















TABLE III: DISTRIBUTION AND BALANCE OF RADIOACTIVITY EQUIVARIANT  
TO  $\phi$ - $^{14}$ C-CGA-48988 IN FIELD SOIL

Interval (weeks) <sup>a</sup>	0 (47)			5 (55)			14 (61)			21 (68)		
	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9	0-3	3-6	6-9
Depth (inches)	0.29	0.36	0.19	0.29	0.36	0.19	0.29	0.36	0.19	0.29	0.36	0.19
Total ppm	0.29	0.36	0.19	0.29	0.36	0.19	0.29	0.36	0.19	0.29	0.36	0.19
Balance (% of Total)	45.3	10.2	41.3	45.3	10.2	41.3	45.3	10.2	41.3	45.3	10.2	41.3
Organic	45.3			45.3			45.3			45.3		
Polar		10.2			10.2			10.2			10.2	
Nonext.		41.3			41.3			41.3			41.3	
Total	96.8	92.8	92.8	96.8	92.8	92.8	96.8	92.8	92.8	96.8	92.8	97.3

<sup>a</sup>Numbers in parentheses indicate the elapsed time (weeks) since the last treatment with  $\phi$ - $^{14}$ C-CGA-48988 (7/11/77) copy.  
 <\*indicates that the level of radioactivity was determined based on

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Table IV: UPTAKE AND BALANCE OF RADIOACTIVITY EQUIVALENT  
TO  $\phi$ - $^{14}$ C-CGA-48988 IN ROTATION CORN

Interval (weeks)	Whole plants			Stalks	Cobs	Grain
	5	9	14			
Total ppm	0.05	0.06	0.05	0.06	0.02	0.03

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TABLE V: CHARACTERISTICS OF FIELD PLOT SOIL

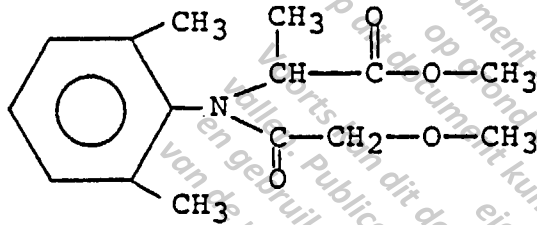
Location: CIBA-GEIGY New York Research Farm,  
Livingston, New York

Texture	Silt	Loam
pH	5.5	
% Organic Matter	1.8	
% Sand	44.4	
% Silt	44.0	
% Clay	11.6	

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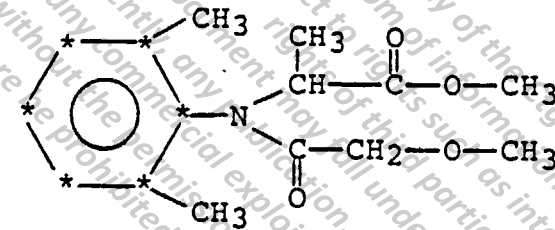
CGA-48988



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

Radioactive Compound

$\phi$ - $^{14}\text{C}$ -CGA-48988



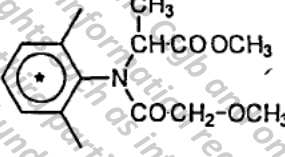
[U-ring- $^{14}\text{C}$ ] N-(2,6-dimethylphenyl)-N-(methoxyacetyl)-alanine methyl ester

\* =  $^{14}\text{C}$

Figure 1: CHEMICAL NAMES AND STRUCTURES

Annex II - 6.2. /07 : Uptake and characterization of  $\Phi$ - $^{14}\text{C}$ -CGA 48988 and its soil metabolites in field rotation corn

General Information	
Title of the study:	Uptake and characterization of $\Phi$ - $^{14}\text{C}$ -CGA 48988 and its soil metabolites in field rotation corn
Report and/or project number:	ABR-79004
Author:	5.1.2.e/Woc
Ciba File Number (Desire):	48988/3566
Name and address of testing facility:	Ciba-Geigy Corp., Livingston, NY, USA (Biological phase) Ciba-Geigy Corp., Greensboro, N.C., USA (Analytical phase)
Study period:	5/78 - 10/78
Date of report:	January 2, 1979
Compliance with GLP:	Yes [ ] No, but complies with sound scientific principles [X]
Test guideline(s) used:	-
Deviations from the test guideline:	-

