

Progress Report

Title:	The Multidisciplinary Vermont Extension Implementation Program Addressing Stakeholder Priorities and Needs for 2014-2017		
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Program Code: EIP**Program Name:** Extension Implementation Program**Project Director**

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Non-Technical Summary

The VT EIP uses a multi-disciplinary approach to address IPM priorities and needs identified by local and regional stakeholders. The focus of the program includes forages, grains and field crops, greenhouse and landscape operations, apples and grapes, communities, gardens and plant diagnostics for vegetable and berry growers and others. The priority of the program is to develop and promote diverse alternative pest management tactics that will help growers produce high quality crops, produce, ornamentals or landscapes while minimizing input costs and impacts to health and the environment. The VT EIP team includes a plant pathologist, horticulturist, agronomist, weed specialist, entomologist and a community outreach professional.

Accomplishments**Major goals of the project**

The major goals of the project are to increase the adoption of IPM practices in a variety of crops and settings to reduce the amount of pesticides used and to lower costs while protecting the environment and human health.

What was accomplished under these goals?

Each facet of the VT EIP has accomplished goals toward increasing the adoption of IPM practices in a variety of crops and settings to reduce the amount of pesticides used and lower costs while protecting the environment and human health. The VT EIP project areas include grain, oilseed, hops, apple, grape, greenhouse, landscape, communities, plant diagnostics. All project areas workshops/presentations have increased knowledge of IPM topics. Growers at Agronomy Field Days/Winter Conferences improved grain and hop quality, improved farm economics, improved scouting skills, and reduced pest pressure. Apple and Grape presentations were "great discussions of current issues" "applicable to all growers." Participants referenced IPM topics as important take-home messages. Up to 86% of Tri-State Greenhouse IPM Workshop attendees increased use of biological controls and plant-mediated IPM systems, decreased chemical pesticide use, and improved scouting programs. 89% of Master Gardener Course participants have adopted an IPM practice as a result of the course. Presentations by the

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Plant Diagnostic Clinic have increased adoption of new IPM practices.

Several other products have achieved notable impacts. As a result of Grain Disease Survey scouting, farms have minimized pesticide application or adopted new pest control strategies; infected plants were positively identified. Changes in use of Apple IPM were made to improve confidence in making pest management decisions and reduce use of broad spectrum pesticides. 83% of past greenhouse operations enrolled in IPM First continue to use plant-mediated IPM systems; one site reduced chemical pesticide use by over 50% in one season by incorporating routine scouting and rotation of chemistries. 92% of MG Helpline clients chose an IPM practice, 73% reduced their use of a pesticide as a result of diagnosis. 92% of PDC clients, including targeted stakeholders, chose an IPM practice, 73% reduced their use of a pesticide as a result of the diagnosis.

Please see the following accomplishments available at this time for each product for more details.

Agronomy Field Days

- 100% learned new information; 90% intend to make a change based on what they learned.
- 67% improved grain quality and improved farm economics as a result of previous field days.

Agronomy Winter Conferences

- Annual Hops Conference:
 - 56% improved scouting skills, 67% reduced pest pressure, 71% improved pest identification skills, 63% implemented crowning to control downy mildew, 47% improved hop quality.
 - "I was very impressed with the conference. I got all the info I needed to get started."
- Annual Grain Growers Conference:
 - 100% learned new information; 80% intend to implement a new practice.
 - 39% improved grain quality, 44% improved soil health, 33% improved weed control strategies.
 - "Updated research on crops. It was the best conference I have ever attended."

Grain Disease Survey

- Several grain and dry bean pests were identified during the 2016 growing season.
- All of the farms scouted found it useful and would like to continue scouting their fields in 2017. Scouted farms have minimized pesticide application or adopted new pest control strategies.
 - Two farms unknowingly planted anthracnose-contaminated seed, leading to 80-100% loss. Pathogen was positively identified by the UVM Plant Diagnostic Clinic and the seed seller notified.
 - While screening pods for anthracnose, another pathogen (Ascochyta) was detected.

Loose Smut Seed Lot Testing

- Only one of four contaminated lots tested positive, indicating better testing methods are needed.

