

Background

- Surface water atrazine concentrations high (5 to 20 ppb) in Delta watersheds using atrazine
- A survey of 21 fields in Leflore, Sunflower and Washington county indicated that soils with 1 year atrazine history showed enhanced atrazine degradation
- Atrazine is metabolized completely to CO₂ by microbial processes, as shown in Fig. 1, in soils after 0, 1, 2 and 5 years atrazine history in Stoneville, MS
- Field loss of atrazine is twice as rapid in soils with atrazine history as in unexposed soils (Fig. 2).
- Alternate year rotation of cotton and corn not sufficient to reduce rapid atrazine degradation
- Greenhouse studies indicate loss of control of morningglory and other broad leaf weeds in soils having rapid atrazine degradation (Fig. 3.)

Current & Future Field Research

- Determine the time required to reduce rates of atrazine degradation in a corn-soybean rotation
- Establish effect of planting date on atrazine degradation and weed control efficacy

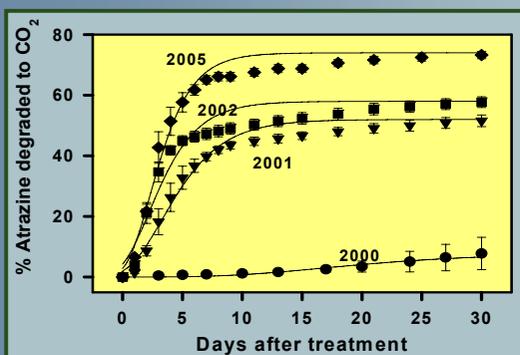


Fig.1 Atrazine degradation in soil from a field under continuous corn production since 2000.

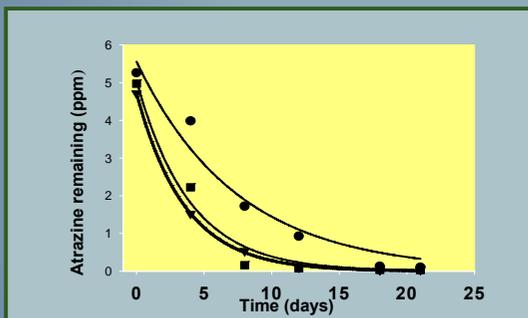


Figure 2. Field loss of atrazine in soil from continuous corn (▼), corn-cotton rotation (■), and no atrazine history (◆).

Implications

Rapid degradation may minimize loss to runoff and leaching, however the effects of rapid degradation on weed control efficacy needs to be considered

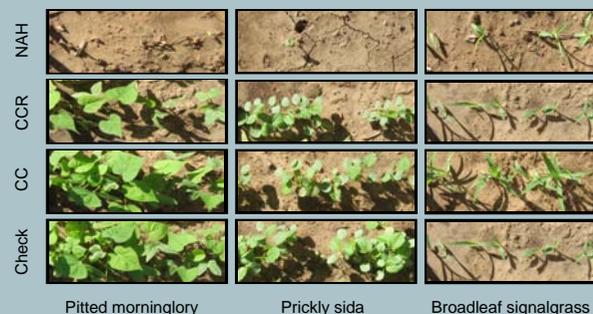


Figure 3. Morningglory, Prickly sida, and Signalgrass control in atrazine treated No atrazine history soil (NAH), Corn cotton rotation soil (CCR 3 years of atrazine), Continuous corn (CC, 5 years of atrazine) and untreated check (no atrazine)