Test substance	
Test substance (code number):	CGA 48988
Batch:	-
$^{14}\text{C}$ -labeled test substance :	Yes [X] No [ ]
Specific activity of [U- $^{14}\text{C}$ -phenyl] label:	1.11 MBq/mg (= 30 $\mu\text{Ci}/\text{mg}$ )
Radiochemical purity of test substance:	not available
Structural formula: (Position of label)	[U- $^{14}\text{C}$ -phenyl]-CGA 48988 $\ast = ^{14}\text{C}$ 
Formulation used for study:	no

Test system	
Target crop:	field grown potatoes
Formulation (spray application): Formulation N° (spray application): Solvent for application (if used):	ethanol/water (1:1) solution
Application: Field experiment:	Spray applications with a miniature boom sprayer: 6 over-the-top sprays (starting 6 weeks after plant emergence) at 14 days intervals at a rate of 0.40 lb./A (= 292.3 mg $^{14}\text{C}$ -CGA 48988 / 3' X 19' plot/ treatment (= 8.77 mCi) i.e. 1755 mg $^{14}\text{C}$ -CGA 48988/ 6 treatments (= 52.65 mCi for all 6 applications)
Rotational crop (planting / harvest):	corn planting: 47 weeks after the first treatment of target potatoes harvest: 21 weeks after planting the soybeans or 68 weeks after the first treatment of target potatoes

Soil:	Soil from Livingston, NY, USA
	Texture: Silt Loam
	pH: 5.5
	% Organic Matter: 1.8
	% Sand: 44.4
	% Silt: 44.0
	% Clay: 11.6

Summary of findings

Corn was grown as a rotation crop to white potatoes in a field plot on the CIBA-GEIGY Research Farm at Livingston, New York. The plot was treated by spraying  $\Phi$ -<sup>14</sup>C-CGA 48988 over-the-top six times at a rate of 0.40 lb. a.i./A and at fourteen-day intervals. The first spraying was 47 weeks prior to planting the corn.

Radioactivity equivalent to  $\Phi$ -<sup>14</sup>C-CGA 48988 in the 0 - 3" and 3 - 6" soil layers decreased from 0.33 ppm to 0.20 ppm in twenty weeks. At the same time radioactivity in the 6 - 9" layer increased from 0.16 ppm to 0.24 ppm. This increase is not sufficient to account for the loss of radioactivity from the 0 - 3" and 3 - 6" layers by leaching. Therefore, the soil metabolites of  $\Phi$ -<sup>14</sup>C-CGA 48988 are probably being decomposed and the radioactivity lost as <sup>14</sup>CO<sub>2</sub>.

The balance data show that radioactivity in the organic fraction decreased from 45.3% at planting to below the level of quantitation at final harvest. During this period, nonextractable radioactivity increased from 41.3% to 86.1%. The radioactivity in the polar fraction remained relatively constant at or below 10%. These data suggest that nonpolar materials, possibly some parent  $\Phi$ -<sup>14</sup>C-CGA 48988, were adsorbed to soil particles.

The uptake of soil radioactivity by rotation corn was low. All samples at all harvests were less than 0.1 ppm equivalent to  $\Phi$ -<sup>14</sup>C-CGA 48988. This level is too low for further characterization. The mature grain contained 0.03 ppm, mature cobs contained 0.02 ppm and mature stalks contained 0.06 ppm. Therefore, the corn does not take up inordinate levels of  $\Phi$ -<sup>14</sup>C-CGA 48988 soil metabolites.

Tab 1 Uptake, distribution and balance of radioactivity equivalent to  $\Phi$ -<sup>14</sup>C-CGA 48988 in rotation corn and soil (at harvest)

Plant part Soil Layer	Total Residues [ppm]	Organic Phase	Water Phase	Non extractable	Total
Stalks	0.06				
Cobs	0.02				
Grain	0.03				
0 - 3"	0.19	<*7.4	<*2.5	86.1	86.1
3 - 6"	0.21	6.4	<*3.1	86.5	92.6
6 - 9"	0.13	<*7.4	<*5.9	84.0	97.3

a <\* indicates that the level of radioactivity is detectable but below the level of quantitation

PP 2.52/ JK, 11.3.94