Predicting Soil Losses in Tennessee under Different Management Systems

University of Tennessee Agricultural Experiment Station

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PREDICTING SOIL LOSSES
IN TENNESSEE
UNDER DIFFERENT
MANAGEMENT SYSTEMS

GUIDE FOR SELECTING SYSTEMS AND PRACTICES
FOR SOIL AND WATER CONSERVATION

C. H. Jent, Jr.  F. F. Bell  M. E. Springer

The University of Tennessee
Agricultural Experiment Station
John A. Ewing, Director
Knoxville

in cooperation with the
U. S. Department of Agriculture
Soil Conservation Service
The soil-loss equation serves as a guide to predict soil losses under widely different cropping systems, conservation practices, and climatic conditions for the many soils in Tennessee. Using the data, one can select combinations of crops and conservation practices to keep predicted soil losses within acceptable limits for any soil. This equation is a refinement of an earlier equation developed and used in the North Central and Northeastern states.

Many people have contributed in the development of the soil-loss predicting equation. Approximately 10,000 plot-years of runoff, soil loss, and associated precipitation data from 47 scattered Federal-State research projects in 21 states have been assembled by the Soil and Water Conservation Research Division, Agricultural Research Service, U. S. Department of Agriculture. These data are the foundation of the equation.

The authors are indebted to Walter H. Wischmeier and D. D. Smith of the Agriculture Research Service for their help and guidance. The joint U.T.-SCS Committee adapted much of the research data to Tennessee conditions and provided many of the explanations contained in this bulletin. Committee members were:

F. F. Bell and M. E. Springer, University of Tennessee.


Availability of additional research data and use of the equation will likely bring about modifications of factor values in the future.
Figure 1. Actual photograph of a plastic calculator which operates like a slide rule to speed up calculations.
How to operate Calculator for planning conservation systems and predicting soil losses from rainfall erosion.

A Universal Soil-Loss Predicting Equation:

\[ A = RKSCP \]

- \( A \): Average annual soil loss in tons per acre.
- \( R \): Rainfall erosion index.
- \( K \): Soil erodibility factor.
- \( L \): Length of slope.
- \( S \): Percent of slope.
- \( C \): Cropping-management factor.
- \( P \): Conservation practice factor.
- \( T \): Average annual soil loss tolerance in tons per acre.

Procedure (1):

For determining alternative cropping systems and conservation practices other than terraces.
1. Determine \( L, S, P, T/K, \) and \( R \) for the site.
2. Set \( \% \) slope for the practice (SP slide) on the length of slope (L column).
3. Set \( T/K \) for the soil at arrow on SP slide.
4. Read the \( C \) value opposite \( R \) for the site. All cropping-management systems with \( C \) values less than this reading are alternative cropping systems which keep soil loss within tolerance for the practice.

Procedure (2):

For determining alternative cropping system combinations with properly constructed and maintained terrace systems.
1. Determine \( L, S, T/K, \) and \( R \) for the site. For length of slope, use the horizontal spacing between terraces for the site.
2. Using the Contour column, set \( \% \) slope opposite \( L \), the horizontal spacing between terraces.
3. Determine \( C \) for site, using steps 3 and 4 of Procedure (1).

Procedure (3):

For determining predicted average annual soil loss in tons per acre, \( A \).
1. Determine \( C \) for site as in Procedure (1).
2. Set the number on the A slide which corresponds to \( T \) for the soil at the \( C \) value for the site. Then the estimated average annual soil loss for any \( C \) value will be next to that \( C \) value. (Assuming all other conditions except \( C \) remain constant.)

\( T/K, T, C \) factors, and terrace intervals for local area are to be placed on covering slide.

Designed by: M. E. Springer, University of Tennessee;
D. K. Stumpf, C. H. Prinig, and F. R. Parris,
Soil Conservation Service, USDA, Tennessee, May 1961, for field application of a Universal Soil-Loss Predicting Equation developed by W. H. Wochender, Agricultural Research Service, USDA.
CONTENTS

Foreword .................................................. 3
Introduction ............................................... 8
The Equation .............................................. 9
  Average Annual Soil Loss (A) .......................... 9
  Rainfall Factor (R) ...................................... 9
  Soil-Erodibility Factor (K) ............................ 12
  Length and Steepness of Slope Factors (LS) ........... 13
  Cropping-Management Factor (C) ....................... 13

Table 1. Assumed Mean Dates for Determining Crop
  Stage Periods in Calculations of “C”
  Values—Tennessee ..................................... 15

Table 2. Ready-Reference Table. Ratio of Soil
  Loss From Crops to Corresponding Loss
  from Continuous Fallow ............................... 16

Table 3. Work Sheet for Calculating “C” Factor
  Value in Soil-Loss Predicting Equation ............... 22
  Conservation Practice Factor (P) ...................... 25
  Soil Loss Tolerance Values (T) ....................... 27

Using the Equation ...................................... 28

Appendix ................................................. 33

Table 4. Rainfall-Erosion Index Factor “R”
  Values by Counties—Tennessee ....................... 34

Table 5. Soil-Erodibility Factor (K) Values, Soil Loss
  Tolerance (T) Values, and T K Values by Soils and
  Erosion Class—Tennessee ............................. 35

Table 6a. Cropping-Management Factors (Average
  Annual C Factor Values) for Cropping Systems in
  Eastern Tennessee .................................. 38

Table 6b. Cropping-Management Factors (Average
  Annual C Factor Values) for Cropping Systems in
  Western Tennessee .................................... 42

Table 7. Conservation Practice Factor (P)
  Values—Tennessee .................................... 47

Table 8. Spacing of Terraces ......................... 47

Table 9. Cropping-Management Values for
  Selected R, T K, and Slopes ......................... 48

References Cited ........................................ 75
**LIST OF FIGURES**

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1.</td>
<td>Calculator for planning conservation systems</td>
<td>4-5</td>
</tr>
<tr>
<td>Figure 2.</td>
<td>Values of the rainfall factor in Tennessee</td>
<td>11</td>
</tr>
<tr>
<td>Figure 3.</td>
<td>Cumulative monthly distribution of erosion potential in eastern and western Tennessee</td>
<td>19</td>
</tr>
<tr>
<td>Figure 4.</td>
<td>Monthly distribution of rainfall erosion index for eastern Tennessee (Cumberland Mountains and all eastward)</td>
<td>20</td>
</tr>
<tr>
<td>Figure 5.</td>
<td>Monthly distribution of rainfall erosion index for western Tennessee (all of Tennessee west of Cumberland Mountains)</td>
<td>21</td>
</tr>
<tr>
<td>Figure 6.</td>
<td>Chart for adjusting plot soil loss to length and degree of slope</td>
<td>37</td>
</tr>
</tbody>
</table>
INTRODUCTION

Formerly soil conservationists and other professional agricultural workers were able to indicate expected soil losses from sloping cropland only in relative terms. Today quantitative soil-loss estimates based on experimental data can be made for most land conditions in Tennessee. Furthermore, predictions as to probable soil losses are possible for a given field under alternative systems of land use and cropping-management, with or without special conservation practices. These advances were made possible by developing an empirical equation that includes several interrelated factors that contribute to soil loss by rainfall-induced erosion.

Factors influencing soil loss have been studied for many years. Analysis of accumulated data and refinement of early methods of predicting soil losses resulted in the introduction in 1961 of a "universal" equation for estimating rainfall-erosion losses \((2, 3, 9, 11)\). With appropriate adjustments for local conditions, it applies to all areas where soil loss is significant because of rainfall.

Tennessee has the distinction of being the first state where the new universal soil-loss predicting equation was adapted to local conditions and put to use by operational soil conservationists \((11)\).

More than 10,000 plot-years of runoff, soil-loss, and associated precipitation and related data from 37 scattered Federal-State...
research projects in 21 states were assembled and analyzed by the Soil and Water Conservation Research Division, Agricultural Research Service (3, 11). These data are the foundation of the present equation.

Quantitative estimates using the soil-loss predicting procedure provide a sound guide to farmers in making shifts in land use and in selecting combinations of crops and conservation practices that will keep estimated soil losses within acceptable limits for any soil. Such estimates can give the farmer and the professional worker who assists him more confidence in their recommendation (2).

THE EQUATION

The soil-loss predicting equation considers the effect of all the major factors known to influence rainfall erosion. The equation is \( A = RKLSCP \). Predicted average annual soil loss in tons per acre, \( A \), is the product of the factors “R” (rainfall), “K” (soil erodibility), “LS” (length and steepness of slope), “C” (cropping-management), and “P” (supporting conservation practices) (1, 3, 4, 6, 9, 11).

How each factor influences erosion and how numerical values were determined for them is explained in sections that follow. In addition, the soil loss tolerance (T) value is discussed.

The last section of this bulletin, entitled “Using the Equation,” gives examples of how to apply the equation to field conditions. Tables and figures giving values applicable to Tennessee conditions are included in the Appendix.

Average Annual Soil Loss (A)

The equation is used to calculate \( A \) which is the average annual soil loss in tons per acre that will occur over a period of years. Such predictions are valid only when applied over a period of time and will not necessarily be true for any 1 year because of year to year fluctuations. Thus, predicted soil losses should be considered only as a guide when used in planning conservation systems for sloping cropland.

Rainfall Factor (R)

The R factor in the soil-loss equation is the erosion potential of rainfall in a particular locality, that is, the ability of rain to erode
soil from farm fields. Soil-loss measurements show that the erosion potential is not necessarily determined by the total amount of rainfall or any specific intensity-frequency \((5, 10)\). The best indicator of rainfall erosion potential now known is the rainfall-erosion index \((7, 9)\).

The rainfall-erosion index is a function of the characteristics of each individual rainstorm. Analysis of extensive soil-loss data and associated rainfall records revealed that when factors other than rainfall are held constant, storm soil losses from cultivated fallow fields are directly proportional to the product value of two rainstorm characteristics—total kinetic energy of the storm times its maximum 30-minute intensity. Among all the sets of fallow-plot data available for analysis, the energy times maximum 30-minute intensity values (E I values) explained a greater percentage of total soil loss variation than did the combination of any 3 of 41 other rainstorm characteristics and interaction terms investigated \((5, 7, 9, 10)\).

The rainfall-erosion index for a given time period is the sum of the E I values computed for the individual storms occurring during the period. The average annual value of the erosion index in any specific locality is the rainfall factor \((R)\) for the soil-loss predicting equation in that locality \((7, 9)\).

Figure 2 is the iso-erodent map for Tennessee. Iso-erodents are lines joining areas with equal erosion index values (which implies equally erosive average annual rainfall). Values of the rainfall factor in those counties not crossed by one of the iso-erodents may be approximated by linear interpolation. If all other conditions were equal, identical plots in various sections of the state would be expected to have average soil losses in direct proportion to the index values shown on the map \((4, 9, 10)\). Differences in index values do not necessarily conform with differences in total rainfall amount.

The iso-erodent map was developed by plotting the computed product, total storm energy times maximum 30-minute intensity, for those rains above an established minimum (1/2-inch) from records of all the first-order weather stations in or near Tennessee. U. S. Weather Bureau records for a continuous 22-year period were used. Determinations between points represented by major weather stations were on the basis of rainfall amount and intensity probability data published by the Weather Bureau.

Rainfall factor values for all counties in the state are listed in Table 4 of the Appendix.
Figure 2. Values of the rainfall factor in Tennessee.
As pointed out earlier, the available data show that for tilled continuous fallow, annual rainfall-erosion index values are closely correlated with annual soil loss amounts. However, rate of soil loss per index unit varies with soil and slope characteristics. When cropping is introduced, the correlation still holds, but the rate of loss is influenced by the cropping and management (7). This is more fully discussed in the section dealing with the cropping-management (C) factor.

Soil-Erodibility Factor (K)

Different types of soil erode at different rates even when other factors affecting erosion are constant. Some of the important soil physical properties that influence erodibility are size and stability of structure, soil texture, percentage of coarse fragments—especially on soil surface—organic matter, infiltration, permeability, type of clay mineral, and depth of soil material (1, 3, 4, 6).

The soil-erodibility factor (K) in the erosion equation reflects the rates at which different kinds of soils erode. “K” values are expressed as soil loss in tons per acre per unit of rainfall-erosion index (R) from clean-tilled continuous fallow on a 9%/r slope, 72.6 feet long (4, 6, 11). This means that a cultivated, continuous-fallow, Memphis silt loam which has a “K” value of 0.37 located on the “standard” slope in Shelby County where the rainfall-erosion index (R) is 300 would erode at the rate of 111 tons per acre per year (0.37 × 300 = 111).

The “basic” slope of 9%/r, 72.6 feet long was selected, since these were the specifications of many plots used in early runoff and erosion experiments. The next section on length and steepness of slope (S and L factors) will explain how other slope conditions are related to the “basic” slope.

Continuous fallow is defined as any land that has been tilled and kept clear of vegetation for a period of at least 2 years or until prior crop residues have decomposed.

