

Chemical Control/New Products

Toxicity of Four Insecticides to Grape Mealybug

John Dunley, Bruce Greenfield
Washington State University Tree Fruit Research and Extension Center, Wenatchee, WA

Keywords: grape mealybug, *Pseudococcus maritimus*, Provado, imidacloprid, Pyramite, Pyridaben

Grape mealybugs were collected from 2 local orchards and then brought into the laboratory. The mealybugs were bioassayed using 100 ml scintillation vials into which 2 ml of the appropriate compound and rate were placed and then swirled for 30 seconds. The excess was then expelled and the vials were then dried using low-pressure air for 30-40 minutes. Each rate was done with 4 repetitions including the check, which received double distilled water. Ten first or second instar mealybugs were then added to each vial.

All vials were then placed in a rack in a controlled growth room where they were kept at 72°F. They were then checked at 48- and 96-hour intervals. Each vial was then examined under a microscope in order to determine the condition of each insect. The numbers of dead mealybugs were noted at this time, and the results were analyzed using Polo PC.

Bioassays of grape mealybug, 1999 summary of results at 0.95 confidence.							
Compound	Time	n	Slope (std. err)	LC 10	LC 50	LC 90	% control mortality
1	48 hrs	240	.709 (.102)	4.99 (.154-22.70)	320.55 (76.31-5280.5)	20567 (1946-2386570)	0%
1	96 hrs	240	.557 (.096)	.261 (.004-1.71)	52.24 (13.15-217.95)	10456 (1511-714062)	12.5%
2	48 hrs	230	.08 (.13)	.00025 (.00001-.0016)	.0096 (.0014-.0274)	.3721 (.118-4.48)	10%
2	96 hrs	230	.638 (.146)	.00002 (.00-.0005)	.0025 (.00002-.0115)	.256 (.065-8.15)	17.5%
Provado	48 hrs	240	.817 (.158)	.000 (.000-.002)	.013 (.004-.025)	.468 (.221-1.93)	2.5%
Provado	96 hrs	240	.547 (.176)	.00 (.00-.00)	.001 (.000-.005)	.189 (.071-2.328)	5%
Pyramite	48 hrs	280	.605 (.095)	14.91 (2.49-44.25)	1952 (829-6298)	255387 (48001-5164517)	2.5%
Pyramite	96 hrs	280	.629 (.102)	2.417 (.188-10.24)	262.6 (96.87-667.63)	28533 (7528-289282)	10%