

Table S1. CO₂ concentration and δ¹³C value calibration and check standard data.

Sample	Start date	End date	CO ₂ (ppm)	1 σ	Picarro δ ¹³ C (‰)	1 σ	n	IRMS δ ¹³ C (‰)	1 σ	n	CO ₂ source
Certified NOAA values											
low standard			392.04	0.01				-8.448	0.003		
high standard			496.08	0.02				-13.529	0.003		
Measured values for NOAA standards after calibration											
low standard	04/12/2011	01/19/2012	392.05	0.12	-8.53	0.53	59				
high standard	04/12/2011	01/19/2012	496.09	0.12	-13.55	0.39	60				
Check standards											
low standard #1	06/20/2011	10/14/2011	403.24	0.06	-11.30	0.40	148	-10.75	0.12	5	E
low standard #2	07/14/2011	03/03/2012	402.38	0.09	-11.59	0.44	194	-10.83	0.08	6	E
high standard #1	07/25/2011	12/27/2011	452.79	0.08	-45.82	0.38	266	-46.33	0.08	2	M
high standard #2	06/20/2011	03/03/2012	600.66	0.07	-11.31	0.31	74	-10.85	0.06	4	E

^a WS-CRDS δ¹³C values for the check standards, which are synthetic air with no Ar, are expected to be ~0.5‰ more negative than δ¹³C values determined by IRMS. See section 2.2 for further explanation.

^b E = ethanol production, M = methane combustion