

## **2020 CURRICULUM VITAE**

**NAME:** Elson J. Shields  
**DEPARTMENT/UNIT:** Entomology  
**TITLE:** Professor  
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### **BACKGROUND**

#### **EDUCATION**

1984\_Ph.D\_University of Wisconsin - Madison  
1979\_M.S\_University of Arizona  
1974\_B.S\_University of Arizona

#### **ACADEMIC RANKS (year achieved)**

Professor: Jan 2000  
Associate Professor: Nov 1992  
Assistant Professor: Sept 1986  
Senior Extension Associate: 1978-1986

#### **PRIMARY DEPARTMENTAL/Unit PROGRAM AREA**

Entomology – Ithaca

**AREAS OF EXPERTISE (key words)** Biological Control, Aerobiology, Management of Soil Insects, Management of Field Crop Insects, IPM, Computer Modeling

#### **PROFESSIONAL EXPERIENCE**

<b><u>Year</u></b>	<b><u>Experience</u></b>
1986-present	Entomology Faculty Member – Cornell University
1980 – 1986	Extension IPM Specialist and IPM Coordinator – University of Wisconsin
1978-1980	Extension IPM Specialists – Oregon State University

#### **SABBATICALS AND STUDY LEAVES (year, project, location)**

2005-2006 Developing Flexible Remote Piloted Vehicles for Aerobiological Research.  
Cornell University.

1993-1994 Remote Piloted Vehicles for Aerobiological Research; Cornell University

## **ACADEMIC RESPONSIBILITIES**

### **CURRENT ADMINISTRATIVE RESPONSIBILITIES**

None

### **RESEARCH RESPONSIBILITIES**

#### **Active Grants/Contracts/Gifts**

Nault, B, **E. J. Shields**, & C. Filgueiras 10/1/2020-9/30/2022 5%  
USDA-Speciality Crops \$99,902  
Biological Control for Managing the Most Serious Pests of Potato in Conventional and Organic Production Systems.

**Shields, E. J.** 4/1/2021-3/31/2023 5%  
NY Farm Viability Institute \$99, 170  
Biological Control of Seed Corn Maggot and Cabbage Maggot with Persistent Biocontrol Nematodes.

**Shields, E. J.** 10/1/2020-9/30/2023 5%  
USDA-Hatch \$105,000  
Biological Control of Seed Corn Maggot with Persistent Biocontrol Nematodes

**Shields, E. J.** 10/1/2020-9/30/2023 5%  
USDA- Smith Lever \$105,000  
Accelerating the adoption of CRW Biological Control

**Shields, E. J.** 5/1/2019-4/30/2021 5%  
NYFVI \$41,838  
Biological Control of Colorado Potato Beetle with Persistent Entomopathenic Nematodes

Filgueiras, C, B. Nault, **E. J. Shields**, & D. Willett 10/1/2019-9/30/2021 5%  
USDA-Speciality Crops \$98,761  
Protecting Onions in New York with Entomopathogenic Nematodes.

**Shields, E. J.**, J. Tooker, H. Darby, S. Lewins & V. Izzo 10/1/2019-9/31/2022 10%  
NE-SARE \$199,198  
Biological Control of Corn Rootworm in Conventional and Organic Corn Production

#### **Grants ending in 2021**

**Shields, E. J.** 2019-2021 5%

NYS-Ag & Mks \$17,000  
Insect Management on Industrial Hemp.

### **Pending Grants/Contracts/Gifts**

Smith, J. and D. Hooker (**E. J. Shields collaborator**) 4/2021-2/2023  
Ontario Ministry of Agriculture. \$200,000  
Mitigation and Management of Bt Resistant Corn Rootworm in Ontario.

Peterson, J.P., A. Gassmann, J. Spencer, N. Seiter & **E. J. Shields**. 5/2021-12/2024  
Corteva AgriScience 1,000,000  
Management of Corn Rootworm across the corn belt utilizing Persistent  
Entomopathogenic Nematodes & Cover Crops. (Indiana, Illinois, Iowa, Nebraska)

Peterson, J.P, B. S Coates, K. Tilmon, C. Difonzo & **E. J. Shields**. 2021 – 2023  
USDA – BRAG \$450,000  
Insect Resistance Management: Evaluating the Impact of Bt ended Refuges and the  
Vip3A Bacillus thuringiensis Toxin on Western Bean Cutworm.

**Shields, E. J.** 10/1/2021-9/30/2024 5%  
USDA- Multi-State \$105,000  
Ecology and Management of Arthropods in Corn (NC 246)

### **Completed Grants**

Hunter, M & **E. J. Shields** 4/1/2019-3/31/2020 5%  
NNYADP \$11,635  
Evaluation of Applying Biocontrol Nematode, Tank Mixed with Manure to Corn and  
Alfalfa Fields.

**Shields, E. J.**, C. Bornt & T. Rusinek. 12/1/18-11/30/20 10%  
USDA-Speciality Crops \$83,613  
Management of wireworms in organic and conventional production systems.

**Shields, E. J.** 10/1/17-9/30/20 10%  
Smith-Lever \$48,000  
Accelerating the Adoption of Biological Control to Manage Alfalfa Snout Beetle:  
Exploring the Community Approach.

**Shields, E. J.** 10/1/17-9/30/20 10%  
USDA-Hatch-Multi-State \$75,000  
Biological Control of Western Corn Rootworm with Native Entomopathogenic  
Nematodes (EPN): Testing the NY successes in other corn growing regions.

**Shields, E. J.** 4/1/17-3/31/20 5%  
NY Farm Viability Institute \$99,979

Biological Control of Corn Rootworm using Native NY Entomopathogenic Nematodes.

Viands, D, & **E. J. Shields** 4/1/2019-3/31/2020 5%

NNYADP\$47,436

Breeding Alfalfa Cultivars with Higher Resistance to Alfalfa Snout Beetle.

**Shields, E. J.** 2017-2019 5%

NYS-Ag & Mks \$21,398

Survey of Industrial Hemp for Potential Insect Pests

**Shields, E. J. & Tony Testa** 4/1/18 – 3/31/19 10%

NNYADP \$14,853

Impact of Biocontrol Nematodes on Corn Rootworm during the Corn Rotation

**Shields, E. J.** 10/1/16 – 9/30/2019 10%

USDA-Hatch \$90,000

Native NY Persistent Entomopathogenic Nematodes: Efficacy and potential in other NY regional cropping systems.

**Shields, E. J. & Tony Testa** 4/1/17 – 3/31/18 10%

NNYADP \$29,994

Impact of Biocontrol Nematodes on Corn Rootworm during the Corn Rotation

Agnello, A, P. Jentsch and **E. J. Shields** 4/1/16-3/31/18 10%

NY Farm Viability Institute \$101,152

Optimizing Use of Native Persistent Nematodes for Biological Control of Plum Curculio in Organic and Conventional Apple Production

**Shields, E. J.** 4/1/16-3/31/17 5%

NNYADP \$9,912

Impact of alfalfa snout beetle biocontrol nematodes on corn rootworm during corn rotation.

**Shields, E. J. & L. McDermott** 12/1/15-11/30/17 10%

NY Farm Viability Institute \$49,236

Managing root weevil populations for improved profitability and sustainability on Eastern NY berry farms.

Coudron, T., B. Hibbard and K. Shelby 6/1/2015-5/30/2017 5%

(**E. J. Shields**, Additional Investigator).

Monsanto Insect Knowledge Research Program \$449,000

Entomopathogenic nematodes as part of Corn Rootworm Resistance Management.

**Shields, E. J.** 10/1/12-9/30/17 5%

USDA-Hatch-Multi-State \$135,000

Breeding Clover Root Curculio Resistant Alfalfa: Development of a greenhouse evaluation/screening technique.

**Shields, E. J.** 10/1/14-9/30/17 10%

Smith-Lever \$60,000

Biological Control of root weevils in berry production: Extending NNY successes to the rest of NY.

**Shields, E. J.** 4/1/15-4/1/16 5%

Area-wide ASB Bio-control Program. \$45,410

Farmer-financed

**Shields, E. J.** 4/1/15 – 3/30/16 10%

NNYADP \$85,000

Biological Control of Alfalfa Snout Beetle

**Shields, E. J.** 4/1/14 – 3/30/16 5%

NY Farm Viability Institute \$48,804

Biological Control of the Black Vine-Strawberry root weevil complex: The whole farm approach.

**Shields, E. J.** 10/1/13-9/30/16 5%

USDA-Hatch \$69,000

Biological Control of Soil Insects in Organic Forage Production.

Agnello, A. M, W. H. Reissig and **E. J. Shields.** 10/1/12-9/30/15 5%

Federal Formula Funds Initiative Program, 2011. \$66,848

Biological Control of Plum Curculio in Apples with Persistent Nematodes.

**Shields, E. J. and A. Testa** 4/1/14-12/31/14 5%

NNYADP \$24,960

Biological Control of Alfalfa Snout Beetle: Selling the concept to skeptical alfalfa producers inflicted with ASB.

**Shields, E. J. and A. Testa** 4/1/14-12/31/14 5%

NNYADP \$19,745

Biological Control of Black Vine Weevil/Strawberry Root Weevil complex in NNY Strawberries and other berries with NY native persistent biocontrol nematodes.

**Shields, E. J., W. H. Reissig, and A. M. Agnello.** 9/30/11-9/29/14 10%

NYS-USDA Speciality Block Grant \$77,200

Biological control of plum curculio in organic apple production systems.

Loeb, G. M., **E. J. Shields,** and T. Weigle. 9/30/11-9/29/14 10%

NYS-USDA Speciality Block Grant \$79,998

Managing Japanese Beetle In Eastern Vineyards By Reducing Grub Populations In Sod Row Middles With Persistent Entomopathogenic Nematodes.

B. Nault (PI), M. Fuchs and **E. J. Shields.** 10/1/11-9/30/14 10%  
Federal Formula Funds Initiative Program, 2010 \$90,000  
Dispersal of onion thrips in onion.

Loeb, G. M. and **E. J. Shields.** 10/1/11-9/30/14 10%  
Federal Formula Funds Initiative Program, 2010 \$90,000  
Managing Japanese Beetle in Eastern Vineyards with Persistent Entomopathogenic Nematodes.

**Shields, E. J.** 10/1/11-9/30/14 5%  
Smith-Lever \$34,800  
On-farm Rearing and Application of Biocontrol Nematodes for Control of Alfalfa Snout Beetle.

**Shields, E. J.,** A. Testa and M. Keller 2/1/13-12/31/13 5%  
NNYADP \$25,000  
On-Farm ASB Bio-Control - ASB Demonstration Plots as Educational Tools and Validating Establishment for Producer-Applied Fields.

**Shields, E. J.** 5/1/12-4/30/13 5%  
Pioneer \$16,000  
Evaluating Effectiveness of Optimum(tm) AcreMax(r) Corn Rootworm Refuge under NY Conditions.

**Shields, E. J.** and A. Testa 2/11-1/13 10%  
NY Farm Viability Institute \$87,000  
Biological Control of Alfalfa Snout Beetle: On farm rearing and application of biocontrol nematodes.

**Shields, E. J.** 10/1/10-9/30/13 10%  
USDA-Hatch \$72,000  
Entomopathogenic nematode persistence across crop rotation.

**Shields, E. J.** and A. Testa 10/1/11-3/31/12 2%  
NNYADP \$7,500  
On-farm Rearing of Biocontrol Nematodes for Alfalfa Snout Beetle: Improving outreach communications with multimedia approaches.

