

## 2016 Curriculum vitae



**NAME:** Anthony M. Shelton

**DEPARTMENT/UNIT:** Entomology

**TITLE:** Professor

**CAMPUS ADDRESS:** Department of Entomology, Cornell University, NYSAES, 630 W. North St., Geneva, NY 14456

**PHONE:** 315-787-2352

**EMAIL:** ams5@cornell.edu

**WEB PAGE:** shelton.entomology.cornell.edu/

### **ACADEMIC RECORD:**

St. Mary's College of California, Moraga, CA - 1967-71 - B.A. (Classics & Philosophy)

Cabrillo College, Aptos, CA - 1973-75 (Biology & Chemistry)

University of California, Riverside, CA - 1975-79 - M.S., Ph.D. (Entomology with emphasis in insect pest management and biological control)

### **PROFESSIONAL EXPERIENCE (ACADEMIC):**

**Research Assistant**, University of California, Riverside, Department of Entomology - 1976-79.

**Assistant** (1979-85), **Associate** (1985-93) and **Full Professor** (1993-present), Department of Entomology, Cornell University's New York State Agricultural Experiment Station, Geneva, NY. Responsible for developing sound insect pest management strategies for vegetables with spin-offs for other crops. Components of program stress insect population ecology, biological control, plant resistance, agricultural biotechnology, insecticide resistance, insect movement, trap cropping, and plant productivity and marketability as a function of insect infestations. In the last 20 years, a considerable amount of our effort has been devoted to risk assessment of insect management strategies, especially insect-resistant genetically engineered crops. Our program has a strong commitment to outreach education for the agricultural community and the general public.

**Associate Director of Research** and **Associate Director of the Cornell Agricultural Experiment Station**, Ithaca NY - 1993-2001. Responsible for enhancing research funding for CALS, initiating several new programs for CALS, administering Federal Formula Funds and integrating research and extension programs. Member of CALS administration.

**Professor of International Agriculture and Associate Director of International Agriculture Programs**, 2002- present. This position leads me to travel internationally for 2-3 months per year working on projects in developing countries including India and Bangladesh for Bt eggplant. I also have projects in China, South Asia and Eastern Europe.

**PRESENT DIVISION OF EFFORT (AS OF NOV. 2010). I WENT ON A 9-MONTH APPOINTMENT IN MAY 2009:**

Research - 90%  
Teaching- 10%

**PROFESSIONAL ACTIVITIES:**

**Sabbatical Leave:**

Lincoln University, New Zealand- 1/07-4/07  
University of California, Davis- 9/06- 12/06  
Waite Institute, University of Adelaide, Australia- 1/02-5/02  
Institute for Plant Protection, Wageningen, The Netherlands - 3/86 - 9/86

**Professional Societies:**

Entomological Society of America  
Society for Invertebrate Pathology  
International Organization on Biological Control  
International Association for the Plant Protection Sciences  
National Agricultural Biotechnology Committee (Chair in 2006-7)  
Florida Entomological Society

**Consultant:**

Australian Grains Research and Development, 2013  
Gowlings LLP, 2010  
Panitch Schwarze Belisario & Nadel, LLP, 2008  
Orrick, Herrington and Sutcliff, LLP, 2003-2004  
Agricultural Biotechnology Stewardship Committee (Dow, Monsanto, DuPont, Syngenta), 1998-2002  
International Atomic Energy Agency  
    Indonesia, Malaysia, 1989  
    Malaysia, 1991  
Ecogen, Inc., 1989

**Panels and Workshops Participant (selected):**

European Food Safety Authority Conference on RNAi, Brussels 2014  
Global Biosafety Management Program, India, 2009, 2010, 2011, 2013  
Pest Management Alternative Program, Grant Review Panel, 2010  
International Workshop for Biotech Regulators, Goa, India, 2010  
Bt Eggplant Workshop, Manila, the Philippines, 2009  
International Life Sciences Institute Workshop on Non-target Organisms, 2009  
National Academy of Sciences, Board on Ag Review, 2008, 2009, 2010  
Pest Management Alternative Program, Grant Review Panel, 2009  
Western Region-IPM, Grant Review Panel, 2007  
USAID-Plant Biosafety Systems Review Panel, 2007  
European Food Safety Authority, Parma, Italy, 2007  
Lincoln University (NZ) Curriculum Reorganization Panel, 2006

**Entomological Society of America and Other Scientific Duties (selected):**

Program Organizer, 7<sup>th</sup> Int. Workshop on Diamondback Moth, India, 2015  
Presidential Committee on Grand Challenges for Entomology, 2014

Symposium Organizer, ESA National Meeting, 2013  
Symposium Organizer, 4th Int. Symp. on Biocontrol of Arthropods, Chile, 2013  
Symposium Organizer, International Congress of Entomology, 2012, South Korea  
ESA Team Award Committee (2011-2013)  
ESA National Recognition Award Committee (2010-2012)  
Board Member, American Entomologist, 2010- 2014  
Symposium Organizer, 6th Int. IPM Symp., Portland, OR, 2009  
Symposium Organizer, 3<sup>rd</sup> Int. Symp. on Biocontrol of Arthropods, NZ, 2009  
Symposium Organizer, International Congress of Entomology, SA, 2008  
Program Organizer, 5<sup>th</sup> Int. Workshop on Diamondback Moth, China, 2006  
Organizer, National Agricultural Biotechnology Council Annual Meeting, 2006

**HONORS, AWARDS, FELLOWSHIPS (SELECTED):**

Plenary speaker 7<sup>th</sup> Int. Conf. on Diamondback Moth, Bangalore, India, 2015  
Entomology Society of America. National IPM Team Award, 2013  
Outstanding New Extension Publication, NYS Assoc. of Ag Agents, 2011  
Plenary Speaker, Entomological Society of Canada, Halifax, NS, 2011  
L. O. Howard Award Eastern Branch Entomological Society of America, 2011  
Fellow of the Entomological Society of America, elected in 2010  
Keynote Speaker, Int. Assoc. of Plant Biotechnologists, St. Louis, MO, 2010  
Chinese lectureship at 4 Institutes, 2009  
Cornell (CALs) Award for Applied Research, 2007  
National Ag Ext Award for Publication, "Organic Agriculture", 2006  
NYS - Excellence in Crop Production Publication Award, 2006  
NE Regional Finalist Award for the "Swede Midge ID Guide", 2005  
Nat'l Assoc. Co. Ext. Agents, State Award and NE Finalist for Publication, 2005  
Ent. Soc. Am. Branch and National Recognition Award for Research, 2005  
Plenary lecture, Environmental Sciences and Forestry, SUNY, , 2004  
Plenary lecture, XVth Int. Congress of Plant Protection, China, 2004  
Am. Soc. for Hort. Sci. National Award for Extension Publication, 2004  
NYS Assoc. of County Ag Agents Award for brochure on swede midge, 2003  
CALs Professor of International Agriculture, 2002 to present  
Plenary lecture, Int. Conf. on Biocontrol of Diamondback Moth, France, 2002  
Cornell International Traveling Fellowship, 2002  
Plenary lecture, 4<sup>th</sup> Int. Conf. Diamondback Moth, Melbourne, Australia, 2001  
NOVA lectureship (Nordic Countries), 2001  
Plenary lecture, American University in Beirut, 2000  
New York State Award for Excellence in IPM, 1997  
China-US Scholar Exchange, 1996  
Plenary lecture, Nordic Agricultural Scientists, 1995  
Ent. Soc. Am. Branch and National Award Excellence in IPM, 1995  
Cornell International Traveling Fellowship, 1989  
Netherlands Ministry of Agriculture Research Fellowship, 1986

**GRADUATE FACULTY ACTIVITIES:**

Cornell Member of the Field of Entomology, 1979-present  
Cornell Member of the Field of Plant Protection, 1987-present  
International Agriculture and Rural Development, 2008- present

Advising:

Major Professor for students and their present position:

Dan Olmstead, MS, 2015; Research Support Specialist, Cornell/NYSAES  
Saurabh Gautam, MS 2013; PhD student Tamil Nadu U., India  
John Diaz-Montano, Ph.D. 2010. Postdoc at ARS at Kansas State

Committee Member for:

Rini Murtiningsih, Ph.D. 2014 (outside reviewer for U. of Queensland, AU)  
Dominic Cross, Ph.D. 2014 (outside reviewer for University of Sydney, AU)  
Elaine Fok, MS 2013, Entomology, Cornell  
Gonzalo Aguayo, Ph.D. University of Mexico, Texcoco  
Munir Ahmad, Ph.D. 2009 (outside reviewer for Bahauddin, Pakistan)  
Erik Smith, MS., 2009, Entomology, Cornell  
Sarah Nell Davidson, Ph.D. 2009, Plant Biology, Cornell  
Jason Cavaatorta M.S., 2008, Plant Breeding and Genetics, Cornell  
Muhammad Sarfraz, Ph.D. 2008 (outside reviewer Univ. of Alberta)  
Nancy Endersby, Ph.D., 2006 (outside reviewer for Monash Univ., Australia)

Teaching (10%, as of Dec. 2015):

I currently teach ENT 7670 (2 units), Professional Development in Ent.  
I developed and taught ENT 2410 (3 units in fall), Applied Ent. in 2012-4 and  
Entomology 441- Seminar in IPM. Taught from 1983-1996.  
I regularly participate in the following courses:  
IARD 4020 - Agriculture in Developing Nations  
IARD 6020 - Agriculture in Developing Nations  
CSS 4100- The GMO Debate: Science and Society  
AEM 6600- Agroecosystems, Economic Development and the Environment  
PL BR 4826 Plant Biotechnology.  
Field trip provided for PL PA 419. Additional lectures in selected classes.  
Entomology 441- Seminar in IPM. Taught from 1983-1996.

#### **NYS RESEARCH COMMITTEES:**

NY Cabbage Advisory Committee, 1979-present  
NY Processing Vegetable Committee, 1979-present  
NY Vegetable Agents Training School, 1979-present  
NY Vegetable Control Recommendations, 1979-present

#### **COLLEGE, DEPARTMENT AND UNIVERSITY ACTIVITIES:**

CALS Faculty Senate, 2013-6  
Entomology Curriculum and Teaching Committee, 2011-present  
Department Awards Committee (2010-2014)  
Cornell Vegetable Program Work Team, Chair 2012-3  
Cornell University Appeals Committee (2009-2012)  
NYSAES Entomology Coordinator for Greenhouse and Incubators, 1995-present  
NYSAES Pesticide Committee, 2000- present  
NYSAES Entomology Seminar, 1980-1981, 2006- 2011  
Cornell Entomology Graduate Admissions Committee, 1983-1986, 1992-6  
Cornell Vegetable Breeding Institute Steering Committee, 1988-present  
CALS MPS Program in Plant Protection, Admissions Comm. 1990-present  
Cornell CALS Tenure Review Committees, 1990-present  
CALS Statewide Programs Committee (Vegetables), 1999-present

CALS representative on the National Ag. Biotech Council, 2003-2008

**Reviewer:**

I was a subject editor (Insecticide Resistance) for J. Econ. Entomology from 2002-20014, handling about 30 manuscripts per year. I also review 2-5 manuscripts per month total from the following journals: Journal of Economic Entomology, Environmental Entomology, Entomologia Expt. Appl., Biological Control HortScience, Proc. of the Royal Society, PNAS, PLoS One, Pest Management Science, Nature Biotech, etc.

I normally review a total of 3 grants per year from the following programs: USDA NRI/AFRI, USDA Risk Assessment, USDA Special Grants, Small Business Innovation Research Grants, various state programs and BARD.

