Table 14. Observed range and 5-, 20-, and 50-percent probability values of erosion index at each of 12 key locations.

Location	Values of Erosion Index (EI)			
	Observed 22-year range	50-percent probability	20-percent probability	5-percent probability
North Carolina:				
Asheville	76-238	135	175	223
Charlotte	113-526	229	322	443
Greensboro	102-357	184	244	320
Raleigh	152-569	280	379	506
Wilmington	196-701	358	497	677
South Carolina:				
Columbia	81-461	213	298	410
Greenville	130-589	249	350	487
Tennessee:				
Chattanooga	163-468	269	348	445
Knoxville	64-370	173	239	325
Virginia:				
Lynchburg	64-366	164	232	324
Richmond	102-373	208	275	361
Roanoke	78-283	129	176	237

Table 15. Expected magnitudes of single-storm index values.

Location	Index values normally exceeded in --				
	1 year	2 years	5 years	10 years	20 years
North Carolina:					
Asheville	28	40	58	72	87
Charlotte	41	63	100	131	164
Greensboro	37	51	74	92	113
Raleigh	53	77	110	137	168
Wilmington	59	87	129	167	206
South Carolina:					
Columbia	41	59	85	106	132
Greenville	44	65	96	124	153
Tennessee:					
Chattanooga	34	49	72	93	114
Knoxville	25	41	68	93	122
Virginia:					
Lynchburg	31	45	66	83	103
Richmond	46	63	86	102	125
Roanoke	23	33	48	61	73

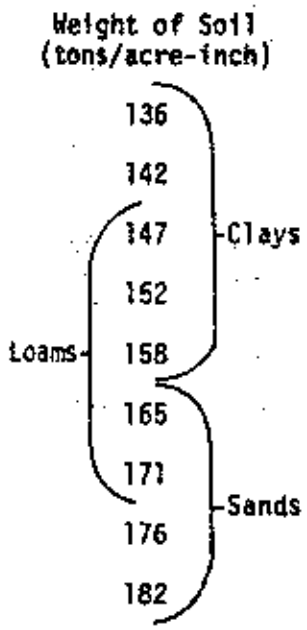
Table 16. Factors for Converting Soil Losses (Air-Dry) from Tons Per Acre (T/Ac.) to Cubic Yards Per Acre (Cu. Yds/Ac.)

Soils	Volume Wt. lb./cu. ft.	Tons to Cu. Yds.
Sands and loamy sands	110	0.67
Sandy loam	105	0.71
Fine sandy loam	100	0.74
Loam	90	0.82
Silt loam	85	0.87
Silty clay loam	80	0.93
Clay loam	75	0.99
Silty, sandy clay and clay	70	1.06

A rule of thumb for mixed textures is one ton of soil = one cubic yard.

Aerated Sediment	80*	0.93
Saturated Sediment	60*	1.24

*These are aerated and saturated weights to be used at damage sites. (Streams, ponds, or reservoirs)



Estimating Sheet and Rill Erosion on Project Areas

The USLE may be used to estimate soil loss from sheet and rill erosion on large areas by using the values for the various factors from the tables in this publication. Factors R, K, and LS are relatively fixed for a given location. Their product is the basic erosion potential for the particular combination of rainfall pattern, soil properties, and topographic features. Multiplying this potential by appropriate values of C and P reduces it for the effects of land cover, management, and supporting control practices. Field soil loss data are not quantitative estimates of watershed sediment. Most eroded soil particles are deposited and transported many times before they reach a continuous stream system. The potential cropland contribution to sediment depends on the erosion rate, the delivery ratio, and the cropland density in the watershed.

Other sources of sediment that must be considered are gullies, channel erosion, roadside areas, urban areas, and areas undergoing development. A high percentage of the soil loss and sediment may come from areas that can be visually identified such as long slopes farmed without terraces, diversions, or stripcropping; rows or tillage operations up and down slopes; no residue or cover on land between crop harvest and establishment of new crop canopy; runoff from upslope areas flowing across cropland; intensively cultivated land adjacent to stream without a filter strip of perennial vegetation; or absence of stabilized waterways on sloping land to carry runoff.

A rough approximation of the soil-loss sediment potential in a particular area can be obtained with a soil association map and assumed values for the USLE factors. This is not a satisfactory evaluation of present conditions or sound basis for planning a land treatment program. Field sampling of a predetermined percentage (10-25%) of each land use will provide a sound basis for the computations. The homogeneity of soils (K), slope (LS), cover-management (C), and support practices (P) in an area influences the amount of sampling needed. Items needed to complete the sampling procedure are: aerial photo coverage (or a series of sketches of areas to be sampled); measured acres of the different land uses, a soil survey (or soils information for K values); acreage of crops and productivity level. Equipped with an Abney hand level, one person can quickly record information on a working form for a site. The field samples can be computed and summarized by sub-watersheds, by land use, by land capability subclass, or other grouping that meets the land planner's needs. This procedure gathers specific information on slope length and gradient, land cover and management, and supporting practices on the land.

Soil loss data collected for nonagricultural land should be identified and kept separate from the agricultural land.

As previously stated, the USLE only predicts soil losses from sheet and rill erosion. It does <u>not</u> predict sediment yields.

APPENDIX

Computing C Factor Values for Cropland

Procedure

Set up a working table as illustrated by Example 1. To compute the value of C for any cropping cycle it is necessary to have all pertinent information such as date of initial land disturbance, planting and harvest dates, average yields, tillage methods, residue management, and the appropriate erosion-index distribution curve. This information is all shown in the heading or notes of the work form. The above information with the crop stage dates localizes the C value to a specific set of conditions.

