Biofeedstock Yield, Quality and Cell Wall Components of Tetraploid 'Meadowcrest' Eastern Gamagrass Grown Under Varying Nitrogen Rates.

Eastern gamagrass, *Tripsacum dactyloides* (L.) L. is a warm season grass which has potential for high biomass. Previous forage quality studies have indicated low lignin levels and higher digestibility and higher potential ethanol production compared to other warm season grasses. A study was conducted at the USDA-NRCS Big Flats Plant Materials Center, in Corning NY on a Unadilla silt loam soil. The gamagrass had been managed for seed production for 10 years and was planted in 3.5 ft row spacing. The treatments consisted of varying rates of nitrogen (0, 50, 100, 150, and 200 lb/ac) supplied as calcium ammonium nitrate. The stand was cut on 7/2/07 and 9/17/07 and dry matter yields were taken. The eastern gamagrass showed a yield response to the nitrogen fertilizer with yields of 1.8, 2.9, 3.8, 4.5, and 4.6 tons/ac corresponding to the increasing rates of nitrogen fertilizer. There were significant differences due to nitrogen treatment with the maximum yield resulting from 150 lb/ac nitrogen. The yield and quality will be reported for both cuttings. The quality will be measured by percent CP, ADF, NDF and lignin through standard methods from a commercial lab. There were only significant differences in % CP at the 200 lb/ac rate with 11.9 percent CP for both cuttings. There were no significant differences for the fiber components for the first cutting with lignin levels being an average of 3.4% for all treatments. There were significantly lower fiber levels for the 0 nitrogen treatment for the second cutting. The second cutting levels were higher than for the first cutting. Additional methods will be used to assay neutral sugar content and ratios to determine hemicellulose and non-crystalline cellulose, insoluble cellulose and to evaluate the polysaccharide structure and degree of polymerization.