-IPM). \$70,000, 1996-1998.
6. Co-investigator with scientists from ARS on “Combining landscape and augmentive biological control to suppress European corn borer populations in sustainable low-input systems.” USDA, ARS Postdoctoral Research Associate Program. \$50,000. 1997.
7. Principle investigator on “BT Corn: Strategies for managing European corn borer resistance to transgenic corn hybrids.” Novartis \$15,000; Monsanto Co. \$7,500; DeKalb \$7,500; Mycogen \$5,000; AgrEvo \$2,000. 1997.
8. Co-investigator with scientists from ARS on “Combining landscape and augmentive biological control to suppress European corn borer populations in sustainable low-input systems.” North Central Region Sustainable Agriculture Research and Education Program. \$92,740, 1998-1999.
9. Principle investigator on “BT Corn: Strategies for managing European corn borer resistance to transgenic corn hybrids.” Novartis \$7,500; Monsanto Co. \$7,500; DeKalb \$5,000; AgrEvo \$5,000, 1998.
10. Co-investigator with scientists from Iowa State University on “Transgenic maize for integrated management of insects, diseases, and mycotoxins.” CSREES, North Central Region, Integrated Pest Management Program. \$66,422, 1998-2000.
11. Co-investigator with scientists from University of Nebraska on “Growth, Development and Mortality of European Corn Borer on Event 176 Corn Hybrids.” Mycogen and Novartis. \$90,000, 1998-1999.
12. Co-investigator with scientists from Iowa State University and Kansas State University

- on “Using Crop Insurance to Improve Transgenic Corn Refuge Compliance.” Iowa Agricultural Insurance Innovations Consortium, and Iowa Department of Economic Development. \$57,000, 1999.
13. Principle investigator on “Insect Resistance Management Strategies for Transgenic Corn.” Monsanto Co. \$5,000, 1999.
 14. Principle investigator on “BT Corn: Strategies for managing European corn borer resistance to transgenic corn hybrids.” Novartis \$4,500; AgrEvo \$5,000. Mycogen \$9,000, 1999.
 15. Principle investigator on “Survival of monarch larvae in Bt and nonBt cornfields.” USDA Special Funds, \$10,000, 2000.
 16. Co-investigator with scientists from Iowa State University “The relative usage by monarch butterflies of milkweed plants in and near cornfields and in other habitats.” USDA Special Funds, \$14,100, 2000.
 17. Co-investigator with Marline Rice, John VanDyk and Julie Todd, Douglas Sumerford and Leslie Lewis (USDA-ARS) were co-recipients of a three-year \$1,871,398 USDA RAMP grant with Penn State University (Lead Institution) and University Nebraska entitled "A Site-Specific Field Corn IPM Program that Incorporates Transgenic Technology." Subcontracts: Iowa State University \$248,842; USDA-ARS \$194,550, 2002-2006.
 18. Principal investigator on “Recommended protocols for field evaluations of non-target organisms in Bt crops.” 2004-2007. Lead scientist of team that includes: Prasifka, J. R., Dively, G. P., and Lewis, L. C. USDA, Biotech Risk Assessment Grants (BRAG) Program, \$335,000.
 19. Principal scientist on “Contributions to a Framework for Managing Insect Resistance to Transgenic Plants.” 2004-2007. USDA interagency agreement with the EPA, \$1,389,361.00.
 20. Team member on “Development of Analytical Techniques for Environmental Detection and Quantification of the Bt Toxin from Transgenic Corn.” 2003-2006. Team includes: Coats, J. R. (lead); Phillips, T. A.; Hellmich, R. L.; Andrews, R. E. USDA, Biotech Risk Assessment Grants (BRAG) Program, \$221,000.
 21. Effects of new Bt products and larval ecology on the relative risks of European corn borer resistance management strategies, 2007–2010. Richard Hellmich, lead scientist of team that includes: Prasifka, J. R., Onstad, D. W., and Siegfried, B. D., USDA, Biotech Risk Assessment Grants (BRAG) Program, \$393,582.
 22. Evaluating non-Bt refuge needs for the Corn Belt: Effects of European corn borer resistance alleles and multiple-toxin Bt hybrids, 2009-2012. Richard Hellmich, lead scientist of team that includes: Siegfried, B. D., and Prasifka, J. R., American Seed

Research Foundation, \$100,000.

23. New technologies for the dissection of complex phenotypic traits in Lepidoptera, 2010-2011, Richard Hellmich, Coates, B. S. and Siegfried, B. D. USDA, Agriculture and Food Research Initiative (AFRI), \$86,802.
24. MWA, ARS Postdoctoral Research Associate, (2009-2012) \$50,000 per year for three years, hired Jeremy Kroemer.
25. Blended refuge versus block refuge, Trust Fund Cooperative Agreement with Pioneer Hi-Bred, \$20,000, 2012-2013
26. Evaluating non-target effects of Bt rootworm maize, Trust Fund Agreement with Pioneer Hi-Bred, \$70,000, 2010-2013
27. Investigation of European corn borer, *Ostrinia nubilalis*, intraplant larval movement on reproductive stage corn in a seed mixture. Trust Fund Agreement with Monsanto, \$20,000, 2012-2013

PEERED-REVIEWED PUBLICATIONS

1. Hellmich R. L., II, J. M. Kulinčević and W. C. Rothenbuhler. 1985. Selection for high and low pollen-hoarding honey bees (*Apis mellifera*). *Journal of Heredity*. 76: 155-158.
2. Rinderer, T. E., R. L. Hellmich, II, R. G. Danka and A. M. Collins. 1985. Male reproductive parasitism: A factor in the Africanization of European honey bee populations. *Science* 228: 1119-1121.
3. Hellmich, R. L., II and W. C. Rothenbuhler. 1986. Relationship between different amounts of brood and the collection and use of pollen by the honey bee (*Apis mellifera*). *Apidologie* 17: 13-20.
4. Danka, R. G., T. E. Rinderer, R. L. Hellmich II and A. M. Collins. 1986. Comparative toxicities of four topically applied insecticides to Africanized and European honey bees. *J. Econ. Entomol.* 79: 18-21.
5. Hellmich, R. L., II and W. C. Rothenbuhler. 1986. Pollen hoarding and use by high and low pollen-hoarding honey bees during the course of brood rearing. *J. Apic. Res.* 25: 30-34.
6. Milne, Jr., C. P., R. L. Hellmich II and K. J. Pries. 1986. Corbicular size in lines selected for high and low pollen hoarding. *J. Apic. Res.* 25: 50-52.

