Forage Research Update

Compiled and edited by Paul Peterson, University of Minnesota

NORTH DAKOTA - Forage Quality of Perennial Grasses for the Northern Great Plains

J.F. Karn, J.D. Berdahl, and A.B. Frank; USDA-ARS Northern Great Plains Research Lab

Forage quality information on perennial grasses for the Northern Great Plains was limited. This study compared the forage quality of established and more recently released varieties of four perennial grass species over two years near Mandan, ND. Western wheatgrass averaged about 50% leaves, whereas crested wheatgrass averaged only about 20% leaves. Species differed in digestibility (IVDMD), NDF, and crude protein (CP). Western wheatgrass had the greatest whole-plant digestibility and least NDF due to its high leaf percentage and good stem quality. Crested wheatgrass was the least digestible grass. Smooth bromegrass had the most digestible and least fibrous leaves. Variety differences were less pronounced, but Reliant intermediate wheatgrass and Rosana western wheatgrass appeared to have greater forage quality than their comparison varieties.

Table 1. *Forage quality of perennial grasses averaged over 4 stages of maturity and 2 years near Mandan, ND.*

Species	Variety	Digestibility	NDF	Leaf	Leaf CP
		---------- % DM ----------			
Crested Wheatgrass	Hycrest	64	67	23	12
	Nordan	63	67	19	13
Intermediate Wheatgrass	Manska	67	68	32	15
	Reliant	67	67	37	16
Western Wheatgrass	Rodan	67	66	47	16
	Rosana	70	65	53	16
Smooth Bromegrass	Lincoln	68	64	38	17
	Mandan 404	66	65	34	15

All species declined in digestibility and increased in NDF as maturity advanced, but there were some species differences in the rate of change. Averaged over species, whole-plant digestibility decreased from 86 to 62% and NDF increased from 52 to 66% as maturity advanced from vegetative to 10 days after full heading, respectively. Smooth bromegrass leaves increased in NDF more slowly than other species. Leaf tissue of all four grass species averaged over stage of maturity was adequate in CP (>12%) to meet most yearly steer and lactating beef cow requirements.