Apple Extension, Outreach, Education

- 2017 Vermont Tree Fruit Growers Association annual meeting
 - 90-100% of participants indicated moderate/considerable knowledge following presentations on Lepidopteran Complex (26% increase), Modern Apple Scab (8% increase), Fire Blight 101 (36% increase), Insect Pests (20% increase)
 - "Great discussions of current issues for our orchards." (watching fire blight conditions/timing treatment; cleaning out/mowing leaves for apple scab; rotating fungicide groups; resistance management)
 - "Glad there were topics that were applicable to all growers."
- 2016 Vermont Tree Fruit Growers Association annual meeting impacts
 - 44% of participants changed use of IPM (increased scouting, NEWA weather models); most often to improve confidence in making pest management decisions and reduce use of broad spectrum pesticides.
 - 20% changed Apple Replant Disease management practices.
 - Brown Marmorated Stink Bug is not an issue in the region.

Apple IPM Guideline Assessment

- 100% of advisory stakeholders selected to participate responded to initial online assessment survey.

Grape Extension, Outreach, Education

- NY & VT Winter Grape School, Lake George, NY, March 9, 2017
 - 95% rating by participants for value of topic (Cold Climate Grapes Disease Management, Minimal Spray Program)
 - 52% referenced IPM topics (disease identification, fungicide resistance management, spray timing) as important take-

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home messages

- 72% indicated they will make changes (the remaining 28% indicated 'maybe'); 55% referenced improved attention to disease management

Grape IPM Guideline Assessment

- 100% of advisory stakeholders selected to participate responded to initial online assessment survey.

IPM First for Greenhouse Ornamentals

- 78% use plant-mediated IPM (an increase from 67% with minimal prior knowledge)
- 100% use biological controls (an increase from 56-78% with little prior knowledge)
- 89% now regularly scout for pests.
- 71% claim lack of knowledge about IPM implementation limits use; 43% lack of time, 29% lack of money.
- One participating site reduced chemical pesticide use over 50% in one season by incorporating routine scouting and rotation of chemistries (had previously relied solely on prophylactic chemical applications).
- 83% of greenhouse operations enrolled in past years continue to use plant-mediated IPM systems.
- Past participants host biological control tours for growers and the public.

Tri-State Greenhouse IPM Workshops

- 86% rating by participants in usefulness for solving pest problems. 89% learned new techniques they intend to use this year, 66% had used biological control in the past, 57% had used plant-mediated IPM systems.
- 54% had never attended a past workshop, demonstrating that new growers are being reached.
- Past workshop participants: 86% increased biological controls, 71% increased plant-mediated IPM systems, 86% decreased chemical pesticides, 95% improved scouting program, 93% improved pest identification skills.

Master Gardener Course IPM Lectures

- 46% of 2017 MG Course students did not know what IPM was before the course; 98% intended to adopt a new IPM practice.
- 89% of 2016 MG Course students adopted an IPM practice as a result of the course.

Master Gardener Helpline

- 88% of 2016-2017 MG Helpline clients indicated the information they received helped them use IPM (cultural practices first, least toxic pesticides as a last resort) to manage their pest problem; 68% were able to reduce the use of pesticides.
- 92% of 2015 MG Helpline clients chose an IPM practice, 73% reduced their use of a pesticide as a result of diagnosis.

Plant Diagnostic Clinic disease/insect/weed diagnostics

- 93% of PDC clients indicated their pest issue was identified.
- 92% of PDC clients chose an IPM practice; 73% reduced their use of a pesticide as a result of diagnosis.

Targeted stakeholder groups

- 92% of targeted stakeholders indicated they had adopted an IPM practice as a result of diagnosis.
- Grape researchers and growers had 'considerable' knowledge gain of grape pests from a NY/VT grape meeting; an increase from 'minimal' knowledge indicated before the meeting.

Plant Diagnostic Clinic Extension presentations/workshops

- 72% of field/forage pest specialists indicated increased IPM knowledge as a result of presentations at a 2017 meeting; 54% adopted a new IPM practice as a result of presentations at a 2016 meeting.