7. Hellmich, R. L., II, Danka, R. G., Collins, A. M. and Rinderer, T. E. 1986. Laying-worker production of drones in mixed colonies of Africanized and European Honey Bees (Hymenoptera: Apidae). *Ann. Entomol. Soc. Amer.* 79: 833-836.
8. Hellmich, R. L., II, Rinderer, T. E., Collins, A. M. and Danka, R. G. 1986. Comparison of Africanized and European queen-mating colonies in Venezuela. *Apidologie.* 17: 217-226.
9. Danka, R. G., Rinderer, T. E., Hellmich, R. L, II and Collins, A. M. 1986. Foraging population sizes of Africanized and European honey bee (*Apis mellifera* L.) colonies. *Apidologie.* 17: 193-202.
10. Rinderer, T. E., Collins, A. M., Hellmich, R. L., II and Danka, R. G. 1986. Regulation of the hoarding efficiency of Africanized and European bees. *Apidologie.* 17: 227-232.
11. Rinderer, T. E., Collins, A. M., Hellmich, R. L., II and Danka, R. G. 1987. Differential drone production by Africanized and European honey-bee colonies. *Apidologie.* 18: 61-68.
12. Rinderer, T. E., Sylvester, H. A., Bucu, S. M., Lancaster, V. A., Herbert, E. W., Collins, A. M. and Hellmich, R. L., II. 1987. Improved techniques for identifying Africanized and European Honey Bees. *Apidologie.* 18: 179-196.
13. Danka, R. G. Hellmich, R. L., II, Collins, A. M. and Rinderer, T. E. 1987. Diet selection ecology of tropically and temperately adapted honey bees. *Anim. Behav.* 35: 1858-1863.
14. Danka, R. G., Rinderer T. E., Collins A. M. and Hellmich, R. L., II. 1987. Responses of Africanized honey bees (Hymenoptera: Apidae) to pollination-management stress. *J. Econ. Entomol.* 80: 621-624.
15. Hellmich, R. L., II, Collins, A. M., Danka, R. G. and Rinderer, T. E. 1988. Influencing matings of European honey bee queens in areas with Africanized honey bees (Hymenoptera: Apidae). *J. Econ. Entomol.* 81: 796-799.
16. Danka, R. G., Collins A. M., Rinderer T. E. and Hellmich, R. L., II. 1988. Comparative rates of recruitment to pollen sources by Africanized and European honey bees (*Apis mellifera* L.). *Apidologie.* 19: 255-258.
17. Hellmich, R. L. & G. Waller. 1990. Preparing for Africanized honey bees: Evaluating control in mating apiaries. *American Bee Journal.* 130:537-542.
18. Danka, R. G., Hellmich, R. L., II, Collins, A. M., Rinderer, T. E. and Wright, V. L. Flight characteristics of foraging Africanized and European honey bees (Hymenoptera: Apidae). 1990. *Ann. Entomol. Soc. Am.* 83:855-859.

19. Nelson, D. R., Collins, A. M., Hellmich, R. L., Jones, R. T., Helm, R. M., Squillace, D. L. and Yunginger, J. W. 1990. Biochemical and immunochemical comparisons of Africanized and European honey bee venoms. *J. Of Allergy and Clin. Immunol.* 95: 80-85.
20. Hellmich, R. L., II, Rinderer, T.E., Danka, R. G. and Collins, A. M., Boykin, D. L. 1991. Flight times of Africanized and European honey bee drones (Hymenoptera: Apidae). *Journal of Economic Entomology.* 84:61-64.
21. Sylvester, H. A., Hellmich, R. L. and Collins, A. M. 1991. Response of Africanized and European honey bees to lactose in sucrose syrup. *Bee Science* 1:77-80.
22. Danka, R. G. Hellmich, R. L., II and Rinderer, T. E. 1992. Nest usurpation, supersedure and colony failure contribute to Africanization of commercially managed European honey bees in Venezuela. *J. Apic. Res.* 31:119-123.
23. Hellmich, R. H., Ibarra, J., Mejia, M., Rinderer, T.E. and Gutierrez, N. A. 1993. Evaluating mating control of honey bee queens in an Africanized area of Guatemala. *American Bee Journal.* 133:207-211.
24. Collins, A.M., W. L. Rubink, J. I. C. Aguilar and R. L. Hellmich. 1996. Use of insect repellents for dispersing defending honey bees (Hymenoptera: Apidae). *J. Econ. Entomol.* 89:608-613.
25. Munkvold, G. P., R. L. Hellmich, W. B. Showers and M. E. Rice. 1996. Gibberella infection in kernels of transgenic (Bt) maize. *Phytopathology* 86:S47.
26. Munkvold, G. P., R. L. Hellmich and W. B. Showers. 1997. Reduced Fusarium ear rot and symptomless infection in kernels of maize genetically engineered for European corn borer resistance. *Phytopathology* 87:1071-1077.
27. Hellmich, R.H., R. L. Pingel and W. R. Hansen. 1998. Influencing European corn borer (Lepidoptera: Crambidae) aggregation sites in small grain crops. *Environ. Entomol.* 27:253-259.
28. Munkvold, G. P., R. L. Hellmich and L. G. Rice. 1999. Comparison of fumonisin concentrations in kernels of transgenic Bt Maize hybrids and nontransgenic hybrids. *Plant Disease* 83:130-138.
29. Marcon, P. C. R. G., D. B. Taylor, C. E. Mason, R. L. Hellmich and B. D. Siegfried. Genetic similarity among pheromone and voltinism races of *Ostrinia nubilalis* (Hübner) (Lepidoptera Crambidae). 1999. *Insect Molecular Biology* 8: 213-221.
30. Hellmich, R. L., L. S. Higgins, J. F. Witkowski, J. E. Campbell and L. C. Lewis. 1999. Oviposition by European corn borer (Lepidoptera Crambidae) in response to various transgenic corn events. *J. Econ. Entomol.* 92:1014-1020.

31. Munkvold, G. P., and Hellmich, R. L. 1999. Genetically modified, insect resistant corn: Its implications for disease management. Featured article Plant Pathology APSnet <http://www.apsnet.org/online/feature/BtCorn/Top.html>.
32. Andow, D. A., D. M. Olson, R. L. Hellmich, D. N. Alstad and W. D. Hutchison. 2000. Frequency of resistance alleles to *Bacillus thuringiensis* toxin in an Iowa population of European corn borer. J. Econ. Entomol. 93:26-30.
33. Giles, K. L., R. L. Hellmich, C. T. Iverson and L. C. Lewis. 2000. Effects of transgenic *Bacillus thuringiensis* maize on *B. thuringiensis*-susceptible *Plodia Interpunctella* (Lepidoptera: Pyralidae). J. Econom. Entomol. 93:1011-1016.
34. Munkvold, G.P., Hellmich, R.L., Gillette, K.S. and Rice, L.G. 2000. Fusarium ear rot and fumonisins in Bt and conventional corn hybrids, 1998. Biological and Cultural Tests for the Control of Plant Diseases. 15:14.
35. Hunt, T. E., R. L. Hellmich, J. M. Dyer, L.G. Higley and J. F. Witkowski. 2000. Evaluation of oil-soluble dyes for marking European corn borer (Lepidoptera: Crambidae). J. Entomol. Sci. 35: 338-341.
36. Walker, K. A., R. L. Hellmich and L. C. Lewis. 2000. Late-instar European corn borer (Lepidoptera: Crambidae) tunneling and survival in transgenic corn hybrids. J. Econ. Entomol. 93:1276-1285.
37. Showers, W. B., R. L. Hellmich, M. E. Derrick-Robinson, W. H. Hendrix, III. 2001. Aggregation and dispersal behavior of marked and released European corn borer (Lepidoptera: Crambidae) Adults. Environ. Entomol. 30:700-710.
38. Hurley, T.M., B.A. Babcock and R. L. Hellmich. 2001. Bt crops and insect resistance: An economic assessment of refuges. J. Agr. & Res. Econ. 26: 176-194.
39. Hellmich, R. L., Siegfried, B. D., Sears, M. K., Stanley-Horn, D. E., Mattila, H. R., Spencer, T., Bidne, K. G., Daniels, M. J. & Lewis, L. C. 2001. Monarch larvae sensitivity to *Bacillus thuringiensis* purified proteins and pollen. Proc. Natl. Acad. Sci. USA 98:11925-11930.
40. Stanley-Horn, Dively, G. P., Hellmich, R. L., Mattila, H. R., Sears, M. K., Rose, R., Jesse, L. C. H., Losey, J. E., Obrycki, J. J. & Lewis, L. C. 2001. Assessing the impact of Cry1Ab-expressing corn pollen on monarch butterfly larvae in field studies. Proc. Natl. Acad. Sci. USA 98:11931-11936.
41. Sears, M. K., R. L. Hellmich, B. D. Siegfried, J. M. Pleasants, D. E. Stanley-Horn, K. S. Oberhauser and G. P. Dively. (2001). Impact of Bt Corn Pollen on Monarch Butterfly Populations: A Risk Assessment. Proc. Natl. Acad. Sci. USA 98:11937-11942.