The influence of soil type on rate of soil loss has been determined for all soils for which fallow-plot research data were available. All soils of Tennessee have been assigned soil erodibility values. Available soil erodibility data were used as a base with properties of individual Tennessee soils related to those soils for which data were available as well as to each other.

Table 5 in the Appendix lists soils occurring in Tennessee with assigned soil erodibility (K) factors. Also, this table lists the as-
signed soil-loss tolerance (T) amounts along with computed T/K values for Tennessee soils.

Length and Steepness of Slope Factors (LS)

Soil losses are greater on the longer and steeper slopes. But the rate of erosion does not increase uniformly with increasing slope length or gradient. Soil losses per unit area have been found to increase exponentially with increases in slope length and steepness. The exponent in common use for increasing length is 0.50. The exponent presently used for increasing steepness is 1.40 (6, 12).

Solution of the soil-loss equation is made easier by combining the equations of the factors for length and steepness of slope and expressing them as a ratio of soil loss for any slope length and steepness to the “standard” 9%, 72.6-foot long slope. With the value for the “standard” set at 1 or any other value, charts or tables may be prepared for easy selection of SL ratios (4, 6). From Figure 6 in the Appendix, read directly for the desired slope conditions.

When using the soil-loss predicting equation to estimate soil loss, the length of slope is the distance from the point where overland flow begins to either of the following, whichever is limiting for the major part of the area under consideration: 1) the point where run-off water becomes concentrated in a watercourse that may be part of a drainage network or a constructed channel such as a terrace or diversion, or 2) the point where the slope decreases to the extent that deposition begins (4).

Much of the research data suggests that significant interactions exist between slope length and soil properties that affect run-off, detachment, and transportability. It is known that lower values of the slope length exponent are associated with soils on which run-off amounts decrease with increasing slope length. Practices such as contouring interact with the factor for steepness of slope. Research aimed at further defining these interaction effects is presently underway (11).

Cropping-Management Factor (C)

The cropping-management factor (C) is the expected ratio of soil loss from land cropped under specified conditions to corresponding soil loss from continuous fallow under identical rainfall, soil, and slope conditions.
The cropping-management factor is the most complex of all the factors in the equation. When a field is cropped or management practices are used, the amount of erosion may be greatly reduced. How much depends on many factors and their interaction effects on each other. For example, the effects of a meadow crop turned under before cotton or corn depends upon the kind and quality of the meadow. The amount of cover crop, root growth, quantity of crop residue in plow layer, water used by growing crops, etc., all influence the amount of soil that will erode from a field. These conditions vary greatly within the growing season of a crop or within the rotation cycle. As indicated in the discussion of rainfall, the distribution of erosive rainstorms within the year differ from one location to another (8).

The erosion control effectiveness of each crop and practice was approximated on the basis of five crop-stage periods. These periods were established so that the effectiveness of each stage of crop development could be related to the amount of the annual rainfall-erosion index occurring during that period at a specific location. Crop-stage periods were selected for relative uniformity of cover and residual effects within each period. They are as follows:

Period F: Rough fallow. Turn plowing to seeding date.
Period 1: Seedbed period. Seeding to 1 month after.
Period 2: Establishment period. From 1 to 2 months after planting corn or spring grain. For late-seeded winter grain, 1 month after seeding to April 1.
Period 3: Growing crop. From period 2 to crop harvest.
Period 4: Stubble or residue period. Harvest to turnplow or new seedbed. (When meadow is established in small grain, grain-period 4 ends 2 months after grain harvest. Thereafter it is classified as established meadow.)

Corn yields were found to be a good indicator of the combined effects of quality of meadow turned under, quantity of prior crop residue, density of canopy, rate of water use by plants, quantity of root growth, and soil fertility. Differences due to crop sequences, tillage, and residue management were evaluated separately. Differences in antecedent soil moisture and degree of surface smoothing and sealing by prior rainfall were considered to be randomly distributed in time during a crop-stage period.

Ratios of soil losses from cropped plots to corresponding losses from continuous fallow were computed from the assembled re-
search data. These ratios were computed by each of the five crop-stage periods and for each crop under various combinations of crop sequence and yield level. The results were tabulated and published in ready-reference form as shown in Table 2 (8).

Table 1 contains the assumed mean dates for crop-stage periods used in calculating cropping-management values for Tennessee.

Table 1. Assumed mean dates for determining crop stage periods in calculations of “C” values—Tennessee

<table>
<thead>
<tr>
<th>Crop Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORN: Grain</td>
<td>Turn-plow 4-10, plant 5-10, harvest 10-20</td>
</tr>
<tr>
<td></td>
<td>Silage—Turn-plow 5-1, plant 5-20, harvest 9-1</td>
</tr>
<tr>
<td></td>
<td>Late seeded winter cover (small grain-legume or grass-legume) after corn</td>
</tr>
<tr>
<td></td>
<td>for grain residue left corn harvested 10-15, disk and plant 10-15</td>
</tr>
<tr>
<td></td>
<td>Early seeded winter cover (small grain-legume or grass-legume) after</td>
</tr>
<tr>
<td></td>
<td>silage—disk and plant 9-10</td>
</tr>
<tr>
<td>COTTON:</td>
<td>Turn-plow, plant 5-1, harvest 11-1</td>
</tr>
<tr>
<td></td>
<td>Winter cover (small grain-legume or grass-legume) after cotton-disk and</td>
</tr>
<tr>
<td></td>
<td>plant 11-1</td>
</tr>
<tr>
<td></td>
<td>Winter cover early seeded in cotton middles, plant 9-15</td>
</tr>
<tr>
<td>TOBACCO:</td>
<td>Turn-plow 4-10, plant 5-15, harvest 9-1</td>
</tr>
<tr>
<td></td>
<td>Winter cover (small grain-legume or grass-legume) after tobacco-disk and</td>
</tr>
<tr>
<td></td>
<td>plant 9-10</td>
</tr>
<tr>
<td>SOYBEANS:</td>
<td>Turn-plow 4-20, plant 5-20, harvest 10-10</td>
</tr>
<tr>
<td></td>
<td>Winter cover (small grain-legume or grass-legume) after soybeans for beans-</td>
</tr>
<tr>
<td></td>
<td>disk and plant 10-20</td>
</tr>
<tr>
<td>SMALL GRAIN:</td>
<td>Early seeded—turn-plow or Disk 9-1, Plant 9-15 except after corn</td>
</tr>
<tr>
<td></td>
<td>for silage plant 9-10, harvest 6-10</td>
</tr>
<tr>
<td></td>
<td>Late seeded—turn-plow or disk 10-15, plant 10-15, except after soybeans</td>
</tr>
<tr>
<td></td>
<td>disk or turn-plow and plant 10-20, harvest 6-10</td>
</tr>
<tr>
<td></td>
<td>Late seeded, continuous small grain—turn-plow or disk 10-1, plant 10-15</td>
</tr>
<tr>
<td></td>
<td>harvest 6-10</td>
</tr>
<tr>
<td>SUDANGRASS or MILLET:</td>
<td>Turn-plow 5-20, plant 6-1, harvest 9-1</td>
</tr>
<tr>
<td></td>
<td>Early seeded winter cover, disk or turn-plow and plant 9-10</td>
</tr>
<tr>
<td>MEADOW:</td>
<td>Annual lespedeza—plant 3-15, harvest 9-1</td>
</tr>
<tr>
<td></td>
<td>Sericea lespedeza—disk or turn-plow 3-1, plant 3-15</td>
</tr>
<tr>
<td></td>
<td>Grass-legume:</td>
</tr>
<tr>
<td></td>
<td>Spring—Disk or turn-plow 3-1, plant 3-15</td>
</tr>
<tr>
<td></td>
<td>Fall—After small grain, harvest, disk or turn-plow 8-1, plant 9-1</td>
</tr>
<tr>
<td></td>
<td>Fall—After corn for silage, disk or turn-plow 9-1, plant 9-10</td>
</tr>
<tr>
<td></td>
<td>Fall—After corn for grain rd.l., late seeded, disk or turn-plow and plant</td>
</tr>
<tr>
<td></td>
<td>10-15</td>
</tr>
<tr>
<td></td>
<td>Fall—After tobacco, disk or turn-plow and plant 9-10</td>
</tr>
</tbody>
</table>
Table 2. Ready-reference table. Ratio of soil loss from crops to corresponding loss from continuous fallow.

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Crop yields</th>
<th>Crop-stage period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Meadow</td>
<td>Corn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tons</td>
<td>bu.</td>
</tr>
<tr>
<td>Continuous, RdR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>no treatment</td>
<td>25</td>
<td>85</td>
</tr>
<tr>
<td>2</td>
<td>no treatment</td>
<td>40</td>
<td>85</td>
</tr>
<tr>
<td>3</td>
<td>B T./A. manure under</td>
<td>40</td>
<td>64</td>
</tr>
<tr>
<td>4</td>
<td>fertilized, N-P-K</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>5</td>
<td>fertilized, N-P-K</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>Continuous, RdL</td>
<td></td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>6</td>
<td>w/o WC seeding</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>7</td>
<td>w/o WC seeding</td>
<td>75</td>
<td>56</td>
</tr>
<tr>
<td>8</td>
<td>with g &amp; l WC</td>
<td>25</td>
<td>42</td>
</tr>
<tr>
<td>9</td>
<td>with g &amp; l WC</td>
<td>45</td>
<td>33</td>
</tr>
<tr>
<td>10</td>
<td>with g &amp; l WC</td>
<td>75</td>
<td>22</td>
</tr>
<tr>
<td>1st-yr. corn after M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>after g &amp; l hay</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>13</td>
<td>after g &amp; l hay</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>14</td>
<td>after g &amp; l hay</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>15</td>
<td>after g &amp; l hay</td>
<td>1 to 2</td>
<td>60</td>
</tr>
<tr>
<td>16</td>
<td>after g &amp; l hay</td>
<td>2 to 3</td>
<td>70</td>
</tr>
<tr>
<td>17</td>
<td>after g &amp; l hay</td>
<td>&gt;3</td>
<td>75</td>
</tr>
<tr>
<td>18</td>
<td>after red cl hay</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>19</td>
<td>after ScI hay</td>
<td>2</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>after lespedeza hay</td>
<td>25</td>
<td>60</td>
</tr>
<tr>
<td>21</td>
<td>after lespedeza seed, all RdL</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>In meadow-less rotations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>after SG in SG &amp; ScI-C-C</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>23</td>
<td>after SG in SG &amp; ScI-C or cut</td>
<td>60</td>
<td>25</td>
</tr>
<tr>
<td>24</td>
<td>after SG w/o catch, after RC</td>
<td>40</td>
<td>55</td>
</tr>
<tr>
<td>2nd-yr. corn after g &amp; IM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>prior-corn RdR</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>26</td>
<td>prior-corn RdR</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>27</td>
<td>prior-corn RdR</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>28</td>
<td>prior-corn RdR</td>
<td>2 to 3</td>
<td>60</td>
</tr>
<tr>
<td>29</td>
<td>prior-corn RdL</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>30</td>
<td>prior-corn RdL</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>31</td>
<td>prior-corn RdL</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>32</td>
<td>prior-corn RdL</td>
<td>1 to 2</td>
<td>60</td>
</tr>
<tr>
<td>33</td>
<td>prior-corn RdL</td>
<td>2 to 3</td>
<td>70</td>
</tr>
<tr>
<td>34</td>
<td>prior-corn RdL</td>
<td>&gt;3</td>
<td>75</td>
</tr>
<tr>
<td>35</td>
<td>prior-corn RdL</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>36</td>
<td>prior-corn RdL + WC</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>37</td>
<td>prior-corn RdL</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>38</td>
<td>prior-corn RdL</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>39</td>
<td>prior-corn RdL</td>
<td>1 to 2</td>
<td>60</td>
</tr>
<tr>
<td>40</td>
<td>prior-corn RdL</td>
<td>2 to 3</td>
<td>70</td>
</tr>
<tr>
<td>41</td>
<td>prior-corn RdL</td>
<td>&gt;3</td>
<td>75</td>
</tr>
<tr>
<td>42</td>
<td>Corn after 2 or more M</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See footnotes at end of table.
Table 2. Ready-reference table. Ratio of soil loss from crops to corresponding loss from continuous fallow† (Continued)

### COTTON

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Meadow yield</th>
<th>Fertility level</th>
<th>Crop-stage period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tons</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td><strong>Continuous cot</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>w/o WC seeding</td>
<td>MF</td>
<td>45</td>
<td>80</td>
</tr>
<tr>
<td>44</td>
<td>w/o WC seeding</td>
<td>HF</td>
<td>42</td>
<td>70</td>
</tr>
<tr>
<td>45</td>
<td>with g &amp; 1 WC</td>
<td>MF</td>
<td>35</td>
<td>58</td>
</tr>
<tr>
<td>46</td>
<td>with g &amp; 1 WC</td>
<td>HF</td>
<td>32</td>
<td>51</td>
</tr>
</tbody>
</table>

