

Using Compost for a Safer Environment

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Study Procedures

Erosion - The project [site location](#) was established at an overpass near Ames, Iowa to achieve the 3 to 1 slope desired for erosion measurements and to reduce travel time for the project team at ISU. Erosion is defined as the detachment and transport of material that will be deposited in another location. There are two types of erosion processes, [rill and interrill erosion](#). Interrill erosion is caused by the impact of rain on the surface and the sheeting action of water moving across the surface. Rill erosion is caused by the development of a concentrated flow of water in a very small channel that begins to cut into the soil surface layer and producing a rill.

Rainfall Simulation - Erosion from different soils or composts cannot be accurately measured and compared unless the test materials are subjected to identical rainfall intensities. To accomplish this a [rainfall simulator](#) (developed by the United States Department of Agriculture) was used to apply consistent and uniform rainfall intensities to all test plots.

Compost - The goal of the project was to compare compost with current IDOT practices for erosion control on highway right-of-ways. Three composts from [Bluestem Solid Waste Agency, Davenport Compost Facility and Metro Waste Authority](#) were selected by project sponsors because they represent the common varieties of compost produced in Iowa. Bluestem provided a compost that was a mixture of source-separated industrial waste and yard waste, the Davenport compost was produced from a mixture of yard waste and biosolids, and the Metro compost was produced from yard waste. The three composts were evaluated for rill and interrill erosion as well as water quality.

Treatments and Plots - [Rill and interrill plots](#) were established for the various treatments using a [randomized block design](#). A portion of the plot layout is below (click on the image to see the full layout.)

- Research procedures were established through cooperative agreement with the three project sponsors: Iowa Department of Natural Resources, Iowa Department of Transportation, and Iowa State University.



- Interrill erosion testing



- Rill erosion sampling



