

Supplementary Materials: Comparing the Biomass Yield and Biogas Potential of *Phragmites australis* with *Miscanthus x giganteus* and *Panicum virgatum* Grown in Canada

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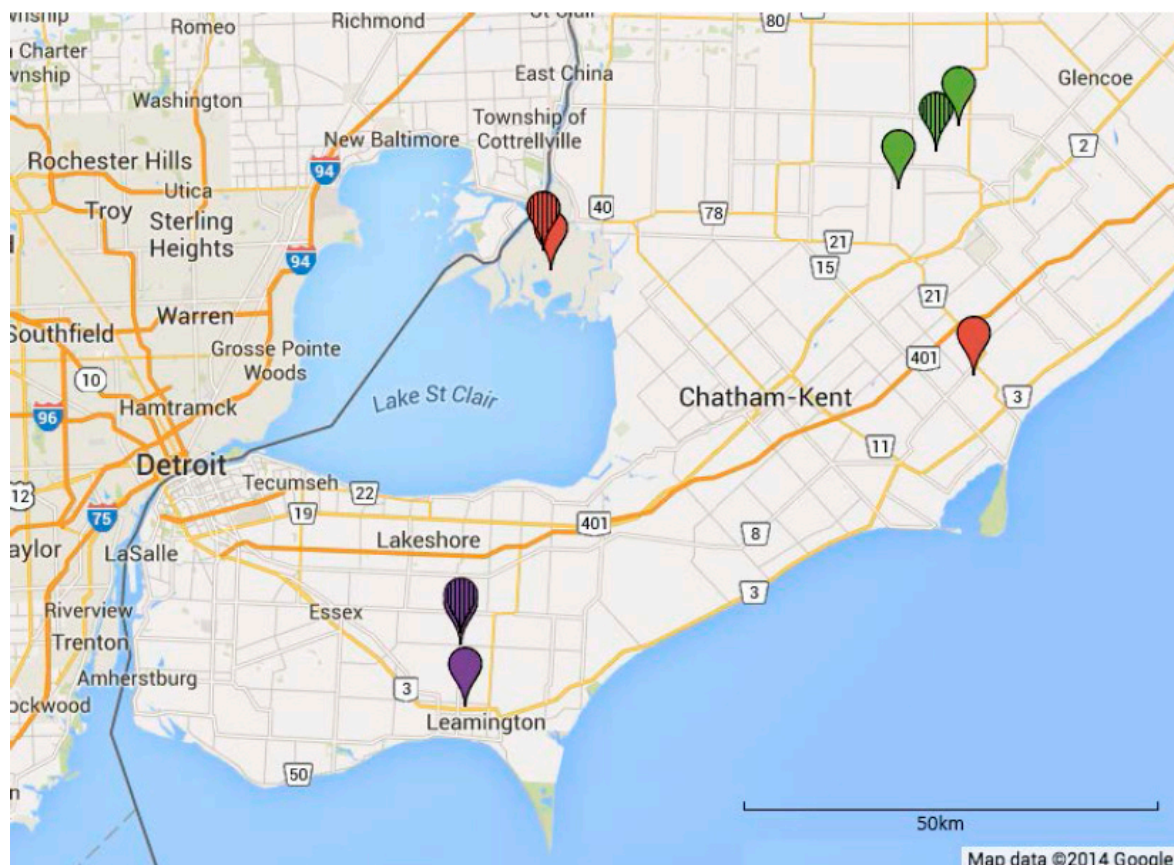


Figure S1. Location of cultivated *Miscanthus x giganteus* (purple markers; 42°4.132' N 82°38.1' W, 42°8.196' N 82°38.406' W and 42°8.71' N 82°38.276' W) and *Panicum virgatum* (green markers; 42°41.783' N 81°54.737' W, 42°41.788' N 81°54.731' W and 42°37.629' N 81°59.897' W) biomass, as well as wild stands of *Phragmites australis* (red markers; 42°33.368' N 82°31.178' W, 42°33.617' N 82°31.17' W and 42°19.904' N 82°24.576' W) used in this experiment conducted in southwestern Ontario. Striped markers denote locations of the samples used in the biological methane potential analysis.

Table S1. Mean (\pm standard error) nutrient concentrations in *Phragmites australis*, *Panicum virgatum*, and *Miscanthus x giganteus* ($n = 3$) and *Zea mays* silage ($n = 1$) during July and October harvests for 2013 samples. Means followed by the same letter in each column were not significantly different according to Tukey's range test ($p > 0.05$). *Zea mays* was not analyzed due to lack of replication.

