

## **Highly Erodible Lands Criteria**

### **General**

Highly Erodible Soil Map Unit information provided here supplements guidance provided in the National Food Security Act Manual, Fifth Edition, Part 511, November 2010.

(<http://directives.sc.egov.usda.gov/RollupViewer.aspx?hid=29340>)

Existing Highly Erodible Soil Map Unit Lists were frozen on January 1, 1990. These highly erodible land (HEL) determinations cannot be changed when the lists are updated. The T factor, the Universal Soil Loss Equation (USLE) R, K, and LS factors, and the C and I factors for the Wind Erosion Equation are frozen for all soil map unit components that were on HEL lists before January 1, 1990.

The basis for identifying highly erodible land is the erodibility index of a soil map unit component. The erodibility index of a soil is determined by dividing the potential erodibility for each component by the soil loss tolerance (T) value established for the soil. The T value represents the maximum annual rate of soil erosion that could take place without causing a decline in long-term productivity. A soil map unit component with an erodibility index of 8 or more is considered highly erodible.

### **Water Erosion**

Potential erodibility for sheet and rill erosion is calculated by multiplying the following factors of the Universal Soil Loss Equation (USLE):

- Rainfall and runoff factor (R)
- Susceptibility of the soil to water erosion (K)
- Combined effects of slope length and steepness (LS)

The erodibility index for sheet and rill erosion is represented by the formula  $R * K * LS / T$ . For complex map units, the factors for the primary map unit component are used.

- A soil map unit is highly erodible if the  $R * K * LS / T$  value using the minimum LS factor is equal to or greater than 8.
- A soil map unit is potentially highly erodible if the  $R * K * LS / T$  value using the minimum LS factor is less than 8 and the  $R * K * LS / T$  value using the maximum LS factor is equal to or greater than 8.
- A soil map unit is not highly erodible if the  $R * K * LS / T$  value using the maximum LS factor is less than 8
- See NFSAM 511.2 E., Determining PHEL Map Units, for additional information.  
(<http://directives.sc.egov.usda.gov/RollupViewer.aspx?hid=29362>)

### **Wind Erosion**

Potential erodibility for wind erosion is calculated by multiplying the following factors of the Wind Erosion Equation (WEQ):

- Climatic characterization of wind speed and surface soil moisture (C)
- The susceptibility of the soil to wind erosion (I)

The erodibility index for wind erosion is represented by the formula  $C*I/T$ . For complex map units, the factors for the primary map unit component are used.

- A soil map unit is highly erodible if the  $C*I/T$  value is equal to or greater than 8.
- A soil map unit is not highly erodible if the  $C*I/T$  value is less than 8.