

## Progress Report

<b>Title:</b>	<b>Vermont IPM Extension Implementation Program 2017-2020</b>		
<b>Sponsoring Agency</b>	NIFA	<b>Project Status</b>	ACTIVE
<b>Funding Source</b>	Non Formula	<b>Reporting Frequency</b>	Annual
<b>Accession No.</b>	1013802	<b>Grants.gov No.</b>	GRANT12397990
		<b>Award No.</b>	2017-70006-27143
<b>Project No.</b>	VTN32287	<b>Proposal No.</b>	2017-04388
<b>Project Start Date</b>	09/01/2017	<b>Project End Date</b>	08/31/2018
<b>Reporting Period Start Date</b>	09/01/2017	<b>Reporting Period End Date</b>	08/31/2018
<b>Submitted By</b>	Stephanie Albaugh	<b>Date Submitted to NIFA</b>	06/04/2018

**Program Code:** EIP**Program Name:** Extension Implementation Program**Project Director**

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**Recipient Organization**

UNIVERSITY OF VERMONT &amp; STATE

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**Performing Department**

Extension - Program and Facult

**Co-Project Directors**

{NO DATA ENTERED}

**Departments**

{NO DATA ENTERED}

**Non-Technical Summary**

The Vermont Extension Implementation Program includes specialists in plant pathology, entomology, horticulture, agronomy, pesticide education, weed science and community outreach. A program coordinator and an evaluation specialist also play critical roles, maximizing communication and cooperation among Priority area teams. The VT EIP team has strong relationships with stakeholders and addresses IPM needs in the following Primary Priority areas: Agronomic Crops; Specialty Crops; Communities and IPM for Pollinator Health. Secondary Priority areas of IPM Support for Pest Diagnostic Facilities and IPM Education for Pesticide Applicators serve as overarching resources for all Primary Priority areas. The goals of the VT EIP are to develop and promote effective education and outreach programs to improve IPM practices, reduce costs through those IPM practices, increase IPM adoption and reduce human and environmental risks for our commercial growers and communities.

**Accomplishments****Major goals of the project**

The overarching goals of the Vermont IPM program are to develop and promote effective education and outreach programs to improve IPM practices, reduce costs through those IPM practices, increase IPM adoption and reduce human and environmental risks for our commercial growers and communities. Specific goals of each priority area are:

**Agronomy-**Goals include identification of the disease and pests that challenge northeast growers. Farmers will learn to identify pests in their fields and learn if their seed sources are disease free. They will learn the best agronomic practices to minimize pest damage and we will promote the UVM PDC for help in identifying disease, insect and weed problems in farmers' fields. Our goal is to help farmers design robust local grain and hop systems that successfully address pertinent pest challenges to produce a diversity of food and feed grains for expanding local grain markets.

**Fruit-** Goals include include timely delivery of IPM information to apple and grape growers; implementation of regional orchard and vineyard monitoring programs; and development of baseline data on pollinator diversity in commercial orchards (see Priority Area IPM for Pollinator Health). We will continue to highlight the Plant Diagnostic Clinic as a resource for insect, weed and disease diagnosis and IPM recommendations.

**Greenhouse/high tunnel-**Goals include addressing grower needs while improving environmental sustainability and profitability of the greenhouse industry in ME, NH and VT by reducing losses from arthropod pests and increasing growers' revenues

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through IPM strategies learned at workshops and individual site visits.

Communities-Goals include educating gardeners about pest identification and IPM strategies in the home garden and landscape through a course, a statewide Helpline and several outreach events.

IPM for Pollinators-Goals include educating growers and gardeners on the importance of pollinator protection through an orchard pollinator survey, through pilot habitats and through a home garden IPM short course.

Pest Diagnostics-Goals include providing timely, accurate and cost-effective diagnostics to Vermont stakeholders so they can make informed management decisions based on IPM strategies.

