

*United States
Department of
Agriculture*

*Natural
Resources
Conservation
Service*

*Wind Erosion Research Unit
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FROM: Gary Tibke, Conservation Agronomist, Manhattan, KS

SUBJECT: WEQ Ridge Roughness Values

Larry Hagen and others at the Wind Erosion Research Unit (WERU) in Manhattan, KS have developed a routine which NRCS and other users can use to give credit for Random Roughness when estimating erosion with the WEQ management period method.

Note that the random roughness curves give credit only for soils with I values of 134 and less.

Example: We will take into consideration just one WEQ management period. The soil in the field being evaluated has an "I" value of 86. The field has just been fertilized with anhydrous ammonia, using a knife applicator. The ridge roughness "K" factor was determined to be 0.8. Using the random roughness (inches) from the RUSLE hand book we find the anhydrous applicator has a core value of 0.6. Going into the random roughness (inches) graph, an "I" factor of 86, the "Krr" factor rounds to 0.8. The total roughness value (K factor) will be $0.8 \times 0.8 = 0.64$, round to 0.6.

For fields being broken out of CRP, ARS researchers at Manhattan also suggest giving credit for random roughness on fields which have been broken out of sod. The field surface is usually covered with the crowns of plants, its associated roots, and adhering soil. The total random roughness of the field should be compared to the photos in the RUSLE handbook and credited appropriately.

The crown of plants, its associated roots, and adhering soil should also be credited when doing transects to determine residue cover. Employees will need to use their best judgment when deciding which crop curve to use when converting from percent ground cover to mass and then selecting a curve to convert the residue mass to Small Grain Equivalent (SGe). When in doubt, Sudan Grass residue curves may be the best selection.