

# East National Technology Support Center

## Using RUSLE2 to Accurately Determine Soil Loss for Conservation Compliance



Steve Boetger,  
Agronomist





# HEL Provision:

Loss of certain USDA Program benefits by persons who:

- ***Pre-1985 Cropland:*** Produce an annual agricultural commodity on HEL cropland that has an erosion rate that does not meet the definition for ***substantial reduction in soil erosion***



# What is Substantial Reduction?

- If the field produced crops prior to December 23, 1985, and the system or plan has been approved, applied, and maintained prior to July 3, 1996
  - Then substantial reduction has already been met, provided the plan or system continues to be applied and maintained and
    - Same person continues to use the original system or revises the system to provide an equal or greater level of protection.
      - Or
    - New owner and/or operator accepts the approved system or plan and continues to apply and maintain the system or an equivalent system.



## What is Substantial Reduction?

- If the field produced crops prior to December 23, 1985, and the system or plan has been approved after July 3, 1996
  - Then substantial reduction is a 75 percent reduction of the potential erodibility (PE) OR not more than two times the soil loss tolerance level, whichever is less, for the predominant highly erodible soil map unit in the highly erodible field.



# Sodbuster Provision

**Sodbuster:** Produce an annual agricultural commodity on an HEL cropland field that has been “sodbusted” from native vegetation and has erosion rates that do not meet the definition for *no substantial increase in soil erosion*



## What is Substantial Increase?

- If the field has no history of crop production prior to July 3, 1996
  - Then substantial reduction does not apply. In no case will soil erosion level for sodbusted land exceed the soil loss tolerance.
- When developing a system for sodbusted land, a substantial increase in erosion is defined as any level that is greater than the soil loss tolerance of the predominant HEL map unit.



## System Approval Levels

- Field Office employee may approve a system if the erosion rate does not exceed 2T
- State Conservationists may approve systems that have an erosion rate between 2T and 4T
  - Systems developed and approved in excess of 2T must be supported by documentation to the need to exceed 2T.
- Division Directors may approve systems in excess of 4T.



# Using RUSLE to Determine Systems

- Previously Approved Systems
  - Soil loss levels for systems developed using other sheet and rill erosion soil loss prediction technology, as documented in the FOTG, will be recalculated using the current version of RUSLE to establish the new soil loss value for the system.
    - Example: Soil loss for a conventional tilled cotton rotation with contouring was calculated to a soil loss level of 12 tons.

Worksheet: default\*

Owner name: \*\*Owner name\*\*  
 Tract #: \*\*Tract number\*\*  
 Field name: \*\*Field number\*\*

Info

Compare management alternatives for a single hillslope profile

Location: USA\North Carolina\Guilford County

Soil: Guilford County, North Carolina\VaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%

T value, t/ac/yr: 5.0

Slope length (along slope), ft: 150

Fuel for all managements: (none)

Avg. slope steepness, %: 10

Management alternative table

Temp. scenario	Show in summary?	Description	Base management	Yield values	Residue values	Contouring	Diversion/terrace, sediment basin	Strips / barriers	Rock cover, %	Cons. plan. soil loss, t/ac/yr	Soil loss OK?
Profile	Yes	1985 crop - Plan prior to July 3, 1996	...TON. EARLY. CT plow+disk	Yields	... inputs	... grade 1 percent	(none)	(none)	0	25	





# Using RUSLE to Determine Systems

- Previously Approved Systems

- USLE factor values must not be used in RUSLE calculations; RUSLE estimates must not be compared to USLE estimates.
- RUSLE soil-loss estimates must be used to make comparisons with actual RUSLE soil losses determined during a system review or a Compliance Status Review.
- Where maximum USLE or RUSLE1 CP values have been used to establish an acceptable HEL system, a current version of RUSLE soil loss must be established for the same system.
- All new systems will be developed and/or evaluated using the current version of RUSLE.

# Using RUSLE to Determine Systems

- Previously Approved Systems
  - No system revisions will be required as a result of RUSLE implementation.
  - System revisions, for any reason, will use the RUSLE-based systems included in the FOTG. Implementation of RUSLE will not lessen the compliance standards specified in the current FOTG.
  - Using RUSLE to develop or revise conservation systems shall involve the use of site-specific factor values rather than any default values used in establishing the system. In cases where the RUSLE soil loss for a previous system falls below the T value, the planned system will include only practices necessary to reduce soil losses to T unless the producer is willing to apply more.



# Using RUSLE to Determine Systems

- Recalculations for Determining Compliance
  - Soil loss levels for systems that were developed using USLE technology will be recalculated using the current version of RUSLE.
  - RUSLE1 factors are not to be used in RUSLE2 calculations nor are RUSLE2 estimates to be compared to RUSLE1 estimates.
  - Use the current version of RUSLE and the current standards in the FOTG to evaluate:
    - Systems actually applied
    - Systems that were applied differently from those specified in the plan or where a plan was not developed.



# Using RUSLE to Determine Systems

- Compliance Reviews

- Current version of RUSLE must be used to calculate sheet and rill erosion.
- Current RUSLE technology will be used to determine if the system meets the FOTG criteria to compare the predicted RUSLE erosion level with the actual RUSLE soil loss level of the system as applied.