**PROGRAM OVERVIEW:**

The focus of our research program is to develop sound insect management strategies for vegetables, with spin-offs for others crops, using a sound understanding of insect ecological principles. This broad focus allows us the opportunity to work simultaneously in basic and applied areas on a number of important insects. Our program works with presently available strategies and helps incorporate them into pest management programs, and develops new strategies for the future. Examples of projects include: developing sampling and treatment guidelines for specific crops; understanding and modifying ecological factors that influence the risk of infestation; incorporating biological control into insect management strategies; studying mechanisms of host plant resistance and working with companies to develop resistant germplasm; conducting environmental risk assessments for Bt plants and traditional insecticides, evaluating presently registered insecticides and those under development for their effects on pests and non-target organisms; developing insecticide resistance management strategies; studying the movement of insects within and between crops in the agroecosystem; working in a team to develop and deploy Bt vegetable crops; developing trap crop strategies for IPM. Our extension program focuses on helping growers implement sound IPM strategies and educating the public about agricultural issues, including biological control and biotechnology. Our program is also involved in helping develop regulatory policies on a national and international level, especially for transgenic insecticidal plants. International activities are focused primarily in India, Bangladesh, China, and Latin America.

**SELECTED RESEARCH AND EXTENSION ACCOMPLISHMENTS:**

**Extension Publications and Presentations (last five years)**

	2015	2014	2013	2012	2011	Median
# Extension Publications	4	6	9	3	5	5
# Extension Presentations	5	3	2	7	4	4
Total contact hours	375	225	150	225	225	225

The accomplishments of our research program have been, in large part, due to the many technicians, graduate students, post-docs and visiting scientists we have had working in our program, as well as close working relationships with various colleagues in my own and in other departments and with industry. A partial list of our most significant accomplishments are:

Developed and implemented sampling programs and thresholds for insect pests of cole crops, Lepidoptera on sweet corn, and onion thrips on onions. In the case of processing sweet corn, the insect management program reduced the use of insecticides by ca. 50% per year. This program was transferred to the NYS industry through a private consulting company. The overall savings to the industry is ca. \$1M per year.

Documented the predators and parasitoids of pests of cole crops and Lepidoptera on sweet corn in NY and determined their effects on pest suppression and devised strategies to increase their effectiveness through use of selective insecticides and other practices.

Conduct a yearly program evaluating insecticides (conventional and biological) for control of insects affecting cole crops, sweet corn and selected vegetables.

Coordinated and published the first scientifically-based compendium on organic methods to control insects and diseases in vegetables.

Documented the ecology and population dynamics of the thrips complex in the varied agroecosystem of upstate NY and used this information to devise strategies for controlling onion thrips affecting cabbage and onions.

Published the first study documenting that the use of Bt plants was safer to a parasitoid than the use of conventional and organic insecticides. Developed a body of literature on the effects of Bt plants on natural enemies using resistant hosts to exclude potential 'host quality effects.'

Developed a defect action threshold for FDA that has, in conjunction with the development of host plant resistance in cabbage, dramatically reduced spraying for thrips in processed cabbage.

Studied the infestation patterns of onion thrips in cabbage, documented sources of plant resistance, worked with the seed industry and devised insecticide control strategies for the field.

With colleagues at BTI, conducted the first large-scale field test of a genetically altered virus for insect control in 1999. With colleagues at Oxitec, conducted greenhouse trials demonstrating that genetically engineered male-selecting diamondback moths can lower pest populations and slow the evolution of resistance to Bt plants. Field trials are planned for 2015.

Studied the epidemiology of a granulosis virus infecting imported cabbageworm and an NP virus infecting cabbage looper.

Determined the role of leaf surface waxes of cabbage in host plant resistance to neonate diamondback moth.

Coordinated a national program to document the resistance levels in diamondback moth to the major classes of synthetic insecticides. This has been extended to other countries.

Documented the occurrence of resistant diamondback moths in the Northeastern US as often being the result of insecticide practices in southern areas and the transport of the insects on transplants. This has become a major management tool for this pest in NY.

Documented resistance to *Bacillus thuringiensis* using field and laboratory methods. This was the first study published which documented actual control failures due to resistance.

Conducted studies on the management of resistance to *Bacillus thuringiensis* when it is applied as a foliar spray or incorporated into plants. In conjunction with Lisa Earle and Rick Roush, developed the Bt broccoli/diamondback moth system to evaluate various resistance management strategies for transgenic plants.

Developed and utilized the first rapid assay to detect resistance to pyrethroids in onion thrips, and used this technique to study its ecology in the onion landscape.

Coordinated the first large scale, cross-disciplinary Cornell Community Conference on Biological Control and coordinated the development of a WWW site Natural Enemies: A Guide to Biological Control Agents in North America. This site receives upwards of 15,000 “hits” per month.

Developed management programs for swede midge and leek moth, newly invasive species in the Northeast.

Documented gene flow between sexual and asexual lineages of *Thrips tabaci*.

Coordinated the development of educational materials on agricultural biotechnology for CALS and the Land Grant Community. This includes printed material (>140,000 copies) as well as the web site “Informing the dialogue about agricultural biotechnology.”

Worked with international scientists on management programs for insects affecting vegetables in several countries including India, Bangladesh, China, Mexico, Honduras, Nicaragua, Holland, Zimbabwe, Indonesia and Malaysia.

#### **Current/Most Recent Postdoctoral Associates and Visiting Scientists (country)**

Adam Walker (UK)	2015-present
Tim Harvey-Samuel (UK)	2012- present
Michael Bolton (UK)	2014- present
Dr. Masa Seto (Japan)	2012- present
Dr. Xiao-Xia Liu (China)	2014- 2015

#### **Past Postdoctoral Associates and Visiting Scientists (country)**

Dr. Yao Jun (China)	2012- 2014
Ms. Yanyan Guo (China)	2013-4
Dr. Rishi Kuman (India)	2012-2013
Dr. Honghua Su (China)	2012-2014
Ms. Xiao-Wei Li (China)	2012- 2014
Dr. Xiang-ping Wang (China)	2011-2012
Dr. Mao Chen (China)	2005- 2010
Dr. Li-ping Long (China)	2011-2012
Dr. Tian Junce (China)	2010- 2014

Dr. Jozsef Fail (Hungary)	2009- 2014
Dr. Travis Glare (New Zealand)	2012
Dr. Hussain Abro (Pakistan)	2010-2011
Dr. Yunhe Li (China)	2009-2010
Dr. Xiao-Xia Liu (China)	2009- 2011
Mr. WeiWei Lin (China)	2007-2008
Ms. Lin Mei-ying (Taiwan)	2007
Dr. G. Gujar (India)	2007
Dr. Eleni Larentzaki	2005- 2007
Dr. J. Zhao (China)	1997-2007
Dr. F. Badenes-Perez (Spain)	2005-2006

**FUNDING:**

In my 35 years at Geneva I have been funded as the Principal Investigator or co-Investigator for grants from USDA NRI, Cornell Biotechnology Program, USDA Pest Management Alternative Program, USDA Biotechnology Risk Assessment Program, NE IPM, USAID and EPA grants. In addition I have received major funding from industry for work on *Bacillus thuringiensis* and for host plant resistance in cabbage. In addition to these sources, I have received considerable support from Hatch Funds, the New York IPM competitive grant program, grower organizations, and the agricultural industry.

**SUMMARY OF MAJOR EXTERNAL FUNDING**

Shelton/ North/ Nyrop	USDA NRI	Forecasting Risk of Infestation of a Dispersing Insect	\$92,000	7/1/84- 6/30/87
Shelton	USDA NRI	Influence of Habitat on Parasitoid Success	\$100,000	7/1/86- 6/30/89
Granados/ Shelton	Cornell Biotech	Gene Expression of an Insect Granulosis Virus	\$84,340	7/1/86- 6/30/88
Shelton/ Renwick/ Dickson	Cornell Biotech	Crucifer Phytochemicals for Genetically Engineered Plants	\$50,000	7/1/88- 6/30/89
Wood/ Shelton/Hughes	EPA	Field Release of a Genetically Altered Baculovirus with Limited Survival Capability	\$238,900	7/1/89 6/30/92
Earle/ Roush/ Shelton	USDA NRI	Resistance Management for Bt Endotoxins Development of a Model System	\$120,000	7/1/91- 6/30/93
Shelton/ Roush	BT Mgt. Working Group	BT Resistance in Diamondback	\$42,000	1/1/92 12/30/93
Dickson/ Shelton	Peto Seed	Breeding for Lepidopterous Resistance	\$24,000	7/1/92 6/30/94



Earle/ Roush/ Shelton	USDA NRI	Resistance Management for Bt Endotoxins Testing of a Model System	\$140,000	7/1/93- 6/30/96
Hoffmann/ Shelton	NYS Science and Technology Program	Production and Release of Trichogramma	\$46,000	7/1/93 12/31/94
Shelton/ Hoffmann/	USDA NE IPM	Management of Insect Pests of Crucifers Using BioControl	\$104,614	7/1/93 6/30/96
Knipple/ Reissig/ Shelton/ Aldwinckle/ Norelli/Brown	Cornell Biotech	Bt Transformed Apples	\$60,822	7/1/94- 6/30/95
Shelton/ Craighead/ Hoffmann	Cornell Biotech	Nanofabrication of Artificial Insect Eggs	\$39,380	7/1/94- 6/30/95
Hoffmann/ Schwartz/ Curits/ Shelton	Cornell Biotech	Biodegradable Fibers for Insect Control	\$4,000	7/1/94- 6/30/95
Shelton/ Roush	BT Mgt. Working Group	Understanding BT Resistance	\$50,000	1/1/94 12/30/95
Shelton	USDA NBCI	Cornell Community Conference on BioControl	\$4,114	2/1/95 5/18/96
Shelton/ Hoffmann	USDA NBCI	Text and Graphic Server for BioControl	\$8,396	2/1/95 5/18/96
Hoffmann/ Petzoldt/ Zitter/Reiners/Bellinder/Shelton	Nat'l IPM Implementation Program	IPM for Diversified Fresh Mkt Vegetables	\$10,452	7/1/95 6/30/96
Shelton/ Hoffmann	USDA NBCI	Text and Graphic Server for BioControl	\$10,000	6/1/96 5/31/97
Shelton/ Earle/ Roush	USDA NRI	Transgenic Plants Expressing Bt toxins Can It Be a Successful Strategy?	\$140,000	7/1/95- 6/30/98
Shelton/	USDA	Biological Control of Vegetable Pests:	\$10,000	10/96

Hoffmann/  
Bellinder/  
Kyle/Dillard

An Interdisciplinary Team 2 Week Visit to China

Shelton/ Vandenberg	USDA Pest Alt	Development and Implementation of Alternative Mgt. for Thrips	\$83,978	4/15/97- 4/14/00
Shelton	Zamorano/ Nicaragua	Insecticide Resistance in Nicaragua	\$76,962	8/1/96- 8/31/97
Shelton/ Wood/ Hughes	USDA Fund for Rural America	Center for Biologically Based Pest Mgt.	\$24,074	7/1/97- 2/31/98
Shelton	USDA Pest Alt.	Cabbage Maggot on Cole Crops: documenting strategies and devel. alternatives	\$158,345	9/15/97- 9/30/00
Shelton	USDA NBCI	Text and Graphic Server for BioControl	\$8,000	6/1/99 5/31/00
Shelton/ Earle	USDA NRI	Developing the Next Generation of Resistance Mgt. Strategies for Bt-plants	\$150,000	7/1/99- 6/30/01
Earle/ Granados/ Shelton	Cornell Biotech	Insect Control in Transgenic Plants Expressing Enhancing Genes	\$24,412	7/1/98- 6/30/99
Shelton	USDA PMAP	Development and Implementation of Alternative Mgt. for Thrips on Cabbage	\$50,000	8/15/99- 8/14/01
Earle/ Shelton	Cornell Biotech	Factors affecting the efficacy of Bt transgenic plants as a biocontrol method	\$25,000	7/1/99- 6/30/00
Shelton/ Reiners/ Nault	USDA Pest Alt.	Insect Management in Cabbage through the Use of a Novel Trap Crop	\$134,004	8/15/01- 8/14/03
Shelton/ Earle	USDA BRAG	Assessing the Risk of Adaptation to Transgenic Plants with Staked Bt Genes	\$230,000	9/15/01- 9/14/04
Rangarajan/ Shelton et al.	IFAFS	Northeast Organic Agriculture	\$1,200,000	10/15/01 10/14/03
Earle/ Shelton	USDA NRI	Inducible Promoters for IRM	\$160,000	10/1/02 9/30/04
Gregory/ et al.	USAID	ABST II	\$15,000,000	02-/07
Shelton/	USDA			

