

By signing below, you acknowledge that you have made a substantive contribution to this project and preparation of the report. If you do not sign, you will not receive any points for this project.

For this project, you are assigned a US state for use in running the WEPP model – you must use this state unless arrangements are made with the instructor. You will be using the WEPP web interface demonstrated in class:

<http://milford.nserl.purdue.edu/wepp/weppV1.html>

Click on *Basic Hillslope Profile* to begin. This will open a new window and you are ready to run the first simulation.

SIMULATION 1

For this simulation, enter the following parameters:

State: *(enter your assigned state – this is assigned by the instructor in class and it is your responsibility to know which you have been assigned)*

Climate Station: *(you can select any climate station for this simulation, but note which one you choose)*

Slope Length (ft): 300

Field Width (ft): 100

Slope Shape: Uniform

Steepness: 10%

Soil: *(select a silty-textured soil (SiL or SiCL) from the list: C=clay; S=sand(y); Si=silt(y); L=loam(y))*

Management: *(select 'fallow')*

Simulation Years (1 to 30): 10

Click on *Calculate Soil Loss* – this runs the simulation model. Enter the information.

State: _____

Weather station name: _____

Soil name: _____

Average Annual Precipitation (in/yr)	Average Annual Runoff (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)

SIMULATION 2

Run a new simulation using the same conditions as in Step 1, except with a slope steepness of 25%.

Average Annual Precipitation (in/yr)	Average Annual Runoff (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)

Briefly state the relationship between slope steepness, runoff, soil loss, and sediment yield and explain why.

SIMULATION 3

Change the slope back to 10%, select a sandy soil, and run a new simulation.

New soil name: _____

Average Annual Precipitation (in/yr)	Average Annual Runoff (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)

Briefly state the effect of silty vs. sandy textures on runoff, soil loss, and sediment yield and explain why.

SIMULATIONS 4-6

Change *Slope Shape* to *Convex* and run new simulation. Then change *Slope Shape* to *Concave* and run new simulation. Finally, change *Slope Shape* to *S-shaped* and run new simulation.

Slope Shape	Average Annual Runoff (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)
Uniform (from Sim. 3)			
Convex			
Concave			
S-shaped			

_____ Which slope shape results in the greatest soil loss? Briefly explain why.

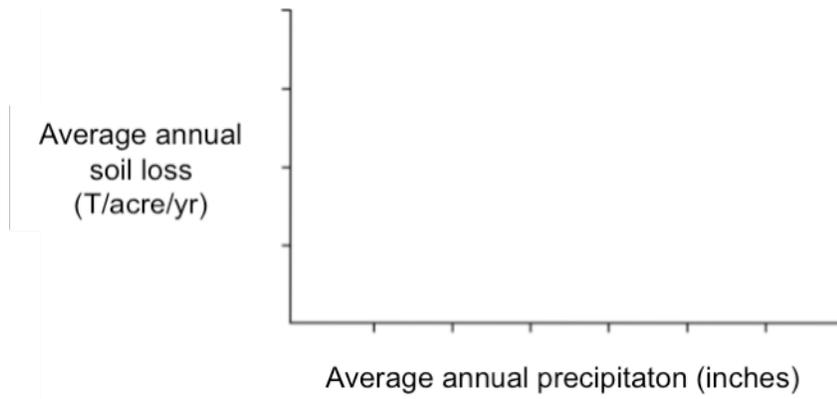
_____ Which slope shape results in the least sediment yield? Briefly explain why.

SIMULATIONS 7-10

Change Slope Shape back to Uniform. Repeat the simulation using 4 different weather stations. To the degree possible, select the widest range in precipitation that you can. Record the name of each weather station, the Average Annual Precipitation, and the Average Annual Soil Loss.

Weather Station Name	Average Annual Precipitation (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)

Using the above results, complete the graph below. Be sure to add labels as appropriate and then draw a 'best-fit' line or curve.



What is the general relationship between annual precipitation and soil loss? Why?

SIMULATIONS 11-13

Select a new soil with the texture of your choice. Run the simulation using the same parameters as in Simulation 1, except change management to *winter wheat, conventional till*. Record or copy-and-paste the results onto your Project Report sheet. Then run the simulation again with management changed to *winter wheat, continuous, no till*. Record your results. Finally, run the simulation again with management changed to *fescue with grazing*.

New soil name: _____

Management	Average Annual Runoff (in/yr)	Average Annual Soil Loss (ton/A/yr)	Average Annual Sediment Yield (ton/A/yr)
Winter wheat, conventional till			
Winter wheat, continuous no till			
Fescue with grazing			

Briefly explain the reason for the observed differences.