

**2008 CURRICULUM VITAE**

**NAME:** Peter J. Jentsch

**DEPARTMENT / UNIT:** Entomology

**TITLE:** Extension Associate Entomologist  
Cornell's Hudson Valley Lab

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**BACKGROUND**

**EDUCATION**

<u>Year</u>	<u>Degree</u>	<u>Institution</u>
2005	M.S. Entomology	University of Nebraska-Lincoln
1982	B.A. Education	S.U.N.Y. at New Paltz, New Paltz, NY
1978	A.A.S. Forestry	S.U.N.Y. at Morrisville, Morrisville, NY

**POSITION RANKS (year achieved)**

Research Support Specialist II (1998)  
Research Support Specialist I (1990)  
Technician (1986)

**PRIMARY DEPARTMENTAL/ Unit PROGRAM AREA:** Entomology (Geneva)

**AREAS OF EXPERTISE (key words)**

Integrated Pest Management of tree fruits  
Insects of tree fruits  
Chemical control of insect pests  
Biological control of mite on tree fruits  
Exclusion pest management of tree fruits

**PROFESSIONAL EXPERIENCE**

<b>Year</b>	<b>Experience</b>
1981- 1982	Environmental educator. New York Botanical Gardens; Cary Arboretum, Millbrook, N.Y.
1982-1989	Farm manager. Feather Farm, High Falls, NY
1985-1987	Research technician. Departments of Plant Pathology and Entomology for Cornell University's Hudson Valley Laboratory, Highland, NY.
1987-1989	Secondary education science teacher. Good Shepherd Christian Academy, Kingston, NY

**Current Projects**

**Will the use of permanently netted coverings for disease resistant apple using columnar architecture and dwarfing sweet cherry, and wood chip mulch for reducing weed competition, eliminate the need for pesticides?**

Project title: Determining the Commercial Viability of an Insect Exclusionary Production System Using Disease Resistant Columnar Apple and Sweet Cherry Cultivars. (with Straub, Rosenberger, Schupp & Fargione)

Funding source: NESARE funded research 2004-2008

Objectives/accomplishments:

Through the use of fabric technologies, an exclusionary pest management system for fruit production was developed as a four-year pest management project. We assigned 4 varieties of disease resistant columnar apple and 4 dwarfing sweet cherry varieties to a v-trellis high-density production system, integrating ground cover wood chip mulches, micro-sprinkler irrigation, a fixed canopy spray system, with structural tree trellis acting as a barrier support for barrier netting. This trial was assembled in three commercial fruit farm sites, one local community sponsored farm, and one university research orchard facility. The goal of this research was to produce a commercial production method that will yield high quality fruit, grown in a high-density planting system that is designed to exclude hail, invertebrate and vertebrae pests, while maintaining biological control of arthropod pests, without the use of synthetic pesticides. Four years of data suggest that disease and insect damage is significantly reduced using this exclusion system. However, yields using the commercially available columnar tree form are dramatically lower than conventional systems using dwarfing cultivars. Significant reductions in spray drift using both open and exclusion covered fixed canopy spray systems have been observed when compared to commercial airblast spray systems. Single yearly applications of composted wood chip mulch reduced competition from weed species. Yet these factors added significantly to the cost of production compared to conventional production methods, requiring fruit pricing to exceed 3 to 4 times the present value of organic pricing.

**Will the integration of weather forecasts, insect pheromone trapping events and the use of insect developmental models effectively reduce fruit damage to Hudson Valley apple when using the Internet and e-mail as extension outreach tools for producer outreach?**

Project title: Increasing Precision Application Of Newly Developed Insecticides And Minimizing Insecticide Resistance Through The Use Of Insecticide Class Rotation, Degree-Day Predictive Modeling And Digitally Communicated Recommendations For Managing The Apple Insect Complex (with Fargione)

Funding source: NEFVI funded research 2007-2008

Objectives/accomplishments:

