Conservation Tillage and Perennial Grass-Based Biofuel Crop Production Systems

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Abstract

The world is gripped with looming treats of global warming, rising costs of fossil fuel and a need to reduce dependence of petroleum products from unstable regions. Several crops to include perennial grasses, corn, soybean, canola and peanuts have been proposed as bioenergy crops. Both corn and soybeans are grown in abundance in the US and the excess can be used as biofuel. As biofuel crop, perennial grasses especially switchgrass are advantageous because they produce more ethanol at reduced costs than corn. They require less inputs to grow, and can be grown on marginal lands. Switchgrass has 2/3 of its biomass in the root system and this has numerous advantages such as improved water and nutrient uptake and increasing soil organic matter. Because soybean, corn and peanut are mostly produced under conventional tillage in the southeast, there is concern about the potential increase in the acreage of these crops in response to the lure of biofuel demand. However integrating perennial grasses and CT into biofuel crop production, not only provides the much needed biofuel but does so in a sustainable fashion. For the presentation, we propose a bioenergy crop based cropping system which alleviate the above mentioned production challenges.