Nault and Landers	PMAP	Development and Implementation of Reduced Risk Management for Onions	\$185,125	7/1/04 6/30/06
Shelton	NYSDAM	Management of Swede Midge	\$32,000	7/1/04 6/30/05
Shelton Kikkert et al. Midge	USDA 6/30/07	Development and Implementation PMAP	\$213,618	7/1/05 of a BMP for Swede
Shelton Roush et al.	USAID	Risks and Benefits of Stacked Bt Genes for Crucifers	\$364,877	7/1/05 6/30/08
Shelton/ Wang	NYSDAM	Management of Swede Midge	\$27,000	7/1/05 6/30/07
Shelton/ Fuchs/Nault	NYFVI	Management of Thrips and IYSV	\$125,000	5/1/07 5/1/09
Shelton Kikkert et al. Swede Midge	USDA	Providing the Research and Education PMAP	\$251,022	7/1/08 Needs for IPM for 6/30/10
Shelton et al	USDA BRAG	Role of natural enemies in resistance evolution	\$385,000	9/1/08 8/30/11
Shelton	USDA BRAG	Using resistant insects to study non-target effects for Bt plants	\$400,000	9/15/10 9/14/13
Shelton Ivy	APHIS	Leek moth	\$10,000	9/1/10 9/1/11
Shelton	NY	Improving Mgt and Profit of Sweet Corn Specialty Crop Block	\$71,503	9/30/11 9/30/13
Shelton	PMAP	Leek moth management	\$196,000	9/1/13 9/1/15
Shelton	NY	Improving Mgt Leek Moth Specialty Crop Block	\$94,553	9/30/13 9/30/15
Shelton/ Coffman	USAID	Feed the Future Biotechnology Bt eggplant	\$4,800,000	10/1/15 9/14/18
Shelton	NYS IPM	Various Projects	\$150,000	7/1/79- present
Shelton	Hatch	Various Projects	\$995,000	7/1/79- present

Shelton	IR-4	Various Projects	\$130,000	7/1/79-present
Shelton	NYS Cabbage Growers	Various Projects	\$165,000	7/1/90-present
Shelton	NYS Vegetable Growers	Various Projects	\$145,000	7/1/90-present
Shelton	NYS Onions	Various Projects	\$130,000	7/1/03-present
Shelton	Industry	Various Projects	\$2,350,000	7/1/79-present

## RESEARCH AND EXTENSION PUBLICATIONS

### PUBLICATIONS IN JOURNALS

1. Hautea, D., L.D. Taylo, A. P. Masanga, M. L. J. Sison, J. O. Narciso, R. B. Quilloy, R. A. Hautea, F. A Shotkoski, A. M. Shelton. 2016. Field performance of Bt eggplants in the Philippines: Cry1Ac expression and control of the eggplant fruit and shoot borer. PLoS One <http://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0157498>
2. Olmstead, D., B. A. Nault and A. M. Shelton. 2016. Management of *Helicoverpa zea* (Boddie) in sweet corn in the United States. J. Econ. Entomol. Published online <http://dx.doi.org/10.1093/jee/tow>
3. Olmstead, D. and A. M. Shelton. 2016. Effects of timing and insecticide on management of *Helicoverpa zea* in sweet corn. Florida Ent. 99: 161-165. doi: <http://dx.doi.org/10.1653/024.099.0201>
4. Han, F., A. M. Shelton and D. Zhou. 2016. What is Critical for Influencing Adoption of Biotechnology in China? Nature Biotech (in press).
5. Huesing, J., D. Andres, M. Braverman, A. Burns, A. Felsot, G. Harrigan, R. Hellmich, A. Reynolds, A. Shelton, W. van Rijssen, E. Morris and J. Eloff. 2016. Global adoption of genetically modified (GM) crops: challenges for the public sector. J. Ag and Food Chemistry. (published online Jan 2016). 10.1021/acs.jafc.5b05116
6. Seto, M. and A. M. Shelton. 2016. Development and evaluation of degree-day models for *Acrolepiosis assectella* based on hosts and flight patterns. J. Econ. Entomol. <http://dx.doi.org/10.1093/jee/tov344>. Published on line Dec. 2015
7. Guo, Y-Y, J-C Tian, W-P Shi, X-H Dong, J. Romeis, S.E. Naranjo, R. H. Hellmich and A. M. Shelton. 2015. The interaction of two-spotted spider mites, *Tetranychus urticae* Koch, on Cry protein production and predation by *Amblyseius andersoni* (Chant) in Cry1Ac/Cry2Ab cotton and Cry1F maize. Transgenic Research, 25 (1), 33-44 (DOI) 10.1007/s11248-015-9917-1.
8. Yan, S., J. Zhu, W. Zhu, Z. Li, A. M. Shelton, J. Luo, J. Cui, Q. Zhang and X. Liu. 2015. Pollen-mediated gene flow from transgenic cotton under greenhouse conditions is dependent on different pollinators. Sci. Rep. 5, 15917; doi: 10.1038/srep15917

9. Li, Xiao-Wei, P. Wang, J. Fail and A. M Shelton. 2015. Detection of gene flow from sexual to asexual lineages in *Thrips tabaci* (Thysanoptera: Thripidae). PLoS One 10(9): e0138353. doi:10.1371/journal.
10. Tian, J-C., J. Yao, L-P. Long, J. Romeis, and A. M. Shelton. 2015. Bt crops benefit natural enemies to control non-target pests. Scientific Reports. Article number: 16636 (2015). doi:10.1038/srep16636
11. Han, F., D. Zhou, Q. Zhang, X-X. Liu, J. Cheng, A. M. Shelton. 2015. Attitudes in China about crops and foods developed by biotechnology. PLoS ONE 10(11): e0143474. doi:10.1371/journal.pone.0143474
12. Harvey-Samuel, T., N. Morrison, A. Walker, T. Marubbi, J. Yao, H. Colins, K. Gorman, T. G. Enyr Davies, N. Alphey, S. Warner, A. M. Shelton, L. Alphey. 2015. Pest control and resistance management through releases of insects carrying a male-selecting transgene. BMC Biology 13:49 doi:10.1186/s12915-015-0161-1
13. Liu, X.X., G. H. Abro, F. Han, J. Tian, M. Chen, D. Onstad, R. Roush, Q. Zhang and A. M. Shelton. 2015. Effect of Bt broccoli and resistant genotype of *Plutella xylostella* on life history and prey acceptance of the predator, *Coleomegilla maculata*. Biological Control 91, 55-61.
14. Li, Xiao-Wei, J. Fail and A. M Shelton. 2015. Females multiple matings and male harassment on the fitness of arrhenotokous *Thrips tabaci*. Behav. Ecol. Sociobio. 69:1585-95. DOI 10.1007/s00265-015-1970-5.
15. Shelton, A. M. 2015. Communicating science to the public: one scientist's experience in writing for the general public about genetically engineered crops. American Entomologist Summer 2015:124. DOI 10.1093/ae/tmv019
16. Kain, W, X. Song, A. Janmaat, J-Z Zhao, J. Myers, A. M. Shelton and P. Wang. 2015. Resistance of *Trichoplusia ni* populations selected by *Bacillus thuringiensis* sprays to pyramided Bt cotton plants expressing Cry1Ac and Cry2Ab. Appl. Environ. Microbiol. 81: 1884-1890.
17. Su, H-H, J. Tian, S. E. Narnajo, J. Romeis, R. L. Hellmich and A. M. Shelton. 2015. *Bacillus thuringiensis* plants expressing Cry1Ac, Cry2Ab and Cry1F do not harm the assassin bug, *Zelus renardii*. J. Applied. Entomol. 139: 23-30. doi: 10.1111/jen.12184
18. Philips, C.R., Z. Fu, T.P. Kuhar, A.M. Shelton, and R.J. Cordero. 2014. Natural history, ecology and management of diamondback moth, *Plutella xylostella*, with emphasis on the United States. Journal of Integrated Pest Management. 5: D1-D11. DOI: <http://dx.doi.org/10.1603/IPM14012>
19. Li, X-W, J. Fail, P. Wang, J-N Feng and A. M. Shelton. 2014. Performance of arrhenotokous and thelytokous *Thrips tabaci* on onions and cabbage and its implications on evolution and pest management. J. Econ. Entomol 107: 1526-1534.
20. Kumar, R., J. Tian, S. Naranjo and A. M. Shelton. 2014. Effects of Bt cotton on *Thrips tabaci* and its predator, *Orius insidiosus*. J. Econ. Entomol.107: 927-932.
21. Li, X-W, Jiang, H-X Jiang, X-C Zhang, A. M. Shelton and J-N Feng. 2014. Post-mating interactions and their effects on fitness of female and male *Echinothrips americanus*, a new insect pest in China. PLoS DOI. 10.1371/journal.pone.0087725
22. Liu, X. X., M. Chen, H.L. Collins, D. W. Onstad, R. T. Roush, Q. Zhang, E. D. Earle and A.M. Shelton. 2014. Natural enemies delay insect resistance to Bt plants. PLoS One DOI:10.1371/journal.pone.0090366.
23. Gautam, S., D. Olmstead, J-C Tian, H. Collins and A. M. Shelton. 2014. Tri-trophic studies using Cry1Ac-resistant *Plutella xylostella* demonstrate no adverse effects of Cry1Ac on the entomopathogenic nematode, *Heterorhabditis bacteriophora*. J. Econ. Entomol. 107: 115-120

