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SCIENTIFIC DATA REVIEWS
EPA SERIES 361

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

September 30, 1998

MEMORANDUM

SUBJECT: Dicofol (010501). Reregistration Case No 0021.
Revision: Acute Dietary Monte Carlo for Dicofol
Using Complete Distributions of Field Trial Residues.
MRID 44636501. DP Barcode D248601.

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THROUGH: Francis B. Suhre, Branch Senior Scientist *F. Suhre*
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TO: Jess Rowland, Branch Chief
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Health Effects Division (7509C)

In response to a deficiency cited in a previous review (S.Piper, D247654, 7/21/98), Rohm and Haas has submitted a revised Monte Carlo analysis estimating acute dietary risk of dicofol in foods. As requested, the revised Monte Carlo includes all the individual residue data points for single serving sized raw agricultural commodities and reports risk at the 99.9th percentile level.

In this submission, Rohm and Haas provided residue data for dicofol in raw agricultural commodities, processed, and animal commodities for which tolerances are being reassessed in connection with the Reregistration Eligibility Decision (Table 1). For single serving sized commodities, Rohm and Haas used the entire distribution of field trial data to reflect residues in/on food. For mixed or blended commodities, the average residue value from field trial studies or the 95th percentile residue value from monitoring data, along with appropriate processing factors were used to reflect residues in/on food. Dicofol residues in meat, milk, eggs, and poultry commodities were derived from dicofol residues in livestock feed items at the 95th percentile level, the highest average field trial residue, or at tolerance residue levels.

CONCLUSION

1. The deficiency cited in our previous review (S.Piper, D247654, 7/21/98) has been resolved.
2. Provided the registrant confirms appropriate incorporation of percent crop treated values into the residue distribution for single serving items (see footnote 3, Table 1). The submitted Monte Carlo is adequate to support the dietary risk estimate reported below at the 99.9 percentile.

Population	Exposure (mg/kg/day)	% Acute RfD
U S Population	0.017523	35
Non-Nursing Infants (<1 yr)	0.044923	90
Children (1-6 years old)	0.034919	70
Children (7-12 years old)	0.024705	49

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Apples	Field Trials	nz=24 0.045 2.260 0.483 2.870 0.740 3.007 1.021 3.199 1.380 3.460 1.550 (2) 3.490 1.830 3.760 1.980 (2) 4.380 2.020 4.440 2.170 6.700 2.250 8.900	4	Total nz= 24 Total z= 576
Apples-canned	95th%ile survey	0.12	4	Total nz= 1 Total z= 24
Apples-dried	95th%ile survey 0.12 x 8 (DRES conc. factor)	0.96	4	Total nz= 1 Total z= 24
Apples-juice	95th%ile survey 0.12 x 0.01 (conc. factor)	0.0012	4	Total nz= 1 Total z= 24
Apricots	Field trials	See Peach data	1	Total nz= 12 Total z= 1188
Apricots-dried	Avg. x 6 (DRES conc. factor)	13.74	1	Total nz= 1 Total z= 99
Beans-dry- Great Northern, Kidney, Lima, Navy, other, Pinto, Hyacinth, Peas (blackeye), Garbanzo(chick pea)	Average field trial	0.1	2	Total nz= 1 Total z= 49
Beans, succulent lima, snap green, other, yellow wax, broadbeans (immature), hyacinth (young pods)	Field trials	nz=7 0.169 0.834 0.200 0.942 0.202 2.090 0.595	2	Total nz= 7 Total z= 343

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Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Blackberries	Field Trials	nz=4 1.580 3.350 3.190 4.250	1	Total nz= 4 Total z= 96
Boysenberries	Tolerance	5	100	Total nz= 1 Total z= 99
Butternuts	Field trials(ND <0.01)	0.01	2	Total nz= 1 Total z= 49
Cantaloupes-pulp	Field trials	See Melon data	30	Total nz= 10 Total z= 23
Casabas	Field trials	See Melon data	30	Total nz= 10 Total z= 23
Cattle, MBYP (exc. kidney & liver)	Blended Commodity	0.0177	N/A	
Cattle, fat	Blended Commodity	0.53	N/A	
Beef- kidney	Blended Commodity	0.0195	N/A	
Beef-liver	Blended Commodity	0.0263	N/A	
Cattle, meat	Blended Commodity	0.0177	N/A	
Cherries	Field Trials	nz= 4 1.105 1.540 1.410 2.770	1	Total nz= 1 Total z= 99
Cherries-dried	95th%ile survey 0.01 x 4 (DRES conc. factor)	0.04	1	Total nz=1 Total z= 99
Cherries-juice	95th%ile survey 0.01x 1.5(DRES conc. factor)	0.015	1	Total nz= 1 Total z= 99
Chestnuts	Field Trials (ND <0.01)	0.01	2	Total nz= 1 Total z= 49
Chicken-MBYP	Blended Commodity	0.00058	N/A	
Chicken-flesh (+skin, w/o bones)	Blended Commodity	0.00602	N/A	

