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

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OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Registration No. 53201-1 (RCB No. 3058)
Methyl Bromide Protocol for Soil Fumigation Residue Studies (No Accession Number)

FROM: Nancy Dodd, Chemist
Tolerance Petition Section II
Residue Chemistry Branch
Hazard Evaluation Division (TS-769C)

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

TO: Jeff Kempter, PM #32
Insecticide-Rodenticide Branch
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and

Toxicology Branch
Hazard Evaluation Division (TS-769C)

The Methyl Bromide Industry Panel (MBIP) submits a protocol for soil fumigation studies. (These studies have already been started.) The submitted protocol is for determination of residues of both methyl bromide (MBr) and inorganic bromide (iBr) for all registered preplant uses plus additional crops which are needed to complete crop groups. Residues will be determined for 15 crop groups plus some miscellaneous crops. Representative crops, rates, and sites are proposed.

Conclusions

1. The petitioner has proposed that tolerances for iBr and MBr be established on the crop groups root and tuber vegetables, bulb vegetables, leafy vegetables (except Brassica vegetables), Brassica (cole) leafy

vegetables, legume vegetables, fruiting vegetables (except cucurbits), cucurbit vegetables, citrus fruits, pome fruits, stone fruits, small fruits and berries, tree nuts, cereal grains group, non-grass animal feeds, herbs and spices, as well as some miscellaneous crops. The petitioner has adequately selected the representative commodities for the above crop groups except for the following groups:

a. Bulb Vegetables. The representative commodities are "onion (green and bulb) and one other commodity." The MBIP has proposed obtaining data on onions (green), onions (large bulb), and onions (small bulb). The MBIP would also need to obtain data on one other commodity from the bulb vegetables group.

b. Cereal Grains Group. The representative commodities are "corn (fresh sweet corn and dried field corn), rice, sorghum, and wheat." The MBIP has proposed obtaining data on dry corn, rice, sorghum, and wheat. The MBIP would also need to obtain data on fresh sweet corn.

c. Crop group tolerances will not be appropriate where maximum residues of iBr or MBr vary by more than a factor of 5, as explained in 40 CFR 180.34(f)(5) and (6) below:

(5) "If maximum residues (tolerances) for the representative crops vary by more than a factor of 5 from the maximum value observed for any crop in the group, a group tolerance will ordinarily not be established. In this case individual crop tolerances, rather than group tolerances, will normally be established. By keeping the range of residues small, the Agency intends not to alter the environmental or health benefits of the present program."

(6) "Alternatively, a commodity with a residue level significantly higher or lower than the other commodities in the group may be excluded from the group tolerance (e.g., cereal grains, except corn). In this case an individual tolerance at the appropriate level for the unique commodity would be established, if necessary. Residue data from crops additional to those representative crops in a grouping may be required for systemic pesticides."

d. For crop group tolerances to be established, the proposed uses must be similar as stated in 40 CFR 180.34(f)(3):

> "Since a group tolerance reflects maximum residues expected to occur on all individual crops within a group, the proposed or registered patterns of use for all crops in the group must be similar before a group tolerance is established. The pattern of use consists of the amount of pesticide applied, the number of times applied, the timing of the first application, the interval between applications, and the interval between the last application and harvest. The pattern of use will also include the type of application; for example, soil or foliar application, or application by ground or aerial equipment."

This is not the case with lettuce (with established application rates up to 400 lb ai/A) and celery and spinach (with proposed application rates up to 240 lb ai/A). Also, the proposed/established uses on the small fruits and berries group are not the same. Therefore, crop group tolerances for the leafy vegetables group and the small fruits and berries group are not appropriate.

2a. Application rates for methyl bromide of up to 240 lb ai/A have been proposed or established for a preplant soil application for the crop groups root and tuber vegetables, bulb vegetables, leafy vegetables except Brassica, Brassica vegetables, legume vegetables, fruiting vegetables except cucurbits, cucurbit vegetables, small fruits and berries, herbs and spices, and also for okra (refer to the Residue Chemistry Chapter [dated March 28, 1986] of the Methyl Bromide Registration Standard and to PP#5F3198, M. Firestone, April 12, 1985). Therefore, the proposed application rates for the preplant soil application of 240 lb ai/A in the protocol are adequate for broccoli, fruiting vegetables, cucurbit vegetables, and strawberries.