**Shields, E. J.** 10/09-9/12 5%  
USDA-Hatch-Multi-State \$60,000  
Breeding Clover Root Curculio Resistant Alfalfa: Development of a greenhouse evaluation/screening technique.

**Shields, E. J.** 5/1/11-4/30/12 5%

Monsanto \$12,000  
Evaluating Aphid Resistant Soybeans under NY Conditions.

**Shields, E. J.** 5/1/11-4/30/12 5%  
Pioneer \$15,900  
Evaluating Effectiveness of Optimum(tm) AcreMax(r) Corn Rootworm Refuge  
under NY Conditions.

Schmale, D. G., **E. J. Shields** & D. E. Aylor. 11/15/07-11/14/11 25%  
USDA-NRI-Plant Biosecurity \$960,767  
Development of an Integrated System to Detect, Monitor, and Forecast  
the Spread of *Phytophthora infestans* in the Lower Atmosphere.

**Shields, E. J.** 4/09-3/11 3%  
Pioneer Seed Co. \$55,275  
Evaluating Effectiveness of Optimum(tm) AcreMax(r) Corn Rootworm Refuge  
under Diverse Conditions

**Shields, E. J.** and A. Testa. 1/10-12/10 10%  
NNYADP \$ 25,000  
Biological Control of Alfalfa Snout Beetle.

Viands, D. R., **E. J. Shields**, J. Crawford, 1/10-12/10 3%  
A. Testa, J. Hansen  
NNYADP \$ 3,000  
Breeding Alfalfa Varieties with Resistance to Alfalfa Snout Beetle

Viands, D.R., **E. J. Shields** and J. Hansen 4/09-3/10 3%  
NY Farm Viability Institute \$29,590  
Breeding Alfalfa Varieties with Resistance to Alfalfa Snout Beetle.

**Shields, E. J.** and A. Testa. 4/1/08-3/31/10 10%  
NY Farm Viability Institute \$ 75,000  
Biological Control of Alfalfa Snout Beetle: Spreading the Success.

**Shields, E. J.** 10/07-9/10 10%  
USDA-Hatch \$60,000  
Adapting EPA Mandatory Refuge Requirements for GM Corn to NY Corn Production  
while Reducing CRW Resistance Potential.

**Shields, E. J.** and A. Testa. 1/09-12/09 10%  
NNYADP\$39,260  
Biological Control of Alfalfa Snout Beetle.

**Shields, E. J.** and A. Testa. 1/08-12/08 10%  
NNYADP \$39,000

Biological Control of Alfalfa Snout Beetle: Developing a Farmer –Friendly Method.

**Shields, E. J.** 4/1/07 – 3/30/08 10%

NNYADP \$40,000

Biological control of alfalfa snout beetle.

Mortensen, D. A., W. S. Curran & **E. J. Shields** 9/1/04-8/31/07 10%

USDA – NRI \$458,490

A landscape approach to managing the spread of a herbicide resistant weed.

**Shields, E. J.** 10/1/04 – 9/30/07 5%

USDA-Hatch \$45,000

Development of management strategies for the insect pests of soybeans.

**Shields, E. J.** 4/1/06 – 3/30/07 10%

NNYADP\$19,000

Biological control of alfalfa snout beetle.

**Shields, E. J.** 9/1/04-12/30/06 10%

USDA – NRI\$54,000

Environmental cues triggering potato leafhopper long-distance flight

Aylor, D. & **E. J. Shields** 9/15/2001-9/14/2005 20%

USDA-Bio-risk \$460,000

Quantifying aerial dispersal of corn pollen.

**Shields, E. J.** 4/1/04 – 3/30/05 10%

NNYADP \$29,000

Biological control of alfalfa snout beetle.

**Shields, E. J.** 4/1/03 – 3/30/04 10%

NNYADP \$26,000

Biological control of alfalfa snout beetle.

### **1998-99**

**Shields, E. J.** Biological control of the alfalfa snout beetle with entomopathogenic nematodes. NYS North Country \$20,000.

Aylor, D. E. & W. E. Fry (**E. J. Shields** as Cooperator) *Phytophthora infestans* aerial dispersal risk to potato late blight IPM. NE-IPM \$149,628/3 years.

Industry Grants, \$22,500

(Dow, DuPont, Am Cyanamid, FMC, Zeneca Ag, Atochem, Bayer)

### **1997-98**

**Shields, E. J.** & D. R. Viands. Development of alfalfa germ plasm screening



techniques to identify low-level resistance to alfalfa snout beetle feeding.  
\$10,000/year.

**Shields, E. J.** Biological control of the alfalfa snout beetle with entomopathogenic nematodes. NYS North Country \$20,000

**Shields, E. J.** Classical biological of soil insects in field crops with persistent nematodes. NYS - IPM \$5,500/year 2.

**Shields, E. J.** Evaluating the potential of the entomopathogenic nematode *Heterorhabditis bacteriophora* 'Oswego' to persist in soils and soil mixes used in the nursery production of woody ornamentals. \$2500/1year NYS - IPM

Cox, W. J, & **E. J. Shields.** Demonstration of narrow row corn in NY. SARE \$70,346 2 years.

Bergstrom, G. C. & **E. J. Shields.** Inoculum sources in annual epidemics of *Fusarium* (*Gibberella*) in corn/wheat production systems. Hatch \$15,000

Industry Grants\$14,500 (Dow, DuPont,Am Cyanamid, FMC, Zeneca Ag, Atochem, Bayer)

#### 1996-97

**Shields, E. J.** Biological control of the alfalfa snout beetle with entomopathogenic nematodes. NYS North Country \$20,000

**Shields, E. J.** Classical biological of soil insects in field crops with persistent nematodes. NYS - IPM \$10,452/year 1

Misc. Grants of products from various manufactures within the Radio Control Industry totaling \$5500.

Cox, W. J., **E. J. Shields,** D. Cherney, R. R. Hahn & S. Klausner. Narrow row corn production in NY. NYS \$18,500/1year.

Industry Grants\$16,500 (Dow, DuPont,Am Cyanamid, FMC, Zeneca Ag, Atochem, Bayer)

#### 1995-96

**Shields, E. J.** Biological control of the alfalfa snout beetle with entomopathogenic nematodes. NYS North Country \$20,00

Davis, P. M. & **E. J. Shields.** Effect of herbicides and planting depth on corn tolerance to rootworm. NE PIAP \$22,000/year 2.

Industry Grants \$12,500 (Dow, DuPont,Am Cyanamid, FMC, Zeneca Ag, Atochem, Miles)

#### 1994-95

**Shields, E. J.** Biological control of the alfalfa snout beetle with entomopathogenic nematodes. Hatch & NYS North Country monies \$45,000/year. Viands, D. R.

& **E. J. Shields.** Screening alfalfa for resistance and tolerance to alfalfa snout beetle. NYS-North Country Development \$10,000/year 6.

**Shields, E. J. & K. L. Flanders.** Application technology and efficacy of entomopathogenic nematodes as biological agents of *Otiorynchus* weevils. USDA-APIS-PPQ \$35,350/2 years.

**Shields, E. J.** Environmental cues triggering long-ranged potato leafhopper migratory flight. NRI-Entomology \$32,010/1 year.

Davis, P. M. & **E. J. Shields**. Efficacy and persistence of an entomopathogenic nematode for managing rootworms. USDA NE-IPM \$75,000/2 years.  
Davis, P. M. & **E. J. Shields**. Effect of herbicides and planting depth on corn tolerance to rootworm. NE PIAP \$44,093/2 years.  
Industry Grants\$13,500 (Dow, DuPont,Am Cyanamid, FMC, Zeneca Ag, Atochem,

Miles)

#### 1993-94

Cox, W. J., **E. J. Shields** & G. C. Bergstrom. Best rotation and tillage systems for pest management in corn grain production. NYS-IPM \$8500/ 1 year.  
Viands, D. R. & **E. J. Shields**. Screening alfalfa for resistance and tolerance to alfalfa snout beetle. NYS-North Country Development \$10,000/ year 5.  
**Shields, E. J.** Biological control of alfalfa snout beetle with entomopathogenic nematodes. Hatch & NYS North Country monies \$45,000/year.  
**Shields, E. J.** & J. Baird. Effectiveness of borate for carpenter ant control: A laboratory study. ESEERCO \$18,044/1 year.  
Industry Grants \$15,500 (Dow, DuPont,Am Cyanamid, FMC, Zeneca Ag, Atochem,

Miles)

#### 1992-93

**Shields, E. J.**, A. A. Hower & P. C. Schroeder. Biological control of root feeding weevils in alfalfa with entomopathogenic nematodes. USDA-NE-IPM \$82,558/2 years.  
Viands, D. R. & **E. J. Shields**. Screening alfalfa for resistance and tolerance to alfalfa snout beetle. NYS-North Country Development \$10,000/ year 4.  
**Shields, E. J.** Biological control of alfalfa snout beetle with entomopathogenic nematodes. Hatch & NYS North Country monies \$45,000/year.  
Cox, W. J., **E. J. Shields** & G. C. Bergstrom. Best rotation and tillage systems for pest management in corn grain production. NYS-IPM \$8500/ 1 year.  
Industry Grants\$17,500 (Dow, DuPont, Am Cyanamid, FMC, ICI Americas, Penwalt,

Mobay)

#### 1991-92

**Shields, E. J.** & J. G. Scott. Strategies for improved carpenter ant control in wooden utility poles. ESERRCO \$421,839 / 5 years.  
Cox, W. J., G. C. Bergstrom, S. K. Klausner, **E. J. Shields** & H. M. van Es. Development of sustainable cropping systems for New York cash crop producers. USDA-LISA \$65,608/ 2 years.  
Viands, D. R. & **E. J. Shields**. Screening alfalfa for resistance and tolerance to alfalfa snout beetle. NYS-North Country Development \$10,000/ year 3.  
**Shields, E. J.** Biological control of alfalfa snout beetle with entomopathogenic nematodes. Hatch & NYS North Country monies \$45,000/year.  
Cox, W. J., **E. J. Shields** & G. C. Bergstrom. Best rotation and tillage systems for pest management in corn grain production. NYS-IPM \$6500/ 1 year.  
Industry Grants\$14,500 (Dow, DuPont, Am Cyanamid, FMC, ICI Americas, Penwalt,

Mobay)

### **1990-91**

Viands, D. R. & **E. J. Shields**. Screening alfalfa for resistance and tolerance to alfalfa snout beetle. NYS-North Country Development \$10,000/ year 2.

**Shields, E. J.** Developing IPM strategies for the alfalfa snout beetle. 3 years. NYS-IPM & NYS North Country monies \$49,000/year. (year 3)

**Shields, E. J.** Influence of manure and interseedings on corn rootworm larval feeding injury. NYS-IPM \$4800/1 year.

Cox, W. J., **E. J. Shields** & G. C. Bergstrom. Best rotation and tillage systems for pest management in corn grain production. NYS-IPM \$4500/ 1 year.

Industry Grants \$16,600

(Dow, DuPont, Am Cyanamid, FMC, ICI Americas, Penwalt, Mobay)

### **1989-90**

**Shields, E. J.** Developing IPM Strategies for the Alfalfa Snout Beetle. 3 years.

NYS-IPM & NYS North Country monies \$30,000/year. (year 2).

Viands, D. R. & **E. J. Shields**. Screening Alfalfa for Resistance and Tolerance to Alfalfa Snout Beetle. NYS-North Country Development \$10,000/ year 1.

**Shields, E. J.** Development and Refinement of Corn Rootworm Management, Action Thresholds and Insecticide Use Recommendations for Corn in NYS.

