Sewage sludge and their byproducts: Soil amendments for optimum plant growth. (S11-sivapatham214344-Poster)

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Abstract:

Organic amendments play a significant role in improving soil fertility and supplying various nutrient elements in a sustainable manner. Greenhouse studies were conducted to evaluate the elemental uptake by Sorghum-sudan grass with varying rates sewage sludge (SS), incinerated sewage sludge (ISS) and weathered incinerated sewage sludge (WISS). A Candler fine sand (pH=6.8) and Ogeechee loamy sand (pH=5.2) with application rates of 0, 24.7, 49.4, 98.8, and 148.2 Mg ha-1 as SS, ISS or WISS were used. At the end of 10-wks of growth under controlled greenhouse conditions, shoots and roots were harvested separately for the evaluation of dry matter production and various elemental concentrations. Irrespective of soil types, dry matter production of shoots and roots was 2 to 3 times greater in soils received SS than either ISS or WISS. Concentrations of Zn, Fe, and Mn in the shoots and roots were 1.5 to 2 times greater in soil received SS than either ISS or WISS. Irrespective of amendment types, significantly greater amount of Pb accumulation was observed in roots than in shoots. Discussion on uptake of macro nutrient elements and heavy metals will be presented in relation to other measured soil parameters.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 3:00-5:00 pm
Poster Board Number: 1641

Keywords:

Sewage sludge, Soil amendments, Plant uptake, Metals