Northeastern IPM Center Partnership Grants Program

Regional Publications Project Report

A. Grant Data

- Grant #: OSP #46068
- Title: A field guide to tree fruit insect pests, beneficials, and diseases of eastern North America
- Type: Regional Publications
- Lead Investigator: Arthur M. Agnello, Professor, Dept. of Entomology, NYS Agric. Expt. Sta., Geneva, NY 14456 phone: 315-787-341, fax: 315-787-2326, email: ama4@cornell.edu
- Co-Project Director: William W. Turechek, Research Plant Pathologist, USDA-ARS Fruit Laboratory, Beltsville, MD
- Co-authors and contributors: Gerald Chouinard, Annabel Firlej and Franz Vanoosthuyse, Entomologists, Institute for Research and Agroenvironmental Development (IRDA), Saint-Hyacinthe, Canada; Charles Vincent, Entomology Research Scientist, Agriculture and Agri-Food Canada.
- State involved: NY (with illustrations and editorial conributions from QC co-authors)
- Funding year: 2004-2005
- Funding amount: $10,000

B. Nontechnical Summary

Producers of tree fruit crops must overcome a significant number of challenges in their efforts to successfully grow a high quality product and market it profitably to consumers or processors for the domestic and international markets. Insect and disease pests pose a significant threat to the orchard planting throughout all stages of its development and production, and the complexity of tree fruit/pest ecosystems surpasses that of most other agronomic crops. Eastern North America is affected by a suite of tree fruit insect and disease pests, as well as beneficial species, that is among the largest of the world's production areas. Growers in this region may typically need to be familiar with as many as 25 key species of pests, natural enemies, and disease pathogens during a given season, with the potential for encountering dozens of additional secondary species on a less frequent but still predictable basis.

There are a number of excellent information resources and references available to help familiarize growers, consultants and orchard managers with diseases, pests and beneficial species for the purpose of making informed management decisions; however, most are either too detailed, incomplete, or cumbersome to be used as a convenient field identification guide in the variety of fruit crops likely to be found on modern commercial farms. This project was funded to help support the publication of a comprehensive yet easy-to-use field guide on over 130 arthropod species and 80 diseases occurring in apples, pears, cherries, peaches and nectarines, apricots and plums in the US and Canada east of the Mississippi. For each entry, a single page will contain the species' classification, descriptive biological information, principal period of activity or occurrence, feeding habits or hosts, and number of generations per year, accompanied by high-quality photographs of the adult, immature, and damage (for arthropods) or disease symptoms. A set of diagnostic keys at the front of the book will help the reader to correctly identify pests and diseases on the basis of their damage symptoms to the fruit or tree tissues; a cross-referencing index and a glossary will facilitate finding and explaining the entries. The

book will be 230+ pages with over 450 full-color photos, and printed in a 5 x 8.5-inch format that is easy to carry.

C. Objectives

1 - Produce a spiral-bound "pocket" format field guide to a comprehensive list of insect, mite, and disease pests and beneficial species occurring in all the major tree fruit crops of eastern North America. The guide will present high-quality color photographs of each species and its damage on the same page with information on its occurrence, distribution, feeding habits, physical description, biology and means of control.

Progress to date: The guide has been written, and all the supporting artwork and photographs have been procured and assembled into a draft final manuscript, which has been turned over to NRAES (the Natural Resource, Agriculture, and Engineering Service), the publisher. It is currently in the process of design and layout, and is slated to be delivered to the printer in January, with publication due in early March. In order to help ensure an affordable retail price ($30-32), corporate sponsors are being sought at the $2000 level; 9–10 have committed their support so far. Also, pre-order commitments are being solicited from various trade, industry and academic organizations; currently about 1000 copies have been pre-ordered at $18.

D. Results

As the final printed version is not yet available and the final draft is several hundred pages in length, a 20-page promotional flier produced by NRAES is attached as a pdf file with this report. This publication will be marketed and distributed nationally through the NRAES sales office, which uses news releases, catalogs, list serve announcements, and its website (www.nraes.org).

E. Impacts

The first printing will be an estimated 2000 copies. Of these, 700 have been pre-ordered by the Ontario Apple Growers, Vineland; other pre-orders have been received as follows – IRDA, 80 copies; CRAAQ (a Quebec publishing group analogous to NRAES), 75 copies; Cornell Univ Horticulture Dept, 50 copies; Chemtura Crop Protection, at least 50 copies. In addition, fliers and notices will be distributed to IPM, fruit production and crop protection departments in universities throughout eastern North America, as well as to other appropriate professional organizations and homeowner information resource distributors.

In terms of optimizing pest management efforts, we anticipate that the availability of this guide will serve several purposes. Firstly, it will promote the accurate detection and identification of the most significant arthropod and disease pests capable of causing damage to deciduous tree fruit crops in the region, and provide information on the types of sustainable management practices that exist for these species. However, there are almost always lesser known "breakout" or secondary species that can also become pests in orchards (thereby disrupting the pest management program until the problem is recognized and attended to) or, worse, appear to be a threat (thereby prompting unnecessary pesticide sprays) but in actuality are either of little concern or else are actually beneficial. A field guide that covers a broad range of insect and mite pests, beneficial species, as well as diseases, and found in all eastern tree fruit crops, will be a potentially valuable tool for a large number of orchardists, consultants, university and extension specialists, industry representatives and the general public.