

IPM Update Regional IPM Meeting (NEERA 1604)- Maryland

March 2018

Maryland (MD) is a heavily urbanized, densely populated state bordering the Chesapeake Bay, with ~32% of its total land area used for farming. The proximity between agriculture, environmentally sensitive areas, and human populations necessitates the implementation of sustainable IPM practices that reduce risks to human health and the environment. As the single largest commercial industry in MD, agricultural profitability and production must also be prioritized. MD produces a broad diversity of agricultural commodities, and University of Maryland Extension (UME) partners regionally to meet diverse stakeholder needs. Funding for IPM continues to be pieced together from multiple sources including commodity boards, SARE, NERIPM, and USDA NIFA (e.g., CARE, EIP, ELI, OREI, SCRI).

Pests of Concern: *Diseases.* Boxwood Blight, Cucurbit Yellow Vine Decline, various Downy Mildews, Potato Blackleg, Watermelon Fruit Rot. *Insects.* Allium Leafminer, Cucumber Beetles, *Dectes* Stem Borer, Emerald Ash Borer, Spotted Lanternfly, Sugarcane Aphid, Western Bean Cutworm. *Weeds.* Herbicide resistant weeds, Palmer Amaranth.

Agronomy

Accomplishments

- In a 2016 survey of Extension impacts at Agronomy winter meetings 29% (n = 482) planned to implement improved pest management practices.
- Completed a 3 yr study of pest suppression and non-target impacts of neonicotinoid seed treatments in grain crop rotations.

New Projects

- Evaluating physiological yield loss and biological control of *Dectes* stem borer
- Sentinel plots to determine field corn pest pressure
- Soybean and field corn needs assessment surveys

Products

- Agronomy News newsletter
- Weed Resistance workshops

Communities

Accomplishments

- Home and Garden Information Center (HGIC) staff answered 6,630 questions from clientele via eXtension's "Ask an Expert" platform. ~75% of questions IPM-related.
- Master Gardener volunteers who received basic and advanced IPM training answered plant and pest questions of 15,583 residents at 88 plant clinics.

Products

- HGIC website
- HGIC e-newsletter
- Advanced Master Gardener
- Bug of the Week blog
- Ecological IPM Training Survey

Green Industries

Accomplishments

- In a 2016 survey conducted with 242 (of 2,893) recipients of the *Nursery and Landscape IPM Report* in 2016 100% of survey stakeholders found the information useful, and 97% were more likely to use alternative control measures.

- An economic analysis found that recipients (n = 57) of this report annually saved between \$119,000 and \$214,000 from information contained in the report.

Products

- Nursery & Landscape IPM Report
- Greenhouse IPM Report
- Jennings et al. 2017. Effects of the emerald ash borer invasion on the community composition of arthropods associated with ash tree boles in Maryland, U.S.A. *Agricultural and Forest Entomology*. doi: 10.1111/afe.12186
- Jones et al. 2017. Field surveys of egg mortality and indigenous egg parasitoids of the brown marmorated stink bug, *Halyomorpha halys*, in ornamental nurseries in the mid-Atlantic region of the USA. *J. Pest Sci.* doi 10.1007/s10340-017-0890-8
- Saldago-Salazar et al. 2017. First report of *Hyaloperonospora sp.* associated with downy mildew disease of *Iberis sempervirens* in the U.S. *Plant Disease* 101(6):1058.
- IPMNet website
- Pest Predictive Calendar

Pollinators

Accomplishments

- Bee informed partnership tech teams provide boots on the ground extension to 15% of the nation's bees.
- 130 master gardeners in 6 counties were trained in pollinator identification, resulting in a combined (over two years) representing 460.4 volunteer hours, observing a total of 28,494 individual pollinator-plant observations.

Products

- Bee Informed Partnership website (30,000 visits/month)
- Sentinel Apiary program (66 participants in 26 states)
- Maryland Native Pollinator Survey
- Kulhanek et al. 2017. A national survey of managed honey bee 2015-2016 annual colony losses in the USA. *J Apicultural Research* 56(4):328-340.

Vegetables

Accomplishments

- The vegetable IPM team increased training sessions in 2017 by 1.5x and on-farm demonstrations by 2.1x. These programs emphasized economic benefits growers achieve when they integrate learned practices into their production.
- Training programs included the dissemination and instruction on how to use the 2016 *Commercial Vegetable Production Recommendations Guides*. Using and following the guide could save/earn growers \$15-20 per acre on their farm.

Products

- Vegetable and Fruit Headline News newsletter
- Contributed to Mid-Atlantic Commercial Vegetable guide
- Chen et al. 2017. Using reduced tillage and cover crop residue to manage weeds in organic vegetable production. *Weed Technology* 31(4):557-573.
- Chen et al. 2017. Can conservation tillage reduce N₂O emissions on cropland transitioning to organic vegetable production? *Sci. Tot. Env.* 618: 927-940