

RUSLE2 WEB-APP

This mobile application uses NRCS web services for soil/climate data access and RUSLE2 erosion prediction, the same services used by other NRCS field applications using the RUSLE2 model. These services are updated periodically and with common access, results should remain consistent for erosion assessment. Detailed information on the web services and data used by this application can be found at the Colorado State University Cloud Service Integration Platform site at: <https://alm.engr.colostate.edu/cb/project/csip>.

REVISED UNIVERSAL SOIL LOSS EQUATION - Version 2 (RUSLE2)

RUSLE2 is an erosion prediction tool that is intended for all conservation planning, inventory erosion rates and estimate sediment delivery, this tool is a modified version of the RUSLE and USLE tool. RUSLE2 was developed jointly by the USDA-Agricultural Research Service (ARS), the USDA-Natural Resources Conservation Service (NRCS), and the University of Tennessee. The Revised Universal Soil Loss Equation 2 (RUSLE2) estimates soil loss from rill and interrill erosion caused by rainfall on cropland. In other words, RUSLE2 is an advanced, user-friendly software model that predicts long-term, average-annual erosion by water. It runs in a Windows environment, and can be used for a several alternative combinations of crop system and management practice. It also considers specified soil types, rainfall patterns, and topography. When these predicted losses are compared with soil loss tolerances, RUSLE2 provides specific guidelines for effective erosion control.

RUSLE2 computes values for the three fundamental erosion processes of detachment (sediment production), transport, and deposition. The empirical equation form of the USLE is used to compute detachment while process-based equations are used to compute sediment transport and deposition. These equations, which are written for a point in time and a location on an overland flow path, are integrated in both time and distance to produce average annual and spatial estimates for segments along the overland flow path and for the entire overland flow path.

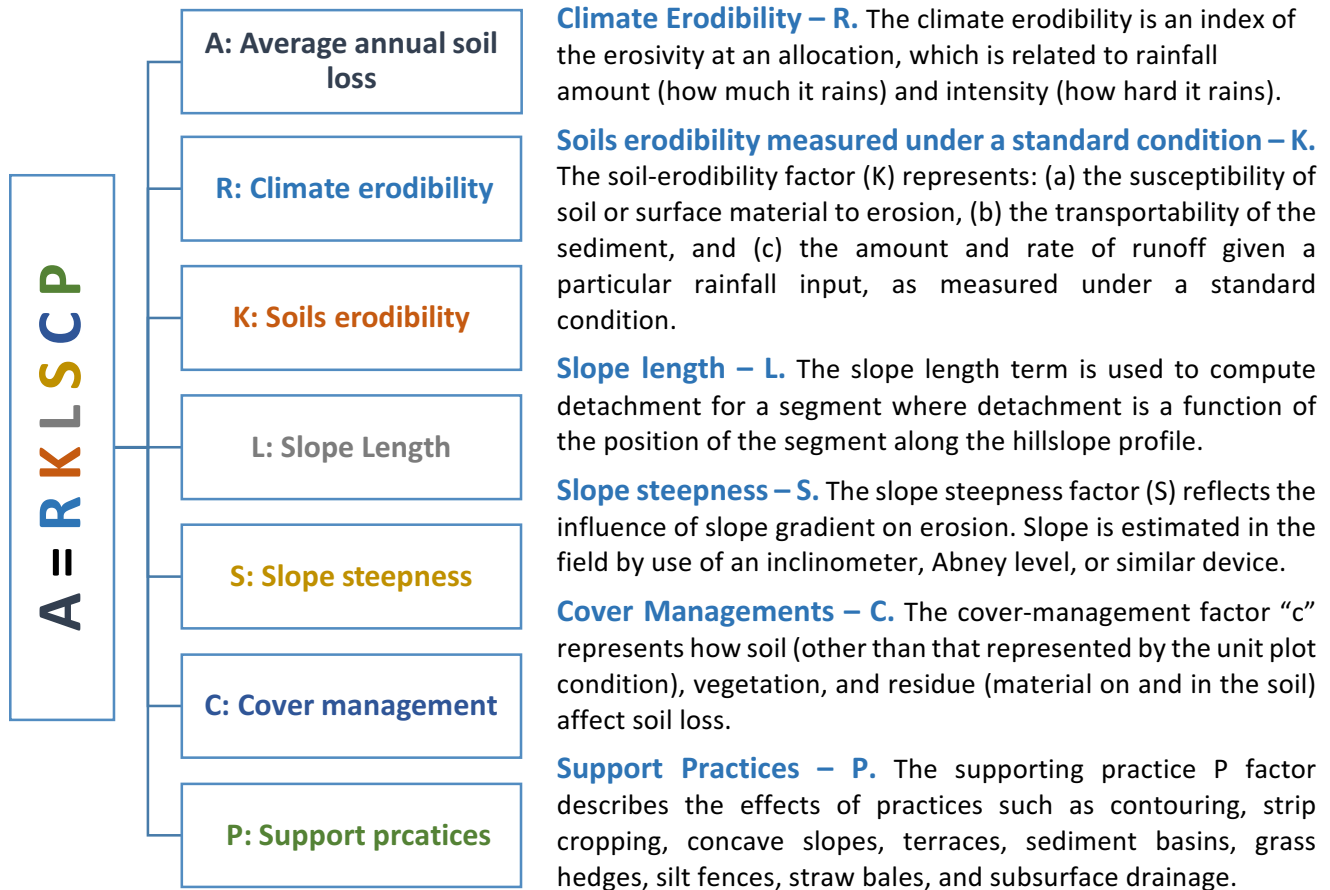
In addition to sheet and rill erosion losses, the RUSLE2 program estimates Soil Conditioning Index (SCI), Soil Tillage Intensity Rating (STIR), Soil Loss, and T value; among others. These outputs are used together as a tool to evaluate the impact of existing farming operations on soil loss and soil organic carbon. These output values also can be useful in helping decide which

RUSLE2 was developed cooperatively by the USDA-Agricultural Research Service (ARS), the USDA-Natural Resources Conservation Service (NRCS), and the Biosystems Engineering and Environmental Science Department of the University of Tennessee.

The WEB-APP was developed by the Civil and Environmental Engineering Department and the Extension Service at Mississippi State University, in collaboration with the Colorado State University's Cloud Services Integration Platform (CSIP).

conservation practice(s) will provide the most benefit for reducing soil losses and increasing soil carbon.

RUSLE2 Components



References:

USDA- Agricultural Research service. 2013. Revised Universal Soil Loss Equation Version 2 (RUSLE2) (For the model with release data of May20, 2008). August 2013. Available online at: http://www.ars.usda.gov/sp2UserFiles/Place/64080510/RUSLE/RUSLE2_Science_Doc.pdf.

USDA-ARS. 2004. User’s Reference Guide. Revised Universal Soil Loss Equation Version 2. Available online at: http://fargo.nserl.purdue.edu/rusle2_dataweb/userguide/RUSLE2-2-3-03.pdf.

RUSLE2 was developed cooperatively by the USDA-Agricultural Research Service (ARS), the USDA-Natural Resources Conservation Service (NRCS), and the Biosystems Engineering and Environmental Science Department of the University of Tennessee.

The WEB-APP was developed by the Civil and Environmental Engineering Department and the Extension Service at Mississippi State University, in collaboration with the Colorado State University’s Cloud Services Integration Platform (CSIP).