Pesticide Education-Goals include developing trainings on pollinator health to key stakeholders targeting pesticide applicators in apple orchards, in blueberries and for applicators in the nursery/greenhouse ornamentals industry

**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, high tunnels, communities, plant diagnostics, and pesticide applicators.

Participants from all project area workshops/presentations have increased knowledge of IPM topics within the first year.

Growers at Agronomy Winter Conferences plan to adopt proactive changes in crop and pest management, including certified seed, scouting, and crop rotation. A new outreach effort on hop production successfully increased understanding of how to scout and manage downy mildew disease. Apple presentations on trunk problems, scouting, and "great ways to support native pollinators" increased knowledge by up to 250%. Greenhouse/High Tunnel/Nursery Tri-State IPM Workshop attendees learned new techniques they intend to use this year, including sanitation, better management of natural enemies, and plant mediated IPM systems. 96% of Master Gardener Course students gained a better understanding of IPM practices, 36% of students have already changed their IPM practices, and 55% intend to change their IPM practices in the next 6 months.

Advanced Training provided new information to experienced Master Gardeners: 95% of participants plan to adopt a new IPM practice. The Plant Diagnostic Clinic provided critical IPM strategies to commercial and home gardener clients. Plant Diagnostic Clinic outreach presentations successfully increased knowledge of IPM and 56% of attendees at the NE Vegetable & Fruit Conference have adopted a new practice as a result of the presentations.

Impacts will be measured throughout the upcoming growing season for additional priority area products. Please see the following accomplishments available at this time for each product for more details.

**Agronomy Field Days and Winter Conferences**

- Annual Hops Conference:
  - 92% of attendees thought the material covered met their expectations.
  - "The combination of the sensory presentation and the harvest timing presentations fit really well together. I believe this information will help me to produce a better product and more effectively communicate its value with my brewers."
  - "The topics and format was great as a "greenhorn" with hops production, it was very good in covering all aspects of getting started."
- Annual Grain Growers Conference:
  - Attendees plan to: 54% select new grain varieties, 18% buy certified seed, 52% change crop/fertility management, 55% change weed management, 53% implement a new crop rotation, 14% scout, 35% adopt cover crop practices.
  - "This was an excellent conference. The keynote was inspiring and networking sessions were helpful. The emphasis on climate and environmentally sensitive farming methods is very timely."
  - "I enjoyed the mix of bakers speaking about rye issues, the bigger picture of what can be done with grains and community, and the growing and farming workshops."
  - "Great diversity of workshops, extraordinary keynote speaker."

**Agronomy Extension Outreach Education**

- Hop Power Hour
  - 94% of participants indicated they would make a change to their farming operation or how they advise farmers.
  - 100% of participants indicated that they have a better understanding of how to scout for downy mildew and manage the disease.

**Apple/Grape Extension Outreach Education**

- 2018 Vermont Tree Fruit Growers Association annual meeting
  - 92% of participants indicated moderate/considerable general knowledge following presentation on Trunk Problems in Vermont Apple Orchards (71% increase)

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- 100% of participants indicated moderate/considerable general knowledge following presentation on Implementing an Orchard Monitoring (30% increase)
- 90% of participants indicated moderate/considerable general knowledge following presentation on Constraints and Opportunities in Growing Cider Apples in Vermont (55% increase)
- 100% of participants indicated moderate/considerable general knowledge following presentation on Managing Native Bees for Tree Fruit Pollination (250% increase)
- "Orchard monitoring detail about trap types and timing was SO helpful."
- "Learned some great ways to support native pollinators, which we rely on heavily in our orchard."

**Greenhouse/High Tunnel/Nursery Tri-State IPM**

- 92% of the attendees learned new techniques they intend to use this year, including sanitation, pH/EC; better management of natural enemies, plant mediated IPM systems (habitat plants)
- 84% usefulness rating of program for solving pest problems
- 71% of the attendees attended a previous program, indicating retention of attendees as well as recruiting of new attendees.