2b. The following conclusions concerning the proposed application rates in the submitted protocol are based on the discussions of the established uses in the Residue Chemistry Chapter (dated March 28, 1986) of the Methyl Bromide Registration Standard.

i. The rate of 870 lb ai/A which is proposed in the protocol for citrus fruits, pome fruits, stone fruits, and tree nuts is adequate to cover established uses.

ii. The proposed rate for asparagus of 400 lb ai/A in California and 240 lb ai/A in Maine and Washington is adequate.

iii. The proposed rate for tobacco of 870 lb ai/A should be 872 lb ai/A.

iv. The rate for pineapples should be 240 lb ai/A.

v. The rate for grapes should be 600 lb ai/A. The rate for Rubus spp., blueberry, and cranberry should be 240 lb ai/A since the rate which is proposed for small fruits and berries in PP#5F3198 is apparently up to 240 lb ai/A.

vi. The proposed rates for bulb vegetables of 300 lb ai/A in California and Oregon and 240 lb ai/A in Colorado, Texas, and New York are adequate.

vii. The proposed rate of 400 lb ai/A in California, Arizona, and Florida for lettuce is adequate.

viii. The proposed rate on celery of 240 lb ai/A in Florida and Maine is adequate. The rates in California for celery and the rates for spinach should also be 240 lb ai/A. (No crop group tolerance is applicable. See No. 4 below).

ix. The application rate for cabbage and mustard greens should be the same as for broccoli (i.e., 240 lb ai/A).

2c. The preplant soil application rate for the root and tuber vegetables group, for the legume vegetables group, and for the herbs and spices group should be 240 lb ai/A since that is the maximum rate proposed in PP#5F3198.

2d. No application rates or sites have been listed on the submitted protocol for corn, rice, sorghum, and wheat and for the miscellaneous crops avocados, cocoa beans, coffee beans, copra, cottonseed, okra, peanuts, and pistachio nuts.

2e. No application rate has been proposed for alfalfa and clover other than that of 240 lb ai/A listed in the submitted protocol.

3. Any new iBr or MBr tolerances must be adequate to cover both the proposed preplant use and any registered postharvest applications. Crop samples grown on fumigated soil must also be fumigated postharvest when both preplant soil treatment and postharvest fumigation are to be registered. The MBIP should refer to the Residue Chemistry Chapter (dated March 28, 1986) of the Methyl Bromide Registration Standard for details.

4. The MBIP has not indicated what processed commodities and animal feeds it intends to analyze along with the raw agricultural commodities. The MBIP should refer to Table II of the Pesticide Assessment Guidelines, Subdivision O, Residue Chemistry (dated October 1982).

5. The protocol allows the ground to be covered by a polyethylene film for 48 hours after application and then removal of the film to allow aeration for 12 days before planting. Some proposed/established uses do not specify a minimum interval between application and planting. The labels should be changed to conform to the protocol or the protocol should be changed.

6a. RCB has previously indicated that residues of methyl bromide per se should be analyzed "as soon as possible (perhaps within 12 hours) after sampling and/or that samples must be stored in impermeable containers" since storage stability data show that MBrcan be lost significantly from fumigated raw and processed crop products (see the Methyl Bromide Registration Standard and also RCB's February 19, 1986 review of PP#5F3300). If the petitioner finds that he needs 18 hours between harvest and analyses, he should investigate how much MBrper se would be lost during that time period.

6b. The protocol does not spell out analyses of control samples for background bromide. This needs to be done so that the Agency can compare background bromide exposure to the higher exposure resulting from the use of MBr.

7a. The GC method of King et al. (PP#5F3300) for analysis of MBr per se has been accepted as satisfactory by RCB after a method try out.

7b. Fortification/recovery data for method Pr6e-64 will be needed before EPA can validate that method for analysis of the bromide ion.

8. Some crops do not have adequate geographic representation. The MBIP should review the table in this review which compares the available sites and proposed sites with the ideal geographic representation, and also review the specific requirements for sites which were given for some crops in the Methyl Bromide Registration Standard and are repeated in this review.