24. Tian, J-C., L-P. Long, X-P. Wang, S. Naranjo, J. Romeis, R. Hellmich, P. Wang, and A. M. Shelton. 2014. Using resistant prey demonstrates that Bt plants producing Cry1Ac, Cry2Ab and Cry1F have no negative effects on *Geocoris punctipes* and *Orius insidiosus*. *Environ Entomol.* 43: 242-251.
25. Romeis, J., R., M. McLean and A. M. Shelton. 2013. Reply to Wickson et al. *Nature Biotech.* Vol. 31:12, 1078-1079.
26. Fail, J., M. E. Deutschlander and A. M. Shelton. 2013. Antixenotic resistance of cabbage to onion thrips: Light reflectance. *J. Econ. Entomol.* 106: 2602-2612.
27. Shelton, A. M., D. L. Olmstead, E. C. Burkness, W. D. Hutchison, G. Dively, C. Welty and A. N. Sparks. 2013. Multi-state trials of Bt sweet corn varieties for control of the corn earworm (Lepidoptera: Noctuidae). *J. Econ. Entomol.* 106 (5): 2151-2159.
28. Sumerford, D. V., G. P. Head, A. M. Shelton, J. Greenplate and W. Moar. 2013. Field-evolved resistance: assessing the problem and ways to move forward. *J. Econ. Entomol (Forum)*: 106: 1525-1534.
29. Tian, J., X-P. Wang, L-P. Long, J. Romeis, S. Naranjo, R. Hellmich, and A. M. Shelton. 2013. Eliminating host-mediated effects demonstrates Bt maize producing Cry1F has no adverse effects on the parasitoid, *Cotesia marginiventris*. *Transgenic Research*. DOI 10.1007/s11248-013-9748-x.
30. Tian, J., X-P. Wang, L-P. Long, J. Romeis, S. Naranjo, R. Hellmich, P. Wang, E.D. Earle and A. M. Shelton. 2013. Bt crops expressing Cry1Ac, Cry2Ab and Cry1F do not harm the green lacewing, *Chrysoperla rufilabris*. *PLoS One*. pone.0060125.
31. Romeis, J., R., M. McLean and A. M. Shelton. 2013. When bad science makes good headlines: the case of Bt crops. *Nature Biotech* Vol. 37: 386-387. <http://www.nature.com/nbt/journal/v31/n5/pdf/nbt.2578.pdf>
32. Onstad, D., X. Liu, M. Chen, R. Roush and A. M. Shelton. 2013. Modeling the integration of parasitoid, insecticide and transgenic insecticidal crops for the long-term control of an insect pest. *J. Econ. Entomol.* 106: 1103-1111
33. Olmstead, D. and A. M. Shelton. 2013. Evaluation of insecticide chemistries against leek moth, a new pest in North America. *Florida Entomologist* 95(4):1127-1131.
34. Abro, G.H., A. N. Kalhoro, G. H. Sheikh, M. S. Awan, R. D. Jessar and A. M. Shelton. 2013. Insecticides for control of the diamondback moth in Pakistan and factors that affect their toxicity. *Crop Protection* 52: 91-96.
35. Romeis, J., A. Raybould, F. Bigler, M. P. Candolfi, R. L. Hellmich, J. Huesingsing and A. M. Shelton. 2013. Deriving criteria to select arthropod species for laboratory tests to assess the ecological risks from cultivating transgenic crops. *Chemosphere.* 90: 901-909 <http://dx.doi.org/10.1016/j.chemosphere.2012.09.035>.
36. Shelton, A. M., S. Naranjo, J. Romeis, and R. H. Hellmich. 2012. Errors in logic and statistics plague a meta-analysis (response to Andow et al. 2012). *Environ. Entomol.* 41:1047-9. DOI: <http://dx.doi.org/10.1603/EN11238>
37. Herlihy, M, R. Van Driesche, M. Abney, J. Brodeur, A. Bryant, R. Casagrande, D. Delaney, T. Elkner, S. Fleischer, R. Groves, D. Gruner, J. Harmon, G. Heimpel, K. Hemady, T. Kuhar, C. Maund, A. M. Shelton, A. Seaman, M. Skinner, R. Weinzierl, K. Yeorgan and Z. Szendrei. 2012. Distribution of *Cotesia rubecula* and its displacement of *Cotesia glomerata* in Eastern North America. *Florida Entomologist.* 95:461-467.
38. Diaz-Montano, J, J. Fail, M. Deutschlander, B. A. Nault and A. M. Shelton. 2012. Characterization of resistance, evaluation of the attractiveness of plant odors and effect of leaf color on different onion cultivars to onion thrips. *J. Econ. Entomol.* 105: 632-641.
39. Tian, J., Y. Chen, Z-L Li, K. Li, M. Chen, Y-F Peng, C. Hu, A. M. Shelton and G-Y Ye. 2012. Transgenic Cry1Ab rice does not impact ecological fitness and predation of a

- generalist spider. PLoS One  
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0035164>
40. Tian, J., H. L. Collins, J. Romeis, S. E. Naranjo, R. L. Hellmich and A. M. Shelton. 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*. 21:1303-1310. DOI 10.1007/s11248-012-9604-4.
  41. Shelton, A. M. 2012. Genetically engineered vegetables expressing proteins from *Bacillus thuringiensis* for insect resistance: successes, disappointments, challenges and ways to move forward. *GM Crops & Food* 3: 175-183 (invited paper).
  42. Liu, X., M. Chen, D. Onstad, R. Roush, H. Collins, E. D. Earle and A. M. Shelton. 2012. Effect of Bt broccoli or broccoli treated with insecticides on ovipositional preference and larval survival of *Plutella xylostella* (Lepidoptera: Plutellidae). *Environ. Entomol.* 41: 880-886.
  43. Smith, E. A., A. DiTommaso, M. Fuchs, A. M. Shelton and B. A. Nault. 2012. Abundance of weed hosts as sources of onion and potato viruses in western New York. *Crop Protection* 37:91-96.
  44. Liu, X., M. Chen, H. Collins, D. Onstad, R. Roush, Q. Zhang and A. M. Shelton. 2012. Effect of insecticides and *Plutella xylostella* genotype on a predator and parasitoid and implications for the evolution of insecticide resistance. *J. Econ. Entomol.* 105: 354-362.
  45. Diaz-Montano, M. Fuchs, B. A. Nault and A. M. Shelton. 2012. Resistance to onion thrips in onion cultivars does not prevent infection by *Iris Yellow Spot Virus* following vector-mediated transmission. *Florida Entomologist* 95: 156-161.
  46. Han, F., X. X. Liu, J. C. Tian, Q. W. Zhang and A. M. Shelton. 2011. A new source of cabbage host plant resistance to the diamondback moth. *Florida Entomologist*. 94: 711-3.
  47. Li, Y., J. Romeis, P. Wang, Y. Peng, and A. M. Shelton. 2011. A comprehensive assessment of the potential effects of Bt cotton on *Coleomegilla maculata* demonstrates no detrimental effects by Cry1Ac and Cry2Ab. PLoS ONE 6(7): e22185.  
doi:10.1371/journal.pone.0022185
  48. Romies, J. R. Hellmich, M. Candolfi, K. Carstens, A. de Schrijer, A. Gatehouse, R. Herman, J Huesing, M. McLean, A. Raybould, A. Shelton and A. Waggoner. 2011. Recommendations for the design of laboratory studies on non-target arthropods for risk assessment of genetically engineered plants. *Transgenic Research* 20:1-22.
  49. Baxter, S., J. Davey, S. Johnston, A. M. Shelton, D. Heckel, C. Jiggins, and M. Blaxter. 2011. Association mapping, comparative genomics and constructing linkage groups using next-generation RAD sequencing of a non-model organism. PLoS One  
<http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0019315>
  50. Smith, E. A., A. DiTommaso, M. Fuchs, A. M. Shelton and B. A. Nault. 2011. Weed hosts for onion thrips (Thysanoptera: Thripidae) and their potential role in the epidemiology of *Iris yellow spot virus* in an onion ecosystem. *Environ. Entomol.* 40(2): 194-203.
  51. Chen, M., A. M. Shelton, R. H. Hallett, C. A. Hoepting, J. R. Kikkert and P. Wang. 2011. Swede midge, 10 years of invasion of crucifer crops in North America. *J. Econ. Entomol. (Forum)* 104: 709-716.
  52. Li, Y., J. Ostrem, J. Romeis, M. Chen, X. Liu, R. Hellmich, A. M. Shelton and Y. Peng. 2011. Development of a tier-1 assay for assessing the toxicity of insecticidal substances against *Coleomegilla maculata*. *Environ. Entomol.* 40: 496-502.
  53. Liu, X., M. Chen, D. Onstad, R. Roush and A. M. Shelton. 2011. Effects of Bt broccoli and resistant genotypes of *Plutella xylostella* on development and host acceptance of the parasitoid, *Diadegma insulare*. *Transgenic Research* Vol 20: 887-897. DOI 10.1007/s11248-010-9471-9

54. Diaz-Montano, M. Fuchs, B. A. Nault, J. Fail and A. M. Shelton. 2011. Onion thrips: a global pest of increasing concern in onion. *J. Econ. Entomol.* 104: 1-13.
55. Chen, M. and A. M. Shelton. 2010. Effect of insect density, plant age and residue duration on acetamiprid efficacy against swede midge. *J. Econ. Entomol.* 103: 2107-2111.
56. Rinkevich, F., M. Chen, A. M. Shelton and J. Scott. 2010. Transcripts of the nicotinic acetylcholine receptor subunit gene *Pxyl α 6* with premature stop codons are associated with spinosad resistance in diamondback moth, *Plutella xylostella*. *Invert. Neurosci* 10:25-33.
57. Silva-Aguayo, G., J. Concepcion Rodriguez-Maciel, A. Lagunes-Tejeda, C. Llanderal-Cazares, R. Alatorre-Rosas, A. M. Shelton and C. A. Blanco. 2010. Bioactivity of Boldo (*Peumus boldus* Molina) on *Spodoptera frugiperda* and *Helicoverpa zea*. *Southern Entomol. Vol.* 35:215-231.
58. Nault, B. A. and A. M. Shelton. 2010. Impact of insecticide efficacy on developing action thresholds for pest management: a case study of onion thrips on onions. *J. Econ. Entomol.* 103: 1315-1326.
59. Shelton, A. M. 2010. The long road to commercialization of Bt brinjal (eggplant) in India. *Crop Protection* 29: 412-414. (invited paper).
60. Baxter, S., M. Chen, A. Dawson, J. Z. Zhao, H. Vogel, A. M. Shelton, D. Heckel and C. Jiggins. 2010. Mis-spliced transcripts of nicotinic acetylcholine receptor  $\alpha 6$  are associated with field evolved spinosad resistance in *Plutella xylostella* (L.). *Plos Genetics* 6 (1): 1-10.
61. Zhao, J. Z., H. L. Collins and A. M. Shelton. 2010. Testing insecticide resistance management strategies: mosaics vs rotations. *Pest Management Sci.* 66: 1101-1105.
62. Diaz-Montano, J., M. Fuchs, B. A. Nault and A. M. Shelton. 2010. Evaluation of onion cultivars for resistance to onion thrips and *Iris yellow spot virus*. *J. Econ. Entomol.* 103:925-937.
63. Hsu, C. L., C. A. Hoeping, M. Fuchs, A. M. Shelton and B. A. Nault. 2010. Temporal dynamics of *Iris yellow spot virus* and its vector, onion thrips, *Thrips tabaci*, in direct-seeded and transplant onion fields. *Environ. Entomol.* 39: 266-277.
64. Grzywacz, D., A. Rossbach, A. Rauf, D. Russell, R. Srinivasan and A. M. Shelton. 2010. Current control methods for diamondback moth and prospects for improved management with lepidopteran-resistant Bt vegetable brassicas in Asia and Africa. *Crop Protection* 29:68-79.
65. Shelton, A. M., S. Naranjo, J. Romeis, R. H. Hellmich, J. Wolt, B. Federici, R. Albajes, F. Bigler, E. Burgess, G. Dively, A. Gatehouse, L. Malone, R. Roush, M. Sears and F. Sehnal. 2009. Setting the record straight: a rebuttal to an erroneous analysis on transgenic insecticidal crops and natural enemies. *Transgenic Res.* 18:317-322.
66. Shelton, A. M., S. Naranjo, J. Romeis, R. H. Hellmich, J. Wolt, B. Federici, R. Albajes, F. Bigler, E. Burgess, G. Dively, A. Gatehouse, L. Malone, R. Roush, M. Sears, F. Sehnal, N. Ferry and H. Bell. 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.). *Environ. Entomol.* 38: 1533-8.
67. Shelton, A. M., G. T. Gujar, M. Chen, A. Rauf, R. Srinivasan, V. Kalia, A. Mittal, A. Kumari, K. Ramesh, R. Borkakatti, J. Z. Zhao, N. Endersby, D. Russell, Y. D. Wu and B. Uijtewaal. 2009. Assessing the susceptibility of cruciferous Lepidoptera to Cry1Ba2 and Cry1Ca4 for future transgenic vegetables. *J. Econ. Entomol.* 102: 2217-2223.
68. Chen, M, W. Li and A. M. Shelton. 2009. Simulated crop rotation systems control swede midge, *Contarinia nasturtii* (Keiffer). *Entomol. Expt. Appl.* 133:84-91.
69. Hallett, R. H., M. Chen, M. K. Sears and A. M. Shelton. 2009. Insecticide management strategies for control of the swede midge on cole crops. *J. Econ. Entomol.* 102: 2241-2254.



