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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 27 1993

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: ID#062719-00039 (CBTS #10796; Barcode #D183903).
Chlorpyrifos on Peppers. Anticipated Residues.

FROM: Nancy Dodd, Chemist *Nancy Dodd*
Tolerance Petition Section II
Chemistry Branch I- Tolerance Support
Health Effects Division (H7509C)

THROUGH: Debra Edwards, Ph.D., Chief *Debra Edwards*
Chemistry Branch I- Tolerance Support
Health Effects Division (H7509C)

TO: Dennis Edwards, PM #19
Insecticide-Rodenticide Branch
Registration Division (H7505C)

and

Albin Kocialski, Section Head
Registration Section
Health Effects Division (H7509C)

DowElanco has submitted a letter dated 10/20/92 requesting reevaluation of the dietary risk based on anticipated residues and percent crop treated for chlorpyrifos on peppers.

Conclusion and Recommendation

The anticipated (i.e. average) residue for chlorpyrifos on peppers based on crop field trials would be 0.14 ppm. The DRES analysis should be revised using this value. The percent crop treated as determined in Ed Brandt's 9/30/92 memo was not considered in calculating this anticipated residue. His memo is attached to our concurrent review of chlorpyrifos on lettuce.

DETAILED CONSIDERATIONS

In its letter dated 10/20/92, DowElanco has indicated that the pending label for Lorsban 50W on peppers will allow a maximum use rate of 2 lbs of 50 W per acre (1 lb ai/A) and a maximum of 10 applications. A 21-day PHI will be observed.



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The petitioner has submitted data used to calculate anticipated residues for peppers (Attachment 1) based on data in PP#5F3286, Accession #073734, Table 1 (Attachment 2).

A review of PP#5F3286 (M. Firestone, 10/18/85) indicates that residues of parent chlorpyrifos in small peppers treated 5-10 times at the rate of 1.0 lb ai/A/application at a 21-day PHI ranged from <0.01- 0.29 ppm. Corresponding residues in bell peppers ranged from <0.01-0.42 ppm. Table 1 from PP#5F3286 (Attachment 2) indicates that the 0.42 ppm value was averaged with lower values for other samples or subsamples at the same site to obtain 0.27 ppm.

The petitioner has calculated an anticipated residue (Attachment 1) of 0.09 ppm for chlorpyrifos on peppers.

Using the data for a 21-day PHI and 10 applications only (since these data are closest to the proposed use of 10 applications and a 30-day PHI), CBTS concludes that a more appropriate anticipated residue would be 0.14 ppm for chlorpyrifos on peppers.

Attachment 1: Data used by the petitioner to calculate anticipated residues

Attachment 2: Table 1 from PP#5F3286

cc with Attachments 1 and 2: RF, SF, Circu., PP#5F3286,
N. Dodd (CBTS), E. Haeberer (CBTS), Reg. Std. File

RDI:E. Haeberer:9/20/93:R. Loranger:9/24/93
H7509C:CBTS:CM#2:Room 804F:305-5681:N. Dodd:nd:9/24/93

Residues of Chlorpyrifos Found on Peppers (21 Day PHI)

<u>LOCATION</u>	<u>FORMULATION TYPE</u>	<u>DOSAGE RATE (LB A.I./Acre/Season)</u>	<u>CHLORPYRIFOS LEVEL (ppm)</u>
<u>SMALL PEPPERS</u>			
Concord, CA	50W	7	0.01
Groveland, FL	50W	5	0.005
Zellwood, FL	50W	8	0.01
Marcellus, MI	50W	7	0.01
Wayside, MS	50W	10	0.29
Elmer, NJ	50W	8	0.17
New Paltz, NY	50W	8	0.15
Corvallis, OR	50W	8	0.05
Davis, CA	50W	10	0.10
Davis, CA	4E	10	0.10