The purpose of this project is to establish a timely venue of

communication of field pest data, weather, insecticide efficacy and mode of action to regional fruit producers with which to optimize the application of new reduced risk insecticides with diverse modes and different application windows. Through the use of temperature collection technology, degree-day predictive models, pest thresholds, and daily digital insect pest management information and recommendations, producers will be given the opportunity to gain experience in the use of reduced risk insecticide rotation to reduce the resistance potential in difficult to manage and damaging insect species. The means by which this information is communicated to growers is through the digital media formats already in use by the grower community (e-mail, regional fruit web sites), allowing for a faster delivery, more precise and informed insecticide decision-making process. Each farm subscribed to receive e-mails from the regional fruit extension (Mike Fargione) will receive daily updates on insect presence, insect biofix and growing degree-days for each insect. Using 'Skybit' and NOAA weather radar available on the internet, predictions on weather variables such as spray conditions, temperature and rainfall, recommendations will be made to forecast the application window and advise growers on the potential use of each possible insecticide candidate of registered insecticide available.

**Will the use of video field reporting be an effective extension outreach tool for producers to use in pest management decision making?**

Project title: Increasing Precision Application Of Newly Developed Insecticides And Minimizing Insecticide Resistance Through The Use Of Insecticide Class Rotation, Degree-Day Predictive Modeling And Digitally Communicated Recommendations For Managing The Apple Insect Complex (with Fargione)

Funding source: NYFVI funded research 2007-2008

Objectives/accomplishments:

The purpose of this project is to establish a timely venue of communication of field pest data, through the use of 3 minute field video clips including weather and insect development predictions, insecticide efficacy and mode of action to regional fruit producers with which to assist them in their pest management decision making.

**Can pears be grown organically in the Hudson Valley using early season applications of kaolin clay and a bi-weekly treatment of a summer oil program?**

Project title: Investigating Kaolin Clay and Summer Oil for Commercial and Organic Pest Management in NY Pear production: Jentsch. 2006-7.

Funding source: Toward Sustainability Foundation, Cornell University

Objectives/accomplishments:

The purpose of this project was to determine if the insect complex (including the plum curculio, the lepidopteran and heteropteran complex, and pear psylla) could be commercially and economically managed. The

results of this study demonstrated that pre-bloom and petal fall applications of kaolin did control the insect complex on pear while the summer oil program successfully managed the pear psylla population compared to the commercial standard. The summer oil also had a significant impact at reducing *Fabraea* leaf spot.

### **Can the stink bug complex be managed in the Hudson Valley using a reduced risk insecticide program?**

Project title: Investigating Assessment of the Efficacy and Timing of Management Strategies for the Hudson Valley Stink Bug Complex.

Funding source: ARDP funded research

Objectives/accomplishments:

The purpose of this project was to study two management strategies that have a direct impact on stink bug damage on apple. These two strategies include the assessment of the efficacies of registered and experimental materials on damage reductions to apple and the incorporation of cultural methods using weed host reduction for use in managing the stink bug complex in Hudson Valley Orchards. Late season applications of numerous classes including few of the reduced risk neonicotinoid class have shown promise at reducing injury levels from the stink bug complex.

### **Can the grape berry moth be managed in Hudson Valley vineyards using mating disruption and a reduced risk insecticide program?**

Project title: Evaluation of Commercial Mating Disruption in Hudson Valley Vineyards; Transitioning To Lower Risk In Hudson Valley Grape Berry Moth Management.

Funding source: NYS Ag. & Markets funded research

Objectives/accomplishments:

The grape berry moth (GBM) is the most destructive insect pest on grape in New York State, The purpose of this project was to study two management strategies to control the grape berry moth on vinefera grape. In 2007, a 1 acre mixed block of grape was selected for pheromone mating disruption using twist tie purchased from Pacific Biocontrol (Isomate-GBM), containing 69 mg of Z-9-dodecen-1-yl acetate (90%)/ Z-11-tetradecen-1-yl acetate (10%) placed at 400 ties per acre. The reduced risk pyrethroid Danitol was applied over the entire vineyard leaving 4 untreated (replicated, non-randomized) panels containing 3 vines per panel as pheromone only controls. The single Danitol treatments at 16 oz./A applied at first hatch for each of three generations exhibited 100% clean clusters at harvest compared to the pheromone only treatments having damage levels exceeding 1%. In 2007 there were relatively few injured fruit even in untreated or poorly managed vineyards, making it an easy year to control the GBM. Given the relatively

small vineyard sizes in the Hudson Valley, the use of mating disruption to manage the GBM in block less than 5-10 acres will in most year provide unacceptable damage levels. More work will need to be done to better understand the biology and mate finding mechanisms of the GBM to more effectively employ reduced risk strategies for its control.

