Date Out EFB: MAY 6 1980

To: Product Manager Jacoby (21)
TS-767 Ierley

Through: Dr. Gunter Zweig, Chief
Environmental Fate Branch

From: Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 100-ANT.

Chemical metalaxyl [N-(2,6-dimethylphenyl)-N-(methoxyacetyl)alanine methyl ester)] (Ridomil)

Type Product: Fungicide

Product Name: Ridomil 2E

Company Name: CIBA-GEIGY

Submission Purpose: Tobacco

EFB# 322 Action Code 350

ZBB Code: Sec. 3

Date In: 11/8/79

Date Completed: MAY 5 1980

Defferals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

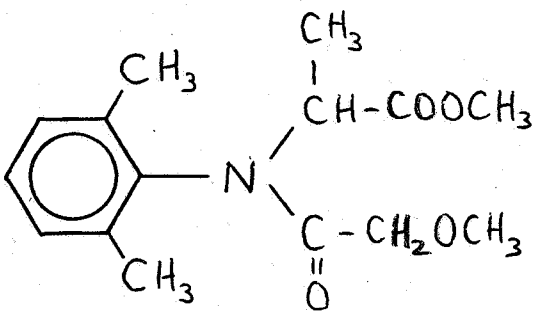
_____ Toxicology Branch

1. INTRODUCTION

1.1 This is a submission for registration of the fungicide Ridomil on tobacco.

1.2 See the previous evaluations of 100-ANN dated February 26, 1979 and October 25, 1979.

1.3 Structure



1.4 One volume of data, Accession No. 241243, was submitted.

1.5 CGA-48988 is soluble as follows (20°C):

water	- 7100 ppm
MeOH	- 65%
$MeCL_2$	- 75%
benzene	- 55%
isopropanol	- 27%

2. DIRECTIONS FOR USE

2.1 Apply 0.5 - 3.0 lb ai/A depending on disease pressure and location. Incorporate 2-4 inches. If replanting is necessary, do not make a 2nd application of Ridomil. Make one pre-plant application per season. (See memo of telecon dated February 26, 1980 in the Ridomil file.)

2.2 Rotational Crops - If replanting is necessary, tobacco may be replanted immediately. Tobacco, corn or root crops may be planted the year following treatment. Small grain cover crops may be planted during the fall following treatment provided they are plowed down and not used for food or feed. Other crops may be planted 18 months following application.

2.3 The label contains disposal information and environmental hazards/ precautions.

day intervals, at 0.4 lb ai/A with O-^{14}C-CGA-48988, beginning 6 weeks post-emergence.

Immediately after the last treatment (12 weeks after the first treatment), a subplot was tilled to 8" and planted to winter wheat (September 23, 1977).

Plant and soil samples were taken and analyzed.

Results

1) Precipitation During the Study

Month	Inches
September 1977	8.0
October	5.4 + 2.0" snow
November	7.3
December	2.8 + 16" snow
January 1978	4.3 + 34" snow
February	20" snow
March	3.1 + 9" snow
April	1.5
May	4.9
June	4.1
July	3.4

2) Uptake of ^{14}C-Activity by Winter Wheat (as parent cpd.)

Week	5	35	39	43	
Plant part	Whole	Whole	Whole	Grain	Straw
Total ppm	3.97	0.36	0.34	0.11	0.56
Balance (% total ^{14}C)					
Organic	37.8	44.6	36.1	<6.5*	27.5
Polar	42.7	40.7	30.9	23.9	44.3
Non-extr.	23.2	23.1	28.6	66.3	33.0
Total	103.7	108.4	95.6	90.2	104.8