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

Agronomy Field Days

- Getting Started with Grains, Berlin, VT. June 21, 2016. 27 attendees.
- Annual Grain Research Tour, Alburgh, VT. June 28, 2016. 29 attendees.
- Organic Wheat Production and Processing, Quebec, Canada. July 13, 2016. 14 attendees.
- Annual Crops and Soils Field Day, Alburgh, VT. July 28, 2016. 185 attendees.
- Hopping and Milling, Northfield, MA. August 18, 2016. 53 attendees.
- Successfully Starting a Hop Yard, Starksboro, VT. September 1, 2016. 52 attendees.
- Growing Dry Beans in VT, Glover, VT. October 11, 2016. 28 attendees.

Agronomy Winter Conferences

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- 8th Annual Hops Conference, Burlington, VT, February 25, 2017. 177 attendees + 19 in Live Broadcast.
- 13th Annual Grain Growers Conference-Grains in a Diversified Farming System, Essex, VT, March 23, 2017. 132 attendees + 17 in Live Broadcast.

Agronomy Web Resources

- 20 research reports on disease/insect/weed pest management on grains, hops, oilseeds from 2016 trials
www.uvm.edu/extension/cropsoil/research
- 14 Hop Blog Posts <http://blog.uvm.edu/hoppenin/>
- 5 grains, beans, oilseeds pest management blog posts <http://blog.uvm.edu/outcropn/>
- 40 hops, grains, beans, oilseeds facebook posts <https://www.facebook.com/uvmcropsoil/>

Grain Disease Survey

- Scouted wheat in Alburgh, N. Troy, Glover, Shelburne, Bridport, Berlin, VT & Northfield, MA. Scouted spring barley in Essex, NY.
- Scouted dry beans in Alburgh, Glover, Cambridge, N. Ferrisburgh, Danby, VT.
- Scouted hops in Alburgh, VT, North Hero, Calais, N. Starksbroro, Ferrisburgh, Berlin, VT & Northfield, MA.
- Identified pathogens on diseased plants with the help of the UVM Plant Diagnostic Clinic.

Loose Smut Seed Lot Testing

- Four contaminated seed lots sent for testing using embryo count method.

Guides of Pests in New England for oilseeds, grains, hops

- Oilseed field guide to pests in the Northeast updated to include soybeans, soybean pests.
- Field guide for growing grains in the Northeast being updated to disease/insect pests.
- "What Hops in a Hop Yard?" hop arthropod pest field guide continues to be updated.
- "Northeast Dry Bean Production Guide" created, including dry bean disease/insect pests.

Apple Extension, Outreach, Education

- 9,139 page views of UVM Fruit: Tree Fruit, June 2016-May 2017
http://www.uvm.edu/~fruit/?Page=treefruit/tf_home.html&SM=tf_submenu.html
- 156 email addresses subscribed to vtapplegrower@list.uvm.edu.
- 43 blog posts providing IPM guidance, promoting IPM tools, advertising IPM workshops/meetings.
- 2 blog posts on Cornell's Network for Environmental Weather Applications for disease management.
- 90 one-on-one consultations.
- 1 fact sheet http://www.uvm.edu/~fruit/treefruit/tf_horticulture/UVFRT005_NonChemWeedMgmt.pdf
- Annual revisions of the New England Tree Fruit Management Guide, released April 2017
- Session planning/IPM presentations at:
 - VT Tree Fruit Growers Association annual meeting, Middlebury, VT, February 16, 2017 (Lepidopteran Complex; Fire Blight 101; Insect Pests; Modern Apple Scab). 65 attendees.
 - Eastern NY Commercial Horticulture Program Champlain Valley Petal Fall Meeting, Peru, NY, May 23, 2017. (Petal Fall Management). 40 attendees.
 - U.S. Association of Cider Makers Conference: Advanced Cider Orchard Production Workshop, Chicago, IL, February 9, 2017. (Reduced Pruning Inputs for Dessert Apples grown for Cider Making). 100 attendees

Apple IPM Guideline Assessment

- 3 selected advisory stakeholders responded to the online assessment survey, obtained initial scores. Responses reviewed with participants during one-on one consultations; IPM practices identified to adopt.
- The same 3 stakeholders received a follow-up online assessment surveys to track adopted IPM practices.

