

# TECHNICAL NOTES

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## ESTIMATING GROSS EROSION FROM FIELD MEASUREMENT OF RILL EROSION IN TONS/ACRE

The method explained below for measuring rill erosion is known as the Alutin Rill Erosion Method. This procedure can be used to measure rill erosion up to rates of 100 tons per acre. Losses greater than 100 tons per acre are considered ephemeral gully erosion or concentrated flow erosion and should not be measured using this method.

Tons/acre soil loss from rill erosion = a sum of cross section of rills in square inches along a measured lineal distance of 12.5 feet across the slope or multiples thereof.

- Step 1      Measure a lineal distance of 37.5 or 75.0 feet across a slope.
- Step 2      Measure in inches, the width and depth of each rill along the chosen distance.
- Step 3      Multiply each width and depth reading to obtain a product in square inches.
- Step 4      Add all products of readings along chosen distance.
- Step 5      Divide this sum by 3, if a 37.5 foot distance was selected, and by 6, if 75.0 feet was chosen. The result is tons of soil loss per acre from rill erosion.

### Example

Station	Width (inches) x Depth (inches) =	Area in square inches along a distance of 37.5 feet
1	3                      3	9
2	2                      3	6
3	3                      6	18
4	4                      6	24
5	3                      5	15
6	5                      6	30
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For the chosen distance of 37.5 feet, the soil loss from rill erosion in tons/acre =  $102/3 = 34$ .



## INSTRUCTIONS

The method explained below for measuring rill erosion in tons per acre is known as the Alutin Rill Erosion Method. This procedure measures soil losses up to 100 tons per acre. Losses greater than 100 tons per acre are usually beyond the realm of rilling and are considered to be concentrated flow or ephemeral gully erosion.

The basic formula used in this calculation is:

T/Acre soil loss - sum of cross section of rills in square inches along a measured lineal distance of 13.7 feet across the slope or multiples thereof.

Procedure:

- Step 1 Measure a lineal distance of 37.5 or 75.0 feet across the slope.
- Step 2 Measure, in inches, the width and depth of each rill along the chosen distance.
- Step 3 Multiply each width and depth reading to obtain a product in square inches.
- Step 4 Add all products of readings along chosen distance.
- Step 5 Divide this sum by 3, if a 37.5 foot distance was selected, and by 6, if 75.0 feet were chosen. The result is tons of soil per acre.

Example:

Width (inches)	Depth (inches)	=	Area in square inches
3	3		9
2	3		6
3	6		18
4	6		24
3	5		15
5	6		30
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Answer:

For a chosen distance of 37.5 feet, the soil loss in tons/acre -  $102/3 = 34$  tons.