**Master Gardener Course**

- 96% of students agreed/strongly agreed that the course gave them a better understanding of Integrated Pest Management practices (43% increase).
- 36% of students indicated that as a result of this course they had already changed their IPM practices; 55% indicated that they intend to change their IPM practices in the next 6 months.

**Master Gardener Helpline**

- Approximately 95% of calls provide IPM information (pest lifecycle, non-pesticide management options) to the home gardening public.

**Master Gardener Advanced Training Webinars**

- 100% of attendees learned something new on pest and disease identification.
- 95% indicated they would adopt an IPM practice.

**Plant Diagnostic Clinic Disease/Insect/Weed Diagnostics**

- 96% of commercial grower and 97% of home gardener PDC clients indicated their pest issue was identified and IPM strategies were delivered.
- 92% of commercial grower and 93% of the home gardener PDC clients used an IPM practice as a result of the diagnosis and recommendations.
- 73% of commercial growers and 70% of the home gardener clients reduced their use of pesticides as a result of the diagnosis.

**Plant Diagnostic Clinic Extension Outreach Education**

- 56% of attendees at the NE Vegetable & Fruit Conference adopted a new practice as a result of the presentations.
- 82% of field and forage grower attendees at the VT Commercial Pesticide Applicators Meeting increased their IPM knowledge as a result of workshop

**What opportunities for training and professional development has the project provided?****Agronomy Field Days and Winter Conferences**

- The 9th Annual Hops Conference, Burlington, VT. February 16, 2018. 126 attendees + 14 participants in Live Broadcast.
- The 14th Annual Grain Growers Conference- Diversifying Grains for a Changing Climate, Essex, VT. March 22, 2018. 107 attendees.
- <http://www.uvm.edu/extension/cropsoil/events-and-calendar>

**Agronomy Extension Outreach Education**

- 4 Hop Blog Posts <http://blog.uvm.edu/hoppenin/>
- Hop Power Hour monthly webinars began April 23, 2018 and will continue through September 2018. 34 participants. <https://www.youtube.com/watch?v=sNLDK7Mr0h8&t=0s&list=PLaZCgOs78ccqi-5V2G3GaLRxgmeM0Nb&index=1>

**Orchard and Vineyard Scouting Network**

- Online reporting platform developed. Operating in testing mode for 2018 season.

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- 5,408 page views of UVM Fruit: Tree Fruit & 1,656 page views of UVM Fruit: Grapes from Sept 2017-May 2018  
<http://www.uvm.edu/~fruit/>
- 166 email addresses subscribed to [vtapplegrower@list.uvm.edu](mailto:vtapplegrower@list.uvm.edu) listserv; 271 email addresses subscribed to [vermontgrape@list.uvm.edu](mailto:vermontgrape@list.uvm.edu) listserv
- 43 UVM Fruit blog posts promoting IPM tools, Network for Environmental and Weather Applications (NEWA), and advertising IPM meetings to apple/grape growers. <http://blog.uvm.edu/fruit/>
- 28 one-on-one grower consultations (phone, email, and on-site)
- Annual revisions of the New England Tree Fruit Management Guide, Feb 2018. <https://netreefruit.org/>
- Session planning and presentations:
  - New England Vegetable & Fruit Conference: Hard Cider Session. Manchester, NH. December 13, 2017. 85 attendees. (Constraints & Opportunities for Selling Apples to the Cider Market, +6 speakers). <https://newenglandvfc.org/past-conference-proceedings-presentations/2017-proceedings-and-presentations>
  - Maine Pomological Society Workshop: Introduction to Growing Grapes in Maine. Augusta, ME. January 11, 2018. 65 attendees. (Grape Varieties for New England, Pruning and Trellising Options). <https://umaine.edu/news/blog/2017/12/12/class-focus-growing-grapes-commercially-maine/>
  - Vermont Tree Fruit Growers Association annual meeting, Middlebury, VT. February 15, 2018 (Recap of the 2017 Season, Trunk Problems in Vermont Apple Orchards; Constraints and Opportunities in Growing Cider Apples in Vermont; Implementing Orchard Monitoring; Managing Native Bees for Tree Fruit Pollination). 65 attendees. [http://www.uvm.edu/~fruit/?Page=treefruit/tf\\_meetings.html&SM=tf\\_submenu.html](http://www.uvm.edu/~fruit/?Page=treefruit/tf_meetings.html&SM=tf_submenu.html)
- Presentations (attendees):
  - Unique IPM Needs for Cider Apple Production. Northeastern IPM Center Advisory Council Meeting. Plainville, MA. 10/31/2017. (25)
  - NEWA: It's about Much More than Weather. VT Vegetable & Berry Growers Association. Fairlee, VT. 1/22/2018. (150)
  - Apples, Getting to the Core. The Dish Food & Agriculture Series, Presented by City Market & Intervale. Burlington, VT. 2/22/2018. (26)
  - Non-Chemical Weed Management in Northeast Apple Orchards. Maine Pomological Society Annual Meeting. 3/28/2018. (70).

