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Metolachlor (Registration Standard Chemical) groundwater contamination

Robert F. Cargal, microbiologist
Environmental Fate Branch

Dr. Peter McGrath, Director
Hazard Evaluation Division

Thru: Ronald E. Ney, Jr., Chief
Review Section One
Environmental Fate Branch

Thru: Dr. Gunter Zweig, Chief
Environmental Fate Branch

Movement of pesticides through the unsaturated zone, both in layered and homogeneous soils, at either partially or fully saturated conditions, has received a limited number of investigations. The consequences of this movement is the potential contamination of groundwater which could result in either loss of the water source for an extensive period of time or a slow and costly cleanup. This potential problem has magnified itself with evidence of groundwater contamination by DBCP and aldicarb.

During the course of the past year metolachlor has been a model for the development of a Registration Standard, of which, personnel from EFB (including myself) have had to review the submitted data in support of registration. The partially completed package was submitted for review by EFB personnel recently, with input from various sections completed yesterday. Having reviewed the package, it has occurred to me that Metolachlor may have a high potential to contaminate the groundwater via leaching and possibly by surface (at the well head) contamination. This is supported by the following information: 1. metolachlor is stable to hydrolysis over the environmental pH range of 5 to 9. The half-life of metolachlor in water is over 200 days; 2. laboratory column leaching studies, using a wide range of soil types, showed that metolachlor per se is subject to extensive leaching when applied to soils having low organic content; 3. field tests designed to show dissipation concluded that extensive leaching was the major cause of dissipation in soil and residues were found up to 12 inches below the surface; 4. runoff studies showed metolachlor to move from agricultural sites of application both by sheet erosion and leaching; 5. loss due to photolysis is minimal (8% over one month); 6. soil (microbiological) half-lives can be greater than 107 days with anerobic degradation either being much slower or non-existent.

Recommendations:

1. Metolachlor should receive an extensive review for this problem from HEP with either modifications to the label of where the application can be made (i.e. do not apply to soils that have groundwater tables less than 20 feet) or actual monitoring established.
2. Metolachlor may have potential for an ideal compound to verify the research proposal for establishing criteria for groundwater contamination and modeling (the vast amount of data available and almost perfect characteristics lend to this).

cc: S. Cohen
L. Richardson