NYS-IPM \$15,000/ 12 months.

Industry Grants \$15,700 (Dow, DuPont, Am Cyanamid, FMC, ICI Americas, Penwalt, Mobay)

### **1988-89**

**Shields, E. J.** Developing IPM strategies for the alfalfa snout beetle. 3 years.

NYS-IPM & NYS North Country monies \$30,000/year. (year 1).

**Shields, E. J.** and E. J. Bechinski. Predicting potato leafhopper migration: Starting point for alfalfa/potato IPM programs. USDA-NE Regional IPM 154 &155, \$20,000/year, year 3 of 3 years.

**Shields, E. J.** Optimized timing for potato leafhopper sampling in New York alfalfa. NYS-IPM \$6844.

**Shields, E. J.** Development of sampling protocols for potato leafhopper in seedling alfalfa overseeded with oats as a nurse crop. NYS-IPM \$3200.

**Shields, E. J.** Special IPM Award for use on any IPM project - \$2000.

Industry Grants \$26,000

(Dow, DuPont, Am Cyanamid, FMC, ICI Americas, Penwalt, Agway, Chipman)

### **1987-88**

**Shields, E. J.** and E. J. Bechinski. Predicting potato leafhopper migration: Starting point for alfalfa/potato IPM programs. USDA-NE Regional IPM 154 &155, \$20,000/year, year 2 of 3 years.

**Shields, E. J.** and D. R. Specker. Comparison and verification of corn rootworm adult fixed site and sequential sampling plans for use in DFC-IPM implementation programs. NYS-IPM \$5200/ 1 year.

**Shields, E. J.** and D. R. Specker. Development of sampling protocols for potato leafhopper in seedling alfalfa overseeded with oats as a nurse crop. NYS-IPM \$3200/ 1 year.

**Shields, E. J.** Special IPM Award for use on any IPM project - \$1500.  
 Bechinski, E. J. and **E. J. Shields.** Developing IPM strategies for the alfalfa snout beetle. 1 year. NYS-IPM & NYS North Country monies \$25,000/year.  
 Bechinski, E. J., G. C. Bergstrom and **E. J. Shields.** Bioeconomics and management of interactions between the potato leafhopper and *Leptosphaerulina* leaf spot on alfalfa. USDA NE - 155. \$20,000 / year, year 2 of 3 years.  
 Industry Grants \$25,750  
 (Dow, DuPont, Am Cyanamid, FMC, Mobay, ICI Americas, Penwalt, Agway)

**1986-87**

**Shields, E. J.** and E. J. Bechinski. Predicting potato leafhopper migration: The starting point for alfalfa IPM strategies. USDA NE - 155 \$14,000/year.  
**Shields, E. J.** Comparison and verification of corn rootworm adult fixed site and sequential sampling plans for use in DFC-IPM implementation programs. NYS-IPM \$5100/ 1 year.  
**Shields, E. J.** Evaluation of various potato leafhopper sampling plans for use in New York DFC-IPM implementation programs. NYS-IPM \$5775/ 1 year.  
 Bechinski, E. J., G. C. Bergstrom and **E. J. Shields.** Bioeconomics and management of interactions between the potato leafhopper and *Leptosphaerulina* leaf spot on alfalfa. USDA NE - 155. \$15,000 / year 1.  
 Bechinski, E. J. and **E. J. Shields.** Optimizing the use of carbofuran for alfalfa snout beetle control. NY-PIAP. \$1500/ 1 year.  
 Industry Grants \$8,550  
 (Dow, DuPont, Am Cyanamid, Chipman, Stauffer, ICI Americas)

**Postdoctoral Associates (list names and dates)**

Dr. Sandy Allen	1988-90
Dr. Pete Schroeder	1990-94
Dr. Joel Baird	1994-96
Dr. Kathy Flanders	1994-95
Dr. Melissa Keller	2012-13
Dr. Erik Smith	2016

• **Other Current Research Professionals Supervised (list names)**

Antonio Testa  
 John Cianchetti  
 Lindsey Pashow  
 Jeffery Teague

**TEACHING AND ADVISING RESPONSIBILITIES (current year)**

• **Administrative Leadership (positions related to teaching/education/advising)**

Director of Graduate Studies – Entomology                      Fall 1999-July 2005

Faculty Advisor – Cornell Engineering Unmanned Autonomous Vehicle Team. 2003 & 2004. 1<sup>st</sup> Place in the 2003 National Competition.

## **EXTENSION/OUTREACH RESPONSIBILITIES**

### **Formal Extension Appointment:**

9/2005-present 50% Extension/50% Research

9/1986 – 9/2005 70% Extension/30% Research

Funding: Core

% time on Extension: 50% of my time is currently spent either conducting applied research for my extension audience or presenting education material to the agri-business of NYS.

- **Past Grants/Contracts/Gifts**

**Shields, E. J.** 5/1/07-12/1/07  
Industry Grants \$6,000  
Evaluation and demonstration of new corn rootworm technologies

**Shields, E. J.** 5/1/06-12/1/06  
Industry Grants \$8,000  
Evaluation and demonstration of new corn rootworm technologies

**Shields, E. J.** 5/1/05-12/1/05  
Industry Grants \$12,000  
Evaluation and demonstration of new corn rootworm technologies.

**Shields, E. J.** 1/1/04-12/1/04  
Industry Grants \$15,000  
Evaluation and demonstration of new corn rootworm technologies.

**Shields, E. J.** 1/1/03-12/1/03  
Industry Grants \$7,000  
Evaluation and demonstration of new corn rootworm technologies.

- **Pending Grants/Contracts/Gifts (format according to provided sample)**

None

### **Current Program Work Team(s)/Program Councils, Administrative Leadership (positions related to Extension, i.e., DEL, program leader, etc.)**

Integrated Field Crop, Soil & Pest Management Program Work Team – team member  
New York Agri-Business Association – Pesticide Container Recycling Subcommittee

- **Extension Workshops and Conferences (development, participation—list date and duration, title, constituency [i.e., stakeholder group, etc.] and size of audience, i.e., number of attendees and your role, i.e., principle organizer, co-chair, speaker, etc.)**

## **2021**

- 1/6/2021      **Shields, E. J.** Biocontrol of Corn Rootworms with Persistent EPNs in NY.(45 min). Recorded as a resource for CCE in NY.
- 2/18/2021    **Shields, E. J.** . Biological Control of Corn Rootworm (60 min). Hosts: Jourdan Bell and Pat Porter, Texas AgriLife Extension, Amarillo & Lubbock, Tx. Via Zoominar - 91 participants
- 4/6/2021      **Shields, E. J.** Optimizing Management of Corn Rootworm in NY using Crop Rotation, Strategies to Protect Bt-RW from Resistance and the Use of Biological Control. Hosted by Farm Credit - Via Zoominar

## **2020**

- 1/8/20            2020 Corn Congress, Batavia, NY. Biocontrol of Corn Rootworm. Audience = 322.
- 1/9/20            2020 Corn Congress, Waterloo, NY. Biocontrol of Corn Rootworm. Audience = 225.
- 2/11/20          2020 Corn Day, Cooperstown, NY. Looking at nematodes for long term control of corn rootworms. Audience = 107.
- 2/19/2020       2020 WNY Crop Management Annual Meeting, Batavia, NY. Long-term Biological Control of CRW. Audience = 145
- 9/2020            Virtual Conference with OMAFRA and Ontario Agribusiness Professionals on the Emerging Corn Rootworm Resistance to Bt-RW traits in corn.
- 11/2020          CCE Field Crops Agent Training, Ithaca, NY. Field Crops Entomology Update. Audience = 33 via Zoominar.
- 12/2020          Glenister, C. and **E. J. Shields.** . Getting the Most out of Beneficial Nematodes in Organic Vegetable Production. Susan Scheufele, Univ Mass host. Via Zoominar 136 participants.
- 12/8/2020       O'Reilly, C, J. Smith and **E. J. Shields.** (available for viewing 1/6-3/1/2021. Bt-Resistant Rootworms in Ontario (and recommendations for management). 90 mins. Q&A session on 1/19/2021, 1.5 hrs, 162 participants.

## **2019**

- 1/4/2019          Oneida Co. Crop Congress, Clinton, NY. Biological Control of Corn Rootworm using Persistent Nematodes. Audience = 58
- 1/22/19           New Mexico Crop Production Association, Mescalero, NM. Biological Control of White Fringed Beetle with Nematodes & Western Corn Rootworm. Audience = 84
- 1/24/19           Southwest hay and Forage Conference, Ruidoso, NM. Biological Control of White Fringed Beetle. Audience = 77

- 1/29/19 Tompkins Co. Crop Congress, Ithaca, NY. Field Crops Update: Preserving GE Technology and Biological Control of Corn Rootworm. Audience = 80
- 1/30/19 Miners/NNY Crop Congress, Chazy, NY. Benefits of Native Entomopathogenic Nematodes in NNY Alfalfa and Corn Production. Audience = 46
- 1/31/19 NNY Crop Congress, Watertown, NY. Benefits of Native Entomopathogenic Nematodes in NNY Alfalfa and Corn Production. Audience = 67
- 2/12/19 Herkimer Co Corn Day, Cooperstown, NY. Field Crops Update: Preserving GE Technology and Biological Control of Corn Rootworm. Audience = 113
- 4/3/19 DeBeer Crop Congress, Malone, NY. Field Crops Update: Benefits of Native Entomopathogenic Nematodes in NNY Alfalfa and Corn Production. Audience = 57
- 7/11/19 Cornell Aurora Field Day, Popular Ridge, NY. Biological Control of Corn Rootworm with Entomopathogenic Nematodes. Audience = 165
- 10/28/19 Forensic Club, Colorado Mesa University, Grand Junction, CO. Role of insects in determining Post Mortem Interval. Audience = 23
- 11/6/19 CCE Field Crops Agent Training, Ithaca, NY. Field Crops Entomology Update. Audience = 33
- 12/5/19 Field Crop Dealer Meeting, Syracuse, NY. Biological Control of Corn Rootworm with Biological Control Nematodes: A chance for your customers to try it. Audience = 113

**2018**

- 1/10/18 WNY Corn Congress, Batavia, NY. Management of NY Corn Insects without GMOs: A look forward . . . . . back to the past. Audience = 317.
- 1/11/18 WNY Corn Congress, Waterloo, NY. Management of NY Corn Insects without GMOs: A look forward . . . . . back to the past. Audience = 235.
- 2/12/18 Lowville Farmers Coop, Lowville, NY. Management of NY Corn Insects without GMOs: A look forward . . . . . back to the past. Audience = 47
- 3/29/18 Vermont Commercial Applicator Conference, Burlington, Vt. Field Crop Insect Update for 2018. Audience = 67
- 3/29/18 Vermont Commercial Applicator Conference, Burlington, Vt. Non-GMO corn production, Neonicotinoids, Seed Treatments and Pollinators. Audience = 67
- 7/12/18 Cornell Aurora Field Day, Popular Ridge, NY. Biological Control of Corn Rootworm with Entomopathogenic Nematodes. Audience = 165
- 9/27/18 Biocontrol Nematode Rearing and Application for the Organic Farming Community, Farm Hub, Hudson Valley, NY. Audience = 25
- 11/29/18 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 64
- 11/29/18 Field Crop Dealer Meetings, Syracuse, NY. Field Crop Insect Update: GE Free Corn, Biocontrol of Corn Rootworm Larvae and Soybean Gall Midge. Audience = 135

