



USDA-CSREES 2006 National Water Quality Conference

Roadside Erosion Control Utilizing Dairy Manure Compost

The goal of the North Bosque River TMDL is to reduce phosphorus loading by 50%. Because dairy waste application fields were considered a major non-point source of phosphorus, the Texas State Soil and Water Conservation Board and the Texas Commission on Environmental Quality developed a program to transport raw dairy manure to nearby compost facilities and create a sustainable market for composted dairy manure.

The Texas Department of Transportation supports this market by using dairy manure compost mixed with woodchips for erosion control on road rights-of-way and to establish vegetation on severely eroded soils. In 2003 and 2005 Texas Cooperative Extension conducted studies to examine the efficacy of dairy manure compost use for stabilization and revegetation of steep slopes.

In an outdoor simulated rainfall study, the first flush and the remaining runoff samples were collected from 12 non-vegetated and isolated field plots established on a 3:1 embankment constructed as a road right-of-way. These plots were assigned to four treatments: compost manufactured topsoil (CMT), erosion control compost (ECC), agronomic rate compost (ARC), and commercial fertilizer (CF). The ECC plots had smaller total runoff mass than all other treatments and significantly lower total solids and total suspended solids in runoff as compared to runoff from CF plots. Thus, it was concluded that the ECC and the CMT treatment adequately controlled erosion in a newly constructed road-right-of-way void of vegetation even when subjected to rain shortly after application (a worst case scenario). However, even though nitrogen and phosphorus quantities in the runoff were statistically lower in the ECC and CMT treated plots when compared to the CF treatment, they were high from the standpoint of water quality.

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