



FSA Erosion Prediction Tools

Transitioning from RUSLE/WEQ to RUSLE2/WEPS

Frequently Asked Questions

October 2022

What is changing?

For Fiscal Year 2023 signups of the Conservation Reserve Program (CRP), USDA's Farm Service Agency (FSA) will use updated models to estimate potential soil erosion by wind and water, which is used to rank CRP offers from agricultural producers and landowners. The updated models are more site specific, align with those of USDA's Natural Resources Conservation Service (NRCS), and provide a more accurate estimate on natural resource benefits, improving the scientific accuracy of CRP.

What is RUSLE2/WEPS?

The new models, Revised Universal Soil Loss Equation version 2, or better known as RUSLE2, and Wind Erosion Prediction System (WEPS), replaced RUSLE and WEQ for CRP ranking and eligibility purposes. RUSLE2 is a widely used process-based model that estimates rates of soil erosion caused by rainfall and associated surface runoff. RUSLE2 uses climate data from 1960-1990. RUSLE2

estimates soil erosion using average rainfall and expands on the hybrid model structure and mathematical integration that was used previously by RUSLE.

Development of WEPS began in the mid-2000s with input from multiple Federal agencies. NRCS adopted WEPS in 2010 as their official wind erosion tool. WEPS uses climate data from 1974-2013. WEPS is a process-based model that simulates the daily time step effect of precipitation, wind, soil properties, and farming operations on wind erosion.

Will estimated erosion rates increase?

Because of their greater level of sophistication, RUSLE2 and WEPS may generate noticeably different erosion results than RUSLE and WEQ. Factors include improved climate data and treatment of soils with high sand content. Differences will vary by region. Generally, the new models suggest a tendency toward lower potential for water erosion and higher potential for wind erosion.

How will policies change?

FSA will use the new tools for the General Signup, Continuous Signup, and Conservation Reserve Enhancement Program (CREP). For the General Signup, the new models will be used for Environmental Benefits Index (EBI) factors for N2c, N3, and N5a, which focus on water quality, erosion, and air quality. For the Continuous Signup, the new models will be used for Highly Erodible Land Initiative (HELI).

For more information

Producers and partners can learn more by contacting the FSA at their local [USDA Service Center](#).