**2017**

- 1/4/17 Oneida Crop Congress, Clinton, NY. Corn rootworm update, biocontrol and RNAi technology, and update on WBC. Audience = 56.
- 1/11/17 WNY Corn Congress, Batavia, NY. Corn Rootworm: Today, Tomorrow and Forever. Audience = 317.
- 1/12/17 WNY Corn Congress, Waterloo, NY. Corn Rootworm: Today, Tomorrow and Forever. Audience = 203.
- 2/1/17 Miner's Crop Congress, Chazy, NY. Corn Rootworm: Today, Tomorrow and Forever and Biological Control of Alfalfa Snout Beetle. Audience = 53.
- 2/2/17 NNY Crop Congress, Canton, NY. Corn Rootworm: Today, Tomorrow and Forever. Audience = 55.
- 2/7/17 Lowville Farmers Coop Crop Congress, Lowville, NY. Corn Rootworm: Today, Tomorrow and Forever and Biological Control of Alfalfa Snout Beetle. Audience = 39
- 2/14/17 Herkimer Co Corn Day, Cooperstown, NY. The failing of our BT corn events against corn rootworm and Western bean cutworm. Audience = 87
- 2/16/17 Broom Co Crop Congress, Binghamton, NY. The failing of our BT corn events against corn rootworm and Western bean cutworm. Audience = 47
- 2/21/17 Chemung Co Crop Congress, Horseheads, NY. The failing of our BT corn events against corn rootworm and Western bean cutworm. Audience = 29
- 3/8/17 Seedway Crop Congress, Port Byron, NY. Corn Rootworm: Today, Tomorrow and Forever and Biological Control of Alfalfa Snout Beetle. Audience = 72
- 6/13/17 NOFA, Appleton, NY. Biological Control of Plum Curculio with native Entomopathogenic Nematodes. Audience = 23.
- 6/15/17 NOFA, Hudson Valley, NY. Biological Control of Plum Curculio with native Entomopathogenic Nematodes. Audience = 12.
- 7/13/17 Cornell Aurora Field Day, Popular Ridge, NY. Biological Control of Corn Rootworm with Entomopathogenic Nematodes. Audience = 142,
- 8/1/17 Cornell Hemp Field Day, Ithaca, NY. Insects of Hemp. Audience = 47.
- 9/29/17 North American Alfalfa Improvement Conference, Ithaca, NY. Biological Control of Alfalfa Snout Beetle with native Entomopathogenic nematodes. Audience = 77.
- 11/15/17 CCE Agriculture In-Service Training, Ithaca, NY. Field Crop Insect Update. Audience = 24
- 11/28/17 Certified Crop Advisor Training, Syracuse, NY. Management of NY Corn Insects without GMOs and Neonics: A look forward . . . . . back to the past. Audience = 147.
- 11/30/17 Certified Crop Advisor Training, Syracuse, NY. Non-GMO panel discussion. Audience 163.
- 11/30/17 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 64.



## 2016

- 1/13/16 WNY Corn, Batavia, NY. Droning on about drones: Update on applications and regulations. Audience = 350.
- 1/14/16 WNY Corn, Waterloo, NY. Droning on about drones: Update on applications and regulations. Audience = 280.
- 2/18/16 Kingston Berry School, Kingston, NY. Biological control of the root weevil complex attacking berries. Audience = 63
- 3/31/16 DeBeer Spray Service Crop Meeting, Malone, NY. Updates on corn rootworm, western bean cutworm and alfalfa snout beetle biological control. Audience = 46
- 11/2/16 CCE Inservice Agent training, Ithaca, NY. Field Crop Insect Update. Audience = 23.
- 11/9/16 Field Crop Dealer Meeting, Syracuse, NY. Corn rootworm resistance to BT events. Audience = 97.
- 11/29/16 CCA Advance Topic, Syracuse, NY: Corn Rootworm: Today, Tomorrow and Forever. Audience = 83.
- 12/1/16 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 43.
- 12/15/16 Cornell Seed Conference, Geneva, NY. Western Bean Cutworm: The western invader taking advantage of killing off all the European corn borer with GMO. Audience = 37.

## 2015

- 1/9/15 Allegany Co. Corn Congress, Belmont, NY. Bt-corn rootworm failure in NY and PA: A canary in the coal mine? Audience = 79
- 1/22/15 2015 Empire State Producers Expo, Syracuse, NY. Berry Section: Strawberry root insect research. Audience = 68
- 1/23/15 South Central NY Winter Crop Meetings, Ithaca, NY. The rub with neonicotinoid pesticides. Audience = 123
- 1/30/15 NNYADP-West Annual Meeting, Watertown, NY. Biological Control of soil insects with entomopathogenic nematodes: Moving the ASB success to other cropping systems. Audience = 47
- 2/4/15 2015 Soybean/Small Grains Congress, Batavia, NY. Neonics implicated in bee decline and in ground water: A storm cloud on the horizon? Audience = 220
- 2/5/15 2015 Soybean/Small Grains Congress, Waterloo, NY. Neonics implicated in bee decline and in ground water: A storm cloud on the horizon? Audience = 140
- 2/12/15 2015 Central NY Crop Congress, Little Falls, NY. Neonics implicated in bee decline and in ground water: A storm cloud on the horizon? Audience = 67
- 2/13/15 2015 Central NY Crop Congress, Sherburne, NY. Neonics implicated in bee decline and in ground water: A storm cloud on the horizon? Audience = 59
- 2/16/15 On Farm Implementation of ASB Biological Control. Malone, NY. Two Hour Discussion - 14 farmers.

- 2/17/15 NNY Regional Crop Meeting, Miner's Institute, Chazy, NY. Alfalfa talk, Corn Talk, Drones in Agriculture. Audience = 69
- 2/18/15 NNY Regional Crop Meeting, Miner's Institute, Chazy, NY. Alfalfa talk, Corn Talk, Drones in Agriculture. Audience = 77
- 2/27/15 NNYADP-East Annual Meeting, Watertown, NY. Biological Control of soil insects with entomopathogenic nematodes: Moving the ASB success to other cropping systems. Audience = 47
- 3/5/15 Syngenta Crop meetings, Batavia, NY. Updates: Western Bean Cutworm, BT resistance in CRW and the Neonic controversy. Audience = 165
- 3/17/15 Madison Co. Corn Congress, Cazenovia, NY. Neonics in groundwater, bee decline and CRW-BT resistance: The double whammy for corn production. Audience = 79
- 3/25/15 Delaware Co. Crop Congress, Delhi, NY. Neonics in groundwater, bee decline and CRW-BT resistance: The double whammy for corn production. Audience = 45.
- 5/15/15 NuAir tour for Commissioner Ball, Ag & Markets, Rome, NY. Future of drones in precision agriculture. Audience = 15.
- 5/19/15 Town and Gown Investment Club, Ithaca, NY. Drones, their application and investment potential. Audience = 43.
- 6/10/15 NOFA – Organic Apple Production Field Day, Geneva, NY. Biocontrol nematodes to control Plum Curculio. Audience = 85.
- 6/17/15 Seedway Field Day, Lowville, NY. On-Farm rearing of ASB Biocontrol nematodes. Audience = 45.
- 9/23/15 NuAir 2<sup>nd</sup> Annual Trade Conference, Verona, NY. Future of drones in precision agriculture. Audience = 223.
- 11/5/15 CCE agent training, Campus: Field crops research and extension updates. Audience = 19
- 12/3/15 CCA Advanced Topic, Syracuse, NY: Potential of drones and remote sensing in precision agriculture. Audience = 57.
- 12/3/15 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 39

## **2014**

- 1/15/14 Western NY Corn Congress, Batavia, NY. Emerging BT Resistance in Corn Rootworm in NY: Managing the resistance. Audience = 357
- 1/16/14 Western NY Corn Congress, Waterloo, NY. Emerging BT Resistance in Corn Rootworm in NY: Managing the resistance. Audience = 245
- 1/17/14 Winter Crop Meeting 2014, Ithaca, NY. The Corn Rootworm Pickle. Audience=105.
- 1/28/14 Seedway Field Crop Conference, Lowville, NY. 1) Managing Alfalfa Snout Beetle: Biological control and resistant varieties, 2) Corn Rootworm Challenges: Resistance to BT and resistance management strategies. Audience= 64.

- 1/31/14 Seedway Field Crop Conference, Tully, NY. Corn Rootworm Challenges: Resistance to BT and resistance management strategies. Audience= 47
- 1/31/14 NNYADP WNNY Conference, Watertown, NY. Biological Control of Alfalfa Snout Beetle: Progress in 2013. Audience = 53
- 2/11/14 Otsego Co. Crop Congress, Cooperstown, NY. Emerging BT Resistance in Corn Rootworm in NY: Managing the resistance. Audience = 177
- 2/28/14 NNYADP ENNY Conference, Chazy, NY. Biological Control of Alfalfa Snout Beetle: Progress in 2013. Audience = 37
- 3/4/14 Strawberry Producers Meeting. Plattsburgh, NY. Biological Control of Black Vine/Strawberry Root Weevils with Native Persistent Entomopathogenic Nematodes. Audience = 13
- 3/5/14 Strawberry Producers Meeting. Gouverneur, NY. Biological Control of Black Vine/Strawberry Root Weevils with Native Persistent Entomopathogenic Nematodes. Audience = 7
- 3/12/14 Cayuga Co Crop Congress, Auburn, NY. Corn Rootworm Challenges: Resistance to BT and resistance management strategies. Audience = 57
- 3/31/14 Oswego Co. Crop Congress, Mexico, NY. Corn Rootworm Challenges: Resistance to BT and resistance management strategies. Audience = 83
- 11/12/14 Agri-business Dealer Conference, Syracuse NY. Neonic in groundwater, bee decline and CRW-BT resistance: The double whammy for corn production. Audience = 87
- 11/20/14 CCE agent training, Campus: Field crops research and extension updates. Audience = 19
- 11/24/14 NY Farm Viability Institute Annual Meeting, Albany, NY. Biological Control: An innovative solution that saved upstate NY's alfalfa fields. Audience = 137
- 12/4/14 Certified Crop Advisor Training, Syracuse, NY. Advanced topic: BT-CRW resistance, Neonics implicated in bee decline and in ground water: A storm cloud on the horizon. Audience = 35
- 12/4/14 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 28

### **2013**

- 2/26/2013 NNYADP WNNY Conference, Watertown, NY. Biological Control of Alfalfa Snout Beetle: Progress in 2012. Audience = 58
- 3/8/2013 NNYADP ENNY Conference, Miner Institute, Chazy, NY. Biological Control of Alfalfa Snout Beetle: Progress in 2012. Audience = 46
- 3/13/2013 Southern Jefferson Co Field Crop Producer Meeting: 1) Managing Alfalfa Snout Beetle in Alfalfa with Biocontrol Nematodes. 2) Managing Potato Leafhopper in Alfalfa with Various Management Tools. Audience = 25
- 10/22/13 Alfalfa Snout Beetle: Larval feeding symptoms in the field. Adams, NY. Audience = 30.
- 11/19/13 CCE Inservice, Ithaca, NY, BT Resistance in Corn Rootworm in NY: Managing the resistance and limiting the spread. Audience = 26.

