

Vermont IPM Extension Implementation Program 2023-2024 Annual NEERA Report

Accomplishments

The Vermont Integrated Pest Management (IPM) Program addresses essential IPM needs as identified by stakeholders in the state as well as advances the goals of the National IPM Roadmap to build sustainable pest management systems that reduce the potential risks to human health and the environment. Agronomy, Tree Fruit, Grape, Greenhouse, High Tunnel, Nursery, Community (Master Gardener), Plant Diagnostic, and Pesticide Education program areas are closely integrated with a research base and are well matched with expertise at the University of Vermont. Each program area involves collaborative efforts both within the state and region to optimize resources and expertise to develop effective IPM programs. Education and information delivery methods are diverse and include meetings, webinars, online courses, presentations, newsletters, factsheets, articles, blogs, and one-to-one education. The Master Gardener Helpline and the Plant Diagnostic Clinic provide IPM information to commercial and home gardeners.

Outputs:

- 112 educational events (5451 participants)
- 85 publications (newsletters, factsheets, newsletter articles, journal articles, blog posts)
- 23 research farm sites
- 198 one-on-one consultations with growers
- 820 home gardening questions answered
- 526 commercial samples diagnosed

Impacts

- Agronomy Field Days & Conferences participants increased knowledge of prevalent pests and IPM practices to minimize crop impact, including managing seedborne diseases. Hop and hemp farms implemented IPM strategies including pest scouting and timely pesticide applications. Small grain, corn, and bean seed quality testing encouraged farmers to purchase certified seed, improve crop rotation, buy tolerant/resistant varieties, manage harvest to segregate lots of seed, and improve cleaning. Agronomy pollinator education increased knowledge and intention to implement strategies to enhance and protect pollinators.
- Orchard scouting and consultation visits provided mentoring opportunities for a new generation of IPM scientists. Grape “natural” production surveys and research results are shared with local and international audiences. Up to 63% of orchards changed management practices to improve identification and management. “We learn more about IPM every year and continually evolve our practices.”
- 75% of Greenhouse/High Tunnel/Nursery Tri-State IPM participants “have adopted all the recommended IPM practices over the past several years.” IPM First one-on-one greenhouse and high tunnel grower consultations increased the use of biological control agents and plant mediated IPM systems. 61% of new high tunnel growers used biological control agents for the first time: “Our tunnel looks the cleanest and healthiest it has ever looked at this point in the season and our pest issues have been very manageable.” High tunnel conference and tour participants, including 24% new growers with less than five years of experience, increased knowledge of IPM they intend to use.

- Master Gardener Course students gained knowledge about Integrated Pest Management practices. 86% made changes to the way they garden at home or in their work with clients as a result of what they learned during the course. 51% of Master Gardener Helpline clients implemented the IPM strategies recommended and 61% avoided the use of pesticides, saving \$104 per client on pesticide costs. Extension Master Gardener volunteers maintain pollinator demonstration gardens that reach the public with direct education.
- 93% of Plant Diagnostic Clinic clients implemented recommended IPM strategies and 86% reduced their use of pesticides, saving \$400 per client on pesticide costs. “With accurate information we can make smart choices, often avoiding pesticides all together.”
- Annual pesticide certification meeting, webinar, and online course participants are likely to use pesticides more safely and adopt IPM practices, including understanding pesticide compatibility, rodenticide use standards, and avoiding herbicide resistance. “This is hard material to digest and verbal discussions help in retaining the information.” *The Pesticide Applicator* newsletter “helps me better protect myself as an applicator of pesticides, better protect the public, and the environment.” Up to 89% of pesticide applicators are likely to adopt at least one new IPM practice to protect pollinators including pesticide best practices and reducing drift following trainings.

