

FY 2016 Accomplishments (Oct 1, 2015 to Sept 30, 2016) for New Hampshire's Extension IPM Implementation work (Funded by NIFA)

Publications completed

- 1) A. T. Eaton. Managing Bird Problems in New England Sweet Corn. Proceedings of the 2015 New England Vegetable Grower's Assn Meeting, pp. 242-44. Dec 2015.
- 2) A. T. Eaton. Controlling Wasps, Bees & Hornets Around Your Home (Major update and re-formatting of this older fact sheet, now 7 pgs). UNH Coop. Extension.
https://extension.unh.edu/resources/representation/Resource000532_Rep554.pdf
- 3) A. T. Eaton. Raspberry Cane Maggot. 3 pp. [March 28, 2016] UNH Cooperative Extension.
https://extension.unh.edu/resources/files/Resource005935_Rep8322.pdf
- 4) A. T. Eaton. Hornworms on Tomatoes in New Hampshire. 4pp. [March 31, 2016] UNH Coop. Extension. https://extension.unh.edu/resources/files/Resource005924_Rep8309.pdf
- 5) A. T. Eaton. Biology & Mgmt of Ticks in New Hampshire. 19pp. [April 7, 2016] UNH Coop. Extension. (This is a major update of an existing publication).
https://extension.unh.edu/resources/files/Resource000528_Rep1451.pdf

Impacts

Apples: The average incidence of pest injury at harvest in 2016 was 5.85%, which is slightly above the 25-year average of 5.3% but still well below the pre-IPM level of 10 to 12% injury. Growers saved \$80,000 in spray costs, compared to pre-IPM patterns. The total reduction in fruit damage and spraying together saved growers \$170,000 statewide (estimate).

The incidence of tarnished plant bug damage on fruit averaged 3.18% before introduction & establishment of *Peristenus digoneutis*, the European braconid wasp we helped introduce in 1990. In 2016, damage from this insect was only 1.19%. That is a reduction of 1.99%, on our 350,000(?) bushel crop, with the reduction being worth \$53,200. This is part of the total figure reported above. Estimate: 6,650 bushels will be extra fancy instead of #1 grade, which is \$8 price difference per bushel = \$53,200

SWD: For the 2015 growing season, growers reported very low losses to spotted wing drosophila, below \$100,000. Previous losses were 2012: \$1.5m; 2013: \$529K; 2014: \$225K. This insect attacks brambles, blueberries, plums, some peaches, grapes and day-neutral strawberries.

Vegetables, Sweet Corn: (We are behind in impact analysis, so these figures (finished Dec 2016) are 2015 impacts) In 2015, our sweet corn IPM program resulted in \$16,347 reduction in insecticide use and \$19,616 savings in labor and equipment costs. In addition to spraying less, growers reduced their culling rate (throwing out infested ears) by \$212,241 for a total sweet corn impact of \$248,205.

Our squash and pumpkin IPM program resulted in growers spraying 1.85 fewer insecticide applications per crop compared with their standard methods. This was a savings of \$6,348 for insecticides, and \$15,115 for labor and equipment. We have been unable to put a dollar value on the reduction in risk to pollinators, which are active at the same time as the main target insect pest, squash vine borer.

Greenhouse: 100% of the 2016 tri-state greenhouse workshop attendees who completed evaluations learned new techniques they intend to use this year, including plant-mediated IPM systems (banker/guardian/trap plants, etc.); scouting apps, soil and insect biocontrol products, dipping & drenching cuttings, reducing fertilizer rates to minimize pest populations.

Many growers expressed that these were among **the best workshops they ever attended.**

82% of the attendees used biological control last year, compared to 70% in 2015: ME: 81%; NH: 69%; VT: 96%. Of those who used biological control, 84% used predators; 69% nematodes, 65% parasites, 45% insect killing fungi, 39% disease killing microbes (soil treatments) and 28% insect-killing bacteria. These percentages are similar to last year. When we started these workshops [1996] only about 5% of growers had ever tried biological controls!

60% of the growers indicated they used some form of a plant-mediated IPM system last year (81% of ME growers!), including aphid banker plants, assorted trap/indicator plants (marigolds, eggplants and peppers). This IPM tactic continues to be catching on among greenhouse growers.

IPM in Communities: we trained 80 master gardeners this year, and the Education center handled about 2,000 pest-related inquiries. We continued tracking BMSB reports. We have confirmed this species from 30 municipalities. Rachel Maccini continues her bedbug work.

Public Health/Ticks/Mosquitoes: We still lack an effective way to measure the number of Lyme disease cases. The official figure reported to CDC showed a dramatic drop in cases, but was an artefact of personnel cuts at NHDHHS, therefore not reliable. Audience evaluations from several of our tick lectures showed that 92% of respondents strongly felt the info helped them reduce their risk of acquiring tick-borne diseases. 100% indicated they would change their behavior to reduce the risk of acquiring a disease. 96% listed more than 1 behavior change. Pre- and post-tick lecture testing (by an organization hired by DHHS at June 14 training) showed 3.8% of the audience said they were very knowledgeable about Lyme disease prevention before my lecture, and 88% said they were very knowledgeable after the lecture.

Our work is partly funded by a NIFA IPM grant, and by IPM grants from the NH Department of Agriculture, Markets and Food. The IPM Team: Alan Eaton, George Hamilton, Cheryl Smith, Rachel Maccini, Suzanne Hebert