- 12/4/13 Certified Crop Advisor Training, Syracuse, NY. Advanced topic: Entomopathogenic Nematodes: Viable biological control for a wide array of soil insects. Audience = 86
- 12/5/13 Certified Crop Advisor Training, Syracuse, NY. Basic Entomology Module. Audience = 39
- 12/05/13 NY Seed Trade Association Conference, Geneva, NY. Managing Alfalfa Snout Beetle in Alfalfa: Utilizing native biocontrol nematodes to enhance moderate alfalfa resistance. Audience = 48.
- 12/11/13 Agri-business Dealer Conference, Syracuse NY. 2013 BT-Corn Rootworm Failure in NY: Is it a harbinger of things to come? Audience = 67

## **2012**

- 1/18/12 WNY Corn Congress, Batavia, NY, BT Resistance in Corn Rootworm: Is it real, how did it happen and is it a NY issue? Audience = 393.
- 1/18/12 Vermont Pesticide Conference (via Skype from Batavia, NY). BT resistant rootworms, western bean cutworm and alfalfa snout beetle: Update for 2012. Audience = 37.
- 1/19/12 WNY Corn Congress, Waterloo, NY, BT Resistance in Corn Rootworm: Is it real, how did it happen and is it a NY issue? Audience = 239.
- 1/27/12 Tompkins Co. Precision Agriculture Congress. Field Crop Insect Management for 2012. Audience = 343.
- 2/21/12 Stuben Co. Field Crop Conference, Bath NY. Field Crop Insect Management for 2012. Audience = 131
- 2/29/12 WNY Crop Management Association Annual Meeting. Western corn rootworm resistance to GMO and alfalfa snout beetle biological control. Audience = 196
- 3/16/12 Cayuga Co. Grain Meetings, Auburn, NY. BT Resistance in Corn Rootworm: Is it real, how did it happen and is it a NY issue? Audience = 57
- 7/12/12 Alfalfa improvement conference tour stop. Alfalfa Snout Beetle and Clover Root Curculio: Screening techniques for selecting alfalfa for resistance. Audience = 79.
- 11/13/12 CCE agent update. Field Crops Entomology Update. Audience = 19.
- 11/29/12 Basic CCA training session: Insects and their management. Audience = 53.

## **2011**

- 1/21/11 WNY Northern NY Agricultural Develop Program Steering Committee, NNYADP, NY, Biological Control of Alfalfa Snout Beetle, Audience=35
- 2/4/11 ENY Northern NY Agricultural Development Program Steering Committee, NNYADP, Plattsburgh, NY, Biological Control of Alfalfa Snout Beetle, Audience = 30
- 2/8/11 Herkimer Co. Corn Day, Herkimer CCE, Cooperstown, NY. How to utilize resistand/stacked hybrids effectively for insect control. Audience = 161.

- 2/16/11 Delaware Co. Crop School, Delaware CCE, Hamden, NY. How to utilize resistand/stacked hybrids effectively for insect control. Audience = 35.
- 3/3/11 Stuben Co. Field Crop Conference, Horseheads, NY. Field Crop Insect Management: Taking a new look for 2011. Audience = 76.
- 7/22/11 Cornell Aurora Field Day, Tour Stop: Management of Soybean Aphid. Audience = 55
- 11/30/11 CCA Training, NE CCA, Waterloo, NY, Field Crop Insect Management in the NE: What is on tap for 2012. Audience = 97.
- 12/1/11 CCA Training, NE CCA, Waterloo, NY, Insect Management - Basic Training Module. Audience = 33.

## **2010**

- 1/25/10 WNY Northern NY Agricultural Develop Program Steering Committee, NNYADP, NY, Biological Control of Alfalfa Snout Beetle, Audience= 25
- 2/3/10 ENY Northern NY Agricultural Development Program Steering Committee, NNYADP, Plattsburgh, NY, Biological Control of Alfalfa Snout Beetle, Audience = 30
- 3/18/10 Cayuga Co. Corn Congress, Cayuga CCE, Auburn, NY, Management of Corn and Alfalfa insects in 2010. Audience = 100
- 7/22/10 Aurora Field Day, Cornell University CALS, Aurora, GM Corn Extension Field Trial. Audience = 45
- 7/26/10 Northeastern Student Weed Competition, NE Weed Society, Freeville, NY, Weed Control Problem – Horseweed. Audience = 50
- 10/19/10 Field Crop Dealer Meetings, Cornell University CALS, Across the state in 4 locations, Managing GMO Resistance to Western Corn Rootworm. Audience = 276
- 11/17/10 CCE Field Crops Inservice, Cornell CCE, Ithaca, Managing GMO Resistance to Western Corn Rootworm. Audience = 15.
- 12/1/10 CCA Training, NE CCA, Waterloo, NY, Managing GMO Resistance to Western Corn Rootworm. Audience = 85.
- 12/2/10 CCA Training, NE CCA, Waterloo, NY, Insect Management - Basic Training Module. Audience = 35.

## **2009**

- 1/22/09 South Central NY Winter Crop Meeting. Management of Field Crop Insects with the Latest Technology: Is GMO, Chemical or Host Plant Resistance the best option? Audience = 155
- 1/23/09 Delaware Co. Field Crop Variety Selection Meeting. Management of Field Crop Insects with the Latest Technology: Is GMO, Chemical or Host Plant Resistance the best option? Audience = 21
- 1/30/09 Western Northern New York Agricultural Development Program Steering Committee. Research/Extension update on the Biological Control of Alfalfa Snout Beetle and the Development of a Snout Beetle Resistant Alfalfa Variety. Audience = 53
- 2/11/09 Madison Co. Crop Congress. IPM techniques for corn and soybeans.

- Audience = 28
- 2/20/09 Eastern Northern New York Agricultural Development Program Steering Committee. Research/Extension update on the Biological Control of Alfalfa Snout Beetle and the Development of a Snout Beetle Resistant Alfalfa Variety. Audience = 47
- 3/3-5/09 North Country Crop Meeting Tour. Stops at Miner's Institute, St Lawrence Co. and Jefferson Co. Audience at 3 locations = 255
- 3/16/09 17th meeting of the committee on Science, Technology and Law, Nation Academy of Science, Washington DC, Industry Policies governing Research on Genetically Engineered Seeds
- 11/11/09 CCE Field Crops Inservice, Cornell CCE, Ithaca, Field Crop Entomology Insect Management in Field Crops. Audience = 15
- 12/19/09 Certified Crop Advisor Annual Training Session, NE CCA, Waterloo, NY, Insect management - Basic Training Module. Audience = 35

## **2008**

- 2/19/08 Western Northern New York Agricultural Development Program Steering Committee. Research/Extension update on the Biological Control of Alfalfa Snout Beetle and the Development of a Snout Beetle Resistant Alfalfa Variety. Audience = 42
- 2/20/08 Seneca Co. Corn Congress: Management of insect pests of Corn and Alfalfa. Audience = 37
- 3/6/08 Chemung Co. Corn Congress: Management of insect pests of Corn and Alfalfa. Audience = 56
- 3/11/08 Eastern Northern New York Agricultural Development Program Steering Committee. Research/Extension update on the Biological Control of Alfalfa Snout Beetle and the Development of a Snout Beetle Resistant Alfalfa Variety. Audience = 36
- 3/12/08 St Lawrence Co.: Biological control of alfalfa snout beetle and management of corn pests. Audience = 48
- 3/13/08 Jefferson Co.: Biological control of alfalfa snout beetle and management of corn pests. Audience = 57
- 3/20/08 Field Crops Program Work Team: Audience = 22
- 3/25/08 Albany Co. Pesticide Applicator Training. Audience = 78
- 10/28-31/09 Agribusiness Dealer tour, Clifton Park, NY, New Hartford, NY, Batavia, NY, Auburn, NY, One talk/ location, Audience = 240
- 11/13/08 Extension Agent In service Training. Audience = 27
- 12/9/08 Certified Crop Advisor Advance Topic. Things that float in the air and why we should care. Audience = 55
- 12/11/08 Certified Crop Advisor Basic Training. Insect identification and management. Audience = 35

## **2007**

- 1/16/07 Pennsylvania Agronomic Education Conference, Invited Speaker, Audience=375.
- 1/17/07 WNY Corn Congress, Batavia, NY, Audience = 328

1/18/07 WNY Corn Congress, Waterloo, NY, Audience = 155  
 1/24/07 Madison Co Corn Congress. Audience = 75  
 2/13/07 Herkimer Co. Corn Congress: Audience = 66  
 2/27/07 Stuben Co. Corn Congress: Audience = 85  
 3/13/07 Cayuga Co. Corn Congress: Audience = 55  
 3/22/07 Albany Co. Pesticide Applicator Training: Audience = 76  
 11/15/07 Extension Agent In service Training, Audience = 27  
 12/4/07 Certified Crop Advisor Advance Topic. Audience = 110  
 12/06/07 Certified Crop Advisor Basic Training. Audience = 35

**2006**

3/28/06 Franklin Co. Growers Meeting, Audience = 23.  
 3/29/06 Lewis Co. Growers Meeting, Audience = 68.  
 7/20/06 Aurora Field Day Tour Stop, Soybean aphid in NY. Audience = 60.  
 10/24-27/06 Agribusiness Dealer tour, Clifton Park, NY, New Hartford, NY,  
 Batavia, NY, Auburn, NY, Two talks/ location, Audience = 655  
 11/10/06 Extension Agent In service Training, Audience = 27  
 11/30/06 Cornell Seed Conference. Audience = 55  
 12/5/06 Certified Crop Consultant Advanced Training, Audience = 65  
 12/7/06 Certified Crop Consultant Basic Training, Field crop insects:  
 Audience = 15

11/1/05-4/30/06 On Sabbatic leave – no extension presentations

**2005**

1/19-20/05 Western NY Corn Congress – Batavia & Waterloo – Audience = 450  
 2/08/05 Otsego Co. Corn Congress – Cooperstown – Audience = 33  
 2/18/05 NNY Video Conference  
 3/3-4/05 WNY Forage Conference - Audience = 85  
 3/15/05 Stuben-Chemung Co. Corn Congress – Audience = 70  
 3/24/05 Albany Co. Pesticide Applicator Training – Audience = 50

**2004**

1/21/04 Vermont Certified Pesticide Applicators Training – Audience = 56 1/23/04  
 Field Crop Producer Meeting – Tompkins Co. - Audience = 127  
 2/5/04 NNY Research Update – Plattsburg NY - Audience = 35  
 2/10/04 Field Crop Producer Meeting – Onondaga Co. – Audience = 57  
 2/13/04 NNY Research Update – Plattsburg NY - Audience = 42  
 2/24/04 Field Crop Producer Meeting – Steuben Co. - Audience = 62  
 3/3/04 Field Crop Producer Meeting – Oneida Co. - Audience = 68  
 3/4/04 Field Crop Producer Meeting – Miner’s Institute – Clinton Co.  
 Audience = 77  
 3/9/04 Field Crop Producer Meeting – Carovale – Utica – Audience = 35  
 3/18/04 Field Crop Producer Meeting – St Lawrence Co. - Audience = 48  
 3/19/04 Field Crop Producer Meeting – Jefferson Co. - Audience = 67  
 11/04 Agent Training – Audience = 18

11/30-12/02/04 Certified Crop Consultant Training - Basic & Advanced sessions  
Audience = 93

### **2003**

10/21-24/03 Field Crop Dealer Meetings - 4 locations around NYS Audience = 208

11/18/03 Gustafson - Dallas, TX - Research-Extension roundtable discussion

12/2-4/03 Certified Crop Consultant Training - Basic & Advanced sessions  
Audience = 74

12/14-16/03 Monsanto – St. Louis, MO - Research-Extension roundtable discussion

The missing years: 2000, 2001, 2002

### **1998-99**

Agent Training:

Fall-Field Crop Agent Production Ag. School, 18 agents, Discussion Topic: Field crop insect update

Commodity Talks:

Bayer Field Tour - Impact of potato leafhopper on alfalfa stand - 12 participants.