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Chicken flesh (w/o skin & bones)	Blended Commodity	0.00058	N/A	
Chicken-giblets (liver)	Blended Commodity	0.00046	N/A	
Citrus, oil	Tolerance	200	16	Total nz= 1 Total z= 5
Cottonseed, meal	Avg. Field Trial 0.032 x 0.41 (conc. factor)	0.013	10	Total nz= 1 Total z= 9
Cottonseed, oil	Avg. Field Trial 0.032 x 5 (conc. factor)	0.16	10	Total nz= 1 Total z= 9
Crabapples	Tolerance	10	4	Total nz= 1 Total z= 24
Crenshaws	Field Trials	See Melon data	30	Total nz= 10 Total z= 23
Cucumbers	Field Trials	nz= 24 0.026 0.152 0.029 0.153 0.031 0.160 0.035 0.194 0.045 0.216 0.053 0.228 0.056 0.240 0.076 0.260 0.083 0.290 0.094 0.360 0.142 0.432 0.148 0.474	1	Total nz= 24 Total z= 2376
Dewberries	Tolerance	5	100	Total nz= 1 Total z= 99
Eggplant	Tolerance	2	100	Total nz= 1 Total z= 99
Eggs	Blended Commodity	0.00138	N/A	
Filberts (Hazelnuts)	Field Trial (ND <0.01)	0.01	2	Total nz= 1 Total z= 49

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofof in Plant Commodities and Dicofof Plus FW 52 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated	Monte Carlo Distribution ²
Goats, MBYP (exc. kidney & liver)	Blended Commodity	0.0177	N/A	
Goats, fat	Blended Commodity	0.53	N/A	
Goats, kidney	Blended Commodity	0.0195	N/A	
Goats, liver	Blended Commodity	0.0263	N/A	
Goats, meat (boneless, lean)	Blended Commodity	0.0177	N/A	
Grapes-fresh	Field Trials	nz= 14 0.043 1.200 0.261 1.390 0.267 1.710 0.288 1.740 0.528 3.270 0.980 3.520 1.090 3.600	3	Total nz= 14 Total z= 453
Grapes-raisins	95th%ile survey 0.10 x 4.17 (conc. factor)	0.42	3	Total nz= 1 Total z= 32
Grapes-juice	95th%ile survey 0.10 x 0.25 (conc. factor)	0.025	3	Total nz= 1 Total z= 32
Grapefruit-pulp	Field Trials	nz= 11 0.371 1.660 0.426 2.120 0.635 2.190 1.390 5.080 1.550 5.260 1.660	16	Total nz= 11 Total z= 58
Grapefruit-juice	95th%ile survey 0.07 x 0.0024 (conc. factor)	0.00017	16	Total nz= 1 Total z= 32
Hickory Nuts	Field Trial (ND <0.01)	0.01	2	Total nz= 1 Total z= 49
Hogs, MBYP (exc. kidney & liver)	Blended Commodity	0.00012	N/A	
Hogs, fat	Blended Commodity	0.00374	N/A	
Hogs, kidney	Blended Commodity	0.00014	N/A	