42. Pleasants, J. M., Hellmich, R.L., Dively, G., Sears, M.K., Stanley-Horn, D.E., Mattila, H.R., Foster, J.E., Clark, P.L., & Jones, G.D. 2001. Corn pollen deposition on milkweeds in and near cornfields. *Proc. Natl. Acad. Sci. USA* 98:11919-11924.
43. Oberhauser, K. S., M. Prysby, H. R. Mattila, D. E. Stanley-Horn, M. K. Sears, G. P. Dively, E. Olson, J. M. Pleasants, W.-K. F. Lam and R. L. Hellmich. 2001. Temporal and spatial overlap between monarch larvae and corn pollen. *Proc. Natl. Acad. Sci. USA* 98:11913-11918.
44. Hunt, T. E., L. G. Higley, J. F. Witkowski, L. J. Young, R. L. Hellmich. 2001. Dispersal of adult European corn borer (*Lepidoptera*: Crambidae) within and proximal to irrigated and non-irrigated corn. *J. Econ. Entomol.* 94: 1369-1377.
45. Coates B. S., R. L. Hellmich and L. C. Lewis. 2001. A minisatellite from the filamentous ascomycete *Beauveria bassiana* shows allelic variability independent of host range and geographic origin. *Genome* 45(1): 125-132.
46. Coates B. S., R. L. Hellmich and L. C. Lewis. 2002. *Beauveria bassiana* haplotype determination based on nuclear rDNA internal transcribed spacer PCR-RFLP. *Mycol Res* 106(1): 40-50.
47. Coates B. S., R. L. Hellmich and L. C. Lewis. 2002. Nuclear small subunit rRNA group I intron variation among *Beauveria* spp provide tools for strain identification and evidence of horizontal transfer. *Curr Genet* 41:414-424.
48. Coates B. S., R. L. Hellmich and L. C. Lewis. 2002. A minisatellite from the filamentous ascomycete *Beauveria bassiana* shows allelic variability independent of host range and geographic origin. *Genome* 45:125-132.
49. Gatch, E. W., R. L. Hellmich and G. P. Munkvold. 2002. A comparison of maize stalk rot occurrence in Bt and non-Bt hybrids. *Plant Disease* 86:1149-1155.
50. Hurley, T. M., S. Secchi, B. A. Babcock and R. L. Hellmich. 2002. Managing the risk of European corn borer resistance to Bt corn. *Environ. & Res. Econ.* 22: 537-558.
51. Pilcher, C. D., M. E. Rice, R. A. Higgins, K. L. Steffey, R. L. Hellmich, J. Witkowski, D. Calvin, K. R. Ostlie and M. Gray. 2002. Biotechnology and the European corn borer: Measuring historical farmer perceptions and adoption of transgenic Bt corn as a pest management strategy. *J. Econ. Entomol.* 95:878-892.
52. Mitchell, P. D., T. M. Hurley, B. A. Babcock and R. L. Hellmich. 2002. Insuring the stewardship of Bt corn: A carrot versus a stick. *J. Agr. & Res. Econ.* 27:390-405.
53. Anderson, P. L., M. J. Weiss, R. L. Hellmich, M. P. Hoffmann and M. G. Wright. 2003. Millet preference, effects of planting date on infestation, and adult and larval use of proso millet by *Ostrinia nubilalis* (*Lepidoptera*: Crambidae). *J. Econ. Entomol.* 96: 361-369.

54. Coates, B. S. and R. L. Hellmich. 2003. Two sex-chromosome-linked microsatellite loci show geographic variance among North American *Ostrinia nubilalis*. *J. Insect Sci.* 3:29, 1-6. (Available online:insectscience.org/3.29)
55. Zoerb, A. C., T. Spencer, R. L. Hellmich, R. J. Wright and B. D. Siegfried. 2003. Larval distribution and survival of second generation European corn borer, *Ostrinia nubilalis* (Hübner) (Lepidoptera: Crambidae) on event 176 Bt corn. *Crop Sci.* 22: 179-184.
56. Anderson, P. L., R. L. Hellmich, M. K. Sears, D. V. Sumerford and L. C. Lewis. 2004. Effects of Cry1Ab-expressing corn anthers on monarch butterfly larvae. *Environ. Entomol.* 33: 1109-1115.
57. Coates, B. S., D. V. Sumerford and R. L. Hellmich. 2004. Geographic and voltinism differentiation among North American *Ostrinia nubilalis* (European corn borer) mitochondrial cytochrome *c* oxidase haplotypes. *J. Insect Sci.*, 4:35, 1-9.
58. Coates, B. S., Sumerford, D. V., Hellmich, R. L. and Lewis, L. C. 2004. Partial mitochondrial genome sequences of *Ostrinia nubilalis* and *Ostrinia furnicalis*. *Int. J. Biol. Sci.* 1:13-18.
59. Dively, G. P., R. Rose, M. K. Sears, R. L. Hellmich, D. E. Stanley-Horn, J. M. Russo, D. D. Calvin, P. L. Anderson. 2004. Effects on monarch butterfly larvae (Lepidoptera: Danaidae) after continuous exposure to Cry1Ab-expressing corn during anthesis. *Environ. Entomol.* 33: 1116-1125.
60. Reardon, B.J., Hellmich, R.L., Sumerford, D.V., Lewis, L.C. 2004. Growth, development, and survival of *Nosema pyrausta*-infected European corn borers (Lepidoptera: Crambidae) reared on meridic diet and Cry1Ab. *J. Econ. Entomol.* 97:1198-1201.
61. O'Neal, M. E., J. R. Prasifka, N. P. Schmidt, J. W. Singer, R. L. Hellmich and K. A. Kohler. 2005. Assessing ground beetle contributions to ecosystem services: does it matter if there are more ground beetles? *American Entomologist* 51: 231-233.
62. Prasifka, J. R., R. L. Hellmich, G. P. Dively and L. C. Lewis. 2005. Assessing the effects of pest management on non-target arthropods: the influence of plot size and isolation. *Environ. Entomol.* 34: 1181-1192.
63. Anderson, P. L., R. L. Hellmich, J. R. Prasifka and L. C. Lewis. 2005. Effects on fitness and behavior of monarch butterfly larvae exposed to a combination of Cry1Ab-expressing corn anthers and pollen. *Environ. Entomol.* 34: 944-952.
64. Coates B. S., D. V. Sumerford, R. L. Hellmich and L. C. Lewis. 2005. Sequence variation in the cadherin gene of *Ostrinia nubilalis*: A tool for field monitoring. *Insect Biochem Mol Biol* 35(2):129-139.

