How Does HIT Work?

HIT integrates the calculations of two geo-spatial models to quantify and map sediment yields. There are three steps. First, an estimate of the percentage of eroded soil that ends up in nearby streams is obtained from the Spatially-Explicit Delivery Model (SEDMOD). Second, the annual volume in tons/acre/year of eroded soil is obtained from the NRCS' Revised Universal Soil Loss Equation (RUSLE). Third, the annual volume of sediment transported to nearby streams from specific areas is obtained by combining the results of SEDMOD and RUSLE.

MSU has integrated these models to maximize their impact in controlling erosion and protecting water from sediment loadings.

You're Comments and Feedback

We're interested in your feedback. Tell us what you think. Please visit the HIT tool at **www.iwr.msu.edu/hit**. This site is still being developed and we welcome your comments.

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High-Impact Targeting System (HIT)

A Cooperative Project of the:
MI Department of Agriculture
Clinton, Huron, and Lenawee Conservation Districts
MSU Institute of Water Research
USDA Natural Resources Conservation Service

Background

As farmers know, soil erosion is costly. And the downstream impacts are also costly. Sediment from erosion can cause huge damage to local and distant water resources. Sediment degrades water quality, chokes aquatic habitats, and interferes with navigation. Tens of millions of dollars are spent every year to control soil erosion, protect water quality, and dredge U.S. waterways.

And yet serious sediment and water pollution problems persist. The USDA Natural Resources Conservation Service (NRCS), Michigan Department of Agriculture (MDA), Huron Conservation District, and the Michigan State University Institute of Water Research have teamed up to develop an innovative GIS (geographic information system) Web tool to help solve these problems.

Who Can Use HIT?

Anyone can use HIT since it's available on the Web at www.iwr.msu.edu/hit. This site is under development and serves as a beta version. A final version will become available by the end of 2009. HIT was specifically designed for use by soil conservation districts, farmers, watershed organizations, the Michigan Department of Agriculture, NRCS, and other conservation organizations.

What Is the High-Impact Targeting (HIT) System?

The Web-accessible **High-Impact Targeting**—or **HIT**—system is a new tool that is designed to focus limited conservation resources on the most serious erosion and pollution problems. The **HIT** system can be used to identify—and target—the specific areas in agricultural fields that cause the greatest volumes of sediments deposited in waterways and adversely impact water quality and aquatic habitat. The intent is to get 'the biggest bang for the buck' by maximizing the beneficial impacts from the installation of new conservation practices on the highest-risk sediment yield areas.

HIT relies on geographical information systems (GIS) technology and innovative applications of computer modeling. The HIT system provides data on sediment delivery and agricultural erosion presented in map formats, tables, and other graphic formats. HIT is an interactive system so users can choose the appropriate scale to visualize the GIS data on high-risk areas that are of the greatest interest to them. Users can either compare risk areas in their local watersheds or zoom down to field level and see specific fi with color-coded high risk areas.

Why Use HIT?

HIT can be used to target conservation assistance efforts like the Conservation Reserve Enhancement Program (CREP) and other NRCS programs. These efforts can be targeted on those areas with the greatest potential risk for erosion and resulting sediment loads to nearby waterways. Using HIT helps achieve the greatest impacts from those conservation efforts.

The use of HIT supports important NRCS, MDA, CREP, and other state agency conservation goals. These goals include the reduction of soil erosion and sedimentation, improvement of water quality, and enhancement of wildlife habitat. Conservation districts and farmers can use this targeted approach to realize the maximum impact of conservation programs to reduce wasteful soil erosion, improve valuable water quality, and restore wildlife habitat.

Conservation districts and watershed organizations can also use HIT to develop and coordinate strategic watershed management approaches to control erosion and reduce sedimentation in a watershed. Using HIT mapping of watersheds with color-coded data layers for high-risk sediment yields, the volumes of erosion and sediment may be compared among and within sub-watersheds. High-risk sediment yield areas can be ranked and prioritized for targeting conservation efforts.

As a result, farmers, conservation districts, and watershed organizations can base their decisions about the deployment of conservation resources on a clear picture of specific watershed conditions and the potential impacts of individual actions on water quality in their watersheds.