BELL PEPPERS

Concord, CA	50W	7	0.01
Boynton Beach, FL	50W	10	0.03
Immokalee, FL	50W	10	0.27
Wayside, MS	50W	10	0.01
Elmer, NJ	50W	10	0.20
New Paltz, NY	50W	8	0.09
Corvallis, OR	50W	8	0.18
Davis, CA	50W	7	0.01
Davis, CA	4E	7	<u>0.01</u>

ANTICIPATED RESIDUE = 0.09 ppm

9/82/peppers/kje

TABLE I
RESIDUES OF CHLORPYRIFOS AND 3,5,6-TRICHLORO-2-PYRIDINOL (TCP)
IN OR ON FRUITING VEGETABLE CROPS TREATED WITH LORSBAN INSECTICIDE APPLIED AS FULL COVERAGE FOLIAR SPRAYS -- (continued)

Crop	Location	Formulation	Dosage Chlorpyrifos (lb/acre) ^b	Days from Application to Sample Collection	Residue Found - Average (Range) ^a - ppm		Report/ Page Ref.	
					Chlorpyrifos	Chlorpyrifos + TCP ^c		
Small Peppers	Wayside, MS	50W	10(1x10)	21	0.29	0.23	0.52	
	Uvalde, TX	50W	10(1x10)	21	--	ND	ND	
	Davis, CA	50W	10(1x10)	21	0.10	ND	0.1/20	
	Davis, CA	4E	10(1x10)	21	0.10	<0.05	0.1/21	
	Zellwood, FL	50W	8(1x8)	21	0.01	ND	0.1/22	
	Elmer, NJ	50W	8(1x8)	21	0.17	0.07	0.1/13	
	New Paltz, NY	50W	8(1x8)	21	0.15	<0.05	0.1/17	
	Corvallis, OR	50W	8(1x8)	21	0.05	ND	0.1/18	
	Concord, CA	50W	7(1x7)	21	<0.01	ND	0.1/19	
	Marcellus, MI	50W	7(1x7)	21	0.01	0.12	0.1/11	
	Midland, MI	50W	6(1x6)	21	--	<0.05	0.1/14	
	Groveland, FL	50W	5(1x5)	21	ND	ND	0.1/15	
							ND	0.1/12
	Bell Peppers	Boynton Beach, FL	50W	10(1x10)	21	0.03(<0.01-0.04)	0.06(<0.05-0.08)	0.09(<0.06-0.12)
		Immokalee, FL	50W	10(1x10)	21	0.27(0.09-0.42)	0.15(0.09-0.21)	0.41(0.18-0.56)
Geneseo, IL		50W	10(1x10)	21	--	<0.05	<0.09	
Wayside, MS		50W	10(1x10)	21	0.01	<0.05	<0.06	
Elmer, NJ		50W	10(1x10)	21	0.20	0.48	0.68	
Uvalde, TX		50W	10(1x10)	21	--	<0.05	<0.09	
Geneseo, IL		50W	9(1x9)	21	--	<0.05	<0.09	
New Paltz, NY		50W	8(1x8)	22	0.09	<0.05	<0.14	
Corvallis, OR		50W	8(1x8)	21	0.18	0.12	0.30	
Concord, CA		50W	7(1x7)	21	<0.01	<0.05	<0.06	
Groveland, FL		50W	7(1x7)	21	--	ND	ND	
Marcellus, MI		50W	7(1x7)	21	--	ND	ND	
Midland, MI		50W	7(1x7)	21	--	ND	ND	
Davis, CA		50W	7(1x7)	21	<0.01	<0.05	<0.06	
Davis, CA		4E		21	<0.01	<0.05	<0.06	

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

September 30, 1992

MEMORANDUM

SUBJECT: Percent of Crop Treated Estimates for Chlorpyrifos

FROM: Ed Brandt, Economist *Ed Brandt*
Economic Analysis Branch (H7503W)

THRU: Robert Torla, Section Chief *RT*
Economic Analysis Branch (H7503W)

TO: Dennis Edwards, PM-19
Registration Division (H7505C)

Purpose

This memo is in response to your request for a percent of crop treated estimate for chlorpyrifos (Lorsban, Dursban). The purpose of the estimate is for an analysis of dietary exposure, particularly in regard to new label uses.