### **Can European red mite populations exceeding economic threshold at petal fall be managed using new reduced risk classes of miticides?**

Project title: Using Alternative Management Strategies For Hudson Valley Mite Complex.

Funding source: Unfunded research. Grower support in use of commercial apple block and industry provided miticides.

Objectives/accomplishments:

The European red mite (ERM) can produce high overwintering egg populations. These can result in mite numbers that exceed economic threshold shortly after the bloom period of apple in years of favorable environmental factors. In a commercial block of red delicious apple we conducted a replicated complete block trial using single tree treatments and single tree buffers to test 11 treatments of experimental, newly registered and standard miticide treatments on ERM populations exceeding 7 mite per leaf applied 10 dpPF. Mite plots left untreated exceeded 40 ERM/lf. Single treatments of Carzol 92SP at 16 oz./A and 1% Damoil exceeded the untreated controls >45 ERM/lf. AgriMek at 20.0 oz./A + oil, Savey 50DF at 6.0 oz./A, Onager 1E at 16.0 oz./A, Zeal at 2.0 oz./A, and Envidor at 18.0 oz./A provided a range of control from 8 to 16 ERM/lf. respectively. Danitol at 16.0 oz/A, Nexter at 4.0 oz/A, Acramite 50WS at 16.0 oz/A provided unacceptable levels of control using a single application. Post application water samples revealed pH at 8.4. Hydrolysis of Nexter and Acramite may have reduced the efficacy of these materials.

### **Can reduced risk materials be rotated with older classes of insecticides to reduce the resistance potential for the oblique banded leafroller?**

Project title: Using Conventional and Alternative Resistance Management Strategies For Hudson Valley Leafrollers.

Funding source: NYS Ag. & Markets funded research

Objectives/accomplishments:

The leafroller complex is comprised of numerous tortricid moth species known to feed on apple, and the species of greatest concern in New York being the oblique banded leafroller, (OBLR) *Choristoneura rosaceana* (Harris). The purpose of this research was to study the efficacy of insecticides for use in a rotational management program to reduce the insecticide resistance potential of the OBLR. The study demonstrated the

effectiveness of new chemistries for OBLR management for use in a rotational program in commercial orchards. The project also demonstrated the ability of reduced risk insecticides, such as the neonicotinoid class and insect growth regulators to conserve the mite predator *T. pyri* for biological mite control.

**What is the efficacy of newly developed experimental and newly registered reduced risk insecticides compared to standard programs of older insect classes and untreated plots on the insect complex?**

Project title: Results of 2006 & 2007 Insecticide and Acaricide Studies in Eastern New York.

Funding source: Agrichemical company funded research

Objectives/accomplishments:

The insect complex feeding on the fruit, foliage and wood of apple and pear in the northeast is very diverse in the number of insect families and in their population density, causing nearly 100% fruit damage in most years, reduction in productivity and tree survival, requiring season long insect pest management each year. The yearly studies we conduct evaluate the efficacy of newly developed experimental and newly registered reduced risk insecticides when compared to standard programs of older insect classes and untreated plots when timed to the seasonal insect complex. This data is then presented to the grower community through yearly publications of the Cornell Pest Management Guidelines, yearly fruit school presentations, in-depth workshops, newsletter articles in Cornell's *Scaffolds Newsletter* and the NY State Horticulture Society publication *The Fruit Quarterly*.

**Relevant Extension/Outreach Publications**

Rosenberger, D.A., Jentsch, P.J., and Meyer, F.W. 2007. Impact of organic pest control on productivity of 15 apple cultivars. Proc. 83<sup>st</sup> Cumberland-Shenandoah Fruitworkers Meetings, 15-16 Nov. 2007, Winchester, VA. (In Press).

Jentsch P. J. 2007 It Was the Best of Years in Regards to Grape Insect Pest Management in the Hudson Valley of NY. Hudson Valley Grape Newsletter 1 (3). October 1.

