

AGRICULTURAL CHEMICALS IN WISCONSIN GROUNDWATER

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Between January 2007 and June 2007, 398 private drinking water wells were sampled as part of a statewide survey of agricultural chemicals in Wisconsin groundwater. The purpose of the survey was to obtain a current picture of agricultural chemicals in groundwater and to compare the levels in the 2007 survey with levels found in earlier surveys conducted in 1994, 1996 and 2001. Wells were selected using a stratified random sampling procedure and were used to represent Wisconsin groundwater accessible by private wells. Samples were analyzed for 32 compounds including herbicides, herbicide metabolites, one insecticide, and nitrate-nitrogen.

Based on statistical analysis of the sample results, it was estimated that the proportion of wells in Wisconsin that contained a detectable level of a pesticide or pesticide metabolite was 33.5%. Areas of the state with a higher intensity of agriculture generally had higher frequencies of detections of pesticides and nitrate-nitrogen. The two most commonly detected pesticide compounds were the herbicide metabolites alachlor ESA and metolachlor ESA which each had a proportion estimate of 21.6%.

The statewide estimate of the proportion of wells that contained atrazine total chlorinated residues (TCR) was 11.7%. The estimate of the proportion of wells that exceeded the 3 µg/L enforcement standard for TCR was 0.4%. Estimates of the mean detect concentrations for pesticides were generally less than 1.0 µg/L. The estimate of the proportion of wells that exceeded the 10 mg/L enforcement standard for nitrate-nitrogen was 9.0%.

Time trend analysis was performed to determine whether the proportion estimates for atrazine, TCR, nitrate-nitrogen, alachlor ESA and metolachlor ESA in private wells had changed between the 2001 survey and the 2007 survey. The results of this analysis did not show any statistically significant changes for these compounds over this time period.

The full report for this project can be obtained by emailing Jeff.Postle@Wisconsin.gov. The report can also found at the following department web page:
http://www.datcp.state.wi.us/arm/agriculture/land-water/envIRON_quality/pdf/ARMPub180.pdf

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