Recommendations

RCB finds the submitted protocol for residue data for methyl bromide residues to be incomplete for reasons given in Conclusions 1a, 1b, 1c, 1d, 2b, 2c, 2d, 2e, 3, 4, 5, 6a, 6b, 7b, and 8 above. It is recommended that this protocol be revised and resubmitted.

Detailed Considerations

The submitted protocol for MBr residue data for preplant soil application is discussed below. A summary of the study is first. MBIP's table outlining the crops, sites, and rates for the proposed preplant soil residue study is second. A table prepared by RCB which compares the available sites and proposed sites with the ideal geographic representation is third. Finally, specific geographic requirements which were given for some crops in the Methyl Bromide Registration Standard are repeated after RCB's table.

I. SUMMARY OF THE STUDY

In most cases, MBr will be applied as a broadcast application. In some cases, the application will be a bed treatment. For broadcast treatments, the MBrwill be injected 6 to 8 inches deep using shanks spaced 1 foot apart. The ground will be immediately covered for 48 hours with a

polyethylene film, which is then removed to allow aeration for 12 days before planting. For bed fumigation, the MBr is injected to a depth of 6 to 8 inches using shanks spaced 12 to 18 inches apart. The bed is immediately covered by a polyethylene mulch, which is not removed. Fourteen days later, plants are planted through the mulch. A comparison of residues on greenhouse versus field-grown tomatoes will be made by erecting a greenhouse on a field in California where a field study is also conducted. For perennial crops, such as grapes and nuts, commercial plantings which are approaching first harvest will be used. Controls will be plants on an "equivalent soil in the same region." Crops will be grown to maturity. Four samples will be collected per treatment. Each sample will be immediately placed in a 1 quart glass canning jar with a screw top lid and stored on dry ice until analysis. The maximum time from harvest to analysis will be 18 hours. The residues of MBr per se will be analyzed using the King et al. (1981) gas chromatographic method. The sensitivity of the King et al. method is reported to be less than 0.01 ppm. The total bromide residues will be analyzed using a colorimetric method, Method Pr 6e-64 (revised November 12, 1973). The sensitivity of the method is 2 ppm.

II. PROPOSED METHYL BROMIDE RESIDUE STUDY (PREPLANT SOIL)

Crop Group	Crop	States Where Data Must Be Generated and Required Dosage in lb/A									
		CA	FL	OR	CO	TX	NY	AZ	ME	HI	Misc. States
Root and Tuber	Carrot	(300)	---								
	Potato	(300)	(300)								
	Radish	(300)	---								
	Sugar Beet	(300)	---								
Bulb Vegetables	Onion (green)	300		300	240	240	240				
	Onion (large bulb)	300		300	240	240	240				
	Onion (small bulb)	300		300	240	240	240				
Leafy Vegetables	Head lettuce	400	400					400	---		
	Leaf lettuce	400	400					400	---		
	Celery	(400)	240					---	240		
	Spinach	(400)	(240)					---	---		
Brassica	Broccoli	240				---		240			
	Cabbage	(300)				(300)		(300)			
	Mustard greens	(300)				(300)		(300)			
Legume Vegetables	Beans (succulent)	(300)									
	Beans (dry)	(300)									
	Peas (succulent)	(300)									
	Peas (dry)	(300)									
	Soybeans	(300)									
Fruiting Vegetables	Tomatoes										
	Field	240	240								
	Greenhouse	240	---								
	Peppers	240	240								

Note: Dosages in parentheses are not specified in the Registration Standard.

II. PROPOSED METHYL BROMIDE RESIDUE STUDY (PREPLANT SOIL) (cont'd)

Crop Group	Crop	States Where Data Must Be Generated and Required Dosage									
		CA	FL	OR	CO	TX	NY	AZ	ME	HI	Misc. States
Cucurbit Veg.	Cucumbers	240				240		240			
	Melons	240				240		240			
	Summer squash	240				240		240			
Citrus Fruits	Sweet orange	870	870			---		870			
	Lemon	870	---			---		870			
	Grapefruit	870	870			870		---			
Pome Fruits	Apple	870					870				
	Pear	870					879				
Stone Fruits	Cherry	870									
	Peach	870									
	Plums	870									
Small Fruits and Berries	Rubus spp.	(300)	---	---							
	Blueberry	(300)	---	---							
	Cranberry	( )	---	---							
	Grape	(400)	---	---							
	Strawberry	240	240	240							
Tree Nuts	Almond	870									
	Pecan	870									
	English walnut	870									

Note: Dosage in parentheses are not specified in the Registration Standard.

