

Title:	The Transdisciplinary Vermont Extension IPM Program Addressing Stakeholder Priorities and Needs for 2013-2016		
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Program Name: Extension Integrated Pest Management -

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Non-Technical Summary

The Vermont EIPM Program (VT EIPM) uses a comprehensive, trans-disciplinary approach to address essential IPM needs by diverse stakeholders by reducing potential risks to human health and the environment through sustainable pest management systems. To meet the IPM needs of Vermont stakeholders, the 2013-2016 VT EIPM Program will focus efforts in the following Program Emphasis Areas: Agronomic Crops, Specialty Crops (apples, cold climate grapes, greenhouse, landscape),

greenhouse, and a new group of stakeholders representing the landscaping industry. The IPM needs of the diverse stakeholder community of home gardeners will be addressed through the IPM Implementation in Communities. A new Program Emphasis Area, IPM Support for Pest Diagnostic Facilities, will serve as an overarching resource for all the Vermont stakeholders represented by the different Program Emphasis Areas

What was accomplished under these goals?

Each facet of the VT IPM program has accomplished goals toward reducing potential risks to human health and the environment through sustainable pest management systems.

Agronomic IPM

- The UVM Cereal Grain Testing Lab found 78% were above the 1 ppm FDA allowable threshold for human consumption.
- A first report of stripe rust for NE was reported by farmers asked to report significant issues with leaf diseases

Apple IPM Program (including organic apple IPM):

- Survey of growers revealed 88% would adopt reduced-risk IPM strategies as a result of the Apple IPM Program.

Cold Climate Grape IPM Program:

- Survey (2012) of growers revealed 87% would adopt a new IPM practice as a result of the Grape IPM Program.

Greenhouse IPM

- 91% of the attendees at 3 greenhouse IPM workshops learned new IPM techniques they intend to use in the coming year;
- 100% of the growers taking part in the IPM First program use natural enemies now compared with 53% before entering the program.
- 77% of participating growers in IPM First program now use plant-mediated IPM systems as compared with 50% at the start.
- In a 2014 survey at the Tri-state Greenhouse IPM workshop, 68% used biocontrol; similar to 2013 and 40% of the growers used plant-mediated IPM systems compared with 34% in 2014.

Landscape IPM

- Evaluations for the biocontrol workshop showed that 87% of the attendees learned new techniques they intend to use in the coming year, including predatory midges for aphids and predatory mites for spider mite. 62.5% of the attendees made new contacts they will use in the future. The program was ranked at 4.2 out of 5.
- A survey of landscapers/nursery growers was conducted and results were compiled (Respondents: VT: 33.3%; ME: 27.8%; NH: 38.9%). Key results: **Issues:** major arthropod pests: aphids, spider mites and scale; major diseases: botrytis, powdery mildew, sod mold; major animal problems: slugs, deer; major production issues: fertility; **Pesticide use:** 28% used non-restricted insecticides monthly, 17% used them weekly. 22% used non-restricted fungicides monthly and 11% used them weekly. 17% used restricted use insecticides monthly, and 22% used them occasionally. 22% used restricted use fungicides occasionally; 33% used restricted use herbicides occasionally. **Use of IPM Practices:** 56% scouted plants; 44% test their soil, 33% use sticky cards, 6% use habitat plants. **Biological Control:** 11% release parasites or predators or use microbial fungicides, 6% use nematodes or microbial insecticides. **Sources of information for landscapers:** 72% from reference books, 67% from the web, 56% from fact sheets, 44% from State Dept. of Ag, other landscapers, or local workshops, 39% from Univ. plant diagnostic labs, 33% from Extension specialists or at regional conferences. **What would help with IPM adoption:** 56% workshops, 44% fact sheets, a local website: 33%. **Limits of biocontrol use:** 28% Lack confidence they work, 22% lack of knowledge about how to use them, and that they are not compatible with pesticides. Results will serve as a bench mark to assess future program impacts.

Consumer IPM

- 30% of students enrolled in the Master Gardener Course were introduced to IPM for the first time in this course, prior to the first lecture 52% reported that they were "unsure" whether they use any IPM practices in their gardens, after the Plant Pathology lecture 95% reported that they will utilize at least one IPM practice in their garden this year, 95% reported learning

- 91% of clients in 2013 and 90% of Plant Diagnostic Clinic clients surveyed in 2014 responded the information provided by the PDC helped them use integrated pest management strategies (cultural practices and use of least toxic pesticides as a last resort) to manage pest /disease problem. 85% reduced the use of pesticides as a result of the information they received from the PDC in both years.

What opportunities for training and professional development has the project provided?