Northern New York Agricultural Legislative Tour - Economic impact of alfalfa snout beetle. - 5 Legislative Associates.

Field Crops Dealer Tour: Insecticide-herbicide tank mixes for insect control in alfalfa and corn. 4 locations- 318 participants total.

CNY-CMA Annual Meeting - Transgenic field crops: Potential and pitfalls for NY agriculture. 3/8/99

### **1997-98**

Agent Training:

Fall-Field Crop Agent Production Ag. School, 18 agents, Discussion Topic: Field crop insect management: Where to in the next decade?

Aurora Field Day - Rootworm management in narrow row corn. 96 participants.

Commodity Talks:

Field Crops Dealer Tour: Potato leafhopper: What happened in 1997? 4 locations- 262 participants total.

Certified Crop Consultant Training -Forage School. Management of forage insects. 75 participants.

Certified Crop Consultant Training -General entomology for the National and State CCA Certification Test. 20 participants.

NYS Agri Business Assoc. Annual Meeting - Plant resistance to insects in field crops: What's coming down the pipe? 220 participants.

Vermont Extension Agribusiness Meetings - Management of forage and corn pests. 75 participants.

NYS Vegetable Conference - Potato Leafhopper: Where did they come from, how did they get here, will they come again? 100 participants

Cayuga Co. Corn Congress - Why potato leafhopper in 1997? Will 1998 be the same? 78 participants



Zeneca Ag Dealer Education Series - Management of rootworm and potato leafhopper in 1998. 2 locations - 125 total participants  
Miner Institute Field Crop Meetings - Management of field crop insects. 85 participants

### **1996-97**

Agent Training:

Fall-Field Crop Agent Production Ag. School, 18 agents. Review of 1996 in the world of field crop insects.

Aurora Field Day - Rootworm management. 105 participants.

Commodity Talks:

Field Crop Dealer Meetings - Managing corn rootworm into the next century; insect toxic corn: What is the future? 376 participants-3 locations.

Certified Crop Consultant Training -General entomology for the National and State CCA Certification Test. 85 participants.

WNY Corn Congress - 2 locations - Waterloo, Batavia. Insect toxic corn: What is its future? 250 participants.

Tompkins Co. Corn Congress - Insect toxic corn: What is its future? 75 participants.

Cayuga Corn Congress - Insect toxic corn: What is its future? 65 participants.

Oneida Corn Congress - 2 locations Management of rootworm. 55 participants.

### **1995-96**

Agent Training:

Fall-Field Crop Agent Production Ag. School, 21 agents Field crops insect update.

Commodity Talks:

Northern New York Agricultural Legislative Tour - Economic impact of alfalfa snout beetle on the dairy farmer - 10 Legislative Associates.

Field Crop Dealer Meetings - 4 locations - Management of early season corn pests. 281 participants.

Cayuga Corn Congress - Management of corn rootworm and other pests of field corn. 60 participants.

ENY Field Crop Management Sessions - Management of corn rootworm and other pests of field corn - 2 locations - 120 participants.

### **1994-95**

Agent Training:

Fall- Field Crop Agent Production Ag School, 21 agents, Talk Topic: Current research progress with biological control of alfalfa snout beetle and damage thresholds for black cutworm on field corn in the Northeastern U.S.

Aurora Field Day - Effects of rotation of corn rootworm damage - IPM Demonstration Plot. 100 participants.

Commodity Talks:

NYS Agri Business Assoc. Annual Meeting - Status of current research on corn rootworm, potato leafhopper and alfalfa snout beetle. 300 participants.

Certified Crop Consultant Training - Management of NY field crop insect pests. 450 participants.

Tompkins, Cortland, Tioga, Broome, Chemung Co. Corn Congress - Management of seed corn maggot and corn rootworm in NY. 250 participants.  
Stuben Co. Corn Congress - Detection of alfalfa snout beetle and management of corn rootworm. 80 participants.

### **1993-94**

Agent Training:

Fall- Field Crop Agent Production Ag School, 21 agents, Talk Topic: Update on field crop insect management.

Aurora Field Day - Efficacy of soil insecticides for management of corn rootworm. 100 participants.

Willsboro Farm Field Day - Alfalfa snout beetle research. 55 participants.

Commodity Talks:

Field Crop Dealer Meetings - Management of field crop insects (5 regional locations statewide). 192 participants between 5 locations. Talk Topics:

1) Alfalfa snout beetle: Is it in your area without your knowledge? 2) Corn rootworm management: Impact of silage/grain production, impact of manure on larval populations and efficacy of soil insecticides.

NYS Agricultural Inspector Training - Potential of biological control of alfalfa snout beetle with entomopathogenic nematodes. 35 agricultural inspectors.

St Lawrence Co. Twilight Meeting - What the discovery of alfalfa snout beetle in your area means to your alfalfa production. 35 Farmers and Agribusiness people.

Northern New York Agricultural Legislative Tour - Economic impact of alfalfa snout beetle on the dairy farmer - 15 Legislative Associates.

### **1992-93**

Agent Training:

Fall- Field Crop Agent Production Ag School, 21 agents, Talk Topic: Economic impacts of alfalfa snout beetle and corn rootworm.

Spring - Field Crop Agent In-Service training, 6 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

Commodity Talks:

Willsboro Farm Field Day - Alfalfa snout beetle research. 55 participants.

Tully Field Day - Efficacy of soil insecticides for management of corn rootworm. 35 participants.

Aurora Field Day - Efficacy of soil insecticides for management of corn rootworm. 100 participants.

Northern New York Agricultural Legislative Tour - Economic impact of alfalfa snout beetle on the dairy farmer - 25 Legislative Associates.

Vermont Pesticide Recertification Program - Biology and management of two insects - western corn rootworm and alfalfa snout beetle. 88 participants.

Tompkins, Cortland, Tioga, Broome, Chemung Co. Corn Congress - Management of corn rootworm in NY. 150 participants.

### **1991-92**

Agent Training:

Fall- Field Crop Agent Production Ag School, 21 agents, Talk Topic: Economic impact of alfalfa weevil and potato leafhopper on alfalfa.

Spring - Field Crop Agent In-Service training, 6 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

Commodity Talks:

Forage and Grassland Council - Alfalfa snout beetle: The undetected alfalfa pest of NY. 125 participants.

Tompkins, Cortland, Tioga, Broome, Chemung Co. Corn Congress - Economic impact of corn rootworm in NY. 175 participants.

Alfalfa Seed Company Representatives - Alfalfa snout beetle: A priority insect for an alfalfa breeding program. 15 participants.

Delaware-Osego Co. Economic impact of corn rootworm in NY. 85 participants.

Stuben Co. Management of corn rootworm, alfalfa weevil and potato leafhopper in NY. 75 participants.

Clinton Co and Miner Institute - Impact of alfalfa snout beetle on alfalfa production. 135 participants. Orange Co. Dairy Days Management of corn rootworm, alfalfa weevil and potato leafhopper in NY. 75 participants.

Area Insect ID Workshop Northern NY. 35 participants.

Tully Field Day - Efficacy of soil insecticides for management of corn rootworm. 35 participants.

Aurora Field Day - Efficacy of soil insecticides for management of corn rootworm. 100 participants.

IPM Field Day - Management strategies for corn rootworm in NY. 75 participants.

Northern New York Agricultural Legislative Tour - Economic impact of alfalfa snout beetle on the dairy farmer - 25 Legislative Associates.

Essex Co. - Impact of alfalfa snout beetle on area dairy farms. 35 participants.

IPM Conference - Integrated management of potato leafhopper. 95 participants.

Jefferson Co. Legislative Town Meeting. - Research Progress on the management of alfalfa snout beetle.

**1990-91**

Agent Training:

Fall- Field Crop Agent Production Ag School, 21 agents, Talk Topic: Sequential sampling for corn rootworm adults.

Spring - Field Crop Agent In-Service training, 2 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

Commodity Talks:

Western NY Corn Congress - Economic impact and management options for corn rootworm - 250 participants.

Central NY Corn Congress - Economic impact and management options for corn rootworm - 150 participants.

Cayuga Co. growers meeting, 60 farmers, Talk topic : Management of corn insects in NY.

Jefferson Co. - Impact and management of alfalfa snout beetle. 25 participants.  
Clinton, Essex Co and VT Agricultural Inspectors - Detection and identification of alfalfa snout beetle. 25 participants.  
Forage and Grassland Summer Tour - Identification and detection of alfalfa snout beetle. 100 participants.  
Aurora Field Day - Efficacy of soil insecticides for management of corn rootworm. 100 participants.  
Central NY Corn Twilight Meeting - Detecting a economic population of corn rootworm in your corn fields. 55 participants.  
Western NY Farm Research Tour - Efficacy of soil insecticides for management of corn rootworm. 200 participants.  
Field Crop Dealer Meetings - Management of field crop insects (5 regional locations statewide). 267 participants between 5 locations. Talk Topics:  
1) Corn rootworm management with soil insecticides: Efficacy and implications for groundwater contamination. 2) Alfalfa weevil and potato leafhopper management: Early harvest vs. insecticides as management options.

### **1989-90**

#### Agent Training:

Fall - Field Crop Agent Production Ag School, 21 agents, Talk Topic: Management of early season corn pests.

Spring - Field Crop Agent In-Service training, 6 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

#### Commodity Talks:

Field Crop Dealer Meetings - Management of field crop insects (5 regional locations statewide). 550 participants between 5 locations. Talk Topics:

1) Alfalfa insect management recommendations for 1990. 2) Current corn management recommendations.

Cayuga Co. growers meeting, 60 farmers, Talk topic : Management of corn insects in NY.

### **1988-89**

#### Agent Training:

Fall - Field Crop Agent Production Ag School, 19 agents, Talk Topic: Management of black cutworm and recent research advances in corn rootworm management.

Spring - Field Crop Agent In-Service training, 6 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

Summer - Field Crop Agent In-Service training, 6 new agents, Topic: Field Identification of common insect pests of field crops, sampling methods and management strategies.

#### Commodity Talks:

WNY Crop Management Association Summer Tour. 45 farmers. Talk Topic: Corn rootworm control options: Silage corn vs. grain corn.

1989 Dairy Futuramas. 150 farmers. Talk topics: 1) Current management strategies

for alfalfa insects. 2) Management of corn rootworm in NYS.

### **1987-88**

#### **Agent Training:**

New agent orientation, 22 new agents, Talk topic: Scope of extension field crops entomology program.

Spring - Field Crop Agent In-Service training, 6 new agents, Talk topic: Identification and management strategies for field crop insects in NY.

Summer - Field Crop Agent In-Service training, 6 new agents, Topic: Field Identification of common insect pests of field crops, sampling methods and management strategies.

Fall - Field Crop Agent Production Ag School, 18 agents, Talk Topics: 1) Current management strategies for alfalfa insects. 2) Management of corn rootworm in NYS.

#### **Commodity Talks:**

Field Crop Dealer Meetings - Management of field crop insects (5 regional locations statewide). 450 participants between 5 locations. Talk Topics: 1) Corn rootworm management on field corn. 2) Potato leafhopper management on alfalfa.

Agway Forage Production Seminar Series (4 regional locations statewide) 200 participants between 4 locations. Talk topic: Management of forage insect pests.

Cayuga Co. growers meeting, 50 farmers, Talk topic : Management of corn insects in NY.

Jefferson Co. growers meeting, 35 farmers, Talk topic: Alfalfa snout beetle/alfalfa insect management in Northern NY.