**1st-yr, cot**

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Meadow yield</th>
<th>Fertility level</th>
<th>Crop-stage period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tons</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>47</td>
<td>after SG w/o M, after RC</td>
<td>MF</td>
<td>45</td>
<td>70</td>
</tr>
<tr>
<td>48</td>
<td>in cot-W-Scl hay</td>
<td>MF</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>49</td>
<td>in cot-O-lespedeza seed, RdL</td>
<td>MF</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>in cot-O-lespedeza seed, RdL</td>
<td>HF</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>51</td>
<td>after lespedeza hay</td>
<td>MF</td>
<td>62</td>
<td>76</td>
</tr>
<tr>
<td>52</td>
<td>in cot-VI-Corncroft</td>
<td>MF</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td>53</td>
<td>after g &amp; 1 meadow</td>
<td>&lt;1</td>
<td>23</td>
<td>40</td>
</tr>
<tr>
<td>54</td>
<td>after g &amp; 1 meadow</td>
<td>1 to 2</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>55</td>
<td>after g &amp; 1 meadow</td>
<td>1 to 2</td>
<td>15</td>
<td>34</td>
</tr>
<tr>
<td>56</td>
<td>after g &amp; 1 meadow</td>
<td>3</td>
<td>10</td>
<td>30</td>
</tr>
</tbody>
</table>

**2nd-yr, cot after g & 1 meadow**

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Meadow yield</th>
<th>Fertility level</th>
<th>Crop-stage period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Tons</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>57</td>
<td>RdL, no WC</td>
<td>MF</td>
<td>40</td>
<td>70</td>
</tr>
<tr>
<td>58</td>
<td>RdL, no WC</td>
<td>MF</td>
<td>35</td>
<td>65</td>
</tr>
<tr>
<td>59</td>
<td>RdL, no WC</td>
<td>MF</td>
<td>35</td>
<td>58</td>
</tr>
<tr>
<td>60</td>
<td>RdL, no WC</td>
<td>HF</td>
<td>30</td>
<td>55</td>
</tr>
<tr>
<td>61</td>
<td>RdL g &amp; 1 WC</td>
<td>&lt;1</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>62</td>
<td>RdL g &amp; 1 WC</td>
<td>1 to 2</td>
<td>23</td>
<td>47</td>
</tr>
<tr>
<td>63</td>
<td>RdL g &amp; 1 WC</td>
<td>1 to 2</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>64</td>
<td>RdL g &amp; 1 WC</td>
<td>3</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

### SOYBEANS

#### ESTABLISHED MEADOW

**All-year average**

<table>
<thead>
<tr>
<th>Grass &amp; legume mix (hay)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>yield less than 1 ton</td>
<td>1.0</td>
</tr>
<tr>
<td>yield, 1 to 2 tons</td>
<td>0.6</td>
</tr>
<tr>
<td>yield, 2½ or more tons</td>
<td>0.4</td>
</tr>
<tr>
<td>Red clover, 2 tons</td>
<td>1.5</td>
</tr>
<tr>
<td>Sweet clover, 2 tons</td>
<td>2.5</td>
</tr>
<tr>
<td>Lespedeza hay or grazed</td>
<td>2.0</td>
</tr>
<tr>
<td>Lespedeza for seed (RdL)</td>
<td>1.0</td>
</tr>
<tr>
<td>Continuous Sericea after 2nd year</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### NEW MEADOW

73 Seeded in grain. See lines 75-92.
74 Grass & legume seeded alone. Relate subjectively to small grain with meadow seeding.

See footnotes at end of table.
Table 2. Ready-reference table. Ratio of soil loss from crops to corresponding loss from continuous fallow† (Continued)

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Crop yields</th>
<th>Crop-stage period&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Meadow</td>
<td>Corn 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tons bu. %</td>
<td>%</td>
</tr>
<tr>
<td>In RC residues, straw left, adeq fert</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>after 1 yr. C after M</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>76</td>
<td>after 1 yr. C after M</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>77</td>
<td>after 1 yr. C after M</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>78</td>
<td>after 1 yr. C after M</td>
<td>1 to 2</td>
<td>60</td>
</tr>
<tr>
<td>79</td>
<td>after 1 yr. C after M</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>80</td>
<td>after 2 yrs. C after M</td>
<td>&lt;1</td>
<td>25</td>
</tr>
<tr>
<td>81</td>
<td>after 2 yrs. C after M</td>
<td>&lt;1</td>
<td>40</td>
</tr>
<tr>
<td>82</td>
<td>after 2 yrs. C after M</td>
<td>1 to 2</td>
<td>40</td>
</tr>
<tr>
<td>83</td>
<td>after 2 yrs. C after M</td>
<td>1 to 2</td>
<td>60</td>
</tr>
<tr>
<td>84</td>
<td>after 2 yrs. C after M</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>85</td>
<td>in C-O &amp; Scl rotation</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>86</td>
<td>after 1 yr. cot after M</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td>87</td>
<td>after 2 yrs. cot after M</td>
<td>50</td>
<td>35</td>
</tr>
<tr>
<td>88</td>
<td>after 2 yrs. cot after M</td>
<td>75</td>
<td>30</td>
</tr>
<tr>
<td>On disked C stubble, RdR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89</td>
<td>after 1 yr. C after M</td>
<td>1</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>after 1 yr. C after M</td>
<td>2 to 3</td>
<td>50</td>
</tr>
<tr>
<td>91</td>
<td>after 2 yrs. C after M</td>
<td>2 to 3</td>
<td>80</td>
</tr>
<tr>
<td>92</td>
<td>after 3 or more RC or SG</td>
<td>92</td>
<td>55</td>
</tr>
</tbody>
</table>

GRAIN w/o MEADOW SEEDING

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Crop yields</th>
<th>Crop-stage period&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>93</td>
<td>Straw left on</td>
<td>Select from</td>
<td>10</td>
</tr>
<tr>
<td>94</td>
<td>Straw removed</td>
<td>lines 75-92</td>
<td>10</td>
</tr>
</tbody>
</table>

GRAIN ON PLOWED SEEDBED

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Crop yields</th>
</tr>
</thead>
<tbody>
<tr>
<td>95</td>
<td>Prior-crop RdR</td>
<td>65</td>
</tr>
<tr>
<td>96</td>
<td>Moderate residues under</td>
<td>42</td>
</tr>
<tr>
<td>97</td>
<td>Heavy residues under</td>
<td>30</td>
</tr>
</tbody>
</table>

DOUBLE CROPPED

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Cover, sequence &amp; management</th>
<th>Crop yields</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>Wheat (grain) &amp; lespedeza (hay)</td>
<td>25</td>
</tr>
<tr>
<td>99</td>
<td>Wheat &amp; lespedeza both grazed</td>
<td>25</td>
</tr>
<tr>
<td>100</td>
<td>Spring oats (hay) &amp; lespedeza (hay)</td>
<td>50</td>
</tr>
</tbody>
</table>

<sup>1</sup> Definition of abbreviations: cl-clover; C-corn; cot-cotton; g & l-grass & legume; HF-heavy fertilization; M-meadow; Mf-moderate fertilization; O-ot; RC-row crop; RdR-crop residues left; RdR-crop residues removed; SG-small grain; WC-winter cover; w/o-without; W-wheat; Scl-sweetclover; V-vetch; Crut-crutaria.

<sup>2</sup> Please refer to sub-section entitled Cropping-Management Factor (C) for explanations and supplemental information.

† Reprinted with permission of the Soil Science Society of America.
These dates were established by a committee using recommended seeding dates and information contained in *Agricultural Trends in Tennessee 1866-1958*, published by the Tennessee Department of Agriculture.

To use the data in Table 2 to compute C factors, the expected distribution of the rainfall-erosion index within the year for the specified location must be known. In Tennessee the monthly distribution pattern of the rainfall-erosion index was found to be nearly identical for all locations in the eastern part of the state. Similarly, the distribution pattern for different locations in western Tennessee were nearly identical. But the distribution pattern in the eastern part of the state was quite different from that in the western part. The two curves are shown in Figure 3. The dividing

![Figure 3. Cumulative monthly distribution of erosion potential in eastern and western Tennessee.](image)
line between East and West Tennessee closely approximates the western escarpment of the Cumberland Plateau.

Figures 4 and 5 are rainfall-erosion index distribution curves for East and West Tennessee, respectively. In these curves, cumulative values of the index from April 1 are expressed as percentages of the annual index values and plotted against the days of the year. Conversions of the rainfall-erosion index values to percentages make possible the preparation of tables of cropping-management (C) values (4, 8).

![Graph](https://via.placeholder.com/150)

Figure 4. Monthly distribution of rainfall erosion index for eastern Tennessee (Cumberland Mountains and all eastward).

The method for computing cropping-management (C) factor values based on seeding and harvest dates, probable level of produc-
tion, and local rainfall pattern is illustrated by the following example:

Problem: Determine the cropping-management (C) factor value for a 3-year rotation of corn, oats-with-meadow-seeding, and meadow in eastern Tennessee. The fertility and management levels are such that average yield equivalent of 60 bushels of corn, 1 to 2 tons of hay, and at least 30 bushels of oats per acre can be expected. The corn is for silage. The oats are for grain and will be early-seeded and the straw will be removed. The meadow will be a grass-legume mixture of orchardgrass and red clover seeded in the fall with the oat crop. Cultivation will be up and down across the slope not on the contour.

The use of Table 3, a work sheet for calculating C factor values, is demonstrated.
Tabel 3. Work sheet for calculating "C" factor values in soil-loss predicting equation

Cropping management system for Eastern Tennessee:
Three year cycle of Corn (silage)—Small Grain (early seeded) Rd. r. Meadow (gr. I.) seeded in Small gr. Yields—Corn 60 bu. equivalent, Meadow 1-2 tons.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Point Reading on R Curve</th>
<th>Crop Stage Period</th>
<th>% of Rainfall Index</th>
<th>Line No.</th>
<th>Av. % of Loss from Fallow</th>
<th>Cropping-Mgmt. &quot;C&quot; Factor Val.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/1</td>
<td>6</td>
<td>XXXXXXX</td>
<td>XXXXX</td>
<td>15</td>
<td>15</td>
<td>XXXXX</td>
</tr>
<tr>
<td>5/20</td>
<td>11</td>
<td>F</td>
<td>5</td>
<td>15</td>
<td>15</td>
<td>.0075</td>
</tr>
<tr>
<td>6/20</td>
<td>22</td>
<td>C1</td>
<td>11</td>
<td>15</td>
<td>30</td>
<td>.0330</td>
</tr>
<tr>
<td>7/20</td>
<td>42</td>
<td>C2</td>
<td>20</td>
<td>15</td>
<td>27</td>
<td>.0540</td>
</tr>
<tr>
<td>9/1</td>
<td>61</td>
<td>C3</td>
<td>19</td>
<td>15</td>
<td>15</td>
<td>.0285</td>
</tr>
<tr>
<td>9/10</td>
<td>63</td>
<td>C4</td>
<td>2</td>
<td>15</td>
<td>45</td>
<td>.0090</td>
</tr>
<tr>
<td>10/10</td>
<td>68</td>
<td>Sg1</td>
<td>5</td>
<td>90</td>
<td>50</td>
<td>.0250</td>
</tr>
<tr>
<td>11/10</td>
<td>72</td>
<td>Sg2</td>
<td>4</td>
<td>90</td>
<td>40</td>
<td>.0160</td>
</tr>
<tr>
<td>6/10</td>
<td>17</td>
<td>Sg3</td>
<td>45</td>
<td>90</td>
<td>5</td>
<td>.0225</td>
</tr>
<tr>
<td>8/10</td>
<td>54</td>
<td>Sg4</td>
<td>37</td>
<td>90</td>
<td>3</td>
<td>.0111</td>
</tr>
<tr>
<td>To 3rd</td>
<td>6</td>
<td>M3</td>
<td>152</td>
<td>66</td>
<td>0.6</td>
<td>.0091</td>
</tr>
</tbody>
</table>

Total: 300
Average annual "C" value: .072

Total for cycle: .2157
Columns 1 and 3: Record in Table 3 column 1 the dates for plowing, seeding, and harvesting given in Table 1 for each crop in the rotation. Record the crop-stage periods as defined for each crop in the rotation in column 3.

Column 2: Refer to Figure 4, the monthly distribution of rainfall-erosion index for eastern Tennessee. Record in this column by dates the appropriate point readings from the rainfall-erosion index curve.

Column 4: Determine the percent of the rainfall-erosion index for each crop-stage period by finding the difference between the values for each crop-stage period ending date (see column 2 for these values). Example: Subtract period F value in column 2 from period 1 value and record the difference in column 4 opposite period 1. This value is the percent of the rainfall-erosion index for period 1. Complete by successive subtractions. Check for errors by totaling column 4. The total should equal 100 times the number of years in the rotation.

Column 5: Although not directly related to evaluating the C factor for the rotation, it is helpful to record the line numbers shown on Table 2 from which the values in column 6 are taken. This enables quick back-reference in case there is a need to do so.