II. PROPOSED METHYL BROMIDE RESIDUE STUDY (PREPLANT SOIL) (cont'd)

Crop Group	Crop	States Where Data Must Be Generated and Required Dosage									
		CA	FL	OR	CO	TX	NY	AZ	ME	HI	Misc. States
	Corn (dry)										
	Rice										
	Sorghum										
	Wheat										
Nongrass Animal Feed	Alfalfa	(240)									
	Clover	(240)									
Herbs and Spices	Basil	(300)									
	Chives	(300)									
	Dill	(300)									
	Marjoram	(300)									
	Sage	(300)									
Miscellaneous	Asparagus	400	---	---					240	---	240 (WA)
	Avocados										
	Cocoa Beans										
	Coffee Beans										
	Copra										
	Cottonseed										
	Okra										
	Peanuts										
	Pineapples	---	(300)						---	(300)	---
	Pistachio Nuts										
	Tobacco	---	---	---					---	---	870 (NC, KY)
	Processed Foods										
	Meat/Milk/Poultry/ Eggs										
	TOTAL CROPS/STATE	48	11	4	3	9	5	10	2	1	3

96 crop sites in 12 States.

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III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION

Crop	Available[2/] Residue Data i-Br	Available[2/] Residue Data MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Carrot	IN	CA	CA	CA, TX/AZ, MI/WI, WA/OR, NY/NJ, OH, MI, MN
Potato	IN, WA CA, FL	IN, WA CA, FL	CA, FL	ID, OR/WA, ND, MN, WI, ME, CA, CO
Radish	Root: IN, FL, OK	Root: IN, FL	CA	FL, CA
Sugar beet	IN[1/]		CA	CA, MN/ND, ID, WA, NE, WY, MI
Onion, green	***	***	CA, OR, CO, TX, NY	TX, CA, AZ/NM
Onion, bulb	*** CA	***	CA, OR, CO, TX, NY	NY, MI, OR/WA, ID, CO
Lettuce (head and leaf)	IN, FL CA	IN, CA	CA, FL, AZ	CA, FL, TX/AZ, NY/NJ, CO, WA
Celery	CA		CA, FL, ME	CA, FL, MI, WA
Spinach			CA, FL	CA, TX/OK, NJ, MD/VA, CO/AR
Broccoli	FL, GA, MI	FL, GA, CA	CA, AZ	CA, TX/AZ, OR
Cabbage	GA, FL	FL, GA	CA, TX, AZ	NY, CA, FL, TX, WI, NJ, SC/NC/ GA/TN

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III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION (cont'd)

Crop	Available[2] Residue Data i-Br	Available[2] Residue Data MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Mustard greens	FL, OK, GA, IN	GA, FL, IN	CA, TX, AZ	CA, TX/AZ, MI/OH/IND, FL, LA/GA/TN
Beans (succulent)	IN, CA; GA[4]	GA[4], CA	CA	NJ/NY, TN/NC/VA, CA, MI, FL
Beans (dry)	OK, GA	GA, CA	CA	CA, ID, MI, CO, NE, ND
Peas (succulent)	IN	IN	CA	CA, DE, ID, MN, WI, OR/WA
Peas (dry)	GA[3], OK[3], MS[3]	GA[3]	CA	WA/OR, ID
Soybeans	IN	IN	CA	MS/LA, TN, AR, IN/IL, IA/NE, MN, MO
Tomatoes	GA, IN, CA, MD, MI, NY	GA, IN, CA	CA, FL	CA, FL, OH/PA, NJ, IN, MI, SC/TN
Peppers	GA, IN, MI, CA, OK	GA, IN,	CA, FL	CA, FL, TX, NC, NJ
Cucumbers	IN, FL, OK, MS, GA	GA, IN, CA	CA, TX, AZ	CA, FL, TX, MI, NY/NJ, NC/SC, OH
Melons[5]	GA, FL, OK, MI, NY	GA	CA, TX, AZ	CA, TX/AZ, IN, MI, GA/SC