- Residue Measurements

- RUSLE takes into account residue incorporated into the top 2 inches of the soil, effects of the growing crop, and surface residues on soil erosion.

Worksheet: default\*

Owner name: \*\*Owner name\*\*  
 Tract #: \*\*Tract number\*\*  
 Field name: \*\*Field number\*\*

Info

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Soil: Guilford County, North Carolina\WaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%

T value, t/ac/yr: 5.0

Slope length (along slope), ft: 150

Fuel for all managements: (none)

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Profile	Yes	1985 crop - Plan prior to July 3, 1996	...TON. EARLY. CT plow+disk	Yields	... inputs	... grade 1 percent	(none)	(none)	0	25	Red
Profile	Yes	1985 crop - Plan after July 3, 1996	...COTTON. EARLY. CT diskx2	Yields	... inputs	...ade 0.5 percent	...le 1 at bottom of RUSLE slope	(none)	0	8.3	Yellow





RUSLE2 Version 2.5.2.11 (Aug 18 2014) - [Management: CMZ 66(a,Single Year/Single Crop Templates/805\_COTTON/103\_COTTON\_EARLY\_CT disk2]

File Database Edit View Options Tools Window Help

Graphic:  Rel. row grade, %: 100

Add to this management to make new one:

View/rotator builder used to make this management:

Irrigation system:

Long term natural rough, in: 0.24  
Normally used as a rotation? Yes  
Duration, yr: 1

Fuel for all operations: (none)

Base equip. diesel use, gal/AC: 4.0  
Base energy use, BTU/AC: 80000  
Base fuel cost, US\$/gal: 0

Management STIR: 62 Avg. annual STIR: 62

How set crop year end/start? all KLL crop

Crop Year STIR Values				
Crop year	Crop	Start date, m/d/y	End date, m/d/y	STIR
1		8/2/0	8/1/1	0

Auto update

RUSLE2 Version 2.5.2.11 (Aug 18 2014) - [Contour System: b. absolute row grade 0.5 percent]

File Database Edit View Options Tools Window Help

Auto update

How specify row grade	Set abs. row grade
Absolute row grade, %	0.50
Relative row grade, %	1.0

Info

Info cross slope rows with 0.5 percent grade (6" per 100 feet)

RUSLE2 Version 2.5.2.11 (Aug 18 2014) - [Management: CMZ 66/a Single Year/Single Crop Templates/905\_COTTON/103\_COTTON\_EARLY\_CT disk2]

File Database Edit View Options Tools Window Help

Graphic:  Long term natural roughness:  Management STIR:  Avg annual STIR:

Ref row grade, %:  Normally used as a rotation?  Duration, yr:

RUSLE2 Version 2.5.2.11 (Aug 18 2014) - [Contour System: b. absolute row grade 0.5 percent]

File Database Edit View Options Tools Window Help

Auto update

Operations Info

Date, m/d/y	Event
4/20/1	
4/21/1	
4/22/1	
5/1/1	
5/20/1	
6/15/1	
7/15/1	
8/1/1	
8/15/1	
9/1/1	
10/7/1	

RUSLE2 Version 2.5.2.11 (Aug 18 2014) - [Hyd. element flow path system: 2 gradient terraces 0.5% grade 1 in middle 1 at bottom of RUSLE s

File Database Edit View Options Tools Window Help

Auto update

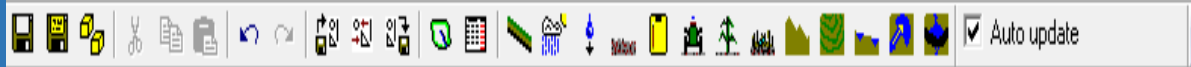
# flow paths crossing slope length:

Line at bottom?:

Flow path type:

Info

Info 2 gradient terraces, 1 in the middle and 1 at bottom of RUSLE slope 0.5 grade channels.



Owner name: \*\*\*Owner name\*\*\*  
 Tract #: \*\*\*Tract number\*\*\*  
 Field name: \*\*\*Field number\*\*\*

Info:

Compare management alternatives for a single hillslope profile

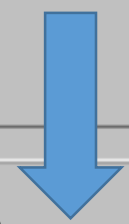
Location: USA\North Carolina\Guilford County  
 Soil: Guilford County, North Carolina\VaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%  
 T value, t/ac/yr: 5.0

Slope length (along slope), ft: 150  
 Fuel for all managements: (none)

Avg. slope steepness, %: 10

Management alternative table

Temp. scenario	Show in summary?	Description	Base management	Yield values	Residue values	Contouring	Diversion/terrace, sediment basin	Strips / barriers	Rock cover, %	Cons. plan. soil loss, t/ac/yr	Soil loss OK?	Cover values	Soil conditionin g index (SCI)	Soil conditionin g index (SCI)	SCI value OK?	STIR value
Profile	Yes	Sodbuster	...N, gr. EARLY. CT plow+disk	Yields	... inputs	... grade 1 percent	(none)	(none)	0	16	Red	... cover	... index	-1.11	Red	120
Profile	Yes	Sodbuster	... gr. EARLY. MT coultter chisel	Yields	... inputs	... grade 1 percent	...de in middle of RUSLE slope	(none)	0	5.8	Yellow	... cover	... index	-0.247	Red	59.5
Profile	Yes	Sodbuster	...ARLY. ST rip+plant to disturb	Yields	... inputs	default	(none)	(none)	0	3.4	Green	... cover	... index	0.321	Green	6.60



