

116

Date Out EFB 23 NOV 1982

To: Product Manager 25(Taylor)  
TS-767

From: E. Regelman (Acting)  
Chief, Review Section No. 1  
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 524-316

Chemical: Alachlor

Type Product. H

Product Name: LASSO

Company Name: Monsanto

Submission Purpose: response to exposure assessment

ZBB Code: other

ACTION CODE: 401

Date in: 8/19/82

EFB # 446 and 447

Date Completed 23 NOV 1982

TAIS (level II)

Days

Deferrals To:

64

3

Ecological Effects Branch

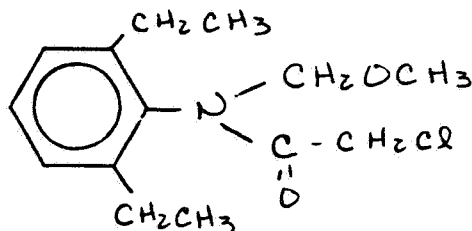
Residue Chemistry Branch

X Toxicology Branch

## 1.0 INTRODUCTION

Monsanto has submitted a response to the EFB review of May 25, 1982 regarding exposure of workers to alachlor.

## 2.0 Lasso: Alachlor



2-chloro-2',6'-diethyl-N-(methoxymethyl)acetanilide

## 3.0 DISCUSSION

Monsanto in its letter responding to our review correctly identifies errors in Table 1 on page 9 of our review. The errors are found in the columns under the headings Dermal Exposure and Respiratory Exposure of the Flagman during Aerial Application of the EC. The numbers shown are transposed and Table 1 of the Monsanto response has the exposure values correctly placed (see attachment).

In addition, Monsanto has submitted revised lifetime daily exposure values for workers using Lasso (Table 2, attached). EFB accepts the numbers generated as worst case estimates and defers to Tox Branch the evaluation of associated risk. The suitability of dermal absorption values is also left to Tox Branch to accept.

## 4.0 RECOMMENDATIONS

EFB continues to believe that the exposure studies are scientifically valid.

EFB defers to Tox Branch the exposure values found in the attached tables for the determination of the risk assessment.

Richard V. Moraski, Ph.D.  
Chemist, Review Section No. 1  
Environmental Fate Branch, HED

*No comment  
necessary as it  
is deferred*

Table 1. Revised<sup>1</sup> Summary of Recalculated Potential  
Worker Exposure Estimates to Alachlor

Aerial and Ground Application

|                                                                              | <u>µg/kg bw/100 acres</u> |                             |                                   | <u>µg/kg bw/lb. applied</u>    |                                |
|------------------------------------------------------------------------------|---------------------------|-----------------------------|-----------------------------------|--------------------------------|--------------------------------|
|                                                                              | <u>Dermal Exposure</u>    | <u>Respiratory Exposure</u> | <u>Total<sup>2</sup> Exposure</u> | <u>@ 10% Dermal Absorption</u> | <u>@ 50% Dermal Absorption</u> |
| <u>Aerial Application (EC) 100 acres @ 3 lbs. AI/acre = 300 lbs.</u>         |                           |                             |                                   |                                |                                |
| Mixer/Loader                                                                 | 17.8                      | 0.07                        | 17.9                              | 0.006                          | 0.030                          |
| Pilot                                                                        | 4.6                       | 0.2                         | 4.8                               | 0.002                          | 0.008                          |
| Flagman                                                                      | 181.9                     | 1.1                         | 183.                              | 0.064                          | 0.306                          |
| <u>Ground Application (EC) 100 acres @ 4 lbs. AI/acre = 400 lbs.</u>         |                           |                             |                                   |                                |                                |
| Mixer/Loader                                                                 | 96.                       | 0.16                        | 96.2                              | 0.024                          | 0.120                          |
| Applicator/Inc                                                               | 18.1                      | 0.16                        | 18.3                              | 0.005                          | 0.023                          |
| Combined                                                                     | 114.1                     | 0.32                        | 114.4                             | 0.029                          | 0.143                          |
| <u>Ground Application (Granular) 100 acres @ 1.2 lbs. AI/acre = 120 lbs.</u> |                           |                             |                                   |                                |                                |
| Mixer/Loader                                                                 | 18.4                      | 1.8                         | 20.2                              | 0.030                          | 0.091                          |
| Applicator/Inc                                                               | ND <sup>3</sup>           | 0.17                        | 0.17                              | 0.001                          | 0.001                          |
| Combined                                                                     | 18.4                      | 2                           | 20.4                              | 0.032                          | 0.093                          |

<sup>1</sup> Monsanto revision of table 1, 2 from EFB evaluation of Monsanto exposure studies  
EFB #271 (Garner to Taylor, May 25, 1982)

<sup>2</sup> Assume: 100% absorption for respiratory and dermal absorption; 70 kg person