III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION (cont'd)

Crop	Available[2]/ Residue Data i-Br	MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Summer squash	FL, GA		CA, TX, AZ	CA, FL, TX, NJ/MA/NY, OR, GA/SC, MI
Orange			CA, FL, AZ	FL, CA, AZ/TX
Lemon			CA, AZ	CA, AZ
Grapefruit			CA, FL, TX	FL, TX, CA
Apple			CA, NY	CA, MI, NY, PA/WV, VA/NC, WA/OR
Pear			CA, NY	CA, MI, NY, WA
Cherry			CA	CA, OR/WA, MI, UT/MT/ID, NY/PA
Peach			CA	CA, GA/SC, MI, NJ/PA, WA
Plums			CA	CA, ID, MI, OR/WA
Rubus spp. ex. Raspberry	OH		CA	WA, OR
Blueberry			CA	MI, NJ, ME, NC, WA/OR
Cranberry			CA	WI, MA/NJ, OR/WA
Grape			CA	CA, NY, WA, MI, NC

III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION (cont'd)

Crop	Available[2/] Residue Data i-Br	MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Strawberry	CA, MD, MI, NY		CA, FL, OR	CA, FL, OR/WA, IN/MI, NY/OH, LA
Almond			CA	CA
Pecan			CA	AL/GA/LA/MS, NM/TX/OK
English walnut			CA	CA, OR
Corn (dry)				Field corn: All areas across the country. Sweet corn: FL, CA, NY, TX, OH/PA, MA/NJ, OR/WA/ID, MI/MN/WI, IL
Rice				AR, CA, LA, TX, MO
Sorghum				MO/KS, IL, TX/OK/NM, SD, NE, NC/GA, CO
Wheat				All areas across the country.
Alfalfa			CA	All areas across the country.
Clover			CA	All areas across the country.
Basil	CA	CA	CA	CA
Chives	None		CA	CA

III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION (cont'd)

Crop	Available[2/] Residue Data i-Br	MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Dill	CA	CA	CA	southern region and western region
Marjoram	CA	CA	CA	CA
Sage	CA	CA	CA	CA
Asparagus	CA		CA, ME, WA	CA, NJ, WA, MA, IL/MI**
Avocados				CA, FL**
Cocoa Beans				--
Coffee Beans				--
Copra				--
Cottonseed				TX, CA, MS, AZ**
Okra	MS, FL, OK, GA	GA		GA/AL, TX, TN, FL**
Peanuts				GA/AL/FL, VA/NC, TX/OK, NM**
Pineapples			FL, HI	HI, FL
Pistachio Nuts				CA, AZ/NM/TX
Tobacco			NC, KY	NC, KY, GA, MD/PA, WI**

III. COMPARISON OF AVAILABLE AND PROPOSED SITES WITH IDEAL GEOGRAPHIC REPRESENTATION (cont'd)

Crop	Available 2/ Residue Data i-Br	Available 2/ Residue Data MeBr	Proposed Sites For Additional Residue Data	Ideal Geographic Representation from IR-4 Memorandum or RCB Files*
Processed Foods				
Meat/Milk/ Poultry/Eggs				

1/ The study in Indiana is on beets. This may not be sugar beets.
2/ Includes data cited in the Registration Standard and PP#5F3198. These data may not reflect the proposed/registered application rates.
3/ Data is on southern peas, which are not a representative crop for the legume vegetables groups.
4/ It is not clear whether these are dry or succulent snap beans.
5/ For crop group purposes, "melons" refers to cantaloupe or muskmelon.
*These are the ideal test locations. The requirements for some crops have been specified in the Methyl Bromide Registration Standard.
**From Agricultural Statistics 1986 or RCB files.
***A study was conducted on onions in Indiana, but it is not clear whether the study was on dry bulb onions or green onions.