Publications

- 3 journal articles
 - Pelletier, B. and Bradshaw, T.L. (2024). Biorational pesticide efficacy in northern New England vineyards. *Acta Hort.* 1387, 269-276. DOI: 10.17660/ActaHortic.2024.1387.37. <https://doi.org/10.17660/ActaHortic.2024.1387.37>
 - Pelletier, B. and Bradshaw, T.L. (2024). Experience and understanding of concepts surrounding ‘natural wine’ in Vermont. *Acta Hort.* 1387, 39-48. DOI: 10.17660/ActaHortic.2024.1387.6. <https://doi.org/10.17660/ActaHortic.2024.1387.6>
 - Sullivan, C.F., Davari, A., Kim, J.S., Parker, B.L. & Skinner, M. 2023. Evaluation of a guardian plant system to suppress *Frankliniella occidentalis* (Thysanoptera: Thripidae) in greenhouse ornamentals. *Pest Management Science*. <https://onlinelibrary.wiley.com/doi/full/10.1002/ps.7556>
- 6 factsheets:
 - Create an Unfriendly Yard for Ticks & Their Hosts with Landscaping <https://www.uvm.edu/~uvmticks/Landscaping%20to%20Reduce%20Ticks%20Factsheet.pdf>
 - Using pest fighting plants in high tunnels <https://www.uvm.edu/~htunnel/factsheets/PestFightingPlantsHighTunnelsCherylSullivan.pdf>
 - Managing Stinging Wasps, Bees and Hornets <https://www.uvm.edu/sites/default/files/Extension-Community-Horticulture/Resources/waspsandhornetmanagement2023.pdf>
 - White Grubs (Family Scarabaeidae): A Serious Lawn Pest <https://www.uvm.edu/~entlab/Landscape%20IPM/WhitegrubsinsoilJune2023.pdf>
 - High Tunnel Winter Greens Diseases <https://www.uvm.edu/~htunnel/factsheets/WinterGreensDiseasesHighTunnelsAnnHazelrigg.pdf>
 - High Tunnel Tomato Diseases <https://www.uvm.edu/~htunnel/factsheets/HighTunnelTomatoDiseasesAnnHazelriggSARE.pdf>

- Vermont Pesticide Certification Guide (update)
https://www.uvm.edu/sites/default/files/UVM-Extension-Cultivating-Healthy-Communities/PSEP/PSEP_FactSheet_VTPestCertGuide.pdf
- 11 newsletter articles:
 - Avoiding Aphid Fallout. High & Dry: Growing Vegetables in Northern New England High Tunnels Newsletter. Issue 1: Fall. <https://www.uvm.edu/~htunnel/newsletters/Fall%202023%20Issue%201%20High%20Tunnel%20Newsletter.pdf>
 - Now is the time to prepare a Biocontrol plan for aphids in your high tunnel vegetables. High & Dry: Growing Vegetables in Northern New England High Tunnels Newsletter. Issue 2, Spring. <https://www.uvm.edu/~htunnel/newsletters/Issue%202%20High%20Tunnel%20Newsletter%20Mar%202024.pdf>
 - Using Pest Fighting Plants in High Tunnels: Awesome Alyssum. High & Dry: Growing Vegetables in Northern New England High Tunnels Newsletter. Issue 2. <https://www.uvm.edu/~htunnel/newsletters/Issue%202%20High%20Tunnel%20Newsletter%20Mar%202024.pdf>
 - Native Solitary Bees and How You can Support them. The Dirt, VT Nursery & Landscape Assoc. Fall Issue: 29-31. 350 subscribers. <https://vnlavt.org/2023/10/11/2023-fall-issue-of-the-dirt/>
 - Observations from the UVM Plant Diagnostic Lab. The Dirt, VT Nursery & Landscape Assoc. 4 issues. 350 subscribers. <https://greenworksvermont.org/news-events/the-dirt/>
 - Biotic vs. abiotic: Diagnosing plant damage. Vegetable Grower News. 10/25/23 <https://vegetablegrowersnews.com/article/biotic-vs-abiotic-diagnosing-plant-damage/>
 - Back to Basics CORE Essentials: Pesticide Review. Fall 2023 https://www.uvm.edu/sites/default/files/UVM-Extension-Cultivating-Healthy-Communities/PSEP/PAR_2023Fall.pdf
 - Back to Basics CORE Essentials: Reading Labels to Compare Products. Spring 2024 https://www.uvm.edu/sites/default/files/UVM-Extension-Cultivating-Healthy-Communities/PSEP/TPA_2024Spring.pdf
- 60 blog posts
 - 57 UVM Fruit blog posts: <http://go.uvm.edu/ogreu>
 - 3 Agronomy blog posts: <http://blog.uvm.edu/outcropp>

This work is supported by Crop Protection and Pest Management Program [grant no. 2021-70006-35509/project accession no. 1027204] from the USDA National Institute of Food and Agriculture. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.



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