Jentsch P. J. 2007. Obliquebanded Leafroller Management for Apple Production: Investigating Strategies for Resistance Management with Emerging Insecticide Tools. Fruit Quarterly, 15 (3). On-line:  
<http://www.nyshs.org/fq/07summer/2007FallFQ.pdf>

Jentsch P. J. 2007. Pear Psylla Management Strategies: Investigating the Use of Kaolin Clay and Summer Oil For Commercial and Organic Pest Management in NY Pear Production. Fruit Quarterly, 15 (2). On-line:  
<http://www.nyshs.org/fq/07summer/2007SummerFQ.pdf>

Jentsch P. J. 2007. Summer Management of the Obliquebanded Leafroller: Much Obliqued. Scaffolds Fruit Journal 15 (14); 3-4  
<http://www.nysaes.cornell.edu/ent/scaffolds/2007/070618.pdf>

Rosenberger, D. and Jentsch, P. 2007. Controlling Fabraea fruit and leaf spot on pears. Scaffolds Fruit Journal 15(10)7-9. On-line:  
<http://www.nysaes.cornell.edu/ent/scaffolds/2007/070521.pdf> .

Jentsch P. J. 2007. Living With The OP Transition Or Transforming To A Non-OP Insect Pest Management Program From Petal Fall To First Cover. Scaffolds Fruit Journal 16 (8); 10-11  
<http://www.nysaes.cornell.edu/ent/scaffolds/2007/070507.pdf>

Jentsch P. J. 2007 Who's Eating My Grapes: Hudson Valley Insect Pest Management. Hudson Valley Grape Newsletter 1 (2). July 1.

Jentsch P. J. 2007 Hudson Valley Psylla Management Options From Pre-Bloom To Petal Fall Scaffolds Fruit Journal 16 (3); 3-5  
<http://www.nysaes.cornell.edu/ent/scaffolds/2007/070402.pdf>

Jentsch P. J. 2007 Transitioning to Lower Risk in Hudson Valley Grape Berry Moth Management. Hudson Valley Grape Newsletter 1 (1). January 15.

Jentsch P. J. Straub, R. W. 2006. Investigating a Non-OP Approach to Insect Pest Management on Apple. Fruit Quarterly, 14 (4).

Jentsch P. J., Straub, R. W. 2005. Use Of Sevin XLR Against Curculio When Used at Petal Fall for Apple Thinning. N.Y. Fruit Quarterly, 13 (2): 15-17

Straub, R. W., Reissig H. R. and Jentsch P. J. 2005. A Question of Scale: San Jose Scale. Scaffolds Fruit Journal 14 (4): 1-3.

Jentsch P. J., Straub, R. W. 2005. Use Of Sevin XLR Against Curculio When Used at Petal Fall for Apple Thinning. N.Y. Fruit Quarterly, 13 (2): 15-17

Straub, R. W. and Jentsch P. J. 2003. Reduced Application Rates of Provado® for Management of Leafhoppers and Aphids on Apple. Fruit Quarterly, 11 (4): 17-19

## **Representative Research and Extension Responsibilities**

### **Research Responsibilities:**

For the past 17 years I have been employed in the department of entomology at Cornell University's Hudson Valley Laboratory, conducting various types of insect and mite related research on fruit, grape and vegetables. I am directly involved in the design and implementation of integrated pest management (IPM) strategies, researching elements of insect pest management and biology through a variety of funding agencies while conducting yearly pesticide efficacy experiments using commercial and experimental agricultural pesticides, on our experimental orchard and in grower blocks, funded primarily through the agricultural industry. I monitor the collection of insect population and weather data to predict both insect emergence and application timing of

insecticides based on degree-day predictive modeling. Weekly and seasonal summary reports are for use by regional and state extension personnel for extension reports, included in university publications ('Cornell Guidelines', Hudson Valley Grape Newsletter, 'Scaffolds' and 'Fruit Quarterly' fruit newsletters). I have responsibilities to compile yearly seasonal data from our station field trials for statistical analysis and in writing the annual reports sent to university and industry staff, making presentations to both industry, fruit, grape, and vegetable production community on pest management recommendations.

