Daily Erosion Project and Agricultural Conservation Planning Framework

Extension Tools for Addressing Soil and Water Degradation

Background

Accelerated soil erosion has reduced agricultural production potential, increased production costs, and degraded water quality in the North Central Region. While the connection between soil erosion, degraded water quality, and lost production potential is unquestioned, knowledge of how much soil erosion is occurring and the spatial distribution of soil erosion rates is limited.

A new approach to addressing water related problems focuses on watershed community building and connecting stakeholders in and around the watershed to partners in identifying and addressing water related challenges. While this strategy has the potential to effect large change, identifying critical watersheds that are disproportionately affecting water degradation remains a challenge.

To help address this issue, the Daily Erosion Project (DEP) produces daily estimates of rainfall, runoff, and soil erosion for each Hydrologic Unit Code 12 (HUC 12) throughout Iowa and sections of Kansas, Wisconsin, Minnesota and Nebraska. The project visually illustrates daily precipitation, water runoff, hill slope soil detachment, and hill slop soil loss in an easily digestible format. The Agricultural Conservation Planning Framework (ACPF) is a precision conservation planning framework developed in tandem with DEP to identify appropriate management strategies for high risk, damaged areas to minimize future soil and water degradation.

The DEP can effectively identify vulnerable watersheds with high potential for sediment and phosphorus loss and the ACPF can suggest best management practices that limit phosphorus losses as well as nitrogen losses.

Goals

The overall goal of this project was to capitalize on the existing DEP and concurrent ACPF support to further expand the project in other North Central Region States. Furthermore, the project aimed to train Extension, agency, and industrial personnel in the theory and practice of DEP and ACPF to expand and improve the use of these products and expedite plans to reduce water degradation and soil loss in the most vulnerable areas in the North Central Region.

Addressing the Challenge

An expansion plan was created to broaden the reach of DEP and ACPF into approximately 450 HUC12's in 28 counties. Expansion included updates to the data using 2014 and 2015 imagery and the most recent data for all area watersheds.

In addition, to further knowledge of DEP and ACPF two, two-day trainings were held for Extension personnel in water resources and watershed managers in the spring and summer of 2016 in Ames, Iowa and Madison, Wisconsin. Attendees included university based researchers, Extension, state, private, and

non-profit sector professionals, and county government and land grant conservation unit staff from across the North Central Region states.

Training materials were created and a curriculum was established to encourage and support use of the DEP website and ACPF tools by:

- enabling users to better navigate the DEP website and interpret DEP results
- empowering attendees to use ACPF to suggest best management practices that will help meet each area's individual water quality goals

Program Outcomes and Impacts

Approximately 552 HUC12 watersheds in 31 counties were successfully completed and added to the ACPF database. Of the 552 HUC12 watersheds added to the ACPF database, approximately 80% have also been successfully run through the DEP processing steps and posted to the DEP website.

Respondents of the first trainings' post-training survey indicated they were moderately to very satisfied with the training, with very satisfied dominating. All respondents noted learning ACPF was either very or moderately important to their professional development.

71% of respondents from the second trainings' post-training survey strongly agreed the training provided the skills they needed. A strong majority of respondents were moderately confident they could perform ACPF for their work in the future and 71% of respondents indicated they were very likely to use ACPF in the next year.

Additionally, the majority of respondents noted they would be moderately to very likely to share DEP and ACPF with their stakeholders. Respondents from the first training reported they would be likely to share the knowledge they gained through the training with over 1,300 stakeholders.

"This is so cool. I think you guys could spend the full-time work [of] two full-time employees... training people all over the country for five years."

"Want to say thanks again, very useful tools and I look forward to talking with you all soon"

RESOURCES

To access resources and learn more about DEP visit:
https://dailyerosion.org/

To access resources and learn more about ACPF visit:
http://northcentralwater.org/acpf/

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