Work Sheet Example 1

Record the information in the heading then go to column 1. Abbreviations are given on page 35.

Column 1 - Record the crop sequence and dates of the crop stages. See page 30 for definition of crop stages. If the initial land preparation is with an implement that leaves a rough surface which slows runoff, it is crop stage F. Land turned with a moldboard plow is placed in F stage. Chisel plowing could be F if land surface is not left smooth. A heavy disk may penetrate as deep as a plow yet leave the surface smooth so that it is started in stage 1 rather than F.

Column 2 - Shows the dates for the change in crop stages recorded in column 1. These dates should be average for the location. Tables 5, 6, and 7 list more than one planting and harvest date for most crops to provide for differences within the physiographic area. In this example, the wheat stage 2 should probably go to April 1 in a Northern Piedmont location.

Column 3 - Records values read from the appropriate erosion-index distribution curve for each date listed in column 2. The Piedmont curve is Figure 6. A table is provided with Figure 6 to facilitate this step. Adding "1" to the reading each time January 1 is passed simplifies completing column 4.

Column 4 - Provides the percentage of the EI for each crop stage period, i.e., the percentage in column 3 is 8 for March 1 and 13 for April 1 giving the difference of 5 to record in column 4 for the F crop stage. When column 4 is filled out, record the total before proceeding to the next column. If the total is not 100 for each year in the cropping cycle, recheck your entries in columns 4 and/or 3.

Column 5 - Is filled out from the appropriate soil loss ratio (Table A-1, 2, etc.). List the line used and the soil loss ratio for the

crop stage. Since lines are numbered consecutively through the tables, it is not necessary to list the table number in column 5. When selecting lines from the tables remember average crop yields should be used, not the highest yields obtained in the most favorable years. The adverse effects of reduced crop residue outweigh the gains obtained from occasionally high yielding crops. Sometimes it is necessary to interpolate between lines and soil loss ratios to fit crops or conditions not clearly covered in the tables. When this occurs, list the basic line used, footnote the soil loss ratio, and explain how it was derived.

Column 6 - Is self-explanatory. (The decimals in the column derive from the percentage values in columns 4 and 5. Column 6 is the C value by crop stages.)

Column 7 - Is the C value for the different crops in the rotation. This C value could be improved by seeding small grain immediately after cutting silage, thus eliminating or reducing crop stage 4RdR. The sum of column 6 or 7 divided by the number of years in the rotation is the C value for the crop sequence with the conditions given.

Column 8 - Provides additional information that supplements that given in the heading.

Work Sheet Example 2

The procedure is identical to that outlined in Example 1. List the information in the heading, crop stage, and dates in Columns 1 and 2, EI distribution figure in column 3, and proceed. The only difficult part of computing C values is selecting the correct lines and valid soil loss ratios for the specific conditions to use in column 5.

In Example 2 on the second line, the land was disked about April 20 which ended the F stage and was the beginning of stage 1. The standard elapsed time in stage 1 for most field crops is 30 days after planting. In this instance, tobacco was planted on May 10; hence, the ending of stage 1 on June 10. If the tobacco was planted on April 20, stage 1 would end May 20 and stage 2 June 20. Stage 3 ends when tobacco is harvested. When crop stage dates, cropping sequence, and management are the same, the only difference in C values for physiographic areas is the EI distribution. Example 2 can be converted to the Piedmont by listing the correct crop stage dates in column 2 and listing the EI distribution in column 3 from Figure 6, then complete the calculations.

Work Sheet Examples 3, 4, and 5

These work sheets further illustrate the process of developing C values. Examples 3 and 4 compare cotton and corn produced with conventional tillage and no-till systems. The small grain is not no-till, but reduced tillage leaving part of the residue on the surface rather than inverting it.

Example 5 is all conventional tillage but 20 months of meadow reduces the C value for this four-year rotation. Note that different lines have to be selected from which to secure the soil loss ratios when crop sequence, residue management, tillage, and productivity change.

EXAMPLE #1

USDA-SCS
North Carolina
3/76

WORK SHEET FOR COMPUTING C VALUES

Physiographic Area or County PIEDMONT By GHC Date 6/76

Years in Rotation 3 List crops in sequence, tillage methods, residue volume and management, average yields, etc. (1) Corn after Clover, cvt, HP, RdR (2) Wheat, cvt, HP, RdL, (3) Red Clover

(1) Crop Sequence and Crop Stage	(2) Date	(3) EI by Dates Fig. 6 %	(4) EI in Period %	(5) Soil Loss Ratio (Line) %	(6) Column 4x5	(7) Value of C	(8) Notes
Corn start F	3-1	8	X	X	0. X	. X	TP Clover sod
end F	4-1	13	5	2) 10	.0050	.	Prepare seed bed, pH.C
" -1	5-1	19	6	28	.0168	.	
" -2	6-1	26	7	19	.0133	.	
" -3	9-20	84	58	12	.0696	.	Cut 18 T. C silage.
" -4R	10-20	92	8	40	.0320	.1367	Disk & seed W.
Wheat " -1	11-20	97	5	10) 50	.0250	.	
" -2	3-20	111	14	40	.0560	.	3-1 Top seed Red clover
" -3	6-10	129	18	5	.0090	.	Hrv. 50 bu. w/ac. RdL
" -4L	8-1	158	29	3	.0087	.0987	Clover value starts.
Red clover 1st yr.	3-10	209	51	125) 1.5	.0077	.	1st yr. clover
" " 2nd yr.	3-1	308	99	1.5	.0149	.0226	2nd year clover
					.	.	2.5 T. hay. Second
					.	.	growth harvest seed.
			300		.2580	.2580	÷ 3 = .086
					.	.	3 yr. av. or average
					.	.	Annual C = .086