* below level of detectability

3) Distribution of ^{14}C-Activity (as parent) in Field Soil

Weeks after last treatment	0			5			35			39			43		
Depth (inches)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	0.74	0.47	0.14	0.75	0.61	0.22	0.32	0.33	0.22	0.33	0.28	0.22	0.32	0.33	0.25
Balance															
Organic	72.4			52.0			43.3			31.8			23.1	16.6	7.9*
Polar	5.7*			9.9			5.4			5.0*			4.9*	4.9*	<3.9
Non-ext.	30.4			34.8			58.6			62.4			75.6	86.3	99.8
Total	102.8			96.7			107.3			94.2			98.7	99.9	99.8

* activity is detectable but below the level of quantitation

< activity is below the level of detection

Conclusions

1. Wheat planted immediately after a series of applications of ^{14}C-Ridomil at 0.4 lb ai/A each, at 14 day intervals, results in ^{14}C residues being taken up by wheat at all stages of growth. Highest total residue levels (3.97 ppm) are found during the early periods of growth when the plants would be subjected to fall grazing.

2. This study does not count as a rotational crop study since there was not at least a 30 day period between final treatment and planting.

3. The activity in the soil changes from primarily organic soluble to primarily non-extractable during the 43 weeks post-application.

3.5 Uptake and Characterization of O-^{14}C-CGA-48998 and Its Soil Metabolites in Rotation Lettuce, ABR-78078, M6-69-8PR, 8SR, October 10, 1978.

Procedure

The treated field plot described in the procedure of section 3.4 above, was planted in part to lettuce 45 weeks after the first treatment or 33 weeks after the last treatment.

Results

Precipitation during study

Month	Inches
May	4.9
June	4.1
July	3.4
Aug	5.5
Sept	2.8

See paragraph 3 of next page for more results.

Conclusions

1. Lettuce, planted 33 weeks after the last of six applications of ^{14}C-Ridomil at 0.4 lb ai/A each, at 14-day intervals, takes up ^{14}C-Ridomil residues. Highest total ^{14}C levels (0.11 ppm) were found during the early periods of sampling and declined to 0.06 ppm at 9 weeks of growth. These levels were found in the whole plant.

2. At 33 weeks post-application (to the last of the six 0.4 lb ai/A Ridomil applications), the soil residues were in the ratio 4:5 organic extractable to non-extractable. This ration changed over the next 11 weeks to 1:6.

3.6 Uptake and Characterization of O-^{14}C-CGA-48988 and Its Soil Metabolites in Field Rotation Spring Oats, ABR-79002, M6-69-4PR, 4SR, February 12, 1979.

Procedure

The treated field plot described in the procedure of section 3.4 above, was planted in part to spring oats 45 weeks after the first treatment or 33 weeks after the last treatment.

Results

1) See section 3.4 above for precipitation data.

2) Uptake of ^{14}C-Activity by Spring Oats (as parent cpd.)

Week of growth*	4	7	11	14	
Plant part	whole	whole	whole	grain	straw
Total ppm	0.33	0.17	0.21	0.09	0.19
Balance (% total ^{14}C)					
Organic	23.4	26.5	14.8		6.0
Polar	48.5	41.0	31.5		27.6
Non extr.	23.4	41.7	48.6		57.3
Total	95.3	109.2	94.9		90.9

* spring oats were planted 33 weeks after the last Ridomil treatment.

Results

1) Precipitation During the Study

Month	Inches
May	4.9
June	4.1
July	3.4
August	5.5
September	2.8
October	2.3

2) Uptake of ^{14}C-Activity by Lettuce (as parent cpd.)

Week of growth*	6	9	11
Plant part	leaves	leaves	leaves
Total ppm	0.11	0.06	0.05
Balance (% total ^{14}C)			
Organic	40.4		
Polar	25.5		
Non-extr.	15.8		
Total	81.7		

* lettuce was planted 33 weeks after the last Ridomil treatment

3) Distribution of ^{14}C-Activity (as parent) in Field Soil

Week after planting	0			6			9			11		
Depth (inches)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	0.30	0.40	0.23	0.30	0.22	0.19	0.29	0.17	0.12	0.30	0.25	0.17
Balance in 0-3" layer												
Organic	40.5			25.8			20.4			13.4		
Polar	6.0*			7.2			8.7			5.6*		
Non-extr.	51.1			64.4			61.6			80.1		
Total	91.6			97.4			90.7			93.5		

