

TABLE II: CIBA-GEIGY NEW YORK RESEARCH FARM
MONTHLY RAINFALL DATA, MAY-JULY 1978

<u>Month</u>	<u>Inches of Precipitation</u>
May	3.9
June	1.1
July	1.4

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TABLE III: UPTAKE AND BALANCE OF RADIOACTIVITY EQUIVALENT
TO ϕ - ^{14}C -CGA-48988 IN ROTATION LETTUCE

<u>Interval (weeks)</u>	<u>6</u>	<u>9</u>	<u>11</u>
<u>Plant Part</u>	leaves	leaves	leaves
<u>Total ppm</u>	0.11	0.06	0.05
<u>Balance (% of total ^{14}C)</u>			
Organic	40.4		
Polar	25.5		
Nonext.	<u>15.8</u>		
<u>Total</u>	81.7		

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

Interval (weeks) *	0 (45)			6 (51)			9 (54)			11 (56)		
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
<u>Balance in 0-3" layer</u>												
Organic	40.5			25.8			20.4			13.4		
Polar	<*6.0			7.2			8.7			<*5.6		
Nonext.	51.1			64.4			61.6			80.1		
Total	91.6			97.4			90.7			93.5		

A <* indicates that the level of radioactivity is detectable but below the level of quantitation (6).

*Numbers in parentheses indicate the elapsed time (weeks) since the first treatment with $\phi^{-14}\text{C-CGA-48988}$ (7/1/77).

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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

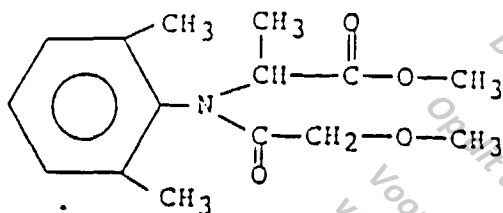
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CGA-48988

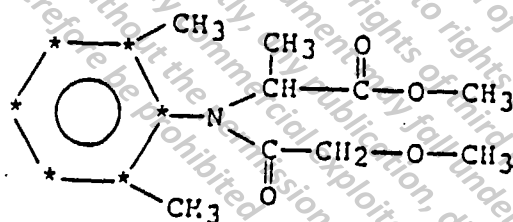
N-(2,6-dimethylphenyl)-N-
(methoxyacetyl)-alanine
methyl ester



Radioactive Compound

ϕ - ^{14}C -CGA-48988

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

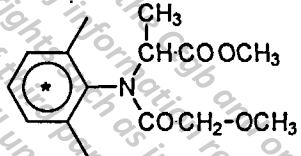


* = ^{14}C

FIGURE 1: CHEMICAL NAMES AND STRUCTURES

Annex II - 6.2. /04 : Uptake and characterization of Φ - ^{14}C -CGA 48988 and its soil metabolites in rotation lettuce

General Information	
Title of the study:	Uptake and characterization of Φ - ^{14}C -CGA 48988 and its soil metabolites in rotation lettuce
Report and/or project number:	ABR-78078
Author:	5.1.2.e Woo
Ciba File Number (Desire):	48988/3569
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 - 7/78
Date of report:	October 10, 1978
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}C -labeled test substance :	Yes [X] No []
Specific activity of [U- ^{14}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}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}C -CGA 48988 / 3' X 19' plot/ treatment (= 8.77 mCi), i.e. 1755 mg ^{14}C -CGA 48988/ 6 treatments (= 52.65 mCi for all 6 applications)
Rotational crop (planting / harvest):	lettuce planting: 45 weeks after the first treatment of target potatoes harvest: 11 weeks after planting the lettuce or 56 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

Lettuce was grown the following spring as a rotation crop to white potatoes in a field plot on the CIBA-GEIGY Research Farm at Livingston, New York. The potato plot was sprayed over-the-top six times at a rate of 0.40 lb./A. The first spraying was 45 weeks prior to planting the lettuce. Subsequent sprayings were at 14 day intervals. The uptake of soil radioactivity by rotation lettuce was 0.11 ppm equivalent Φ -¹⁴C-CGA 48988 after five weeks of growth and then decreased to 0.06 ppm after nine weeks and 0.05 ppm after 11 weeks (maturity). The extraction and partition data for the five week old lettuce indicate that as much as half of the recovered radioactivity was organic soluble and could be parent Φ -¹⁴C-CGA 48988 (40% of recovered ¹⁴C). These data also show that metabolism is to polar (25.5%) and nonextractable (15.8%) products.

The level of radioactivity in the 0 - 3" soil layer remained at 0.30 ppm throughout the study. During the 11 week growing season for lettuce, the extraction and partition data show a decrease in organic soluble radioactivity from 40.5% to 13.4% and an increase in nonextractable radioactivity from 51.1% to 80.1%. Since no accumulation of radioactivity occurred in the polar fraction (<10%), nonpolar compounds, possibly parent Φ -¹⁴C-CGA 48988, are being adsorbed to soil particles. After settling (6 weeks), the level of radioactivity in lower soil layers is 0.21 ppm (3 - 6") and 0.16 ppm (6 - 9") showing that Φ -¹⁴C-CGA 48988 and its soil metabolites do not leach.

Tab 1 Uptake, distribution and balance of radioactivity equivalent to Φ -¹⁴C-CGA 48988 in rotation lettuce and soil (at harvest)

Plant part Soil Layer	Total Residues [ppm]	Organic Phase	Water Phase	Non extractable	Total
Leaves	0.05				
0 - 3"	0.30	13.4	<*5.6	80.1	93.5
3 - 6"	0.25				
6 - 9"	0.25				

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

PP 2.52/ JK, 10.3.94

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