Example #2

USDA-SCS
North Carolina
3/76

WORK SHEET FOR COMPUTING C VALUES

Physiographic Area or County C. Plains By JHC Date 5/76

Years in Rotation 3 List crops in sequence, tillage methods, residue volume and management, average yields, etc. (1) Tobacco after 1st yr. Fescue, cvt. HP Sg-wc (2) Corn No-till, HP (3) Small grain seeded in Corn Rd, HP, Rdl, Fescue

(1) Crop Sequence and Crop Stage	(2) Date	(3) EI by Dates Fig. 5 %	(4) EI in Period %	(5) Soil Loss Ratio (Line) %	(6) Column 4x5	(7) Value of C	(8) Notes
Tobacco start F	3-20	6	X	X	0. X	. X	TP Fescue
end F	4-20	10	4	233) 20	.0080	.	Disk, prepare - plt.
" - 1	6-10	19	9	34	.0306	.	5-10
" - 2	7-10	39	20	45	.0900	.	
" - 3	9-1	75	36	35	.1260	.	
" - 4L	9-10	81	6	35	.0210	.3756	TP Tob. stalks,
Sg-wc " - F	9-20	86	5	106) 35	.0175	.	Smooth & seed WC
" - 1	10-20	93	7	51	.0350	.	
" - 2	3-10	105	12	34	.0408	.	
" - 3	4-20	110	5	115) 10	.0050	.0983	No-Till plt. C in
Corn " - 1	5-20	115	5	165) 7	.0035	.	2500# Sg Rd OS
" - 2	6-20	123	8	7	.0056	.	
" - 3	10-20	193	70	7	.0490	.0581	Combine C. Disk + seed
SG " - 1	11-20	197	4	169) 8	.0032	.	SG in 2200# CRd OS
" - 2	3-10	205	8	5	.0040	.	10-20 + Fescue.
" - 3	6-10	219	14	2	.0028	.	Harvest 40 bu. W/RC.
" - 4L	8-1	255	36	2	.0072	.0172	
Fescue	3-20	306	51	121) .6	.0031	.0031	
			300			.4523	÷ 3 = .1507 = .151 AV.
							Annual C for rotat

Example #3

USDA
North Carolina
3/76

WORK SHEET FOR COMPUTING C VALUES

Physiographic Area or County C Plain By JHC Date 5/76

Years in Rotation 2 List crops in sequence, tillage methods, residue volume and management, average yields, etc. (1) Cotton, HP, No-Till in 8-10" seed row, 60% cover of SG Rd OS, (Sg-wc), (2) Corn, HP, No-Till, (Sg-wc)

(1) Crop Sequence and Crop Stage	(2) Date	(3) EI by Dates Fig. 5 %	(4) EI in Period %	(5) Soil Loss Ratio (Line)	%	(6) Column 4x5	(7) Value of C	(8) Notes
Cotton Start 1	4-10	8	X	X		0. X	.	Incorporate herbicide
end 1	5-20	15	7	177)	19	.0133	.	in 8-10" strip tilled
" -2	6-20	23	8	|	17	.0136	.	seed row, Pit. Cot.
" -3	11-10	96	73	|	14	.1022	.	4-20
" -4-L	11-20	97	1	↓	20	.0020	.1311	Disk 11-20. Seed wc
(SG-wc) " -1	12-20	99	2	187)	25	.0050	.	in 1200# Cot Rd os.
" -2	4-1	107	8	|	16	.0128	.	
" -3	4-10	108	1	↓	6	.0006	.0184	No-Till pit. C 2-4"
Corn " -1	5-10	113	5	165)	7	.0035	.	seed row. 2500 lbs.
" -2	6-10	119	6	|	7	.0042	.	Sg Rd OS. Pit. 4-10.
" -3	10-10	192	73	|	7	.0511	.	
" -4-L	10-20	193	1	↓	7	.0007	.0595	Bed or list Cot. rows.
(SG-wc) " -F	11-1	195	2	106)	35	.0070	.	Then broadcast Sg-wc.
" -1	12-1	198	3	|	51	.0153	.	
" -2	4-1	207	9	|	34	.0306	.	
" -3	4-10	208	1	↓	5	.0005	.0534	
			200			.	.2624	÷ 2 yr. = .1312 av. Annual
						.	.	.131
						.	.	
						.	.	

EXAMPLE #4

USDA-SCS
North Carolina
3/76

WORK SHEET FOR COMPUTING C VALUES

Physiographic Area or County C. Plain By JHC Date 5/76

Years in Rotation 2 List crops in sequence, tillage methods, residue volume and management, average yields, etc. (1) COTTON, cvt, HP, (2) Corn, cvt, HP

(1) Crop Sequence and Crop Stage	(2) Date	(3) EI by Dates Fig. 5 %	(4) EI in Period %	(5) Soil Loss Ratio (Line)	%	(6) Column 4x5	(7) Value of C	(8) Notes
Cot. Stalk F	3-20	6	X	4		0. X	.	TP Corn Rd
END F	4-10	8	2	79)	32	.0064	.	Disk 4-10, plt. Cot. 4-20
" - 1	5-20	15	7	↓	51	.0357	.	
" - 2	6-20	23	8	↓	51	.0408	.	
" - 3	11-10	96	73	↓	35	.2565	.	Cot. Rd. shredded 11-10
" - 4-L	3-20	106	10	↓	40	.0400	.3784	TP Cot. Rd, disk pl
Corn " - F	4-1	107	1	15)	35	.0035	.	Corn 4-10
" - 1	5-10	113	6	↓	54	.0324	.	
" - 2	6-10	119	6	↓	45	.0270	.	
" - 3	10-10	192	73	14)	22	.1606	.	Corn combined 85 bu.
" - 4-L	3-20	206	14	↓	26	.0364	.2599	Rdl 10-10 to 3-20
			200				.6383 ÷ 2 = .3191 =	(.319)

Note: Estimated volume of residue turned used to select line in the 2nd year row crop blocks on Table A-1. In this example, the judgment was that Line 14 should be used for Corn in stages 3 and 4.