65. Coates B. S., R. L. Hellmich and L.C. Lewis. 2005. Polymorphic CA/GT and GA/CT microsatellite loci for *Ostrinia nubilalis* (Lepidoptera: Crambidae). *Mol Ecol Notes* 5(1):10-12.
66. Coates B.S., R. L. Hellmich and L. C. Lewis. 2005. Two differentially expressed ommochrome- binding protein-like genes (*obp1* and *obp2*) in larval fat body of the European corn borer, *Ostrinia nubilalis*. 12 pp. *J. Insect Sci.* 5:19. Available online: insectscience.org/5.19.
67. Coates, B. S., D. V. Sumerford, R. L. Hellmich, L. C. Lewis. 2005. Partial mitochondrial genome sequences of *Ostrinia nubilalis* and *Ostrinia furnicalis*. *Int. J. Biol. Sci.* 1: 13-18.
68. Coates B. S., R. L. Hellmich and L. C. Lewis. 2006. Sequence variation in trypsin- and chymotrypsin-like cDNAs from the midgut of *Ostrinia nubilalis*: Methods for allelic differentiation of candidate *Bacillus thuringiensis* resistance genes. *Insect Mol. Biol.* 15:13-24.
69. Prasifka, J. R., D. V. Sumerford, R. L. Hellmich, L. C. Lewis and D. D. Calvin. 2006. Sampling European corn borer (Lepidoptera: Crambidae) larvae from seed corn drying bins for Bt resistance monitoring. *Southwestern Entomologist* 31: 269–279.
70. Prasifka, J. R., N. P. Schmidt, K. A. Kohler, M. E. O'Neal, R. L. Hellmich and J. W. Singer. 2006. Effects of living mulches on predator abundance and sentinel prey in a corn-soybean-forage rotation. *Environ. Entomol.* 35: 1423-1431.
71. Tate, C. D., R. L. Hellmich and L.C. Lewis. 2006. Evaluation of *Ostrinia nubilalis* (Lepidoptera : Crambidae) neonate preferences for corn and weeds in corn. *J. Econ. Entomol.* 99: 1987-1993.
72. Coates B. S., D. V. Sumerford, R. L. Hellmich and L.C. Lewis. 2007. A beta-1,3-galactosyltransferase and brainiac/bre5 homolog expressed in the midgut did not contribute to a Cry1Ab toxin resistance trait in *Ostrinia nubilalis*. *Insect Biochem. Mol. Biol.* 37: 346-355.
73. Prasifka, P.L., Hellmich, R.L., Prasifka, J.R., Lewis, L.C. 2007. Effects of Cry1Ab-Expressing Corn Anthers on the Movement of Monarch Butterfly Larvae. *Environ. Entomol.* 36(1):228-233.
74. Prasifka, J.R., M. D. Lopez, R. L. Hellmich, L. C. Lewis and G. P. Dively. 2007. Comparison of pitfall traps and litter bags for sampling ground-dwelling arthropods. *J. Applied Entomol.* 131: 115-120.

75. Reardon, K. T., R. L. Hellmich, D. V. Sumerford, L. C. Lewis, B. J. Reardon and D. D. Calvin. 2007. Influence of Plant Severing on Movement of *Ostrinia nubilalis* Larvae in *Zea mays* Hybrid Seed Production Fields. *J. Econ. Entomol.* 100: 1129-1135.
76. Carroll, M. W., J. A. Glaser, R. L. Hellmich, T. E. Hunt, T. W. Sappington, D. Calvin, K. Copenhaver and J. Fridgen. 2008. Use of spectral vegetation indices derived from airborne hyperspectral imagery for detection of European corn borer infestation in Iowa corn plots. *J. Econ. Entomol.* 101: 1614-1623.
77. Coates B. S., D. V. Sumerford, R. L. Hellmich and L. C. Lewis. 2008. Mining an *Ostrinia nubilalis* midgut expressed sequence tag (EST) library for candidate genes and single nucleotide polymorphisms (SNPs). *Insect Mol. Bio.* 17: 607-620.
78. Hellmich R. L. and J. Gorecka J. 2008. Non - target risk assessment for crops engineered for insect resistance. *Ann. Warsaw Univ. of Life Sc. - SGGW, Horticult. and Landsc. Architect.* 29: 8 - 17.
79. Kim, K. S., B. S. Coates, R. L. Hellmich, D. V. Sumerford and T. W. Sappington. 2008. Isolation and characterization of microsatellite loci from the European corn borer, *Ostrinia nubilalis* (Hübner) (Insecta: Lepidoptera: Crambidae). *Mol. Ecol. Res.* 8: 409-411.
80. Prasifka, J. R., M. D. Lopez and R. L. Hellmich. 2008. Effects of insecticide exposure on movement and population size estimates of predatory ground beetles (Coleoptera: Carabidae). *Pest Management Science.* 64: 30-36.
81. Prasifka, J. R., R. L. Hellmich, G. P. Dively, L. S. Higgins, P. M. Dixon and J. J. Duan. 2008. Selection of nontarget arthropod taxa for field research on transgenic insecticidal crops: Using empirical data and statistical power. *Environ. Entomol.* 37: 1-10.
82. Romeis, J., D. Bartsch, F. Bigler, M. P. Candolfi, M. M. C. Gielkens, S. E. Hartley, R. L. Hellmich, J. E. Huesing, P. C. Jepson, R. Layton, H. Quemada, A. Raybould, R. I. Rose, J. Schiemann, M. K. Sears, A. M. Shelton, J. Sweet, Z. Vaituzis and J. D. Wolt. 2008. Assessment of risk of insect-resistant transgenic crops to nontarget arthropods. *Nature Biotech.* 26: 203-208.
83. Tate, C. D., R. L. Hellmich and L.C. Lewis. 2008. Evaluating popcorn as a potential refuge of *Ostrinia nubilalis* (Lepidoptera : Crambidae). *Environ. Entomol.* 37: 615-623.
84. Coates B. S., D. V. Sumerford, R. L. Hellmich and L. C. Lewis. 2009. Repetitive genomic elements in a European corn borer, *Ostrinia nubilalis*, bacterial artificial chromosome library were indicated by bacterial artificial chromosome end sequencing and development of sequence tag site markers: implications for lepidopteran genomic research. *Genome* 52: 57-67.