* activity is detectable but below the level of quantitation

3) Distribution of ^{14}C-Activity (as parent) in Field Soil

Week after planting*	0			4			7			11			14		
Depth (inches)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	0.33	0.36	0.16	0.29	0.28	0.18	0.32	0.31	0.20	0.21	0.32	0.28	0.20	0.25	0.24
Balance (% total ^{14}C)															
Organic	36.9			35.3			28.8			19.5			12.1	9.5	3.0***
Polar	6.8			2.3			10.1			5.8			3.2**	3.5	2.7
Non-extr.	52.0			53.0			59.6			72.2			79.4	85.0	77.6
Total	95.7			90.6			98.5			97.5			91.5	98.0	80.3

* planting was done 33 weeks after the last Ridomil treatment

** activity is detectable but below the level of quantitation

Conclusions

1. Spring oats, planted 33 weeks after the last of six applications of ^{14}C-Ridomil at 0.4 lb ai/A each, at 14 day intervals, take up ^{14}C-Ridomil residues. Highest total ^{14}C levels (0.33 ppm) were found during the early periods of sampling in the whole plant and declined to 0.21 ppm at 11 weeks of growth.

2. At 33 weeks post-application (to the last of the six 0.4 lb ai/A Ridomil applications), the soil residues were in the ratio 7:10 organic extractable to non-extractable. This ration changed over the next 11 weeks to 1:4.

3.7 Uptake and Characterization of O-^{14}C-CGA-48988 and Its Soil Metabolites in Field Rotation Corn, ABR-79004, MG-69-6PR, 6SR, January 2, 1979.

Procedure

The treated field plot described in the procedure of section 3.4 above, was planted in part to corn 47 weeks after the first treatment or 35 weeks after the last treatment.

Results

1) See section 3.4 above for precipitation data.

2) Uptake of ^{14}C-Activity by Corn (as parent cpd.)

Week of growth	5	9	14	21		
Plant part	whole	whole	whole	stalks	cobs	grain
Total ppm	0.05	0.06	0.05	0.06	0.02	0.03

3) Distribution of ^{14}C-Activity (as parent) in Field Soil

Week of growth*	0			5			9			14			21		
Depth (inches)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	0.29	0.36	0.19	0.31	0.22	0.14	0.19	0.18	0.17	0.25	0.23	0.22	0.19	0.21	0.13
Balance (% total ^{14}C)															
Organic	45.3			22.7			22.8			12.1			7.4**	6.4	7.4*
Polar	10.2			6.1			6.8			7.4			2.5**	3.1**	5.9
Non-extr.	41.3			63.8			62.8			70.9			6.1	86.5	84.0
Total	96.8			92.6			92.4			90.4			86.1	92.9	97.3

* planting was done 35 weeks after the last Ridomil treatment

** activity is below the level of quantitation

Conclusions

1. Corn, planted 35 weeks after the last of six applications of ^{14}C-Ridomil at 0.4 lb ai/A each at 14 day intervals will not take up ^{14}C-Ridomil residues in excess of 0.06 ppm in any plant part during growth through maturity.

2. At 35 weeks post-application (to the last of the six 0.4 lb ai/A Ridomil applications), the soil residues were in the ratio 1:1 organic extractable to non-extractable. This ration changed over the next 21 weeks to 1:12.

3.8 Uptake of O-^{14}C-CGA-48988 in Potatoes Grown in a Field Plot - Preparation of Rotational Plots, ABR-78013, M6-69-2P, 2S, January 24, 1978.

Procedure

White potatoes were treated six times (first treatment at six weeks post-emergence) with ^{14}C-CGA-48988 at 14-day intervals at 0.4 lb ai/A per treatment.

Soil cores were periodically taken.