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Hogs, liver	Blended Commodity	0.00018	N/A	
Hogs, meat	Blended Commodity	0.00012	N/A	
Honeydew Melons	Field Trials	nz= 10 0.010 0.117 0.010 0.140 0.054 0.188 0.059 0.313 0.091 0.374	24	Total nz= 10 Total z= 32
Hops, dried	Tolerance	65	6	Total nz= 1 Total z= 16
Horses, MBYP (exc. kidney & liver)	Blended Commodity	0.0177	N/A	
Horses, fat	Blended Commodity	0.53	N/A	
Horses, kidney	Blended Commodity	0.0195	N/A	
Horses, liver	Blended Commodity	0.0263	N/A	
Horses, meat	Blended Commodity	0.0177	N/A	
Kumquats	Tolerance	6	16	Total nz= 1 Total z= 5
Lemons-pulp	Field Trials	nz= 12 0.220 0.870 0.235 0.962 0.395 1.080 0.411 1.240 0.517 1.250 0.532 1.260	16	Total nz= 12 Total z= 63
Lemons-juice	Avg. Field trial 0.75 x 0.0024 (conc. factor)	0.0018	16	Total nz= 1 Total z= 5
Limes	Field Trials	See Lemon data	16	Total nz= 12 Total z= 63
Limes-juice	Avg. Field trial 0.75 x 0.0024 (conc. factor)	0.0018	16	Total nz= 1 Total z= 5
Loganberries	Tolerance	5	100	Total nz= 1 Total z= 99

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Milk, fat	Blended Commodity	0.477	N/A	
Mint, oil, spearmint/peppermint	Tolerance	30	30	Total nz= 1 Total z= 2
Nectarines	Field Trials	See Peach data	100	Total nz=1 Total z= 99
Oranges-pulp	Field Trials	nz= 17 0.416 1.050 0.560 1.280 0.655 1.950 0.773 2.354 0.778 2.770 0.880 3.355 1.040 3.550 1.050 3.710 3.870	16	Total nz= 17 Total z= 89
Oranges-juice	95th%ile survey 0.10 x 0.0024 (conc. factor)	0.00024	16	Total nz= 1 Total z= 5
Peaches	Field Trials	nz=12 1.440 2.287 1.509 2.465 1.675 2.646 1.746 2.925 1.836 2.990 1.862 4.120	1	Total nz=12 Total z= 1188
Peaches-dried	95th%ile survey 0.02 x 7 (DRES conc. factor)	0.14	1	Total nz=1 Total z= 99
Pears	Field Trials	nz= 8 1.970 2.460 2.000 3.480 2.140 6.800 2.400 10.800	4	Total nz= 8 Total z= 192
Pears-dried	95th% survey 0.09x 4.4(DRES conc. factor)	0.396	4	Total nz= 1 Total z= 99
Pecans	Field Trial (ND <0.01)	0.01	2	Total nz= 1 Total z= 49

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities¹

Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Peppers, Bell, Chili, Pimentos, other	Field Trials	nz= 14 0.103 0.588 0.160 0.603 0.269 0.613 0.279 0.796 0.279 0.810 0.299 0.865 0.571 1.492	5	Total nz= 14 Total z= 266
Persian Melons	Field Trials	See Melon data	24	Total nz= 10 Total z= 32
Plums	Field Trials	nz= 6 0.140 0.715 0.400 0.725 0.570 0.810	1	Total nz= 6 Total z= 594
Plums, Prunes-dried	95th%ile survey 0.01 x 3.1 (conc. factor)	0.031	1	Total nz= 1 Total z= 99
Plums, Prune-juice	95th%ile survey 0.01x 1.4(DRES conc. factor)	0.014	1	Total nz= 1 Total z= 99
Poultry, other byproducts	Blended Commodity	0.00058	N/A	
Poultry, other-giblets (liver)	Blended Commodity	0.00046	N/A	
Poultry, other-flesh (+skin, w/o bones)	Blended Commodity	0.00602	N/A	
Pumpkins	Tolerance	2	2	Total nz= 1 Total z= 49
Quinces	Tolerance	10	4	Total nz= 1 Total z= 24
Raspberries	Field Trials	nz= 4 2.935 4.390 3.823 4.480	1	Total nz= 4 Total z= 396
Sheep, MBYP	Blended Commodity	0.0177	N/A	
Sheep, kidney	Blended Commodity	0.0195	N/A	
Sheep, liver	Blended Commodity	0.0263	N/A	

