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DATA EVALUATION RECORD

STUDY 5

CHEM 128993 Cyproconazole 164-1

FORMULATION--04--GRANULAR (G)

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Cahill, W.P. and T.R. Bade. 1988. Dissipation of cyproconazole in a CA soil. Project No. 433018. Unpublished study prepared and submitted by Sandoz Crop Protection Corp., Des Plaines, IL.

DIRECT REVIEW TIME = 12

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CONCLUSIONS:

Field Dissipation - Terrestrial (164-1)

(1) The study partially satisfies EPA Data Requirement 164-1 for registering cyproconazole for foliar use on grapes at a maximum single application rate of 5 g ai/acre a maximum of 4 times with a minimum interval between successive applications of 21 days. It provides field terrestrial dissipation data at one site for cyproconazole applied to grapevines under those conditions. To completely satisfy the 164-1 data requirement, acceptable field terrestrial dissipation data collected from one additional site must be submitted.

(2) The foliar application of cyproconazole to grapevines 4 times at 21 day intervals at 5 g ai/acre/application (20 g ai/acre total application) resulted in non-detectable residues (detection limit 0.01 ppm) in all soil samples collected at depths > 10 cm

up to 98 days after the last application. The maximum soil concentration reported was 0.017 ppm in a sample taken from the surface 0-10 cm core at 14 days after the last application.

MATERIALS AND METHODS:

Cyproconazole (SAN-619F, 10% WG, source unspecified) was applied in four applications at 5 g ai/A/application to a field plot (24 x 70 feet) of Chenin Blanc grapevines in Hughson, California. The soil was a sandy loam (60% sand, 29% silt, 11% clay, 1.2% organic matter, pH 6.7, CEC 3.9 meq/100 g). Applications were made at 21-day intervals, beginning May 13, 1987, using ground equipment. An untreated plot served as a control. Soil cores (0- to 10-, 10- to 20-, and 20- to 30-inch depths) were taken on each application date and at various intervals up to 98 days following the last application; deeper soil cores (30- to 40-, 40- to 50-, and 50- to 60-cm depths) were taken at 56, 84, and 98 days following the last application. At each sampling interval, three soil cores were randomly collected from within each of three replicated subplots of the treated and control plots. Samples were kept frozen at 5 F until analysis.

Soil samples were analyzed according to Analytical Method Number AM-0818. The soil samples were hydrolyzed with 1 N hydrochloric acid for 1 hour at 95 C, extracted with ethanol, and filtered. The filtrate was concentrated by rotary evaporation, 1 N hydrochloric acid was added, and the extract was centrifuged. The extract was cleaned up with reverse-phase liquid chromatography and analyzed for cyproconazole using GC with nitrogen phosphorous detection. The detection limit was 0.01 ppm. Recovery efficiencies from soil samples fortified at 0.20 ppm ranged from 67 to 104% (Table 1).

SUMMARY OF DATA BY REVIEWER:

Cyproconazole (10% WG) was applied in four foliar applications at 5 g ai/acre/application to a field plot (sandy loam soil) of grapevines located in Hughson, California. The concentration increased in the 0- to 10-cm soil depth from 0.010 to 0.011 ppm immediately after the last application to 0.010-0.017 ppm at 14 days posttreatment (Table 2). Cyproconazole was < 0.010 ppm at 28-98 days following the last application, except for one soil sample which contained 0.012 ppm residues at 56 days posttreatment. In general, cyproconazole concentrations were <0.010 ppm in soil depths up to 60 cm sampled at intervals up to 98 days following the last application. During the study, rainfall totaled 3.41 inches and the field plot was irrigated with 23.58 inches of water. Air temperatures were 26-105 F.

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DISCUSSION:

(1) The study was conducted at only one site instead of the minimum of 2 sites recommended in the Subdivision N Guidelines. Therefore, the study only partially satisfies the 164-1 data requirement. To completely satisfy the data requirement, acceptable data from a second study conducted at at least one additional site must be submitted.