**Greenhouse/High Tunnel/Nursery Tri-State IPM**

- 21<sup>th</sup> annual event held in ME, NH, VT. Cooperating regional specialists presented and hands-on sessions on sanitation, advanced nutrient management practices, pest and natural enemy identification to encourage use of plant-mediated IPM systems, non-bee pollinators in landscapes and how to attract them into production areas. A biological control specialist from BioLine AgroSciences presented importance of starting clean and incorporating biological control agents into greenhouse production systems. A technical specialist for BioWorks presented modes of action of microbial insecticides. >150 attendees. <http://www.uvm.edu/~entlab/Greenhouse%20IPM/Workshops/2018/IPMWorkshop2018.html>

**Greenhouse/High Tunnel/Nursery IPM First**

- 5 new operations enrolled for 2018; pre-project surveys distributed.
- Inspection checklist (pest id, natural enemy releases and pesticide applications, plant-mediated IPM system use, environmental conditions, cultural practices and diagnostic clinic use) developed to distribute to growers after site visits.

**Greenhouse/High Tunnel/Nursery Extension Outreach Education**

- 7,490 page views on UVM greenhouse/high tunnel/landscape IPM webpages  
<http://www.uvm.edu/~entlab/Greenhouse%20IPM/UVMGreenhouseIPM.html>,
- 3,972 followers on UVM Entomology Facebook page  
<https://www.facebook.com/UVMEntomologyResearchLaboratory/?fref=ts>
- 425 email addresses subscribed to the GreenGrower listserv which has over.
- 2 factsheets (identification of naturally-occurring beneficials, using habitat plants in greenhouses, designing a scouting plan).
- 1 webinette on plant-mediated IPM systems. <https://youtu.be/ucVhodEhMhk>
- Presentation: Habitat Plants to Attract Natural Enemies into High Tunnel Crops. New England Vegetable & Fruit Conference. Manchester, NH. December 13, 2017. 85 attendees. 70 attendees.

**Master Gardener Course**

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- Master Gardener Course delivered through web platform. January 16–April 25, 2018. 96 students. Plant Diagnostic Clinic Program Support of IPM Communities (PDC Team) delivered lectures: entomology, plant pathology and turf care.

- 270 EMG volunteers logged 11,201 hours at 102 projects and events (fairs, Ask a MG tables, Farmers Markets, other outreach) making 30,589 contacts with the public about home gardening, pesticide reduction, sustainable landscapes, pest identification and IPM strategies.

**Master Gardener Helpline**

- 1,061 questions answered by phone and email
- 88 specimens submitted for pest identification

**Master Gardener Advanced Training Webinars**

- Diseases, Pests and IPM. April 2018. 25 Master Gardener Helpline volunteers who answer the public's gardening questions. Recording will be available to 300+ Master Gardeners statewide.