<sup>3</sup> ND: non-detectable

Table 1 (continued)

|                                                           | <u>µg/kg bw/100 acres</u> |                             | <u>µg/kg bw/lb. applied</u>       |                                                               |
|-----------------------------------------------------------|---------------------------|-----------------------------|-----------------------------------|---------------------------------------------------------------|
|                                                           | <u>Dermal Exposure</u>    | <u>Respiratory Exposure</u> | <u>Total Exposure<sup>2</sup></u> | <u>@ 10% Dermal Absorption</u> <u>@ 50% Dermal Absorption</u> |
| <u>5 gal probe 100 acres @ 4 lbs AI/acre = 400 lbs.</u>   |                           |                             |                                   |                                                               |
| Mixer/Loader                                              | 24.9                      | 0.09                        | 25.                               | 0.006   0.031                                                 |
| Applicator/Inc                                            | 18.1                      | 0.16                        | 18.3                              | 0.005   0.023                                                 |
| Combined                                                  | 43.0                      | 0.25                        | 43.3                              | 0.011   0.054                                                 |
| <u>55 gal probe 100 acres @ 4 lbs. AI/acre = 400 lbs.</u> |                           |                             |                                   |                                                               |
| Mixer/Loader                                              | 48.0                      | 0.18                        | 48.2                              | 0.012   0.060                                                 |
| Applicator/Inc                                            | 18.1                      | 0.16                        | 18.3                              | 0.005   0.023                                                 |
| Combined                                                  | 66.1                      | 0.34                        | 66.4                              | 0.017   0.083                                                 |

<sup>2</sup>See previous page

Table 2. Revised<sup>1</sup> Additional Risk Estimates of the  
Applicator Exposure (Worst case estimates)

|                                           | Exposure<br>assuming 10%<br>dermal absorption<br><u>mg/kg/day</u> | Level<br>of<br>Risk | Exposure<br>assuming 50%<br>dermal absorption<br><u>mg/kg/day</u> | Level<br>of<br>Risk |
|-------------------------------------------|-------------------------------------------------------------------|---------------------|-------------------------------------------------------------------|---------------------|
| <u>Aerial Application (EC)</u>            |                                                                   |                     |                                                                   |                     |
| <u>Open pour and mix</u>                  |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                              | $0.14 \times 10^{-4}$                                             |                     | $0.71 \times 10^{-4}$                                             |                     |
| Pilot                                     | $0.47 \times 10^{-5}$                                             |                     | $0.19 \times 10^{-4}$                                             |                     |
| Flagman                                   | $0.15 \times 10^{-3}$                                             |                     | $0.72 \times 10^{-3}$                                             |                     |
| <u>Ground - Grower</u>                    |                                                                   |                     |                                                                   |                     |
| <u>Application (EC)</u>                   |                                                                   |                     |                                                                   |                     |
| <u>Open pour and mix</u>                  |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                              | $0.16 \times 10^{-4}$                                             |                     | $0.82 \times 10^{-4}$                                             |                     |
| Applicator/Inc                            | $0.34 \times 10^{-5}$                                             |                     | $0.16 \times 10^{-4}$                                             |                     |
| Combined                                  | $0.20 \times 10^{-4}$                                             |                     | $0.98 \times 10^{-4}$                                             |                     |
| <u>Ground - Custom</u>                    |                                                                   |                     |                                                                   |                     |
| <u>Application (EC)</u>                   |                                                                   |                     |                                                                   |                     |
| <u>Open pour and mix</u>                  |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                              | $0.49 \times 10^{-4}$                                             |                     | $0.24 \times 10^{-3}$                                             |                     |
| Applicator/Inc                            | $0.10 \times 10^{-4}$                                             |                     | $0.47 \times 10^{-4}$                                             |                     |
| Combined                                  | $0.59 \times 10^{-4}$                                             |                     | $0.29 \times 10^{-3}$                                             |                     |
| <u>Ground - Grower</u>                    |                                                                   |                     |                                                                   |                     |
| <u>Application (Granular)<sup>2</sup></u> |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                              | $0.21 \times 10^{-4}$                                             |                     | $0.62 \times 10^{-4}$                                             |                     |
| Applicator/Inc                            | $0.70 \times 10^{-6}$                                             |                     | $0.70 \times 10^{-6}$                                             |                     |
| Combined                                  | $0.22 \times 10^{-4}$                                             |                     | $0.64 \times 10^{-4}$                                             |                     |

Table 2 (continued)

|                                                                                   | Exposure<br>assuming 10%<br>dermal absorption<br><u>mg/kg/day</u> | Level<br>of<br>Risk | Exposure<br>assuming 50%<br>dermal absorption<br><u>mg/kg/day</u> | Level<br>of<br>Risk |
|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------|-------------------------------------------------------------------|---------------------|
| <u>Ground - Grower Application (Probe Transfer System - 5 Gallon)<sup>2</sup></u> |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                                                                      | $0.41 \times 10^{-5}$                                             |                     | $0.21 \times 10^{-4}$                                             |                     |
| Applicator/Inc                                                                    | $0.34 \times 10^{-5}$                                             |                     | $0.16 \times 10^{-4}$                                             |                     |
| Combined                                                                          | $0.75 \times 10^{-5}$                                             |                     | $0.37 \times 10^{-4}$                                             |                     |
| <u>Ground - Custom Applicator (Probe Transfer System - 55 gallon)<sup>3</sup></u> |                                                                   |                     |                                                                   |                     |
| Mixer/Loader                                                                      | $0.24 \times 10^{-4}$                                             |                     | $0.12 \times 10^{-3}$                                             |                     |
| Applicator/Inc                                                                    | $0.10 \times 10^{-4}$                                             |                     | $0.47 \times 10^{-4}$                                             |                     |
| Combined                                                                          | $0.35 \times 10^{-4}$                                             |                     | $0.17 \times 10^{-3}$                                             |                     |

<sup>1</sup> Revised exposure estimates by Monsanto for table on page 6 of Toxicology Branch report from A. Mahfouz to R. Taylor dated 7/19/82.

<sup>2</sup> Same conditions as used for ground application by grower for EC.

<sup>3</sup> Same conditions as used for ground application by custom applicator for EC.