University of Delaware – Integrated Pest Management Update
Regional IPM Meeting (NEERA1004)

General Comments

Funding continues to come from a number of sources including state, federal E-IPM, Delaware and United Soybean Boards, USDA SCRI and NERIPM Grants. Under the EIP Extension Implementation grant, Delaware's IPM program focused on 3 main areas of emphasis: Agronomic Crop Issues (Soybeans and Small Grains), Specialty Crops (Spotted Wing Drosophila Management in Blueberries, Maintenance of an Insect Trapping System for IPM Decision Making in Processing and Fresh Market Vegetables, IPM Education for Small Farms using High Tunnels) and Community (Consumer/Urban) IPM.

Highlights of Regional Projects

(a) **USDA NIFA SCRI Specialty Crop Grant** -- Brown Marmorated Stinkbug Management in Specialty Crops (multiple Universities and agencies) : This project received continuation funding through August 2016.

(b) **United Soybean Board Grant** – Brown Marmorated Stink Bug Management in Soybeans (Universities of Maryland, Delaware and Virginia) : This project will be completed by March 31, 2015. An Extension Bulletin produced by the United Soybean Board will be published in September 2015.

(c) **ARDP Grant** (Developing Ecological Sustainable Pest Management Plans for Weed and Insect Pests of Leguminous and Solanaceous Crops (University of Maryland, University of Maryland Eastern Shore, University of Delaware, and Delaware State University) : A two year research trial evaluating the effects of cover cropping on snap beans was initiated at University of Delaware Carvel Research Center in Georgetown, Delaware. Data was collected on the impact of cover cropping on insect and weed populations as well snap bean growth and marketable yield.

Highlights of the E-IPM/ EIP Extension Implementation Project

(a) Addressing New Pest Development in Small Grain IPM Systems: In recent years, growers have experienced an increase in the incidence and yield loss from barley yellow dwarf virus (BYD) vectored by aphids. Weed control has also become more challenging in small grains due to the limited modes of action available in small grain systems. In addition, species such as jagged chickweed, ivyleaf speedwell, and bulbous oatgrass are becoming more common and none of the standard herbicides provide acceptable control. Sampling techniques, potential action thresholds, and critical stages for control of aphids established in Virginia and other southern states were evaluated in 30 total fields in the fall of 2013 and 2014 and spring of 2014 and 2015. Virus sampling was done in the spring and fall of 2014. Three on-farm demonstrations for control of problematic weed species were established , targeting speedwell species, jagged chickweed, and grass species.

(b) Incorporating a Total Crop Management Approach into Current Soybean IPM Programs: Currently, the soybean IPM program, delivered by both private consultants and agribusiness, continues to have a multi-disciplinary approach including insect, weed, and nematode management. This program provides a basis for expansion into a total crop management system including the use of small grain cover crops to improve weed and slug management, soil health and yields. Ten soybean fields with rye covers and 10 without rye covers were surveyed for slugs and weeds and soil health was also measured in all fields.

(c) Incorporating Spotted Wing Drosophila Monitoring and Management into an Expanding Blueberry Industry: The use of traps baited with commercial pheromones and merlot/ apple cider vinegar to monitoring for the first occurrence and seasonal abundance of Spotted Wing Drosophila were demonstrated on 11 farms in Delaware. Variety trials established at the University of Delaware's research farm and one commercial farm in Sussex County were also be sampled by seasonal labor and the horticulturalists to determine if certain varieties are more susceptible to attack under Delaware growing conditions in 2014 and 2015.

(d) Maintenance of Insect Trapping Systems for IPM Decision Making in Processing and Fresh Market Vegetables: Thirteen black light and eleven corn earworm pheromone traps were placed on vegetable farms throughout Kent and Sussex counties in late April and serviced through mid-September. Data was collected on corn borer, corn earworm and stink bug species. This information was included on our Delaware IPM website and on a recorded message ("Crop Pest Hotline") to allow users to access the information 24 hours a day and provide information on how to use the trap catch information to make management decision for peppers, snap beans and sweet corn. Links to the University of Delaware website were also included in our Weekly Crop Update newsletter. A survey of producers, consultants, field men and agribusiness using this network was conducted in the fall of 2014 to evaluate the value of this trapping network. Producers and consultants using trapping information report that they are able to make cost effective and timely spray decisions on 35,000 acres of fresh market and processing vegetables. They also indicate that using the trapping program prevented yield losses and improve quality on key vegetables valued at $50 per acre on 17,000 acres.

(e) IPM Education for Small Farms Using High Tunnels: As small farmers in Delaware adopt high tunnel technology to improve profitability, a need for education on IPM strategies including insect monitoring, cultural and biological control was identified. IPM demonstrations including the use of scouting, the use of biologicals, weather monitoring and the use of reduced risk chemistries were conducted in six high tunnels throughout the state. This program also focused on the development of a collaborative network including University of Delaware and Delaware State University personnel. Fifty five growers attended a workshop and field day conducted on May 29th, 2014 at Delaware State University's Outreach and Research. Information presented included a presentation on IPM in High Tunnels and a tour of high tunnels demonstrating insect

monitoring techniques and identification of commons insect pest problems. Surveys of participants indicated that 70% of the attendees increased their knowledge on awareness of principles of integrated pest management in high tunnels.
55Fifty five percent of the attendees indicated that they would use IPM technologies to prevent and control problems with insects, weeds and plant pathogens. Seventy five percent of the attendees agreed that pest management was the number one problem in high tunnel production systems

(f) IPM Implementation in Communities (IPM Training for Consumers/Urban Environments: Master Gardeners and the Extension Ornamental IPM Specialist modified two existing programs – Adventures of Peter Rabbit in Farmer McGregor's Vegetable Garden and Monsters in Your Garden to deliver IPM principals to children and parents. The ornamentals IPM extension specialist and county agents developed and delivered a Morning with an Expert program at box stores and garden centers.