FILE COPY

Date Out EFB:

MAR 29 1982

MAR 29 1982

To: Chief,
Toxicology Branch
Hazard Evaluation Division (TS-769)

Herbert T. Manning, for

From: Willa Garner, Ph.D.,
Head, Review Section No. 1
Environmental Fate Branch
Hazard Evaluation Division (TS-769)

Attached please find the EEC information requested for:

Chemical: Baygon

Product Name: not specified

Use Pattern for EEC Calculations: Alfalfa and Pasture Grass - Potential for reaching groundwater

Date In: 3/8/82

Date Out: 3/29/82

EEC/EFB#: 3

1.0 INTRODUCTION

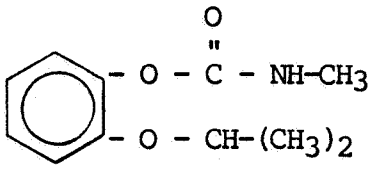
In its review of Baygon on 12/31/81, EFB deferred to Toxicology Branch as follows:

> "7.3 Due to the demonstrated high mobility of Baygon, we defer to Toxicology Branch on the issue of possible human exposure which may result from contamination of ground water or surface water drinking supplies by Baygon and its major metabolites (des-methyl Baygon and O-isopropoxy phenol) due to movement of these compounds through soil profiles."

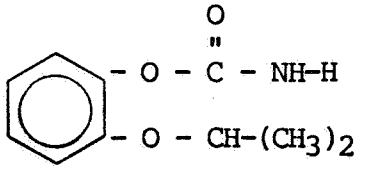
On January 25, 1982, Toxicology Branch (W. Dykstra) requested "that EFB determine the level of Baygon and its major metabolites in groundwater or surface water drinking supplies as a result of adding alfalfa and pasture grass to the label."

2.0 STRUCTURE

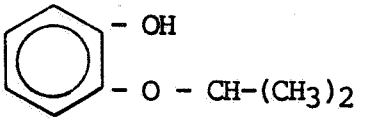
Baygon: O-Isopropoxyphenyl-N-methylcarbamate



Desmethyl Baygon:



Isopropoxyphenol:



3.0 DIRECTIONS FOR USE

Alfalfa and Pasture grass uses were proposed for Reg. #3125-GNA and 3125-146. Facsimile labels are appended to this review.

4.0 PESTAN MODEL - INPUT PARAMETERS

The proposed label revision was limited to irrigated crops in California. Application of Baygon MOS insecticide would be at rates of up to 0.175 lb ai/A (.195 kg ai/Ha), and up to 10 consecutive applications per season at 7 to 14 day intervals during the growing season. Thus the total amount of Baygon which might be applied during any one growing season could be as much as 1.95 kg ai/Ha.

Physical and chemical parameters were taken from the various studies reviewed on 12/31/81 (copy previously sent to Tox), or from Enfield (1).

Rainfall + Irrigation : 42" + 8" = 50"/year

Evapotranspiration : (Pan evap.) x (Crop Coeff) x (Pan Coeff)
70" x 0.87 x .7 = 42.63"/year

Recharge : 50 - 42.63 = 7.37"/year

Soil Characteristics : Fresno Sandy Loam, pH = 7.7, OM = 1.4%

Water Solubility	1750 ppm
Estimated Recharge Rate	0.00214 - 0.00642 cm/hr**
Sorption Constant (k_d)	.62(exptl), 0.3(calc'd)
Degradation Rate Coefficient	.00016/hr ($t_{0.5}$ = 180 days)
Bulk Density	1.43 gm/cc
Soil Porosity	435 cm^3/cm^3
Characteristic Curve Coefficient	4.9
Dispersion Coefficient	06 cm^2/hr
Minimum Depth	0 cm
Maximum Depth	320 cm
Minimum Projected Time	0 days
Maximum Projected Time	1500 days
Number of Applications	10
Application Rate	0.196 kg a.i./Ha
Days Before Beginning of Recharge.	7

---

(1) Enfield, Carl G. et al. Approximating Pollutant Transport to Groundwater (Undated)

5.0 DISCUSSION

The outputs of the PESTAN leaching model are appended to this review. Specifically, the model was run twice. On the first run, the recharge rate and K_d were assumed to be the average estimated/measured values of 0.00214 cm/hr and 0.62, respectively. On the second run, conditions favoring mobility were emphasised by assuming higher rainfall (re. arge at three times the average value) and lower soil adsorption (K_d = 0.3).

6.0 RESULTS

Despite the emphasised rainfall and reduced soil adsorptivity, parent Baygon did not move into soil profiles greater than about 300 cm at concentrations greater than .01 ppb, and then only after about 3+ years. Considering the fact that parent Baygon has been classified as a mobile pesticide, it seems reasonable to assume that similar movement of its various degradates, though not subjected to Pestan modelling, would not be likely to move significantly faster or deeper than the parent compound.

7.0 CONCLUSIONS

Under the conditions of proposed use (California, 0.195 kg ai/Ha maximum/season), it seems unlikely that Baygon would contaminate groundwater at this use site.

