

BIOMASS YIELDS FOR PELLET PRODUCTION FROM RECONSTRUCTED PRAIRIE PATCHES IN SOUTHEASTERN MINNESOTA

DANIEL WILSON* DEPARTMENT OF BIOLOGY, WINONA STATE UNIVERSITY, WINONA, MN 55987

BRUNO BORSARI DEPARTMENT OF BIOLOGY, WINONA STATE UNIVERSITY, WINONA, MN 55987

Abstract: The utilization of marginal farmland for prairie reconstruction may offer tangible opportunities for developing renewable energy systems while restoring habitat and ecological services on agricultural landscapes. Concurrently, pellet production from prairie biomass may be a promising approach to sustainability in this region of the upper Midwest. Our work is an ongoing effort on a farm in southeastern Minnesota where marginal farmland was converted into native prairie in 2007. Biomass yields from corn stover and prairie patches planted with mixed grasses and grasses with forbs were measured in order to verify initial data that Tilman and his collaborators collected in 2006. A single-way ANOVA was employed to analyze our data for 2009 indicating that there was a significant difference among yields of the 3 types of biomass. A post hoc test (Scheffe's) was also employed to further verify which cropping system was different when compared to the other two. Our data indicated that prairie plots with mixtures of grasses can be the most productive for biomass production, thus supporting the yield data measured in 2008. This work aims at verifying the feasibility for a pellet production industry in Winona County, Minnesota that could become more attractive to landowners as an incentive for converting marginal farmland back into natural prairie habitat, while developing sustainable energy systems for local farms and neighboring human communities.