Column 6: Read these values from pertinent lines in Table 2. In this problem the corn follows a grass-legume meadow yielding 1-2 tons per acre and the expected silage yield is equivalent to 60 bushels of corn (1 ton silage equivalent to 5 bushels of corn). Line 15 would be the correct line. The first five values in column 6 are read from line 15 of Table 1. Since the corn will be removed for silage, the value in column 4 Rdr would be applicable. The other values entered in column 6 for this problem were taken from the lines on Table 2 indicated in column 5.

Column 7: Enter here the product of column 4 times column 6. This is the ratio of soil loss by crop-stage periods to the corresponding loss from continuous fallow under identical soil and rainfall conditions. Both columns 4 and 6 are percentages; therefore, when the percent sign is dropped, the products in column 7 have four places to the right of the decimal point.

The total of column 7 (.2157 in this example) is the cropping-management value which would apply to this 3-year cropping system in eastern Tennessee. Since the average annual soil-loss estimates are desired, this value must be divided by the number of years in rotation. In the example, the average annual soil-loss (or C factor) would be .072 (or 7.2%) of the corresponding loss.
occurring under continuous fallow on the same field.

In selection of values from Table 2, the following interpretations are pertinent:

When the rotation to be evaluated involves crops or sequences not directly listed in Table 2, the line which most nearly represents the conditions should be used. Such comparisons should be made for each crop-stage period. Different lines can be used for different periods of the same crop year. For example, if corn follows first year cotton after meadow, values used for corn periods F and 1 should be taken from the line for second year cotton.

Table 2 is used by considering cover, crop sequence, residue management, and productivity, in that order. The crop yield value should be the expected average yield. This does not mean the yield attainable in the best years. If the incidence of meadow failures is high in the area due to climatic conditions, expected failures must be included in the estimate of the expected yield average. From an erosion standpoint, the adverse effects of a meadow failure in a rotation far outweigh the gains from an occasional good meadow year.

When small grain yields are equal to 15 or more bushels of wheat, column 3g in lines 75-94 of Table 2 applies. If yields are equivalent to less than 15 bushels of wheat, use column 3p.

Column 4 values in lines 75-92 of Table 2 assume new meadow growth in grain residues and are average values for the period from small grain harvest to 2 months later. After that date, values from lines 65-69 apply.

The values for winter cover (lines 9-10, 36-41, and 61-64 in Table 2) apply for vetch, rye and vetch, ryegrass, and grass-legume combinations seeded early enough to become established before winter. The values for period 4 result from winter cover established in the current year. Those for periods F, 1, and 2 are the result of residual effects of winter cover crops plowed under immediately preceding the current crop. When small grain is seeded alone as a winter cover crop between 2 years of row crop, all values are the same as for the row crop without winter-cover seeding except that wheat periods 1 and 2 are substituted for corn or cotton period 4 (4, 8, 11).

Values for corn are about the same as for cultivated soybeans. Close-drilled or broadcast beans have not been successfully evaluated.

For fertilized grass and legume meadows managed for sustained high productivity, values in lines 16, 17, 29, 34, and 35 of Table
2 may be reduced 10% for row crops following 2 or more years of meadow. But this reduction applies only for meadows yielding more than 2 tons of hay and where management does not permit meadow deterioration in succeeding years (8).

The detailed procedure described here for determining cropping-management factor values need not be used each time the soil-loss predicting equation is applied. Values can be computed for each of the common cropping systems and management levels and arranged in table form for any given location. Tables 6a and 6b in the Appendix are C factor values for most cropping-management systems used on Tennessee Farms.

**Conservation Practice Factor (P)**

The experimental plots from which the erodibility factor values were determined were up and down hill cultivated fallow. Factor values to measure the effects of contour farming, contour strip-cropping, and terracing or certain combinations of these were established in 1956. Data used came from research results from using these practices at three different locations—LaCrosse, Wis., Bethany, Mo., and Urbana, Ill. (3, 4, 6, 11).

Contour farming is an effective conservation practice when properly used. Its effectiveness depends on row ridges, made with tillage implements, which retard water running down hill. Soil loss from contoured fields may range from 100% to 50% of that expected from up-and-down tillage, depending on the steepness of slope. Contouring appears to produce its maximum average effects on medium slopes. As the slope decreases, the erosion control effectiveness becomes less. As the slope increases, the amount of water retained by contour rows decreases and the rate of soil loss increases. Contouring provides almost complete protection for individual storms of low intensity, but for severe storms that cause excessive row breakage, it provides little or no protection.

Soil loss under contour strip-cropping averages about 50% of that from contouring alone. However, this reduction only considers the off-field movement of soil. Much of the soil washed from cultivated strips in a contour strip-cropped field is filtered out in the first few feet of the meadow strips. Soil movement and sedimentation within the field are not accounted for by the contour strip-cropping factor.

Field strip-cropping is growing crops in strips or bands across the general slope following the land contour where possible. Crops which are arranged so that a strip of grass or close-growing crop
alternates with a clean-tilled crop are more effective in reducing soil loss than contouring alone, but less effective than contour strip-cropping. Therefore, the practice values for field stripcroppings were set by the Tennessee committee at a point mid-way between the contouring and contour stripcropping factor values.

The contour stripcropping factor value is based on the cropping systems used in the research work. This was a corn-small grain-2 years meadow rotation with the meadow strips alternating with grain. When the cropping system used in stripcropping is less effective, a larger factor value should be used which will reflect the reduced effectiveness of the rotation (system) in reducing soil loss.

Terraces intercept and divert water running down the slope before it reaches velocities that cause damaging erosion. Soil saved is due to the shortened slope length and deposition in the terrace channel along with the effectiveness of contour farming.

Wischmeier and Smith (4) state that “If all furrow slices between terraces were turned up slope periodically with a two-way plow, most or all the soil washed into the terrace channel would be effectively moved back up the slope and a factor value based on the off-the-field rate of loss could be safely applied. Limited data indicate the terrace factor in this case should be about 20% of that for contouring. But in most farming operations, conventional plows are used and the soil deposited in the terrace channel is not returned to the interterrace interval to help maintain soil productivity.

“It is logical to assume that the total movement of soil within a terrace interval is equal to that with contouring alone on the same length and percentage of slope. Erosion control between terraces depends upon the crop rotation and other management practices. Therefore, if a control level is desired that will maintain soil movement between terraces within the soil-loss tolerance limit, the practice factor for terracing should equal the contour practice factor.”

In Tennessee, most workers now have the objective of keeping soil movement between terraces within the soil loss tolerance limit. Therefore, when computing soil loss from terraced fields, use the contouring factor value, and for determining the combined SL factor, use a slope length equal to the recommended horizontal spacing between terraces for the percent slope of the field. No adjustment is made in slope length for contoured and stripcropped fields. The full field slope length is used for determining the combined SL factor value.
Table 7 in the Appendix lists the conservation practice factor values. Table 8 gives the recommended horizontal spacing between terraces for different percent slopes in Tennessee.

If the soil-loss predicting equation is being used to compute gross erosion in sedimentation studies, a terrace practice factor 20% of the contour factor shown in Table 7 is suggested. This more accurately reflects the off-field soil loss. Use of the full contour factor accounts for both off-field losses and soil that is eroded and deposited in the terrace channels (4, 6, 11).

Soil Loss Tolerance Values (T)

The soil loss tolerance (T) value is the estimated average annual soil loss than can be tolerated and yet achieve the degree of conservation needed for sustained, economical production in the foreseeable future. It is expressed as average annual soil loss in tons per acre per year.

Tolerance values give meaning to the soil loss predicting equation. A comparison of the calculated predicted soil loss (A) arrived at through use of the equation with the tolerance value (T) for a soil indicates the degree to which present cropping-management and conservation practices are adequate. Furthermore, such comparison suggests the kind of cropping-management and conservation practices needed to keep predicted soil losses equal or less than the tolerance rate for the field under study (3, 4).

At the present time, tolerance values are estimates. Data are not available with which to evaluate precisely the many items that must be considered in setting an erosion tolerance standard for a soil. Tolerance values for Tennessee soils were established by multiple judgment decisions after considering various pertinent factors, and relating Tennessee soils to a few benchmark soils for which tolerance levels had been established. The more important items taken into account in arriving at soil-loss tolerance values were:

- The maintenance of an adequate soil depth favorable for plant roots.
- The maintenance of tilth favorable for crop production.
- The reduction in crop yields per inch of topsoil lost.
- Changes in soil moisture relationships due to changes in texture, infiltration, percolation, or water storage capacity.
- Seeding losses.
- Off-site sedimentation damage such as deposition in lakes and
flood retention reservoirs, stream channels, and on overflow cropland.

It is generally agreed that the maximum soil-loss tolerance for even the most favorable situation should not be greater than 5 tons per acre per year. The consensus of opinion is that rates greater than this will cause serious sedimentation and other problems. Soil-loss tolerances for Tennessee range from 1 to 5 tons per acre per year.

One acre-inch of soil weighs about 150 tons. At a soil-loss tolerance (T) of 5 tons per acre per year, it would require 30 years to erode 1 acre-inch of soil. However, erosion does not occur at a uniform rate from the top to the bottom of the slope. Since the 5-ton tolerance is an average for the entire slope, this would mean that one part of the slope might be losing 10 tons of soil per acre annually, resulting in a loss of 1 inch in 15 years. And, of course, another part might be losing at the rate of only 2.5 tons per acre per year.

Table 5 in the Appendix gives the soil-loss tolerance values for most Tennessee soils. Two values are given for most soil types depending on the degree of existing erosion in the field. Table 5 also lists the calculated T/K values by soil types and degree of erosion. The need for a ready reference of these values is explained in the next section.

**USING THE EQUATION**

Use of the soil-loss predicting equation can best be explained by considering the following example:

Assume a field in Maury County, Tennessee which consists of a Maury silty clay loam soil moderately eroded on an 8% slope that is 300 feet long.

The cropping-management of recent years has been a 3-year cycle of corn-wheat-meadow; an average production of 60 bushels of corn per acre (residue left on the field), and 1-2 tons of hay has been realized. Straight-row cultivation up and down the slope has been practiced.

To develop information on soil losses, first write down the equation (Page 2) \( A = RKLSCP \). Then assign values to the factors RKLS as given for the field above:

- \( R = 240 \) (See Table 4, Appendix, and Figure 2, page 11)
- \( K = 0.34 \) (See Table 5 alphabetical listing)
- \( LS = 1.7 \) (See Figure 6)
Multiplying these factors together gives a value of 138.7 tons of soil which would erode from this field if it were tilled continuous fallow. But the field as cropped and managed has a C-factor value of .079 (See Table 6b, Appendix) which means that the expected erosion would be only 7.9% of the 138.7 tons or 11 tons per acre per year.

Since the cultivation has been up and down the slope, the practice factor value for this initial calculation would be 1 and would not change the calculated soil loss.

Now check to see what the soil-loss tolerance (T) is for moderately eroded (2 erosion) Maury soil (See Table 5 Appendix alphabetical listing). You will note that $T = 4$ tons per acre per year. However, the calculated soil loss for the recently followed cropping-management with up and down hill tillage gives an annual soil loss of 11 tons per acre. The problem now is to find a management system that will reduce the expected annual soil loss to 4 tons per acre or less.

To explore the possible alternatives, calculate the effect of contour cultivation on the 11 tons per acre soil loss. (See Table 7 Appendix). The P factor for contouring on an 8% slope is 0.60. Thus by using contour cultivation, soil loss should be only 60% of that resulting from up-and-down hill tillage. Multiplying 11 by 0.60 gives 6.6 tons per acre—still more than the established 4-ton tolerance. Further reduction must be accomplished.

Now, check the effect of field stripcropping on the 11 ton-per-acre soil loss. The P factor value for field stripcropping on an 8% slope is 0.45 (Table 7 Appendix), or midway between contouring and contour stripcropping. This means that by field stripcropping, soil loss will be 45% of that with up-and-down hill tillage. Eleven times 0.45 gives nearly 5 tons per acre per year. This approaches tolerance but does not quite reduce losses to the 4-ton level.

Next, try contour stripcropping. The P factor value for contour stripcropping on an 8% slope is 0.30 (Table 7 Appendix). Multiply 11.0 x 0.30. This gives an expected average annual soil loss of 3.3 tons per acre per year if contour stripcropping is used—well below the established tolerance for this soil.

It is now known that this farmer can continue to use his present cropping-management and reduce expected soil loss below tolerance if he will practice contour stripcropping. But he may not wish or need to install contour stripcropping. Therefore, other
methods of keeping soil losses to realistic levels need to be considered.

Terraces could be constructed on the field. The P factor value for terracing plus contouring on an 8% slope is 0.60 (Table 7 Appendix). But before applying this factor, a new SL factor must be calculated for the slope length of one horizontal terrace spacing on an 8% slope. (See Table 8 Appendix for terrace spacings, which is 56 feet for an 8% slope.) The combined SL value for an 8% slope 56 feet long is 0.7 (Figure 6 Appendix). Substitute this factor in the initial calculation for 1.7. The product of the values for RKLS now is 57.1 tons per acre expected average annual soil loss for this field with an 8%, 56-foot long slope in tilled, continuous fallow. Applying the cropping-management factor—.079 for the 3-year rotation and practice factor of 0.60 (P factor for a terraced, 8%)—gives 3.2 tons per acre, the average annual soil loss to be expected from the field if terraced and farmed on the contour.