A new IPM website was developed highlighting our Vermont IPM programs <http://pss.uvm.edu/EIPM/>

Agronomic IPM

- The UVM Cereal Grain Testing Lab tested Northeast growers' grain for DON contamination from FHB infection. We posted a FHB alert to 500 growers through the Northern Grain Growers Association newsletter and our website.
- Bi-weekly scouting was conducted on new regional specialty crops: sunflowers and hops. Incidence and severity of several pests including banded sunflower moth, sunflower maggot, leafhopper, two spotted spider mites, and aphids on hops were recorded. Email and blogs sent to 360 Northeast hop and oilseed growers.
- Prevalence of leaf diseases on small grains is on the increase. In 2013, farmers were asked to report significant issues with leaf diseases. Many diseases were identified including a first report of stripe rust for NE. Informational materials were distributed to 500 growers through the Northern Grain Growers Association newsletter and our website.
- Field day held at Borderview Research Farm highlighted grain production and research. Leaf diseases and FHB issues were highlighted. Factsheets on stripe rust and info were distributed; 75 attendees.
- Leaf diseases of perennial grass hay crops assessed during the summer and fall on two grass species/cultivar trials.
- Winter meeting in 2013 highlighted disease issues in corn, soybeans and grass hay. Leaf blights, molds, and grass rust were the focus of the presentations; 82 attendees.

Apple IPM Program (including organic apple IPM):

- 10 'Apple IPM Alerts' were disseminated to over 100 growers subscribed to the Apple IPM email listserv and archived on the Apple IPM website; 448 visits.
- 10 'Organic Apple IPM Observations' distributed to over 100 organic stakeholders and archived on the Organic Apple IPM website; 313 visits.
- Apple workshop organized in collaboration with the Vermont Tree Fruit Growers Association; 65 growers attended.
- Updated and maintained Apple IPM website; 992 new visits
- Updated and maintained Organic Apple IPM website; 215 new visits.
- Incorporated IPM information into a newly developed Practical Guide for Organic Apple Production; 1084 new visits.
- Organic and IPM Apple Demonstration Orchards were maintained and used as a resource for educational purposes.
- Provided 64 one-on-one consultations regarding growers' apple IPM questions by phone, email, or in-person.

Cold Climate Grape IPM Program:

- 9 'Grape IPM Updates' disseminated to over 200 growers subscribed to the Grape IPM email listserv and archived on the Cold Climate Winegrape IPM website; 571 visits. 36 additional posts made to mailing list on IPM and production-related topics.
- Updated and maintained the Grape IPM website pages; 284 new visits.
- Provided 35 one-on-one consultations regarding grape growers' IPM questions by phone, email, or in-person.

Greenhouse IPM

- 1,200 hits on the UVM Greenhouse First IPM website since 2013.

circulated at several state and regional educational events (VT, NH, ME), and is available on the web.

- 5 growers at 3 sites were recruited to receive individualized support.
- 30 site visits were arranged in which growers received one-on-one consultation to assess pest problems and develop IPM approaches for them.
- 180 landscapers and nursery growers took part in seminars and workshops on IPM and biological control for landscape settings and nurseries.
- 15 landscapers for regional educational facilities learned about the threat of exotic invasive pests in the New England region and what they can do about it.

Consumer IPM

- 160 students enrolled in the Master Gardener Course which included three basic IPM lectures: Plant Pathology & IPM and Soil Science and Composting and Entomology.
- 159 plant disease and insect specimens were routed through the Master Gardener Helpline in 2013 for identification and IPM recommendations. Helpline volunteers assisted 1,029 callers with home horticulture questions, and answered 315 emails. Two advanced IPM trainings and two training webinars were provided and archived on the MG website for all volunteers.
- In 2013, the Master Gardener Helpline volunteers began fielding email questions sent to the state office with a new Master Gardener Helpline email account. A pilot of a new online log form as a means of accepting consumer questions for the Helpline was completed in 2014.
- 700 active Master Gardener volunteers participated in a variety of vetted, science-based outreach programs with strong educational components about garden and landscape pest identification and management using IPM strategies. 12,485 hours of education provided valued at \$276,418 (based on the Independent Sector valuation of a volunteer hour). Volunteers are forming connections with schools, agricultural fairs, farmers markets, community gardens, prisons, libraries, hospitals, condo associations and garden centers. Three advanced IPM training webinars have been provided to continue to meet the needs of these stakeholder communities.
- The Master Gardener website serves as a site for consumers and gardeners to access current and emerging insect and disease information on a timely basis, including new IPM pest factsheets on problems important to consumers including spotted wing drosophila, impatiens downy mildew, late blight. Both basic and advanced IPM topics are addressed.
- The Master Gardener Blog is ongoing

Pest Diagnostics

- Over 700 disease and insect samples from commercial growers in all sectors of VT agriculture. Samples included stripe rust of wheat (new disease for VT and NE), Phytophthora on Christmas trees, Phytophthora fruit rots, Swede midge, spotted wing drosophila and late blight, basil downy mildew and impatiens downy mildew
- 30 presentations were given in 2013 for commercial Christmas tree growers, field and forage growers, vegetable and berry growers, landscapers, Master Gardeners and the general public on disease/pest issues.
- Four press releases were sent out statewide on impatiens downy mildew, basil downy mildew, late blight and contaminated compost
- Hot water seed treatment workshop (excellent IPM strategy for eliminating seed-borne disease) was offered to vegetable and berry growers.

