

# Using Compost for a Safer Environment

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### Project Results - Erosion Control

Due in part to the lower volume of runoff (see "Runoff Quantity") produced by compost-treated areas, they also produce substantially less erosion than conventionally-treated slopes.

- On both bare and vegetated slopes, the highest interrill erosion (solids loss caused by raindrop impact and subsequent transport within a thin "sheet" of runoff) from composted areas during the first 30 minutes of intense rainfall (table 1) was 0.02% (or less) of the erosion from slopes receiving conventional treatments.

**Table 1. Accumulated interrill erosion (milligrams) from test plots during 30-minute high-intensity (~ 4 in/hr) rain storm.**

Vegetation Condition	Bio-solids	Yard Waste	Bio-industrial	Compacted Subsoil	Topsoil
Un-Vegetated	7.84 <sup>b</sup>	0.02 <sup>a</sup>	2.52 <sup>b</sup>	42,714 <sup>c</sup>	40,046 <sup>c</sup>
Vegetated	1.65 <sup>b</sup>	<0.01 <sup>a</sup>	0.06 <sup>a,b</sup>	7,385 <sup>c</sup>	24,867 <sup>c</sup>

Means within the same row with different letter designations and cell color are significantly different ( $p < 0.05$ ).

Highest
Medium
Lowest

- As shown in table 1, one of the most important potential benefits of blanket compost treatments is that they provide significant erosion protection under un-vegetated conditions.
- Under both vegetated and bare conditions, the relatively coarse-textured yard waste compost produced significantly less interrill erosion than the more fine-textured and soil-like bio-solids compost.
- There were no significant differences in interrill erosion between 2- and 4-inch compost treatments.
- If sufficient interrill erosion occurs, tiny channels or "rills" eventually form in the surface of soil or compost. Once rills are formed, runoff velocities within the rill increase causing higher localized erosion rates within these tiny channels. Tests showed that rill erosion was highest on topsoil-treated slopes. Slopes treated with yard waste compost, and compacted subsoil areas (conventional)



As shown above, the amount of eroded material collected from topsoil (left tray) and compacted subsoil (2nd from left) test plots, far exceeded the erosion from test plots treated with compost (3 trays on right).

- Interrill erosion from compost-treated areas was 0.02% or less than interrill erosion from compacted subsoil or subsoil capped with topsoil.
- Compost blankets provided immediate erosion protection under un-vegetated conditions.
- Of the three composts tested, yard waste compost was most resistant to both interrill and rill erosion.

typically showed the lowest rill erosion. Rill erosion on the bio-solids and bio-industrial composts was typically greater than for the yard waste compost, but well below the topsoil treatments. These results held true regardless of whether the roadside areas were vegetated or bare.

- Since rill erosion will not occur until rills are initiated by interrill erosion, compost-treated areas, which are highly resistant to interrill erosion, are expected to suffer relatively little rill erosion as long as they are protected from concentrated runoff discharged from adjoining areas.

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