Graphic  Rel. row grade, %

Add to this management to make new one

View/edit rotation builder used to make this management

Irrigation system

Long-term natural rough., in.   
 Normally used as a rotation?   
 Duration, yr

Fuel for all operations

Base equiv. diesel use, gal/ac   
 Base energy use, BTU/ac   
 Base fuel cost, US\$/ac

Management STIR  Avg. annual STIR

How set crop year end/start?

Crop Year STIR Values

Crop year	Crop	Start date, m/d/y	End date, m/d/y	STIR
1		9/13/0	9/12/1	0

Management Operations

Date, m/d/y	End/Start crop year?	Operation	Vegetation	Yield (harv. units), #/ac	Type of cover material	Cover matl add/remov e, lb/ac	Cover from addition, %	Standing res. added by op. desc., lb/ac	Fuel used this operation
3/30/1	No	Sprayer, kill crop							default
3/31/1	No	Fert applic. surface broadcast							default
4/10/1	No	Planter, in-row subsoiler w/ residue mgr.	Corn, grain	125					default
4/11/1	No	Sprayer, pre-emergence							default
6/1/1	No	Fert applic. side-dress, liquid							default
9/12/1	Yes	Harvest, killing crop 50pct standing stubble				3470.6	73	3470	default

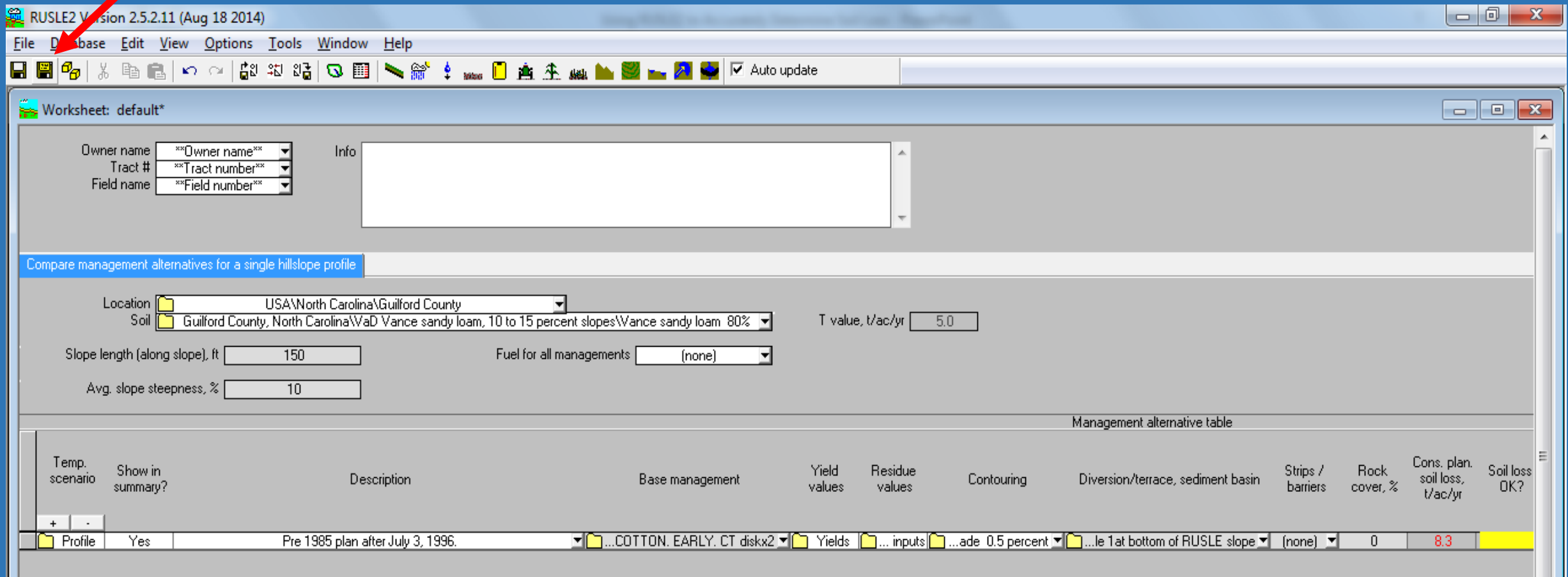


# Developing Templates

- First way is that the field office can save a plan, a worksheet, or a profile, which can be used again without having to re-enter all of the information.
- Second way is for the State Agronomist to develop printing templates, which allow for the printed documents to contain only the information that is needed to evaluate the system.