**Orchard Pollinator Survey**

- Survey methods developed. 2018 assessment underway.

**Greenhouse/High Tunnel/Nursery Pollinator Habitat Program**

- 10 individuals at 3 greenhouse/nursery sites trained to establish pollinators through habitat plantings.

**Master Gardener Pollinator Short Course**

- Currently under development to launch in 2018 on eXtension course website.

**Plant Diagnostic Clinic Disease/Insect/Weed Diagnostics**

- 500+ samples diagnosed with pest lifecycle and IPM strategies.
- 100+ emails with photos diagnosed for plant issues.

**Plant Diagnostic Clinic Extension Outreach Education**

- Presentations (attendees):
  - Master Gardener State Conference. 10/21/17. (60)
  - ME Farmer to Farmer Conference. 11/6/17. (50)
  - NE Grows, Boston, MA. 11/30/17. (40)
  - NE Vegetable & Fruit Conference, Manchester, NH. 12/12/17. (200)
  - VT Vegetable and Berry Association Annual Meeting, Fairlee, VT. 1/2/18. (200)
  - CT Nursery and Landscape Association Meeting, Plantsville, CT. 1/24/18. (100)
  - VT NH Christmas Tree Growers Association, Burlington, VT. 1/30/18. (50)
  - VT Nursery and Landscape Association, Burlington, VT. 2/15/18. (100)
  - NOFA VT Annual Meeting, Burlington, VT. 2/18/18. (50)
  - PSS Course IPM and Agroecology, 2/28/18. (40)
  - VT Crops Meeting, Bradford, VT. 3/27/18. (50)
  - VT Commercial Pesticide Applicators Meeting, So. Burlington. 3/29/18. (60)
  - Newport Garden Club, Newport, VT. 4/10/18. (40)
- Television: 4 programs on pests, diseases, IPM Management. Across the Fence. 8/30/17 <https://youtu.be/9Mv8l5S2TMY>, 10/06/17 <https://youtu.be/oCMzDsH1vTA>, 4/27/18 [https://youtu.be/Qk6UkY\\_e-Uo](https://youtu.be/Qk6UkY_e-Uo), 5/25/18 <https://youtu.be/ROfi7IsUR-k>
- Radio PSAs: WDEV. Fall 2017 and Winter 2018.
- Newsletters:
  - Four articles for The Dirt: "Observations from the UVM Plant Diagnostic Lab". <https://greenworksvermont.org/news-events/the-dirt/>. 350 subscribers.
  - Regular contributor on diseases and pests from the Plant Diagnostic Clinic and the field. VT VEG and BERRY bi-weekly listserv for vegetable farmers throughout the Northeast. 650 farmers.
  - UMASS Vegetable Notes (contribute VT data). Weekly in season; monthly in winter. <https://ag.umass.edu/vegetable/newsletters>. 2,128 subscribers.
- Press Release: Nuisance Pests in Homes. Winter 2018

**Pesticide Applicator Online Education**

- Online platform determined.

**How have the results been disseminated to communities of interest?**

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- Agronomy IPM information is distributed through field days, winter meetings, blogs, websites, webinars, Facebook posts, YouTube videos, phone calls, emails and social media. A live broadcast of the hops winter conference was made available and archived online. Information collected in Dry Bean Survey and Seed Quality Testing will remain confidential.

- Apple/Grape IPM information is distributed through newsletters, website, blog posts, factsheets, on-farm workshop, one-on-one consultations, and presentations at regional grower meetings. Information collected in Orchard and Vineyard Scouting Network and Apple/Grape IPM Guideline Assessment surveys will remain confidential.

- Greenhouse/High Tunnel/Nursery IPM information is distributed through workshops, conferences, presentations, site visits, factsheets, websites, Facebook page and a listserv.

- Master Gardener IPM information is delivered through the Master Gardener Course, through the Master Gardener Helpline, EMG newsletter, state reports, website and emails.

