



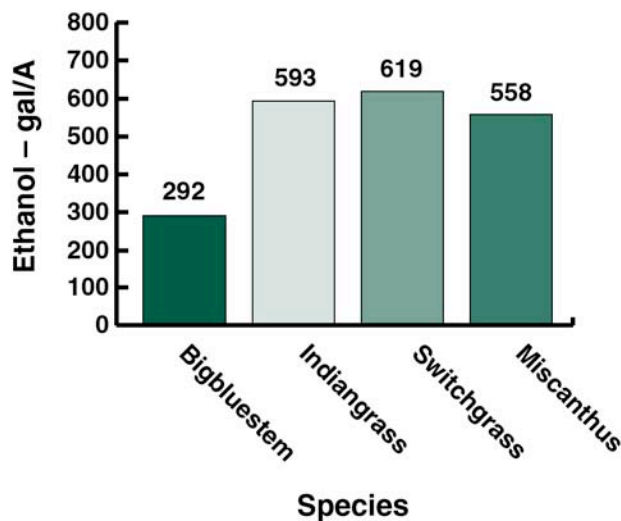
Biofuel productivity plots

Purpose

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

Materials and methods

Big bluestem, indiagrass, switchgrass and miscanthus were established in May 2009. A walk behind sickle bar mower was used to cut a 28-inch swath from the switchgrass plots.



Results and discussion

Yield data was not collected in the establishment year. Productivity has increased significantly as the stand of warm season perennial grasses has reached maturity. Foxtail was a significant weed problem during the first two years and started to invade the plots in 2011, but the crops took over and shaded out the foxtail. In 2010, big bluestem was severely lodged in all 4 replications. In 2011, big bluestem and indiagrass lodged. For this plot, attempts were made to harvest as much biomass as possible to a true indication of yield potential. For big bluestem in particular, harvest losses will need to be determined because equipment will possibly leave a significant amount of crop in the field. Based on this data, it would not be recommended to plant monocultures of big bluestem or indiagrass until it can be determined what is causing lodging.

County	Cass
Cooperator	Edward Lowe Foundation
Nearest town	Cassopolis
Soil type	Schoolcraft loam
Weed control	None
Fertilizer	Indiagrass, big bluestem, and switchgrass: 152 lbs/A 46-0-0 (70 lbs. actual) Miscanthus: 207 lbs/A 46-0-0 (95 lbs. actual N)
Exp. design	RCB, 4 replications

2010				
Variety	Biomass yield		Ethanol yield	
Big bluestem	3.1	tons/A	261	gal/A ¹
Indiagrass	5.0	tons/A	426	gal/A ¹
Switchgrass	3.6	tons/A	304	gal/A ¹
Miscanthus	3.8	tons/A	321	gal/A ¹

¹ tons/A X 90 gal/ton = gal. of ethanol/A

2011				
Variety	Biomass yield		Ethanol yield	
Big bluestem	3.4	tons/A	292	gal/A ¹
Indiagrass	7.0	tons/A	593	gal/A ¹
Switchgrass	7.3	tons/A	619	gal/A ¹
Miscanthus	6.6	tons/A	558	gal/A ¹

¹ tons/A X 90 gal/ton = gal. of ethanol/A

A study to evaluate nitrogen application rates could provide additional information. Excess nitrogen can contribute to lodging in crops. This study was not designed to make this determination.

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