Grape Extension, Outreach, Education

- 2,367 page views of UVM Fruit: Grapes, June 2016-May 2017
http://www.uvm.edu/~fruit/?Page=grapes/gr_home.html&SM=gr_submenu.html
- 269 email addresses subscribed to vermontgrape@list.uvm.edu.
- 22 blog posts providing IPM guidance, promoting IPM tools, advertising IPM workshops/meetings.

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- 1 blog post on Cornell's Network for Environmental Weather Applications for disease management.
- 23 one-on-one consultations.
- 2 American Society of Horticultural Science HortIM fact sheets <http://hortim.ashsmedia.org/items/show/48>, <http://hortim.ashsmedia.org/items/show/49>
- Session planning/IPM presentations at: NY & VT Winter Grape School, Lake George, NY, March 9, 2017. (Cold Climate Grapes Disease Management, Minimal Spray Program). 44 attendees.

Grape IPM Guideline Assessment

- 3 selected advisory stakeholders responded to the online assessment survey, obtained initial scores. Responses reviewed with participants during one-on one consultations; IPM practices identified to adopt.
- The same 3 stakeholders received a follow-up online assessment surveys to track adopted IPM practices.

IPM First for Greenhouse Ornamentals

- 9 new operations enrolled. 3 specifically requested to join. 17 past operations continue to receive guidance.
- Over 70 site visits at 22 different farms, reaching 37 growers in 11 of the 14 VT counties.
- 1 national conference presentation on marigolds to manage thrips in greenhouse ornamentals. 100 attendees.
- 5 presentations on naturally-occurring beneficials in plant-mediated IPM systems. >300 attendees.
- 2 trainings on natural enemy/pest identification for an IPM First site staff, Extension specialists.
- 1 workshop on habitat plant systems/aphid IPM in greenhouse/high tunnel. 40 attendees.
- Participation on technical school advisory committee developing IPM curriculum for greenhouse production courses.

Tri-State Greenhouse IPM Workshops

- Planning/presentations at 20th annual event held in ME, NH, VT. Cooperating regional specialists presented moisture management, disease drought practices, fungus gnat/moisture pest/shorefly/natural enemy identification, moisture meters, live specimen quality assurance identification. >160 attendees.
- 3 hand-outs on identification of naturally-occurring beneficials, using habitat plants in greenhouses.

Green Industry IPM ambassadors

- 10 sites received support (4 newly enrolled) to expand IPM adoption and serve as Green Industry ambassadors. >25 site visits.
- 1 demonstration on natural enemies/pests on habitat plantings. 6 students, 2 educators.
- Customer education display produced about providing habitat for natural enemies/pests of landscape.

Regional IPM Workshops for Landscapers

- 1 conference on establishment of natural enemies on habitat plantings in the landscape.
- 3 presentations on habitat plantings for natural enemies at Tri-State Greenhouse IPM Workshops.
- 3 presentations on best management practices for nurseries reducing movement of invasive earthworms.

Development of Landscape IPM webpage

- Website: <http://www.uvm.edu/~entlab/Landscape%20IPM/LandscapeIPM.html>
- 5,300 hits on greenhouse/high tunnel/landscape IPM webpages

Master Gardener Course IPM Lectures

- 107 Master Gardeners completed the 2016 Master Gardener Course.
- 564 Master Gardener volunteers logged 11,086 hours making 8,701 contacts with the public about home gardening, pesticide reduction, water quality, sustainable landscapes, local food production.

Master Gardener Helpline

- 1,029 home gardener questions answered through the Helpline, June 2016 -May 2017.

Master Gardener Advanced Training IPM Webinars

- 3 Advanced Training Webinars offered to active Master Gardeners: Tomato IPM, Grubs in Turf, weed management.

Plant Diagnostic Clinic disease/insect/weed diagnostics

- >600 samples diagnosed and provided IPM information to commercial growers, Master Gardeners, general public who submitted disease/insect/weed samples.

Plant Diagnostic Clinic Extension presentations/workshops

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- 21 IPM presentations at meetings. >1,000 attendees.
- 6 Across the Fence Extension Television programs on IPM.
- Plant Disease and IPM at Master Gardener Course. 107 students.
- Bi-weekly VT Vegetable and Berry Newsletter column on current/emerging disease/insects/weeds. 750 New England growers.