Pest Control Conference, 100 participants, Talk topic: Effectiveness of corn rootworm insecticides in NY.

IPM Workshop, 50 participants, Talk topic: Predictive modeling and management of potato leafhopper.

IPM Scout Training School. Talk topics: 1) Scouting procedures and management of field corn insects. 2) Scouting procedures and management of forage insects.

NYS Planning Committee for Survey and Management of Pests. 25 participants, Talk topic: Potato leafhopper migration models.

### **1986-87**

#### **Agent Training:**

New agent orientation, 20 new agents attending, Talk topic: Scope of extension field crops entomology program.

Spring - Field Crop Agent In-Service training, 1 new agent, Talk topic: Identification and management strategies for field crop insects in NY.

Summer - Field Crop Agent In-Service training, 1 new agent, Topic: Field identification of common insect pests of field crops, sampling methods and management strategies.

Fall - Field Crop Agent Production Ag School, 21 agents, Talk topic: Anticipated focus of the field crops extension/research program in NYS.

#### Commodity Talks:

Regional Alfalfa Snout Beetle information meeting, 55 participants (participants include Ag & Markets, Ag Canada, area County Agents and Farmers), Talk topic: Biology and current management strategies for alfalfa snout beetle.

NE Corn Improvement Conference, 50 participants, Talk topic: Corn rootworm: Fertile fields for host plant resistance.

Cortland Co. growers meeting, 15 participants, Talk topic: Management of soil insects in corn.

IPM Scout Training School. Talk topics: 1) Scouting procedures and management of field corn insects. 2) Scouting procedures and management of forage insects.

Steuben Co. growers meeting, 25 growers, In Field Meeting, Topic: Management of alfalfa and corn insects.

### GRADUATE FIELD MEMBERSHIPS

Entomology, Pest Management

### GRADUATE MAJORS

- **Current (names and expected date and field of degree including degree (for example, Ph.D, M.S., MPS, MAT, etc.)**

Brandon Everhart M.S. – 2021

- **Total Completed (names and dates)**

Roger Sher M. S. – 1989

Bonifacio Magalhaes Ph.D – 1990

Maria Pacheco M.P.S. - 1990

Paul Taylor M.S. – 1988 Ph.D – 1992

Luisa Santos Ph.D – 1996

Gabor Neumann M.S. – 2003 Ph.D - 2007

Amelia Sidumo M.S. – 2004

Elizabeth Goulet Ph.D – 2008

Erik Smith (committee member) Ph.D. – 2015

Tessa Lissord M.S. – 2016 (committee member)

Maxwell Helmberger M.S. – 2018 (committee member)

Anna Giesmann M.S. – 2019 (committee member)

### GRADUATE MINORS

- **Current (names and expected date and field of degree)**

None currently

- **Total Completed (names and dates)**

Paul Stachowski M.S. – 1990 Crop & Soil Science

Jeremy Singer M.S. – 1996 Crop & Soil Science

Sandra Maldonado	Ph.D – 2001	Plant Pathology
David Schmale	Ph.D – 2005	Plant Pathology

## **OTHER CURRENT PROFESSIONAL ACTIVITIES**

### **PROFESSIONAL SOCIETIES**

Entomological Society of America  
New York State Agribusiness Association

### **EDITORIAL BOARDS**

Reviewer – 6 manuscripts in 2004  
3 manuscripts in 2005  
2 manuscripts in 2006  
6 manuscripts in 2006  
6 manuscripts in 2008  
3 manuscripts in 2009  
4 manuscripts in 2010  
5 manuscripts in 2011  
3 manuscripts in 2012  
4 manuscripts in 2013  
5 manuscripts in 2014  
6 manuscripts in 2015  
4 manuscripts in 2016  
6 manuscripts in 2017  
6 manuscripts in 2018  
4 manuscripts in 2019

### **COMMITTEE ASSIGNMENTS**

- **International/National:**

Regional Research Projects:

NC-246 Management of Corn Rootworm. (Secretary 2007, Chair 2008)

NCR-148 Long-ranged movement of Biota in the lower atmosphere

Research Panels:

USDA-Plant Biosecurity Panel – 10/05

- **State/Local:**

- **Commodity and Other Stakeholder:**

NYSABA board of directors (New York Agri-Business Association 2004-10)

- **Cornell University**

University FACTA committee (Oct 2015- Sept 2017)

University FACTA reserve committee member (Oct 2018-19)  
University FACTA reserve committee member (Oct 2019-20)  
University FACTA reserve committee member (Oct 2020-21)  
University Senate (2018-2021)  
University Nominations & Elections Committee (2018-2021)

- **College**

IPM Field Crop Commodity Committee  
Field Crops Project Work Team  
CALs Consolidated Farms Committee (2000 – 2019)

**Department:**

Mentoring committee for Kyle Wickings (2014 – 2018)  
Promotion and Mentoring committee 7/10-6/13  
Entomology Executive committee 11/1999-7/2005  
Admissions committee – Entomology Graduate Field – chair 11/1999-7/2005

## **OTHER CURRENT PROFESSIONAL CONTRIBUTIONS**

### **CONFERENCES/WORKSHOPS/IN-SERVICE PARTICIPATION (please provide detail)**

**Shields, E. J.** 2021. Biological Control of Corn Rootworm: Update on research. USDA-NC-246 Regional Meeting. Virtual via Zoom.

**Shields, E. J.** 2020. Biological Control of Corn Rootworm: Update on research. USDA-NC-246 Regional Meeting. Madison, WI.

Everhart, B. V., A. J. Smith, M. A. Connor and **E. J. Shields.** 2019. The Development of Two Forensically Important Blow Flies Collected From Human Remains in Western Colorado. AAFS Annual Scientific Meeting, Baltimore, MD.

**Shields, E. J.** and A. M. Testa 2018. Biological Control of Corn Soil Insects: Single inoculation of native persistent entomopathogenic nematodes for multi-year suppression. Symposium paper. ESA Annual Meeting, Vancouver, B.C.

**Shields, E. J.,** A. M. Testa and B. T. Engbers. 2018. Multi-year control of Black Vine Weevil, *Otiiorhynchus sulcatus*, in Strawberries using a single application of native persistent entomopathogenic nematodes. Poster ESA Annual Meeting, Vancouver, B.C.

**Shields, E.J.** 2018. Persistent native EPNs: Multi-year control of wireworms and corn rootworm. NC-246 Annual Meeting. Williamsburg, Va.

**Shields, E. J.** & A. M. Testa. 2017. EPN Multi-Year Persistence across NY Crop



- Rotations: Changing the biocontrol paradigm? ESA Annual Meeting, Denver, Co.
- Shields, E. J. & A. M. Testa.** 2017. Persistent Native EPN Strains: An inoculative approach for multi-year soil insect control. Invited Symposium presentation. Soc Nematology, Williamsburg, Va.
- Shields, E.J.** 2017. Biological Control of Alfalfa Snout Beetle in Alfalfa. North American Alfalfa Improvement Conference. Ithaca, NY.
- Shields, E. J.** 2017. Persistent native EPNs and Management of Corn Rootworm. NC-246 Annual Meeting, Wichita, Ks.
- Shields, E. J.** 2015. Inoculative Releases of Entomopathogenic. ESA Annual Meeting Minneapolis, Mn.
- Shields, E. J.** 2015. Using Drones before Drones were Cool: Perspectives on monitoring and use of drone technology. ESA Annual Meeting, Minneapolis, Mn.
- Shields, E. J.** 2013. Nematodes and Multi-year Persistence across Crop Rotation. ESA Annual Meeting – Austin, Tx.
- Shields, E. J.** 2011. Student Sponsored Symposium “Tools of the Trade: Technology in Entomology. Title: Chasing that Aerial Biota: The challenge and how to succeed. ESA-Eastern Branch, Harrisburg, Pa
- Shields, E. J.** 2009. ESA Symposium: Blowing in the Wind: The merging of 5 hobbies and calling it science.
- Shields, E. J.** Aerobiology 2007: Invited Planetary Talk: Sampling the lower atmosphere for biota: The challenge, tools and successes.
- Shields, E. J.** 2007. Pollen-Mediated Gene Flow in the Environment: Research Workshop. USEPA.
- Flanders, K. L. & **E. J. Shields.** 1994. Is it winterkill or is it alfalfa snout beetle?. 34 th North America Alfalfa Improvement Conference & 28th Forage Insect Research Conference, Univ. Guelph, Guelph, Ontario, Canada.
- Shields, E. J.,** K. L. Flanders & J. M. Miller. 1994. Field evaluation of *Heterorhabditis bacteriophora* ‘Oswego’ for control of alfalfa snout beetle. Poster Session, ESA National Meetings, Dallas, TX.
- Flanders, K. L., J. M. Miller & **E. J. Shields.** 1994. Characterization of the entomopathogenic nematode *Heterorhabditis bacteriophora* ‘Oswego’ strain: Life cycle and production in *Galleria mellonella*. Poster Session, ESA National Meetings, Dallas, TX.
- Schroeder, P. C., C. S. Ferguson & **E. J. Shields.** 1992. Pathogenicity of entomopathogenic nematodes against alfalfa snout beetle larvae. ESA National Meetings, Baltimore, MD.
- Ferguson, C. S., P. C. Schroeder & **E. J. Shields.** 1992. Persistence and infectivity of entomopathogenic nematodes in alfalfa snout beetle infested fields. ESA National Meetings, Baltimore, MD.
- Schroeder, P.C. & **E. J. Shields.** 1991. Entomopathogenic nematodes and their prospective use in alfalfa snout beetle management in northern New York. ESA National Meetings, Reno, NV.
- Taylor, P. S. & **E. J. Shields.** 1990. Plant species important to overwintering of the potato leafhopper. Eastern Branch ESA Meetings, Baltimore, MD.

- Taylor, P. S., **E. J. Shields**, M. J. Tauber and C. A. Tauber. 1990. What potato leafhoppers do for winter vacation. ESA National Meeting, New Orleans, LA.
- Shields, E. J.** 1989. Computer models should be the focus of all Entomological research. Jugatae Seminar, Cornell University, Ithaca.
- Shields, E. J.** 1989. Sequential sampling for corn rootworm in the Northeast. 26th Northeast Regional Invitational Field Crops Insect Conference. Univ. Park, Pa.
- Specker, D. R. and **E. J. Shields**. 1988. Sampling for potato leafhopper *Empoasca fabae* (Homoptera:Cicadellidae) on alfalfa in New York: Relative efficiency of three sampling regimes and development of a sequential sampling plan. ESA NE Regional Meetings (Syracuse).
- Sher, R. B. and **E. J. Shields**. 1988. Larval dispersal behavior of variegated cutworm, *Peridroma saucia*. (Lepidoptera:Nocuidae). ESA NE Regional Meetings (Syracuse).
- Allan, S and **E. J. Shields**. 1988. Morphometric variation within three populations of the potato leafhopper, *Empoasca fabae* (Homoptera: Cicadellidae). ESA NE Regional Meetings (Syracuse).
- Taylor, P and **E. J. Shields**. 1988. Comparative development rates of common armyworm, *Pseudaletia unipuncta*, under constant and fluctuating temperatures (Lepidoptera: Noctuidae). ESA NE Regional Meetings (Syracuse).
- Shields, E. J.** 1988. Progress in predicting potato leafhopper spring migration. 25th Northeast Regional Invitational Field Crops Insect Conference, Quebec City, Quebec.
- Shields, E. J.** 1987. The challenge of university pesticide programs 1987-2007. Pesticide Research Center, Michigan State University, E. Lansing.
- Shields, E. J.** 1987. Potato leafhopper: A conceptual model to predict spring migration. 1987 ESA National Meetings (Boston).
- Shields, E. J.** 1983. Carrot IPM in Wisconsin. National Carrot Conference, Madison, Wisconsin.
- Shields, E. J.** and J. A. Wyman. 1983. Effect of plant growth stage defoliation on potato yields. ESA National Meetings, Detroit, Michigan.
- Shields, E. J.**, D. I. Rouse and J. A. Wyman. 1982. Variegated cutworm: leaf area consumption and economic loss in potatoes. ESA NC Branch Meetings, Sioux Falls, South Dakota.
- Shields, E. J.**, J. Hygnstrom and J. A. Wyman. 1981. Potato pest management in Wisconsin. ESA National Meeting, San Diego, California.