EXAMPLE # 5

USDA - CS
North Carolina
3/76

WORK SHEET FOR COMPUTING C VALUES

Physiographic Area or County MTS. By JHC Date 6/76

Years in Rotation 4 List crops in sequence, tillage methods, residue volume and management, average yields, etc. Cabbage HP cvt (SG-WC), Irish potatoes cvt (SG-WC), Grass, Meadow 20 mo.

(1) Crop Sequence and Crop Stage	(2) Date	(3) EI by Dates Fig. 2 %	(4) EI in Period %	(5) Soil Loss Ratio (Line)	%	(6) Column 4x5	(7) Value of C	(8) Notes
Cabbage start F	3-1	5	X			0.	.	TP-3T. Mead
end F	4-1	9	4	254)	10	.0040	.	Prepare land, plt. cabb.
1	5-1	14	5		30	.0150	.	4-1.
2	6-1	24	10		35	.0350	.	
3	7-10	51	27		30	.0810	.	RdR 25 Tons
4-R	9-1	85	34		40	.1360	.2710	Disk seed rye.
SG-WC 1	10-1	92	7	101)	50	.0350	.	
2	3-10	107	15		40	.0600	.	
3	3-20	108	1		8	.0008	.0958	RdL, Disk plt I. Pot.
I. Potatoes 1	5-1	114	6	266)	15	.0090	.	4-1
2	6-1	124	10		30	.0300	.	
3	8-1	167	43		28	.1204	.	Harvest pot. 9-1. 350 bu.
4-L	9-20	190	23		20	.0460	.2054	Disk seed SG-WC 9-20
SG-WC 1	10-20	194	4	101)	50	.0200	.	
2	4-1	209	15		40	.0600	.	
3	7-1	243	34		8	.0272	.1072	RdL
Mead	3-1	305	62	121)	.6	.0037	.	Hay 2T. Mead 8 mo.
Mead	3-1	405	100	120)	.4	.0040	.0077	Hay 2T. Mead 12 mo.
			400			.6871	.6871	÷4 yrs. = 172

TABLE A-1

Ratio of Soil Loss from Cropland to Corresponding Loss From Continuous Fallow. (The table is entered on the basis of crop, crop sequence, residue management, and crop productivity level in that order.)

Line No.	Cover, sequence, and management [3]	Productivity [1]		Soil-loss ratio for crop-stage period [2]						
		Hay yield	Corn yield	F	1	2	3 [4]	4L	4R	4L + WC
	CORN IN ROTATION									
	1st-year C after gr & lg hay:	*Tons*	*Bu.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
1	Spg TP, conv till	3-5	75+	8	25	17	10	15	35	10
2	Do	2-3	75+	10	28	19	12	18	40	11
3	Do	2-3	60-74	12	29	23	14	20	43	13
4	Do	1-2	60-74	15	30	27	16	22	45	13
5	Do	1-2	40-59	15	32	30	19	30	50	15
6	Do	<1	40-59	23	40	38	26	35	60	16
7	Do	<1	20-35	23	40	43	30	45	65	23
8	~~Spg TP, min till~~	~~3-5~~	~~75+~~	~~-----~~	~~8~~	~~8~~	~~8~~	~~15~~	~~35~~	~~10~~
9	~~Do~~	~~2-3~~	~~75+~~	~~-----~~	~~10~~	~~10~~	~~7~~	~~18~~	~~40~~	~~10~~
10	~~Do~~	~~2-3~~	~~60-74~~	~~-----~~	~~10~~	~~12~~	~~8~~	~~20~~	~~45~~	~~10~~
11	~~Do~~	~~1-2~~	~~60-74~~	~~-----~~	~~15~~	~~15~~	~~9~~	~~22~~	~~45~~	~~13~~
12	~~Do~~	~~1-2~~	~~40-59~~	~~-----~~	~~15~~	~~15~~	~~11~~	~~30~~	~~50~~	~~15~~
	2d year C after gr & lg hay:									
13	RdL, spg TP, conv till	3-5	75+	25	48	37	20	24	------	14
14	Do	2-3	75+	32	51	41	22	26	------	15
15	Do	2-3	60-74	36	54	45	24	28	------	15
16	Do	1-2	40-59	42	57	49	28	42	------	21
17	Do	<1	40-59	46	62	54	30	50	------	25
18	Do	<1	20-35	55	66	60	35	65	------	33
19	~~RdL, spg TP, min till~~	~~3-5~~	~~75+~~	~~-----~~	~~25~~	~~25~~	~~12~~	~~24~~	~~60~~	~~14~~
20	~~Do~~	~~2-3~~	~~75+~~	~~-----~~	~~30~~	~~30~~	~~13~~	~~26~~	~~60~~	~~15~~
21	~~Do~~	~~2-3~~	~~60-74~~	~~-----~~	~~35~~	~~35~~	~~14~~	~~28~~	~~65~~	~~15~~
22	~~Do~~	~~1-2~~	~~40-59~~	~~-----~~	~~42~~	~~42~~	~~17~~	~~40~~	~~70~~	~~21~~
23	~~Do~~	~~<1~~	~~40-59~~	~~-----~~	~~48~~	~~48~~	~~19~~	~~50~~	~~75~~	~~25~~
24	RdL, WC in prec C, conv till	3-5	75+	18	35	30	20	24	60	14
25	Do	2-3	75+	20	37	33	22	26	60	15
26	Do	2-3	60-74	21	39	36	24	28	65	15
27	Do	1-2	40-59	25	42	40	28	42	70	21
28	Do	<1	40-59	28	45	44	30	50	75	25
29	Do	<1	20-35	33	48	49	35	65	80	33
30	RdR, WC in prec C, conv till	3-5	75+	30	52	40	22	------	60	35
31	Do	2-3	60-74	35	55	45	24	------	65	35
32	Do	1-2	40-59	42	60	53	30	------	75	35
33	RdR, no WC, conv till	3-5	75+	55	62	47	22	------	60	--------
34	Do	2-3	60-74	60	65	51	24	------	65	--------
35	Do	1-2	40-59	65	72	57	30	------	70	--------
	3d or 4th year C after gr & lg hay, or 2d-year C after SG, red cl, or sw cl:									
36	RdL, conv till	3-5	75+	36	63	50	26	30	------	--------
37	Do	2-3	60-74	45	66	54	29	40	------	--------
38	Do	1-2	40-59	55	70	58	32	50	------	--------
39	Do	<1	20-35	70	76	64	38	65	------	--------
40	~~RdL, min till~~	~~3-5~~	~~75+~~	~~-----~~	~~30~~	~~36~~	~~16~~	~~30~~	~~-----~~	~~-------~~
41	~~Do~~	~~2-3~~	~~60-74~~	~~-----~~	~~45~~	~~45~~	~~17~~	~~40~~	~~-----~~	~~-------~~
42	~~Do~~	~~1-2~~	~~40-59~~	~~-----~~	~~55~~	~~55~~	~~19~~	~~50~~	~~-----~~	~~-------~~
43	RdL + WC in prec C	3-5	75+	22	46	41	20	30	------	15
44	Do	2-3	60-74	26	48	44	29	40	------	20
45	Do	1-2	40-59	33	51	47	32	50	------	25

