

Monitoring Weather Data and Insect Activity to Build a Database and Assist in Spray Recommendations for Washington County Orchards

A Research Report Compiled by
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Introduction

Washington County is located in the southwest corner of Utah. It is characterized by mild winters and hot summers. High temperatures in the summer average 100+ degrees. Winter lows are around 10 degrees above. The growing season lasts for approximately six months. Peaches are well suited to this climate as long as irrigation is available. The most serious pest has been the Peach Twig Borer, *Anarsia lineatella*. Larvae of this insect emerge during bloom and burrow into developing shoots. This can result in substantial damage to young trees. Larvae of later generations emerge during the summer and attack the fruit. Three generations have been documented in northern Utah. Until now, little has been done to document Peach Twig Borer activity in southern Utah.

Purpose

The purpose of this study was: 1) to determine how many generations of Peach Tree Borer there are in Washington County; 2) when they occur; 3) if we could match degree day calculations to the flights; and 4) if this modeling could be used to time sprays for control.

Methods

In the spring of 2002, a "Watch Dog" weather station was purchased from Spectrum Technologies. The station was set up at Bud Scow's orchard in Hurricane, Utah, located about 15 miles east of St. George. The elevation there is approximately 3,287 feet. Scow Orchards has successfully grown peaches at this location for many years.

Wing-style pheromone traps were placed in the orchard in early May. Daily catches were recorded and pheromone lures were replaced every 3-4 weeks. The Watchdog station was programmed to record temperature readings every hour. Degree Day accumulations were calculated from the daily high and low readings using a 50-degree threshold.

Results

Adult moths caught in pheromone traps were used to determine biofix (first consistent flight). To predict the recommended time to apply pesticides for control, 400 degree days above 50 degrees Fahrenheit were used. This was consistent with a control program developed in California (University of California IPM of Stone Fruits).

We were able to determine five separate flights (generations) using the trapping information (see Table 1). The flights appeared at fairly regular intervals with the shortest time between flights being 24 days and the longest time being 36 days. Recommended spray dates were projected by calculating 400 degree days after biofix for each generation. Protective sprays were applied within four days or less of the predicted spray timing. (See table below.) Timing was based on the California Model referred to earlier. Excellent control was reported the entire season. Fruit damage due to twig borer was less than 1%.

Peach Twig Borer Spray Schedule

	1st Spray	2nd Spray	3rd Spray	4th Spray	5th Spray
DD Model Predicated Spray Dates	- May 21	- June 15	- July 7	- August 13	- September 8
- Bud's Actual Spray Dates	- May 15-17	- June 17	- July 10	- August 13-15	- Sept. 12 & 14

Five different peach varieties were included in the study:

Red Globe	Early
Canadian Harmony	Early
Lemon Elberta	Mid
Elberta	Mid
Fairtime	Late

All varieties were sprayed in March with Thiodan, Bravo, and Oil. The Early varieties received three additional sprays, one with Guthion and two with Success. The Mid varieties received four additional sprays, one with Success and two with Guthion, and one with Acrimite. The Late varieties received seven additional sprays, one with Success, three with Guthion, one with Vendex and two with Dipel. (See Table 2)