My responsibilities include the outfitting of our laboratory with microscopes, computer hard and software and digital presentation equipment, the statistical analysis of data using Abacus SuperANOVA (1991), Statview (1994), technical writing using Microsoft Office (1998 and earlier versions of Excel and Word), chart and graph design using Illustrator (1996), Acrobat (1998), reprint archive storage using Endnote (1990), weather collection systems using Davis hardware and weatherlink software (2003). Development and application of computer scanned image analysis for evaluations of leaf damage from foliar feeding insects using flat plat scanner and IPLab Spectrum (1997). Use of scanning and electronic transmission of digital images and reports to the fruit industry using Vistascan (1994). Macro and microphotography of insects and fruit damage using 35mm Cannon EOS 700, Vision Eng. Alpha Stereo Microscope (2002), slide and digital formats using Nikon Coolpix (1999), Cannon AF70, and Polaroid slide scanner (2001). Use of computer image manipulation for their use in professional publications using Adobe Photoshop (1993), digital presentations using PowerPoint (1998), website development using Macromedia Dreamweaver MX (2002) and Adobe PageMill (1998), poster production using Adobe PageMaker (1997), and field video production and editing using Canon HD camera (2007), Final Cut Express (2007), Adobe Flash (2005) and QuickTime (2006) software for extension education to the grower community.

I have responsibilities conducting field extension visits and consulting to industry reps, commercial growers and homeowners via personal contact and through the use of FAX, phone and computer using Eudora e-mail (1998) on fruit pest related issues.

My responsibilities include interviewing, training, and direct supervision of summer technical staff (> 60 summer technicians since 1990) in data collection, laboratory, computer, field procedures, and orchard maintenance. I have helped to develop and implement research programs for Ulster County high school students chosen to participate in the Math/Science - School/Industry summer research program (14 students from 1994-2001). Several students with exceptional school standing and interest in science participated each year in field biology summer internships at the Hudson Valley Laboratory, many of them returned as future summer employees.

I conduct rearing and maintenance of insect populations and host plants in laboratory and greenhouses, conducting laboratory bioassays of insect and mite pests using new chemistries and biological control agents. I also survey and key out closely related insect species for identification and publication and have designed and fabricated a vacuum collection system for adult insect surveying and monitoring.

I have established and managed the entomology experimental apple and pear orchards, including recent orchard renovation (1998 and 2000), employing a trickle irrigation system, ground water tiling, tree pruning and training, pesticide and nutrient programs. I have primary responsibilities in the use of research and commercial agricultural sprayers, both on and off-site including tractor and truck mounted air blast and high-pressure handgun sprayers, backhoe and various heavy equipment. When needed I will assist in maintaining farm and research equipment that requires welding, engine repair, plumbing and electrical system installation as I had significant experience in farm management. I currently have and maintain a New York State Drivers and Commercial Pesticide Applicator Certification (#C3646743 from 1985-present).

### **Extension Responsibilities:**

My responsibilities in this area include presentations to researchers and regional fruit growers on insect biology and control advances from 1994-2008 at the annual Hudson Valley Commercial Fruit Schools, Kingston, NY. I assist the CCE Fruit Educator in digital computer presentation development yearly. I have given presentations to ESA members at the Eastern Branch of the 2002 and 2008 Entomological Society of America, research and extension specialists at the NY, NE, Can. Fruit Research Mtg., Burlington. VT. from 1994-2007, and research entomologists at the Cumberland-Shenandoah Fruit Meeting, Winchester, VA in 2004-2007.

I have participated in the regionwide introduction, monitoring and yearly evaluations of the establishment and spread of the biological control mite predator *Typhlodromus pyri* into commercial orchards throughout the Hudson Valley on an experimental basis. This included extension education to apple 'fruit stand' clientele of pesticide reductions relating to biological control measures. We went on to establish and direct the regional biological control implementation program beginning spring 2001 with field and formal workshops.

My responsibilities also include answering phone queries and on farm visits with the regional fruit grower community to survey insect problems and discuss management options. Included in these requests are insect samples requiring identification of insect specimens for fruit growers, commercial pest control operators and the homeowner community including discussions of management options.

I have also written seasonal entomologically relevant articles concerning regional insect activity for the Middletown Record, a regional newspaper, and the Department of Environmental Conservation (DEC) website.

### **Other Relevant Research Activities: Publications:**

#### Refereed Journals:

Rosenberger, D.A., Jentsch, P.J., Meyer, F.W., and Rugh, A.L. 2008. Effects of oil sprays on development of *Fabreaa* leaf spot in pears. Plant Disease Management Reports (online). The American Phytopathological Society, St. Paul, MN. (In Press).

