

**Additional file 3: Kinetic parameters of biogas production and methane (CH<sub>4</sub>) percentage for wheat genotypes**

Origin	Yield group	Genotype	2014				2017		
			B <sub>max</sub> (cm <sup>3</sup> /g VS)	k (day <sup>-1</sup> )	CH <sub>4</sub> (%)	Methane yield (m <sup>3</sup> /ha)	B <sub>max</sub> (cm <sup>3</sup> /g VS)	k (day <sup>-1</sup> )	CH <sub>4</sub> (%)
<b>CIMMYT</b>	High yield	Buck AGP Fast	419.6 ± 2.1	0.102 ± 0.006	56.4 ± 1.5	1661 ± 14	392.9 ± 3.8	0.107 ± 0.001	55.8 ± 0.4
		Don Mario Arex	455.2 ± 13.6	0.099 ± 0.001	54.6 ± 1.6	1893 ± 40	446.9 ± 0.2	0.132 ± 0.002	54.3 ± 0.4
		Don Mario Atlax	398.4 ± 2.7	0.111 ± 0.001	56.1 ± 1.7	1717 ± 20	422.8 ± 5.1	0.139 ± 0.002	55.8 ± 0.4
		INIA Centinela	419.0 ± 4.0	0.106 ± 0.003	56.1 ± 1.7	1794 ± 17	444.1 ± 14.1	0.124 ± 0.005	56.2 ± 0.0
		Klein Don Enrique	435.4 ± 1.7	0.118 ± 0.002	55.5 ± 1.1	1858 ± 18	435.1 ± 16.6	0.125 ± 0.003	55.8 ± 0.4
		Sursem LE 2331	419.3 ± 13.4	0.135 ± 0.009	56.0 ± 0.9	1879 ± 85	453.6 ± 4.0	0.141 ± 0.002	55.8 ± 0.4
	Low yield	ACA 907	391.8 ± 3.7	0.153 ± 0.005	55.5 ± 1.1	1067 ± 10	400.2 ± 15.9	0.121 ± 0.002	55.0 ± 0.4
		BIOINTA 1003	432.4 ± 2.5	0.134 ± 0.002	55.1 ± 2.1	1583 ± 18	411.2 ± 1.4	0.144 ± 0.007	56.2 ± 0.0
		BIOINTA 3004	414.2 ± 0.4	0.127 ± 0.001	54.6 ± 1.6	1030 ± 20	412.8 ± 8.1	0.129 ± 0.003	55.8 ± 1.1
		Buck Puelche	445.7 ± 11.7	0.123 ± 0.003	54.6 ± 1.6	1419 ± 37	432.2 ± 10.6	0.128 ± 0.005	56.2 ± 1.5
		Klein Cacique	413 ± 9.9	0.113 ± 0.002	56.5 ± 0.6	1330 ± 26	427 ± 5.0	0.109 ± 0.002	56.6 ± 0.3
		Klein Yarara	411.9 ± 4.6	0.103 ± 0.009	55.5 ± 1.1	998 ± 15	424.4 ± 11.5	0.122 ± 0.005	56.2 ± 0.0
		<b>Criollos</b>	High yield	BIOINTA 1000	404.2 ± 9.0	0.135 ± 0.003	54.0 ± 1.1	1855 ± 33	407.7 ± 6.6
Buck 75 Aniversario	399.5 ± 2.8	0.119 ± 0.002		55.5 ± 1.1	1901 ± 6	433.0 ± 6.4	0.145 ± 0.005	54.7 ± 0.0	
Buck Baqueano	433.7 ± 3.2	0.130 ± 0.001		55.5 ± 1.1	2288 ± 37	432.8 ± 3.8	0.139 ± 0.005	55.8 ± 0.4	
Buck Guapo	459.1 ± 0.8	0.127 ± 0.003		55.5 ± 1.1	3113 ± 19	464.7 ± 12.9	0.112 ± 0.001	55.0 ± 0.4	
Buck Ranquel	404.3 ± 5.8	0.129 ± 0.004		55.1 ± 1.4	2041 ± 20	461.8 ± 4.1	0.125 ± 0.003	55.0 ± 0.4	
Don Mario Themix	436.3 ± 9.7	0.119 ± 0.007		55.1 ± 1.4	1787 ± 22	454.8 ± 3.8	0.141 ± 0.003	55.0 ± 0.4	
Low yield	Barletta 77	388.2 ± 1.8		0.109 ± 0.005	55.6 ± 1.9	1834 ± 23	425.0 ± 6.8	0.139 ± 0.006	55.8 ± 0.4
	Buck Naposta	378.3 ± 8.3		0.128 ± 0.004	56.1 ± 1.7	1445 ± 31	469.0 ± 21.5	0.079 ± 0.009	55.0 ± 0.4
	INIA Condor	444.9 ± 14.8		0.099 ± 0.005	55.5 ± 1.1	1538 ± 51	415.4 ± 2.7	0.151 ± 0.002	56.6 ± 0.3
	Klein Impacto	368.1 ± 10.2		0.114 ± 0.002	57.0 ± 1.2	1255 ± 23	473.5 ± 21.8	0.108 ± 0.005	55.8 ± 0.4
	Klein Rendidor	410.3 ± 5.4		0.130 ± 0.007	56.5 ± 0.6	1397 ± 18	412.2 ± 0.3	0.146 ± 0.002	56.2 ± 0.0
	Oleata Artillero	443.8 ± 6.3		0.129 ± 0.007	55.5 ± 1.1	1545 ± 15	441.5 ± 4.9	0.110 ± 0.002	55.8 ± 1.1

