

IMPACT OF CONSERVATION TILLAGE ON SURFACE WATER QUALITY

Daniel, John A., Smith, Sam J, 7207 West Cheyenne Street, El Reno, OK 73036, , Email: , Phone: 405.262.5291,
Fax: 405.262.0133, Organization: USDA-ARS,

SUMMARY

Conservation tillage has several advantages, including reduction in soil movement compared to conventional tillage. Using historical data from four instrumented experimental watersheds planted in winter wheat, a comparison was made between moldboard and conservation no-till practices based on sediment and nitrate-N movement in surface runoff. Information from nearby native grasslands was included to provide baseline information. Mean annual sediment losses for no-till was 366 lbs./acre while moldboard tillage yielded a substantial 8929 lbs./acre. Sediment losses from the native grassland watershed was an order of magnitude lower than the no-till practice, at 36 lbs./acre. Annual nitrate-N loss in runoff water was below 1 lb./acre for all tillage practices and native grassland. This comparison indicates that no-till wheat can substantially reduce sediment movement in surface water.