Results

1) Distribution of ^{14}C-Activity (as parent) in Field Soil

Treatment	1	2						3						4					
		Pre			Post			Pre			Post								
Depth (in.)	Pre 0-3	Post 0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	0.59	0.51	0.01	<0.01	1.12	0.01	<0.01	0.78	0.09	0.01	1.10	0.04	0.01	1.12	0.06	0.01	1.49	0.07	0.01

Treatment	5						6											
	Pre			Post			Pre			Post			PHI-1			PHI-14		
Depth (in.)	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Total ppm	2.01	0.05	0.05	1.86	0.02	<0.01	0.30	0.01	<0.01	1.13	0.02	0.02	1.66	0.05	<0.01	1.82	0.31	0.05

2. The results of the analyses of post-treatment soil samples showed the balance of ^{14}C-activity to change from a ratio of organic extractable to non-extractable of 10:1 after the second application to 3.5:1 one day after the sixth treatment.

3. Characterization of the soil activity two weeks after the sixth treatment showed 68.7% to be parent compound and 19.8% to be CGA-62826, which is N-(2,6-dimethylphenyl)-N-methoxyacetyl)-alanine.

Conclusions

Soil degradation of CGA-48988 is evident but a halflife cannot be calculated from this data due to the repeat applications.

The soil activity is primarily in the form of parent compound and CGA-62826.

3.9 Uptake Characterization of O-^{14}C-CGA-48988 and Its Soil Metabolites in Field Rotation Soybeans, M6-69-7PR, 7SR, ABR-79003.

Procedure

The treated field plot described in the procedure of section 3.4 above was planted in part to soybeans 48 weeks after the first treatment or 36 weeks after the last treatment.

Results

1. See section 3.4 above for precipitation data.

2. The distribution of ^{14}C-activity in the soil is similar to that described in the corn study in section 3.7 above.

3. ^{14}C-Uptake as CGA-48988 by Rotation Soybeans

Weeks*	6	10	13	20	
Plant part	whole plants	whole plants	whole plants	leaves and stems	beans
Total ppm	0.40	0.81	0.74	0.59	0.17
Balance (% total ^{14}C)					
Organic	not enough material	14.1	12.7	21.4	7.1
Polar		71.6	82.9	64.2	36.3
Nonext.		11.6	14.0	21.4	47.1
Total		97.3	109.6	107.0	90.5

* planting was done 36 weeks after the last Ridomil treatment

Conclusions

1. At 36 weeks post-application (to the last of the six 0.4 lb ai/A Ridomil applications), the soil residues were in the ratio 1:1 organic extractable to non-extractable. This ration changed over the next 20 weeks to 1:7.

2. Levels of 0.2 - 0.3 ppm as parent compound persist in the soil for more than a year after multiple applications.

3. Soybeans, planted 36 weeks after the last of six 0.4 lb ai/A ^{14}C-Ridomil applications made at 2 week intervals, will take up ^{14}C residues at levels of 0.2 - 0.8 ppm (calculated as parent compound). Most of the activity remains extractable from the plant during all stages of plant growth.

3.10 Uptake and Characterization of O-^{14}C-CGA-48988 and Its Soil Metabolites in Field Rotation Sugarbeets, ABR-79005, M6-69-5PR, 5SR, February 12, 1979.

Procedure

The treated field plot described in the procedure of section 3.4 above was planted, in part, to sugarbeets 45 weeks after the first treatment or 33 weeks after the last treatment.

Results

1. See section 3.4 above for precipitation data.

2. The distribution of ^{14}C-activity in the soil is similar to that described in the corn study in section 3.7 above.

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3. ^{14}C-Uptake as CGA-48988 by Rotation Sugarbeets

Weeks*	6	9	15		20	
Plant part	whole	whole	Tops	Roots	Tops	Roots
Total ppm	0.16	0.07	0.06	0.03	0.02	0.02

Balance (% total ^{14}C)

Organic	33.8
Polar	53.1
Nonext.	11.4
Total	98.3

* planting was done 33 weeks after the last treatment

Conclusions

1. At 33 weeks post-application (to the last of the six 0.4 lb ai/A Ridomil applications), the soil residues were in the ratio of 3:4 organic extractable to non-extractable. This ration changed over the next 20 weeks to 1:7.

