Effect of Topsoil Created from Spodic Materials on Turfgrass

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St. Augustinegrass is one of the most widely used turfgrass species in Florida landscapes. Often, problems associated with poor quality or growth of St. Augustine turf is related to the soil in which is it established. A vast majority of the soils in peninsular Florida are Spodosols, which are characterized by the presence of a dark colored subsurface spodic horizon. When Spodosols are excavated for use as fill, soil from the spodic horizon is often used as topsoil material by developers because of the dark, fertile appearance of typical topsoil. However, spodic horizon soils exhibit unique chemical and physical properties that make them widely different from typical fill soils. The objective of this study is to determine the effects of these unique soil properties on the establishment of St. Augustinegrass. Forty PVC leaching columns (6" by 12") were established in a completely randomized block design in a production house at the University of Florida- IFAS Gulf Coast Research and Education Center in Wimauma, FL. A 4-month establishment study of St. Augustinegrass will be performed with 5 different soil treatments in PVC leaching columns. Physical and chemical properties that will be measured include: soil pH, electrical conductivity, organic matter, and particle size. Each soil sample will be analyzed for Mehlich-3 P, Al, Fe, Ca, and Water soluble P pre-experiment at a 2 and 4 month harvest dates. Tissue P, N and K levels will be measured by ashing tissue collected at the 2 and 4-month harvest dates and running on ICP. We hypothesize that the spodic horizons chemical properties will bind nutrients, especially P, making them unavailable to the St. Augustinegrass.