Forage Research Update

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SOUTH DAKOTA - Managing Native Warm-Season Grass Mixtures for Biomass Production

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Switchgrass, big bluestem and indiangrass are native warm-season grasses with biomass energy potential, but little is known about how to manage mixtures of these species for biomass energy. A study was conducted to determine the effects of harvest timing and N fertilizer rate on yield, biomass characteristics and species composition of mixed stands of these grasses.

Five N rates (annual spring application of 0, 50, 100, or 200 lb/ac; or 200 lb/ac evenly split between spring and fall) and two harvest timings (post-flowering vs. killing frost) were applied to plots of these mixtures at two South Dakota locations beginning in 2001.

Harvesting once per year shortly after a killing frost produced the greatest yields with high fiber and lignin concentrations and low nitrogen and ash concentrations. This harvest timing also resulted in the greatest percentage of desirable species and small grass weed percentages. Nitrogen rates of 50 and 100 lb/ac tended to increase total biomass without promoting severe weed invasion, but N fertilization did not always increase biomass production.