2. Levels of 0.2 - 0.3 ppm as parent compound persist in the soil for more than a year after multiple applications.

3. Sugarbeets, planted 33 weeks after the last of six 0.4 lb ai/A ^{14}C-Ridomil applications made at two week intervals, will take up ^{14}C residues at levels of 0.16 ppm at 6 weeks growth, but this level will drop to 0.02 ppm at 20 weeks and will probably be even lower at maturity.

3.11 CGA-48988 Rotational Crop Study, tab AG-A 5027 I, II, III A, 5-FR-3-77, Proj. No. 409006.

Procedure and Results

CGA-48988 was applied at 0.5 lb and 1.0 lb ai/A six times to potatoes in the summer of 1977. Winter wheat was planted as a rotational crop on 9/13/77. Early forage, spring forage, harvest straw and grain were analyzed for total CGA-48988 residues. Winter wheat was planted again on 9/21/78. The early forage in the fall of 1978 was also analyzed. The results are shown below:

Crop	PHI**	Total Residue, ppm* 0.5 lb. a.i./A	1.0 lb. a.i./A
Early Forage '77	68	1.0	1.5
Spring Forage	287	0.27	0.61
Straw	336	0.56	1.10
Grain	336	0.19	0.44
Early Forage '78	448	0.09	0.09

* Expressed as CGA-48988 equivalents.
** Treatment to sampling.

Conclusions

Winter wheat, planted in rotation to CGA-48988 treated potatoes will pick up CGA-48988 residues containing the 2,6-dimethylaniline moiety even when the wheat is planted 13 1/2 months after the last treatment. Higher residue levels are taken up by wheat planted sooner.

The use of repeat applications is noted eventhough the use directions call for a single application.

3.12 CGA-48988 Rotational Crop Study, tab AG-A 5118 I, II-A, 5-FR-3077, Proj. No. 409006.

Procedure and Results

CGA-48988 was applied at 0.5 lb. and 1.0 lb. a.i./A six times to potatoes in the summer of 1977. Field corn was planted as a rotational crop on 5/20/78. Silage stage forage, fodder, and grain were analyzed for total CGA-48988 residues. The results are shown below:

Crop	PHI**	Total Residue, ppm* 0.5 lb. a.i./A	1.0 lb. a.i./A
Silage State Forage	326	<0.05	0.20
Fodder	447	0.05	0.14
Grain	447	<0.05	<0.05

* Expressed as CGA-48988 equivalents.
** Treatment to sampling.

Conclusions

Corn, planted 9 1/2 months after 6 applications of CGA-48988 at 1.0 lb. a.i./A pick up 0.2 ppm residues at 5 weeks growth but at 9 weeks, the grain is found to contain <0.05 ppm.

It is not known whether residues available for pick up by rotational crops will be different due to a single 3.0 lb. a.i./A application or six weekly 0.5 lb. a.i./A applications.

3.13 CGA-48988 Rotational Crop Study, tab AG-A 5119, I, II, 5-FR-3-77, Proj. No. 409006

Procedure and Results

CGA-48988 was applied at 0.5 lb. and 1.0 lb. a.i./A to potatoes, six times in the summer of 1977. Sugar beets was planted as a rotational crop on 5/24/78. Early forage, late forage and roots were analyzed for total CGA-48988 residues. The results are shown below:

Crop	PHI**	Total Residue, ppm* 0.5 lb. a.i./A	1.0 lb. a.i./A
Early Forage	326	0.21	0.73
Late Forage	414	0.08	0.33
Roots	414	<0.05	<0.05

* Expressed as CGA-48988 equivalents.
** Treatment to sampling.