85. Crespo, A.L.B., Spencer, T.A., Alves, A.P., Hellmich, R.L., Blankenship, E.E., Magalhaes, L.C., Siegfried, B.D. 2009. On-plant survival and inheritance of resistance to Cry1Ab toxin from *Bacillus thuringiensis* in a field-derived strain of European corn borer, *Ostrinia nubilalis*. *Pest Management Science* 65: 1071-1081.
86. Hallman G. J. and R. L. Hellmich. 2009. Ionizing Radiation as a Phytosanitary Treatment against European Corn Borer (Lepidoptera: Crambidae) in Ambient, Low Oxygen, and Cold Conditions. *J. Econ. Entomol.* 102: 64-68.
87. Kim K.S., Bagley M. J., Coates B. S., Hellmich R. L., Sappington T.W. 2009. Spatial and temporal genetic analyses reveal high gene flow among European corn borer populations across the central U.S. Corn Belt. *Environ, Entomol.* 38: 1312-1323.
88. Prasifka, J. R., R. L. Hellmich, D. V. Sumerford and B. D. Siegfried. 2009. *Bacillus thuringiensis* resistance influences European Corn Borer (Lepidoptera: Crambidae) larval behavior after exposure to Cry1Ab. *J. Econ. Entomol.* 102: 781-787.
89. Coates, B.S., Sumerford, D.V., Hellmich, R.L., Lewis, L.C. 2010. A helitron-like transposon superfamily from lepidoptera disrupts (GAAA)(n) microsatellites and is responsible for flanking sequence similarity within a microsatellite family. *J. Molecular Evolution* 70: 275-288.
90. Hutchison, W. D., E. C. Burkness, P. D. Mitchell, R. D. Moon, T. W. Leslie, S. J. Fleischer, M. Abrahamson, K. L. Hamilton, K. L. Steffey, M. E. Gray, R. L. Hellmich, L. V. Kaster, T. E. Hunt, R. J. Wright, K. Pecinovsky, T. L. Rabaey, B. R. Flood, E. S. Raun. 2010. Areawide suppression of European corn borer with Bt maize reaps savings to non-Bt maize growers. *Science* 330: 222-225.
91. Lundgren, J. G., S. E. Moser, R. L. Hellmich, M. P. Seagraves. 2010. The effects of diet on herbivory by a predaceous lady beetle. *Biocontrol Science and Technology* 21:71-74.
92. Prasifka, J. R., Hellmich, R.L., Crespo, A. L., Siegfried, B. D., and Onstad, D. W. 2010. Video-tracking and on-plant tests show Cry1Ab resistance influences behavior and survival of neonate *Ostrinia nubilalis* following exposure to Bt maize. *J. Insect Behav.* 23: 1-11.
93. Coates, B. S., Bayles, D. O., Wanner, K. W., Robertson, H. M., Hellmich, R. L., Sappington, T. W. 2011. The application and performance of single nucleotide polymorphism markers for population genetic analyses of Lepidoptera. *Frontiers in Genetics.* 2(38):1-10.
94. Coates, B.S., Kroemer, J.A., Sumerford, D.V., Hellmich, R. L. 2011. A novel class of miniature inverted repeat transposable elements (MITEs) that contain hitchhiking (GTCY)n microsatellites. *Insect Molecular Biology* 20(1): 15-27.

95. Coates, B.S. Sumerford, D.V., Lopez, M.D., Wang, H., Fraser, L.M., Kroemer, J.A., Spencer, T., Kim, K.S., Abel, C.A., Hellmich, R.L., Siegfried, B.D. 2011. A single major QTL controls expression of larval Cry1F resistance trait in *Ostrinia nubilalis* (Lepidoptera: Crambidae) and is independent of midgut receptor genes. *Genetica* 139: 961-972.
96. Coates, B.S., Hellmich, R.L., Grant, D.M., Abel, C.A. 2011. Mobilizing the Genome of Lepidoptera through Novel Sequence Gains and End Creation by Non-autonomous Lep1 *Helitrons*. *DNA Research* doi:10.1093/dnares/dsr038.
97. Huesing, J., Romeis, J., Ellstrand, N., Raybould, A., Hellmich, R.L., Wolt J. (others). 2011. Regulatory considerations surrounding the deployment of Bt-expressing cowpea in Africa: Report of the deliberations of an expert panel. *GM Crops* 2(3): 211-224.
98. Kim, K. S., Coates, B. S., Bagley, M. J., Hellmich, R. L., Sappington, T. W. 2011. Genetic structure and gene flow among European corn borer populations from the Great Plains to the Appalachians of North America. *Agricultural and Forest Entomology* 13(4): 383-393.
99. Kroemer, J.A., Nusawardani, T., Rausch, M.A., Moser, S.E., Hellmich, R.L. 2011. Transcript analysis and comparative evaluation of shaker and slowmo gene homologues from the European corn borer, *Ostrinia nubilalis*. *Insect Molecular Biology* 20(4): 493-506.
100. Kroemer, J.A., Coates, B.S., Nusawardani, T., Rider Jr., S.D., Fraser, L.M. and Hellmich, R.L. 2011. A rearrangement of the Z chromosome topology influences the sex-linked gene display in *Ostrinia nubilalis*. *Molecular Genetics and Genomics* 286(1): 37-56.
101. Li, Y., Ostrem, J., Romeis, J., Chen, M., Liu, X., Hellmich, R. L., Shelton, A., Peng, Y. 2011. Development of a Tier-1 assay for assessing the toxicity of insecticidal substances against *Coleomegilla maculata*. *Environmental Entomology*. 40(2):496-502.
102. Margam, V. M., Coates, B. S., Hellmich, R. L., Agunbiade, T., Seufferheld, M. J., Sun, W., Ba, M. N., Sanon, A., Binso-Dabire, C. L., Baoua, I., Ishiyaku, M. F., Covas, F. G., Srinivasan, R., Armstrong, J., Murdock, L. L., Pittendrigh, B. R. 2011. Mitochondrial genome sequence and expression profiling for the legume pod borer *Maruca vitrata* (Lepidoptera: Crambidae). *PLoS One*. 6(2):e16444.
103. Margam, V. M., Coates, B. S., Bayles, D. O., Hellmich, R. L., Agunbiade, T., Seufferheld, M. J., Sun, W., Kroemer, J. A., Ba, M. N., Binso-Dabire, C. L., Baoua, I., Ishiyaku, M. F., Covas, F. G., Srinivasan, R., Armstrong, J., Murdock, L. L., Pittendrigh, B. R. 2011. Transcriptome sequencing, and rapid development and application of SNP markers for the legume pod borer *Maruca vitrata* (Lepidoptera: Crambidae). *PLoS One*. 6(7):e21388.

