Cropping system
Other

Ottawa County

MICHIGAN STATE UNIVERSITY | Extension

Michigan State University AgBioResearch

County	Ottawa
Cooperator	Grand Valley State University
Nearest town	Allendale
Soil type	Coloma loamy sand
Weed control Sprayed 05/10/11	None on switchgrass and miscanthus Sorghum; 1.67 pts/A Duall II Magnum Camelina and oriental mustard: 12 oz. Intensity One + 8 oz. Stinger
Fertilizer	Switchgrass: 152 lbs/A 46-0-0 (70 lbs. actual N) Miscanthus: 207 lbs/A 46-0-0 (95 lbs. actual N) Sorghum: 186 lbs/A 46-0-0 + 173 lbs/A 19-19-19 (118-33-33 actual lbs. N-P-K) Camelina and oriental mustard: 153 lbs/A 46-0-0 + 224 lbs/A 19/19/19 + 58 lbs/A 0-0-60 (113-43-77 actual lbs. N-P-K)
Exp. design	RCB, four replications

Biofuel productivity plots

Purpose

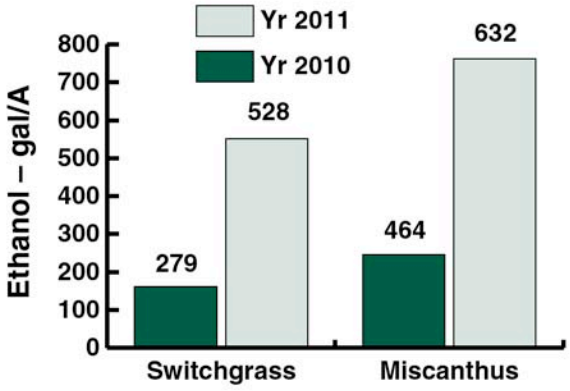
Evaluate biofuel crop productivity on various soils and micro climates across Michigan.

Materials and methods

Switchgrass and miscanthus were established in May 2010. Switchgrass was seeded at a rate of 6 lbs. Pure Live Seed/A. Miscanthus rhizomes were propagated in the greenhouse and live plants were transplanted into the field. Camelina and oriental mustard were also planted harvested. These crops were sprayed with clopyralid for weed control. It was found in Utah in late 2011, that clopyralid caused flowers to abort resulting in 85 percent reduction in yields on camelina and canola. Due to this fact and the low yield collected from canola and oriental mustard, yield data is not being reported. Corn was not planted in 2011. Sorghum was planted, but mowed in late July due to poor weed control.

	2010		2011	
Species	Yield[1]	Ethanol[2]	Yield[1]	Ethanol[2]
Switchgrass	2	162	7	551
Miscanthus	3	245	9	762
Sweet sorghum	7	572	–	–
Corn grain[3] (bu/A)	68	190	–	–
Corn stover	4	303	–	–

[1]tons of dry matter/A.
[2]tons/A X 85 gal/ton = gal. of ethanol/A.
[3]Ethanol yield calculated at 2.8 gal/bu corn grain.



Results

Switchgrass and miscanthus crops appear to have reached a mature stand in just 2 years. This typically takes 3 years. Miscanthus uses larger amounts of water than switchgrass. This site had abundant water in 2010 and 2011, partly due to high water table and high water holding capacity of the soil. This has contributed to the high yields observed.

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