Straub, R. W., E. Stover and P. J. Jentsch. 1997. Carbaryl as a component in integrated crop management of apple. *J. Econ. Entomol.* 90:1315-1323.

Straub, R. W. and P. J. Jentsch. 1994. Relationship of the white apple leafhopper and the rose leafhopper on apple in the Hudson Valley Region of New York. *J. Agri. Entomol.* 11:301-309.

#### Technical Reports:

Rosenberger, D.A., Jentsch, P.J., Meyer, F.W., and Rugh, A.L. 2008. Effects of oil sprays on development of *Fabreaa* leaf spot in pears. *Plant Disease Management Reports* (online). The American Phytopathological Society, St. Paul, MN. (In Press).

Straub, R. W. and P. J. Jentsch. 2000. Pear psylla control with conventional and reduced-risk insecticides. *Arth. Mgmt. Tests* 25:49-50.

Straub, R. W. and P. Jentsch. 2000. Comparison of rescue miticide treatments against mid-season outbreaks of two-spotted spider mite. *Arth. Mgmt. Tests* 25:39

Straub, R. W. and P. J. Jentsch. 2000. Apple, comparison of insecticides against obliquebanded leafroller. *Arth. Mgmt. Tests* 25:38-39

Straub, R. W. and P. J. Jentsch. 1999. Comparison of Asana and Guthion for management of plum curculio using traditional cover sprays and an oviposition model. *Arth. Mgmt. Tests.* 24:41.

Straub, R. W. and P. J. Jentsch. 1993. Comparison of neem seed extract and conventional insecticides on apple. *Insect. & Acar. Tests.* 18:54.

#### **EXTENSION/OUTREACH RESPONSIBILITIES (10% time commitment)**

- **Current Program Work Team(s)/Program Councils, Administrative Leadership**  
(positions related to Extension, i.e., principal organizer, co-chair, speaker, etc.)

Active participant in the Cornell Fruit PWT and its Tree Fruit subgroup

- **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., principal organizer, co-chair, speaker, etc.)**

#### Presentations at meetings of tree fruit professionals: (2000-2008)

Using a novel chemistry Spinetoram, 'Delegate' by Dow Agrichemical, for Pear Psylla Management in the Hudson Valley of NY.

*November 11-14, 2007, National Conference; New Product Release, Montrey, CA. (45 University faculty, fruit extension educators, and private consultants)*

Transitioning to Organic Pear Psylla Management in the Hudson Valley of NY.

*November 4-5, 2007, Great Lakes Fruit Workers Meeting. Niagara Falls, Canada. (95 University faculty, fruit extension educators, and private consultants)*

Developing Digital Video Field Extension Outreach for Insect Pest Management Recommendations in the Hudson Valley of New York.

*November 4-5, 2007, Great Lakes Fruit Workers Meeting. Niagara Falls, Canada. (95 University faculty, fruit extension educators, and private consultants)*

Developing Digital Video Field Extension Outreach for Insect Pest Management Recommendations in the Hudson Valley of New York.

*October 24-25, 2007 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (55 University faculty, fruit extension educators, and private consultants)*

Using a 'Non-Chemical' Approach for Pear Psylla Management in the Hudson Valley of NY. *November 16-17, 2006, 82<sup>nd</sup> Annual Cumberland-Shenandoah Fruit Workers Conference, Winchester, VA. (55 University faculty, fruit extension educators, and private consultants)*

Integrated Use Sevin XLR as an Organophosphate Replacement.

Pear Psylla Management Options: Group Discussion.

*October 25, 2005 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (65 University faculty, fruit extension educators, and private consultants)*

Integrated Use of the Crop Load Thinner, Sevin XLR, for Early Season Control of Plum Curculio, *Conotrachelus nenuphar* (Herbst).

*November 30, 2004 Cumberland-Shenandoah Fruit Meeting, Winchester, VA. (45 University faculty, fruit extension educators, and private consultants)*

Integrated Use of the Crop Load Thinner, Sevin XLR, for Early Season Control of Plum Curculio, *Conotrachelus nenuphar* (Herbst).

