



# Department of Pesticide Regulation



Gray Davis  
Governor

Winston H. Hickox  
Secretary, California  
Environmental  
Protection Agency

Paul Helliker  
Director

## MEMORANDUM

TO: John Sanders, Ph.D., Chief  
Environmental Monitoring Branch

FROM: Randy Segawa, Senior Environmental Research Scientist (Supervisor)  
Environmental Monitoring Branch  
(916) 324-4137 *Randy Segawa*

Johanna Walters, Environmental Research Scientist  
Environmental Monitoring Branch  
(916) 324-4339 *Johanna Walters*

DATE: October 16, 2002

SUBJECT: PRELIMINARY MONITORING RESULTS OF IMIDACLOPRID  
APPLICATIONS FOR GLASSY-WINGED SHARPSHOOTER CONTROL IN  
RESIDENTIAL AREAS OF SANTA CLARA COUNTY (STUDY 197)

---

### Summary

On August 8, 2002, the Santa Clara County Department of Agriculture's contract applicator applied imidacloprid to control the glassy-winged sharpshooter in Cupertino, California. During this time, the Department of Pesticide Regulation (DPR) took tank, surface water, and air samples at three sites in the treatment area. Air samples were taken at one location, before, during, and after imidacloprid applications. There were no imidacloprid detections in the air or surface water samples. Tank sample showed a concentration of 0.0051% of imidacloprid active ingredient versus a nominal label rate concentration of 0.003%.

### Introduction

The Santa Clara County Department of Agriculture is currently using ground applications of imidacloprid foliar spray and soil injection to control infestations of the glassy-winged sharpshooter (GWSS). The glassy-winged sharpshooter (*Homalodisca coagulata*) is a serious agricultural pest in California. When feeding, it can transmit Pierce's disease, caused by the bacterium *Xylella fastidiosa*, to grapevines and other diseases to almond trees, alfalfa, citrus, and oleander. First found in the state in 1990, GWSS has spread throughout Southern California and into areas of the San Joaquin Valley.

The Environmental Monitoring Branch of DPR has been monitoring selected treatments in residential areas to provide information on the concentrations of imidacloprid in air and surface water. Additionally, tank samples are taken at each location where air samples are collected. Results reported here are from imidacloprid applications on August 8, 2002, in Cupertino, Santa Clara County. Sampling results and related GWSS monitoring reports are also available at DPR's Web site <[www.cdpr.ca.gov/docs/gwss](http://www.cdpr.ca.gov/docs/gwss)>.



### **Materials and Methods**

**Pesticide Application** - In Santa Clara County approximately 53 residential properties and a series of commercial parking lots were sprayed over approximately 0.2 square miles in the city of Cupertino on August 8 and 9, 2002, (Figure 1). Santa Clara County survey crews determined which properties were infested with the GWSS. Applications consisted of an imidacloprid soil injection and an imidacloprid foliar spray. Samples were collected in conjunction with the imidacloprid foliar spray. Soil injection applications of Merit® 75 WP, with a 75% active ingredient of imidacloprid, were made by a private pest control operator (PCO) at a dilution rate of 1.5 ounces per 100 gallons. Pesticide was mixed in water and delivered through a feeding/fertilizing gun attached to a 300-foot hose from a truck mounted power rig (consisting of a tank, motor, pressure gun, and pump). Foliar applications of Merit® 75 WP were made at a dilution of 0.5 ounces per 100 gallons of water. Pesticide was mixed in water and No Foam B and delivered through a Bean Spray Gun with a #10 tip attached to a 300 foot hose from a truck mounted power rig. Applications to the residences began around 8:15 A.M.

**Air Sampling** - Ambient air samples were collected at one site in Cupertino, a residence on Poppy Drive. A background air sample was taken prior to any applications on August 7, 2002. Air samples were taken during and for 48 hours following application, according to the following schedule: (1) duration of application plus one hour, (2) duration of 24 hours after application, (3) and another duration of 24 hours.

Samples were collected using XAD- 2 tubes (SKC#226-30-02) and SKC air samplers (SKC# 224-PCXR8) calibrated at approximately 3 liters-per-minute. The sampler was located outdoors in an open area. Samples were stored on dry ice until delivery to the California Department of Food and Agriculture's (CDFA's) Center for Analytical Chemistry for laboratory analyses. Imidacloprid on XAD-2 was extracted with methanol and analyzed using HPLC with an ultra violet (UV) detector with a reporting limit of 0.5 µg per sample.

**Tank Sampling** - One tank sample was collected during the treatment at a residence on Poppy Drive, same location where the air sample was collected. The tank sample was collected from the foliar application tank. The sample was taken from the hose end nozzle into a plastic 500-mL container and was stored separate from other samples on wet ice until delivery to the lab for analysis. The tank sample was extracted with methanol and analyzed using HPLC with an ultra violet detector.

**Surface Water Sampling** - Surface water samples were taken at two sites, Calabazas Creek at Prospect (upstream of application area) and Calabazas Creek at Calabazas Park (downstream of application area). At these two sites samples were collected following applications to residences. A background water sample was taken at the downstream site prior to the beginning of applications on August 7.

John Sanders, Ph.D.  
October 16, 2002  
Page 3

Samples were taken by filling a one-liter amber bottle directly from the creek and then sealing with a Teflon®-lined lid. Samples were stored on wet ice until delivered to the CDFA Center for Analytical Chemistry for analysis. Imidacloprid in surface water was extracted with methylene chloride and analyzed using HPLC with an ultra violet detector with a reporting detection limit of 0.05 ppb (parts per billion).

### **Weather**

The weather was generally clear, sunny, and hot on the application day. On August 8, temperatures ranged from 53 to 96 degrees F with the daily average wind speed of 3 miles-per-hour (mph) from the north.

### **Results and Discussion**

**Air** - A total of four air samples were analyzed for imidacloprid. There were no detections of imidacloprid in the air samples.

**Tank Mix** - One tank sample was taken for the application monitored. Tank sample result was 0.0051% active ingredient of imidacloprid. Label rate for Merit® 75 WP (75% active ingredient) as a foliar spray in 100 gallons of water is 0.5 ounces for control of leafhoppers on trees, ornamentals, and pome fruits. Theoretical calculation of percent active ingredient is 0.003% active ingredient.

**Surface Water** - A total of three surface water samples were taken during treatments in Cupertino on August 8, one background and two application samples. No imidacloprid was detected in any samples.

bcc: Walters Surname File

**Figure 1**