Next, assume the farmer does not want to install either contour stripcropping or terraces but will practice contour farming. The problem would then become one of selecting a cropping-management system that would limit the expected soil loss within 4 tons per acre per year with contouring. The initial calculation (R times K times LS) times 0.60 (practice factor for contouring on an 8% slope) gives 83.2 tons per acre. This is the expected average annual soil loss from the field when in tilled continuous contour fallow.

To find a cropping-management factor that will reduce the soil loss to 4 tons per acre per year, place the 83.2 value in a proportion as follows: 83.2 : 1.00 = 4 : X. Solving this proportion, X = 0.043. This is the maximum value that the C factor can have to give an expected soil loss of 4 tons. To make selections of adequate cropping-management systems, refer to Table 6b Appendix. Note that the systems in this table are arrayed in order of increasing frequency of row crops in the cropping system. Systems 1 through 11 with contouring would result in expected soil losses of less than 4 tons per acre per year. The cropping system listed on line 11, Table 6b, consisting of corn-small grain (residue left), and 4 years of a grass-legume meadow yielding 2-3 tons with the corn crop yielding 70 bushels per acre, can be used. The C factor value for this cropping-management system is .037, and the expected average annual soil loss will be 3.07 tons per acre (83.2 times .037).

Any of the above three management systems will keep expected soil losses within tolerable limits on this field and yet allow the
farmer to grow the crops he wishes to grow.

The factors in the equation over which the farmer has some control, such as cropping-management (C) and conservation practice (P), would be easier to handle if considered apart from the other factors in the equation. Various combinations of values for these two factors, C and P, will keep expected soil loss below tolerance limits. The equation can be adapted so that different cropping-management systems and conservation practices or combinations of the two can be arrived at more easily.

The fixed factors for a given situation may be easily determined. The rainfall (R) and soil erodibility (K) factors may be found in Tables 4 and 5, Appendix for a given location and soil. Since the length (L) and steepness (S) of slope (except when terraced) may be considered characteristics of the soil, they too may be combined with those factors over which the farmer has no control. The combined value for S and L may be determined from Figure 6, Appendix.

Since the objective is to keep soil losses below tolerance, substitute tolerance (T) for the annual soil loss (A) in the basic equation. This will help in determining the necessary cropping-management (C) and conservation practice (P) for a given soil situation.

Dividing both sides of the basic equation \( A = RKLS \) by the factors over which the farmer has no control, RKLS, the equation becomes \( \frac{A}{RKLS} = CP \). Substituting T for A as discussed above, the equation is now written \( \frac{T}{RKLS} = CP \) or \( \frac{1}{R} \times \frac{T}{K} \times \frac{1}{LS} = CP \). Solving this equation for any given soil situation, we can determine what combination of C and P that is necessary to keep expected soil loss equal to the tolerance. By equating P to 1, we can determine what value C must have to keep the soil loss equal to tolerance without the benefit of a conservation practice.

Using the equation in this form, Tables 9-150 through 9-310, Appendix have been developed for each constant R value for intervals of 20. The necessary cropping-management (C) factor values can be found in these tables with or without conservation practices. Calculations were made for slopes ranging from 2% through 12%, and lengths ranging from 100 feet through 400 feet for each value. Straight line interpolations can be made for R and values between those listed. Also, the necessary C value for field

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1 Necessary value to meet soil-loss tolerance (T)
stripcropping can be determined by interpolating between the values given for contouring and contour strip cropping.

To use the tables for the Maury County field described in previous examples, first turn to Tables 9-230 and 9-250, Appendix. Use of both tables will be necessary since there is no table for an R factor of 240—the rainfall factor for Maury County (Table 4, page 34, Appendix). Next refer to Table 5 page 35 and find the T/K value for Maury silty clay loam. This value is 12 for the moderately eroded phase. Now on Table 9-230, find the lines designated 12 under the T/K column.

To determine the C factor value for the 8%, 300-foot slope when contour strip cropped, find the appropriate slope length and percent column and line for the T/K value of 12. From Table 9-230, Appendix, a C value of .100 is listed for this slope length and steepness and on Table 9-250 the C value is .094. By linear interpolation, a cropping-management value of .097 will be necessary to keep annual soil losses equal to the established 4-ton tolerance.

A slide calculator that makes possible rapid calculations of the necessary cropping-management (C) factor value, with or without practices, was developed. Instructions for use of the slide calculator are under the back of the calculator. Also, a number of graphs and curves have been devised for fast solution of the equation.
APPENDIX
Table 4. Rainfall-erosion index factor “R” values by counties—Tennessee

<table>
<thead>
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<th>R-Factor Values</th>
<th>COUNTY</th>
<th>R-Factor Values</th>
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Table 5. Soil-erodibility factor (K) values, soil loss tolerance (T) values, and T/K values by soils and erosion class—Tennessee

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1 Soil-erodibility factor (K) value applies to all erosion classes.
Figure 6. Chart for adjusting plot soil loss to length and degree of slope.\footnote{Reprinted with permission of the Agricultural Engineering Society of America.}

\footnote{Reprinted with permission of the Agricultural Engineering Society of America.}
Table 6a. Cropping-management factors (average annual C factor values) for cropping systems in Eastern Tennessee

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meadow, well established, Grass-legume</td>
<td>2.5+</td>
<td></td>
<td>.004</td>
</tr>
<tr>
<td>2</td>
<td>Meadow, well established, Grass-legume</td>
<td>1-2</td>
<td></td>
<td>.006</td>
</tr>
<tr>
<td>3</td>
<td>Meadow, well established, Grass-legume</td>
<td>—</td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>4</td>
<td>Meadow, Annual lespedeza for seed rd.l</td>
<td>—</td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>5</td>
<td>Meadow, Continuous sericea after second year</td>
<td>—</td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>6</td>
<td>Meadow, renovated 1 in 6 years, turn-plow and fallow (Aug. 1-30)</td>
<td>2.5+</td>
<td></td>
<td>.013</td>
</tr>
<tr>
<td>7</td>
<td>Meadow, well established, Red Clover</td>
<td>2</td>
<td></td>
<td>.015</td>
</tr>
<tr>
<td>8</td>
<td>Meadow, well established, annual lespedeza, hay or grazed</td>
<td>—</td>
<td></td>
<td>.020</td>
</tr>
<tr>
<td>9</td>
<td>Meadow, well established, sweet clover</td>
<td>2</td>
<td></td>
<td>.025</td>
</tr>
<tr>
<td>10</td>
<td>4 Small Grain, rd.l. (early seeded)-M-M-M</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>(gr. leg. seeded after sm. gr. harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>6 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.037</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. meadow seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4 Wheat, rd.l. (late seeded)-M-M-M-M (gr. leg. seeded after wheat harvest)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.046</td>
</tr>
<tr>
<td>13</td>
<td>3 Small Grain, early seeded rd.l. -M-M (gr. leg. seeded after sm. gr. harvest)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.047</td>
</tr>
<tr>
<td>14</td>
<td>4 Wheat, rd.r. (late seeded and overseeded with a. lesp.) -M-M-M (a. lesp.)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.048</td>
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<tr>
<td>15</td>
<td>6 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M-M</td>
<td>1-2</td>
<td>60</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>(gr. leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>5 Corn, rd.l. sm. gr. (late seeded) rd.l.-M-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>(gr. leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>3 Corn, (silage)-M-M (early seeded gr. leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.053</td>
</tr>
<tr>
<td>18</td>
<td>2 Small Grain, early seeded and overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>(wh.15+)</td>
<td></td>
<td>.053</td>
</tr>
<tr>
<td>19</td>
<td>3 Wheat, late seeded and overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.057</td>
</tr>
<tr>
<td>20</td>
<td>3 Wheat, late seeded rd.l.-M-M (gr.leg. seeded after wheat harvest)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.059</td>
</tr>
<tr>
<td>21</td>
<td>3 Corn, (silage)-sm.gr. (early seeded) rd.r.-M</td>
<td>2-3</td>
<td>70</td>
<td>.062</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. seeded in sm.gr.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>3 Tobacco, sm.gr. (early seeded and gr. leg. overseeded) rd.r.-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.063</td>
</tr>
<tr>
<td>23</td>
<td>6 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M-M</td>
<td>1-2</td>
<td>40</td>
<td>.063</td>
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<tr>
<td></td>
<td>(gr.leg. meadow seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>24</td>
<td>4 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.066</td>
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<tr>
<td></td>
<td>(gr.leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>25</td>
<td>6 Corn, (silage)-sm.gr.(early seeded) rd.r.-M-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.066</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>5 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M-M</td>
<td>1-2</td>
<td>60</td>
<td>.067</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>27</td>
<td>3 Corn, (silage)-M-M (early seeded gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.067</td>
</tr>
<tr>
<td>28</td>
<td>6 Tobacco, sm.gr. (early seeded) rd.r.-M-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.068</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. seeded after sm.gr. harvest)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>29</td>
<td>3 Corn, (silage)-sm.gr. (early seeded) rd.r.-M</td>
<td>1-2</td>
<td>60</td>
<td>.072</td>
</tr>
<tr>
<td></td>
<td>(gr.leg. seeded in sm.gr.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>6 Corn (silage) with W.C.-Corn (silage)-M-M-M-M</td>
<td>2-3</td>
<td>70</td>
<td>.073</td>
</tr>
<tr>
<td></td>
<td>(gr.leg.)</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

