

ESTIMATING SOIL LOSS FROM WATER AND WIND EROSION

Water Erosion NE-CPA-30

1. Complete all appropriate blanks at the top for name, address, legal description, and date.
2. TRACT NUMBER -FSA tract number.
3. FIELD NUMBER -enter from plan.
4. SOIL -write in the correlated name.
5. "T" -the soil loss tolerance expressed in tons per acre per year. 5 tons/acre/year is maximum (Tech. Guide, Section I- EROSION PREDICTION, Guide to Interpretive Groups).
6. Select irrigated or non-irrigated
7. rainfall-erosion factor "R" (from Tech. Guide Section I page 12 "R" Value Map) and cropping sequence. Complete the remaining blanks by using the following directions:
8. "K" -soil erodibility for the soil from "T" and "K" factors (Tech. Guide, Section I-EROSION PREDICTION, Guide to Interpretive Groups). K factor zones are located on Page 13 FOTG Section I Erosion Prediction. Adjusted K factors are based upon K factor zones and the K factor from the Guide to Interpretive Groups.
9. LENGTH OF SLOPE -slope length is the distance from the point of origin of overland flow (top of hill) to (1) the point here the slope decreases to the extent that deposition begins, or (2) the point where runoff enters a defined channel. Use the dominant slope or the slope that is to be protected. If terraced, use the horizontal distance between terraces.

PERCENT SLOPE -average dominant slope or the slope that is to be protected.

TK/LS -knowing length and percent of slope, refer to page 10, Table 1. (Table 1 for LS, combination of slope length and steepness) (Tech. Guide, Section I- EROSION PREDICTION, pages 16a-16c).
10. "C" -select from single year scenarios on pages 17.1 through 17.99. Each scenario is zone specific. The zones are illustrated on page 13 (Tech. Guide, Section I-EROSION PREDICTION).
11. "P" -see Tables pages 18-23g (Tech. Guide, Section I-EROSION PREDICTION). This factor is the ratio of soil erosion from contouring, stripcropping, or terracing to straight-row farming, up and down slope.
12. LOSS, T/A/YR -determined by multiplying $R \times K \times LS \times C \times P$ (FOTG Section I- EROSION PREDICTION).

ESTIMATING SOIL LOSS FROM WATER AND WIND EROSION (CONTINUED)

Wind Erosion NE-CPA-9

1. Cooperator name.
2. SOIL - correlated name of most critical soil.
3. "I" Factor - enter from FOTG Section I Erosion Prediction – Guide to Interpretive Groups.
4. "T" Factor – Allowable soil loss to meet conservation management system.
5. Date NE-CPA-9 completed.
6. Planners name or initials.
7. "C" - wind erosion index factor or climatic factor. Select from the Tech. Guide, Section I- EROSION PREDICTION, page 40, "C" Value Map.
8. County land is located in.
9. FARM NUMBER - same as FSA farm number.

FIELD NUMBER - enter from plan map.

TRACT NUMBER - same as FSA tract number.

10. Tillage type – Spring Tillage (ST), No-till (NT), Fall Tillage (FT), etc.
11. Field Dimensions and orientation – Length, width, tillage direction (NE to SE, E to W, etc.).
12. Crop rotation
13. Management Period – Input main operation for each management period (plant, disk, harvest, grow crop, graze, etc.)
14. Date of operation (represents cover management changes starting on this date).
15. ADJUSTED "I" - see Table 2, page 37 -Knoll Erodibility "I" correction factor.
16. "K" -ridge roughness -see Table 3, pages 38 and 39.
17. STRIP DIRECTION - Enter direction of farming or row direction.

ANGLE OF DEVIATION - measured from perpendicular to prevailing wind direction.

FIELD WIDTH FACTOR - refer to Figure 1, page 42. STRIP WIDTH -enter from Table 5, pages 43-45.

SHELTERED DISTANCE - enter width of strip or field, whichever is appropriate.

WIND DIRECTION -refer to Table 4, pages 41a-41k -prevailing wind direction, select critical period and location of the station closest to the field (degrees).

PREPONDERANCE -read from same Table as wind direction.

ESTIMATING SOIL LOSS FROM WATER AND WIND EROSION (CONTINUED)

Wind Erosion NE-CPA-9 (continued)

18. "L" UNSHELTERED DISTANCE - (field or strip width) x (wind direction factor) = (distance along wind direction) -(sheltered distance) = unsheltered distance.

Ex. $1,000 \times 1.35 = 1350 - 0 = 1350$ ft.

19. CROP RESIDUE - kind and pounds of residue and orientation (standing or flat).

"V" = EQUIVALENT FLAT SMALL GRAIN RESIDUE -equivalent flat small grain residue -see figures a, b, c, d, pages 47-73.

20. SOIL LOSS "E" - record wind erosion for each crop in the sequence and divide by the number of years in the rotation. From appropriate pages 75-94.

21. Point on Erosive Wind Energy (EWE) Curve. The amount of wind that has occurred, on average, at that point during the year. EWE charts are located in the FOTG Section I Erosion Prediction pages 41a-41k.

Ex. Grand Island, Nebraska April 15th 34.3%, is entered on the NE-CPA-9 as 0.343. Means that by April 15th 34.3% of the Erosive Wind energy for the year has occurred.

22. EWE% - The point on the EWE curve at the beginning of a crop stage minus the EWE point at the start of the next stage. EWE% added up for all crop stages, for a one year rotation, should = 1.0.

Ex. Grand Island, Nebraska April 15th, 34.3% = 0.343, disk
 May 1st, 42.2% = 0.422, plant
 $0.422 - 0.343 = 0.079 = 7.9\%$ of wind energy with that amount of soil surface cover (crop residue).

23. Period Erosion - E/T/AC x EWE%. Summed equals the rotational erosion rate. The rotational erosion rate is then divided by the number of years in the rotation to determine annual erosion rate.