70. Chen, M., A. M. Shelton, P. Wang, C. A. Hoepting, W. C. Kain and D. C. Brainard. 2009. Occurrence of the new invasive insect, *Contarinia nasturtii*, on cruciferous weeds. *J. Econ. Entomol.* 102: 115-120.
71. Chen, M., G. Ye, Z. Liu, Q. Fang, C. Hu, Y. Peng and A. M. Shelton. 2009. Analysis of Cry1Ab toxin bioaccumulation in a food chain of Bt rice, an herbivore and predator. *Ecotoxicology*: 18: 230-238.
72. Chen, M., J.-Z. Zhao, H. L. Collins, E. D. Earle, J. Cao and A. M. Shelton. 2008. A critical assessment of the effects of Bt transgenic plants on parasitoids. *PLoS ONE* 3(5): e2284. doi:10.1371/journal.pone.0002284
73. Cao, J., A. M. Shelton and E. D. Earle. 2008. Sequential transformation to pyramid two Bt genes in vegetable Indian mustard (*Brassica juncea* L.) and its potential for control of diamondback moth larvae. *Plant Cell Report.* 27 Issue: 3, Pages: 479-487.
74. Moar, W., R. Roush, A. M. Shelton, J. Ferre, S. MacIntosh, B. Leonard and C. Abel. 2008. Field-evolved resistance to Bt toxin. *Nature Biotech.* 26:10: 6-7.
75. Shelton, A. M., S. L. Hatch, J.-Z. Zhao, M. Chen, E. D. Earle and J. Cao. 2008. Suppression of diamondback moth using Bt transgenic plants as a trap crop. *Crop Protection* 27: 403-9.
76. Baxter, S. W., J-Z. Zhao, A. M. Shelton, H. Vogel and D. G. Heckel. 2008. Genetic mapping of Bt-toxin binding proteins in a multi-toxin resistant strain of diamondback moth, *Plutella xylostella*. *Insect Biochem and Molecular Bio.* 38: 125-135.
77. Shelton, A. M., J. Plate and M. Chen. 2008. Advances in control of onion thrips in cabbage. *J. Econ. Entomol.* 101: 438-443.
78. Chen, M., J.-Z. Zhao, A. M. Shelton, J. Cao and E. D. Earle. 2008. Impact of single and dual-gene Bt broccoli on the herbivore *Pieris rapae* and its pupal endoparasitoid *Pteromalus puparum*. *Transgenic Res.* 17: 545-555.
79. Romeis, J., Bartsch, D., Bigler, F., Candolfi, M.P., Gielkens, M., Hartley, S.E., Hellmich, R.L., Huesing, J.E., Jepson, P.C., Layton, R., Quemada, H., Raybould, A., Rose, R.I., Schiemann, J., Sears, M.K., Shelton, A.M., Sweet, J., Vaituzis, Z., and Wolt, J.D. 2008. Assessment of risk of insect-resistant transgenic crops to non-target organisms. *Nature Biotechnology* 26: 203-208.
80. Larentzaki, E., A. M. Shelton and J. Plate. 2008. Effect of kaolin particle film on *Thrips tabaci* oviposition, feeding and development on onions: a lab and field case study. *Crop Protection* 27: 727-734.
81. Chen, M. and A. M. Shelton. 2007. Impact of soil type, moisture and depth on swede midge pupation and emergence. *Environ. Ent.* 36:1349-1355
82. Heckel, D. G., L. J. Gahan, S. W. Baxter, J.-Z. Zhao, A. M. Shelton, F. Gould, B. E. Tabashnik. 2007. The diversity of Bt resistance genes in Lepidoptera. *J. Invert. Path.* 95:192-197.
83. Hardy, R., A. Eaglesham and A. M. Shelton. 2007. Agriculture & forestry for energy, chemicals, & materials: The road forward. *Industrial Biotechnology*, Vol. 3, No. 2, p. 133-137.
84. Shelton, A. M. 2007. Considerations on the use of transgenic crops for insect control. *J. Developmental Studies.* 43: 890-900.
85. Larentzaki, E., A. M. Shelton, F. R. Musser, B. A. Nault and J. Plate. 2007. Overwintering of onion thrips in onion fields in New York. *J. Econ. Entomol.* 100: 1194-1200.
86. Chen, M., Z-C. Liu, G-Y. Ye, Z-C. Shen, C. Hu, Y-F. Peng, I. Altosaar and A. M. Shelton. 2007. Impacts of transgenic *cry1Ab* rice on non-target planthoppers and their main predator *Cyrtorhinus lividipennis*- a case study on the compatibility of Bt rice with biological control. *Biological Control* 42:242-250.

87. Chen, M., J.-Z. Zhao and A. M. Shelton. 2007. Control of swede midge, *Contarinia nasturtii*, by foliar sprays of acetamiprid on cauliflower transplants. *Crop Protection* 26:1574-1578.
88. Rueda, A., F. Badenes-Perez and A. M. Shelton. 2007. Developing economic thresholds for onion thrips in Honduras. *Crop Protection*, 26: 1099-1107.
89. Wang, P., J.-Z. Zhao, A. Rodrigo-Simon, W. Kain, A. Janmaat, A. M. Shelton and J. Myers. 2007. Mechanism of resistance to *Bacillus thuringiensis* toxin Cry1Ac in a greenhouse population of cabbage looper, *Tricholusia ni*. *Appl. Environ. Microbiol.* 73: 1199- 1207.
90. Fang, J., X. Xu, P. Wang, J.-Z. Zhao, A. M. Shelton, J. Cheng, M.-G. Feng, and Z. Shen. 2007. Characterization of chimeric *Bacillus thuringiensis* Vip3 toxins. *Appl. Environ. Microbiol.* 73: 956-961.
91. Chen, M., J.-Z. Zhao, G. Ye, Q. Fu and A. M. Shelton. 2006. Impact of Bt rice on target pests and non-target arthropods. *Insect Science* 13: 409-420.
92. Nault, B. A., A. M. Shelton, J. L. Gangloff-Kaufmann, M. E. Clark, J. L. Werren, J. C. Cabrera-La Rosa and G. G. Kennedy. 2006. Reproductive strategies in onion thrips populations from New York onion fields. *Environ. Entomol.* 35:1264-1271.
93. Musser, F. R., J. P. Nyrop and A. M. Shelton. 2006. Integrating biological and chemical controls in decision making: European corn borer control in sweet corn as an example. *J. Econ. Entomol.* 99:1538-1549.
94. Shelton, A. M., J.-Z. Zhao, B. A. Nault, J. Plate, F. R. Musser and E. Larentzaki. 2006. Patterns of insecticide resistance in onion thrips, *Thrips tabaci*, in onion fields in New York. *J. Econ. Entomol.* 99:1798-1804.
95. Badenes-Perez, F. and A. M. Shelton. 2006. Pest management and other agricultural practices among farmers growing cruciferous vegetables in the Central and Western Highlands of Kenya and the Western Himalayas of India. *International J. of Pest Management.* 52:303-315.
96. Zhao, J. Z., H. L. Collins, Y. X. Li, R. F. Mau, G. D. Thompson, M. S. Hertlein, J. T. Andalaro, R. Boyken and A. M. Shelton. 2006. Monitoring of diamondback moth resistance to spinosad, indoxacarb and emamectin benzoate. *J. Econ. Entomol.* 99:176-181.
97. Badenes-Perez, F., B. A. Nault and A. M. Shelton. 2006. Dynamics of diamondback moth oviposition in the presence of a highly preferred non-suitable host. *Entomol. Exp. Appl.* 120: 23-31.
98. Cao, J. S. L. Bates, J.-Z. Zhao, A. M. Shelton and E. D. Earle. 2006. Bt protein production, signal transduction and insect control in chemically inducible *PR-1aAb* broccoli plants. *Plant Cell Rep.* 25: 554-560.
99. Wu, Q., J. Z. Zhao, A. G. Taylor and A. M. Shelton. 2006. Evaluation of insecticides and application methods against swede midge, a new invasive pest in the US. *J. Econ. Entomol.* 99:117-122.
100. Kikkert., J., C. A. Hoepting, Q. Wu, P. Wang, R. Baur and A. M. Shelton. 2006. Detection of swede midge in New York, a new pest of cruciferous plants in the United States. *J. Econ. Entomol.* 99:1310-1315.

#### **ANNUAL REVIEW ARTICLES:**

1. Chen, M., A. M. Shelton and G.-Y. Ye. 2011. Insect-resistant GM rice in China: from research to commercialization. *Ann. Rev. Entomol* 56:81-101.
2. Shelton, A. M. and F. R. Badenes-Perez. 2006. Concept and applications of trap cropping in pest management. *Annu. Rev. Entomol.* 51: 285-308.

#### **BOOKS AND BOOK CHAPTERS:**

1. Onstad, D. W., A.M. Shelton and L. Flexner. 2013. Insect resistance, natural enemies, and density-dependent processes. Pp. 403-420 *In* Onstad, D. W. 2014. Insect Resistance Management: Biology, Economics and Prediction, 2<sup>nd</sup> Ed. Academic Press. Oxford, UK. 538 p.
2. Srinivasan R, Shelton AM, Collins HL, eds. 2011. Proceedings of the Sixth International Workshop on Management of the Diamondback Moth and Other Crucifer Insect Pests, 21-25 March 2011, Kasetsart University, Nakhon Pathom, Thailand. AVRDC – The World Vegetable Center, Publication No. 11-755. AVRDC – The World Vegetable Center, Taiwan. 321 p
3. Chen, M. and A. M. Shelton. 2010. Time for a new look at the relationship of Bt plants and insect natural enemies, pp 170-178. *In* Liu, T.-X. and L. Kang (eds.). 2010. Recent Advances in Entomological Research: From Molecular Biology to Pest Management. High Education Press and Springer, Beijing.
4. Bruening, G., J. Bove, P. Citron, P. Miller, L. Nault, M. Polek, H. Shapiro, A. Shelton, L. Timmer, J. Tumlinson and R. Yokomi. 2010. Strategic Planning for the Florida Citrus Industry: Addressing Citrus Greening Disease. National Research Council of the National Academies. 309 pp.
5. Seaman, A. (ed.). Elizabeth Graeper Thomas, Mary Kirkwyland, George Abawi, Thomas Bjorkman, Ann Cobb, Beth Gugino, Robert Hadad, Michael Helms, Christy Hoepting, Margaret McGrath, Charles Mohler, Anusuya Rangarajan, Anthony Shelton, and Christine Smart. 2010 Production Guide for Organic Cole Crops. NYS IPM Publication No. 134.
6. Shelton, A. M. and J.-Z. Zhao. 2009. Resistance management to transgenic plants. *In* Integrated Pest Management. Eds. E. B. Radcliffe and W. D. Hutchinson, pp 247-259. Cambridge University Press.
7. Romeis, J., A. M. Shelton and G. G. Kennedy. 2008. Integration of insect-resistant genetically modified crops within IPM programs. Springer. Dordrecht, The Netherlands. 441 pp.
8. Shelton, A. M., H. Collins, Zhang Youjun and Wu Qingjn. 2008. Management of Diamondback Moth and Other Crucifer Pests. China Agricultural Science and Technology Press, Beijing. 379 pp.
9. Shelton, A. M., M. Fuchs and F. Shotkowski. 2008. Transgenic vegetables and fruits for control of insect and insect-vectored pathogens. *In* Integration of insect-resistant, genetically modified crops within IPM programs. Eds. J. Romeis, A. M. Shelton and G. G. Kennedy, pp 249-272. Springer. Dordrecht, The Netherlands.
10. Shelton, A. M., J. Romeis and G. G. Kennedy. 2008. IPM and GM, insect-protected plants: thoughts for the future. *In* Integration of insect-resistant, genetically modified crops within IPM programs. Eds. J. Romeis, A. M. Shelton and G. G. Kennedy, pp 419-430. Springer. Dordrecht, The Netherlands.
11. Shelton, A. M., J-Z Zhao, R. T. Roush, H. L. Collins, E. D. Earle and J. Cao. 2008. Bt crucifers: from a model system to a commercial product. *In* Management of Diamondback Moth and Other Crucifer Pests. Eds. A. M. Shelton, H. L. Collins, Zhang Youjun and Wu Qingjun, pp 224-230. China Agricultural Science and Technology Press, Beijing.
12. Zhao, J-Z, A. M. Shelton, H. L. Collins, M. Chen and R. F. Mau. 2008. Monitoring, characterization and management of diamondback moth resistance to spinosad and indoxacarb. *In* Management of Diamondback Moth and Other Crucifer Pests. Eds. A. M. Shelton, H. L. Collins, Zhang Youjun and Wu Qingjun, pp 258-263. China Agricultural Science and Technology Press, Beijing.
13. Chen, M., Q. Wu, R. Hallett, M. Sears, J-Z Zhao, and A. M. Shelton. 2008. The efficacy of insecticides and application methods against *Contarinia nasturtii* under laboratory and field

