Forage Research Update *Compiled and edited by Paul Peterson, University of Minnesota*

South Dakota - Seeding Orchardgrass with Alfalfa Doubled Fall Yield

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Binary mixtures of different perennial grasses with alfalfa ('Ameristand 403T') are being evaluated in a trial seeded Spring, 2004 at the Crop Improvement Farm near Brookings, SD. During 2006, it was harvested three times.

Preliminary results from the September 2006 harvest:

- Yields of all alfalfa-grass mixtures were similar to that of alfalfa alone; except for alfalfa-orchardgrass, which yielded twice as much forage as alfalfa alone.
- Alfalfa-orchardgrass mixture had the greatest grass tiller density, while mountain bromegrass-alfalfa had the least.
- Alfalfa stem density was least with orchardgrass because of its high tiller density and competitiveness. Alfalfa's stem density in alfalfa-orchardgrass mixtures was only 28% of alfalfa alone.
- It was surprising to see as many alfalfa stems as grass tillers in the alfalfa-smooth bromegrass mixture, given the aggressive and invasive nature of smooth bromegrass.
- At the last fall cutting, grass tiller density was positively correlated with forage yield.

Table 1. *Data from the third (September) harvest in 2006*

Grass Species	Grass Cultivar	Forage Yield	Shoot Density	
			Grass Tillers	Alfalfa Stems
		Ton DM/ac	*Tillers/ft²*	*Stems/ft²*
Hybrid Bromegrass	AC Knowles	1.6	24	63
Intermediate Wheatgrass	Oahe	1.5	58	37
Mountain Bromegrass	Hakari	1.4	19	45
Orchardgrass	Pennlate	2.4	88	21
Smooth Bromegrass	Lincoln	1.6	51	55
Tall Fescue	Fawn	1.7	34	52
Timothy	Climax	1.8	35	45
Alfalfa Alone	---	1.2	--	75
LSD 5%		0.6	27	24