South Dakota - Prairie Cordgrass for Biomass on Marginal Land?

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Prairie cordgrass is native to most of the continental United States and Canada to 60^{o}N latitude. It is well suited for marginal land too wet for corn and switchgrass. Evaluations of prairie cordgrass in Europe and North America indicate it has potential for biomass production in short-season areas.

A study was conducted in eastern South Dakota from 2000-2008 to 1) describe biomass production and growth characteristics of mature stands of 'Red River' prairie cordgrass, and 2) determine biomass production of natural populations on marginal land.

Biomass production of mature stands of Red River averaged 5.7 ton/ac. Leaves composed >88% of the biomass, and 60% of the tillers had no internodes. Belowground biomass to a 10" depth, not including roots, was >9 ton/ac. Tiller density ranged from 63 tillers/ft^2 for a 10-year-old stand, to 106 tillers/ft^2 for a 4-year old stand.

Natural populations differed in biomass productivity on gravelly marginal land. Average production across populations was low (0.6 ton/ac), comparable to 'Cave-In-Rock' switchgrass over a 4-year period.

The large carbon storage capacity of prairie cordgrass makes it useful for carbon sequestration purposes. Prairie cordgrass should be compared with switchgrass and other C4 perennial grasses along environmental gradients to determine optimum landscape positions for each, and to maximize bio-energy production with minimal inputs.