Vermont IPM Report 2018-2019

Vermont IPM Extension Implementation Program: 2017-2020
Agronomy; Specialty Crops (Fruit; Greenhouse/Nursery) Communities; IPM for Pollinator Health; Pest Diagnostic Facilities and IPM Education for Pesticide Applicators

PI: Ann Hazelrigg
Co PI: Heather Darby, Terence Bradshaw, Margaret Skinner, Sid Bosworth

Agronomy Accomplishments/Outputs

Agronomy Accomplishments/Outputs

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.
- 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

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.

**Impacts**

**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/Grape Accomplishments/Outputs**
- 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
• Session planning/IPM presentations at:
  o VT Tree Fruit Growers Association annual meeting, Middlebury, VT, February 16, 2017 (Lepidopteran Complex; Fire Blight 101; Insect Pests; Modern Apple Scab). 65 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.
• 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
• 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.

Impacts

Apple Extension, Outreach, Education
• 2017 Vermont Tree Fruit Growers Association annual meeting
  o 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)
  o "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)
  o "Glad there were topics that were applicable to all growers."
• 2016 Vermont Tree Fruit Growers Association annual meeting impacts
o 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.

o 20% changed Apple Replant Disease management practices.

o 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
  o 95% rating by participants for value of topic (Cold Climate Grapes Disease Management, Minimal Spray Program)
  o 52% referenced IPM topics (disease identification, fungicide resistance management, spray timing) as important take-home messages
  o 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

Greenhouse/IPM Accomplishments/Outputs

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

**Impacts**

**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.

**Communities/Master Gardener Accomplishments/Outputs**

**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.

**Impacts**

**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.

**IPM for Pollinator Health**

**Master Gardener Pollinator short course**

**Orchard Pollinator Survey**

**Pollinator Habitat Program for Greenhouses/High Tunnels/Nursery settings**

**Plant Diagnostic Clinic Accomplishments/Outputs**

**Plant Diagnostic Clinic Samples**
- ~500 disease, insect and weed samples diagnosed and with IPM information provided to commercial growers, Master Gardeners, general public who submitted disease/insect/weed samples.
- ~100 disease, insect and weed email pictures diagnosed with IPM information provided to commercial growers

**Plant Diagnostic Clinic Extension Presentations/Workshops**
- IPM presentations at 15 meetings/workshops >500 attendees.
- Across the Fence Extension Television programs-Six on IPM/pests/diseases.
- Two radio public service announcements (PSA) on pest/disease issues
- Plant Disease and IPM lecture at Master Gardener Course. 100 students.

**Contribution to Newsletters/Publications**
- Bi-weekly VT Vegetable and Berry Newsletter column on current/emerging disease/insects/weeds and IPM. 750 New England growers.
- Contribution of Vermont pest and disease info for the weekly UMASS Veg Notes
• Four quarterly columns for *The Dirt* on disease and pests for the Vermont Nursery and Landscape Association
• Contributor to the New England Vegetable and Small Fruit IPM Guidelines

**Impacts**

**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.

**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.

**IPM for Pesticide Applicators**