<b>French</b>	High Yield	BSY 100	438.2 ± 16.9	0.132 ± 0.005	54.6 ± 1.6	2062 ± 61	461.5 ± 24.7	0.122 ± 0.002	55.0 ± 0.4
		Baguette 9	400.4 ± 10.1	0.138 ± 0.002	55.1 ± 1.4	1694 ± 43	436.4 ± 5.4	0.133 ± 0.001	55.0 ± 0.4
		Baguette 18	436.0 ± 0.3	0.107 ± 0.002	55.5 ± 1.1	1871 ± 15	429.4 ± 13.9	0.109 ± 0.013	55.8 ± 0.4
		Baguette 19	421.6 ± 6.9	0.123 ± 0.001	55.1 ± 1.4	1678 ± 20	411.5 ± 6.8	0.123 ± 0.009	56.6 ± 0.3
		Baguette 31	436.9 ± 3.2	0.129 ± 0.001	56.1 ± 1.7	2111 ± 15	447 ± 17.2	0.108 ± 0.013	55.8 ± 0.4
		SNR Nogal	426.8 ± 3.3	0.134 ± 0.001	56.5 ± 0.6	2247 ± 37	419.9 ± 8.6	0.163 ± 0.014	56.6 ± 0.3
	Low Yield	BSY 200	410.8 ± 2.4	0.133 ± 0.004	55.5 ± 1.1	1323 ± 8	401.6 ± 6.6	0.122 ± 0.006	56.6 ± 0.3
		Klein Atlas	422.4 ± 9.6	0.118 ± 0.004	55.5 ± 1.1	1812 ± 55	453.2 ± 8.2	0.113 ± 0.002	56.2 ± 0.0
		Klein Centauro	423.7 ± 12.7	0.116 ± 0.005	56.1 ± 1.7	1939 ± 50	421.6 ± 1.41	0.140 ± 0.002	55.0 ± 1.2
		Baguette 10	427.1 ± 2.7	0.134 ± 0.005	55.6 ± 1.9	1353 ± 14	420.2 ± 11.4	0.142 ± 0.003	56.6 ± 0.3
		Baguette 21	423.4 ± 0.4	0.144 ± 0.003	55.1 ± 2.1	1378 ± 12	429.9 ± 3.1	0.143 ± 0.004	55.8 ± 0.4
		Sinvalocho	451.1 ± 19.1	0.097 ± 0.001	55.5 ± 1.1	1563 ± 66	466.3 ± 16.2	0.106 ± 0.002	55.0 ± 0.4

Best fitting values for  $B_{\max}$  and  $k$ , and methane content of biogas for the 36 wheat genotypes assessed during the 2014 and 2017 seasons. Methane content was determined after cumulative biogas reached a plateau. Methane yield was determined during season 2014. Data represent the mean ± standard error of 2 replicates.