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MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Addendum to the Residue Chemistry Chapter of the Dimethoate Registration Standard and Tolerance Reassessment (FRSTR) -- FDA Domestic and Import Surveillance and Total Diet Data

FROM: Debra F. Edwards, Ph.D.
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

THRU: Charles L. Trichilo, Ph.D., Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

TO: Amy Rispin, Ph.D., Chief
Science Integration and Management Staff
Hazard Evaluation Division (TS-769C)

and

William Miller (PM-16)
Insecticide/Rodenticide Branch
Registration Division (TS-767C)

Introduction:

At the time the Residue Chemistry Chapter of the Dimethoate FRSTR was issued by RCB (October 1, 1987), Food and Drug Administration (FDA) monitoring data had not yet been received. These data have now been received and are presented here as an addendum.

FDA Total Diet Studies:

Of the 234 food items in the revised Total Diet Study market baskets, 128 are analyzed by methods known to determine dimethoate and omethoate (the oxygen analog of dimethoate). From April 1982 to April 1986, 16 market baskets were collected. Thus, a total of 16 samples of each individual food item were analyzed for residues of dimethoate/omethoate over the 4-year collection period. Residues were detected in the food items listed in Table 1 only. No tolerance-exceeding residues were found. However, residues were found in or on the following foods on which no tolerance exists: one sample of canned peaches, two samples of fresh plums, one sample of cucumber, and one sample of radish.

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Table 1. Residues of dimethoate plus omethoate in food items collected in FDA's Revised Total Diet Study market baskets (April 1982 - April 1986).

Food Item	# Samples Bearing Residues	Range (ppm)	Mean of Measurable Residues
Lima Beans (boiled)	3	0.002-0.010	0.005
Peas (boiled)	2	0.003-0.006	0.005
Raisin Bran	3	0.003-0.007	0.005
Apple (raw)	1	0.002	0.002
Oranges (raw)	2	0.002-0.006	0.004
Canned peaches	1	0.002	0.002 ^a
Grapes	8	0.002-0.114	0.029
Cantaloupe	4	0.001-0.182	0.051
Plums	2	0.001-0.002	0.002 ^a
Raisins	15	0.001-0.094	0.016
Apple juice	6	0.001-0.006	0.003
Grape juice	5	0.001-0.007	0.003
Lemonade	1	0.007	0.007
Boiled Collards	1	0.067	0.067
Lettuce	1	0.006	0.006
Boiled broccoli	1	0.031	0.031
Canned gr. beans	3	0.007-0.013	0.010
Cucumber	1	0.016	0.016 ^a
Green peppers	8	0.007-0.30	0.063
Radish	1	0.011	0.011 ^a
Grape jelly	6	0.001-0.003	0.002
Wine	15	0.004-0.089	0.037
Applesauce	5	0.001-0.022	0.006
Apple/Cherry/ Grape juice	8	Trace-0.016	0.006

^a No tolerance exists.

FDA Domestic and Import Surveillance Data:

Tables 2-7 summarize FDA's domestic and import surveillance data for dimethoate/omethoate from 1985-1987 (through 9/9/87). The raw agricultural commodity (RAC) column in each table lists all commodities on which residues were found. The remaining columns list the number of samples of each commodity found to contain measurable residues (# positive), the percent of total tested samples on which measurable residues of dimethoate/omethoate were found (% testing positive), the range of measurable residues, and the mean of the measurable residues.

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Table 2. 1985 Domestic Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Grapes	5	41	0.02-0.12	0.06
Grapefruit	1	3	0.10	0.10
Apples	1	<1	0.22	0.22
Green beans	2	5	0.60-1.55	1.07
Peas	24	24	0.03-2.97	0.59
Peppers	11	13	0.02-0.65	0.18
Squash	3	3	0.02-0.44	0.21 ^a
Cucumber	1	1	0.03	0.03 ^a
Tomatoes	7	5	0.02-0.85	0.24
Cabbage	1	<1	0.05	0.05
Celery	1	1	0.02	0.02
Lettuce	46	8	0.02-1.44	0.30
Mustard greens	1	4	0.60	0.60
Parsley	1	3	0.01	0.01 ^a
Spinach	7	10	Trace-2.54	0.55
Carrots	1	<1	Trace	Trace ^a
Beets	2	12	0.08-0.13	0.11 ^a
Alfalfa hay	1	100	1.20	1.20

^a No tolerance exists.

Table 3. 1985 Import Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Cantaloupe	35	16	Trace-0.20	0.03
Grapes	24	21	0.03-0.70	0.12
Oranges	1	9	0.04	0.04
Apple juice	18	11	Trace-0.15	0.03
Pear juice	1	50	0.01	0.01
Cherries	1	33	0.28	0.28
Peaches	2	12	0.03-0.06	0.05 ^a
Mango	1	14	0.02	0.02 ^a
Honeydew	7	12	0.01-0.05	0.03
Green beans	22	21	0.02-0.50	0.15
Peas	15	14	0.01-2.87 ^b	0.46
Eggplants	3	4	0.02-0.32	0.19 ^a
Okra	3	4	0.02-0.35	0.19 ^a
Peppers	151	27	Trace-1.70	0.23
Squash	7	2	0.04-0.30	0.10 ^a
Cucumbers	7	3	0.03-0.38	0.12 ^a
Tomatoes	36	6	0.02-0.30	0.07
Cauliflower	3	17	0.02-0.20	0.10
Endive	2	9	0.15-1.20	0.68
Lettuce	3	5	0.05-1.20	0.52
Radishes	1	2	0.58	0.58 ^a

^a No tolerance exists.

