

Shaugh. No. 090501EAB Log Out Date: JAN 23 1986Init.: *[Signature]*

To: M. McDavit
Product Manager 62
Registration Division (TS-767)

FFB

From: Carolyn K. Offutt
Chief, Environmental Processes and Guidelines Section
Exposure Assessment Branch, HED (TS-769)

Attached, please find the environmental fate review of:

Reg./File No.: _____

Chemical: AlachlorType Product: HerbicideProduct Name: LASSOCompany Name: Monsanto

Submission Purposes: Review of rebuttal comments from
Monsanto in support of No-Till practices and the use of
alachlor

Date In: 10/30/85Action Code 870Date Completed: JAN 23 1986EFB#: 6130TAIS (Level II) Days1

Deferrals To:

Ecological Effects BranchResidue Chemistry BranchToxicology Branch

Monitoring study requested by EAB: _____

Monitoring study voluntarily conducted by registrant: _____

(1)

Alachlor

I. Chemical

Common Name: Alachlor

Trade Name: LASSO

Chemical Name: 2-chloro-2',6'-diethyl-N-(methoxymethyl)-
acetanalide

II. Test Material

LASSO

III. Study/Action Type

Review rebuttals from Monsanto concerning the use of herbicides various in conservation tillage practices.

IV. Study Identification

Rebuttals to the special review position document 1 for pesticide products containing alachlor. Submitted by Monsanto 6 September 1985. (There are four portions to the rebuttal.)

V. Reviewed By

Robert W. Holst, Ph.D. *R. W. Holst* 1/23/86
Exposure Assessment Branch/HED/OPP

VI. Approval By

Carolyn K. Offutt *C. K. Offutt* 1/23/86
Chief, Environmental Process and Guidelines Section
Exposure Assessment Branch/HED/OPP

VII. Conclusions

More herbicides may be necessary for the control of weeds in the various types of conservation tillage. In using these chemicals, those that have a higher binding coefficient to organic matter and soil particles will be retarded in the fields with conservation tillage over conventional tillage. Those that have a higher water solubility may or may not be held in the field to any greater degree with conservation tillage, depending upon the extent of tillage and other factors, as compared to conventional moldboard plowing.

As noted in the four studies/reports presented in the rebuttal document, conservation tillage is a necessary management practice to be used by farmers to obtain good yields while retaining the medium on which the crops are grown.

Alachlor, due to its higher solubility, will have some tendency to move from the field. However, there are insufficient studies to directly compare the runoff from similar fields under conven-

tional and conservation tillage in various agronomic areas of the U.S. where LASSO is used.

VIII. Recommendations

Additional descriptive side-by-side studies are needed to conclusively show the differences in pesticide runoff from conventional and conservation tillage fields for alachlor and other herbicides used in these agronomic practices.

IX. Background

The Agency submitted a position document (PD) 1 requesting additional information on alachlor in 1984. Since then Monsanto has been submitting rebuttals to this position document. The present package contains information on the use of alachlor in conservation tillage and on conservation tillage alone. Each portion of this package will be discussed separately below.

X. Discussion

A.

Fawcett, R.S. 1985. Herbicide use in conservation tillage. Letter to Monsanto dated 30 April 1985.

This letter with an attached report is a general review paper of herbicides and conservation tillage. Several points were made in the paper and include:

- a. Total use of herbicides in conservation tillage is not greatly different than in conventional tillage;
- b. Alachlor is used for grass control in corn and soybeans;
- c. One pass of a disc followed by one pass incorporation with a field cultivator leaves 48% corn stalk residues;
- d. One pass of a field cultivator for incorporation leaves 48% soybean residues and has been used for alachlor;
- e. Incorporation of herbicides will tend to bury residue thus increasing the possibility of soil erosion;
- f. Pesticide runoff is greatly reduced (upto 75% as found in an alachlor study) with increased incorporation or increased residue cover as in conservation tillage. Also no-till reduced alachlor total runoff loss in water and sediments by 89%. Increased residue quantities did not reduce alachlor loss in water runoff due to heavy rains but did for light to moderate rains; and
- g. Pesticide leaching appears to be reduced with conservation tillage although water infiltration and moisture retention is increased.

B.

Monsanto Chemical Co. 1985. Representative comments from the academic community with respect to use of LASSO (Alachlor).

These are comments from academic researchers and users of alachlor supporting its use in conservation tillage. It is

assumed that they are based on actual use information. The general consensus is that LASSO is necessary in conservation tillage of corn, that LASSO is better than DUAL, and that LASSO should not

be incorporated which would go against conservation tillage management practices. No field data are submitted in support of the comments.

C.

Crosson, P. 1981. Conservation tillage and conventional tillage: A comparative assessment. Soil Conservation Society of America. Ankeny IA 36 pp.

This document is a general review and comparison of conventional and conservation tillage practices in agriculture. All aspects are covered including the use of both herbicides and insecticides, the economics of the tillage practices, and the overall effects of the practices on the environment. There is not specific mention concerning the use of alachlor.

A specific item noted was that with the more soluble pesticides, tillage practices that reduce erosion but not runoff will not significantly reduce pesticide losses. Conservation tillage also reduces water runoff. A referenced study found reduced atrazine and cyanazine loss from the field in runoff with conservation tillage.

The main item discussed with respect to pesticides usage in conservation tillage is the need for more herbicides and/or for different herbicides. This may be true also for insecticides.

D.

Mueller, D.H., T.C. Daniel, B. Lowery, A.M. Al-Darby, and R. Hilfiker. 1985. Tillage effect on soil physical and plant growth characteristics. Report to cooperators by the scientists at the University of Wisconsin - Madison.

In this report it is noted that conservation tillage or no-till may or may not be effective in the cooler climates of the northern states such as Wisconsin. There is no information on herbicide use or transport from the fields in runoff. This report is primarily on efficacy of conventional and conservation tillage practices.