See footnotes at end of table.

TABLE A-1 (Continued)

Ratio of Soil Loss From Cropland to Corresponding Loss From Continuous Fallow.

Line No.	Cover, sequence, and management [1]	Productivity [2]		Soil-loss ratio for crop-stage period [3]						
		Hay yield	Corn yield	F	1	2	3 [4]	4L	4R	4L+WC
	CORN IN ROTATION—continued	*Tons*	*Bu.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
46	RdL+WC in prec C	<1	20–35	42	56	52	38	65	.....	33
47	RdR, conv till	3–5	75+	70	78	54	27	.....	62	.....
48	Do	2–3	60–74	75	80	60	30	.....	70	.....
49	Do	1–2	40–59	75	80	70	35	.....	75	.....
50	RdR, 8 tons manure added	.....	60–74	60	70	52	28	.....	62	.....
51	1st-year C after cl hay	2	40–55	21	35	32	26	35	60	.....
52	1st-year C after sw cl	...	40–55	23	45	38	28	35	60	.....
53	1st-year C after lesp hay	1–2	60–70	55	70	55	30	40	65	.....
54	Do	1–2	40–55	55	70	60	32	50	75	.....
55	C after 1 year cot after gr & lg hay	2–3	60–70	30	58	46	24	28	65	.....
56	Do	1–2	40–59	35	65	54	29	42	70	.....
	Corn in meadowless systems:									
57	After SG w/ intercrop, spg TP	.....	75+	22	37	35	22	27	.....	.....
58	Do	.....	60–70	25	40	38	24	30	.....	.....
59	Do	.....	40–55	30	45	42	30	40	.....	.....
60	After SG, no intercrop, RdL	.....	.....	(5)	(5)	(5)	(5)	(5)	.....	.....
	COTTON IN ROTATION									
61	1st-year cot after gr & lg hay	3–5	HP	8	25	30	20	22	.....	15
62	Do	2–3	HP	10	30	35	25	25	.....	16
63	Do	1–2	HP	15	34	40	30	30	.....	18
64	Do	1–2	MP	15	34	45	35	33	.....	20
65	Do	<1	MP	23	40	54	45	42	.....	23
	2d-year cot after gr & lg hay:									
66	RdL, no WC seeding	3–5	HP	30	54	56	38	38	.....	20
67	Do	2–3	HP	34	58	62	44	40	.....	20
68	Do	1–2	MP	40	65	68	46	42	.....	22
69	Do	<1	MP	45	70	70	50	48	.....	25
70	RdL+WC in prec cot	3–5	HP	20	40	40	38	38	.....	20
71	Do	2–3	HP	23	42	50	44	40	.....	20
72	Do	1–2	MP	23	47	55	46	42	.....	22
73	Do	<1	MP	27	51	57	50	48	.....	25
	Cot after cot, 3d or more year after M:									
74	RdL, no WC seeding	.....	HP	42	70	70	48	42	.....	22
75	Do	.....	MP	45	80	80	52	48	.....	25
76	RdL+WC in prec cot	.....	HP	32	51	57	48	42	.....	22
77	Do	.....	MP	36	58	65	52	48	.....	25
78	Cot after 1 year C (RdL) after M	3–5	75+	25	48	40	32	36	.....	20
79	Do	2–3	60–75	32	51	51	35	40	.....	20
80	Do	1–2	40–59	35	54	50	38	45	.....	23
81	Cot after 1 year C, C RdR	2–3	40–59	60	65	63	40	48	.....	25
82	Cot after 2 years C (RdL) after M	3–5	75+	38	63	62	30	45	.....	23
83	Do	2–3	60–75	45	66	68	45	48	.....	25
84	Do	1–2	40–59	55	70	73	50	48	.....	25
85	Cot in cot (V)–C (crot) system	.....	HP	28	40	45	35	.....	.....	22
86	Cot in cot-O-lesp seed, RdL	.....	HP	23	34	40	30	.....	.....	.....
87	Do	.....	MP	25	40	45	37	.....	.....	.....
88	Cot in cot-SG-sw cl	.....	MP	25	46	48	35	.....	.....	.....
	SMALL GRAIN IN ROTATION									
	With meadow seeding:									
	In disked row-crop residue—									
89	After 1 year C after M	3–5	75+	.....	20	12	2	2	.....	.....
90	Do	2–3	60–74	.....	30	18	3	2	.....	.....
91	Do	1–2	40–59	.....	41	25	4–15	2	.....	.....
92	Do	<1	25–39	.....	60	36	5–15	3	.....	.....
93	After 2d or 3d year C after M	3–5	75+	.....	32	19	5	3	.....	.....
94	Do	2–3	60–74	.....	40	24	5	3	.....	.....
95	Do	1–2	40–59	.....	58	35	5–15	3	.....	.....
96	Do	<1	25–39	.....	75	45	6–15	3	.....	.....
97	After 1 or more C after SG	.....	.....	.....	(5)	(5)	(5)	(5)	.....	.....