^b Tolerance-exceeding residues reported in two samples.

Table 4. 1986 Domestic Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Grapes	6	11	0.02-1.01	0.21
Oranges	4	6	0.09-0.43	0.21
Apples	3	<1	0.19-0.40	0.26
Cherries	1	2	0.20	0.20
Peaches	1	1	0.02	0.02 ^a
Cantaloupe	4	4	Trace-0.18	0.07
Honeydew	4	16	Trace-0.05	0.02
Peas	18	17	0.05-6.38 ^b	0.91
Peppers	3	4	0.14-0.22	0.17
Tomatoes	4	3	0.01-0.17	0.08
Broccoli	2	1	0.10-0.33	0.22
Cabbage	2	2	Trace-0.12	0.06
Collards	1	3	0.15	0.15
Kale	1	3	0.09	0.09
Lettuce	39	8	Trace-1.10	0.23
Mustard greens	1	4	0.40	0.40
Spinach	3	4	0.03-0.10	0.06
Turnip greens	2	9	0.20-0.37	0.29
Wine	18	40	0.02-0.42	0.10

^a No tolerance exists.^b Tolerance-exceeding residues found in two samples.

Table 5. 1986 Import Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Grapes	60	15	0.02-0.40	0.11
Apples	1	5	0.16	0.16
Apple juice	1	33	0.05	0.05
Cantaloupe	10	5	Trace-0.12	0.05
Watermelon	7	5	0.02-0.16	0.08
Green beans	36	43	0.02-2.00	0.37
Peas	7	10	0.08-1.20	0.28
Eggplant	1	1	0.03	0.03 ^a
Okra	2	3	Trace-0.06	0.03 ^a
Peppers	139	35	Trace-1.90	0.18
Squash	6	2	Trace-0.65	0.14 ^a
Cucumbers	10	4	Trace-0.97	0.16 ^a
Tomatoes	51	9	Trace-0.80	0.09
Cabbage	1	14	0.96	0.96
Cauliflower	1	11	0.02	0.02
Celery	1	7	0.10	0.10
Lettuce	2	8	1.83-2.85	2.34
Radishes	1	4	0.04	0.04 ^a

^a No tolerance exists.

Table 6. 1987 Domestic Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Grapes	2	4	0.03-0.10	0.07
Apples	1	4	0.07	0.07
Peaches	1	2	0.08	0.08 ^a
Melons	1	1	0.03	0.03
Green beans	1	2	0.45	0.45
Peas	4	8	0.03-0.90	0.37
Peppers	1	1	Trace	Trace
Cabbage	3	3	0.12-0.50	0.29
Broccoli	10	6	0.10-0.47	0.24
Collards	3	8	0.15-0.80	0.38
Endive	3	12	0.07-0.70	0.31
Kale	1	3	0.13	0.13
Lettuce	31	7	0.04-1.50	0.43
Mustard greens	3	8	0.30-0.60	0.41
Spinach	6	9	0.13-1.58	0.48
Turnip greens	3	8	0.20-3.30 ^b	1.24
Beets	2	13	0.42-0.49	0.46 ^a

^a No tolerance exists.^b Tolerance-exceeding residues were found in one sample.

Table 7. 1987 Import Surveillance Data:

RAC	# Pos.	% Pos.	Range (ppm)	Mean (ppm)
Grapes	63	19	0.01-0.63	0.07
Strawberries	3	2	0.01-0.042	0.03 ^a
Pears	3	4	0.05-0.15	0.10
Apple juice	1	10	0.03	0.03
Peaches	2	7	Trace-0.05	0.03 ^a
Guava	1	50	0.08	0.08 ^a
Cantaloupe	12	6	0.02-0.35	0.12
Melons	8	4	0.03-0.25	0.11
Peas	16	15	0.06-4.13 ^b	0.76
Green beans	22	18	Trace-1.77	0.35
Eggplant	7	6	0.03-0.30	0.13 ^a
Okra	2	2	0.14-0.18	0.16 ^a
Peppers	109	18	0.02-1.50	0.30
Squash	5	1	0.03-0.07	0.05 ^a
Cucumbers	3	2	0.02-0.27	0.11 ^a
Tomatoes	39	6	0.03-0.25	0.09
Broccoli	2	2	0.02-0.15	0.09
Cauliflower	1	4	0.07	0.07
Endive	6	7	0.05-0.98	0.42
Kale	1	25	0.10	0.10

^a No tolerance exists.^b Tolerance-exceeding residues were found in one sample.

TS-769C:RCB:D.Edwards:CM#2:RM:812D:557-4353

cc:E.Eldredge(PMSD/ISB):SF:RF:Reg.Standards File: Reviewer

RDI:Section Head:W.Boodee:1/88:R. Schmitt:1/88