- conditions. *In Management of Diamondback Moth and Other Crucifer Pests*. Eds. A. M. Shelton, H. L. Collins, Zhang Youjun and Wu Qingjun, pp 264-271. China Agricultural Science and Technology Press, Beijing.
14. Russell, D., Uijtewaal, B., A. M. Shelton, M. Chen, R. Srinivasan, G. Gujar, A. Rauf, D. Grzywacz and P. Gregory. 2008. Bt brassicas for DBM control: The CIMBAA public/private partnership. *In Management of Diamondback Moth and Other Crucifer Pests*. Eds. A. M. Shelton, H. L. Collins, Zhang Youjun and Wu Qingjun, pp 272-279. China Agricultural Science and Technology Press, Beijing.
  15. Shelton, A. M., R.T. Roush, P. Wang and J.-Z. Zhao. 2007. Resistance to insect pathogens and strategies to manage resistance: an update. *In Field Manual of Techniques in Invertebrate Pathology*, 2<sup>nd</sup> edition. Eds. L.A. Lacey and H. K. Kaya, pp 793-811. Kluwer Academic Press.
  16. Shelton, A. M. and R. R. Bellinder. 2007. Role of Biotechnological Advances in Shaping the Future of IPM. *In Ecologically-Based Integrated Pest Management*. (eds. O. Koul and G. W. Cuperus) pp. 269-288. CABI Publications.
  17. Caldwell, B., E. Brown Rosen, E. Sideman, A. Shelton and C. Smart. 2006. Resource Guide for Organic Insect and Disease Management. NYSAES, Geneva, NY 169 pp.

#### WORLD WIDE WEB SITES AND VIDEOS:

1. Shelton, A. M. 2015. Tragic papaya: 12-part series. <http://anthonymshelton.com/tragicpapaya/>
2. Caldwell, B., E. Sideman, A. Seaman, A. Shelton and C. Smart. 2013. Resource Guide for Organic Insect and Disease Management, Second Edition. <http://web.pppmb.cals.cornell.edu/resourceguide>
3. Ivy, A, A. M. Shelton and D. Olmstead. Leek Moth Information Center for the US. <http://web.entomology.cornell.edu/shelton/leek-moth/index.html>
4. Kikkert, J., C. Hopeting, A. M. Shelton, M. Chen, P. Wang, Q. Wu and J. Zhao. Swede Midge Information Center for the US. <http://web.entomology.cornell.edu/shelton/swede-midge/index.html>
5. Shelton, A. M. and L. McCandless. Informing the Dialogue about Agricultural Biotechnology <http://blogs.cornell.edu/gmodialogue/>
6. Shelton, A. M. Natural Enemies: A Guide to Biological Control Agents in North America. <http://www.biocontrol.entomology.cornell.edu/>
7. Caldwell, B., E. Brown Rosen, E. Sideman, A. Shelton and C. Smart. 2005. Resource Guide for Organic Insect and Disease Management.
8. Shelton et al. Agricultural biotechnology <http://agribiotech.info/>
9. Shelton, A. M. What is Bt and what is the risk of insects becoming resistant to Bt transgenic plants? <http://agribiotech.info/moreIssues.html>
10. Shelton, A. M. Are organic agriculture and biotechnology compatible? <http://agribiotech.info/moreIssues.htm>
11. Shelton, A. M. A global view of biotechnology crops <http://agribiotech.info/moreIssues.htm>
12. Shelton, A. M. International Working Group for Diamondback Moth. <http://web.entomology.cornell.edu/shelton/diamondback-moth/>
13. Shelton, A. M., W. T. Wilsey and C. R. Weeden. Pests of the Northeast. <http://web.entomology.cornell.edu/shelton/veg-insects-ne/>
14. Shelton, A.M. Proceedings of the Cornell Community Biological Control Conference, 1996: <http://web.entomology.cornell.edu/shelton/cornell-biocontrol-conf/talks/>
15. Rueda, A. and A. M. Shelton. Global Crop Pests: Identification and Information: <http://web.entomology.cornell.edu/shelton/veg-insects-global/>

16. Shelton, A. M. and S. Fleisher. 2004. Biotech Vegetables for Insect and Insect-Vectored Disease Management: <http://web.entomology.cornell.edu/shelton/biotech-veg/>
17. Tang, J.D., Hawley, J., Mitchell, B.M., and Shelton, A.M. Video production entitled 'Rearing Diamondback Moth on Artificial Diet and Foliage' (30 min).

#### COMMENTARIES, BOOKLETS AND BOOK REVIEWS:

1. Shelton, A. M. 2016. Labeling GMO foods is a misdirected, confusing strategy. Finger Lakes Times, June 14. [http://www.fltimes.com/opinion/letters\\_to\\_editor/letter-labeling-gmo-foods-is-a-misdirected-confusing-strategy/article\\_b4817670-3232-11e6-85b8-d34b251e7553.html?utm\\_medium=social&utm\\_source=email&utm\\_campaign=user-share](http://www.fltimes.com/opinion/letters_to_editor/letter-labeling-gmo-foods-is-a-misdirected-confusing-strategy/article_b4817670-3232-11e6-85b8-d34b251e7553.html?utm_medium=social&utm_source=email&utm_campaign=user-share)
2. Shelton, A. M. and T. Harvey-Samuel. 2016. GMO Answers. <https://gmoanswers.com/ask/do-gmos-have-potential-reduce-population-or-wipe-out-invasive-and-destructive-species-if-so-why>
3. New York State Considers Mandatory GMO Labeling. Radio interview on Connections with Evan Dawson, March 30, 2016. <http://wxxinews.org/post/connections-new-york-state-considers-mandatory-gmo-labeling>
4. Genetically engineered insects. Radio interview on Connections with Evan Dawson, Sept. 21, 2015. <http://wxxinews.org/post/connections-safe-sex-insects>
5. Shelton A. M. 2015. GMO fears and misunderstanding keep Mexican farmers dependent on toxic insecticides. Forbes (Mexico), Feb. 12, 2015. <http://www.forbes.com.mx/por-que-mexico-esta-rezagado-en-la-produccion-de-maiz/>
6. Shelton, A. M. 2014. Conserving natural enemies by using Bt crops: an example from India. ISB News Report- Aug. 2014. <http://www.isb.vt.edu/news/2014/Aug14.pdf>
7. Shelton, A. M. 2014. IPM practices lead to healthiest food. Finger Lakes Times. March 30, 2014. [http://www.fltimes.com/opinion/article\\_c8b52aea-b838-11e3-960c-001a4bcf887a.html?mode=story](http://www.fltimes.com/opinion/article_c8b52aea-b838-11e3-960c-001a4bcf887a.html?mode=story)
8. Shelton, A. M. 2013. Bt sweet corn: a commercial product for the public good. ISB News Report Dec. 2013.
9. Shelton, A. M. 2013. *Helicoverpa armigera*, a new pest in Brazil. International Service for the Acquisition of Agri-biotech Applications (ISAAA) Brief 46-2013.
10. Shelton, A. M. 2013. Letter to the editor, Bend Bulletin, Bend OR. Comments on GMOs. Nov. 6, 2013.
11. Shelton, A. M. 2013. Bt sweet corn. International Service for the Acquisition of Agri-biotech Applications (ISAAA) Brief 46-2013.
12. The long road to commercialization of Bt brinjal (eggplant) in India. 2010. South Asia Biosafety Program Newsletter Vol. 6:7. Pp 1-2.
13. Shelton, A. M. 2010. A look at GMO crops' effect on sustainability. AGRI NEWS. Pp A5. Opinion. April 29, 2010.
14. Shelton, A. M. and J. Romeis. 2008. Recent perspectives on risk assessment. ABSPII newsletter Apr. 2008, pp 2-3
15. Shelton, A. M. 2008. Risk assessment vs. the precautionary principle for agricultural biotechnology. ABSPII newsletter Jan. 2008, pp 2-3.
16. Shelton, A. M. 2007. GE debate misleading: a perspective. Christchurch Press. April 2, 2007 <http://www.stuff.co.nz/4014396a12935.html?source=email>

#### TECHNICAL REPORTS:

1. Seaman, A., H. Lange, and A. M. Shelton. 2015. Squash bug and striped cucumber beetles control with insecticides allowed for organic production, 2014. Arthropod Mgt Tests: 40. <http://dx.doi.org/10.1093/amt/tsv105>

2. Seaman, A., H. Lange, and A. M. Shelton. 2015. Swede midge, diamondback, moth and imported cabbageworm control with insecticides allowed for organic production, 2014. *Arthropod Mgt Tests*: 40. <http://dx.doi.org/10.1093/amt/tsv104>
3. Seaman, A., H. Lange, and A. M. Shelton. 2014. Squash vine borer control with insecticides allowed for organic production, 2013. *Arthropod Mgt Tests*: 39 E65. <http://dx.doi.org/10.4182/amt.2014.E65>
4. Seaman, A., H. Lange, and A. M. Shelton. 2014. Swede midge control with insecticides allowed for organic production, 2013. *Arthropod Mgt Tests*: 39 E64. <http://dx.doi.org/10.4182/amt.2014.E64>
5. Seaman, A., H. Lange, and A. M. Shelton. 2014. Striped cucumber beetle control with insecticides allowed for organic production, 2012. *Arthropod Mgt Tests*: 39 E63. <http://dx.doi.org/10.4182/amt.2014.E63>
6. Seaman, A., H. Lange, and A. M. Shelton. 2014. Crucifer flea beetle control with insecticides allowed for organic production, 2013. *Arthropod Mgt Tests*: 39 E62. <http://dx.doi.org/10.4182/amt.2014.E62>
7. Shelton, A. M. and D. Olmstead. 2013. Control of brown marmorated stink bug on sweet corn, 2012. *Arthropod Mgt Tests*: 38 E61.
8. Seaman, A., H. Lange, and A. M. Shelton. 2013. Squash vine borer control with insecticides allowed for organic production, 2012. *Arthropod Mgt Tests*: 38 E56.
9. Seaman, A., H. Lange, and A. M. Shelton. 2013. Swede midge control with insecticides allowed for organic production, 2012. *Arthropod Mgt Tests*: 38 E10. <http://dx.doi.org/10.4182/amt.2013.E10>
10. Seaman, A., H. Lange, and A. M. Shelton. 2013. Striped cucumber beetle control with insecticides allowed for organic production, 2012. *Arthropod Mgt Tests*: 38 E55.
11. Seaman, A., H. Lange, and A. M. Shelton. 2013. Flea beetle control with insecticides allowed for organic production, 2012. *Arthropod Mgt Tests*: 38 E14.
12. Seaman, A., H. Lange, B. Luton and A. M. Shelton. 2012. Squash vine borer control with insecticides allowed for organic production, 2011. *Arthropod Mgt Tests*: 37:E81
13. Seaman, A., H. Lange and A. M. Shelton. 2012. Crucifer flea beetle control with insecticides allowed for organic production, 2011. *Arthropod Mgt Tests*: 37 E16.
14. Seaman, A., H. Lange and A. M. Shelton. 2012. Imported cabbageworm and diamondback moth control with insecticides allowed for organic production, 2011. *Arthropod Mgt Tests*: 37 E15
15. Heal, J. R. Hallett, A. Shelton and D. Olmstead. 2011. Control of swede midge on broccoli, 2010. *Arthropod Mgt Tests*: 36: E3 doi: 10.4182/amt.2011.E3
16. Shelton, A. M. and D. Olmstead. 2011. Control of onion thrips on cabbage with insecticides, 2010. *Arthropod Mgt Tests*: 36: E19 doi: 10.4182/amt.2011.E19
17. Shelton, A. M. and D. Olmstead. 2011. Control of Lepidoptera on sweet corn, 2010. *Arthropod Mgt Tests*: E78 doi: 10.4182/amt.2011.E78
18. Shelton, A. M. and D. Olmstead. 2011. Control of cabbage maggot and cabbage aphid with Brigadier 2SC and Capture LFR, 2010. *Arthropod Mgt Tests*: 36: E14 doi: 10.4182/amt.2011.E14
19. Tian, J., M. Chen and A. M. Shelton. 2011. Cry2Ab, Cry4Ba and Cry11Ba proteins are not toxic to swede midge. *Arthropod Mgt Tests*: 36: L14 doi: 10.4182/amt.2011.L14
20. Shelton, A. M., M. Chen and W. Li. 2009. Control of Lepidoptera on cabbage with insecticides, 2008. *Arthropod Mgt Tests*: 34 (E16) doi: 10.4182/amt.2009.E15.
21. Shelton, A. M., M. Chen and W. Li. 2009. Evaluation of treatments for the control of onion thrips damage to cabbage, 2008. *Arthropod Mgt Tests*: 34 (E16) doi: 10.4182/amt.2009.E16.