104. Meissle, M., Hellmich, R. L., Romeis, J. 2011. Impact of Cry3Bb1-expressing Bt maize on adults of the western corn rootworm, *Diabrotica virgifera virgifera* (Coleoptera: Chrysomelidae). *Pest Management Science* 67: 807-814.
105. Onstad, D. W., Mitchell, P. D., Hurley, T. M., Lundgren, J. G., Porter, R. P., Krupke, C. H., Spencer, J. L., Difonzo, C. D., Baute, T. S., Hellmich, R. L., Buschman, L., Hutchinson, W., Tooker, J. F. 2011. Seeds of change: corn seed mixtures for resistance management and IPM. *Journal of Economic Entomology*. 104(2):343-352.
106. Romeis, J., R. L. Hellmich, M. P. Candolfi, K. Carstens, A. De Schrijver, A. M. R. Gatehouse, R. A. Herman, J. E. Huesing, M. A. McLean, A. Raybould, A. M. Shelton, A. Waggoner. 2011. Recommendations for the design of laboratory studies on non-target arthropods for risk assessment of genetically engineered plants. *Transgenic Res.* 20:1-22.
107. Wu, F., Bhatnagar, D., Bui-Klimke, T., Carbone, I., Hellmich, R., Munkvold, G., Paul, P., Payne, G., Takle, E. 2011. Climate change impacts on mycotoxin risks in US maize. *World Mycotoxin Journal* 4(1): 79-93.
108. Coates, B. S., Hellmich, R.L., Grant D. M., Abel C.A. 2012. Mobilizing the genome of Lepidoptera through novel sequence gains and end creation by non-autonomous *Lep1 Helitrons*. *DNA Research* 19(1):11-21.
109. Hellmich, R.L., Hellmich, K.A. 2012. Use and impact of Bt maize. *Nature Education Knowledge* 3(5):4.
110. Kang, J., Onstad, D.W., Hellmich, R.L., Moser, S.E., Hutchison, W.D., Prasifka, J.R. 2012. Modeling the impact of cross-pollination and low toxin expression in corn kernels on adaptation of European corn borer (Lepidoptera: Crambidae) to transgenic insecticidal corn. *Environmental Entomology* 41(1): 200-211.
111. Siegfried, B.D., Hellmich, R.L. 2012. Understanding successful resistance management: The European corn borer and Bt corn in the United States. *GM Crops* 3(3): 184-193. <http://dx.doi.org/10.4161/gmcr.20715>.
112. Tian, J. C., Collins, H. L., Romeis, J., Naranjo, S. E., Hellmich, R. L., Shelton, A. M. 2012. Using field-evolved resistance to Cry1F maize in a lepidopteran pest to demonstrate no adverse effects of Cry1F on one of its major predators. *Transgenic Research* DOI 10.1007/s11248-012-9604-4.
113. Bowers, E. Hellmich, R. L., Munkvold, G. P. 2013. Vip3Aa and Cry1Ab proteins in maize reduce Fusarium ear rot and fumonisins by deterring kernel injury from multiple Lepidopteran pests. *World Mycotoxin Journal*: 6(2):127-135.

114. Carstens, K., Cayabyab, B., De Schrijver, A., Gadaleta, P. G., Hellmich, R. L., Romeis, J., Storer, N., Valicente, F. H. and Wach, M. 2013. Surrogate species selection for assessing potential adverse environmental impacts of genetically engineered insect-resistant plants on non-target organisms. *GM Crops and Food: Biotechnology in Agriculture and the Food Chain*, 5(1): 0-1.
115. Coates, B. S., Johnson, H., Kim, K. S., Hellmich, R. L., Abel, C. A., Mason, C., and Sappington, T. W. 2013. Frequency of hybridization between *Ostrinia nubilalis* E- and Z-pheromone races in regions of sympatry within the United States. *Ecology and Evolution*, 3(8): 2459-2470.
116. Coates, B. S., Sumerford, D. V., Hellmich, R. L., and Abel, C. A. 2013. Unlinked genetic loci control the reduced transcription of aminopeptidase N 1 and 3 in the European corn borer and determine tolerance to *Bacillus thuringiensis* Cry1Ab toxin. *Insect Biochemistry and Molecular Biology* 43:1152–1160.
117. Romeis, J., A. Raybould, F. Bigler, M. P. Candolfi, R. L. Hellmich, J. E. Huesing, A. M. Shelton. 2013. Deriving criteria to select arthropod species for laboratory tests to assess the ecological risks from cultivating arthropod-resistant genetically engineered crops. *Chemosphere*: 90(3): 901-909.
118. Tian, J. C., Wang, X. P., Long, L. P., Romeis, J., Naranjo, S. E., Hellmich, R. L., Wang, P., Earle, E. D., and Shelton, A. M. 2013. Bt crops producing Cry1Ac, Cry2Ab and Cry1F do not harm the green lacewing, *Chrysoperla rufilabris*. *PloS one*, 8(3), e60125.
119. Tian, J. C., Wang, X. P., Long, L. P., Romeis, J., Naranjo, S. E., Hellmich, R. L., and Shelton, A. M. 2013. Eliminating host-mediated effects demonstrates Bt maize producing Cry1F has no adverse effects on the parasitoid *Cotesia marginiventris*. *Transgenic Research*: 1-8.
120. Binning, R. R., Coats, J., Kong, X., and Hellmich, R. L. 2014. Susceptibility and Aversion of *Spodoptera frugiperda* (Lepidoptera: Noctuidae) to Cry1F Bt Maize and Considerations for Insect Resistance Management. *Journal of Economic Entomology*, 107: 368-374.
121. Petzold-Maxwell, J. L., Siegfried, B. D., Hellmich, R. L., Abel, C. A., Coates, B. S., Spencer, T. A., Gassmann, A. J. 2014. Effect of Maize Lines on Larval Fitness Costs of Cry1F Resistance in the European Corn Borer (Lepidoptera: Crambidae). *Journal of Economic Entomology* 107: 764-772.