See footnotes at end of table.

Table A-1 (Continued)

Ratio of Soil Loss From Cropland to Corresponding Loss From Continuous Fallow.

Line No.	Cover, sequence, and management [1]	Productivity [2]		Soil-loss ratio for crop-stage period [3]						
		Hay yield	Corn yield	F	1	2	3 [4]	4L	4R	4L+WC
	SMALL GRAIN IN ROTATION—continued									
	With meadow seeding—Continued									
	In disked row-crop residue—Con.	*Tons*	*Bu.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*	*Pct.*
98	After 1st-year cot after M	2–3	------	------	35	25	5–15	3	------	------
99	After 2d-year cot after M	2–3	------	------	50	35	5–15	3	------	------
100	In cot middles after sw cl or lesp	------	------	------	30	22	10–15	3	------	------
	On disked row-crop stubble, RdR—									
101	After 1 year C after M	2–3	60+	------	50	40	5–15	3	------	------
102	Do	1–2	40–59	------	80	45	7–15	3	------	------
103	After 2 years C after M	2–3	60+	------	80	50	6–15	3	------	------
104	After C, 3d year after M	------	------	------	92	55	7–15	3	------	------
	On plowed seedbed, RdL—									
105	After 1 year C or SG after M	3–5	75+	25	45	30	5	3	------	------
106	Do	2–5	60–74	35	51	34	5	3	------	------
107	Do	1–2	40–59	42	60	40	7	4	------	------
108	After 2 years C or SG after M	3–5	75+	36	60	40	5	3	------	------
109	Do	2–3	40–59	55	70	45	7	4	------	------
	On plowed seedbed, RdR—									
110	After 1 year C or SG after M	3–5	75+	55	60	40	5	3	------	------
111	Do	2–3	60–74	60	65	42	6	3	------	------
112	Do	1–2	40–59	65	70	45	7	4	------	------
113	After 2 years C after M	2–3	60–74	65	70	45	7	4	------	------
	Without meadow seeding:									
114	Sequences and yields of lines 89–90	------	------	(5)	(5)	(5)	8	8	16	------
115	Sequences and yields of lines 91–99, 101, 105, 106, 108–110	------	------	(5)	(5)	(5)	10	10	20	------
116	Sequences and yields of lines 102–104, 107, 111–113	------	------	(5)	(5)	(5)	12	12	25	------
	DOUBLE-CROPPED ROTATIONS									
117	Wheat (grain) and lesp (hay)	------	------	------	25	25	5	5	------	------
118	Wheat and lesp, both grazed	------	------	------	25	25	12	6	------	------
119	Spg oats (hay) and lesp (hay) [6]	------	------	------	50	18	5	5	------	------
	ESTABLISHED MEADOWS [7]									
120	Grass and legume mix	3+	------	------	------	------	------	0.4	------	------
121	Do	2	------	------	------	------	------	.6	------	------
122	Do	1	------	------	------	------	------	1.0	------	------
123	Alfalfa	2.5+	------	------	------	------	------	2.0	------	------
124	Lespedeza	------	------	------	------	------	------	2.0	------	------
125	Red clover	------	------	------	------	------	------	1.5	------	------
126	Sericea, 2d year	------	------	------	------	------	------	2.0	------	------
127	Sericea, after 2d year	------	------	------	------	------	------	1.0	------	------
128	Sweetclover	------	------	------	------	------	------	2.5	------	------

[1] Symbols: C, corn; conv till, conventional tillage; cot, cotton; crot, crotalaria; gr & lg, grass and legume; lesp, lespedeza; M, grass and legume meadow, at least 1 full year; min till, minimum tillage; O, oats; prec, preceding; RdL, residue of prior crop left; RdR, residue of prior crop removed; spg, spring; SG, small grain; sw cl, sweetclover; TP, turn plow; V, vetch; WC, grass or grass-and-legume winter cover seeded early.

[2] For cotton, HP—high crop productivity; MP—moderate crop productivity.

Small-grain cover is assumed commensurate with the indicated productivity level of corn or cotton.

