

# **EROSION CONTROL ALONG FLORIDA ROADWAYS**

## **PROBLEM STATEMENT**

Organic by-products can improve the establishment and maintenance of vegetative cover along Florida roadways. Plant debris such as tree and shrubbery trimmings and leaves and grass clippings are by-products of landscape and right-of-way maintenance. These natural organic materials are frequently processed into compost or simply ground up into coarse material to be used as mulch. These organic by-products have been shown to benefit roadside vegetation in Florida and other states.

Issues in roadside landscaping are substantially different from those in conventional landscapes or in agriculture where more intensive maintenance practices are usually the rule. For most roadside plantings, a fundamental maintenance practice – irrigation – is not available. Budgetary and/or environmental considerations limit or forbid applications of chemical fertilizers or herbicides. Roadside soils are often poor and will have been disturbed, compacted or otherwise compromised by highway construction activity.

## **OBJECTIVES**

The primary objectives of the project were:

- Provide fundamental information on utilization of composted yard waste to control erosion and facilitate turf establishment on steep roadside slopes.
- Determine the effectiveness of biosolids compost as a fertilizer for improving stands of poor roadside grass.
- Assist FDOT in establishing standards and specifications for using composts

## **FINDINGS AND CONCLUSIONS**

In these studies, composted yard waste mulch was effective at controlling erosion, but did not necessarily facilitate the growth and establishment of turfgrass or other vegetation. It provided slope stability for periods of at least 18 months and probably longer with or without vegetative growth. Some of the results in this study were influenced by lack of sufficient rainfall which severely limited establishment of vegetation. Sodding and erosion mat treatments were also very effective in erosion control under the conditions of these studies. Compost mulch plots had greater

total vegetation and turfgrass cover equal to or better than bare soil plots. Given the level of maintenance and watering, nearly all of the ground cover plants died. Ground cover may be effective at erosion control, but will require more extensive maintenance during the establishment period. Composted biosolids materials provided greater vegetative cover when used as a topdressing than did a soluble fertilizer or no fertilizer at all the first year. The influence was not as great the second year when applied to a soil with approximately 4% organic matter. Observations suggest that adequacy of water has a greater impact on turf establishment than nutrient addition and that infrequent mowing contributed to high weed populations which may have reduced overall turf cover.

## **BENEFITS**

The high cost of extensive sodding means that most grasses used in highway landscapes must be planted from seed. Once germinated, the grass must be able to establish itself in the face of erratic precipitation, little or no fertilization, competition from weeds, and the potentially erosive run-off of rainwater from pavement surfaces. Incorporation of compost into roadside soils can aid the establishment of vegetative cover by improving the physical and chemical properties of these soils.

Compost addition can also reduce erosion on roadside slopes. The best long-term solution for erosion control is establishment of a permanent vegetative cover. Compost as a soil amendment improves erosion control by enhancing planted or volunteer vegetation growth. The beneficial effects on soil properties expedite establishment and promote a dense stand of vegetation.

Compost can also be utilized as a mulch. In this situation it can increase water infiltration and reduce sediment movement. Compost mulch in roadside applications provides an alternative to straw, hydroseeding, netting, fibrous mats, asphalt emulsion and synthetic

Researchers developed for FDOT professionals and contractors print and visual aid materials on how to use compost. These materials, including an interactive CD, can also be used to help promote composted waste utilization and to increase the utilization of recycled materials.

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