See code to symbols at end of table.
Table 6a. Cropping-management factors (average annual C factor values) for cropping systems in Eastern Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>6 Corn (silage)-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.074</td>
</tr>
<tr>
<td>32</td>
<td>2 Wheat, late seeded and overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>lw.15+1</td>
<td>.075</td>
</tr>
<tr>
<td>33</td>
<td>6 Tobacco, sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.077</td>
</tr>
<tr>
<td>34</td>
<td>5 Corn (silage) sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded following smgr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.078</td>
</tr>
<tr>
<td>35</td>
<td>3 Tobacco, sm.gr. (early seeded and gr.leg. overseeded) rd.r.-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.079</td>
</tr>
<tr>
<td>36</td>
<td>3 Corn, rd.I. sm.gr. (late seeded and overseeded in spring with red cl.l-M (red cl.)</td>
<td>1-2</td>
<td>60</td>
<td>.079</td>
</tr>
<tr>
<td>37</td>
<td>3 Corn (silage)-M-M-M-M (early seeded gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.081</td>
</tr>
<tr>
<td>38</td>
<td>6 Cotton-sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>2-3</td>
<td>HF</td>
<td>.081</td>
</tr>
<tr>
<td>39</td>
<td>5 Corn, rd.I. sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.082</td>
</tr>
<tr>
<td>40</td>
<td>4 Corn, rd.I. sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.082</td>
</tr>
<tr>
<td>41</td>
<td>6 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.083</td>
</tr>
<tr>
<td>42</td>
<td>1 Small grain, continuous, rd.r. (early seeded) with a.lesp. overseeded</td>
<td>1-2</td>
<td>(lw.15+)</td>
<td>.086</td>
</tr>
<tr>
<td>43</td>
<td>3 Corn, (silage) sm.gr. (early seeded) rd.r.-M (gr.leg. seeded in smgr.)</td>
<td>1-2</td>
<td>40</td>
<td>.086</td>
</tr>
<tr>
<td>44</td>
<td>6 Corn, (silage) with W.C. Corn (silage) M-M-M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.087</td>
</tr>
<tr>
<td>45</td>
<td>5 Corn, (silage) sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded following smgr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.087</td>
</tr>
<tr>
<td>46</td>
<td>5 Corn, rd.I.-M-M-M-M-M (sericeal)</td>
<td>1-2</td>
<td>40</td>
<td>.089</td>
</tr>
<tr>
<td>47</td>
<td>6 Cotton, sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>MF</td>
<td>.093</td>
</tr>
<tr>
<td>48</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded after smgr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.097</td>
</tr>
<tr>
<td>49</td>
<td>6 Corn, (silage) with W.C.-Corn (silage) M-M-M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.098</td>
</tr>
<tr>
<td>50</td>
<td>5 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded following smgr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.099</td>
</tr>
<tr>
<td>51</td>
<td>4 Corn, rd.I.-sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.100</td>
</tr>
<tr>
<td>52</td>
<td>4 Tobacco-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded after smgr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.100</td>
</tr>
<tr>
<td>53</td>
<td>3 Corn, rd.I.-sm.gr. (late seeded and overseeded in spring with red cl.r.-M (red cl.)</td>
<td>1-2</td>
<td>40</td>
<td>.105</td>
</tr>
<tr>
<td>54</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp. rd.r.-M-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.105</td>
</tr>
<tr>
<td>55</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded after smgr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.107</td>
</tr>
<tr>
<td>56</td>
<td>4 Corn, (silage) with W.C.-Corn (silage) M-M-M-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.108</td>
</tr>
<tr>
<td>57</td>
<td>4 Corn, rd.I.-M-M-M-M (sericeal)</td>
<td>1-2</td>
<td>40</td>
<td>.108</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
Table 6a. Cropping-management factors (average annual "C" factor values) for cropping systems in Eastern Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>4 Tobacco, with early seeded W.C.-Tobacco-M-M (gr.leg.)</td>
<td>3+</td>
<td>75</td>
<td>.108</td>
</tr>
<tr>
<td>59</td>
<td>3 Cotton-M-M (gr.leg. spring seeded)</td>
<td>2-3</td>
<td>HF</td>
<td>.110</td>
</tr>
<tr>
<td>60</td>
<td>4 Tobacco-sm.gr. (early seeded) rd.r.-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.112</td>
</tr>
<tr>
<td>61</td>
<td>4 Soybeans, rd.l-sm.gr. rd.r. (late seeded)-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.114</td>
</tr>
<tr>
<td>62</td>
<td>4 Corn, rd.l-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.115</td>
</tr>
<tr>
<td>63</td>
<td>8 Cotton- Cotton- sm.gr. rd.r. (late seeded) -M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>HF</td>
<td>.115</td>
</tr>
<tr>
<td>64</td>
<td>4 Tobacco, with early seeded W.C.-Tobacco-M-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.117</td>
</tr>
<tr>
<td>65</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.118</td>
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<tr>
<td>66</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M (gr.leg. early seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.122</td>
</tr>
<tr>
<td>67</td>
<td>4 Soybeans, rd.l-sm.gr. rd.r. (late seeded)-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.125</td>
</tr>
<tr>
<td>68</td>
<td>4 Corn (silage) with W.C.-Corn (silage)-M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.126</td>
</tr>
<tr>
<td>69</td>
<td>1 Wheat, continuous, rd.r. (wheat late seeded with a.lesp. overseeded) (wh.15+)</td>
<td>1-2</td>
<td>MF</td>
<td>.130</td>
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<tr>
<td>70</td>
<td>4 Corn, rd.l-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>40</td>
<td>.132</td>
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<tr>
<td>71</td>
<td>3 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.133</td>
</tr>
<tr>
<td>72</td>
<td>4 Corn, rd.l.-Corn, rd.l. with late seeded gr.leg. -M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.135</td>
</tr>
<tr>
<td>73</td>
<td>4 Corn, rd.l.-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>MF</td>
<td>.136</td>
</tr>
<tr>
<td>74</td>
<td>3 Cotton-M-M (gr.leg. spring seeded)</td>
<td>1-2</td>
<td>40</td>
<td>.137</td>
</tr>
<tr>
<td>75</td>
<td>4 Corn, (silage) with W.C.-Corn (silage)-M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.143</td>
</tr>
<tr>
<td>76</td>
<td>1 Small grain, continuous, rd.l. (early seeded) (wh.15+)</td>
<td>1-2</td>
<td>60</td>
<td>.145</td>
</tr>
<tr>
<td>77</td>
<td>3 Corn, rd.l-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.147</td>
</tr>
<tr>
<td>78</td>
<td>4 Corn, rd.l.-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.150</td>
</tr>
<tr>
<td>79</td>
<td>3 Soybeans, rd.l-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.150</td>
</tr>
<tr>
<td>80</td>
<td>3 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.150</td>
</tr>
<tr>
<td>81</td>
<td>3 Soybeans, rd.l. (W,C,J)-Soybeans, rd.l. (W,C,J)-M (buttoncover for seed) rd.l.</td>
<td>2-3</td>
<td>70</td>
<td>.156</td>
</tr>
<tr>
<td>82</td>
<td>4 Cotton-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>MF</td>
<td>.160</td>
</tr>
<tr>
<td>83</td>
<td>4 Cotton-Corn rd.l.-M-M (gr.leg. late seeded)</td>
<td>1-2</td>
<td>HF 60 bu.</td>
<td>.162</td>
</tr>
<tr>
<td>84</td>
<td>4 Corn, rd.l.-Corn rd.l. (with late seeded gr.leg.) -M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.165</td>
</tr>
<tr>
<td>85</td>
<td>3 Corn, rd.l-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>40</td>
<td>.170</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
### Table 6a. Cropping-management factors (average annual C factor values) for cropping systems in Eastern Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu</th>
<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86</td>
<td>3</td>
<td>Soybeans, rd.l.-sm.gr. (late seeded) overseeded</td>
<td>1-2</td>
<td>40</td>
</tr>
<tr>
<td>87</td>
<td>3</td>
<td>Corn, rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>88</td>
<td>6</td>
<td>Cotton, Cotton-M,-M-M,-M-M (sericeal)</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>89</td>
<td>3</td>
<td>Soybeans, rd.I.-M-M (a.lesp.) rd.r</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>90</td>
<td>4</td>
<td>Cotton, Cotton,-M-M (gr.leg. spring seeded)</td>
<td>2.3</td>
<td>MF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu</th>
<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>91</td>
<td>4</td>
<td>Cotton, Corn rd.l.-M-M (gr.leg. late seeded)</td>
<td>1-2</td>
<td>MF 40 bu.</td>
</tr>
<tr>
<td>92</td>
<td>2</td>
<td>Corn, (silage) sm.gr. (early seeded) overseeded with a. lesp. rd.r.</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>93</td>
<td>3</td>
<td>Cotton, with W.C. Cotton with W.C.-M-M (button clover for seed) rd.l.</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>94</td>
<td>3</td>
<td>Corn, rd.l.-M-M (a.lesp)</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>95</td>
<td>3</td>
<td>Soybeans, rd.I.-M-M (a.lesp)</td>
<td>1-2</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu</th>
<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>96</td>
<td>3</td>
<td>Cotton, -M-M (a.lesp)</td>
<td>1-2</td>
<td>MF</td>
</tr>
<tr>
<td>97</td>
<td>2</td>
<td>Corn, rd.l. sm.gr. (late seeded) overseeded with a. lesp. (grazed or hay)</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>98</td>
<td>2</td>
<td>Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp. rd.r.</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>99</td>
<td>1</td>
<td>Wheat, continuous (late seeded) rd.r.</td>
<td>1-2</td>
<td>MF</td>
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<tr>
<td>100</td>
<td>4</td>
<td>Cotton, Cotton-M-M (gr.leg. spring seeded)</td>
<td>1-2</td>
<td>MF</td>
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</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu</th>
<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>101</td>
<td>4</td>
<td>Corn, rd.l.-Corn rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>102</td>
<td>3</td>
<td>Soybeans, rd.I. (W.C.-Soybeans, rd.I. (W.C.]-M (buttonclover for seed) rd.l.</td>
<td>1-2</td>
<td>40</td>
</tr>
<tr>
<td>103</td>
<td>2</td>
<td>Corn, rd.l-sm.gr. (late seeded) overseeded with a.lesp. (grazed or hay)</td>
<td>1-2</td>
<td>40</td>
</tr>
<tr>
<td>104</td>
<td>4</td>
<td>Corn, rd.I.-Corn rd.l.-M-M (a.lesp)</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>105</td>
<td>4</td>
<td>Cotton, with W.C.-Cotton with W.C.-Cotton with W.C.-M (buttonclover for seed) rd.l.</td>
<td>1-2</td>
<td>HF</td>
</tr>
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<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
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<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>1</td>
<td>Sudan Millet, or Hybrid Crosses, continuous, rd.r. with early seeded W.C. rd.r.</td>
<td>1-2</td>
<td>MF</td>
</tr>
<tr>
<td>107</td>
<td>4</td>
<td>Cotton, Cotton, -M-M (a.lesp)</td>
<td>1-2</td>
<td>MF</td>
</tr>
<tr>
<td>108</td>
<td>3</td>
<td>Soybeans, rd.I.-Soybeans rd.I.-M (a.lesp)</td>
<td>1-2</td>
<td>60</td>
</tr>
<tr>
<td>109</td>
<td>1</td>
<td>Corn, (silage) continuous with early seeded W.C.</td>
<td>1-2</td>
<td>75</td>
</tr>
<tr>
<td>110</td>
<td>1</td>
<td>Tobacco, continuous, with early seeded grain and leg. W.C. and 8 tons of manure</td>
<td>3+</td>
<td>75</td>
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</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
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<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>111</td>
<td>1</td>
<td>Corn, continuous, rd.l. with late seeded W.C. (sm.gr.)</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>112</td>
<td>3</td>
<td>Soybeans, rd.I.-Soybeans rd.I.-M (a.lesp)</td>
<td>1-2</td>
<td>60</td>
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<tr>
<td>113</td>
<td>1</td>
<td>Corn (silage) continuous with early seeded W.C.</td>
<td>1-2</td>
<td>75</td>
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<tr>
<td>114</td>
<td>1</td>
<td>Corn, continuous rd.l. without W.C. seeding</td>
<td>2-3</td>
<td>75</td>
</tr>
<tr>
<td>115</td>
<td>1</td>
<td>Soybeans, continuous, rd.l. without W.C.</td>
<td>2-3</td>
<td>75</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu</th>
<th>AVG. ANNUAL &quot;C&quot; VALUE</th>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>1</td>
<td>Soybeans, continuous, rd.l. with late seeded W.C.</td>
<td>2-3</td>
<td>75</td>
</tr>
<tr>
<td>117</td>
<td>1</td>
<td>Tobacco, continuous, with early seeded grain and leg. W.C. and 8 tons of manure</td>
<td>2-3</td>
<td>45</td>
</tr>
<tr>
<td>118</td>
<td>1</td>
<td>Cotton, continuous, with early seeded W.C.</td>
<td>1-2</td>
<td>HF</td>
</tr>
<tr>
<td>119</td>
<td>1</td>
<td>Corn, continuous, rd.I. with late seeded W.C. (sm.gr)</td>
<td>1-2</td>
<td>45</td>
</tr>
<tr>
<td>120</td>
<td>1</td>
<td>Cotton, continuous, with late seeded W.C.</td>
<td>1-2</td>
<td>HF</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.

41
Table 6a. Cropping-management factors (average annual C factor values) for cropping systems in Eastern Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>121</td>
<td>Cotton, continuous, with early seeded W.C.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>Soybeans, continuous, rd.l. with late seeded W.C.</td>
<td>1-2</td>
<td>45</td>
<td>.452</td>
</tr>
<tr>
<td>123</td>
<td>Corn, continuous, rd.l. without W.C. seeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>Soybeans, continuous, rd.l. without W.C.</td>
<td>1-2</td>
<td>45</td>
<td>.493</td>
</tr>
<tr>
<td>125</td>
<td>Cotton, continuous, with late seeded W.C.</td>
<td>MF</td>
<td></td>
<td>.503</td>
</tr>
<tr>
<td>126</td>
<td>Cotton, continuous, without W.C.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Cotton, continuous, without W.C.</td>
<td>MF</td>
<td></td>
<td>.565</td>
</tr>
<tr>
<td>128</td>
<td>Tobacco, continuous, without W.C.</td>
<td>2-3</td>
<td>60</td>
<td>.613</td>
</tr>
<tr>
<td>129</td>
<td>Corn, (silage) continuous without W.C.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>Tobacco, continuous, without W.C.</td>
<td>1-2</td>
<td>40</td>
<td>.665</td>
</tr>
<tr>
<td>131</td>
<td>Corn, (silage) continuous, without W.C. seeding</td>
<td>MF</td>
<td></td>
<td>.677</td>
</tr>
<tr>
<td>132</td>
<td>Continuous fallow (2 or more years)</td>
<td>40</td>
<td></td>
<td>1.000</td>
</tr>
</tbody>
</table>

Code to symbols used

gr. leg.—grass legume mixture; M—meadow used for hay or grazed with residue removed unless otherwise indicated; MF—1 bale or less per acre of lint cotton; HF—more than 1 bale per acre of lint cotton; rd.l.—residue left; rd.r.—residue removed; wh.—wheat; sm.gr.—small grain; W.C.—winter cover; Early seeded—seeding made by 9/15; Late seeded—seeding made by 10/15.

