

## FORAGE SORGHUM VARIETY TRIALS 2012 IN NORTH DAKOTA

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### *Introduction*

Forage sorghum (*Sorghum bicolor* L. Moench.) is an excellent source of supplemental forage in the summer and early-fall, especially in drought-stricken years such as 2012. Forage sorghum silage has about 85% of the feed value of corn silage, but it is much more drought tolerant than corn.

Also, forage sorghum is being looked at as a promising source of lignocellulosic feedstock for biofuels. Forage sorghum is the highest yielding annual feedstock for the second generation biofuel industry in the northern Great Plains.

### *Methodology*

Eighteen entries of forage sorghum, sudangrass, and hybrids forage sorghum x sudangrass hybrids were evaluated in 2012. The experimental design was an RCBD with 3 replicates at two locations, Fargo and Prosper, ND. Sorghum was planted with a plot-drill on 17 and 18 May at Fargo and Prosper, respectively. The experimental units had 6 rows spaced 12 inches apart, and 20 ft in length. Plots were fertilized with 80 lbs N/acre and hand weeded. Plots were harvested only once at the end of the season on 11 and 12 September. The two-center rows of each plot were harvested manually at 4 inches from the ground, weighed, and a sample taken for moisture. Samples were dried until constant moisture and weighed.

### *Results*

The 2012 season had below normal rainfall at both locations. Fargo rainfall was 53% of normal and Prosper rainfall was 49% of normal. Forage yield fluctuated between 4.6 and 8.8 tons/acre at Fargo and 5.6 and 9.9 tons/acre at Prosper. The interaction between location and variety was not significant. Sudangrass varieties, as expected, had the lowest yield at both locations. Forage sorghum (FS-05), our check variety, remains as one of the highest yielding varieties. In general, the Brown Mid-Rib (BMR) sorghums, with a lower content of lignin, were lower yielding than the non-BMR sorghums.

Sorghum proved once again, a high yielding forage crop despite the water deficit observed. There is no other forage crop we can obtain forage yields greater than 8 tons/acre.

Table 1. Forage yield of 18 forage sorghum, sudangrass, and forage x sudangrass entries at two locations in North Dakota in 2012.

Entry	Type	BMR	BMR type	Company name	-----tons/acre-----		
					Fargo	Prosper	Combined
Piper	Sudangrass	N		Agassiz Seeds	4.65	5.59	5.12
Hay King	Sudangrass	Y	bmr-12	Producer's Choice	5.14	6.87	6.00
Sweething	Sorghum x sudan	N		Seed	7.59	7.32	7.45
Forage King	Sorghum-sudan	Y	bmr-12	Agassiz	8.12	7.94	8.03
BMR -Sweething	Sorghum x sudan	Y	bmr-6	Producer's Choice	8.84	7.33	8.08
S9-09	Forage sorghum	N		Seed	8.33	7.70	8.02
Green Dynamo	Sorghum x sudan	Y	bmr-6	Agassiz Seeds	5.69	6.55	6.12
BMR 90 Leafy	Forage sorghum	Y	bmr-6	Forage First™	7.71	8.79	8.25
BMR AL 53	Sorghum x sudan	Y	bmr-6	Forage First™	6.65	5.97	6.31
BMR 105MS	Forage sorghum	Y	bmr-6	Albert Lea	6.74	7.98	7.36
Greentreat Plus	Sorghum x sudan	Y	bmr-6	Seeds	7.34	8.13	7.73
SX-17	Sorghum x sudan	N		Forage First™	8.32	8.47	8.39
Greentreat 128	Sorghum x sudan	Y	bmr-12	Forage First™	8.21	8.70	8.45
FS-05	Forage sorghum	N	-	Monsanto	8.86	9.47	9.16
CHR-SG1	Sudan grass	-	-	Chromatin Inc.	7.26	8.36	7.70
CHR-FS9	Forage sorghum	-	-	Chromatin Inc.	8.63	9.21	8.92
CHR-SS2	Sorghum x sudan	-	-	Chromatin Inc.	7.46	9.94	8.88
CHR-FS4	Forage sorghum	-	-	Chromatin Inc.	8.05	9.25	8.65
LSD (0.05)					2.03	2.52	1.43
CV, %					18.5	18.9	18.7