Supporting Online Material

Nitrogen dynamics following field application of biochar in a temperate North American maize-based production system

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Table S1 Biochar properties.

	units	
pH (water)		10.02
Potential CEC	(mmolc kg^{-1})	343
Total C	(mg g^{-1})	290
Total N	(mg g^{-1})	3.05
C/N		96
Total O	(%)	8.1
Total H	(%)	1.5
O/C[a]		0.15
H/C[a]		0.43
Total P[b]	(mg g^{-1})	0.41
Total Ca[b]	(mg g^{-1})	45.6
Total K[b]	(mg g^{-1})	275.2
Total Mg[b]	(mg g^{-1})	7.5
Total Na[b]	(mg g^{-1})	25.1
Extractable Ca[c]	(mmolc kg^{-1})	45.6
Extractable K[c]	(mmolc kg^{-1})	275.2
Extractable Mg[c]	(mmolc kg^{-1})	7.5
Extractable Na[c]	(mmolc kg^{-1})	25.1
Ash (ASTM[d])	(%)	64.19
Fixed carbon (ASTM[d])	(%)	10.12
Volatile matter (ASTM[d])	(%)	71.74
Surface area (CO_2)	m^2 g^{-1}	178
Size >4.76 mm	(%)	1.4
Size 4.76-2.00 mm	(%)	7.5
Size 2.00-0.42 mm	(%)	34.2
Size <0.42 mm	(%)	56.9

[a]molar ratios; [b]Enders and Lehmann (2012); [c]CEC Ammonium Acetate at pH 7; [d]ASTM D1762-84 Chemical Analysis of Wood Charcoal

References

Enders A, Lehmann J (2012) Comparison of wet-digestion and dry-ashing methods for total elemental analysis of biochar. Commun Soil Sci Plan 7:1042-1052.

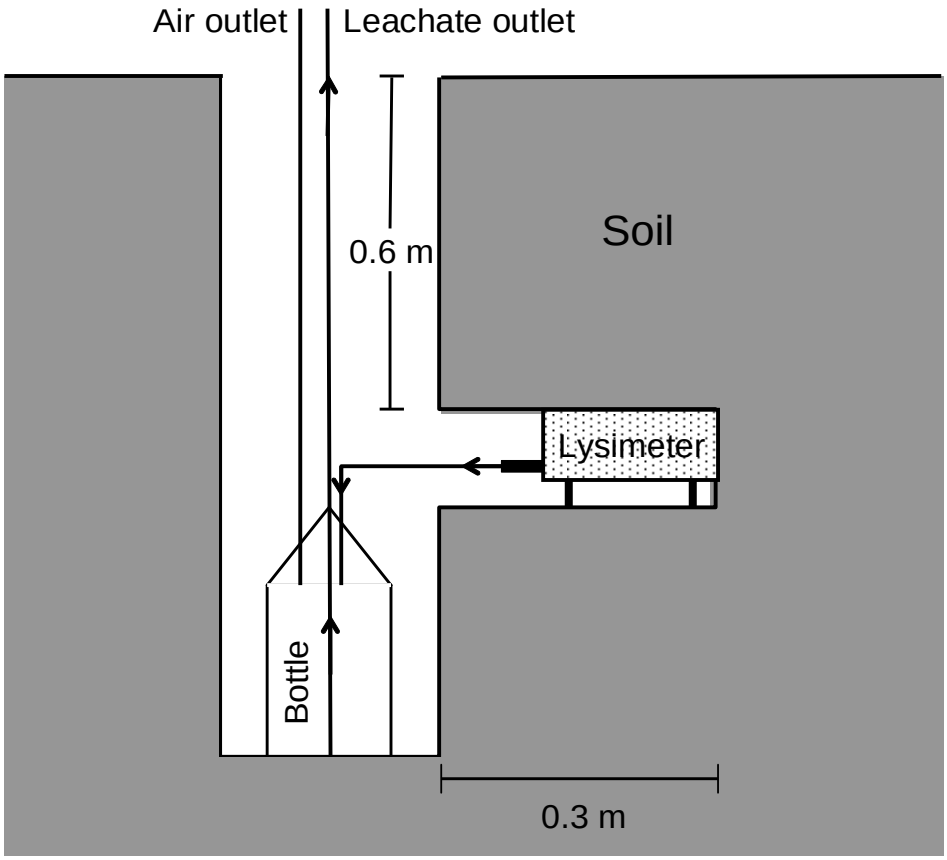

Fig. S1 Schematic of lysimeter placement and leachate collection device.

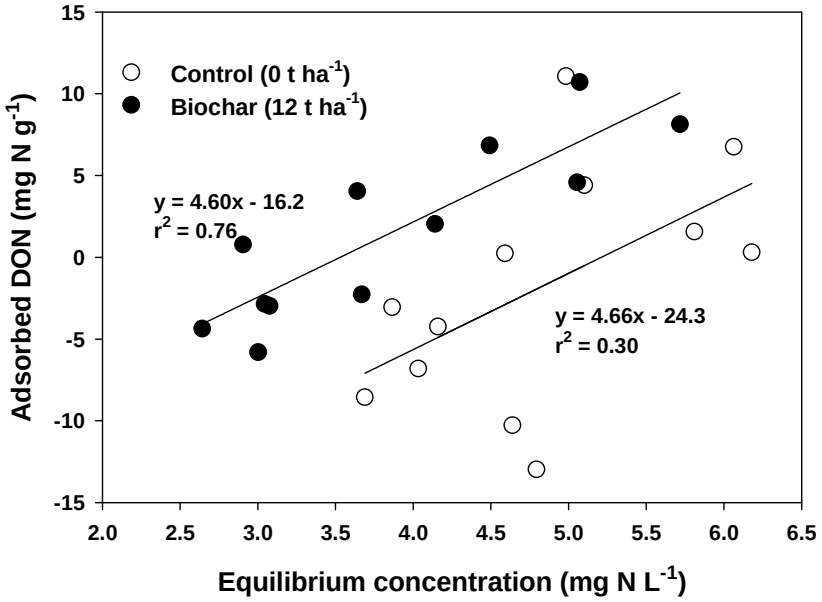

Fig. S2 Adsorption isotherm for DON with and without 12 t ha^{-1} biochar taken in October 2009 (with 50% and 100% fertilization), three years after biochar additions in April 2007 (means; *n*=3).