

2012 EIPM Report for Vermont
Ann Hazelrigg, IPM Coordinator

Pests/diseases of interest for Vermont for 2012: Late spring frosts causing problems in apples, spotted wing drosophila-major issue for small fruit and grape growers, late blight in tomatoes and potatoes, brown marmorated stink bug (numbers increasing but still not of much concern yet), green stink bug-major issue for some vegetable growers, cucumber beetles and squash bugs present in high numbers, *Phytophthora* fruit rot of squashes widespread due to fall rain patterns, new identification of impatiens downy mildew, Northern corn leaf blight, mycotoxins and potato leafhopper were all issues for Vermont in the past year.

IPM First for Greenhouse Ornamentals

Margaret Skinner, Extension Entomologist and Cheryl E. Frank, Technician

Program Goal:

Enhance environmental sustainability and profitability of the greenhouse ornamentals industry in ME, NH and VT by increasing growers' implementation of advanced IPM techniques that minimize production costs and reduce reliance on chemical pesticides.

Approach:

Individualized educational IPM programs were developed to provide growers and their workers with practical one-on-one learning opportunities specifically designed to meet their unique interests, skill level and operation needs. Participating growers, in collaboration with Extension personnel, determined areas of interest and need relative to IPM. An Extension specialist visited each location weekly for 1-2 months, gradually reducing visit frequency as the growing seasons progressed. To evaluate program success and IPM adoption, preliminary and annual follow-up surveys were completed by participants. In addition, annual meetings with Extension specialists were conducted to review survey responses and to determine successes, challenges and feedback on how to improve the program. January 2012 marked the 15th year of holding the Tri-State Greenhouse IPM workshops in ME, NH and VT to provide hands-on learning opportunities for greenhouse growers. Brian Spencer of Applied Bio-nomics Ltd, a producer of biological control agents, was the key speaker recruited to speak on aphid biological control and biological control agent quality control inspection methods.

Impacts & Outreach:

Eight commercial greenhouse operations have been assisted with the one-on-one educational program and 2 more have been added for 2013 (9 in VT and 1 in NH). Based on the needs surveys, participants received training on pest and natural enemy identification, scouting, sanitation, pesticide rotation, development or refinement of biological control programs, use of plant-mediated IPM systems, and strategies for reduction of costs associated with implementing IPM and biological control. Several new IPM practices were adopted, including use of sticky cards and indicator or trap plants for early pest detection, routine inspections of plants for pests and diseases, banker and habitat plants to sustain natural enemies, sanitation and rouging of infested plants and refinement of biological control and pesticide programs. Chemical pesticide applications have been reduced at all locations. With improved scouting programs, early identification of damage symptoms enabled them to release biological control agents or use spot sprays rather than making large scale pesticide applications. Better sanitation, such as weed cloth on dirt floors and removal of weeds, has also helped many sites reduce pests. All growers used some form of biological control within their IPM programs. Three locations switched from conventional chemical pesticide-based management to relying primarily on biological control as a direct result of this project. Growers were also eager to transfer their knowledge to customers by displaying eye catching signs informing the public of their adoption of IPM. At the Tri-State IPM Workshops, we reached over 150 attendees and according to the exit evaluation, 92% of the attendees learned new techniques they intend to use in the coming year, including biological control in general and specifically aphid biocontrol, quality control evaluation of biocontrol agents they purchase.

Apple IPM Program (standard apple IPM and organic apple IPM):

Lorraine Berkett, IPM Apple and Grape Specialist, UVM Extension

Project Highlights:

- 18 issues of the Apple IPM Alert were written and disseminated over the past year to over 100 growers who subscribed to the Apple IPM email listserve, and archived on the Apple IPM website which had an additional 650 visits.
- Apple workshop organized in collaboration with the Vermont Tree Fruit Growers Association which was attended by 65 growers.
- Updated and maintained Apple IPM website which had over 2,000 visits
- Organic Apple IPM observations were distributed in 13 organic apple newsletter issues to over 100 organic stakeholders during the past year and archived on the Organic Apple IPM website which had over 500 visits.
- Updated and maintained the Organic Apple IPM website which had over 300 visits and incorporated IPM information into a newly developed Practical Guide for Organic Apple Production which had over 400 visits by stakeholders.
- Organic Apple Demonstration Orchards were maintained and used as a resource for educational purposes.
- Provided one-on-one education regarding growers' apple IPM questions
- Recent survey of growers revealed 88% would adopt a new IPM practice as a result of the Apple IPM program.