- Plant Diagnostic Clinic IPM information is distributed through sample diagnosis, websites, meetings, presentations, webinars, newsletters, television, radio, factsheets, emails, and phone calls.

- Pesticide Applicator Online Education will be through webinars, factsheets and presentations.

**What do you plan to do during the next reporting period to accomplish the goals?****Agronomy Field Days and Winter Conferences**

- Continue programs

**Dry Bean Disease Survey**

- Continue programs

**Seed Quality Testing**

- Continue programs

**Agronomy Extension Outreach Education**

- Continue programs

**Orchard and Vineyard Scouting Network**

- Weekly scouting, fruit sampling at harvest, two vineyards evaluated at veraison, two vineyards evaluated at harvest.

- Annual survey for level of confidence in applying IPM practices (e.g. pest models, monitoring thresholds) for decision making for key pests.

- The number of growers conducting pest monitoring will be collected and tracked in each year.

- Annual pesticide applications to manage key monitored diseases and pest will be collected and tracked.

**Apple/Grape IPM Guideline Assessment**

- Development of online self-assessment tool.

- Assessment participants will obtain initial scores and identify practices to adopt.

**Apple/Grape Extension Outreach Education**

- Continue newsletters, blog posts, integrate NEWA in communications, one-on-one consultations (as necessary).

- An on-farm apple/grape workshop will be held in 2018.

- Planning and presentations at regional grower meetings (with evaluation of knowledge gained and adoption of IPM practices).

**Greenhouse/High Tunnel/Nursery Tri-State IPM**

- Hold the 22<sup>nd</sup> annual Tri-State Greenhouse workshops in ME, NH and VT.

- Continue surveys, to produce factsheets and update web materials.

**Greenhouse/High Tunnel/Nursery IPM First**

- Continue individualized training at site visits

**Greenhouse/High Tunnel/Nursery Extension Outreach Education**

- Continue to update website and facebook page

- Continue sending messages via the Greengrower listserv

- Prepare factsheets relating to greenhouse IPM

- Prepare webinets and evaluation surveys

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- Prepare case studies

**Master Gardener Course**

- In April of 2019 the 2018 master gardener students will be surveyed to assess if they adopted an IPM practice and reduced their use of pesticides.

**Master Gardener Helpline**

- We will survey 2018 clients at the end of the season to see if they adopted an IPM practice that reduced pesticide use.

**Master Gardener Advanced Training Webinars**

- We will offer two webinars in June and July of 2018 with IPM topics to be determined. A committee of two faculty and one staff member are working on the planning for the additional advanced trainings.

- Additionally, the committee is planning several hand-on summer courses including: an urban pest and disease tree walk, a forest walk focused on the safe and judicious use of pesticides for invasive plant irradiation, a hands-on workshop for vegetable diseases and pests and two hand-on sessions on how to use IPM strategies when fertilizing your vegetable garden.

- Factsheets will be developed to be used during the workshops as well as distributed to our 300 master gardeners after the course, and the general public at fairs, farmers markets and other community events around the state.

**Orchard Pollinator Survey**

- Pan traps in two orchards collected weekly; identify and catalogue collected insects.
- Apple growers will be surveyed annually to assess level of adoption of specific pollinator protection practices such as timing and choice of pesticides.

**Greenhouse/High Tunnel/Nursery Pollinator Habitat Program**

- Establish and monitor habitat plantings
- Produce and distribute consumer brochure and signs about protecting pollinators and pollinator identification
- Provide updates on websites and social media

**Master Gardener Pollinator Short Course**

- We are currently developing the course syllabus, reaching out to potential experts to teach various modules, developing the course website and the course advertising materials, such as the flyers website, social media posts, press releases and setting up the pre and post course surveys.

**Plant Diagnostic Clinic Disease/Insect/Weed Diagnostics**

- Continue timely and accurate diagnostics.

**Plant Diagnostic Clinic Extension Outreach Education**

- Continue offering workshops/presentations.

