

# Identifying factors in atrazine's reduced weed control

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Invasive broadleaf weeds can destroy corn crops and fallow fields. Farmers use the chemical atrazine in herbicides to protect their plants. Despite atrazine's controversial environmental impacts, it can provide long term residual control of many weed species. However, the loss of atrazine's effectiveness has been a challenge for farmers in northeastern Colorado.

In a collaborative study between scientists at the USDA-Agricultural Research Service Water Management Research Unit and Colorado State University, [soil samples](#) were collected from multiple fields in northeastern Colorado over several years. To determine the extent of the degradation, samples were measured for their ability to degrade [atrazine](#) in the laboratory. Researchers also examined the samples for microorganisms that rapidly metabolize atrazine and investigated common factors in fields that showed degradation.

The study found that approximately 44% of the fields demonstrated rapid atrazine degradation activity, with enhanced atrazine degradation widespread within a 300-km radius across northeastern Colorado. Variables involved in the enhanced degradation of atrazine included recent use of the chemical, soil pH, and organic matter content.

"Based on this simple model growers can expect that their soils will develop enhanced atrazine degradation activity if they apply atrazine at least two years in a row and if their soil pH is greater than 6.3," says Dr. Mary Stromberger, one of the researchers with Colorado State

University.

Stromberger is seeking additional funding from the [Environmental Protection Agency](#) in an effort to expand the research into the Great Plains region and to develop a system of management for soils that exhibit enhanced atrazine degradation.

**More information:** The study is published in the January/February 2011 issue of the *Journal of Environmental Equality*.

[www.agronomy.org/publications/...eq/abstracts/40/1/46](http://www.agronomy.org/publications/...eq/abstracts/40/1/46)

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