[3] Crop-stage periods are as defined on p. 10. Period 4 ratios are taken from column 4L when crop residues remain on field but without winter cover seeding; from column 4R when corn stover, straw, and similar residues are removed; and from column 4L+WC when early-seeded grass and legume winter cover is established in addition to leaving crop residues.

[4] Where two period 3 values appear, the first is for high-yielding grain and the second is for grain yielding less than 30 bushels of oats or 15 bushels of wheat per acre.

[5] Use data from lines 36 to 42, selecting line on basis of productivity level.

[6] Use data from lines 93 to 96, selecting line on basis of productivity level.

[7] Use data from lines 89 to 113.

[8] Ratio for winter months is 12 percent.

[9] Ratios shown are the yearly averages.

TABLE A-1, SUPPLEMENT

Additional information for using Table A-1.

Cover, sequence, and management	Soil loss ratios
Corn:	
After fall turnplowing in northern half of United States.	To compensate for effect of freezing and thawing and for high early-spring soil moisture content, add 7 to each period-F and period-1 value in lines 1 to 7, 13 to 18, 33 to 39, and 47 to 50 of table 2.
After 2 or more full years of meadow.	Table 2 assumed at least 1 full year of established grass-and-legume meadow. Additional credit for 2-year meadows may be considered if meadows are high yielding and are not permitted to deteriorate: Reduce by 10 percent the values for periods F, 1, 2, 3 and 4L in lines 13, 14, 15, 33, 34, 66, 67, 78, and 79.
With small-grain seeding for winter cover.	Small grain turned early in spring does not significantly reduce soil loss from following corn crop. Select lines from table 2 that do not specify WC seeding and substitute small-grain periods 1 and 2 for corn period 4L or 4R.
Grain sorghum	Same as ratios for corn in similar rotations where canopy cover and quantities of residue are comparable. Under irrigation, the values for grain sorghum may equal those for high-yielding corn.
Meadow.	
New	When seeded without a nurse crop, use values listed for spring-seeded small grain. The lengths of periods 1 and 2 should be adjusted if necessary so that cover in each period will be comparable to corresponding grain periods.
Established	Apply values of lines 120 to 128.
Peanuts	For comparable crop sequence, values in lines 5, 6, 16, 17, 27, 28, 32, 35, 38, 45, 49, 52, and 56 are recommended.
Potatoes:	
After potatoes or truck crop	In similar crop sequence, select values from periods F, 1, 2, and 4 of lines 18, 29, 39, 46. For period 3, use values from line 16, 17, 27, 28, 38, or 45.
After grass-and-legume hay yielding more than 2 tons per acre.	Select values for periods F to 3 from lines 1, 3, 5, 7 on basis of hay yield; period 4 from line 7.
After corn or small grain	Select values for periods F to 3 on basis of preceding crop and yield; period 4 from line 7.
Soybeans:	
After grass-and-legume hay or after corn.	Use values for comparable corn rotations: Periods F to 3 from lines 3 to 7, 15 to 18, 26 to 29, 37 to 39, 48, 49; period 4 from lines 7, 18, 29, 39.
After soybeans	Select lines representing corn residues equivalent to soybean residues: Lines 15 to 18, 37 to 39.
Late-planted	Select values from comparable crop sequences in lines 5, 6, 16, 17, 27, 28, 32, 35, 38, 45, 49.
Sweet corn	Do.
Truck crops	For low-residue truck crops after grass-and-legume hay or high-residue crops, select periods F and 1 values from comparable corn rotations; periods 2, 3, and 4 values from lines 7, 18, 29, 39, 48. For second or more year of truck crop, use values from line 39 or 48 for all periods.

TABLE A-2 - SOIL LOSS RATIOS FROM CONSERVATION TILLAGE TO CORRESPONDING LOSS FROM CONTINUOUS FALLOW 1/

Line No.	Percent Surface Cover 2/	No-Till Corn Planted in Approximate Pounds of Row Crop Residues On Surface	Crop Stage 1 %	2 %	3 %	4L %	4R %
150		500-750 lbs.	75	70	39	50	70
151		751-1000	63	55	30	50	70
152		1001-1500	50	40	25	30	65
153	40	1501-2000	40	32	18	25	60
154	50 3/	2001-2800	19	16	13	18	55
155	60	2801-3500	15	13	11	11	50
156	70	3501-4200	11	10	9	9	50
157	80	4201-5200	7	7	7	7	45
158	90	5201-6000	4	4	4	4	45
159	96	6500+	2	2	2	2	40
		No-Till Corn Planted in Indicated Amount of Small Grain or Rye Grass Rd OS					
161		800-1000 lbs.	25	24	14	20	65
162	50	1001-1200	19	16	13	18	60
163	60	1201-1500	15	13	11	11	55
164	70	1501-2000	11	10	9	9	55
165	80	2001-3000	7	7	7	7	50
166	90	3001-4000	3	3	3	3	45
167	96	4001+	2	2	2	2	45
		No-Till Corn Planted in Sod. Pounds on Surface After Mowing or Grazing.					
170	85	1000-2000 lbs.	6	6	4	3	
171	90	2001-3000	2	2	2	2	
172	96	3001+	1	1	1	1	
		Rotary Strip-Till 8-10" Seed Row - With % Rd Cover On Surface Shown					
175	40		30	24	19		
176	50		24	20	17		
177	60		19	17	14		
		Land Disked or Chiseled Then No-Till Plant With % Rd On Surface Shown					
180	40		40	32	18	25	
181	50		21	18	14	20	
182	60		17	15	12	15	
183	70		12	11	10	12	
184	80		9	8	8	8	
		Small Grain After Row Crop With Indicated Amount of Residue on Surface After Disking or Chiseling 4/				4RdL with Meadow	4RdR w/o Meadow
185		500-750 lbs. (Ref. Line 103)	80	50	8	5	20
186		751-1000	48	30	7	4	20
187		1001-1500	25	16	6	3	20
188		1501-2000	13	8	3	2	16
189		2001+	8	5	2	2	16

1/ Enter table by going to the line that reflects tillage, type and amount of residue on the site at planting or seeding. Based on 2-4" tilled seed row, except rotary strip-tilled.