OTHER PUBLICATIONS

122. Hellmich, R. L., II. 1981. Relationship between different amounts of brood and the collection and utilization of pollen in the honey bee (*Apis mellifera*). The Ohio State University, 89 pp. (Thesis)
123. Hellmich, R. L., II. 1983. Genetic and Behavior analyses of pollen hoarding in the honey bee (*Apis mellifera*). The Ohio State University, 95 pp. (Dissertation)
124. Hellmich, R. L. Mating European honey bee queens to European drones in areas with Africanized bees. 1986. Proceedings American Bee Research Conference. Am. Bee J. 126: 830-831.
125. Hellmich, R. L. Flight time differences between Africanized and European drones: Implications for controlling matings. 1987. Proceedings American Bee Research Conference. Am. Bee J. 127: 846.
126. Estrada, O., Moffett, J. O., Hellmich, R. L. and Rivera, R. 1987. Managing Africanized honey bees in Venezuela. Proceedings American Bee Research Conference. Am. Bee J. 127: 844-845.
127. Hellmich, R. L. and Collins, A. M. 1988. Factors that influence drones flight times in Africanized and European colonies. Proceedings American Bee Research Conference. Am. Bee J. 128:804.
128. Collins, A. M. and Hellmich, R. L. 1988. Disruption of defensive behavior. Proceedings American Bee Research Conference. Am. Bee J. 128:801.
129. Hellmich, R. L. Influencing matings of honey bee queens with selected drones in Africanized areas. 1988. *In Africanized Honey Bees and Bee Mites*, editors G. R. Needham, R. G. Page, Jr., M. Delfinado-Baker and C. E. Bowman. John Wiley & Sons, Chichester. pp. 204-208.
130. Hellmich, R. L. and Rinderer, T. E. 1989. Managing Africanized honey bees in Venezuela. Proc. IV Int. Conf. Trop. Apic., Cairo, Egypt.
131. Hellmich, R. L., Rinderer, T. E., Danka, R. G. and Collins, A. M. 1989. Flight time differences between Africanized and European drones. Proc. IV Int. Conf. Trop. Apic., Cairo, Egypt.
132. Hellmich, R. L. II & Collins, A. M. A nuptial disadvantage for European honey bees in Venezuela. 1990. *In Social Insects and the Environment*. Proceedings 11th International Congress of IUSI (International Union for the Study of Social Insects), Bangalore, India. Eds. G. K. Veeresh, B. Mallik & C. A. Viraktamath.

133. Eischen, F. A., Akre, E. D. and Hellmich, R. L. 1990. Agonistic interactions between ants and honey bees in the tropics. Proceedings American Bee Research Conference. Am. Bee J. 130:797-820.
134. Hellmich, R. L. and T. E. Rinderer. Beekeeping in Venezuela. 1991. *In* The "African" honey bee. Eds. M. Spivak, D. J. C. Fletcher and M. D. Breed. Westview Press, Inc. Boulder, Colorado. pp. 399-411.
135. Hellmich, R. L. Continuing commercial queen production after the arrival of Africanized honey bees. 1991. *In* The "African" honey bee. Eds. M. Spivak, D. J. C. Fletcher and M. D. Breed. Westview Press, Inc. Boulder, Colorado. pp. 399-411.
136. Rinderer, T. E. and Hellmich, R. L. Processes of Africanization. 1991. *In* The "African" honey bee. Eds. M. Spivak, D. J. C. Fletcher and M. D. Breed. Westview Press, Inc. Boulder, Colorado. pp. 187-197.
137. Collins, A. M., Rubink, W. L., Cuadriello Aguilar, J. I. and Hellmich, R. L. 1992. Use of insect repellents to disperse defending honey bees. Proc. 5th Inter. Conf. Trop. Apic., St. Augustine, Trinidad. pp. 17-20. (Conf. Proc.)
138. Collins, A. M., Rubink, W. L., Cuadriello Aguilar, J. I. and Hellmich, R. L. 1993. El uso de repelentes de insectos, contra abejas que defienden el nido. *Apicultura Moderna*. 6: 27-32. (In Spanish, Popular Article)
139. Hellmich, R. L. 1996. Bt corn and management of the European corn borer: Perspectives of a research entomologist. Proc. Integrated Crop Management Conference, Iowa State University, Ames, IA.
140. Ostlie, K. R., W. D. Hutchison and R. L. Hellmich. 1997. Bt corn and European corn corer. NCR publication 602. University of Minnesota, St. Paul, MN.
141. Hurley, T. M., B. A. Babcock and R. L. Hellmich. 1997. Biotechnology and pest resistance: An economic assessment of refuges. Working Paper 97-WP 183, Center for Agricultural and Rural Development, Iowa State University, Ames, IA.
142. Munkvold, G.P., Carlton, W.M., Hellmich, R.L. and Rice, M.E. 1997. Effects of Bt transformation on diseases of corn. pp. 223-234 in Proc. 9th Annu. Integrated Crop Mngmnt Conf. Ames, IA, Nov 17-18.
143. Hellmich, R. L. and B. D. Siegfried. 1998. Establishing research priorities for managing insect resistance to transgenic corn. Proceedings 5th International Symposium on The Biosafety Results of Field Tests of Genetically Modified Plants and Microorganisms, Braunschweig, Germany.

144. Munkvold, G.P. and Hellmich, R.L. 1998. Corn diseases, European corn borer, and their interactions with Bt corn. pp. 142-150 in Proc. 18th Annual Crop Pest Mngmnt. Short Course. St. Paul, MN, Nov 23-24.
145. Hurley, T. M., S. Secchi, B. A. Babcock and R. L. Hellmich. 1999. Managing the risk of European corn borer resistance to transgenic corn: An assessment of refuge recommendations. Staff Report 99-SR 88, Center for Agricultural and Rural Development, Iowa State University, Ames, IA.
146. Hellmich, R. L. Refuge issues. 1999. Proceedings EPA/USDA Workshop on Bt Crop Resistance Management, Rosemont, IL.
147. Munkvold, G.P. and Hellmich, R.L. 1999. Effect of Bt transformation on toxigenic *Fusarium* species infecting corn. Pp. 287-298 in Proc. 53rd Annu. Corn & Sorghum Res. Conf. Chicago, IL, Dec 8-11. 1998.
148. Munkvold, G.P. and Hellmich, R.L. 1999. The good news about Bt corn. Information Systems for Biotechnology News Report, December, 1999.
149. Munkvold, G. P., Hellmich, R. L., Ross, P. and Rice, L. 1999. Reductions in fumonisin concentrations associated with transgenic control of European corn borer in Bt maize hybrids. International Conference on the Toxicology of Fumonisin: 53.
150. Hellmich, R. L. Bt corn and the monarch butterfly: Research update. 2000. Proc. Cornell Univ. Conf. on Agricultural Biotechnology: Informing the Dialogue about Agricultural Biotechnology, Ithaca, NY.
151. Munkvold, G. P., and Hellmich, R. L. 2000. Bt corn as a tool for ear rot and mycotoxin management. pp. 6-12 in Proc. 22nd Ann. Seed Technology Conf., Ames, IA, Feb. 15, 2000.
152. Munkvold, G. P. and Hellmich, R. L. 2000. Genetically modified, insect resistant maize: implications for ear and stalk diseases. Plant Health Progress. <http://www.planthealthprogress.org/current/reviews/maize/>. On-line doi10.1094/PHP-2000-0912-01-RV.
153. Mitchell, P. D., T. M. Hurley, R. L. Hellmich. 2000. Economic evaluation of Bt corn refuge insurance." Working Paper 00-WP 243, Center for Agricultural and Rural Development, Iowa State University, Ames, IA.
154. Hellmich, R. L., M. E. Rice, J. M. Pleasants and Wai-Ki F. Lam. 2000. Of monarchs and men: possible influences of Bt corn in the agricultural community. Proc. Integrated Crop Management Conference, Iowa State University, Ames, IA.12:85-94.