Table 6b. Cropping-management factors (average annual C factor values) for cropping systems in Western Tennessee

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meadow, well established, Grass-legume</td>
<td>2.5+</td>
<td></td>
<td>.004</td>
</tr>
<tr>
<td>2</td>
<td>Meadow, well established, Grass-legume</td>
<td>1-2</td>
<td></td>
<td>.006</td>
</tr>
<tr>
<td>3</td>
<td>Meadow, well established, Grass-legume</td>
<td></td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>4</td>
<td>Meadow, well established, a.lesp., for seed rd.l.</td>
<td></td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>5</td>
<td>Meadow, well established, Cont. Sericea after second year</td>
<td></td>
<td></td>
<td>.010</td>
</tr>
<tr>
<td>6</td>
<td>Meadow, renovated 1 in 6 years, Turn-plow and fallow (Aug. 1-30)</td>
<td>2½+</td>
<td></td>
<td>.013</td>
</tr>
<tr>
<td>7</td>
<td>Meadow, well established, Red Clover</td>
<td>2</td>
<td></td>
<td>.015</td>
</tr>
<tr>
<td>8</td>
<td>Meadow, well established, a.lesp, hay or grazed</td>
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<td></td>
<td>.020</td>
</tr>
<tr>
<td>9</td>
<td>Meadow, well established, Sweet Clover</td>
<td>2</td>
<td></td>
<td>.025</td>
</tr>
<tr>
<td>10</td>
<td>Small Grain, rd.l. (early seeded) M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td></td>
<td>.038</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
Table 6b. Cropping-management factors (average annual C factor values) for cropping systems in Western Tennessee (Continued)

<table>
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<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
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<tbody>
<tr>
<td>16</td>
<td>6 Corn, rd.l-sm.gr. (late seeded) rd.l.-M-M-M-M M (gr.leg. meadow seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.055</td>
</tr>
<tr>
<td>17</td>
<td>4 Wheat, rd. r. (sp.late seeded and overseeded w. a.lesp.) -M-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.055</td>
</tr>
<tr>
<td>18</td>
<td>2 Small Grain (early seeded) overseeded with a.lesp. rd.r.-M-M (a.lesp.)</td>
<td>(wh.15+)</td>
<td></td>
<td>.056</td>
</tr>
<tr>
<td>19</td>
<td>3 Corn (silage-l-sm.gr. early seeded) rd.r.-M-M (gr.leg. seeded in sm.gr.)</td>
<td>2-3</td>
<td>70</td>
<td>.058</td>
</tr>
<tr>
<td>20</td>
<td>4 Corn, rd.l-sm.gr. (late seeded) rd.l.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.060</td>
</tr>
<tr>
<td>21</td>
<td>6 Corn, silage-l-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.061</td>
</tr>
<tr>
<td>22</td>
<td>3 Corn, silage-l-M-M (early seeded gr. leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.062</td>
</tr>
<tr>
<td>23</td>
<td>3 Tobacco-sm.gr. (early seeded and gr.leg. overseeded) rd.r.-M-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.064</td>
</tr>
<tr>
<td>24</td>
<td>6 Tobacco-sm.gr. (early seeded) rd.r.-M-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.064</td>
</tr>
<tr>
<td>25</td>
<td>3 Corn, silage-l-sm.gr. (early seeded)rd.r.-M-M-M-M (gr.leg. seeded in sm.gr.)</td>
<td>1-2</td>
<td>60</td>
<td>.065</td>
</tr>
<tr>
<td>26</td>
<td>5 Corn, rd.l-sm.gr. (late seeded) rd.l.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.065</td>
</tr>
<tr>
<td>27</td>
<td>3 Wheat, rd.r. (late seeded)-overseeded with a.lesp. -M-M (a.lesp.)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.066</td>
</tr>
<tr>
<td>28</td>
<td>3 Wheat, rd.l.-M-M (gr.leg. seeded after wheat harvest)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.066</td>
</tr>
<tr>
<td>29</td>
<td>6 Corn, silage-l-sm.gr. (early seeded) rd.r.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.067</td>
</tr>
<tr>
<td>30</td>
<td>6 Corn, rd.l-sm.gr. (late seeded) rd.l.-M-M-M-M-M (gr.leg. meadow seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.068</td>
</tr>
<tr>
<td>31</td>
<td>6 Corn, silage-l with W.C-Corn silage-l-M-M-M-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.069</td>
</tr>
<tr>
<td>32</td>
<td>6 Tobacco-sm.gr. (early seeded) rd.r.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.072</td>
</tr>
<tr>
<td>33</td>
<td>5 Corn, silage-l-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. early seeded following sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.073</td>
</tr>
<tr>
<td>34</td>
<td>3 Corn, silage-l-M-M (early seeded gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.075</td>
</tr>
<tr>
<td>35</td>
<td>4 Cotton-sm.gr. (late seeded) rd.r.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>HF</td>
<td>.076</td>
</tr>
<tr>
<td>36</td>
<td>6 Corn, silage-l-sm.gr. (early seeded) rd.r. -M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.077</td>
</tr>
<tr>
<td>37</td>
<td>3 Corn, rd.l.-sm.gr. (late seeded and overseeded in spring with red cl) -M-M (red cl.)</td>
<td>1-2</td>
<td>60</td>
<td>.079</td>
</tr>
<tr>
<td>38</td>
<td>5 Corn, silage-l-sm.gr. (early seeded) rd.r. -M-M-M-M-M (gr.leg. early seeded following sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.079</td>
</tr>
<tr>
<td>39</td>
<td>6 Corn, silage-l with W.C.-Corn silage-l-M-M-M-M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.079</td>
</tr>
<tr>
<td>40</td>
<td>3 Corn, silage-l-sm.gr. (early seeded) rd.r.-M-M-M-M (gr.leg. seeded in sm.gr.)</td>
<td>1-2</td>
<td>40</td>
<td>.080</td>
</tr>
<tr>
<td>41</td>
<td>4 Corn, rd.l-sm.gr. (late seeded) rd.l.-M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.080</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
Table 6b. Cropping-management factors (average annual C factor values) for cropping systems in Western Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AY. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>5 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.080</td>
</tr>
<tr>
<td>43</td>
<td>3 Tobacco-sm.gr. (early seeded and gr.leg. overseeded) rd.r.-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.081</td>
</tr>
<tr>
<td>44</td>
<td>6 Cotton-sm.gr. (late seeded) rd.r.-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>MF</td>
<td>.086</td>
</tr>
<tr>
<td>45</td>
<td>6 Corn, (silage) with W.C.-Corn (silage)-M-M-M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.089</td>
</tr>
<tr>
<td>46</td>
<td>2 Wheat, (late seeded) overseeded with a.lesp.rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>(wh.15+)</td>
<td>.089</td>
</tr>
<tr>
<td>47</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M (gr.leg. early seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.090</td>
</tr>
<tr>
<td>48</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp.rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.092</td>
</tr>
<tr>
<td>49</td>
<td>5 Corn, rd.l.-M-M-M-M (isereal)</td>
<td>1-2</td>
<td>40</td>
<td>.092</td>
</tr>
<tr>
<td>50</td>
<td>5 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M-M (gr.leg. early seeded following sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.092</td>
</tr>
<tr>
<td>51</td>
<td>1 Small Grain, continuous, rd.r. early seeded with a.lesp. (overseeded)</td>
<td>(wh.15+)</td>
<td></td>
<td>.092</td>
</tr>
<tr>
<td>52</td>
<td>4 Tobacco-sm.gr. (early seeded) rd.r.-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>70</td>
<td>.094</td>
</tr>
<tr>
<td>53</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M (gr.leg. early seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.098</td>
</tr>
<tr>
<td>54</td>
<td>4 Corn, rd.l.-sm.gr. (late seeded) rd.l.-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.099</td>
</tr>
<tr>
<td>55</td>
<td>4 Corn, (silage) with W.C.-Corn (silage)-M-Migr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.101</td>
</tr>
<tr>
<td>56</td>
<td>3 Corn, rd.l.-sm.gr. (late seeded and overseeded in spring with red cl.)M (red cl.)</td>
<td>1-2</td>
<td>40</td>
<td>.105</td>
</tr>
<tr>
<td>57</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.106</td>
</tr>
<tr>
<td>58</td>
<td>4 Tobacco-sm.gr. (early seeded) rd.r.-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>60</td>
<td>.106</td>
</tr>
<tr>
<td>59</td>
<td>4 Tobacco, with early seeded W.C.-tobacco-M-M (gr.leg.)</td>
<td>3+</td>
<td>75</td>
<td>.106</td>
</tr>
<tr>
<td>60</td>
<td>4 Soybeans, rd.l.-sm.gr. rd.r. (late seeded) -M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>60</td>
<td>.106</td>
</tr>
<tr>
<td>61</td>
<td>8 Cotton, Cotton-sm.gr. rd.r. (late seeded) -M-M-M-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>2-3</td>
<td>HF</td>
<td>.111</td>
</tr>
<tr>
<td>62</td>
<td>4 Corn, rd.l.-M-M-M-M (isereal)</td>
<td>1-2</td>
<td>40</td>
<td>.112</td>
</tr>
<tr>
<td>63</td>
<td>4 Corn, (silage)-sm.gr. (early seeded) rd.r.-M-M (gr.leg. early seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.113</td>
</tr>
<tr>
<td>64</td>
<td>4 Tobacco, with early seeded W.C.-Tobacco -M-M (gr.leg.)</td>
<td>2-3</td>
<td>70</td>
<td>.113</td>
</tr>
<tr>
<td>65</td>
<td>3 Corn, (silage)-sm.gr. (early seeded) overseeded with a.lesp., rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.114</td>
</tr>
<tr>
<td>66</td>
<td>4 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp., rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.114</td>
</tr>
<tr>
<td>67</td>
<td>3 Cotton-M-M (gr.leg. spring seeded)</td>
<td>2-3</td>
<td>HF</td>
<td>.114</td>
</tr>
<tr>
<td>68</td>
<td>4 Corn, (silage) with W.C.-Corn (Silage)-M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.115</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
Table 6b. Cropping-management factors (average annual C factor values) for cropping systems in Western Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>69</td>
<td>4 Soybeans, rd.l.-sm.gr. rd.r. (late seeded)-M-M (gr.leg. seeded after sm.gr. harvest)</td>
<td>1-2</td>
<td>40</td>
<td>.118</td>
</tr>
<tr>
<td>70</td>
<td>4 Corn, (lesimal) with W.C.-Corn (lesimal)-M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.130</td>
</tr>
<tr>
<td>71</td>
<td>4 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp., rd.r.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>40</td>
<td>.134</td>
</tr>
<tr>
<td>72</td>
<td>3 Corn, (lesimal)-sm.gr. (early seeded) overseeded with a.lesp., rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.135</td>
</tr>
<tr>
<td>73</td>
<td>4 Corn, rd.l.-Corn, rd.l. (with late seeded gr.leg.) -M-M (gr.leg.)</td>
<td>1-2</td>
<td>60</td>
<td>.138</td>
</tr>
<tr>
<td>74</td>
<td>3 Cotton, -M-M (gr.leg. spring seeded)</td>
<td>1-2</td>
<td>MF</td>
<td>.138</td>
</tr>
<tr>
<td>75</td>
<td>3 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp., rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.145</td>
</tr>
<tr>
<td>76</td>
<td>4 Corn, rd.l.-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.145</td>
</tr>
<tr>
<td>77</td>
<td>3 Soybeans, rd.l. (W.C.)-soybeans, rd.l. (W.C.)-M (button clover for seed) rd.l.</td>
<td>1-2</td>
<td>70</td>
<td>.146</td>
</tr>
<tr>
<td>78</td>
<td>3 Soybeans, rd.l.-sm.gr. (late seeded) overseeded with a.lesp., rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.148</td>
</tr>
<tr>
<td>79</td>
<td>1 Small Grain continuous, early seeded, rd.l.</td>
<td>1-2</td>
<td>45</td>
<td>.158</td>
</tr>
<tr>
<td>80</td>
<td>4 Corn, rd.l.-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.160</td>
</tr>
<tr>
<td>81</td>
<td>4 Cotton-Corn rd.l.-M-M (gr.leg. late seeded)</td>
<td>1-2</td>
<td>60</td>
<td>.160</td>
</tr>
<tr>
<td>82</td>
<td>1 Wheat, continuous, rd.r. Wheat (late seeded) with a.lesp. overseeded</td>
<td></td>
<td></td>
<td>.160</td>
</tr>
<tr>
<td>83</td>
<td>2 Corn, (lesimal)-sm.gr. (early seeded) overseeded with a.lesp., rd.r.</td>
<td>1-2</td>
<td>60</td>
<td>.166</td>
</tr>
<tr>
<td>84</td>
<td>4 Corn, rd.l.-Corn rd.l. (with late seeded gr.leg.) -M-M (gr.leg.)</td>
<td>1-2</td>
<td>40</td>
<td>.167</td>
</tr>
<tr>
<td>85</td>
<td>4 Cotton-M-M-M (a.lesp.)</td>
<td>1-2</td>
<td>MF</td>
<td>.168</td>
</tr>
<tr>
<td>86</td>
<td>3 Soybeans, rd.l.-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>40</td>
<td>.168</td>
</tr>
<tr>
<td>87</td>
<td>3 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp. rd.r.-M (a.lesp.)</td>
<td>1-2</td>
<td>40</td>
<td>.172</td>
</tr>
<tr>
<td>88</td>
<td>6 Cotton-Cotton-M-M-M-M (sericea)</td>
<td>1-2</td>
<td>MF</td>
<td>.178</td>
</tr>
<tr>
<td>89</td>
<td>4 Cotton with W.C.-Cotton with W.C.-M-M (button clover for seed) rd.l.</td>
<td>1-2</td>
<td>MF</td>
<td>.179</td>
</tr>
<tr>
<td>90</td>
<td>3 Soybeans, rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.184</td>
</tr>
<tr>
<td>91</td>
<td>3 Corn, rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.184</td>
</tr>
<tr>
<td>92</td>
<td>4 Cotton-Cotton-M-M (gr.leg. spring seeded)</td>
<td>1-2</td>
<td>HF</td>
<td>.186</td>
</tr>
<tr>
<td>93</td>
<td>4 Cotton-Corn rd.l.-M-M (gr.leg. late seeded)</td>
<td>1-2</td>
<td>MF</td>
<td>.186</td>
</tr>
<tr>
<td>94</td>
<td>2 Corn, (lesimal)-sm.gr. (early seeded) overseeded with a.lesp., rd.r.</td>
<td>1-2</td>
<td>45</td>
<td>.193</td>
</tr>
<tr>
<td>95</td>
<td>3 Soybeans, rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.204</td>
</tr>
<tr>
<td>96</td>
<td>3 Corn, rd.l.-M-M (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.207</td>
</tr>
<tr>
<td>97</td>
<td>2 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp. (grazed or hay)</td>
<td>1-2</td>
<td>60</td>
<td>.208</td>
</tr>
<tr>
<td>98</td>
<td>3 Cotton-M-M (a.lesp.)</td>
<td>1-2</td>
<td>MF</td>
<td>.217</td>
</tr>
<tr>
<td>99</td>
<td>4 Cotton-Cotton-M-M (gr.leg. spring seeded)</td>
<td>1-2</td>
<td>MF</td>
<td>.220</td>
</tr>
<tr>
<td>100</td>
<td>3 Soybeans, rd.l. (W.C.) Soybeans, rd.l. (W.C.)-M (button clover for seed) rd.l.</td>
<td>1-2</td>
<td>40</td>
<td>.226</td>
</tr>
</tbody>
</table>