Conclusions

Sugarbeets, planted 10 months after 6 applications of CGA-48988 at either 0.5 or 1.0 lb. a.i./A, do not pick up detectable (0.05 ppm) residues in the roots when harvested at 4 months. The forage, however, does contain residues.

It is not known whether residues available for pick up by rotational crops will be different due to a single 3.0 lb. a.i./A applications or six weekly 0.5 lb a.i./a applications.

3.14 CGA-48988 Rotational Crop Study, tab AG-A 5131, 05-FR-003-77, Proj. No. 409006.

Procedure and Results

CGA-48988 was applied at 0.5 lb. and 1.0 lb. a.i./A to potatoes in the summer of 1977. Soybeans were planted as a rotational crop on 5/24/78. The forage sample was analyzed for total CGA-48988 residues, using analytical method AG-330. The results are shown below:

Crop	PHI**	Total Residue, ppm* 0.5 lb. a.i./A	1.0 lb. a.i./A
Soybean Forage	326	~~0.83~~ 0.83	~~2.7~~ 2.7

* Expressed as CGA-48988 equivalents.
** Treatment to sampling.

Conclusions

Soybeans, planted 10 months after six applicatons of CGA-48988 at either 0.5 or 1.0 lb. a.i./A, pick up residues in the forage when harvested at one month's growth.

We note the use of higher than recommended rates of CGA-48988. The label calls for one application of 0.5 - 3.0 lb. a.i./A per season.

3.15 CGA-48988 Rotational Crop Study, tab AG-A 5146, Field Test No. SE-FR-104-77, Proj. No. 409007.

Procedure and Results

CGA-48988 was applied as PPI broadcast to tobacco at (3) and (6) lb. a.i./A on 5/16/77. Soybeans were planted as a rotational crop in the summer of '78. Forage, fodder and bean samples were analyzed for total CGA-48988 residues, using analytical method AG-330. The results are shown below:

Crop	PHI**	Total Residue, ppm* 0.5 lb. a.i./A	1.0 lb. a.i./A
Forage	437	0.45	1.3
Fodder	539	0.15	0.54
Beans	539	0.05	0.14

* Expressed as CGA-48988 equivalents.
** Treatment to sampling.

Conclusions

Soybeans, planted 13 months after a single application at either 3 or 6 lb. a.i./A of CGA-48988 to tobacco and harvested at 1 1/2 and 5 months growth, do pick up residues.

We note the label calls for a maximum use of 3.0 lb. a.i./A

3.16 CGA-48988 Rotational Crop Study, tab AG-A 5209, Field Test No. SE-FR-307-77, Proj. No. 409007

Procedure and Results

CGA-48988 was applied PPI broadcast at 3 and 6 lb. a.i./A to tobacco on 4/21/77. Soybeans were planted as a rotational crop on 6/10/78. Immature forage, fodder and grain samples were analyzed for CGA-48988 total residues using analytical method AG-330. The results are given below.

Plant Part	PHI***	Total Residue, ppm* 3.0 lb. a.i./A	6.0 lb. a.i./A
Forage	481	0.29	0.25
Fodder	552	1.4**	0.40**
Grain	552	0.35**	0.49**

* Expressed as CGA-48988 equivalents.
** Analyzed by gas chromatography-mass spectrometry using single ion monitoring at m/e 230.
*** Treatment to sampling.

Conclusions

Soybeans, planted 13 1/2 months after a single application of CGA-48988 at either 3.0 or 6.0 lb. a.i./A to tobacco and harvested at 2 and 4 1/2 months growth, pick up residues.

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We note the label calls for a maximum use of 3.0 lb. a.i./A.

