PERSISTENCE OF SIMAZINE IN FLORIDA MINERAL AND ORGANIC SOILS

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INTRODUCTION

Simazine, 2-chloro-4,6-bis(ethylamino)-*s*-triazine, has proved to be an efficient pre-emergence herbicide for use in corn and certain other crops. Recommended rates for corn vary from 1 to 2 pounds per acre on mineral soil and from 2 to 4 pounds per acre on organic soil. Under normal conditions, applications within these ranges will control most species of annual broadleaf weeds and grasses for six weeks or more. Although corn is tolerant to this chemical, most other annual farm crops are highly sensitive to it.

In Florida, simazine may be used advantageously in the production of sweet corn. However, most growers plant other vegetable crops, sensitive to simazine, on their sweet corn fields during succeeding crop seasons. One or two additional crops a year are common. Knowledge of the persistence of simazine activity in these soils is essential before this herbicide can be considered safe. Where small residues remain, the possibility of an accumulation or build-up to phytotoxic levels following repeated use presents a further hazard.

Simazine is almost non-volatile and has a water solubility of only about 5 parts per million. As a result, its herbicidal action persists much longer than with most other pre-emergence weed killers. This prolonged residual activity makes it efficient as a soil sterilant when used at higher rates. This led to early concern over the rate of dissipation of simazine, lest it be too slow to permit normal growth of crops planted 6 to 12 months after its application to corn.

REVIEW OF LITERATURE

Using C^{14}-labeled simazine, several workers have studied the mechanism responsible for the variable responses of plant species to this chemical. Montgomery and Freed (9)[2] observed that $C^{14}O_2$ was released to the atmosphere by corn leaves. Only

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[2] Numbers in parentheses refer to Literature Cited.