How have the results been disseminated to communities of interest?

- Agronomy IPM information is distributed through field days, winter meetings, blogs, websites, webinars, YouTube videos, phone calls, emails and social media. A live broadcast of the hops winter conference and the grain growers' conference were made available and archived online. Scouting reports and "cheat sheets" were also distributed as hard copies. Information collected in Loose Smut Seed Lot Testing will remain confidential.
- Apple and Grape IPM information is distributed through newsletters, website, IPM alerts, winter and summer meetings, conferences, site visits, emails and phone calls. Information collected in assessment surveys will remain confidential.
- Greenhouse and Landscape IPM information is distributed through workshops, conferences, presentations, site visits, phone calls, emails, factsheets, websites, and social media.
- Results have been delivered through the UVM Master Gardener course, through the UVM Master Gardener Helpline, through factsheets, statewide projects
- Plant Diagnostic Clinic IPM information is distributed through sample diagnosis, websites, newsletters, television, presentations, workshops, emails, and phone calls.

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

- Host 2017 field days and deliver pest management information to our target audience.
- Farms identified for seed lot testing and grain samples will be submitted for testing after harvesting.
- An on-farm apple and grape workshop/open house will be held in August 2017.
- Results of Apple and Grape IPM Guideline Assessments follow-up assessment survey, including change in IPM practices, will be analyzed and published in 2018.
- Continue individualized training at site visits for "IPM First for Greenhouse Ornamentals" and "Green Industry IPM ambassadors".
- Survey established habitat plantings to promote natural enemy abundance in landscape settings.
- Prepare factsheets relating to greenhouse IPM, using habitat plantings for landscape settings and IPM, and promoting habitat for natural enemies.
- 2016 Master Gardener Course participants will be surveyed in late summer 2017. Surveys of Helpline clients will be administered upon the completion of the 2017 season.
- A survey to evaluate Master Gardener volunteer knowledge following advanced training of specific IPM practices for managing tomatoes, white grubs, and weeds in turf will be administered.
- Continue to distribute three (3) factsheets dedicated to fungal diseases of tomato, white grub complexes and turf management on the MG website and at information tables at fairs and farmers' markets.
- Grower surveys of general and targeted stakeholders using the Plant Diagnostic Clinic will occur September 2017 to measure short term/intermediate IPM impacts.
- All remaining pending project programs will be completed during the no-cost extension through August 2018.

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	0.4	0	0	0	0.4
Professional	0.3	0	0	0	0.3
Technical	0.5	0	0	0	0.5
Administrative	0.3	0	0	0	0.3

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Actual FTE's for this Reporting Period

Role	Non-Students or faculty	Students with Staffing Roles			Computed Total by Role
		Undergraduate	Graduate	Post-Doctorate	
Other	0	0	0	0	0
Computed Total	1.5	0	0	0	1.5

Student Count by Classification of Instructional Programs (CIP) Code

{NO DATA ENTERED}

Target Audience

Target audiences include commercial agricultural operators and associated industry such as crop consultants, professional pest managers, extension educators, researchers and similar stakeholders. Commercial operators include: new and established grain/dry bean/hop farmers, apple growers, grape growers, growers of greenhouse ornamentals/cut flowers/vegetables, growers of landscape/perennial/nursery stock, landscape managers/groundskeepers, and product end-users such as brewers, bakers, or millers. Master Gardeners, home gardeners, general public, schools and communities are also target audiences for portions of this project.

Products

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Darby, H. 2016. Northwest Crops and Soils Program Research Website: <http://www.uvm.edu/extension/cropsoil/research>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Bradshaw, T., Kingsley-Richards, S. 2016. UVM Fruit Tree Fruit Website: http://www.uvm.edu/~fruit/?Page=treefruit/tf_home.html&SM=tf_submenu.html

Type	Status	Year Published	NIFA Support Acknowledged
Journal Articles	Published	2016	NO

Citation

Bradshaw, T.L., Hazelrigg, A., Kingsley-Richards S.L., and Foster, J.A. 2016. Field assessment of salicylic acid to aid in reduction of sulfur to manage apple scab. Plant Dis. Manag. Rep. 10:PF031.

