

Precision Weed Management-Herbicide Degradation

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- 1) Last two years found that atrazine dissipated very rapidly in some fields but not in others.
 - a) Wanted to determine if field history of herbicide use affects degradation rate.
 - b) Collected soils from different fields in Yuma County with different field history
 - i) **Table 1** shows field history
 - c) Conducted lab degradation studies with atrazine, acetochlor (Harness) and metolachlor (Dual)
- 2) **Figure 1** shows that rates of degradation differed among the soils and herbicides
 - a) Atrazine degradation was correlated to years of atrazine use
 - b) Acetochlor degraded very quickly in all the soils
 - c) Metolachlor degraded the most slowly, but rates differed
- 3) These differences, particularly for atrazine, could affect herbicide residual activity in the field.

Table 1: History of herbicide use

Soil Number	History
2	Sunflower dryland-Atrazine applied during fallow previous year
3	Grain sorghum-Atrazine applied 3 out of 4 past years
4	Grassy area that never received atrazine
6	Sunflowers-preceded by 3 years of corn to which atrazine was applied

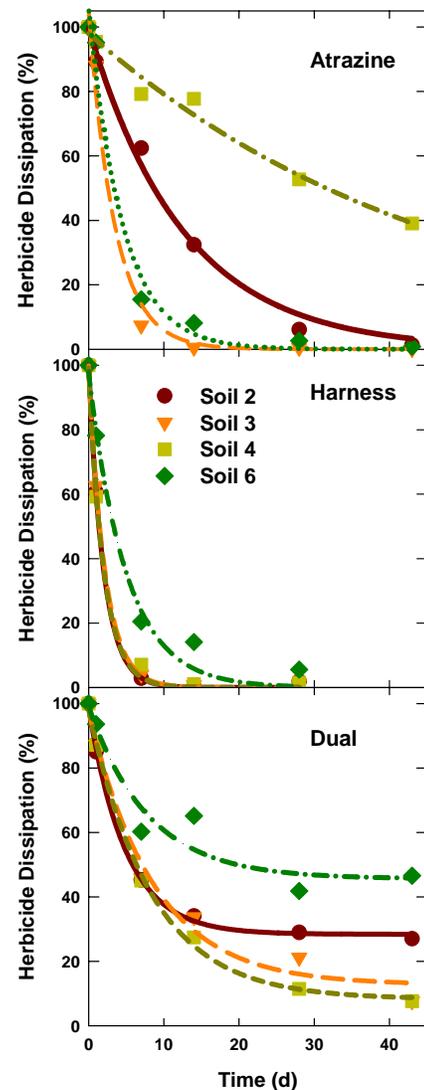


Figure 1

1. Other research areas
 - a. Comparison of herbicide behavior in conventional vs. strip till
 - b. Develop method to screen crops to see if they are injured by glyphosate drift
 - i. Expanded screen to proso millet, sunflower and wheat.
 - ii. Found that need to assay plants within 7-10 days after injury
 - c. Develop method to screen plants in field for resistance to glyphosate
 - i. Have a method that clearly differentiates between resistant and susceptible crops
 - ii. Have agreement with a company to develop field kit for glyphosate resistance and glyphosate drift.