# Saving Worksheets

Click the Save As Button



The screenshot shows the RUSLE2 software interface. The title bar reads "RUSLE2 Version 2.5.2.11 (Aug 18 2014)". The menu bar includes "File", "Database", "Edit", "View", "Options", "Tools", "Window", and "Help". The toolbar contains various icons, including a "Save As" icon (a floppy disk with a plus sign) which is highlighted by a red arrow. The main window is titled "Worksheet: default\*" and contains several input fields and a table.

Input fields include:

- Owner name: \*\*Owner name\*\*
- Tract #: \*\*Tract number\*\*
- Field name: \*\*Field number\*\*
- Info: [Text area]
- Location: USA\North Carolina\Guilford County
- Soil: Guilford County, North Carolina\VaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%
- T value, t/ac/yr: 5.0
- Slope length (along slope), ft: 150
- Fuel for all managements: (none)
- Avg. slope steepness, %: 10

Management alternative table:

Temp. scenario	Show in summary?	Description	Base management	Yield values	Residue values	Contouring	Diversion/terrace, sediment basin	Strips / barriers	Rock cover, %	Cons. plan. soil loss, t/ac/yr	Soil loss OK?
Profile	Yes	Pre 1985 plan after July 3, 1996.	...COTTON. EARLY. CT diskx2	Yields	... inputs	...ade 0.5 percent	...le 1 at bottom of RUSLE slope	(none)	0	8.3	Yes

Worksheet: default\*

Owner name: ""Owner name""  
Tract #: ""Tract number""  
Field name: ""Field number""

Info

Compare management alternatives for a single hillslope profile

Location: USA\North Carolina\G...  
Soil: Guilford County, North Carolina\VaD...

Slope length (along slope), ft: 150

Avg. slope steepness, %: 10

Temp. scenario: + -  
Show in summary?

Descrip

Temp. scenario	Show in summary?	Descrip
Profile	Yes	Pre 1985 plan after

Save As dialog box

Save in: worksheets

- Potential Erosion GPR wks template
- default

File name: Pre 1985 plan after July 3, 1996

File type: worksheets

Open to last directory

Buttons: Save, Cancel

ive table

ediment basin	Strips / barriers	Rock cover, %	Cons. plan. soil loss, t/ac/yr	Soil loss OK?
RUSLE slope	(none)	0	8.3	

Open

Look in: worksheets

- Potential Erosion GPR wks template
- Pre 1985 plan after July 3, 1996
- default

File name:

File type: worksheets

Open to last directory

Open Cancel



Worksheet: Pre 1985 plan after July 3, 1996

Owner name   
 Tract #   
 Field name

Info

Compare management alternatives for a single hillslope profile

Location   
 Soil   
 T value, t/ac/yr   
 Slope length (along slope), ft   
 Fuel for all managements   
 Avg. slope steepness, %

Management alternative table

Temp. scenario	Show in summary?	Description	Base management	Yield values	Residue values	Contouring	Diversion/terrace, sediment basin	Strips / barriers	Rock cover, %	Cons. plan. soil loss, t/ac/yr	Soil loss OK?
Profile	Yes	Pre 1985 plan after July 3, 1996.	...COTTON. EARLY. CT diskx2	Yields	... inputs	...ade 0.5 percent	...le 1 at bottom of RUSLE slope	(none)	0	8.3	

# Developing a Printing Template

- Should be done by the State Agronomist or other personnel who oversee RUSLE2.
- Start with a blank word document template or you can modify one of the templates in the Printing folder

Navigation icons: Back, Forward, Home, Stop, Refresh, Search. Address bar: << USDA >> RUSLE2 New Ver >> Rusle2PortableNRCS(2.5.2.11) to be released to field >> Search Rusle2PortableNRCS(...)

Organize ▾ Include in library ▾ Share with ▾ Burn New folder

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- Recent Places
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Libraries

- Documents
- Music
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- Videos

Computer

- LocalDisk (C:)
- Data (\\NCGREENSB4S604) (F:)
- Shared (\\NCGREENSB4S604) (S:)

Network

Name	Date modified	Type	Size
Binaries	10/24/2014 10:52 ...	File folder	
Export	5/16/2015 1:04 PM	File folder	
Import	3/12/2015 8:15 AM	File folder	
Printing	5/16/2015 1:16 PM	File folder	
Session	10/24/2014 10:52 ...	File folder	
Text	10/24/2014 10:52 ...	File folder	
Users	5/15/2015 6:01 PM	File folder	
changes	8/25/2014 4:43 PM	Rich Text Format	59 KB
credits	8/25/2014 4:43 PM	Text Document	1 KB
license	8/25/2014 4:43 PM	Text Document	9 KB
MOSES 05012014 - AL	5/17/2015 10:04 AM	GDB File	48,517 KB
MOSES 05012014 - WV	5/12/2015 10:39 PM	GDB File	48,517 KB
MOSES 05012014	5/12/2015 10:36 PM	GDB File	48,517 KB
readme	8/25/2014 4:43 PM	Rich Text Format	47 KB
Rusle2	8/25/2014 4:43 PM	Compiled HTML ...	1,181 KB

15 items

Navigation bar: << RUSLE2 New Ver >> Rusle2PortableNRCS(2.5.2.11) to be released to field >> Printing

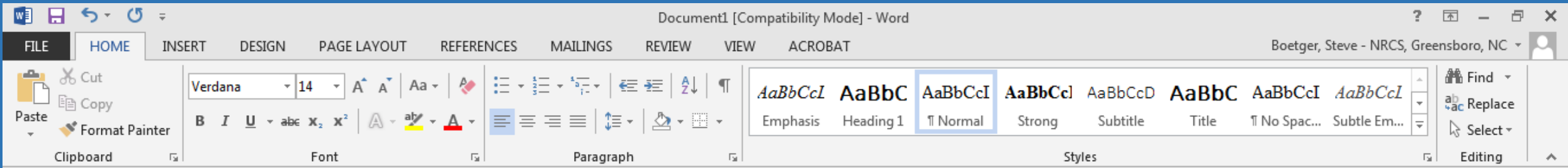
Organize > New > Print > E-mail > Burn > New folder

- ★ Favorites
  - Desktop
  - Recent Places
  - Downloads
- Libraries
  - Documents
  - Music
  - Pictures
  - Videos
- Computer
  - LocalDisk (C:)
  - Data (\\NCGREENSB4S604) (F:)
  - Shared (\\NCGREENSB4S604) (S:)
- Network

Name	Date modified	Type
NRCS RUSLE2 CONST Profile Record Daily Biomass and soil loss detail.pro	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Management Record.man	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Plan Record Averages0806.pln	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Plan Record short 06062013.pln	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Profile Record 091509.pro	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Profile Record Expanded residue detail071509.pro	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Profile Record Expanded wSCI 071409.pro	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Profile Record with SCI & Irrig with certification.pro	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet Biomass harvest, Comparisons.wrk	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet Compare Record.wrk	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet Erosion results only.wrk	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet SCI, STIR and Fuel use.wrk	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet SCI, STIR, Biomass Harv and Erosion_rev.wrk	8/25/2014 4:43 PM	Micr
NRCS RUSLE2 Worksheet SCI, STIR, Biomass Harv and Fuel use 091509.wrk	8/25/2014 4:43 PM	Micr
NRCS_Profile_with_SCI_STIR_Fuel_Use_and_Crop_interval_erosion103012.pro	8/25/2014 4:43 PM	Micr
RUSLE2 Grazing Planner with Daily Details.pro	8/25/2014 4:43 PM	Micr
RUSLE2 Profile Grazing Planner.pro	8/25/2014 4:43 PM	Micr
RUSLE2 template KY_HELC_FINAL.pro	8/25/2014 4:43 PM	Micr
RUSLE2 Worksheet Biomass Harvest Impacts.wrk	8/25/2014 4:43 PM	Micr

Type: Microsoft Word 97 - 2003 Template  
 Size: 32.0 KB  
 Date modified: 8/25/2014 4:43 PM  
 Pages: 2

NRCS RUSLE2 Worksheet SCI, STIR and F... Date modified: 8/25/2014 4:43 PM Tags: Add a tag  
 Microsoft Word 97 - 2003 Template Authors: dave.lightle



## RUSLE2 Worksheet Erosion Calculation Record

##WORKSHEET:TemplateObjectType##  
##WORK\_GEN\_DESCRIP:ALL##

##Table:WORK\_GEN\_OWNER\_NAME:ALL, WORK\_GEN\_TRACT\_NUM:ALL, WORK\_GEN\_FIELD\_NUM:ALL##

##Table:CLIMATE\_PTR:ALL, SOIL\_PTR:ALL, SLOPE\_T\_VALUE:ALL, SLOPE\_HORIZ:ALL, SLOPE\_STEEP:ALL##

### **Alternatives:**

##Table:WORK\_ALT\_DESC\_THIS\_ALT:ALL, WORK\_ALT\_MANAGE\_PTR, WORK\_ALT\_CONTOURING\_PTR, WORK\_ALT\_SUP\_PRACT\_P

Example RUSLE2 Worksheet Erosion Calculation Record.wrk [Compatibility Mode] - Word

Boetger, Steve - NRCS, Greensboro, NC

FILE HOME INSERT DESIGN PAGE LAYOUT REFERENCES MAILINGS REVIEW VIEW ACROBAT

Cut Copy Paste Format Painter

Arial 10 A A Aa A

B I U abc x<sub>2</sub> x<sup>2</sup> A a A

AaBbCcI AaBbCc AaBbCcI AaBbCcI AaBbCcD AaBbCc AaBbCcI AaBbCcI

Emphasis Heading 1 Normal Strong Subtitle Title No Spac... Subtle Em...

