Biofuel productivity plots

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Saginaw County

Cropping system
Other

County	**Saginaw**
Cooperator	**Bean and Beet Research Farm**
Nearest town	**Frankenmuth**
Soil type	**Tappan-Londo loam**
Planting date	**Miscanthus and switchgrass: May 2009 Corn, forage and sweet sorghum: May 2010**
Weed control Sprayed 05/25/10	**Switchgrass: 8 oz. 2,4-D Miscanthus: 8 oz. 2,4-D + .5 lb. atrazine**
Fertilizer	**Miscanthus and switchgrass: 95 lbs. (207 lbs. 46-0-0); Sorghum and corn: 40 lbs. N, P, K (207 lbs. 19-19-19) + 95 lbs. (207 lbs. 46-0-0)**
Exp. design	**RCB, four replications**

Results and discussion

Means separation tests showed that sweet sorghum produced the highest amount of ethanol per acre although miscanthus was not statistically lower. Corn grain and stover yields were low in this trial and were not representative of yields in surrounding farmers' fields. We are not sure why the yield was so low. Miscanthus and switchgrass stands are looking good and we expect them to reach a mature stand and maximum yields next year (third year after planting).

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FIELD CROPS TEAM

Purpose

Evaluate biofuel crop productivity on various soils and microclimates across Michigan.

Materials and methods

The plot was established as a randomized complete block design with four replications. Switchgrass and miscanthus were established in May 2009. Corn, forage and sweet sorghum were planted in May 2010. Whole corn plants were clipped off at 3-4 inches above ground and weighed for total biomass. Ears were separated from the stalk, shelled and grain weight and moisture recorded. Total biomass removed would be comparable to corn silage harvest. Whole plants of sweet sorghum were harvested, much like corn.

Biofuel crop	Biomass yield		Ethanol yield	
Forage sorghum	4.7	tons/A	419 b	gal/A[2]
Corn grain	95.8	bu/A	268 b	gal/A[1]
Sweet sorghum	8.3	tons/A	747 a	gal/A[2]
Corn stover	2.7	tons/A	245 b	gal/A[2]
Switchgrass	4.5	tons/A	401 b	gal/A[2]
Miscanthus	5.5	tons/A	492 ab	gal/A[2]

[1] bu/A X 2.8 gal/bu = gal. of ethanol/A
[2] tons/A X 72 gal/ton = gal. of ethanol/A