IV. The following deficiencies concerning a preplant soil application use were identified in the Residue Chemistry Chapter of the Methyl Bromide Registration Standard (March 28, 1986):

Celery (a member of the Leafy Vegetables Crop Group)

The preplant soil fumigation data are limited to California. Additional residue data are needed from Florida and Michigan. Also, soil was fumigated at less than the maximum rate. Tests should be conducted at the maximum rate. Residues of MBr per se were not determined. Residues of MBr per se should be determined as well as iBr.

Dried Beans, Succulent Beans, and Succulent Peas

Additional residue data are needed from crops grown in soil fumigated at the maximum rate in the major growing areas and analyzed for iBr and MBr per se. (The Registration Standard calls for these samples to be postharvest fumigated

as well.) If the soybean tolerance is not revoked, then a processing study must be conducted to determine if iBr or MBr per se concentrates in any processed product(s). (Processed products must be derived from soybeans bearing measurable weathered residues of MBr and iBr.) Calibration curves must be submitted for all crops analyzed for MBr per se by the method of King et al. for validation purposes.

Broccoli

Broccoli must be analyzed for iBr and MBr per se following preplant soil fumigation at 240 lb ai/A in California and Arizona.

Cabbage

Studies must be conducted in California, Texas, New York, and Wisconsin. iBr and MBr per se must be determined.

Cauliflower

Cauliflower must be analyzed for iBr and MBr per se following preplant soil fumigation at 240 lb ai/A in California, Arizona, New York, and Oregon.

Mustard Greens

Additional residue data are needed for iBr and MBr per se in California, Texas, and Arizona.

Cantaloupe, Cucumber, Summer Squash

Residue data from Arizona, California, and Texas from preplant soil treatments at the rate of 240 lb ai/A are needed for each of these crops. Residues of iBr and MBr per se should be determined. (The Registration Standard calls for this to be done in conjunction with postharvest fumigations.)

[If a crop group tolerance is not established for the cucurbit vegetables group, additional residue data for the individual commodities (i.e. squash, zucchini, and pumpkin in PP#5F3198) for both iBr and MBr per se would also be needed.]

Raspberries

Additional residue data are needed. Both iBr and MBr per se should be analyzed.

Herbs and Spices

Additional residue data are needed since very small amounts of MBr per se were apparently detected in some samples of basil, dill, majoram, and sage grown in California soil fumigated preplant at 400 or 800 lb ai/A (1.67 to 3.33X the maximum proposed rate). Those samples containing $\leq$ 0.018 ppm MBr per se may be false positives.

Onions

Bulb onions must be grown in soil fumigated at 300 lb ai/A in California and Oregon, and at 240 lb ai/A in Colorado, New York, and Texas (before postharvest fumigation).

Lettuce (Leaf and Head)

MBr per se must be determined after preplant soil application at the 400 lb ai/A rate (1X) in California.

If use is not to be limited to California, then studies must be conducted in Arizona and Florida.

Peppers

Additional residue data are needed from Florida, New Jersey, and Texas.

Cucumbers, Melons, and Summer Squash

Additional residue data are needed from Arizona, California, and Texas.

Sweet Oranges, Lemons, and Grapefruit

Residue data are needed for oranges in Arizona, California, and Florida; grapefruit in California, Florida, and Texas; and lemons in Arizona and California.

Grapes

Residue data on grapes are needed from soil treated at 600 lb ai/A.

Strawberries

Residue data are needed from California, Florida, and Oregon.

Asparagus

Residue data are needed for California (at 400 lb ai/A) and for Michigan and Washington (at 240 lb ai/A).

Tobacco

Residue data are needed for North Carolina and Kentucky at 872 lb ai/A.

Note to PM: This entire review should be sent to the MBIP.

cc: RF, Circu, Reviewer- N. Dodd, W. Boodee, Methyl Bromide Registration Standard File, PP#5F3198, PM #32, TOX, PMSD/ISB - Eldredge.
RDI:JHOnley:1/13/88:RDSchmitt:1/14/88
TS-769C:RCB:CM#2:RM800D:X1681:N. Dodd:Kendrick & Co.:1/27/88