

Modeling Atrazine Fate

Water Quality Improvements in Seven Watersheds

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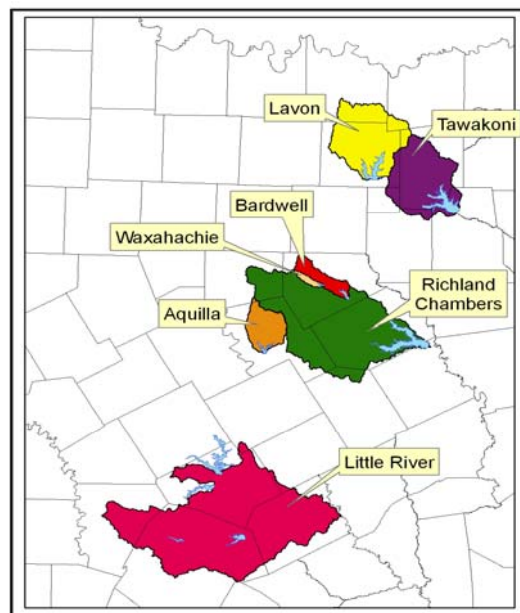
BACKGROUND

In 1998, the six lakes and one river in this project were listed as threatened due to elevated atrazine concentrations. Using §319(h) funding, the Texas State Soil and Water Conservation Board, working through local Soil and Water Conservation Districts, provided technical conservation planning and financial assistance to agricultural producers in these seven watersheds.

The Natural Resources Conservation Service (NRCS) Water Resources Assessment Team (WRAT) evaluated the long-term benefits of these management practices and planning decisions using the Soil and Water Assessment Tool (SWAT) watershed-scale water quality model.

SWAT was first calibrated to hydrology, sediment, and observed water quality data. Then, atrazine loadings to streams, rivers and lakes were simulated in each watershed. Three scenarios were modeled:

1. Baseline – pre 1999 condition.
2. Application of 319(h) conservation practices.
3. Application of conservation practices on all cropland.



BENEFITS

The results were presented as percentage reductions in atrazine and sediment loadings at (1) the farm level, (2) subbasin level, and (3) watershed level. The benefits of the BMPs were greatest at the farm level (up to 100%), and were typically 1 to 6% reduction at the watershed level. Watershed level benefits are significant as the conservation practice application areas are very small compared to the size of the watershed area.

Scenario 3 indicated that atrazine and sediment load reductions of approximately 80% are feasible at the subbasin level, and reductions of approximately 25 to 80% at the watershed level.

PARTNERS

- USDA-NRCS
- Texas State Soil & Water Conservation Board
- Local Texas SWCDs
- Texas AgriLife Research-BREC
- USDA-ARS, Temple

