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**New Research Finds Atrazine Aids the Environment**

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Sunday, January 8th, 2012

The 50-year-old herbicide atrazine, renowned for controlling weeds, is instrumental to conservation as well, according to a new study. University of Wisconsin-Madison economist Paul D. Mitchell, Ph.D., found the use of atrazine helps farmers reduce aggregate soil erosion by up to 85 million tons per year - enough to fill more than 3 million dump trucks.

Mitchell will present the findings of his paper, "Estimating soil erosion and fuel use changes and their monetary values with AGSIM: A case study for triazine herbicides," Jan. 10, 2012, at the Wisconsin Crop Management Conference in Madison, Wisc.

The study's other key findings include:

Atrazine and sister triazine herbicides, simazine and propazine, benefit U.S. society by up to $350 million in soil erosion costs per year.

By encouraging conservation tillage and no-till farming, atrazine and the other triazines reduce soil erosion, decrease fuel use and improve water quality.

Increased farmer adoption of conservation tillage and related practices, made possible in part by popular herbicides such as atrazine, led to a 43-percent decrease in soil erosion from U.S. farmland over the past three decades.

Because atrazine increases corn and sorghum yields, farmers use less land for crops. This allows as many as 875,000 acres to remain in the Conservation Reserve Program, where it generates environmental benefits for everyone, including wildlife habitat and reduced soil erosion.

Mitchell also will discuss a second paper he authored, "Economic assessment of the benefits of chloro-s-triazine herbicides to U.S. corn, sorghum, and sugar cane producers." This study demonstrates that atrazine and chloro-s-triazines simazine and propazine benefit U.S. corn, sorghum and sugar cane farmers up to $3.3 billion in value annually.

"We are just beginning to understand the full environmental economic impact atrazine has on the agriculture industry and global food markets in this new agricultural economy," said Mitchell. "Atrazine effectively controls weeds and significantly increases corn, sorghum, and sugar cane yields. But it also supports conservation tillage and no-till farming, which are critical to protecting the environment and providing food and clean water to our world's population."

Findings from the two studies show atrazine and its sister triazines generate a $4.4 billion consumer surplus annually. Combining the consumer surplus estimates with the soil erosion benefits, atrazine's value to the U.S. economy totals up to $4.8 billion, with most of these benefits going directly to consumers.

Mitchell, an associate professor in the Department of Agricultural and Applied Economics at the University of Wisconsin-Madison, grew up on his family's farm in Iowa and received his doctorate from Iowa State University. Before joining University of Wisconsin-Madison, he was an assistant professor in the Department of Agricultural Economics at Texas A&M University. His current research and outreach programs focus on the farm-level economics of crop production, emphasizing pest management, risk management and specialty crop economics.

Syngenta, the principal registrant for atrazine, provided resources and support for Mitchell's research. His papers are part of a broad assessment by Syngenta to examine the value of atrazine in today's agricultural economy. Other papers include:

"A biological analysis of the use and benefits of chloro-s-triazine herbicides in U.S. corn and sorghum production," David C. Bridges, Ph.D.

"The importance of atrazine in the integrated management of herbicide-resistance weeds," Micheal D. K. Owen, Ph.D.

"Efficacy of best management practices for reducing runoff of chloro-s-triazine herbicides to surface water: A review," Richard S. Fawcett, Ph.D.

For more information about atrazine, visit [www.atrazine.com](http://www.atrazine.com/).

Syngenta

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| Atrazine is a popular corn herbicide in conservation tillage — farming methods which reduce or eliminate plowing and tillage that would otherwise control weeds.

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"Atrazine and simazine are especially valuable in conservation tillage systems in corn because they provide excellent residual control, and are not tightly adsorbed to surface crop residue, but wash easily from residue to the soil. Atrazine also provides postemergence activity, helping to control emerged weeds...The importance of atrazine to conservation tillage farmers is illustrated by the preferential use of atrazine in conservation tillage. Atrazine was used on 61.7% of conventional tillage corn in 2004 and 84.1% of conservation tillage corn. If atrazine and simazine herbicides were not available, farmers could be expected to increase tillage to control weeds in the absence of effective herbicides." [Fawcett, Benefits of Triazine Herbicides in Reducing Erosion and Fuel Use in U.S. Corn Production, Proceedings North Central Weed Science Society, 2006](http://www.ncwss.org/proceed/2006/abstracts/117.pdf). Data from the U.S. Department of Agriculture show that atrazine was used on approximately 70 percent of no-till and conservation tillage corn acres in the U.S. in 2004, making it the most widely used herbicide for such systems. Conservation tillage can be an economical option for farmers, plus provides a number of potential environmental benefits: * Reduced plowing makes cropland much less vulnerable to soil erosion: conservation tillage reduces soil erosion by as much as 90 percent, compared to systems using intensive tillage.
* Farmers currently use no-tillage or conservation tillage on almost 44 million acres of corn in the U.S. That figure could decrease significantly without atrazine.
* Reduced soil erosion decreases sedimentation in nearby waterways, which helps protect existing aquatic ecosystems.
* Conservation tillage, buffers and filter strips protect water quality by reducing the runoff of crop nutrients and pesticides applied to farm fields by 70 percent or more.
* Conservation tillage cuts farmers' overall use of fuel. This reduces exhaust emissions from agricultural equipment and decreases agriculture's consumption of non-renewable fossil fuels. Farmers are currently saving 306 million gallons of fuel annually due to adoption of conservation tillage, or the equivalent of 23,000 tanker trucks of fuel every year.
* Conservation tillage helps build organic content in the topsoil by keeping a layer of crop residue near the soil surface. As organic matter increases, carbon dioxide from the atmosphere is sequestered in the soil, reducing global warming concerns. Switching to no-till promotes the storage of about 600 pounds of carbon in an acre of soil each year.
* No-till fields provide better wildlife habitat. For example, in a North Carolina study, quail chicks found their daily food needs in one-fifth the time in no-till fields, compared to tilled fields.
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| * Using farm machinery to cultivate weeds from fields adds to farmers' labor, fuel and equipment costs and increases the potential for soil erosion. Atrazine is a popular choice for no-till farming methods that have both economic and environmental benefits.
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Today, atrazine is used in more than 60 countries around the world - in Africa, North and South America, Asia and the Middle East. No country has ever discontinued the use of atrazine based on health effects

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| **Expert View** "Risk assessments for cumulative exposures to triazine residues via drinking water based on currently registered uses of atrazine and simazine are not of concern." * [U.S. EPA, Cumulative Risk Assessment for Triazine Pesticides, March 2006](http://epa.gov/oppsrrd1/REDs/triazine_cumulative_risk.pdf#page=60)
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