*October 26, 2004 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (65 University faculty, fruit extension educators, and private consultants)*

Results of Insecticide Trials

*October 26, 2004 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (35 University faculty, fruit extension educators, and private consultants)*

Using The Crop Load Thinner, Sevin XLR, For Early Season Control Of Plum Curculio, *Conotrachelus nenuphar* (Herbst).

*October 22, 2003 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (55 University faculty, fruit extension educators, and private consultants)*

Results of Insecticide Trials

*October 22, 2003 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (25 University faculty, fruit extension educators, and private consultants)*

Effect of Imidacloprid on Apple Arthropod Complex.  
*October 24, 2002 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (62 University faculty, fruit extension educators, and private consultants)*

Using Reduced Rates of Provado 1.6F on the Leafhopper Complex in the Hudson Valley.

*October 24, 2000 New England, New York, Canadian Fruit Pest Management Workshop. Burlington Vt. (67 University faculty, fruit extension educators, and private consultants)*

In-State Presentations at fruit grower meetings and other meetings: (2000-2008)

Grape Insect Management in the Hudson Valley

*February 29, 2008 Hudson Valley Fruit School, Kingston, NY (45 Fruit growers, fruit extension educators, private consultants and home owners)*

Web Links and Video Clips: New Tools for Teaching Fruit IPM.

*February 27, 2008 Hudson Valley Fruit School, Kingston, NY (175 Fruit growers, fruit extension educators, and private consultants)*

Tree Fruit Insect Round-Up. Using Reduced Risk OP Replacement Insecticides in NY State.

*February 26, 2008 Hudson Valley Fruit School, Kingston, NY (175 Fruit growers, fruit extension educators, and private consultants)*

Pest and Disease Management for Organic Apple

*Jan. 26 2008 NOFA – 26<sup>th</sup> Annual Organic Farming & Gardening Conference, Saratoga, NY (75 Fruit growers, fruit extension educators, private consultants and home owners)*

Using Degree-Day Insect Developmental Models to Effectively Use Reduced Risk Insecticide Management Strategies.

*January 11, 2008 Long Island Agricultural Forum, Riverhead, NY (45 Fruit growers, fruit extension educators, and private consultants)*

Traditional and Novel Approaches to Insect and Mite Pest Management on Tree Fruit

*19 Jan. 2007 Long Island Agricultural Forum, Riverhead, NY (45 Fruit growers, fruit extension educators, and private consultants)*

Grape Berry Moth Management in the Hudson Valley

*March 2, 2007 Hudson Valley Fruit School, Kingston, NY (45 Fruit growers, fruit extension educators, private consultants and home owners)*

Using Degree-Day Models and On-Line Resources in Determining Management Strategies.

*March 10, 2005 Hudson Valley In-Depth Workshop, HVL, Highland, NY (55 Fruit growers, fruit extension educators, and private consultants)*

Transitioning to Organic Pome Fruit Production in the Northern Hudson Valley.  
Orchard Meeting & Discussion.

*October 23, 2005 Saratoga Apple ( Darrow Orchard), Schyulerville, NY  
(2 University faculty, 2 fruit growers, fruit extension educator)*

Pesticide chemistry / MOA of pesticide classes and resistance management.

*March 10, 2005 Hudson Valley In-Depth Workshop, HVL, Highland, NY  
(55 Fruit growers, fruit extension educators, and private consultants)*

Using Degree-Day Models and On-Line Resources in Determining Management Strategies.

*March 10, 2005 Hudson Valley In-Depth Workshop, HVL, Highland, NY  
(55 Fruit growers, fruit extension educators, and private consultants)*

Integrated Use of the Crop Load Thinner, Sevin XLR, for Early Season Control of Plum Curculio, *Conotrachelus nenuphar* (Herbst).

*February 24, 2005 Lake Champlain Fruit School  
(95 University faculty, fruit growers, fruit extension educators, and private consultants)*

Effectiveness of Reduced Rate Applications of Imidacloprid on the Hudson Valley Apple Arthropod Complex.

*February 25, 2003 Hudson Valley Fruit School, Kingston, NY (155 Fruit growers, fruit extension educators, and private consultants)*

Update on the Biological Control of Mite in Hudson Valley Apple Orchards Using *T. pyri*.

