Soil erosion and water quality

Mahdi Al-Kaisi
Iowa State University, malkaisi@iastate.edu

Michael J. Tidman
Iowa State University

Follow this and additional works at: http://lib.dr.iastate.edu/cropnews

Part of the Agricultural Science Commons, Agriculture Commons, Agronomy and Crop Sciences Commons, Hydrology Commons, and the Soil Science Commons

Recommended Citation
http://lib.dr.iastate.edu/cropnews/1896

The Iowa State University Digital Repository provides access to Integrated Crop Management News for historical purposes only. Users are hereby notified that the content may be inaccurate, out of date, incomplete and/or may not meet the needs and requirements of the user. Users should make their own assessment of the information and whether it is suitable for their intended purpose. For current information on integrated crop management from Iowa State University Extension and Outreach, please visit https://crops.extension.iastate.edu/.
Soil erosion and water quality

Abstract

Keywords
Agronomy

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences | Hydrology | Soil Science
Soil erosion and water quality


Conservation tillage, residue management, and cultural management play a significant role in increasing the efficiency of nutrient management practices and erosion control. To ensure reliable and profitable yield, producers apply herbicides, pesticides, fertilizers, amendments, or manure. Most of these materials attach to soil particles, where they function as intended. However, some of these contaminants are likely to be transported with soil particles and sediment when soil erodes, thereby affecting water quality. Therefore, controlling erosion is the crucial link in any plan to improve water quality.

It is critical to manage soil erosion to protect water quality and to meet criteria set by total maximum daily load (TMDL) allocations for 91 of 157 impaired water bodies that have been affected by sediment in Iowa, where soil erosion control and residue management become a priority. The Environmental Protection Agency (EPA) uses TMDLs to manage and allocate the amount of pollutants discharged into streams, rivers, and lakes. TMDLs were originally designed to regulate point source pollution, such as discharge from factories, into rivers and lakes.

Now, concerns over water quality problems have been traced to agriculture, and the EPA is considering using its authority under the Clean Water Act of 1972 to set TMDLs for non-point source pollution. TMDLs could be used to set guidelines for nitrogen, phosphorus, and sediment flow into water bodies. TMDLs could change the way producers use land and control erosion. Tillage and manure and nutrient management would all have to be linked, and monitoring could be used to identify and solve problems.

Help for producers could come from tools such as the Iowa Phosphorus Index (P Index). The P Index is an assessment tool with three major components: soil erosion, surface runoff, and soil infiltration and leaching. The P Index was not designed to be a regulatory tool; instead, it is a procedure to identify sources of potential P movement and to determine when management practices are needed to decrease the probability of P loss.

Because this is an important issue in agriculture, Iowa State University will host a conference [1] on March 5-7 about water quality called, "Agriculture and the Environment--State and Federal Water Initiatives." Attendees will hear about and discuss issues affecting water quality.
quality, and address federal and state pollution policies that impact their management of land. There will also be opportunities to learn more about TMDLs, nutrient criteria, animal feeding operations, and source water protection.

The Iowa State University College of Agriculture, Iowa State University Extension, The Iowa State Water Resources Research Institute, the Leopold Center for Sustainable Agriculture, and the Iowa Department of Natural Resources sponsor the conference.

This article originally appeared on page 22 of the IC-486 (2) -- February 26, 2001 issue.

Source URL:

Links: