New Intermediate Wheatgrass on the Horizon

Intermediate wheatgrass provides many advantages to producers. It is easy to establish and has high yields and quality. However, stands of intermediate wheatgrass are generally not long lived especially when they are grazed. The Northern Great Plains Research Laboratory and the Bismarck Plant Materials Center are currently working on a planned release of a new cultivar of intermediate wheatgrass 'Manifest' which has shown greater ability to withstand grazing while maintaining yield and quality.

Table 1 shows the average yields of Manifest in comparison to other common intermediate wheatgrass cultivars for various locations in the Great Plains and Utah. Average yields for Manifest were very comparable to the other cultivars and Manifest had the highest yield when averaged across all locations. Table 2 shows crude protein (CP) and *in vitro* dry matter digestibility (IVDMD) values for the selected cultivars. IVDMD is a measure of how well livestock can digest the forage. While Manifest had slightly lower CP and IVDMD values than the averages of all the cultivars, it was still high quality forage for livestock.

The big advantage of Manifest is its Improved ability to withstand grazing. This was tested by marking individual tillers or shoots of different cultivars and determining if those shoots remained alive, died or were replaced by new shoots after being grazed. This information was then complied into a shoot replacement ratio. The higher the ratio the better a cultivar does under grazing.

Figure 1 compares the shoot replacement ratio of Manifest with Reliant, Manska, and Oahe. Because of Manifest's high shoot replacement ratio, this cultivar should withstand grazing and have increased stand longevity. Manifest has the traditional high yields and high quality which make intermediate wheatgrass attractive forage for producers in the northern Great Plains. The Increased persistence of Manifest during grazing will result in greater stand longevity for producers. Research at NGPRL has suggested that the best time to graze intermediate wheatgrass to increase its persistence is before the boot stage. This generally occurs in early to mid June at Mandan.

This cooperative release effort between the USDA Northern Great Plains Research Laboratory and the USDA Natural Resources Conservation Service, Plant Materials Center is one of many of the cooperative efforts in assuring that adaptable forage grasses are commercially available to the public. The USDA-NRCS Bismarck Plant Materials Center established a Foundation Seed production field of Manifest in 2006 and the first harvest of seed was in late July of 2007. This seed will be cleaned and allotted for seed increase with hopes of Manifest seed being commercially available in 2010 for pasture, hayland plantings and other conservation uses.

Drs. John Hendrickson, John Berdahl, Mark Liebig, and Wayne Duckwitz
(USDA-NRCS Bismarck Plant Materials Center)

Table 1. Average dry-matter yields of intermediate wheatgrass cultivars in a cooperative regional trial. (2001-2003, also 2000 at Mead, NE)

	Location/ (Number of years)						
Entry	Mandan, ND (3)	Miles City, MT (3)	Mead, NE (4)	Sidney, NE (3)	Blue Creek, UT (3)	Green Canyon, UT (3)	**Mean (19)**
	Pounds/Acre						
Manifest	**4614**	**1409**	**9708**	**3215**	**1729**	**3406**	**4611**
Reliant	4867	1295	8738	3162	1192	3365	**4214**
Manska	4206	1396	7774	3076	1361	3783	**3931**
Oahe	4864	990	8466	3355	1506	2706	**4405**
Greenar	3843	1170	8101	2907	1873	3762	**4071**
Beefmaker	4505	1537	9163	3253	1125	2682	**3924**
Haymaker	4422	1369	8996	3091	1116	3152	**4161**
Mean	**4474**	**1310**	**8654**	**3151**	**1415**	**3265**	**4150**

Figure 1.

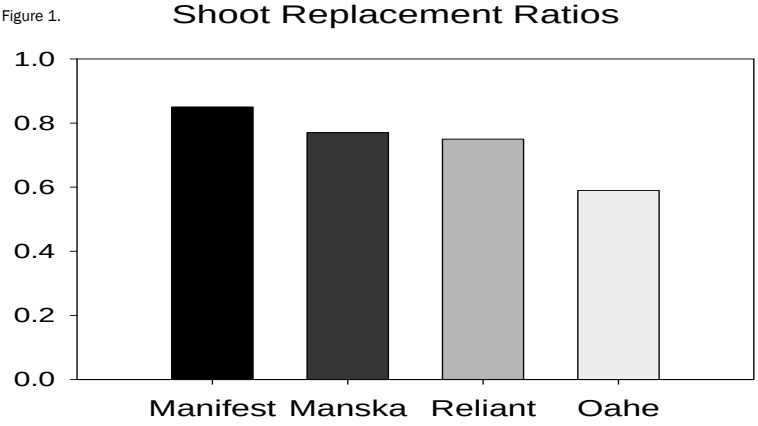

Table 2. Crude protein (CP) and *in vitro* dry matter digestibility (IVDMD) for different intermediate wheatgrass cultivars at Mandan, ND (2 yr) and Mead, NE (4 yr).

	Mandan, ND		Mead, NE	
Entry	IVDMD	CP	IVDMD	CP
	%			
Manifest	**62.3**	**6.9**	**65.1**	**9.1**
Reliant	63.2	8.1	66.0	9.5
Manska	63.6	7.5	66.3	9.7
Oahe	61.2	7.5	64.1	8.9
Greenar	62.5	6.9	64.6	9.4
Beefmaker	63.9	8.1	66.5	9.3
Haymaker	63.2	7.5	65.1	9.4
Mean	**62.8**	**7.5**	**65.4**	**9.3**