**MISC. RESEARCH & EXTENSION ARTICLES/PROCEEDINGS/ABSTRACTS/POPULAR ARTICLES:**

1. Shelton, A. M., J. Romeis, S. Naranjo, J. Tian and R. Hellmich. Use of *Bt*-resistant caterpillars to assess the effect of Cry proteins on beneficial natural enemies. *GMOs in Integrated Plant Production. IOBC-WPRS Bulletin Vol 114*, pp 51-55.
2. Shelton, A.M. 2015. What is environmentally acceptable plant protection? Proceedings of the Plant Protection Society of Slovenia (Plenary lecture). March 3-4, 2015, Ptuj, Slovenia. Pp 1-6.
3. Shelton, A. M., J-C Tian, J. Romeis, S. Naranjo, and R. Hellmich. 2013. Using Bt-resistant hosts to remove prey quality effects when investigating potential effects of Bt plants on natural enemies. pp. 281-284 in Proceedings of the 4th International Symposium on Biological Control of Arthropods, Pucón, Chile, P. G. Mason, D. R. Gillespie & C. Vincent (Eds.).
4. Shelton, A. M. 2012. *Biotech Crops. Finger Lakes Times* June 20, 2012.
5. Shelton, A. M. and D. Olmstead. 2012. New options and challenges for caterpillar control in sweet corn. NY Fruit and Vegetable Expo. Syracuse. <http://www.hort.cornell.edu/expo/2012proceedings.php>
6. Shelton, A. M. and D. Olmstead. 2012. Leek moth: an emerging problem for Allium crops in NY. NY Fruit and Vegetable Expo. Syracuse. <http://www.hort.cornell.edu/expo/2012proceedings.php>
7. Shelton, A. M. and J. Fail. 2012. Update on insect management in cabbage. NY Fruit and Vegetable Expo. Syracuse. <http://www.hort.cornell.edu/expo/2012proceedings.php>
8. Shelton, A. M. and D. Olmstead. 2011. The changing insect complex in sweet corn and how it affects management. NY Fruit and Vegetable Expo. Syracuse, NY. <http://www.hort.cornell.edu/expo/2011proceedings.php>
9. Shelton, A. M., J-Z. Zhao and P. Wang. 2007. Bt resistance management: have we been lucky or smart? Pp 67-71 in Proc. 6<sup>th</sup> Pacific Rim Conf. on the Biotechnology of *Bacillus thuringiensis* and its Environmental Impact (editors: Cote, Otvos, Schwartz and Vincent), Victoria, BC, Canada Oct. 30-Nov 3, 2005.
10. Shelton, A. M., C. Smart and A. Rangarajan. 2007. Trends in IPM in the USA and Asia for vegetable production. XVI International Plant Protection Conference, Glasgow, UK, pp 680-681.
11. Romeis J, Bartsch D, Bigler F, Candolfi MP, Gielkens MMC, Hartley SE, Hellmich RL, Huesing JE, Jepson PC, Layton R, Quemada H, Raybould A, Rose RI, Schiemann J, Sears MK, Shelton AM, Sweet J, Vaituzis Z & Wolt JD (2007) Non-target arthropod risk assessment of insect-resistant GM crops. Proceedings of the V Brazilian Biosafety Congress and the V Latin American Symposium on Transgenic Products, Ouro Preto, Brazil, 18-21 September 2007, pp. 59-61.
12. Romies, J. et al. (18 authors in alphabetical order, including A. M. Shelton). 2006. Moving through the tiered and methodological framework for non-target arthropod risk assessment of transgenic insecticidal crops. Proc. Of 9<sup>th</sup> Int. Symp on the Biosafety of GMOs. Sept. 24-29, Korea, pp. 62-67.
13. Hoeping, C.A., J.R. Kikkert, and A.M. Shelton. 2006. The swede midge invasion and how to control this potentially devastating pest. Proceedings of the NYS Fruit and Vegetable Conference.
14. Shelton, A. M. 2006. Swede midge: and insect that should get your attention. Proceedings of the NYS Fruit and Vegetable Conference.
15. Shelton, A. M., J. Zhao, B. A. Nault, J. Plate and E. Larentzaki. 2006. The state of insecticide resistance in onion thrips and thoughts on other control options. Proceedings of the NYS Fruit and Vegetable Conference.

**INVITED UNIVERSITY/INDUSTRY/SCHOOL SEMINARS:**

- 2016 Zhejiang University, Northwest Ag & Forest University, Urumqi Institute, China
- 2015 Great Lakes Fruit and Vegetable Expo
- 2015 Entomology Dept., North Carolina State University
- 2015 Genetic Engineering and Society Program, NC State
- 2015 Cornell Plant Pathology and Molecular Biology
- 2015 Oxitec Inc., UK
- 2014 Entomology Dept., University of Georgia
- 2014 Corvinus University Budapest, Hungary
- 2013 Department of Entomology, Indian Agricultural Institute
- 2013 Biotechnology Symposium (SUNY-EFS)
- 2013 Montana State University
- 2012 Cornell Entomology Symposium (poster)
- 2012 Cornell Entomology Seminar
- 2011 Cornell Lepidoptera Symposium at BTI
- 2010 Yale University
- 2010 Hobart William Smith College, Geneva, NY
- 2009 AquaClara, Cornell
- 2009 Hobart and William Smith Colleges, Sociology Dept.
- 2009 Department of Entomology, Michigan State University
- 2009 Zhejiang University, Hangzhou, China
- 2009 Northwest Agricultural University, Xian, China
- 2009 Guandong Academy of Agricultural Sciences, China
- 2009 University of the Philippines, Los Banos
- 2009 University of Illinois Champaign-Urbana
- 2008 University of Alberta, Canada
- 2008 AVRDC, The World Vegetable Center, Tainan, Taiwan
- 2007 Bio-Protection and Ecology Division, Lincoln University, NZ
- 2007 Environmental Resource Management Authority, Wellington, NZ
- 2007 DowAgroSciences, Indianapolis, IN
- 2007 Hobart and William Smith Colleges (2 seminars, biology and sociology)
- 2007 Institute of Plant Protection, Prague, Czech Republic
- 2007 Norman Borlaug Heritage Foundation Science Policy program, Washington DC
- 2006 Cornell CIIFAD Forum
- 2006 Entomology Dept. Cornell, NYSAES
- 2006 NY Academy of Sciences/92<sup>nd</sup> St YMCA class, NYC
- 2006 Entomology Dept., University of Idaho
- 2006 Entomology Dept., Zhejiang University, Hangzhou, China
- 2006 Entomology Dept., University of the Philippines at Los Banos
- 2006 Entomology Dept., University of Florida

**NATIONAL AND INTERNATIONAL PRESENTATIONS AT SCIENTIFIC MEETINGS:**

- 2015 ESA Pacific Branch, Coeur d' alene, ID. Exposure to multiple Bt proteins through resistant hosts demonstrates no effects on a suite of their natural enemies. A.M. Shelton et al.
- 2015 The 12<sup>th</sup> International Conference on Plant Protection (plenary speaker). 2015. Ptuj, Slovenia. What is environmentally acceptable plant protection? A. M. Shelton



- 2014 ESA National Meeting, Portland, OR. Politics, money and misinformation derail IPM: The stories of virus-resistant papaya in Hawaii and Bt eggplant in southeast Asia. A. M. Shelton.
- 2014 ESA National Meeting, Portland, OR. Foliar application of *Steinernema feltiae* for biological control of the leaf-mining leek moth larvae (*Acrolepiopsis assectella*) in *Allium* vegetables: Remedy for NY onions? M. Seto and A. M. Shelton.
- 2014 ESA National Meeting, Portland, OR. Seasonal occurrence and development of degree-day models for predicting activity of *Acrolepiopsis assectella* (Lepidoptera: Acrolepiidae) in NY onions. M. Seto and A. M. Shelton.
- 2014 American Chemical Society, San Francisco, CA (1 paper)
- 2014 ESA Eastern Branch, Williamsburg, VA (4 papers)
- 2013 ESA National Meeting, Austin, TX. Industry, growers and university cooperate to implement resistance management for diamondback moth. A. M. Shelton.
- 2013 ESA National Meeting, Austin, TX. It's not all fruit in the Big Apple: Vegetable pest management of onion thrips in onion and cabbage. B. A. Nault and A. M. Shelton.
- 2013 ESA National Meeting, Austin, TX. Exposure to multiple Bt proteins through resistant hosts demonstrates no effects on a suite of their natural enemies. A. M. Shelton et al.
- 2013 W-185 Meeting on BioControl, Jackson, WY (2 papers)
- 2013 ESA Eastern Branch, Lancaster, PA. Sustainable vegetable production: Can we make it work? A. M. Shelton.
- 2013 Biotechnology Risk Assessment Grants (USDA), Washington, DC (1 poster)
- 2013 National Agricultural Biotechnology Council, Texas A&M (Invited Presentation)
- 2013 4<sup>th</sup> International Symposium on Biological Control of Arthropods, Pucon, Chile Mar 4-8. (1 paper and symposium organizer)
- 2012 ESA National Meeting, Knoxville, TN. Misinformation and politics: Bt eggplant. A. M. Shelton and K. E. Hokanson.
- 2012 ESA National Meeting, Knoxville, TN. Long-term insecticide resistance management for diamondback moth: Dreaming the impossible dream? A. M. Shelton.
- 2012 ESA National Meeting, Knoxville, TN. Proactive IRM for thrips—a case study of onion thrips in onion. B. A. Nault and A. M. Shelton.
- 2012 ESA National Meeting, Knoxville, TN. Opportunities and challenges for development and registration of new biotech products for vegetables. A. M. Shelton.
- 2012 ESA National Meeting, Knoxville, TN. Bt crops expressing Cry1Ac, Cry2Ab and Cry1F do not harm the green lacewing, *Chrysoperla rufilabris*. J-C. Tian, J. Romeis, S. Naranjo, R. L. Hellmich, and A. M. Shelton.
- 2012 ESA National Meeting, Knoxville, TN. Eliminating host-mediated effects demonstrates that Bt corn expressing Cry1F has no adverse effects on *Cotesia marginiventris*. X-P. Wang, J-C. Tian, J. Romeis, S. Naranjo, R. L. Hellmich, and A. M. Shelton.
- 2012 ESA National Meeting, Knoxville, TN. Using resistant hosts demonstrates that Bt cotton expressing Cry1Ac and Cry2Ab has no negative effects on *Geocoris punctipes*. Liping Long, J-C. Tian, J. Romeis, S. Naranjo, R. L. Hellmich, and A. M. Shelton.
- 2012 International Congress of Entomology, Daegu South Korea. (co-organized 2 symposia and presented 2 papers)

