Section V.
Soil Arthropods

EVALUATION OF SOIL APPLIED INSECTICIDES FOR CONTROL OF GARDEN CENTIPEDES

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Experimental plots were established at Hal and Keith Robertson Farms, Tracy, California, in order to evaluate the effectiveness of eight different materials against the garden centipede in a commercial tomato field. The plot area was selected by evidence of garden centipede damage to the growers' original transplants. The treatments were randomized based on the severity of damage in the field, and all original plants were removed. Treatments 9, 10 and 11 were dissolved in water, with 10 oz. (295.7 ml) of solution applied to the soil immediately after transplanting. The solution was applied to the base of the plant and allowed to penetrate the soil profile to a level just below the plug. Treatments 1-6 were applied to the beds before the transplanting in an 18 inch band, and then roto-tilled into the soil using a BCS 14-hp rototiller. Treatments 7 & 8 were a combination with the first materials incorporated into the bed with Calypso applied as a drench solution after transplanting. All materials were applied on May 12, 2003. The tomato plants, variety H-9780, were spaced 18 inches apart in a 60-inch-wide bed. Plot size was one bed by 20 plants in the row. The field was furrow irrigated immediately after the application to help the transplants establish in the field.

Products	Active Ingredient	Method of Application	Formulation	Product/100 Plants
F0570	zeta-Cypermethrin	Band & Incorporate	0.8EW	3.3ml
Danitol	Fenpropathrin	Band & Incorporate	2.4EC	11.5ml
Renounce	Cyfluthrin	Band & Incorporate	20WP	1.4g
Force	Tefluthrin	Band & Incorporate	3G	17.7g
Diazinon	Diazinon	Band & Incorporate	14G	87.0g
Warrior	lambda-Cyhalothrin	Band & Incorporate	1CS	1.6ml
Force + Calypso	Tefluthrin +Thiacloprid	B & I + Drench	3G+480SC	17.7g + 4.9ml
Renounce + Calypso	Cyfluthrin + Thiacloprid	B & I + Drench	20WP + 480SC	1.4g + 4.9ml
F0570	Zeta-Cypermethrin	Drench	0.8EW	3.3ml
Diazinon	Diazinon	Drench	AG600	21.0ml
Calypso	Thiacloprid	Drench	480SC	4.9ml
Untreated Control	Water only	Drench	Municipal	1,000oz

Stand vigor was evaluated based on the growth and vigor of the plants outside of the affected area. Plots were harvested on June 26, 2003. All plants were harvested by cutting at the soil surface and weighed immediately.

Treatments	Vigor of Plants	Mean Wt. Grams/Plant
	June 19	June 26
1. F0570 (0.8EW)	8.4 de	691.5 de
2. Danitol (2.4EC)	8.3 de	660.7 cde
3. Renounce (20WP)	7.7 cd	594.2 bcd
4. Force (3G)	8.3 de	652.3 cde
5. Diazinon (14G)	6.1 b	455.9 ab
6. Warrior (1CS)	8.1 cde	711.5 de
7. Force (3G) + Calypso (480 SC)	8.7 e	767.3 e
8. Renounce (20 WP) +Calypso (480 SC	8.7 e	689.90 de
9. F0570 (0.8EW)	8.4 de	637.3 cde
10. Diazinon AG600	7.3 c	504.6 bc
11. Calypso (480SC)	7.5 cd	559.4 bcd
12. Untreated Control	4.5 a	339.1 a

The vigor rating scale is 1-10 with 10 being equal to the highest and 1 being the lowest vigor.
Means in a column followed by the same letter are not significantly different at the 5% Level. DMRT

All of the treatments except the Diazinon granular and Diazinon drench provided acceptable control of damage from garden centipedes. The thorough incorporation of these materials prior to transplanting and the drench application at transplanting should give growers the ability to protect young plants once the materials are registered for these types of applications. It is not known whether or not these materials will perform as well should the growers choose to shank them into the beds at the same time that they apply their spring pre-plant fertilizers. Large plot field trials are planned for 2004 to investigate the methods appropriate for the effective placement of these materials. While there is a tolerance for the use of several of these pyrethroids in tomatoes, their labels do not mention soil applications for this pest.