## **INVITED/DEPARTMENTAL SEMINARS**

- Shields, E. J.** 2018. Biological Control with Entomopathogenic Nematodes: Is a more sustainable classical approach feasible or are we stuck in a bio-pesticide paradigm? Cornell University, Department of Entomology.
- Shields, E. J.** 2018. Biological Control with Entomopathogenic Nematodes: Is a more sustainable classical approach feasible or are we stuck in a bio-pesticide paradigm? University of Vermont, Department of Plant and Soil Science.
- Shields, E. J.** 2016. Drones and Aerobiology: Uses in research to change the

- conversation. University of Missouri.
- Shields, E. J.** 2011. Alfalfa Snout Beetle: Is management an oxymoron? Cornell University, Department of Entomology.
- Shields, E. J.** 2009 Sampling the lower atmosphere for biota: The challenges and the successes. Virginia Tech, Department of Entomology
- Shields, E. J.** 2009 Research restrictions imposed on public scientists by companies with GM products. National ESCOP Annual Meeting.
- Shields, E. J.** 2009 National Academy of Science Committee on Science, Technology and Law. Research restrictions imposed on public scientists by companies with GM products.
- Shields, E. J.** 2007 The development and use of large Radio Controlled Airplanes to study the long ranged movement of aerial biota (insects, plant pathogens, pollens and weed seeds). Cornell University, Department of Entomology.
- Shields, E. J.** 2007 The development and use of large Radio Controlled Airplanes to study the long ranged movement of aerial biota (insects, plant pathogens, pollens and weed seeds). Canisius College, Department of Biology, Buffalo, NY.
- Shields, E. J.** 2006 The development and use of large Radio Controlled Airplanes to study the long ranged movement of aerial biota (insects, plant pathogens, pollens and weed seeds). University of Maryland, Department of Entomology.
- Shields, E. J.** 1999. Radio-controlled miniature aircraft: Serious scientific equipment for sampling atmospheric biota or just playing on university time. Dept. Entomology, Cornell University - Ithaca.
- Shields, E. J.** 1999. Radio-controlled miniature aircraft: Serious scientific equipment for sampling atmospheric biota or just playing on university time. Dept. Entomology, Cornell University - Geneva.
- Shields, E. J.** 1998. Moderately to Highly Mobile Biota (leafhoppers, moths, locusts): Overview and potato leafhopper case study. Aeriobiology Symposium, ESA/APS Joint National Meetings.
- Shields, E. J.** 1998. Radio-controlled miniature aircraft: Serious scientific equipment for sampling atmospheric biota or just playing on university time. Dept. Entomology, University of Missouri.
- Shields, E. J.** 1998. Utilizing RC aircraft to study the movement of insects and other biota in the lower atmosphere. Dept Entomology, University of Georgia.
- Shields, E. J.** 1997. *Camponotus pennsylvanicus*. Urban Symposium. NE-ESA Annual Meeting. Burlington, VT.
- Shields, E. J.** 1996. Lack of Threshold Research Hindering the Adoption of IPM. IPM Symposium. NE-ESA Annual Meeting. Williamsburg, VA.
- Shields, E. J.** 1996. Alfalfa Snout Weevil - Long Term Suppression with Nematodes. Biological Control Symposium. NE-ESA Annual Meeting. Williamsburg, VA.
- Shields, E. J.** 1996. Alfalfa Snout Beetle: Is this Wonderful Entomological Scourge in Your Area. NE Field Crops Insect Conference. Williamsburg, VA.
- Shields, E. J.** 1991. Back trajectory analysis in the identification of source regions for migrants. Aeriobiology Symposium, ESA National Meetings, Reno, NV.
- Shields, E. J.** 1990. PLMSIM: A model to predict the spring migration of potato leafhopper. NC-193 Regional Project
- Shields, E. J.** 1990. Can we predict the spring migration of potato leafhopper with

- computer simulations? Dept Entomology, University of Maryland.
- Shields, E. J. 1988.** Progress in predicting potato leafhopper spring migration. Biology Department Seminar, Laval University, Quebec City, Quebec.
- Shields, E. J. 1986.** Use of Colorado potato beetle management models to optimize control and reduce genetic selection for pesticide resistance. DOW USA Insecticide Discovery Group, Walnut Creek, California.
- Shields, E. J. 1986.** Use of Microcomputers to manage Colorado Potato beetle and variegated cutworm on Wisconsin potatoes. Entomology Department, North Carolina State University, Raleigh, NC.
- Shields, E. J. 1985.** Arthropod bits and bytes: The merging of silicon and pest management. Entomology Department Seminar, Washington State University, Pullman, Washington.
- Shields, E. J. 1985.** The use of the Weibull in a management model for variegated cutworm and Colorado potato beetle in Wisconsin potatoes. Biology Department Seminar, Utah State University, Logan, Utah.
- Shields, E. J. 1984.** Development of a management model for variegated cutworm and Colorado potato beetle on potatoes. Harrow Experiment Station, Agriculture Canada, Harrow, Ontario.
- Shields, E. J. 1984.** Development and utilization of management models for variegated cutworm and Colorado potato beetle in potato pest management. Entomology Department Seminar, University of Arizona Tucson, Arizona.
- Shields, E. J. and R. E. Berry. 1980.** Establishing an economic injury level for variegated cutworm on peppermint. Entomology Department Seminar, University of Arizona, Tucson, Arizona.

#### **BOOK CHAPTERS:**

- Shields, E. J. Ch 6 - Utilizing persistent EPNs in a conservation or a more classical biological control approach.** In: R. Campos-Herrera (ed). Nematode pathogenesis of insects and other pests – ecology and applied technologies for sustainable plant and crop protection, Series: Sustainability in Plant and Crop Protection, Vol. 1 (R. Campos-Herrera ed). Springer. 2015. Pp. 165-184.
- Shields, E. J. and A. M. Testa. Ch 11 - New York Case Study: Biological Control of *O. ligustici* with native persistent EPNs using a more classical approach.** In: R. Campos-Herrera (ed). Nematode pathogenesis of insects and other pests – ecology and applied technologies for sustainable plant and crop protection, Series: Sustainability in Plant and Crop Protection, Vol. 1 (R. Campos-Herrera ed). Springer. 2015. pp 285-307.
- Shields, E. J. and A. A. Hower. Rootweevils of Alfalfa.** In: Lamp, W.O (ed). 2012 Alfalfa Compendium. American Phytopathological Society.
- Hower, A. A. and **E. J. Shields.** Weevils and Root Borers. In: Lamp, W.O., R. Berberet, L. Higley, and C. Baird (eds.). 2007. Handbook of Forage and Rangeland Insects. Entomological Society of America, Lanham, MD.

## **RESOURCE FOR MEDIA (i.e., called upon as an expert for electronic or print media)**

Frequent phone interviews for newspapers and trade magazines statewide on field crop related insect topics.

### News Releases:

5/21/2007: Cornell Researchers and Farmer Report More Progress Against Pest Peculiar to Northern New York.

2/22/2008: Cornell Insect Specialist to Speak at March 12-13 Crop Congresses: Will Report First Success with Alfalfa Snout Beetle, How to Manage Other Crop Pests

3/27/2008: Insect-killing worms found to control beetle that has plagued upstate New York farms. AP news release published in multiple papers across the US.

2/19/09: Crop scientists say Biotechnology seed companies are thwarting research. New York Times.

Since 09, too many to list.

## **PUBLICATIONS**

### **Research:**

Filgueiras, C. C., **E. J. Shields**, B. A. Nault and D.S. Willett. 2021. Entomopathogenic Nematodes for Field Control of Onion Maggot (*Delia antiqua*). Pest Management Science (in review).

Giesmann, A. **E. J. Shields**, K Wickings and J. P. Sanderson. 2021. Effects of high temperature exposure on the survival and infectivity of commercially available entomopathogenic nematodes. J. Econ. Entomol. (in review).

**Shields, E. J.**, A. M. Testa, T. Rusnik and C. Bornt. 2021. Biological Control of Wireworms in Sweet Potatoes with Persistent Entomopathogenic Nematodes. Great Lakes Entomologist: (in review).

**Shields, E. J.** and A. M. Testa. 2020. Multi-year Biological Control of Black Vine Weevil, *Otiorhynchus sulcatus*, with Persistent Entomopathogenic Nematodes. Great Lakes Entomologist 53: 117-123.

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**Abstracts:**

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**Extension:**

Note: What's Cropping Up articles are duplicated and distributed throughout the state in the various county extension news letters to their local producers. As a result, these articles have a very wide distribution.

- Shields, E. J.** Field Crop Insect Sections, Cornell Recommends for Integrated Field Crop Management, Annual Updates - 1987.
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Glenister, C. and **E. J. Shields**. 12/2020. Getting the Most out of Beneficial Nematodes in Organic Vegetable Production. Susan Scheufele, Univ Mass host. 136 participants.

O'Reilly, C, J. Smith and **E. J. Shields**. (recorded 12/8/2020, available for viewing 1/6-3/1/2021. Bt-Resistant Rootworms in Ontario (and recommendations for management). 90 mins. Q&A session on 1/19/2021, 1.5 hrs, 162 participants.

### **2021 Videos and Zoominars:**

**Shields, E. J.** 1/6/2021. Biocontrol of Corn Rootworms with Persistent EPNs in NY.(45 min). Recorded as a resource for CCE in NY.

**Shields, E. J.** 2/18/2021. Biological Control of Corn Rootworm (60 min). Hosts: Jourdan Bell and Pat Porter, Texas AgriLife Extension, Amarillo & Lubbock, Tx. 91 participants

**PROFESSIONAL OVERVIEW AND OBJECTIVES**

**(One paragraph, not to exceed one-half page, single-spaced)**

The focus of my extension and research efforts is to reduce the environmental impact of insect management in field crops utilizing the guidelines of IPM (Integrated Pest Management). Major focus is placed on biological control of insect pests, host plant resistance, least dose pesticide usage when required and insect long-ranged migration. These foci are supported with active research projects with the biological control of alfalfa snout beetle, breeding for snout beetle resistant alfalfa (with Don Viands), least dose evaluations with corn rootworm and potato leafhopper and long-ranged movement of potato leafhopper and soybean aphid. Additional foci on aerobiology have included joint projects with the movement of corn pollen (D. Aylor, CT Ag Exp. Stat.), movement of wheat head scab (G. Bergstrom) and dispersal of herbicide resistant weed seed ( D. Mortensen, Penn State). Current aerobiology research is focused on detecting airborne plant pathogens utilizing new mobile PCR technology. Research information is disseminated to the agribusiness audience using extension articles, extension presentations, and interviews with the popular press. With field crops grown in every county in NYS and the field crop commodity planted in over 90% on NYS agricultural land, the audience is large and diverse.