

# Pesticide concentrations decreasing

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The widespread use of pesticides across the United States has been in practice for decades, with little knowledge of the long-term effects on the nation's groundwater.

The results of a new study show that samples taken from over 300 wells across the US have not retained a high concentration of pesticide contamination. The news is a result of a decadal long study to assess the extent of the impact of contaminants on the nation's water supply.

Over the years, frequent research has detected pesticides in ground water around the country, including in aquifers used for drinking-water supply. Over the past few decades, the use of some pesticides has been restricted or banned, while new pesticides have been introduced. One goal of the study was to track the retention of various types of contaminants that would be found in the different pesticides used over the years.

Results for one of the first national studies on the presence of pesticides in groundwater were recently published by the U.S. Geological Survey in the September-October issue of the *Journal of Environmental Quality*. The study is a part of that agency's federally-funded National Water-Quality Assessment (NAWQA) Program.

"The results of this study are encouraging for the future state of the nation's ground-water quality with respect to pesticides," said Laura Bexfield, who conducted the data analysis. "Despite sustained use of many popular pesticides and the introduction of new ones, results as a whole did not indicate increasing detection rates or concentrations in

shallow or drinking-water resources over the 10 years studied."

Original samples were taken from the wells from 1993-1995, and compared with samples taken from 2001-2003. Laboratory analysis was performed using methods that allowed detection of pesticide compounds at concentrations as small as 1,000 times below USEPA drinking-water standards. Of the 80 compounds studied, only six were detected in ground water from at least 10 wells during both of those sample periods. Concentrations of these compounds generally were less than 0.12 parts per billion, or more than 10 times lower than applicable USEPA drinking-water standards.

Characterization of trends in pesticide occurrence and concentrations through time is important in determining how quickly ground-water systems respond to changes in chemical use and in identifying compounds that may pose a threat to water quality before large-scale problems occur. Continuing research is planned to track and understand changes in both ground and surface-water quality across the United States.

Source: American Society of Agronomy

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