Emil Regelman
Chemist
EFB/HED TS-769C
March 29, 1982

BAYGON / ALFALFA AND PASTURE GRASS / CALIFORNIA

Model: PESTAN
Date: MARCH 29, 1982
Solubility = 1750 ppm
Recharge Rate = .00214 cm/hr
Sorption Constant = .62
Degr. Rate Coeff. = .00016 /hr
Bulk Density = 1.43 gms/cc
Soil Porosity = .435 cc/hr

Char. Curve Coeff. = 4.9
Dispersion Coeff. = .06 cm2/hr
Proj. Water Content = 0.27
Pore Water Velocity = .008cm/hr
Pollutant Velocity = .002cm/hr
Length of Slug = .010cm

Equivalent to 1.95729 kg a.i./Ha

SOLUTION CONCENTRATIONS in PPM [ppB]

At Day...	0	150	300	450	600	750	900	1050	1200	1350	1500
0 cm	9.55	0.26	.074	.024	[8.0]	[2.8]	[1.0]	[.37]	[.14]	[.050]	[.019]
16 cm	|	0.21	0.11	.045	.017	[6.3]	[2.4]	[.89]	[.33]	[.13]	[.048]
32 cm	|	.014	.048	.036	.019	[8.5]	[3.6]	[1.5]	[.60]	[.24]	[.094]
48 cm	|	[.077]	[5.8]	.012	.011	[6.9]	[3.6]	[1.7]	[.78]	[.34]	[.14]
64 cm	|	|	[.19]	[1.9]	[3.4]	[3.4]	[2.4]	[1.4]	[.74]	[.36]	[.17]
80 cm	|	|	[.013]	[.12]	[.57]	[.98]	[1.0]	[.79]	[.51]	[.29]	[.16]
96 cm	|	|	|	|	[.048]	[.17]	[.28]	[.31]	[.26]	[.18]	[.11]
112 cm	|	|	|	|	|	[.018]	[.052]	[.084]	[.094]	[.083]	[.062]
128 cm	|	|	|	|	|	|	|	[.016]	[.025]	[.029]	[.026]
144 cm	|	|	|	|	|	|	|	|	|	|	|
160 cm	|	|	|	|	|	|	|	|	|	|	|
176 cm	|	|	|	|	|	|	|	|	|	|	|
192 cm	|	|	|	|	|	|	|	|	|	|	|
208 cm	|	|	|	|	|	|	|	|	|	|	|
224 cm	|	|	|	|	|	|	|	|	|	|	|
240 cm	|	|	|	|	|	|	|	|	|	|	|
256 cm	|	|	|	|	|	|	|	|	|	|	|
272 cm	|	|	|	|	|	|	|	|	|	|	|
288 cm	|	|	|	|	|	|	|	|	|	|	|
304 cm	|	|	|	|	|	|	|	|	|	|	|
320 cm	|	|	|	|	|	|	|	|	|	|	|

\| = VALUES LESS THAN OR EQUAL TO 0.01 ppB

BAYGON / ALFALFA AND PASTURE GRASS / CALIFORNIA

Model: PESTAN
Date: MARCH 29, 1982
Solubility = 1750 ppm
Recharge Rate = .00642 cm/hr
Sorption Constant = .3
Degr. Rate Coeff. = .00016 /hr
Bulk Density = 1.43 gms/cc
Soil Porosity = .435 cc/hr

Char. Curve Coeff. = 4.9
Dispersion Coeff. = .06 cm2/hr
Proj. Water Content = 0.29
Pore Water Velocity = .022cm/hr
Pollutant Velocity = .009cm/hr
Length of Slug = .015cm

Equivalent to 1.95566 kg a.i./Ha

SOLUTION CONCENTRATIONS in PPM [ppB]

At Day...	0	150	300	450	600	750	900	1050	1200	1350	1500
0 cm	15.28	.014	[.17]	|	|	|	|	|	|	|	|
16 cm	|	0.13	[2.2]	[.036]	|	|	|	|	|	|	|
32 cm	|	0.26	.014	[.32]	|	|	|	|	|	|	|
48 cm	|	0.13	.041	[1.7]	[.044]	|	|	|	|	|	|
64 cm	|	.014	.059	[5.8]	[.23]	|	|	|	|	|	|
80 cm	|	[.37]	.041	.012	[.82]	[.032]	|	|	|	|	|
96 cm	|	|	.014	.015	[2.1]	[.12]	|	|	|	|	|
112 cm	|	|	[2.2]	.012	[3.5]	[.33]	[.017]	|	|	|	|
128 cm	|	|	[.18]	[5.8]	[4.3]	[.68]	[.051]	|	|	|	|
144 cm	|	|	|	[1.7]	[3.5]	[1.1]	[.12]	|	|	|	|
160 cm	|	|	|	[.31]	[2.1]	[1.2]	[.22]	[.020]	|	|	|
176 cm	|	|	|	[.034]	[.82]	[1.1]	[.31]	[.041]	|	|	|
192 cm	|	|	|	|	[.23]	[.68]	[.35]	[.069]	|	|	|
208 cm	|	|	|	|	[.045]	[.33]	[.31]	[.095]	[.014]	|	|
224 cm	|	|	|	|	|	[.12]	[.22]	[.11]	[.022]	|	|
240 cm	|	|	|	|	|	[.032]	[.12]	[.095]	[.029]	|	|
256 cm	|	|	|	|	|	|	[.051]	[.069]	[.031]	|	|
272 cm	|	|	|	|	|	|	[.017]	[.041]	[.029]	|	|
288 cm	|	|	|	|	|	|	|	[.020]	[.022]	|	|
304 cm	|	|	|	|	|	|	|	|	[.014]	|	|
320 cm	|	|	|	|	|	|	|	|	|	|	|

| = VALUES LESS THAN OR EQUAL TO 0.01 ppB

Propoxur environmental fate review

Page _____ is not included in this copy.

Pages 7 through 11 are not included in this copy.

The material not included contains the following type of information:

___ Identity of product inert ingredients

___ Identity of product impurities

___ Description of the product manufacturing process

___ Description of product quality control procedures

___ Identity of the source of product ingredients

___ Sales or other commercial/financial information

X A draft product label

___ The product confidential statement of formula

___ Information about a pending registration action

___ FIFRA registration data

___ The document is a duplicate of page(s) _____

___ The document is not responsive to the request

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.