

## **CHARACTERIZATION OF *Panicum maximum* GENOTYPES FOR USE AS SECOND GENERATION ETHANOL PRODUCTION**

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Second generation ethanol production from forage biomass is a new alternative source of energy for the future. Research involves the search for new biomass options, management of this biomass and the transformation of the biomass into energy. *Panicum maximum* has shown potential due to its high yield and quality. In a previous trial at Embrapa Beef Cattle, fourteen genotypes were characterized for yield and quality for growth at 120 day-intervals between clippings. The present experiment involved agronomic evaluation of 10 genotypes clipped at 45, 90, 135 and 180 days of growth with three replications in 3 m x 7 m plots. Quality was evaluated by NIRS. Yield differences among genotypes were found only at 90-day and 180-day growths. With increasing growth period, total dry matter yield increased through the increase in stem dry matter yield and yield of dead material. The yield of leaves increased up to 135 days of growth and then decreased at 180 days of growth. Leaf percentage decreased greatly with increased growth period. Lignin in leaves and stems increased with increasing growth period up to 135 days, and digestibility decreased up to 135 days. FDN was higher at 90 days growth and FDA lower at 45 days growth. Protein contents in leaves decreased with increasing growth season, but no difference was found at 90 and 135 days growth. In stems, genotypes had more protein at 45 days growth. Cellulose contents, important for ethanol production were lower at 180 days growth, but in leaves only differed from 90 days growth. These data are important for determination of the best suitable genotype and management practice. Parallel studies involve the transformation of biomass into ethanol production.

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