Two tables accompany this memo. Table 1 contains a low and high estimate of percent of crop treated (by crop), as well as the associated lbs. of active ingredient. The projected upper range is sufficient to cover anticipated market growth over the next five years. Table 2 contains the non CBI background data that went into the review. Additional CBI information and proprietary subscription data on chlorpyrifos usage is available for your review upon request.

Methodology

Estimates for percent of crop treated were derived from the following sources:

1. August 6, 1992 submission from DowElanco. Contains crop by crop usage for chlorpyrifos for three years (89/90, 90/91, 91/92), total U.S. use for 1990 and 1991, and forecasted market presence of Lorsban/Dursban assuming new label clearances (grapes, lettuce, peppers, tomatoes, wheat). Acres treated for existing crop use and production data were claimed confidential by DowElanco.
2. USDA NAPIAP assessment on chlorpyrifos. Prior to

public release of the chlorpyrifos assessment report, USDA has shared the current estimates of percent of crop treated for the 1987-89 time frame (memo sent 8/7/92).

3. Resources For the Future (RFF) chlorpyrifos estimates. RFF has shared final use estimates for chlorpyrifos (9/2/92) for a typical year 1987-89 time frame. These estimates were derived from available state surveys, expert opinion, and reviewed by the crop production issue manager of DowElanco.

4. Doane Marketing Service (1991) data on chlorpyrifos. This data is confidential thru a multi-client subscription agreement.

5. Production data submitted under Section 7 of FIFRA. Original data submissions were obtained from Region 5 since almost all chlorpyrifos production is reported to this region. Data was compared to production contained under point 1 above., that is, the sum of crop and non crop use. The section 7 reports verified the total U.S. use of chlorpyrifos as provided under point 1 above.

The range estimate (low and high) of percent of crop treated is based on individual trends in crop use, the difference in estimates between USDA and RFF, and the state level variability in use. The high estimate of the five year production should exceed production (by about 10%) even if chlorpyrifos maintains a significant growth rate.

For new label uses, the estimates were based on a review of the estimates provided by DowElanco, and individual state estimates (from RFF) for those states that had emergency exemptions.

cc. Art Grube

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Chlorpyrifos % of Crop Treated 05-Oct-92

Table 1

CROP	OPP 5 Year Projections		Projected percent		lbs. ai. 000's	
	Low	High	Low	High	Low	High
ALFALFA	6	13 *	930	2,147		
ALMONDS	10	26 *	79	205		
APPLES	24	70 *	222	642		
ASPARAGUS	19	21 *	37	41		
BROCCOLI	6	80 *	10	129		
BRUSSEL SPROUTS	90	100 *	12	14		
CABBAGE	30	36 *	61	73		
CAULIFLOWER	53	65 *	34	41		
CHERRIES	1	6 *	1	6		
CITRUS	31	39 *	755	950		
COLLARDS	7	25 *	0	1		
CORN	10	14 *	8,027	11,237		
POPCORN	10	14 *				
COTTON	10	13 *	1,111	1,444		
CRANBERRIES	38	42 *	19	21		
DRY BEANS	2	5 *	10	25		
FILBERTS	70	80 *	36	42		
GRAPES	5	18 *	21	76		
GREEN PEAS	75	90 *	10	12		
LETTUCE	35	45 *	197	253		
MINT	30	35 *	60	70		
NECTARINES	20	52 *	10	26		
ONIONS	14	22 *	30	48		
PEACHES	40	50 *	70	88		
PEANUTS	30	45 *	880	1,319		
PEARS	20	25 *	18	22		
PECANS	40	50 *	286	357		
PEPPERS	20	35 *	31	55		
PLUMS	17	25 *	24	36		
POTATOES	0	2 *	2	13		
RADISHES	45	85 *	6	10		
SORGHUM	3	11 *	224	985		
SOYBEANS	0	2 *	36	365		
STRAWBERRIES	13	30 *	7	16		
SUGARBEETS	17	35 *	264	544		
SUNFLOWERS	1	3 *	8	25		
SWEET CORN	28	36 *	101	129		
SWEET POTATOES	35	40 *	81	92		
TOBACCO	19	35 *	318	585		
TOMATOES	9	15 *	12	20		
WALNUTS	40	55 *	206	283		
WHEAT	3	20 *	1,047	6,979		
Total lbs a.i.			15,291	29,425		

