

**Home Orchard Management through Education, Insect Trapping and Utilizing
Degree Day Model to Assist in Spray Recommendations in Box Elder County
IPM Grant Final Report - 2004**

Project Leaders:

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Situation Statement:

Population growth in Box Elder County is causing many orchards to be replaced with homes. Many of these homes are using existing fruit trees for their own uses. In most cases these trees are not cared for properly and have created breeding grounds for insects. Commercial growers in the area are concerned these trees are the cause for so much of their own problems in their orchards.

Recently chemicals have been taken off the shelves that had become common in the home growers arsenal. Home growers are becoming more confused on proper application of pesticides and fungicides due to their lack of knowledge on new items and alternatives to the old chemicals. Home growers need up-to-date information on how best to manage their fruit trees and timely apply insecticides for the control of major insects in the area; namely Codling Moth, Peach Twig Borer, and Western Cherry Fruit Fly.

Objectives:

To implement a program in Box Elder County to instruct home owners with fruit trees on proper management practices. This instruction would cover: 1) basic pruning techniques; 2) educating them about fruit tree pest management and integrated pest management programs; 3) educating them about properly timing insect sprays based on degree-days and biofixes; 4) determining the biofixes of Codling Moth, Peach Twig Borer, and Western Cherry Fruit Fly for the Tremonton, Honeyville, Deweyville and Brigham City areas with the use of pheromone traps and biophenometer data loggers; 5) create a fact sheet with an up-to-date lists of pesticides and organic control methods for home owners for Codling Moth, Peach Twig Borer, and Western Cherry Fruit Fly; 6) inform fruit growers in Box Elder County of spray dates through newspaper articles, Extension phone hot line messages, and word of mouth.

Outputs:

We made advertisements for the Home Orchard Classes by posting flyers up in stores (appendix A). We mass mailed the flyers to all Master Gardener's and published the flyer in the newspaper. Our classes accumulated about 20 people that were excited to learn about how to take care of their trees. The classes were held in different locations throughout the County and during different times of the day; to possibly increase the attendance. Mike Pace presented instruction on pruning techniques. Shawn Steffen presented on target insects and new products or materials to control them. I presented on the IPM program and how to time the control for best results. Appendix B shows the Power Point Presentations developed for the classes.

Pheromone traps were placed in commercial orchards and home orchards throughout Box Elder County. A Min Max Thermometer (MMT) was positioned in the Tremonton area at Floyd Johnson's home. MMT's were also placed in Deweyville, Honeyville, Brigham City, and at Barker's Orchard between Perry and Willard. Shawn Steffan collected data at Sumida's Orchard in Perry and at Pettingills in Willard which we used for our information and data reports. MMT's data were collected and insect monitoring were checked daily during Biofix and other important timing dates. Floyd Johnson collected his own data and reported it to us weekly. All traps and MMT's readings were entered into a spreadsheet. Critical information for the home orchard growers was updated weekly on a hotline homeowners could call. Vital information was posted in the paper in Brigham City.

Outcomes:

Appendix C shows moth catches for Codling Moth and Appendix D shows Peach Twig Borer catches for Box Elder County for the 2004 year by location. Western Cherry Fruit fly was monitored but none were caught. The graphs in appendix C and D shows the correlation between Degree day's and Moth catch for each area.

In most of the areas cover sprays were applied promptly during the target window of opportunity. Home owners participating in the collection of data were aware of the pressure and temperature accumulation. In Tremonton, Floyd Johnson's apple trees continually felt the pressure of Codling Moth. The Codling Moth in this situation never followed the regular cycle; it was a constant battle. The abandoned orchard in Honeyville also had high pressure from Codling Moth. Unlike Tremonton the Honeyville Codling Moth seemed to follow the normal cycle of circulation.

Home owners complimented us on the ability to give them better information for case specific locations. Mantua felt left out of the loop. A site is planned for Mantua next year. For the most part, the home orchardists of Box Elder County felt the program was needed and the information was very useful.

Expenditures of Grants

Min Max Thermometers	\$210
Pheromone Traps	\$105
Equipment Costs	\$150
Publishing Costs	\$ 70
<u>Travel Expenses</u>	<u>\$350</u>
Total	\$885

Conclusions:

This program benefited both the home orchard grower and the commercial businesses that line the Fruitway by:

- Educating homeowners about proper pruning techniques and pest management.
- Educating them about properly timing cover sprays based on degree-day models for THEIR area and not a estimation as in the past based on growing conditions in Willard or Perry.
- Collecting biofixes and degree-day accumulations for Tremonton, Honeyville, Deweyville and Brigham City for codling moth and peach twig borer.
- Limiting the amount and the frequency of the pesticide they are using and wasting and creating a safer environment.
- The proper application of pesticides in these small orchards, we assume there are less insect pests moving to the commercial grower's orchards.