- 2012 Cornell University Conference on Food Biosecurity, Ithaca, NY (1 paper)
- 2012 First International Congress of Development Studies, Santander, Spain. (1 paper)
- 2012 Biotechnology Summit, Merida Mexico. (1 paper)
- 2011 Risk Assessment Training Workshop, Jaipur, India. (2 papers)
- 2011 ESA National Meeting, Reno, NV. Which traits of cabbage influence host-plant selection by the onion thrips (*Thrips tabaci*)? J. Fail and A. M. Shelton.
- 2011 ESA National Meeting, Reno, NV. IPM for onion thrips (*Thrips tabaci*) in onion. B. Nault and A. M. Shelton.
- 2011 ESA National Meeting, Reno, NV. Spatial and temporal insecticide resistance in onion thrips (*Thrips tabaci*) populations in onions. A. M. Shelton and B. Nault.
- 2011 ESA National Meeting, Reno, NV. Changes in the spatial distribution of onion thrips (*Thrips tabaci*) and iris yellow spot virus in onion fields over time. C. Hsu, C. Hoepfing, M. Fuchs, A. M. Shelton and B. Nault.
- 2011 ESA National Meeting, Reno, NV. Antixenotic resistance of cabbage to onion thrips (*Thrips tabaci* Lindeman). J. Fail, K. R. Patel, M. Deutschlander and A. M. Shelton.
- 2011 ESA National Meeting, Reno, NV. Selecting test species for early-tier risk assessment studies of insect-resistant transgenic crops. J. Romeis, A. Raybould, F. Bigler, M. P. Candolfi, R. L. Hellmich, J. E. Huesing and A. M. Shelton.
- 2011 ESA National Meeting, Reno, NV. Combinations of toxins in sprays and plants: Insights on the benefits and problems. A. M. Shelton and J-Z. Zhou.
- 2011 ESA National Meeting, Reno, NV. Assessments of prey-mediated effects of Bt corn demonstrate no adverse effects of Cry1F on *Coleomegilla maculata*. J-C. Tian, H. L. Collins, J. Romeis, S. Naranjo, R. L. Hellmich and A. M. Shelton.
- 2011 ESA National Meeting, Reno, NV. Changes in the spatial distribution of onion thrips (*Thrips tabaci* Lindeman) and iris yellow spot virus over time in onion fields. C. L. Hsu, C. Hoepfing, M. Fuchs, A. M. Shelton and B. A. Nault.
- 2011 Entomological Society of Canada, Halifax, NS. (plenary paper)
- 2010 ESA National Meeting, San Diego, CA. Swede midge: Managing a threat to *Brassica* vegetables in North America. A. M. Shelton and M. Chen.
- 2010 ESA National Meeting, San Diego, CA. A comparative assessment of the effects of Bt plants and a pyrethroid insecticide on *Coleomegilla maculata* (Coleoptera: Coccinellidae). X-X. Liu, M. Chen and A. M. Shelton.
- 2010 ESA National Meeting, San Diego, CA. Transcripts of the nicotinic acetylcholine receptor subunit gene *Pxy1a6* with premature stop codons are associated with spinosad resistance in diamondback moth, *Plutella xylostella*. F. Rinkevich, J. G. Scott, A. M. Shelton and M. Chen.
- 2010 ESA National Meeting, San Diego, CA. Onion leaf color effects on attraction to onion thrips (*Thrips tabaci* Lindeman). J. Diaz-Montano, A. M. Shelton, B. A. Nault and J. Fail.
- 2010 11<sup>th</sup> Int. Symposium on Biosafety of GMO, Buenos Aires, Argentina. (1 paper)
- 2010 Cartagena Protocol, Nagoya, Japan. (1 paper)
- 2010 Society of Environmental Toxicology and Chemistry (SETAC), Portland, OR. (1 paper)
- 2010 Risk Assessment Training Workshop, Goa, India. (1 paper)
- 2010 American Chemical Society, San Francisco, CA. (1 paper)
- 2009 IOBC WPRS, Hungary. (1 paper)
- 2009 ESA National Meeting, Indianapolis, IN. Transgenic vegetables for control of insects and insect-vectored pathogens. A. M. Shelton, M. Fuchs, and M. Chen.

- 2009 ESA National Meeting, Indianapolis, IN. Bringing GM technology to developing countries, regulatory concerns with entomology focus: Eggplant in India. A. M. Shelton, K. V. Raman, and V. Vijayaraghavan.
- 2009 ESA National Meeting, Indianapolis, IN. *Bt* maize expressing Cry3Bb1 does not harm the spider mite, *Tetranychus urticae*, or its ladybird beetle predator, *Stethorus punctillum*. Y-H. Li, J. Romeis, and A. M. Shelton.
- 2009 ESA National Meeting, Indianapolis, IN. Managing diamondback moth (*Plutella xylostella*) susceptibility to the spinosyns: Lessons learned. J. M. Richardson, J. E. Dripps, L. E. Gomez, J. P. Mueller, B. Braxton, R. B. Lassiter, and A. M. Shelton.
- 2009 ESA National Meeting, Indianapolis, IN. Onion thrips and iris yellow spot virus interactions in an onion ecosystem. B. A. Nault, C. L. Hsu, E. Smith, A. M. Shelton, M. Fuchs, and C. Hoepting.
- 2009 ESA National Meeting, Indianapolis, IN. A comparative assessment of the effects of *Bt* plants and a pyrethroid insecticide on the life parameters of a parasitoid. X-X. Liu, M. Chen, and A. M. Shelton.
- 2009 ESA National Meeting, Indianapolis, IN. Weed hosts of onion thrips (*Thrips tabaci*) and their role in iris yellow spot virus epidemiology in onion. E. A. Smith, A. DiTommaso, C. L. Hsu, M. Fuchs, A. M. Shelton, and B. A. Nault.
- 2009 ESA National Meeting, Indianapolis, IN. Characterization of resistance to onion thrips (*Thrips tabaci* Lindeman) and incidence of iris yellow spot virus in onion cultivars. J. Diaz-Montano, B. A. Nault, M. Fuchs, and A. M. Shelton
- 2009 ESA National Meeting, Indianapolis, IN. Could crop rotation provide good control of swede midge, *Contarinia nasturtii* (Diptera: Cecidomyiidae)? M. Chen and A. M. Shelton.
- 2009 6<sup>th</sup> International IPM Conference, Portland, OR. (2 papers)
- 2009 ESA Pacific Branch Meeting, San Diego, CA. (1 paper)
- 2008 ESA National Meeting, Reno, NV. Resistance: A never ending story. A. M. Shelton
- 2008 ESA National Meeting, Reno, NV. *Bt* plants prove safer to a parasitoid than conventional insecticides. M. Chen and A. M. Shelton.
- 2008 ESA National Meeting, Reno, NV. Screening for resistance and yield losses caused by onion thrips (*Thrips tabaci* Lindeman) and iris yellow spot virus on onions. J. Diaz-Montano, A. M. Shelton, B. A. Nault, and M. Fuchs.
- 2008 ESA National Meeting, Reno, NV. Identifying weed hosts for onion thrips (*Thrips tabaci*) and implications for iris yellow spot virus management in onion. E. Smith, A. DiTommaso, M. Fuchs, A. M. Shelton, and B. A. Nault.
- 2008 ESA National Meeting, Reno, NV. Tracking the spread of iris yellow spot virus (IYSV) in onion fields. C. L. Hsu, C. Hoepting, A. M. Shelton, and B. A. Nault.
- 2008 International Congress of Entomology, Durban South Africa. (co-organized 1 symposia and presented 3 papers)
- 2007 ESA National Meeting, San Diego, CA. Trap cropping and biotechnology for insect management: Do they play well together in the sandbox? A. M. Shelton and F. R. Badenes-Perez.
- 2007 ESA National Meeting, San Diego, CA. Monitoring incidence and spread of iris yellow spot virus (*Tospovirus*) in transplant versus direct-seeded onions. C. L. Hsu, D. A. Shah, M. Fuchs, C. Hoepting, A. M. Shelton, and B. A. Nault.
- 2007 ESA National Meeting, San Diego, CA. Screening for resistance and yield losses caused by onion thrips (*Thrips tabaci* Lindeman) and iris yellow spot virus. J. Diaz-Montano, A. M. Shelton, B. A. Nault and M. Fuchs.

- 2007 ESA National Meeting, San Diego, CA. Assessing possible sources of iris yellow spot virus (*Tospovirus*) in New York onion (*Allium cepa*) fields. E. Smith, C. Hsu, M. Fuchs, A. M. Shelton, C. Hoepfing, and B. A. Nault.
- 2007 XVI International Plant Protection Conference, Glasgow, UK. (1 paper)
- 2006 ESA National Meeting, Indianapolis, IN. Vegetables and biotechnology. A. M. Shelton.
- 2006 ESA National Meeting, Indianapolis, IN. Non-insecticidal approaches to control onion thrips on onions: How far are we? E. Larentzaki and A. M. Shelton.
- 2006 ESA National Meeting, Indianapolis, IN. Effect of soil type and moisture on adult eclosion of swede midge, *Contarinia nasturtii*. M. Chen, A. M. Shelton, and J-Z. Zhao.
- 2006 5<sup>th</sup> International Workshop on Diamondback Moth, Beijing, China (3 papers)

**PARTIAL LIST OF STATE & NATIONAL GROWER, AND INDUSTRY PRESENTATIONS:** In addition to the talks listed below I normally give about 10 ad hoc grower talks per year. Beginning in 2000, I have given an average of 5 talks per years on agricultural biotechnology to various audiences (Cornell tours, Rotary Clubs, Schools, etc.).

- 2015 NYS Fruit and Vegetable Conference, Syracuse (3 talks)
- 2014 NYS Fruit and Vegetable Conference, Syracuse (1 talk)
- 2013 NYS Fruit and Vegetable Conference, Syracuse (2 talks)
- 2012 NYS Fruit and Vegetable Conference, Syracuse (3 talks)
- 2011 NYS Fruit and Vegetable Conference, Syracuse (3 talks)
- 2010 NYS Fruit and Vegetable Conference, Syracuse (2 talks)
- 2009 NYS Fruit and Vegetable Conference, Syracuse (3 talks)
- 2008 NYS Fruit and Vegetable Conference, Syracuse (2 talks)
- 2007 NYS Fruit and Vegetable Conference, Syracuse (2 talks)
- 2006 NYS Fruit and Vegetable Conference, Syracuse (2 talks)

**INTERNATIONAL GROWER/INDUSTRY PRESENTATIONS:**

- 2014 Ontario Fruit and Vegetable Conference, Niagara CN

**PARTIAL LIST OF CIVIC PRESENTATIONS:** In addition to the talks listed below I normally give about 5 ad hoc talks per years on agricultural biotechnology to various audiences (Cornell tours, Rotary Clubs, Schools, etc.).

- 2014 The City Club of Ithaca, Ithaca, NY May 13, 2014
- 2014 Kendal Ithaca on GM crop
- 2011 Geneva Science Project for Summer School

**OTHER INFORMATION:**

**Civic:**

- Hobart College Assistant Crew Coach- 2002 to 2005
- Geneva Board of Education Facilities Committee 1999
- Geneva Board of Education Member 1993- 1998
- Geneva Educational Advisory Council (co-president) 1992-3
- Geneva Schools Special Education Program (advisor)- 1983-5
- Geneva Little League (coach) 1987-1990
- Hobart & William Smith Head Crew Coach 1986-1987
- Geneva Concerts (treasurer, vice-president, president) 1984-1993

Geneva Cub Scout (den leader)-1983  
Geneva YMCA t-ball (coach)-1983-4