



USDA-CSREES 2006 National Water Quality Conference

Cycling Municipal Biosolids Between Agricultural and Urban Lands In Turfgrass Sod

Composted municipal biosolids (MB) are resources for turfgrass sod produced on agricultural land near cities. The MB can be topdressed to enhance regrowth from rhizomes and maximize the portion of applied MB removed in sod harvests. In addition, cycling of MB to turfgrass production on agricultural land and back to urban landscapes through transplanted sod meets objectives of urban waste cycling programs. The City of Austin, Texas instituted a "Water Wise Landscape and Soil Rebate Program" to encourage incorporation of large, volume-based rates of MB (25% by volume to a 15-cm depth) in urban soils. The large MB rates improve soil physical properties, but can increase soil nutrient concentrations and nonpoint-source losses in runoff. Replicated field experiments evaluated a system for cycling MB through turfgrass sod. The evaluation included analyses of P and N exports in sod harvests, of P and N loss in runoff from contrasting establishment treatments, and of relationships between runoff loss and soil indicators for P and N. In addition, capital and production costs and net present value were compared between MB- and fertilizer-grown sods. Analyses of total and soil-test values for N and P within and below the harvested sod layer indicated applied MB nutrients were exported completely through a sod harvest. Sod transplanted from turf top-dressed with a 1.2-cm depth of contrasting MB sources increased concentrations of total and extractable N and P forms in the surface layer more than volume-based rates (12.5 and 25% MB) mixed with soil before planting of sprigs. As a result, total dissolved concentration and mass loss of P in runoff from MB-amended sod was greater ($P=0.05$) than MB-amended soils and a control during seven runoff events after treatments were imposed. Incorporation rather than topdressing of MB during production of sod transplanted to urban landscapes needs to be considered.

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