USDA-CSREES 2007 National Water Quality Conference

Determination of factors to explain atrazine decrease in the Goodwater Creek watershed

Atrazine concentrations at the outlet of the Goodwater Creek watershed in Northeast Missouri have decreased from 1993 to 2003. Several factors could have impacted these concentrations in different ways: the construction of several grassed waterways and other conservation practices ought to decrease atrazine concentrations in the stream; a shift to earlier corn planting dates should cause atrazine concentrations to increase in April and decrease in June, and an increase of no-till corn in the watershed is expected to cause larger atrazine losses in late March and early April because pre-planting pesticide applications are necessary. This mix of factors likely to impact atrazine losses makes it difficult to determine whether conservation practices implemented since 1993 have had a positive impact. Statistical analysis shows that the temperature factor, which is directly linked to earlier planting dates, is an important but not fully explanatory variable for the decrease of atrazine concentrations. To determine the impact of grassed waterways and tillage practices, a model of the watershed was developed with the Soil and Water Assessment Tool and calibrated for flow and atrazine. It was then utilized to evaluate the individual and combined impacts of these factors.

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