PRODUCTION OF ENERGY CANE AND ELEPHANTGRASS ON MARGINAL SOILS USING WINTER COVERS

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Elephantgrass (*Pennisetum purpureum* Schumacher) and energy cane (*Saccharum* sp.) are tall tropical bunch grasses that produce very high biomass yields and are considered an excellent bio-energy feedstock for the lower South. However, previous studies have shown that production is not sustainable without fertilizer application. The objective of our study was to determine if nitrogen requirements for the perennial grasses could be partially supplied by growing clover or lupine as a winter cover crop on marginal soils. Grasses were harvested each year in October from 2011 to 2014. Significant differences were observed between treatments supplied with inorganic fertilizer and unfertilized plots for the last 3 years. At the Tifton location, the means for energy cane and elephantgrass across treatments for the establishment year in 2011 were 8.3 and 6.5 Mg ha^{-1} respectively. Energy cane yields were 27.2 Mg ha^{-1} and 22.9 Mg ha^{-1} for years 2012 and 2013. For those same years the elephantgrass has dry matter yields of 25.0 and 15.4 Mg ha^{-1}. Elephantgrass yields at the Fort Valley location were higher for elephantgrass, indicating significant location differences. Feedstock quality data will also be presented.