Species	Magnesium ^{††}	Nitrogen	Phosphorus [†]	Potassium	Sodium	Copper	Manganese [†]
	----- g kg ⁻¹ DM -----					----- mg kg ⁻¹ DM -----	
<i>M x giganteus</i>	2.7ab	12.7 (\pm 2.4)b	1.5b	12.5 (\pm 2.1)	0.2 (\pm 0)a	3.9 (\pm 1.0)b	43.5ab
<i>P. australis</i>	4.4b	14.2 (\pm 1.9)b	0.7a	9.5 (\pm 2.2)	0.4 (\pm 0)b	1.2 (\pm 0.7)a	123.7b
<i>P. virgatum</i>	1.6a	7.0 (\pm 0.8)a	1.5b	10.2 (\pm 1.6)	0.1 (\pm 0)a	1.8 (\pm 0.7)a	17.9a

<i>Z. mays</i>	1.7	13.2	2.8	13.4	0.3	9.79	35.4
Harvest Time							
July	2.8	14.5 (±1.8)m	1.6	14.7 (±0.9)m	0.2 (±0)	4.0 (±0.6)m	46.7
October	2.7	8.1 (±0.9)n	0.9	6.7 (±0.7)n	0.3 (±0.1)	0.6 (±0.4)n	45
Species * Harvest Time							
<i>M x giganteus</i> *	52.3	17.9 (±0.9)x	2.2	16.4 (±2.2)	0.2 (±0.0)	5.86 (±0.8)	50.9
July							
<i>M x giganteus</i> *	21.7	7.4 (±0.9)z	0.9	8.6 (±0.9)	0.2 (±0.0)	1.8 (±0.4)	19.8
October							
<i>P. australis</i> * July	109.3	17.4 (±2.6)xy	1.1	14.0 (±1.4)	0.3 (±0.0)	2.7 (±0.5)	99.5
<i>P. australis</i> *	157.2	11.1 (±1)yz	0.6	4.9 (±1)	0.4 (±0.1)	-0.3 (±0.3)	153.7
October							
<i>P. virgatum</i> * July	22.1	8.3 (±1.2)z	1.7	13.8 (±0.2)	0.2 (±0.0)	3.3 (±0.6)	20.1
<i>P. virgatum</i> *	16.5	5.8 (±0.2)z	1.4	6.6 (±0.3)	0.1 (±0.0)	0.3 (±0.2)	15.9
October							
Effect	----- p value -----						
Species	0.002	<0.001	0.004	0.072	<0.001	<0.001	0.002
Harvest Time	0.773	<0.001	0.004	<0.001	0.464	<0.001	0.912
Harvest Time *	0.649	0.034	0.322	0.739	0.107	0.474	0.633
Species							

† Square root back-transformed. ‡ Base-10 logarithm back-transformed. * denotes interaction between variables.

Table S2. Mean nutrient concentrations in *Phragmites australis*, *Panicum virgatum*, and *Miscanthus x giganteus* ($n = 3$) and *Zea mays* silage ($n = 1$) during summer and fall harvests for 2013 samples. *Zea mays* was not analyzed due to lack of replication.

	Calcium	Iron	Zinc
	--- g kg ⁻¹ ---	----- mg kg ⁻¹ -----	
Species			
<i>M x giganteus</i>	2.8 (±0.3)	55.5 (±2.6)	21.4 (±4.4)
<i>P. australis</i>	3.2 (±0.3)	53.5 (±4)	27.8 (±3.8)
<i>P. virgatum</i>	3.2 (±0.6)	54.9 (±5.9)	14.5 (±1.1)
<i>Z. mays</i>	4.6	2205.5	22.1
Harvest Time			
July	2.7 (±0.3)	51.4 (±3.1)	23.1 (±3.2)
October	3.4 (±0.3)	58.2 (±3.6)	19.4 (±3.3)
Species * Harvest Time			
<i>M x giganteus</i> * July	2.7 (±0.5)	56.9 (±4.7)	25.3 (±5.4)
<i>M x giganteus</i> * October	2.8 (±0.2)	53.4 (±2.0)	17.5 (±7.3)
<i>P. australis</i> * July	3.1 (±0.6)	48.2 (±6.6)	29.1 (±6)
<i>P. australis</i> * October	3.3 (±0.2)	58.8 (±3.2)	26.4 (±6)
<i>P. virgatum</i> * July	2.3 (±0.3)	49.0 (±4.9)	15.0 (±2.0)
<i>P. virgatum</i> * October	4.2 (±0.8)	60.8 (±10.6)	14.1 (±1.4)
Effect			
Species	0.571	0.963	0.074
Harvest Time	0.089	0.262	0.390
Harvest Time * Species	0.147	0.476	0.787

* denotes interaction between variables.



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