How have the results been disseminated to communities of interest?

- Agronomy IPM information is distributed through through websites, field days, winter meetings, blogs, websites, YouTube videos, phone calls and emails.
- Apple and Grape IPM information is distributed through newsletters, website, IPM alerts, winter and summer meetings, conferences, site visits, emails and phone calls.
- Greenhouse and Landscape IPM information is distributed through workshops, presentations, site visits, phone calls, emails, factsheets and websites.
- Master Gardener information is distributed through through websites and the Helpline.
- Plant Diagnostic Clinic IPM information is distributed through sample diagnosis (1,000), websites, listservs, factsheets, television, 50 presentations, 30 workshops, 1,000 emails, phone calls and several site visits.
- Greenhouse IPM:Workshops, presentations, site visits, phone calls, emails and factsheets.

What do you plan to do during the next reporting period to accomplish the goals?

{Nothing to report}

Participants

Actual FTE's for this Reporting Period

Role	Non-Students or faculty	Students with Staffing Roles			Computed Total by Role
		Undergraduate	Graduate	Post-Doctorate	
Scientist	0.5	0	0 0	00	0.5
Professional	0	0	0	0	0
Technical	0 01	0 00	0 00	00	1

Accession No. 1001239

Project No. VT.NEIPM2013

Type	Status	Year Published
Websites	Published	2014

Citation

Skinner, M., Frank, C. and Valentin, R. 2014. Aphid Banker Plant System for Greenhouse IPM, Step by Step. UVM

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2014	YES

Citation

Bradshaw, T. UVM Fruit.<http://www.uvm.edu/~fruit/>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2014	YES

Citation

Darby, H. The Northwest Crops and Soils Program webpage.<http://www.uvm.edu/extension/cropsoil/grains>

Other Products**Product Type**

Other

Description

A new IPM website was developed highlighting our Vermont IPM programs <http://pss.uvm.edu/EIPM/>

Product Type

Data and Research Material

Description

Test Northeast growers' grain for DON contamination from FHB infection

Product Type

Data and Research Material

Description

Bi-weekly scouting on new regional specialty crops: sunflowers and hops

Product Type

Data and Research Material

Description

Farmers asked to report significant issues with leaf diseases

Product Type

Other

Description

Field day highlighting grain production and research

Product Type

Data and Research Material

Description

Assess leaf diseases of perennial grass hay crops on two grass species/cultivar trials

Product Type

Other

Description

Winter meeting in 2013 highlighting disease issues in corn, soybeans and grass hay

Product Type

Other

Description

'Apple IPM Alerts' and 'Organic Apple IPM Observations'

Product Type

Other

Description

Apple workshop in collaboration with the Vermont Tree Fruit Growers Association

Product Type

Other

Description

Apple IPM website and Organic Apple IPM website

Product Type

Educational Aids or Curricula

Description

Practical Guide for Organic Apple Production

Product Type

Other

Description

Organic and IPM Apple Demonstration Orchards

Product Type

Other

Description

One-on-one consultations regarding growers' apple IPM questions

Product Type

Other

Description

'Grape IPM Updates'

Product Type

Other

Description

Grape IPM website

Product Type

Other

Description

One-on-one consultations regarding grape growers' IPM questions

Product Type

Educational Aids or Curricula

Description

Commercial greenhouse operations one-on-one education

Product Type

Other

Description

Greenhouse IPM workshops with handouts focused on encouraging IPM implementation

Product Type

Other

Description

Expand UVM Greenhouse IPM website to include new IPM information requested by growers.

Product Type

Data and Research Material

Description

A survey questionnaire to collect key information on the major pests and diseases and how to increase IPM adoption.

Product Type

Educational Aids or Curricula

Description

Master Gardener Course including three basic IPM lectures

Product Type

Educational Aids or Curricula

Description

Master Gardener Helpline and advanced IPM trainings for volunteers

Product Type

Other

Description

Master Gardener Helpline new email account and new online log form as a means of accepting consumer questions

Product Type

Other

Description

Master Gardener volunteer outreach programs

Product Type

Other

Description

The Master Gardener website and Blog

Product Type

Other

Description

Diagnose disease and insect samples from commercial growers in all sectors of VT agriculture

Product Type

Other

Description

Presentations for commercial growers, Master Gardeners and the general public on disease/pest issues.

Product Type

Other

Description

Press releases

Product Type

Other

Description

Hot water seed treatment workshop

Changes/Problems

Due to reduction in funds, the scope of the Landscape IPM project was scaled back. The number of landscape professionals recruited to take part in the program was reduced, and sites were primarily limited to Northwestern VT. Workshops were limited to VT. It was challenging to get landscapers to complete the survey.