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Sheep, fat	Blended Commodity	0.53	N/A	
Sheep, meat	Blended Commodity	0.0177	N/A	
Squash, summer	Field Trials	nz= 18 0.069 0.157 0.074 0.197 0.077 0.211 0.079 0.296 0.103 0.319 0.137 0.319 0.151 0.329 0.154 1.000 0.154 1.080	1	Total nz=18 Total z= 1782
Squash, winter	Field Trials	See Summer Squash data	1	Total nz= 18 Total z= 1782
Strawberries	Field Trials	nz= 8 1.24 4.47 2.89 4.95 3.76 5.10 3.83 9.81	10	Total nz= 8 Total z= 72
Tea	Field Trials	nz= 6 5.188 29.110 17.010 30.560 23.660 40.800	10	Total nz= 6 Total z= 54
Tomatoes	Field Trials	nz= 16 0.010 0.177 0.042 0.193 0.059 0.218 0.098 0.259 0.103 0.335 0.111 0.457 0.124 0.607 0.138 0.998	3	Total nz= 16 Total z= 517
Tomatoes-juice	95th% survey 0.03 x 0.11 (conc. factor)	0.0033	3	Total nz= 1 Total z= 32
Tomatoes-puree	95th% survey 0.03 x 0.45 (conc. factor)	0.014	3	Total nz= 1 Total z= 32
Tomatoes-paste	95th% survey 0.03 x 0.90	0.027	3	Total nz= 1 Total z= 32

Table 1: Residue Data Used by Rohm & Haas to Determine a Tier III Monte Carlo Assessment for Dicofol in Plant Commodities and Dicofol Plus FW-152 in Animal Commodities ¹				
Food Item	Acute Residue Data Source	Available Data Source	% Crop Treated ²	Monte Carlo Distribution ³
Tomatoes-catsup	95th% survey 0.03 x 0.45 (conc. factor)	0.014	3	Total nz=1 Total z= 32
Turkey-MBYP	Blended Commodity	0.00058	N/A	.
Turkey-flesh (w/o skin, w/o bones)	Blended Commodity	0.00058	N/A	
Turkey-giblets (liver)	Blended Commodity	0.00046	N/A	
Walnuts	Field Trials (ND <0.01)	0.01	2	Total nz= 1 Total z= 49
Watermelons	Field Trials	0.35	11	Total nz= 1 Total z= 8
Wine and Sherry	95th%ile survey 0.10 x 0.25 (grapejuice conc. factor)	0.025	6	Total nz= 1 Total z= 16

¹ Dicofol is a mixture of 1,1-bis(4-chlorophenyl)-2,2,2-trichloroethanol and 1-(2-chlorophenyl)-1-(4-chlorophenyl)-2,2,2-trichloroethanol. FW-152 is a mixture of 1-(2-chlorophenyl)-1-(4-chlorophenyl)-2,2-dichloroethanol and 1,1-bis(4-chlorophenyl)-2,2-dichloroethanol.

² Most percent crop treated data were not obtained from BEAD, but were obtained from *Pesticide Use in U.S. Crop Production*, National Center for Food and Agricultural Policy, 02/95, from *Battelle Worldwide Pesticide Program. Insecticides IV*, 1990, from *Agricultural Chemical Usage. Vegetables*, USDA, 06/93, from *USDA Agricultural Statistics 1991*, from SRI International, *Deciduous Tree and Vine Crop Markets: U.S. Pacific States, 1990*, and from *1988 Specialty Crop Pesticide Study- Fruit, Grapes, and Nuts*, Doane Marketing Research, Inc. Where conflicting numbers were found, the highest percent crop treated value was used. Data for peaches, apricots, cotton, mint, plums, grape wine, cherries, tea, balckberries, and raspberries were from a 11/05/92 Memorandum, John Faulkner (BEAD), listing 1990 usage information. If no data were available, 100% crop treated was assumed.

³ Reviewer generated Monte Carlo residue distribution. The registrant needs to confirm that these residue distributions were used in the submitted Monte Carlo analysis.

cc: SPiper, R.McNally (SRRD), RF, SF, Reg Std File
 RDI: Monte Carlo Team: 9/30/98: FBSuhre:9/30/98
 7509C:CEB1:SPiper:CM-2:Rm 816F: 308-2717: Dicofol



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Chemical:	Dicofol
PC Code:	010501
HED File Code	11100 Other Chemistry Documents
Memo Date:	09/30/98
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