Utilization of Coal Combustion By-products (CCBP) in Turfgrass Sod Production. (A05-schlossberg105541-Oral)

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Abstract:

Coal combustion by-products (CCBP) include fly ash and bottom ash (cinders) and are generated nationally at a rate of 1x10^8 Mg each year. This field study evaluated CCBP and organic waste product mixtures as soil-substitutes in an accelerated turfgrass sod production method. Experimental and control media were uniformly spread at rates of 200, 300, and 400 m^3 ha^-1 and sprigged with bermudagrass (Cynodon dactylon). Following 99 to 114 days of matuartion, sod was harvested and installed off-site. Evaluations made the following spring did not reveal rooting or visual quality differences due to media type or application volume. Following either season, sod containing CCBP possessed greater biomass per unit area and retained significantly more plant-available water than the control and commercially-grown sod. Moreover, the sod grown on CCBP possessed 11-39% less total mass than the control or commercially-grown sod at field capacity. Although CCBP/organic waste land applications increase variable production costs, revenue from tipping fee redirection and transport cost reductions quickly exceed these costs under typical demand conditions in the SE US. Use of the described CCBP-mixes as growth media in sod production appears advantageous when compared to conventional systems.

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