Find Replace Select

Clipboard Font Paragraph Styles Editing



## RUSLE2 Worksheet Erosion Calculation Record

##WORKSHEET:TemplateObjectType##

##WORK\_GEN\_DESCRIP:ALL##

Crop Rotation Modeled:

##WORK\_ALT\_MANAGE\_PTR##

##Table:WORK\_GEN\_OWNER\_NAME:ALL, WORK\_GEN\_TRACT\_NUM:ALL, WORK\_GEN\_FIELD\_NUM:ALL##

##Table:CLIMATE\_PTR:ALL, SOIL\_PTR:ALL, SLOPE\_T\_VALUE:ALL, SLOPE\_HORIZ:ALL, SLOPE\_STEEP:ALL##

Worksheet: Pre 1985 plan after July 3, 1996

Owner name: \*\*Owner name\*\*  
 Tract #: \*\*Tract number\*\*  
 Field name: \*\*Field number\*\*

Info: [Text Area]

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 Slope length (along slope), ft: 150  
 Fuel for all managements: (none)  
 Avg. slope steepness, %: 10

Management alternative table

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Profile	Yes	Pre 1985 plan after July 3, 1996.	...COTTON. E	ade 0.5 percent	le 1at bottom of RUSLE slope	(none)	0	8.3	

- Help
- Highlight
- Disable
- Always show
- Hide if toplevel
- Data Rows
- Column width
- Header size
- Expand grid
- Delete this visual
- WORK\_ALT\_MANAGE\_PTR

- ★ Favorites
- Desktop
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- Computer
- LocalDisk (C:)
- Data (\\NCGREENSB4S604) (F:)
- Steve.Boetger (\\NCGREENSB4S604) (H:)
- Shared (\\NCGREENSB4S604) (S:)

- Network

### Documents library

Includes: 3 locations

Arrange by: Folder

Name	Date modified	Type	Size
My Documents (260) C:\Users\Steve.Boetger			
1 Virginia WEPS training 2013	1/22/2014 9:04 AM	File folder	
ArcGIS	11/18/2014 11:11 ...	File folder	
att connect	9/23/2013 2:08 PM	File folder	
Bootcamp - Soils	4/30/2015 3:48 PM	File folder	
Camtasia Studio	7/24/2014 3:45 PM	File folder	
CIG Review	6/20/2014 3:50 PM	File folder	
Custom Office Templates	5/18/2015 9:07 AM	File folder	
FME	11/12/2014 12:14 ...	File folder	
FMI	1/3/2014 11:08 AM	File folder	
FOTG Review	7/2/2014 11:04 AM	File folder	
High Tunnel Info	3/10/2015 10:49 AM	File folder	
My Meetings		File folder	
My WEPS Files		File folder	
My WEPS Files (VA training)		File folder	
My WEPS Files VA copy example	1/22/2014 9:04 AM	File folder	
No Till Docs	1/12/2015 5:39 PM	File folder	
OneNote Notebooks	1/7/2014 9:45 AM	File folder	
SCStandAlonePI	8/19/2013 10:14 AM	File folder	
TurningPoint	4/16/2014 5:00 PM	File folder	
TurningPoint 5	2/13/2015 10:46 AM	File folder	
_contentid=2014	10/22/2014 7:08 AM	Adobe Acrobat D...	96 KB
4a_stratification and soil quality franz ref	3/3/2014 3:23 PM	Adobe Acrobat D...	618 KB
9-129 2014 Evaluation Template Prepopulated 7-7-14	9/24/2014 12:01 PM	Microsoft Excel W...	59 KB
9-138 2014 Evaluation Template Prepopulated 7-7-14	9/24/2014 1:18 PM	Microsoft Excel W...	58 KB
9-144 2014 Evaluation Template Prepopulated 7-7-14	9/24/2014 2:02 PM	Microsoft Excel W...	60 KB

Date created: 3/10/2015 10:48 AM  
 Size: 1.23 MB  
 Files: FL798\_HighTunnels\_AnnualReports\_June10, FL798JS, ...

Organize New folder

Name	Date modified	Type	Size
No items match your search.			

Microsoft Word

Favorites

- Desktop
- Recent Places
- Downloads

Libraries

- Documents
- Music
- Pictures
- Videos

Computer

- LocalDisk (C:)
- Data (\NCGREEN)

File name:

Save as type:

Authors: Boetger, Steve - NRCS, ...

Tags: Add a tag

Title: Add a title

Maintain compatibility with previous versions of Word

Save Thumbnail

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Tools

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Organize New folder

Microsoft Word

- Favorites
  - Desktop
  - Recent Places
  - Downloads

- Libraries
  - Documents
  - Music
  - Pictures
  - Videos

- Computer
  - LocalDisk (C:)
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File name: Example RUSLE2 Worksheet Erosion Calculation Record.wrk

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Example RUSLE2 Worksheet Erosion Calculation Record.wrk	5/18/2015 9:07 AM	Microsoft Word 97 - 2003 Template	33 KB
ID RUSLE2 Profile Erosion Calculation Recor1 with certification	8/25/2014 4:43 PM	Microsoft Word 97 - 2003 Template	34 KB
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NRCS RUSLE2 Worksheet Compare Record.wrk	8/25/2014 4:43 PM	Microsoft Word 97 - 2003 Template	30 KB
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NRCS RUSLE2 Worksheet SCI, STIR, Biomass Harv and Erosion_rev.wrk	8/25/2014 4:43 PM	Microsoft Word 97 - 2003 Template	32 KB
NRCS RUSLE2 Worksheet SCI, STIR, Biomass Harv and Fuel use 091509.wrk	8/25/2014 4:43 PM	Microsoft Word 97 - 2003 Template	30 KB
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RUSLE2 Worksheet Biomass Harvest Impacts.wrk	8/25/2014 4:43 PM	Microsoft Word 97 - 2003 Template	32 KB