(2) There were no attempt to analyze samples for degradates. However, since the maximum concentration of cyproconazole reported in the samples was only 0.017 ppm, it was not possible to do so.

(3) Freezer storage stability data were not provided for cyproconazole. However, since the results of the aerobic soil metabolism study (40607708) showed that cyproconazole was extremely persistent in 3 different soils, it is unlikely that any significant losses occurred during frozen storage. Nevertheless, such data should have been provided. Freezer storage stability data must be provided for the study that will be conducted at the second site in order for that study to be acceptable.

(4) Field test data, including slope of the field, depth to the water table, and soil temperatures, were incomplete.

(5) It was reported that one soil sample taken from the 20- to 30-cm depth after the 4th and final application contained 0.015 ppm residues, which was inconsistent with the rest of the data. No cyproconazole was detected in the corresponding Replicate 2 or in any other sample taken at a depth greater than 10 cm.

PERTINENT DATA TABLES AND/OR FIGURES

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Table I. Recoveries of Cyproconazole from Fortified Soil.

Sample (Depth)	Interval (Days from Last App.)	Cyproconazole Recovery[1/]
8-1 (0-10 cm)	IP[2/] 1st App.	67%
26-1 (0-10 cm)	IP 2nd App.	95%
38-1 (0-10 cm)	IP 3rd App.	104%
50-2 (20-30 cm)	IP 4th App.	76%
72-1 (0-10 cm)	42 days	101%
78-1 (30-40 cm)	56 days	95%
80-1 (0-10 cm)	77 days	87%
80-1 (0-10 cm)	77 days	77%
96-1 (0-10 cm)	98 days	88%
	Average (x)	87.8
	Std. Deviation (s.d.)	12.4
	Number of samples (N)	9

1/ - Fortification level of 0.20 ppm

2/ - IP is Immediate Post (collection of sample immediatly after application).

Table II. Cyproconazole Residue in Soil Resulting from a Representative Application to Grapevines (ppm on a dry weight basis).

Sample -Rep.	Interval (Days)	Cyproconazole Residue in PPM ---------- Soil Depth in cm ---------- 0-10	10-20	20-30	30-40	40-50	50-60
7-1	IP[1] 1st App.	ND[2]	ND	ND	--	--	--
7-2	IP 1st App.	ND	ND	ND	--	--	--
25-1	IP 2nd App.	ND	ND	ND	--	--	--
25-2	IP 2nd App.	ND	ND	ND	--	--	--
37-1	IP 3rd App.	ND	ND	ND	--	--	--
37-2	IP 3rd App.	ND	ND	ND	--	--	--
49-1	IP 4th App.	0.011	ND	0.015[3]	--	--	--
49-2	IP 4th App.	0.010	ND	ND	--	--	--
55-1	14	0.017	ND	ND	--	--	--
55-2	14	0.010	ND	ND	--	--	--
61-1	28	ND	ND	ND	--	--	--
61-2	28	ND	ND	ND	--	--	--
67-1	42	ND	ND	ND	--	--	--
67-2	42	ND	ND	ND	--	--	--
73-1	56	0.012	ND	ND	ND	ND	ND
73-2	56	ND	ND	--	--	--	--
79-1	77	ND	ND	--	--	--	--
79-2	77	ND	ND	--	--	--	--
85-1	84	ND	ND	ND	ND	ND	ND
85-2	84	ND	ND	--	--	--	--
91-1	98	ND	ND	ND	ND	ND	ND
91-2	98	ND	ND	--	--	--	--

1/ IP = Immediate Post (collection of sample immediatly after application, IP 1st App. is day zero after the first application).

2/ ND = not detected (< 0.01 ppm)

3/ This value is an outlier since no residue was detected at the 10-20 and 20-30 cm depths prior to and after this interval.