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Chlorpyrifos % of Crop Treated 30-Sep-92

Table 2

CROP	USDA Assessment			RFF		
	Acres 000,s	Percent treated	lbs ai 000,s	Percent treated	lbs ai 000,s	
ALFALFA	* 26,041	10.7	1767	* 11.3	1,868	*
ALMONDS	* 415	9.8	82	* 26.0	205	*
APPLES	* 362	26.8	167	* 70.0	642	*
ASPARAGUS	* 103	21.4	42	* 19.0	37	*
BROCCOLI	* 118	5.6	9	* 80.6	130	*
BRUSSEL SPROUTS	* 4	100.0	15	* 100.0	14	*
CABBAGE	* 29	36.0	73	* 30.6	62	*
CAULIFLOWER	* 67	53.0	83	* 65.0	41	*
CHERRIES	* 48	0.4	1	* 6.0	6	*
CITRUS	* 857	39.2	955	* 30.9	753	*
COLLARDS	* 1	6.9	1	* 25.0	1	*
CORN	* 68,738	11.6	9311	* 10.0	8,059	*
POPCORN	* 268	11.1	29	* 0.0	0	*
COTTON	* 11,158	12.9	1433	* 9.6	1,065	*
CRANBERRIES	* 27	38.2	21	* 42.0	21	*
DRY BEANS	*		*	* 2.0	2	*
FILBERTS	* 27	73.1	38	* 75.0	39	*
GRAPES	* 7,590	5.0	21	* 3.3	14	*
GREEN PEAS	*		*	* 75.0	1	*
LETTUCE	*		*	*		*
MINT	* 107	33.9	68	* 30.9	62	*
NECTARINES	* 24	20.0	10	* 52.5	26	*
ONIONS	* 134	21.2	46	* 13.6	30	*
PEACHES	* 185	41.1	72	* 47.4	83	*
PEANUTS	* 1,630	38.1	1117	* 29.3	858	*
PEARS	* 69	21.4	19	* 22.2	20	*
PECANS	* 223	50.0	357	* 43.6	312	*
PEPPERS	*		*	*		*
PLUMS	* 127	25.1	36	* 17.0	24	*
POTATOES	*		*	* 0.3	2	*
RADISHES	* 1	45.0	3.5	* 85.0	10	*
SORGHUM	* 11,580	11.0	985	* 5.9	527	*
SOYBEANS	*		*	* 0.2	36	*
STRAWBERRIES	* 47	13.5	7	* 29.9	15	*
SUGARBEETS	* 1,315	28.2	438	* 16.9	263	*
SUNFLOWERS	*		*	* 0.5	4	*
SWEET CORN	* 203	35.6	128	* 28.2	102	*
SWEET POTATOES	* 90	38.1	88	* 38.8	90	*
TOBACCO	* 636	23.8	398	* 18.8	315	*
TOMATOES	*		*	* 9.0	12	*
WALNUTS	* 177	54.4	280	* 40.8	210	*
WHEAT	* 69,324	2.8	977	* 1.2	404	*

Total lbs a.i.

19,078

16,365

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