**Pesticide Applicator Online Education**

- Continue to develop content and work with eXtension to produce the webinars and corresponding factsheets for apple, blueberry and nursery growers.

**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	0.9	0	0	0	0.9
Technical	0.7	0	0	0	0.7
Administrative	1.5	0	0	0	1.5

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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	3.5	0	0	0	3.5

## 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: organic and conventional growers of specialty crops, field crops and forages, new and established grain/dry bean/hop farmers, apple growers, grape growers, blueberry growers, growers of greenhouse ornamentals/cut flowers/high tunnel vegetables, growers of landscape/perennial/nursery stock, and product end-users such as brewers, distillers, maltsters, chefs, bakers, and millers. Master Gardeners, home gardeners, owners of small acreage, general public, schools and communities are also target audiences for portions of this project.

## Products

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2018	YES

## Citation

Bradshaw, T. & S. Kingsley-Richards. 2018. UVM Fruit. <http://www.uvm.edu/~fruit/>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2018	NO

## Citation

Darby, H. 2018. Northwest Crops and Soils Program. <http://www.uvm.edu/extension/cropsoil/>

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2018	NO

## Citation

Hazelrigg, A. 2018. Home invasions of the insect kind. <https://www.uvm.edu/newsstories/news/home-invasions-insect-kind>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2018	YES

## Citation

Hazelrigg, A. 2018. Plant Diagnostic Clinic. <http://www.uvm.edu/extension/pdc>



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Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2018	YES

**Citation**

Hazelrigg, A. 2018. UVM Extension Master Gardener. <https://www.uvm.edu/extension/mastergardener>

Type	Status	Year Published	NIFA Support Acknowledged
Websites	Published	2018	NO

**Citation**

Sullivan, C.E.F. and Skinner, M. 2018. Greenhouse Integrated Pest Management Website: <http://www.uvm.edu/~entlab/Greenhouse%20IPM/UVMGreenhouseIPM.html>

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2017	NO

**Citation**

Hazelrigg, A. 2017. Tomato pest management. New England Vegetable & Berry Conference Proceedings, December 14, 2017, Manchester, NH. Proceedings.

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2017	NO

**Citation**

Hazelrigg, A. 2017. Why are my greens brown? 2017 Disease Update. New England Vegetable & Berry Conference Proceedings, December 13, 2017, Manchester, NH. Proceedings.

Type	Status	Year Published	NIFA Support Acknowledged
Other	Published	2017	NO

**Citation**

Sanchez, E., C. Frank Sullivan & M. Skinner. 2017. High Tunnel Vegetable Crops: Designing a Scouting Plan. PennState Extension Article. <https://extension.psu.edu/high-tunnel-vegetable-crops-designing-a-scouting-plan>

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2017	NO

**Citation**

Sullivan, C.F. & M. Skinner. 2017. Habitat plants to attract natural enemies into high tunnel crops. New England Vegetable & Berry Conference Proceedings, December 14, 2017, Manchester, NH. Proceedings.

Type	Status	Year Published	NIFA Support Acknowledged
Conference Papers and	Published	2017	NO

**Citation**

Bradshaw, T. 2017. Constraints & Opportunities for Selling Apples to the Cider Market. New England Vegetable & Berry Conference Proceedings, December 13, 2017, Manchester, NH. Proceedings.

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Websites	Published	2018	YES

**Citation**

Hazelrigg, A. & S. Kingsley-Richards. 2018. Pesticide Safety Education Program. <http://pss.uvm.edu/pesp/>

**Other Products****Product Type**

Other

**Description**

Agronomy Field Days and Winter Conferences: highlighting grain, oilseed, beans and hops pest management trials, IPM scouting strategies, and pest identification tools; live-stream of winter conferences.

**Product Type**

Other

**Description**

Agronomy Extension Outreach Education: conference proceedings and meeting videos , two IPM Briefs/year, blog , scouting info, identification and IPM strategies for a broad range of crops. A Dry Bean IPM guide, previous guides (hops, oilseeds, cereal grains) updated, goScout Action Survey-hop growers surveys, ID Hour, Virtual Reality (VR) video environments.

