

Seed Production Potential of Switchgrass in the Southeast USA

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Switchgrass *Panicum virgatum* L.

- Native to North America
- Tall Growing (> 2 m)
- Productive (10-20 Mg/ha) with Low Inputs
- Nutritious April to June/July
- Suitable for Beef Animals
- Good Seed Production Potential
- Perennial Biomass Crop

Seed Yield (kg/ha)

- 200 to 1000 Nebraska Vogel 1992
- 140 to 560 Missouri Brejda et al 1994
 - Forage Harvest May 200 to 400
 - Forage Harvest June < 100
 - Full Season > 400
- 200 to 560 Pennsylvania Sanderson et al 2004

Seed Production Potential

- **Switchgrass**
 - 100 to 500+ kg per ha
 - \$ 20 to \$ 30 per kg PLS
 - \$ 2000 to \$ 15,000 per hectare gross income
 - (\$ 800 to \$ 7,000 per acre gross income)
- **Is this Realistic in the Southeast?**

Objectives

- **Determine Forage and Biomass Yield of Half Season (June Cut) and Full Season (December Cut) 'Alamo' Switchgrass**
- **Determine Seed Yield and Seed Quality for the Half Season and Full Season**

Mississippi 1998 to 2001

	Half	Full
Year	kg/ha	
1998	123	503
1999	Lost	Lost
2000	227	428
2001	387	516
Ave.	246	483
Germination	77%	72%

Methods: Full and Half Season Seed Production

- **Existing Stand of 'Alamo' Switchgrass Established in 1999**
- **Fertilized with 448 kg/ha 15-5-10 26 April**
- **Half plots were harvested for forage (whole plants cut at 7-10 cm on 13 June 2006 and fertilized with 15-5-10 at 448 kg/ha**
 - Analyzed for Protein, IVDMD, ADF,ADL, NDF



Methods: Full and Half Season Seed Production

- **Seed Harvested from Full and Half Season Plots on 30 October 2006**
 - Cleaned into Grade 1 and Grade 2 Lots
 - Germination (pending)
- **Full and Half season Plots Harvested on 16 December 2006 for Biomass**
 - Analyzed for Ash, Protein, Minerals, IVDMD, ADF, ADL, NDF (Pending)



Forage Yield: 2006

	June 13	Dec 16	Total Herbage
	----- Mg/ha -----		
Half	6.2	7.0	13.2
Full	Not Cut	17.8	17.8
LSD _(0.05)	n/a	3.0	3.0

Seed Yield: 2006

	Grade1	Grade2	Total Seed Yld
	----- Ratio -----		
Half	.45	.34	.79
Full	.34	.38	.72
LSD _(0.05)	NS	NS	.067

Seed Harvested 30 October 2006

Forage Quality: June 2006

ADF	34.5	+/- 1.5
Lignin	5.7	+/- 0.2
NDF	72.5	+/- 1.2
IVDMD	53.7	+/- 1.8
IVTD	60.3	+/- 2.4
Protein	7.0	+/- 0.8

Seed Yield: 2006

	Grade1	Grade2	Total Seed Yld
	----- kg/ha -----		
Half	55	41	96
Full	88	97	185
LSD _(0.05)	15	14	39

Seed Harvested 30 October 2006

Conclusions

- **Forage Harvested in June had Sufficient Quality for Beef Animals**
- **Seed Yield in 2006 was Low Due to Drought and Heavy Fall Rains**
- **Twice as much Seed from Full Season than from Half Season Production**