

Northeastern IPM Center Partnership Grants Program

Project Report Guidelines for Minigrants

Content: Follow the outline below to the extent that it is relevant to your project.

A. Grant Data

- **Today's date:** Dec 4, 2008
- **Type of Project:** MINIGRANT
- **Title:** Surveying and identifying thrips species in vegetable crops throughout the mid-Atlantic region
- **Project Director:** Gerald Brust, IPM Vegetable Specialist, University of Maryland / Maryland Cooperative Extension Service
- **Co-Project Directors/Team members:** None
- **State(s) involved:** MD, PA, DE, VA
- **Funding Start Date:** March 2007
- **Funding Amount:** \$7,900

B. Nontechnical Summary: A great deal of information was found in this survey that will help manage thrips pests over the next few years. Western flower thrips do overwinter in Maryland, Delaware and Virginia; with PA still not clear yet. Many other thrips species besides WFT are active throughout the winter on weeds present in and around growers' fields. This "starter" population may serve as a reservoir for mid-summer infestations. Numbers of immature thrips greatly increase in late July through August and are difficult to see on leaves, flowers or fruit of vegetables because of their small size and often translucent bodies. Therefore growers may be missing this potential build-up of pests. This may be where the surge and switching of the population of thrips in late July and August originates. It could be possible that more WFT eggs are oviposited at this time of the season compared with EFT, or that WFT are better able to compete with EFT and other species for the flower niche and so they dominate the population for several weeks. To know for sure further study is needed, but this survey gives vegetable workers and growers a good start.

C. Objectives. 1: Survey thrips populations and identify to species and examine feeding damage to vegetable fields in eastern Virginia, Maryland, Delaware, SE Pennsylvania and SW New Jersey. This was achieved, although I did not receive much help from county educators in any state. I received more help from researchers at Virginia Tech than expected and much less from NJ than expected.

D. Approach. Sampling began in March and proceeded through December and then throughout 2008 at four to six week intervals. Working with county educators, selected vegetable farms in eastern Virginia, Maryland, Delaware, southeastern Pennsylvania and SW New Jersey were sampled. Vegetable and strawberry fields and the plants around them (weeds) were sampled. Before flower initiation three leaves sampled from each of 25 plants in a field. Fields sampled will consist of strawberry, tomato, pepper, lima bean, cucumber and watermelon (these are the main vegetable/fruit crops affected by thrips in the mid-Atlantic). Once flowers appear, two flowers from each plant sampled will be placed in alcohol and brought back to the lab for identification of thrips species. Studies have shown that 95% of the thrips on flowering vegetables are found in the flower (Childers 1997, Bryan and Smith 1989). Extension educators in the various states as well as state specialists, growers and agricultural consultants will be asked to send samples of flowers from various crops over the course of the season.

E. Results. Found that western flower thrips overwinter as far north as SE PA and that there is a

switching of thrips species in July and August. Eastern flower thrips are the dominant species throughout the area and season until mid July, at which time in many areas of the mid-Atlantic Western flower thrips become the dominant species for 2-6 weeks, after which Eastern flower thrips again become dominant. Also found that thrips reside on the leaves of many vegetables even when plants are small and have no flowers. Thrips were on the leaves because they were feeding on pollen from pine trees and probably some other species of trees.

F. Impacts.

A. it was not known by most of the vegetable or floriculture or Greenhouse industries that western flower thrips can overwinter in our area, this could lead—and has—to large outbreaks of the pest in the early part of the season when people thought they could not have problems with them. Western flower thrips cause more damage than other thrips species and transmit several viruses very well that impact both the vegetable industry as well as the floriculture industry. Thrips on the leaves of vegetables so early in the season may explain why infestations can be so bad at times at the first appearance of flowers on the same infested vegetable plants.

B. Has your project served as a springboard for additional projects or funds? If so, explain. This work has gotten the Virginia researchers interested in it and we are doing a joint 2-state study on thrips and their movement in the area and whether their severity as a pest can be predicted based on weather data. Virginia Tech and UMD have received a SE region IPM grant to look at this.

C. Has your project enhanced collaboration among stakeholders interested in the development and implementation of IPM strategies? Please provide details.

Working with the floriculture industry now on early season thrips identification on their cuttings, greenhouses and weeds to head off any potential problems. Growers are sending thrips in to be identified before they just start spraying for them as they have done in the past. This means that the correct chemical—if needed and often times no spraying is needed—can be used that fits the species of thrips.

G. Appendices. If applicable, attach to your report any of the following that will enhance our understanding of your project and its impacts:
See appended report with photos.