Cold Climate Grape IPM program:

- 15 issues of the Grape IPM Update were written and disseminated during the reporting period to over 200 growers who subscribed to the Grape IPM email listserve, and archived on the Cold Climate Winegrape IPM website which had approximately 800 additional visits.
- Updated and maintained the Grape IPM website pages which had over 350 visits
- Conducted "Field Day" at the University of Vermont Cold Climate Grape Vineyard attended by 32 stakeholders (see below for grower evaluation)
- Provided one-on-one education regarding growers' IPM questions
- Recent survey of growers revealed 87% would adopt a new IPM practice as a result of the Grape IPM program.

UVM Consumer Horticulture Program/Master Gardener Program

Ann Hazelrigg, Extension Plant Pathologist and Heather Carrington, MG Coordinator

Project Highlights:

- Over 200 new Master Gardeners trained in all aspects of horticulture, disease and insect id and management of pests based on IPM practices in a 40 hour course offered throughout the state
- The UVM MG Helpline managed by 24 trained volunteers (15 hours/week during the growing season) answered over 1100 calls and 430 emails on using IPM practices in home gardens and landscapes to manage pests and diseases
- Over 100 plant samples were diagnosed by the Helpline volunteers. Management recommendations are based on IPM practices
- Master Gardener tables were present at 10 different farmer's markets and 8 agricultural fairs around the state to address consumer's questions about pest and disease management in the home garden and landscape.

- There are over 77 ongoing approved projects in schools, community gardens, prisons, etc, around the state for education of consumers on horticulture and pest and disease management based on IPM principles.
- There were over 6,500 hits on a newly created MG blog discussing pest and disease problems, IPM management and other topics of interest

Vermont Vegetable and Berry IPM Program

Ann Hazelrigg, Extension Plant Pathologist, Plant Diagnostic Clinic

Project Highlights:

- Over 300 calls and emails were fielded from vegetable and berry growers asking for help with pest and disease diagnosis and IPM management recommendations
- 100 disease and insect samples from vegetables and small fruit were sent to the Plant Diagnostic Clinic for identification of the pest or disease problem and management using IPM principles
- Two presentations at annual Vegetable and Berry grower meetings (both organic and conventional) on past pest and disease issues and new and emerging problems.
- Several twilight meetings during the growing season addressing pest and disease issues and IPM techniques
- Provided one-on-one education site visits regarding growers' vegetable and berry IPM questions
- Contributed to the bi weekly newsletter going out to the Vermont Vegetable and Berry Grower's Association describing new and emerging pests and diseases for the season with IPM recommendations.

Agronomic Crops IPM

Sid Bosworth, Extension Agronomist and Heather Darby, Extension Crop Specialist

Project Highlights:

- Armyworm and cutworms were important pests this year. Several field visits were made for diagnosing and making IPM management recommendations
- Informational flyer on armyworm and IPM management sent to 1200 growers.
- Crops and Soils website continually updated with emerging pest and disease issues
- Social media and Tweets were used to post information directing farmers to the Crops and Soils web page where over 400 growers accessed the information.
- Leafhopper on alfalfa, mixed vegetables, and hops was a significant issue this past summer. Information in regards to leafhoppers was presented at the Annual Northwest Crops and Soils Field Day with over 250 attendees. Insect identification, lifecycle, and management were presented.
- Northern Corn Leaf Blight is emerging quickly as a devastating disease in the Vermont. It is thought that a new race of the pathogen may be plaguing the southern part of the state as well as areas of MA and NY. Information in regards to the disease was presented at 6 winter workshops with over 300 attendees present. Factsheets were distributed and posted on the web.
- In response to Hurricane Irene, the Agronomy IPM program developed testing protocols for mycotoxins and started analyzing local feed samples for mycotoxin levels. Over 60 farm visits were made to assist farmers with mycotoxin issues. In addition, several outreach materials were developed and distributed to over 1500 growers in VT. Articles were also posted on the web and published in local newspapers.