**Product Type**

Data and Research Material

**Description**

Orchard and Vineyard Scouting Network: weekly coordinated orchard pest monitoring. Weekly results communicated to participating orchards to guide pest management decisions. Online reporting platform developed to track state-wide trap captures.

**Product Type**

Other

**Description**

Apple/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, revisions of the New England Tree Fruit Management Guide, planning and presentations at regional grower meetings.

**Product Type**

Other

**Description**

Greenhouse/High Tunnel/Nursery Tri-State IPM: presentations on insect and disease-related IPM topics. Attendees take part in hands-on demonstrations and receive information packets on current IPM topics.

**Product Type**

Educational Aids or Curricula

**Description**

Greenhouse/High Tunnel/Nursery IPM First: five specialty crop operations enrolled annually, receiving on-site visits by specialists over the growing season to improve IPM skills.

## Progress Report

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**Product Type**

Other

**Description**

Greenhouse/High Tunnel/Nursery Extension Outreach Education: webinets (10-minute narrated, web-based presentations), IPM factsheets for workshops, advanced IPM topics, case studies on IPM adoption based on grower experiences, IPM Facebook posts, and northeast region Greengrower listserve.

**Product Type**

Other

**Description**

Master Gardener Course: a 13 week course with 120 students offered through a web-based platform; including three lectures on IPM topics.

**Product Type**

Other

**Description**

Master Gardener Helpline: popular statewide toll-free service staffed with trained volunteers to answer questions on insect, weed and disease problems and their management.

**Product Type**

Other

**Description**

Master Gardener Advanced Training Webinars: for Master Gardener volunteers addressing recent inquiries from the public. Factsheets developed on these topics posted on the website.

**Product Type**

Data and Research Material

**Description**

Orchard Pollinator Survey: orchard pollinator community composition assessed in two orchards using pan traps to collect pollinators weekly throughout the growing season. Collected insects identified to develop baseline data for use in developing or assessing IPM programs protective of pollinators in orchard systems.

**Product Type**

Educational Aids or Curricula

**Description**

Pollinator Habitat Program for ornamentals/vegetables in greenhouses/high tunnels and nursery settings: operations enrolled to encourage conservation of pollinators. Habitat plantings at each site established with annual and native perennial plant varieties useable for sale as cut flowers, providing continual floral resources to attract the pollinators and beneficials that provide pest management. Beneficial insects (pollinators, predators and parasitoids) surveyed at the three habitat plantings monthly from May-September.

**Product Type**

Other

**Description**

Master Gardener Pollinator Short Course : "Living on the Land: Encouraging small land owners to use IPM to attract pollinators and reduce pesticide use" course offered using an interactive online webinar platform.

**Progress Report**

**Accession No. 1013802**

**Project No. VTN32287**

**Product Type**

Other

**Description**

Plant Diagnostic Clinic Disease/Insect/Weed Diagnostics: provide new and established stakeholders with rapid and accurate diagnosis and current IPM recommendations. Clients include commercial growers, Master Gardener Helpline volunteers, the gardening public and urban consumers.

**Product Type**

Other

**Description**

Plant Diagnostic Clinic Extension Outreach Education: present IPM information addressing current and emerging insect, weed and diseases using IPM tactics in talks/workshops, newsletter columns, television programs, blogs, websites, webinars, press releases, and articles.

**Product Type**

Other

**Description**

Pesticide Applicator Online Education: online platform determined for trainings address IPM and pollinator health targeted for pesticide applicators in apple orchards, in blueberries and for applicators in the nursery/greenhouse ornamentals industry.

**Changes/Problems**

- Target enrollment for the Master Gardener Course was 120 students. 2018 enrollment was 96 students and 86 completed the course.
- No changes/problems of note for other project programs.