

Evaluating Soil Erosion in a Piedmont Landscape

ISSUE: Soil sediment production and runoff are common occurrences in harvested landscapes that have the capacity to lower soil and site productivity and contribute to loss of water quality. The amount of runoff and soil loss are influenced by landscape features such as soil type, slope, slope length, rainfall quantity, rainfall intensity, ground cover and management practices. More in depth knowledge of the amount of runoff and soil loss that could be expected under conventional harvesting and site preparation practices in an intensively managed pine plantation will provide important data for the control and prediction of soil erosion.



Study Description: Twelve steel-framed plots approximately 12 square meters in area (2 x 6 meters), each connected to 55 gallon drum, were placed in four locations in a loblolly pine plantation to monitor runoff and soil loss after harvest, site preparation, and machine planting. Erosion plots were oriented in either a north or south facing direction on slopes with a 10 percent gradient and similar soil type (Rhodic Kanhapludult). Comparisons of erosion estimates under conditions of harvest, no disturbance, site preparation and machine planting, and machine planting alone will be made. The measured erosion will be compared to estimated sediment yields from WEPP.



Status: The study was initiated in the Fall of 1998 and runoff and soil loss estimates were conducted for each rainfall event under conditions of harvest disturbance versus no disturbance through the Fall of 1999. Erosion plots were reestablished after site preparation and machine planting in January 2000 and erosion monitoring is ongoing. The study is expected to continue for three years.

Benefits:

- *provide estimates of runoff and soil loss under intensive management*
- *evaluate impact of site preparation and/or machine planting on soil erosion*
- *baseline data for modeling and prediction of soil loss*

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