155. Hellmich, R. L. and B. D. Siegfried. 2001. Bt corn and the monarch butterfly: Research update. In book entitled "Genetically Modified Organisms in Agriculture: Economics and Politics," edited by Gerald C. Nelson, Academic Press, London. pp. 283-289.
156. Ortman, E. E., Barry, B. D., Buschman, L. L., Calvin, D. D., Carpenter, J., Dively, G. P., Foster, J. E., Fuller, B. W., Hellmich, R. L., Higgins, R. A., Hunt, T. E., Munkvold, G. P., Ostlie, K. R., Rice, M. E., Roush, R. T., Sears, M. K., Shelton, A. M., Siegfried, B. D., Sloderbeck, P. E., Steffey, K. L., Turpin, F. T. and Wedberg, J. L. 2001. Transgenic insecticidal corn: The agronomic and ecological rationale for its use. *BioScience* 51:900-902. (One of three principal writers.)
157. Anderson, P. L. and R. L. Hellmich. 2001. Bt corn and insect resistance management: What are they? Site-Specific Management Guidelines, Potash and Phosphate Institute, South Dakota State University.
158. Munkvold, G.P., Hellmich, R.L. and Rice, L.G. 2001. Effects of Bt transformation events on Fusarium ear rot and fumonisins, 1999. Biological and Cultural Tests for the Control of Plant Diseases, 2001:C2. <http://www.scisoc.org/online/B&Ctests/2001/top.htm>
159. Munkvold, G.P. and Hellmich, R.L. 2000. Bt corn as a tool for ear rot and mycotoxin management. pp. 6-12 in Proc. 22nd Ann. Seed Technology Conf., Ames, IA, Feb. 15, 2000.
160. Hellmich, R. L. and J. M. Pleasants. 2002. Monarch butterflies and Bt corn pollen: Phenology and movement considerations. Proc. Conference on Biometeorology and Aerobiology, American Meteorology Society, pp. 244-246.
161. Hellmich, R. L., L. C. Lewis and J. M. Pleasants. 2002. Monarch butterflies and Bt corn: Replacing hoopla with science. Proc. Integrated Crop Management Conference, Iowa State University, University Extension, pp. 25-28.
162. Hurley, T. M., S. Secchi, B. A. Babcock and R. L. Hellmich. 2002. Managing the risk of European corn borer resistance to Bt corn. *The Economics of Modeling Environmental Impacts of Agricultural Biotechnologies* (T. Swanson, ed.). Kluwer Academic Publishers. pp. 171-193.
163. Matten, S. M., R. L. Hellmich and A. Reynolds. 2004. Current resistance management strategies for Bt corn in the United States. 2004. *In Transgenic Crop Production: Concepts and Strategies*, edited by Opende Koul and G. S. Dhaliwal, Science Publishers, Inc, Plymouth, UK. pp. 261-288.
164. Prasifka, J. R. and Hellmich, R. L. 2004. Developing guidelines for monitoring non-target effects of Bt crops. Proceedings of 8th International Symposium on the Biosafety of Genetically Modified Organisms, September 26-30, Montpellier, France, pp. 21-26.

165. Hellmich, R. L., J. R. Prasifka and P. L. Anderson. 2005. Effects of Bt plants on non-target herbivores. *In: GM Crops: Ecological Dimensions*, edited by H.F. van Emden and A. J. Gray. Association of Applied Biologists, Wellesbourne, UK, 75–80.
166. Hellmich, R. L., D. D. Calvin, J. M. Russo and L. C. Lewis. 2005. Integration of Bt maize in IPM systems: U.S. perspective. *Proceedings Second International Symposium on Biological Control of Arthropods*, Davos, Switzerland, pp. 356-361.
167. Hellmich, R. L., Prasifka, J. R., Wolt, J. D. and Sears, M. K. 2005. A framework for evaluating possible non-target effects of transgenic corn in the United States: Standardizing laboratory tests. *IOBC WPRS Bulletin*, 29: 73-78.
168. Hellmich, R. L. 2006. European Corn Borers: a Diminished Insect Threat from Now On? *Proceedings of 58th Annual Crop Protection Technology Conference*, Urbana, IL, January 4 & 5, 2006.
169. Hurley, Secchi, and Hellmich (2006). *Managing European Corn Borer Resistance to Bt Corn with Dynamic Refuges. Regulating Agricultural Biotechnology: Economics and Policy* (R.E. Just, J.M. Alston, and D. Zilberman). New York: Springer Publishers. pp. 559-578. Note: Book winner of 2006 Quality of Communication Award, American Agricultural Economics Association.
170. Gealy, D.R., Bradford, K., Hall, L., Hellmich II, R.L., Raybould, A., Wolt, J., Zilberman, D. 2007. Implications of gene flow in the scale-up and commercial use of biotechnology-derived crops: Economic and policy considerations. *Proceedings 2007 North Central Weed Science Society Crop Gene Flow Symposium*, December 12-13, 2007, St. Louis, MO.
171. Wolt, J. D., J. R. Prasifka and R. L. Hellmich. 2007. Ecological safety assessment of insecticidal proteins introduced into biotech crops. *In Food Safety of proteins in agricultural biotechnology*, edited by B. G. Hammond. CRC Press.
172. Hellmich R. L. and J. Gorecka. 2007. Opportunities and challenges connected with crops genetically engineered for resistance towards insect pests. *Kosmos*, Vol. 56, 2007, Issue 3 - 4 (276 - 277), pp: 255 - 264.
173. Hellmich, R. L., R. Albajes, D. Bergvinson, J. R. Prasifka, Zhen-Ying Wang and M. J. Weiss. 2008. The present and future role of insect-resistant genetically modified maize in IPM. *In Integration of Insect-Resistant Genetically Modified Crops within IPM Programs*, edited by J. Romeis, A. M. Shelton and G. G. Kennedy. Springer, New York.
174. Romeis, J. M. Meissle, A. Raybould and R. L. Hellmich. 2009. Impact of insect-resistant transgenic crops on above-ground non-target arthropods. *In Environmental Impact of Genetically Modified Crops*, edited by N. Ferry and A. M. R. Gatehouse. CABI.

175. Prasifka, J. R., R. L. Hellmich and M. J. Weiss. 2009. Role of biotechnology in sustainable agriculture. *In* Integrated Pest Management, edited by E. B. Radcliffe, W. D. Hutchison and R. E. Cancelado. Cambridge University Press.
176. Shelton, A.M., Naranjo, S.E., Romeis, J., Hellmich, R.L. 2009. Letter to The Editor: Setting the record straight: a rebuttal to an erroneous analysis on transgenic insecticidal crops and natural enemies. *Transgenic Research* 18:317-322.
177. Shelton, A.M., Naranjo, S.E., Romeis, J., Hellmich, R.L., Wolt, J.D., Federici, B.A., Albajes, R., Bigler, F., Burgess, E., Dively, G., Gatehouse, A.M., Malone, L.A., Roush, R., Sears, M., Sehnal, F., Ferry, N. and Bell, H. 2009. Appropriate Analytical Methods are Necessary to Assess Non-target Effects of Insecticidal Proteins in GM Crops through Meta-Analysis (response to Andow et al.): Letter to the Editor. *Environmental Entomology* (38)6: 1533-1538 2009.