



Carbaryl Monitoring Report

Environmental Monitoring and Pest Management Branch
 Department of Pesticide Regulation
 830 K Street
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Newsletter Issue I

August 2000

Environmental Monitoring of Carbaryl in Glassy-Winged Sharpshooter Treatment Areas

This is the first of a series of newsletters that provides brief update of monitoring results of carbaryl in various environmental samples collected by the Department of Pesticide Regulation (DPR). Detailed reports will be provided once treatment is completed for each location.

The County Departments of Agriculture, under the guidance of the California Department of Food and Agriculture have been treating glassy-winged sharpshooter infested properties with carbaryl. DPR monitors selected treatment in urban residential areas in Rancho Cordova (Sacramento Co.), Fresno (Fresno Co.) and Porterville (Tulare Co.) for carbaryl residues. Samples were taken for spray mixture in tank, air, foliage, surface water, and garden fruits and vegetables.



Spray crew applies carbaryl to Oleander bushes, Rancho Cordova

Spray Tank Samples

Samples were collected from the hose-end of a spray tank

Concentration of carbaryl in tank samples

Location	Date Sampled	Carbaryl Concentration (%)
Porterville	6/20	0.26
..	..	0.31
..	6/21	0.25
..	6/27	0.15
..	..	0.32
..	7/18	0.21
Fresno: Sunnyside	6/27	0.15
..	7/25	0.11
Fresno: Peach	7/12	0.13
Alluvial	..	0.13
..	..	0.13
Rancho Cordova	8/2	0.12
..	..	0.11

Calculated theoretical tank concentrations at label rates from 1 to 4 teaspoons per gallon of water are 0.05 to 0.21 percent, respectively.

Surface Water Samples

Water samples were taken following completion of treatment. In Rancho Cordova, Sacramento County, the creek is between the treatment area and the water treatment basins that are 64 yards from the spray area.



Water treatment basin, Rancho Cordova

Concentration of carbaryl in surface water samples

Location	Date Sampled	Carbaryl Conc. (ppb)
Tulare Co. Tule River	6/20	nd
"	"	nd
Goldfish pond	7/19	nd
Sacramento Co. Water Treatment Basin 1	8/2	nd
Water Treatment Basin 2	"	0.125
Creek	"	nd
Swimming Pool	"	nd
Water Treatment Basin 1	8/16	nd
Water Treatment Basin 2	"	nd

Drinking water health advisory level is 60 ppb (California Department Health Services)

Leaf Samples

Forty one-inch diameter leaf punch samples were taken one hour after treatment. Samples were analyzed for dislodgeable foliar residue.

Location	Date Sampled	Carbaryl (ug/cm ²)
Porterville	6/20	5.44
"	"	5.30
"	6/21	6.78
"	6/27	5.41
"	7/18	5.70
"	7/25	3.09
Fresno: Sunnyside	6/27	4.76
Fresno: Peach/Alluvial	7/12	2.97
"	"	2.97

Iwata et al. (1979. J. Agric Food Chem. 27:1141-1145) reported carbaryl foliar residues ranging from 2.4 to 5.6 ug/cm² at time of harvest.



Leaf punch taken from leaf showing white deposit of carbaryl.

Air Samples

Samples taken at four intervals: for minimum of 12 hours before application, during application plus one hour, for 24 hours after application, another 24 hours. All samples were collected using XAD-4 resin tube with high volume air sampler at 1,000 liters per minute except at Peach/Alluvial with personnel air sampler at 3 liters per minute.



High volume air sampler at residential treatment site, Porterville

Concentration of carbaryl in air before, during and after application.

Location	Date Sampled	Before Spray (ppt)	During Application (ppt)	Post Application 24 hours (ppt)	Post Application 48 hours (ppt)
Porterville	6/20	nd	11	21	20
..	23	24	21
..	6/21	0.38	137	57	51
..	6/27	7.68	136	46	40
Fresno: Sunny side	6/27	nd	53	54	37
Peach/Alluvial	7/12	nd	nd	nd	nd
..	..	nd	nd	8	nd

nd= none detected

Preliminary health screening level for acute exposure to carbaryl is 3,053 parts per trillion (ppt).

This project is funded by the California Department of Food and Agriculture, glassy-winged sharpshooter project special appropriation. For a detailed study protocol and other updates, visit <http://www.cdpr.ca.gov/docs/gwss> or contact Kean S. Goh at (916) 324-4072 or email at kgoh@cdpr.ca.gov.