Forage Research Update
South Dakota - Management of Perennial Grasses for Bioenergy

by Vance Owens, South Dakota State University and Szilvia Orosz, Szent Istvan University - Hungary

Fertilization and harvest are important management practices for sustainable biomass production of perennial grasses. Harvest management should emphasize yield and persistence, not forage quality. In general, a single harvest during late summer is recommended for maximum yield, whereas a single harvest delayed until late autumn through winter is better for quality of biomass feedstock. Harvesting switchgrass biomass stockpiled over winter offers conservation and wildlife benefits without a significant biomass loss. Switchgrass biomass yields generally increase with N fertilization. In South Dakota, 50 lbs N/ac is optimum for switchgrass biomass production and persistence.

A principle attribute of warm-season grasses, such as switchgrass, is the potential for high biomass production on marginal lands which are not suitable for conventional row crop production due to high erosion potential. Until now, the major income alternative for producers with marginal and highly erodible farmland has been to enroll acreage in CRP. A shift toward biomass feedstock production with perennial grasses on marginal land would enhance the region's soil organic carbon, overall soil quality, water quality and wildlife habitat, with the added major economic and rural community benefit of retaining sustainable agricultural systems.

Harvest, storage, and transportation issues must be resolved for grasses to be successfully developed as bioenergy feedstock. Since most have been used in livestock rations, either as conserved forage or as pasture, many producers understand the procedures for harvesting them in large square or large round bales.