2/ Enough samples should be taken of residue at harvest and planting time, air dried and weighed to determine relationship of percent cover to weight of residue for crops used in no-till and conservation tillage.

3/ A minimum of one ton of shredded corn residue is needed for effective land cover.

4/ Rule of thumb - One disking leaves no more than 50 percent of residue on the surface.

TABLE A-3

SOIL LOSS RATIOS FOR TOBACCO DERIVED SUBJECTIVELY
FROM CORN AND COTTON LINES IN TABLE A-1

Line	Crop, Sequence, Cover, Management	Productivity	Crop Stage F	1	2	3	4L	4R
	Tobacco - Continuous or 3 years							
200	Tob RdR w/o WC	HP	65	73	66	48		65
201	Same	MP	70	80	75	50		70
202	Tob RdR with WC	HP	60	70	65	46		60
203	Same	MP	65	75	70	50		65
204	Tob RdL w/o WC	HP	45	70	65	43	45	
205	Same	MP	48	75	70	52	55	
206	Tob RdL with WC (SG)	HP	40	65	62	42	45	
206b	Tob RdL with WC (Rye grass)	HP	35	60	60	40	45	
207	Tob RdL with WC (SG)	MP	45	62	67	47	50	
208	Tob RdR with WC + 8 tons manure	HP	50	60	60	45		50
	Tobacco - 2nd row crop in sequence							
209	Tob RdL after Milo RdL	HP	50	60	52	32	45	65
210	Same	MP	55	65	54	40	46	70
211		*						
212	Tob RdL after Tob RdL	HP	42	70	70	48	42	
213	Same	MP	45	80	80	52	48	
214		*						
215	Tob RdL after C RdL	HP	32	51	51	35	40	
216	Same	MP	35	54	56	38	45	
217	Tob RdL after C RdR	MP	60	65	63	40	48	
218	Tob RdL after Soybean RdL	HP	46	62	54	35	45	
219	Same	MP	55	66	57	40	50	
220	Tob RdR after Soybean RdR	HP	60	65	55	40	45	65
221	Same	MP	65	72	60	30	50	70
222	Tob RdR after Soybean RdL	HP	55	60	52	40	45	65
223	Tob after Small Grain RdL	HP	40	65	68	48	48	55
224	Same	MP	50	70	70	48	50	60
225	Tob, 2nd year, after SG & 1 year Fescue	HP	40	60	64	46	46	
226	Same	MP	45	65	68	48	48	
227	Tob, 2nd year, after 2 years Fescue, 3 tons	HP	30	54	56	38	40	
228	Same	MP	34	58	62	44	45	
229		*						
230		*						
231		*						
232		*						
	Tobacco - 1st row crop							
233	After 1 year Fescue	HP	20	34	45	35	35	40
234	Same	MP	23	40	54	45	42	45
235	After 2 years Fescue	HP	10	30	35	25	28	32
236	Same	MP	15	34	40	30	33	36
237	After SG RdL	HP	34	58	60	44	46	50
238	Same	MP	40	64	65	46	48	50
239		*						
240		*						

*Blank lines for additional values if needed

TABLE A-4

TRUCK CROPS - CONVENTIONAL TILLAGE - SOIL LOSS RATIOS USED

Line	Crop Sequence, Cover, Management	Productivity	Crop Stages F	1	2	3	4L	4R
	Bell Pepper - After							
250	Meadow, 2-3 Tons hay yield	HP	30	50	55	40	45	
251	Row Crop, 2-3 Tons Rd turned	HP	40	58	60	45	48	
252	Row Crop, 1-2 Tons Rd turned	MP	60	65	70	48	55	
253		*						
	Cabbage - After							
254	Meadow, 3+ Tons hay yield	HP	10	30	35	30		40
255	Row Crop, 2-3 Tons Rd turned	HP	42	60	55	45		50
256	Small Grain-WC, 1-2 Tons Rd turned	MP	60	70	60	50		60
257	Row Crop or Cabbage, <1 Ton Rd turned	MP	70	80	70	52		60
258		*						
	Melons-Cucumbers - After							
259	Row Crop, 2-3 Tons Rd turned	HP	42	55	48	25	42	
260	Row Crop, 1 Ton Rd turned	MP	55	65	60	30	44	
261		*						
	Sweet Potatoes - After							
262	2 Tons Meadow yield	HP	30	50	45	20	45	
263	Row Crop, 2 Tons Rd turned	HP	42	57	50	22	50	
264	Row Crop, 1 Ton Rd turned	MP	55	65	60	25	50	
265		*						
	Irish Potatoes - After							
266	2-3 Tons of Rd turned	HP	15	30	28	20	30	
267	2 Tons Rd turned	HP	20	35	32	25	35	
268	<2 Tons Rd turned	HP	30	40	40	25	35	
269		*						
	Tomatoes - After							
270	Meadow, 2-3 Tons hay yield	HP	15	40	45	40	42	
271	Row Crop or SG, 2+ Tons Rd turned	HP	35	58	65	50	55	
272	Row Crop, <1 Ton Rd turned	MP	45	65	70	55	60	
273		*						

* Blank lines for additional values if needed

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