*February 12, 2002 Hudson Valley Fruit School, Kingston, NY (175 Fruit growers, fruit extension educators, and private consultants)*

Reduced Rates of Provado 1.6F and Sevin XLR on Leafhopper Complex in the Hudson Valley.

*March 16-18, 2001 Eastern Branch Meeting, Entomological Society of America, Ocean City, MD (125 entomologists, extension educators, researchers, industry and private consultants)*

The Bulb Mite, *Rhizoglyphus robini* (Claparede) (Acari: Acaridae), as a Pest of Onion in New York – Poster Presentation

*March 16-18, 2001 Eastern Branch Meeting, Entomological Society of America, Ocean City, MD (2000 entomologists, extension educators, researchers, industry and private consultants and teachers)*

Integrated Mite Management in Hudson Valley Apple Orchards using a predatory mite *Typhlodromus Pyri*.

*February 6-7, April 7, 2001*

*Hudson Valley Fruit School, Kingston, NY (165 Fruit growers, fruit extension educators, and private consultants)*

*Montgomery Place Orchard, Annandale-on-the-Hudson, NY (25 fruit growers)*

Tour of Research Plots at the Hudson Valley Lab

*Sept. 2000-2005 Annual Field Tour of Pesticide Research Trials, Highland, NY  
(approx. 35 agribusiness representatives)*

**Presentations at out-of-state fruit grower meetings, 2000-2008:**

Apple Pest Management Using Precision Application Timings of Reduced Risk Insecticides.

*December 12, 2008 New England Vegetable and Fruit Conf., New Hampshire  
(125 Fruit growers, fruit extension educators, and private consultants)*

Pear Psylla Management Alternatives in Northeast Orchards.

*December 12, 2008 New England Vegetable and Fruit Conf., New Hampshire  
(75 Fruit growers, fruit extension educators, and private consultants)*

Other tours or meetings attended:

2000-2006 CCE Tree Fruit Petal Fall Mtg., Lake George, NY

2000-2007 CCE Tree Fruit Petal Fall Mtg., Columbia County, NY

2003-2005 Connecticut Tree Fruit Meeting, Conn.

2001-2007 Long Island Tree Fruit Meeting, Riverhead, NY

National Meeting of the Entomological Society of America

Nov. 2002 Fort Lauderdale, FL.

Dec. 2001 San Diego, CA.

Eastern Branch Meeting of the Entomological Society of America

March 2008 Syracuse, NY.

March 2001 Ocean City, MD.

**Representative Professional Activities**

**Professional Societies**

New York State Horticultural Society

Entomological Society of America

**Professional Overview and Objectives**

50% Formal appointment in Extension (Professorial, Senior Extension Associates and Extension Associates)

   % Estimation of time spent in outreach activities

Funding: Core 25%      Soft (e.g., external funding) 75%      Combination  
100%

The objective of my research has been to study the efficacy of newly developed chemical pest management tools, employing them in a cost-effective, environmentally sound approach, to provide fruit growers with the knowledge to improve their overall pest management strategies. As we have come to understand the activity of newer compounds or formulations, we have been able to develop timing strategies and insecticide rate reductions specific to individual species or insect complexes.

Recent studies have provided us with data that demonstrate the addition of organophosphates in conjunction with the fruit thinning agent *Sevin XLR* are not needed under moderate pest pressure of plum curculio, giving growers the option to use it alone for early season insect pest management. This reduction in the use of organophosphates during thinning applications can reduce the costs of petal fall and or first cover applications by 35 to 55% respectively. Additional studies using classical bio-assays have provided us with data displaying the high degree of efficacy of imidacloprid against the Hudson Valley leafhopper complex, allowing us to recommend dramatically reduced rates of this material for these pests, providing growers the ability to more effectively conserve predatory insects, save 25-75% of material costs, while achieving equivalent degrees of control. Our work with the multi-state RAMP project has provided growers with the information needed to implement the use of a non-organophosphate pest management program to achieved commercially acceptable fruit quality.

Our work with the biological control agent *T. pyri*, has provided regional fruit growers with current information on the use of specific management techniques to maintain and spread this predatory mite, providing suitable season long management of phytophagous mite populations while reducing the need for yearly miticide applications. Our recent work on the use of disease resistant columnar apple and an exclusion netting system may lead us to recommending the use of this system in producing a non-chemical / bio-intensive approach to fruit production.