3.17 CGA-48988 Rotational Crop Study, tab AG-A 5210, Field Test No. SE-FR-307-77, Proj. No. 409007

Procedure and Results

CGA-48988 was applied to tobacco in a PPI broadcast on 4/21/77. Corn was grown as a rotational crop in the summer of '78. Silage stage forage, fodder, and grain samples were analyzed for total CGA-48988 residues by analytical method AG-330. The results are shown below:

Crop	PHI**	Total Residue, ppm*	
		3.0 lb. a.i./A	6.0 lb. a.i./A
Silage	430	<0.05	0.06
Fodder	526	<0.05	<0.05
Grain	526	<0.05	<0.05

CGA-48988: N(2,6-dimethylphenyl)-N-(methoxyacetyl)alanine methyl ester

* CGA equivalents
** Treatment to sampling.

Conclusions

Corn, planted 12 months after a single PPI application of CGA-48988 at either 3.0 or 6.0 lb. a.i./A to tobacco and harvested at 2 and 5 months of growth, did not pick up detectable residues of CGA-48988 at either treatment (3.0 or 6.0 lb. a.i./A) rate.

We note the label calls for a maximum use of 3.0 lb. a.i./A.

3.18 CGA-48988 Rotational Crop Study, tab AG-A 5211, Field Test No. SE-FR-307-77, Proj. No. 409007

Procedure and Results

CGA-48988 was applied as a PPI broadcast to tobacco at 3.0 and 6.0 lb. a.i./A on 4/21/77. Sweet potato was planted as a rotational crop on May 19, 1978. Early forage, mature roots and tops were analyzed for CGA-48988 total residues using analytical method AG-330. The residues are given below:

Crop	PHI**	Total Residue, ppm*	
		3 lb. a.i./A	6.0 lb. a.i./A
Early Foliage	481	0.12	0.06
Roots	569	<0.05	<0.05
Tops	569	<0.05	<0.05

* Expressed as CGA-48988 equivalents
** Treatment to harvest.

Conclusions

Sweet potato, planted 13 months after a single PPI application of CGA-48988 at either 3.0 or 6.0 lb. a.i./A to tobacco and harvested at 3 and 6 months growth, showed no detectable residues picked up by the roots or tops at 6 months growth. At 3 months growth (the early forage state), residues were detected.

We note the label calls for a maximum use of 3.0 lb. a.i./A.

3.19 CGA-48988 Rotational Crop Study, tab AG-A 5342, Field Test No. MW-FR-101-78, Proj. No. 409924

Procedure and Results

CGA-48988 was applied at 0.5 lb. a.i./A to potatoes in the summer of 1978. Rye grass was grown as a rotational crop following potato harvest. 2-3 inches forage was analyzed for total CGA-48988 residues using analytical method AG-330. The results are given below:

Crop	PHI*	Total Residue, ppm**
Forage	48	0.28

* Treatment to sampling.
** Expressed as CGA-48988 equivalents.

Conclusions

Rye, planted 2 1/2 weeks after the last of six 0.5 lb. a.i./A applications (each made 14 days after the previous) to potatoes and harvested at one month's growth (forage stage), picked up detectable amounts of residues.

We note the label calls for a single application whereas this study used repeat applications. It is not known whether residues available for pick up by rotational crops will be different due to a single 3.0 lb. a.i./A application or six biweekly 0.5 lb. a.i./A applications.

4.0 RECOMMENDATIONS

4.1 The submitted rotational crop data support the registrant's proposed rotational crop restriction with regard to immediately replanting tobacco, if necessary, and planting tobacco the year following treatment. The data also supports planting small grain cover crops provided they are plowed down and not used for food or feed purposes.

4.2 The restriction on planting corn the year following treatment must be changed to "12 months following treatment" and the restriction on planting root crops the year following treatment must be changed to allow only the planting of "the root crops sugarbeets and sweet potatoes at 12 months following treatment."

4.3 The 12-month restriction on rotating to sugarbeets and sweet potatoes may be extended to all root crops with the submission of rotational carrot data showing no detectable residues when planted 12 months following treatment.

4.4 Other crops may be planted 18 months following treatment.

Samuel M. Creeger May 5, 1980

Samuel M. Creeger
April 22, 1980
Section #1
EFB/HED