Type: Microsoft Word 97 - 2003 Template  
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Date modified: 5/18/2015 9:07 AM  
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Auto update

Info

Carolina\Guilford County

na\VaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%

T value, t/ac/yr

Fuel for all managements

Management alternative table

Profile	summary?	Description	Base management	Yield values	Residue values	Contouring	Diversion/terrace, sediment basin	Strips / barriers	Rock cover, %	Cons. plan soil loss, t/ac/yr	Soil loss OK?
Profile	Yes	Pre 1985 plan after July 3, 1996.	...	...	...	...	...	(none)	0	8.3	

## Open Report Template

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| Example RUSLE2 Worksheet Erosion Calculation Record.wrk               | 5/17/2015 12:05 PM | Microsoft Word 97 - 2003 Template |
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Boetger, Steve - NRCS, Greensboro, NC

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## RUSLE2 Worksheet Erosion Calculation Record

**Info:**

Crop Rotation Modeled:  
 Base management: CMZ 66\ a.Single Year/Single Crop Templates\B05. COTTON\103. COTTON. EARLY. CT diskx2

<i>Owner name</i>	<i>Tract #</i>	<i>Field name</i>
<b>**Owner name**</b>	<b>**Tract number**</b>	<b>**Field number**</b>

<i>Location</i>	<i>Soil</i>	<i>T value, (hp/yr)</i>	<i>Slope length (feet)</i>	<i>Avg. slope</i>
-----------------	-------------	-------------------------	----------------------------	-------------------




## RUSLE2 Worksheet Erosion Calculation Record

##WORKSHEET:TemplateObjectType##  
 ##WORK\_GEN\_DESCRIP:ALL##

Crop Rotation Modeled:  
 ##WORK\_ALT\_MANAGE\_PTR##

Output: Sheet and Rill Erosion (tons/acre/yr)

##Table:WORK\_GEN\_OWNER\_NAME:ALL, WORK\_GEN\_TRACT\_NUM:ALL, WORK\_GEN\_FIELD\_NUM:ALL##

##Table:CLIMATE\_PTR:ALL, SOIL\_PTR:ALL, SLOPE\_T\_VALUE:ALL, SLOPE\_HORIZ:ALL, SLOPE\_STEEP:ALL##

**Alternatives:**

##Table:WORK\_ALT\_DESC\_THIS\_ALT:ALL, WORK\_ALT\_MANAGE\_PTR, WORK\_ALT\_CONTOURING\_PTR, WORK\_ALT\_SUP\_PAC\_PTR, WORK\_ALT\_HYD

**Alternatives Results:**

##Table:WORK\_ALT\_DESC\_THIS\_ALT:ALL, WORK\_ALT\_SLOPE\_DEG, WORK\_ALT\_SLOPE\_ANNUAL\_TOTAL\_BIOMASS\_REMOVAL:ALL, WORK\_ALT\_SOIL\_AREA:ALL, WORK\_ALT\_SLOPE\_ENERGY\_USE\_PER\_AREA:ALL, WORK\_ALT\_SLOPE\_FUEL\_COST\_PER\_AREA:ALL##

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to calculate a tillage intensity rating for the system used in growing a crop or a rotation. STIR ratings tend to show the differences in the degree of soil disturbance between systems. The kind, severity and number of annual disturbing passes are evaluated for the entire cropping rotation as



## RUSLE2 Worksheet Erosion Calculation Record

##WORKSHEET:TemplateObjectType##

##WORK\_GEN\_DESCRIP:ALL##

Crop Rotation Modeled:

##WORK\_ALT\_MANAGE\_PTR##

Output: Sheet and Rill Erosion (tons/acre/yr)

##Table:SLOPE\_T\_VALUE, WORK\_ALT\_SLOPE\_DEG:ALL##

##Table:WORK\_GEN\_OWNER\_NAME:ALL, WORK\_GEN\_TRACT\_NUM:ALL, WORK\_GEN\_FIELD\_NUM:ALL##

##Table:CLIMATE\_PTR:ALL, SOIL\_PTR:ALL, SLOPE\_T\_VALUE:ALL, SLOPE\_HORIZ:ALL, SLOPE\_STEEP:ALL##

**Alternatives:**

##Table:WORK\_ALT\_DESC\_THIS\_ALT:ALL, WORK\_ALT\_MANAGE\_PTR, WORK\_ALT\_CONTOURING\_PTR, WORK\_ALT\_SUP\_PRACT\_PTR, WORK\_ALT\_HYD

**Alternatives Results:**

##Table:WORK\_ALT\_DESC\_THIS\_ALT:ALL, WORK\_ALT\_SLOPE\_DEG, WORK\_ALT\_SLOPE\_ANNUAL\_TOTAL\_BIOMASS\_REMOVAL:ALL, WORK\_ALT\_SOIL\_AREA:ALL, WORK\_ALT\_SLOPE\_ENERGY\_USE\_PER\_AREA:ALL, WORK\_ALT\_SLOPE\_FUEL\_COST\_PER\_AREA:ALL##

The **SCI** is the **Soil Conditioning Index** rating. If the calculated index is a negative value, soil organic matter levels are predicted to decline under that production system. If the index is a positive value, soil organic matter levels are predicted to increase under that system.