Type	Status	Year Published	NIFA Support Acknowledged
Journal Articles	Published	2016	NO

Citation

Bradshaw, T.L., Hazelrigg, A., Kingsley-Richards S.L., and Foster, J.A. 2016. Biological disease management of Vf-gene scab resistant organic apples, 2015. Plant Dis. Manag. Rep. 10:PF032.

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Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2017	YES

Citation

Twilight meeting focuses on fertility and weed control in apples. Country Folks New England. 4/28/2017.
<http://countryfolks.com/twilight-meeting-focuses-on-fertility-and-weed-control-in-apples/>

Type	Status	Year Published	NIFA Support Acknowledged
Other	Under Review	2017	YES

Citation

Terence Bradshaw, "Non-Chemical Weed Management in Apple Orchards," ASHS HortIM™, accessed July 12, 2017,
<http://hortim.ashsmedia.org/items/show/52>.

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Bradshaw, T., Kingsley-Richards, S. 2016. UVM Fruit Grape Website:
http://www.uvm.edu/~fruit/?Page=grapes/gr_home.html&SM=gr_submenu.html

Type	Status	Year Published	NIFA Support Acknowledged
Journal Articles	Awaiting Publication	2016	NO

Citation

Hazelrigg, A., Bradshaw, T.L., Berkett, L.P., Maia, G., and Kingsley-Richards, S.L. 2016. Disease Susceptibility of Cold-Climate Grapes in Vermont, U.S.A. Acta Hort. Accepted November, 2016.

Type	Status	Year Published	NIFA Support Acknowledged
Journal Articles	Awaiting Publication	2016	NO

Citation

Bradshaw, T.L., Hazelrigg, A., and Berkett, L.P.. 2016. Characteristics of the cold-climate winegrape industry in Vermont, U.S.A. Acta Hort. Accepted November, 2016.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2017	YES

Citation

Bradshaw, Terence and Lorraine P. Berkett, 2017. "Relative Disease Ratings for Wine Grape Varieties Grown in Vermont," ASHS HortIM, <http://hortim.ashsmedia.org/items/show/49>.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2017	YES

Citation

Bradshaw, Terence and Lorraine P. Berkett, 2017. "An Initial IPM Strategy for New Cold Climate Winegrape Growers," ASHS HortIM, <http://hortim.ashsmedia.org/items/show/48>.

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Sullivan, C.E.F. and Skinner, M. 2017. Greenhouse Integrated Pest Management Website:
<http://www.uvm.edu/~entlab/Greenhouse%20IPM/UVMGreenhouseIPM.html>

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Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Sullivan, C.E.F. & Skinner, M. 2017. Landscape Integrated Pest Management Website: <http://www.uvm.edu/~entlab/Landscape%20IPM/LandscapeIPM.html>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	NO

Citation

Hazelrigg, A. UVM Extension Master Gardener. 2016. <http://www.uvm.edu/mastergardener/>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Hazelrigg, A. Plant Diagnostic Clinic website. <http://www.uvm.edu/extension/pdc>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Hazelrigg, A. 2016. Maple problems. <https://www.uvm.edu/sites/default/files/Maple-Problems.pdf>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2016	YES

Citation

Hazelrigg, A. 2016. Tomato problems in the home garden. <https://www.uvm.edu/sites/default/files/Tomato-Problems.pdf>

Type	Status	Year Published	NIFA Support Acknowledged
Journal Articles	Published	2016	NO

Citation

Richard G. Smith, Sonja K. Birthisel, Sidney C. Bosworth, Bryan Brown, Thomas M. Davis, Eric R. Gallandt, Ann Hazelrigg, Eric Venturini, and Nicholas D. Warren. 2016. Environmental correlates with germinable weed seed banks on organic farms across northern New England. *Journal of Weed Science*.

Other Products**Product Type**

Other

Description

Agronomy Field Days highlighting grain, oilseed, and hops pest management trials, scouting strategies, and pest identification tools.

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Product Type

Other

Description

Agronomy Winter Conferences on pests, diseases, weeds and IPM specific to grain, oilseed, and hops. Webinars will be streamed live from each event.

Product Type

Audio or Video

Description

Agronomy Web Resources: website, blogs, YouTube videos, pest management information briefs

Product Type

Data and Research Material

Description

Grain Disease Survey: survey New England farms for foliar disease.