See code to symbols at end of table.
Table 6b. Cropping-management factors (average annual C factor values) for cropping systems in Western Tennessee (Continued)

<table>
<thead>
<tr>
<th>Line</th>
<th>CYCLE</th>
<th>MEADOW Tons</th>
<th>CORN Bu.</th>
<th>AV. ANNUAL &quot;C&quot; VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>1 Sudan Millet, or Hybrid Crosses, continuous, rd.r. with early seeded W.C. rd.r.</td>
<td>MF</td>
<td>.228</td>
<td></td>
</tr>
<tr>
<td>102</td>
<td>4 Corn, rd.l.-Corn rd.l.-M.-M. (a.lesp.)</td>
<td>1-2</td>
<td>60</td>
<td>.231</td>
</tr>
<tr>
<td>103</td>
<td>2 Corn, rd.l.-sm.gr. (late seeded) overseeded with a.lesp. (grazed or hay)</td>
<td>1-2</td>
<td>40</td>
<td>.249</td>
</tr>
<tr>
<td>104</td>
<td>4 Cotton with W.C.-Cotton with W.C.-Cotton with W.C.-M (button clover for seed) rd.l.</td>
<td>HF</td>
<td>.259</td>
<td></td>
</tr>
<tr>
<td>105</td>
<td>1 Wheat, continuous (late seeded) rd.l.</td>
<td>1wh.15†</td>
<td>.260</td>
<td></td>
</tr>
<tr>
<td>106</td>
<td>4 Corn, rd.l.-Corn rd.l.-M.-M. (a.lesp.)</td>
<td>1-2</td>
<td>45</td>
<td>.271</td>
</tr>
<tr>
<td>107</td>
<td>1 Corn, continuous, rd.r. (silage) with early seeded W.C.</td>
<td>75</td>
<td>.297</td>
<td></td>
</tr>
<tr>
<td>108</td>
<td>3 Soybeans, rd.l.-Soybeans rd.l.-M. (a.lesp.)</td>
<td>60</td>
<td>.299</td>
<td></td>
</tr>
<tr>
<td>109</td>
<td>4 Cotton-Cotton-M-M. (a.lesp.)</td>
<td>1-2</td>
<td>MF</td>
<td>.307</td>
</tr>
<tr>
<td>110</td>
<td>1 Corn, continuous, rd.r. (silage) with early seeded W.C.</td>
<td>60</td>
<td>.314</td>
<td></td>
</tr>
<tr>
<td>111</td>
<td>1 Tobacco, continuous, with (early seeded) Smgr. leg. W.C. and 8 tons of manure</td>
<td>3+</td>
<td>75</td>
<td>.327</td>
</tr>
<tr>
<td>112</td>
<td>1 Corn, continuous, rd.l. with late seeded W.C. (smgr.)</td>
<td>75</td>
<td>.334</td>
<td></td>
</tr>
<tr>
<td>113</td>
<td>1 Corn, continuous, rd.l. without W.C.</td>
<td>75</td>
<td>.350</td>
<td></td>
</tr>
<tr>
<td>114</td>
<td>1 Soybeans, continuous, rd.l. without W.C.</td>
<td>75</td>
<td>.351</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>3 Soybeans, rd.l.-Soybeans rd.l.-M. (a.lesp.)</td>
<td>45</td>
<td>.353</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>1 Soybeans, continuous, rd.l. with W.C. late seeded</td>
<td>2-3</td>
<td>75</td>
<td>.361</td>
</tr>
<tr>
<td>117</td>
<td>1 Tobacco, continuous, with early seeded (smgr.) leg. W.C. and 8 tons of manure</td>
<td>2-3</td>
<td>45</td>
<td>.377</td>
</tr>
<tr>
<td>118</td>
<td>1 Cotton, continuous, with early seeded W.C.</td>
<td>HF</td>
<td>.380</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>1 Cotton, continuous, with late seeded W.C.</td>
<td>HF</td>
<td>.413</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>1 Cotton, continuous, with early seeded W.C.</td>
<td>MF</td>
<td>.422</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>1 Corn, continuous, rd.l. with late seeded W.C. (smgr.)</td>
<td>45</td>
<td>.438</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>1 Soybeans, continuous, rd.l. with late seeded W.C.</td>
<td>45</td>
<td>.462</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>1 Cotton, continuous, with late seeded W.C.</td>
<td>MF</td>
<td>.482</td>
<td></td>
</tr>
<tr>
<td>124</td>
<td>1 Corn, continuous, rd.l. without W.C.</td>
<td>45</td>
<td>.487</td>
<td></td>
</tr>
<tr>
<td>125</td>
<td>1 Soybeans, continuous, rd.l. without W.C.</td>
<td>45</td>
<td>.494</td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>1 Cotton, continuous, without W.C.</td>
<td>HF</td>
<td>.497</td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>1 Cotton, continuous, without W.C.</td>
<td>MF</td>
<td>.556</td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>1 Tobacco, continuous, without W.C.</td>
<td>60</td>
<td>.663</td>
<td></td>
</tr>
<tr>
<td>129</td>
<td>1 Corn, continuous, rd.r. (silage) without W.C.</td>
<td>60</td>
<td>.665</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>1 Tobacco, continuous, without W.C.</td>
<td>40</td>
<td>.706</td>
<td></td>
</tr>
<tr>
<td>131</td>
<td>1 Corn, continuous, rd.r. (silage) without W.C.</td>
<td>40</td>
<td>.711</td>
<td></td>
</tr>
<tr>
<td>132</td>
<td>1 Continuous fallow (2 or more years)</td>
<td></td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Code to symbols used

gr.-leg.—grass legume mixture; M.—meadow used for hay or grazed with residue removed unless otherwise indicated; MF—1 bale or less per acre of lint cotton. HF—more than 1 bale per acre of lint cotton; rd.l.—residue left; rd.r.—residue removed; sm.gr.—small grain, W.C.—winter cover; Early seeded—seeding made by 9/15; Late seeded—seeding made by 10/15. cl.—clover; wh.—wheat.
Table 7. Conservation practice factor (P) values—Tennessee

<table>
<thead>
<tr>
<th>Slope percent</th>
<th>Contour (^1) forming or terracing (^2)</th>
<th>Contour stripcropping (^1) (Includes contouring)</th>
<th>Field stripcropping (^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1-2.0</td>
<td>0.60</td>
<td>0.30</td>
<td>0.45</td>
</tr>
<tr>
<td>2.1-7.0</td>
<td>0.50</td>
<td>0.25</td>
<td>0.375</td>
</tr>
<tr>
<td>7.1-12.0</td>
<td>0.60</td>
<td>0.30</td>
<td>0.45</td>
</tr>
<tr>
<td>12.1-18.0</td>
<td>0.80</td>
<td>0.40</td>
<td>0.60</td>
</tr>
<tr>
<td>18.1-24.0</td>
<td>0.90</td>
<td>0.45</td>
<td>0.675</td>
</tr>
</tbody>
</table>

\(^1\) Slope length for selection of combined SL value for contouring and stripcropping is the field length.

\(^2\) Slope length for selection of combined SL value for terracing is the recommended horizontal terrace spacing.

Table 8. Spacing of terraces

<table>
<thead>
<tr>
<th>Average land slope ft. per 100 ft. (%)</th>
<th>Vertical spacing between terraces, ft.</th>
<th>Horizontal spacing between terraces, ft.</th>
</tr>
</thead>
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47
Table 9. Cropping-management values for selected R, T/K, and slopes

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*Spaces without cropping-management values indicate that the practice is not needed to keep soil losses within tolerance under the soil, slope, and rainfall conditions.
### Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)
Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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R Factor 170
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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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### Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9—290

R Factor 290
### Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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Table 9. Cropping-management values for selected R, T/K, and slopes (continued)

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|     | 2     | 0.065  0.043 0.032 0.029 | 0.108  0.072 0.053 0.048 | 0.216  0.144 0.106 0.096 | 0.108 XXXX XXXX XXXX |
|     | 4     | 0.032  0.021 0.019 0.016 | 0.064  0.042 0.038 0.032 | 0.128  0.084 0.076 0.064 | XXXX  XXXX 0.074  XXXX |
|     | 6     | 0.019  0.014 0.011 0.010 | 0.038  0.028 0.022 0.020 | 0.076  0.056 0.044 0.040 | XXXX  XXXX 0.046  XXXX |
|     | 8     | 0.013  0.009 0.008 0.006 | 0.022  0.015 0.013 0.010 | 0.044  0.030 0.026 0.020 | XXXX  XXXX 0.032  XXXX |
|     | 10    | 0.009  0.007 0.005 0.005 | 0.015  0.012 0.008 0.008 | 0.030  0.024 0.016 0.016 | XXXX  XXXX 0.016  XXXX |
|     | 12    | 0.007  0.005 0.005 0.004 | 0.012  0.008 0.008 0.007 | 0.024  0.016 0.016 0.014 | XXXX  XXXX 0.014  XXXX |

|     | 2     | 0.097  0.065 0.048 0.043 | 0.142  0.108 0.080 0.072 | 0.324  0.216 0.160 0.144 | 0.162 XXXX XXXX XXXX |
|     | 4     | 0.048  0.032 0.028 0.025 | 0.096  0.064 0.056 0.050 | 0.192  0.128 0.112 0.100 | XXXX  0.112 XXXX  XXXX |
|     | 6     | 0.028  0.021 0.016 0.015 | 0.056  0.042 0.032 0.030 | 0.112  0.084 0.064 0.060 | XXXX  XXXX 0.070  XXXX |
|     | 8     | 0.019  0.014 0.012 0.010 | 0.032  0.023 0.020 0.017 | 0.064  0.046 0.040 0.034 | XXXX  XXXX 0.047  XXXX |
|     | 10    | 0.014  0.010 0.008 0.007 | 0.023  0.017 0.013 0.012 | 0.046  0.034 0.026 0.024 | XXXX  XXXX 0.024  XXXX |
|     | 12    | 0.011  0.008 0.006 0.006 | 0.018  0.013 0.010 0.010 | 0.036  0.026 0.020 0.020 | XXXX  XXXX 0.016  XXXX |

<p>|     | 2     | 0.129  0.086 0.065 0.058 | 0.215  0.143 0.108 0.097 | 0.430  0.286 0.216 0.194 | 0.215 XXXX XXXX XXXX |
|     | 4     | 0.065  0.043 0.037 0.032 | 0.130  0.086 0.074 0.064 | 0.260  0.172 0.148 0.128 | XXXX  0.150 XXXX  XXXX |
|     | 6     | 0.037  0.028 0.021 0.020 | 0.074  0.056 0.042 0.040 | 0.148  0.112 0.084 0.080 | XXXX  XXXX 0.094  XXXX |
|     | 8     | 0.026  0.019 0.015 0.013 | 0.043  0.032 0.025 0.022 | 0.086  0.064 0.050 0.044 | XXXX  XXXX 0.062  XXXX |
|     | 10    | 0.019  0.014 0.010 0.009 | 0.032  0.023 0.017 0.015 | 0.064  0.046 0.034 0.030 | XXXX  XXXX 0.030  XXXX |
|     | 12    | 0.014  0.010 0.008 0.007 | 0.023  0.017 0.013 0.012 | 0.046  0.034 0.026 0.024 | XXXX  XXXX 0.024  XXXX |</p>
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Note: The table continues with similar data for other values of T/K and slope lengths.
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76