The **STIR** value is the **Soil Tillage Intensity Rating**. It utilizes the speed, depth, surface disturbance percent and tillage type parameters to

Owner name: [Owner name]  
 Tract #: [Tract number]  
 Field name: [Field number]

Info: [Text Area]

Compare management alternatives for a single hillside profile

Location: [USA\North Carolina\Guilford County]  
 Soil: [Guilford County, North Carolina\Wad Vance sandy loam, 10 to 15 percent slopes\W Vance sandy loam 80%]  
 Slope length (along slope), ft: [150] Fuel for all managements: [none]  
 Avg. slope steepness, %: [10]

Temp. scenario	Show in summary?	Description	Base management	Diversion/terrace, sediment basin	Slope / barriers	Rock cover, %	Cons. plan, soil loss, t/ac/yr	Soil loss OK?	Cover values	Soil condition g index (SDI)	Soil condition g index (SOI)	SCI value OK?	STIR value	Wind & irrigation induced erosion for SCI, t/ac/yr	Fuel type	Equip. diesel use, gal/ac	Fuel cost, US\$/ac	A
Profile	Yes	Pre 1985 plan after July 3, 1996	[...DOTTON, EARLY, CT disk2	percent	[...le 1st bottom of RUSLE slope	[none]	0	83	[...cover	[...index	-1.05	[red]	62.1	0	[none]	4.8	0	

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- SLOPE\_T\_VALUE

Worksheet: Pre 1985 plan after July 3, 1996

Owner name: "Owner name"  
 Tract #: "Tract number"  
 Field name: "Field number"

Compare management alternatives for a single hillslope profile

Location: USA North Carolina/Guilford County  
 Soil: Guilford County, North Carolina/Wad Yance sandy loam, 10 to 15 percent slopes/Wance sandy loam 80%  
 T value, t/ac/yr: 5.0  
 Slope length (along slope), ft: 150  
 Fuel for all managements: (none)  
 Avg. slope steepness, %: 10

Management alternative table

Temp. scenario	Show in summary?	Description	Base management	Yield values	Residue values	Contouring	Division/terrace, sediment basin	Ships / barriers	Rock cover, %	Cons. soil t/a	Soil conditioning index (SCI)	SCI value OK?	STIR value	Wind & irrigation induced erosion for SCI, t/ac/yr	Fuel type	Equip. diesel use, gal/ac	Fuel cost, US\$/ac	A
Profile	Yes	Pre 1985 plan after July 3, 1996	...COTTON, EARLY, CT dialx2	Yields	... inputs	...ade 0.5 percent	...le 1st bottom of RUSLE slope	(none)	0	8	-1.05		62.1	0	(none)	4.8	0	

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- Header size
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- Delete this visual
- WORK\_ALT\_SLOPE\_DEG

## RUSLE2 Worksheet Erosion Calculation Record

### Info:

Crop Rotation Modeled:

Base management: CMZ 66\A Single Year/Single Crop Templates\B05. COTTON\103. COTTON. EARLY. CT diskx2

Output: Sheet and Rill Erosion (tons/acre/yr)

<i>T value</i>	<i>Cons. plan. soil loss, t/ac/yr</i>
5.0	8.3

<i>Owner name</i>	<i>Tract #</i>	<i>Field name</i>
<b>**Owner name**</b>	<b>**Tract number**</b>	<b>**Field number**</b>

<i>Location</i>	<i>Soil</i>	<i>T value, t/ac/yr</i>	<i>Slope length (horiz), ft</i>	<i>Avg. slope steepness, %</i>
USA\North Carolina\Guilford County	Guilford County, North Carolina\VaD Vance sandy loam, 10 to 15 percent slopes\Vance sandy loam 80%	5.0	150	10

### Alternatives:

<i>Description</i>	<i>Base management</i>	<i>Contouring</i>	<i>Strips / barriers</i>	<i>Diversion/terrace, sediment basin</i>
Pre 1985 plan after July 3, 1996.	CMZ 66\A Single Year/Single Crop Templates\B05. COTTON\103. COTTON. EARLY. CT diskx2	b. absolute row grade 0.5 percent	(none)	2 gradient terraces 0.5% grade 1in middle 1at bottom of RUSLE slope

### Alternatives Results:

<i>Description</i>	<i>Cons. plan. soil loss</i>	<i>Annual total biomass removal, lb/ac</i>	<i>Soil conditioning index (SCI)</i>	<i>STIR value</i>	<i>Wind &amp; irrigation-induced erosion for SCI, t/ac/yr</i>	<i>Equiv. diesel use, gal/ac</i>	<i>Energy use, BTU/ac</i>	<i>Fuel cost, US\$/ac</i>
Pre 1985 plan after July 3, 1996.	8.3	0	-1.05	62.1	0	4.8	670000	0

The SCI is the Soil Conditioning Index rating. If the calculated index is a negative value, soil organic matter levels are predicted to



# Questions???



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