Product Type

Data and Research Material

Description

Loose Smut Seed Lot Testing. Farmers sent results and info on how to reduce loose smut in fields and seed lots.

Product Type

Educational Aids or Curricula

Description

Guides of Pests in New England for oilseeds, grains, and hops including pest id, lifecycle and management tools.

Product Type

Other

Description

Apple Extension, Outreach, Education: newsletters, blog posts, and/or factsheets containing time- and crop-sensitive IPM information integrating weather and pest models, on-farm workshop to demonstrate IPM practices, one-on-one consultations, revisions of the New England Tree Fruit Management Guide, planning and presentations at regional grower meetings.

Product Type

Educational Aids or Curricula

Description

Apple IPM Guideline Assessment: selected group of advisory stakeholders will participate in a survey of crop-specific IPM practices practiced in their orchard operation.

Product Type

Other

Description

Grape Extension, Outreach, Education: newsletters, blog posts, and/or factsheets containing time- and crop-sensitive IPM information integrating weather and pest models, on-farm workshop to demonstrate IPM practices, one-on-one consultations, planning and presentations at regional grower meetings.

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Product Type

Educational Aids or Curricula

Description

Grape IPM Guideline Assessment: selected group of advisory stakeholders will participate in a survey of crop-specific IPM practices practiced in their vineyard operation.

Product Type

Educational Aids or Curricula

Description

IPM First for Greenhouse Ornamentals: a statewide individualized grower program. UVM personnel will visit each grower to provide one-on-one instruction and support on selecting, adopting and using plant-mediated IPM systems.

Product Type

Other

Description

Tri-State Greenhouse IPM Workshops: hands-on IPM demonstrations and IPM information packets.

Product Type

Educational Aids or Curricula

Description

Green Industry IPM ambassadors: a statewide individualized landscape/nursery industry stakeholder program. UVM personnel will visit each stakeholder to provide one-on-one instruction and support on selecting, adopting and using plant-mediated IPM systems. Stakeholders will subsequently assist with promoting IPM to other growers.

Product Type

Other

Description

Regional IPM Workshops for Landscapers: hands-on IPM demonstrations and IPM information packets. Presentations also given at Green Industry association meetings.

Product Type

Educational Aids or Curricula

Description

Landscape IPM webpage and brochure: Development of Landscape IPM webpage and Landscape IPM Brochure.

Product Type

Educational Aids or Curricula

Description

Master Gardener Course IPM Lectures: a 13 week course with 200 students including three lectures on IPM topics.

Product Type

Other

Description

Master Gardener Helpline: a popular statewide toll-free source for gardeners needing information on current insect, weed and diseases

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Educational Aids or Curricula

Description

Master Gardener Advanced Training IPM Webinars: part of the training for the MG volunteers in advanced IPM concepts and emerging insect, weed and disease problems.

Product Type

Other

Description

Plant Diagnostic Clinic disease/insect/weed diagnostics: diagnosis and IPM recommendations. Clients include commercial growers (agronomic, apple, grape, greenhouse, landscape, nursery, vegetable, berry, etc.), Master Gardener Helpline, the gardening public and urban consumers.

Product Type

Other

Description

Targeted stakeholder groups: apple growers, grape growers, and landscapers targeted through presentations and grower listservs to make them aware of the Plant Diagnostic Clinic's services.

Product Type

Other

Description

Plant Diagnostic Clinic Extension presentations/workshops: addressing current and emerging insect, weed and diseases using IPM tactics in commercial crops, for the vegetable and small fruit growers, and for Master Gardeners. Also information on insect, weed and disease outbreaks, id and IPM management strategies provided for MG volunteers, home gardeners and urban consumers through television, factsheets, listservs, MG blogs, websites, webinars, articles and newsletters.

Changes/Problems

- Due to reduced funding, only one "Regional IPM Workshop for Landscapers" was offered (in VT). Landscape topics were included in the 2017 Tri-State Greenhouse IPM Workshops in ME, NH and VT. The Landscape IPM steering committee was not established.
- A change of MG coordinators in 2016 resulted in 5 months without a full time MG coordinator.
- No changes/problems of note for other project programs.