

Methane generating potential of *Lotus uliginosus* var. Maku harvested in three consecutive dates.

M. de J. Marichal<sup>a</sup>, R. Crespi<sup>a</sup>, G. Arias<sup>a</sup>, S. Furtado<sup>a</sup>, M.H.Guerra<sup>a</sup>, L.Piaggio<sup>b</sup>

<sup>a</sup>Facultad de Agronomía, Universidad de la República, Montevideo, Uruguay

<sup>b</sup> Secretariado Uruguayo de la Lana, Montevideo, Uruguay

Methane generating potential of *Lotus uliginosus* var. Maku harvested in three consecutive dates was investigated. Three replicate plots were seeded in August at the Experimental Research Center of the Secretariado Uruguayo de la Lana (S 33°52', W 55°34'). When plants were 20±5cm, forage was harvested in October (LM1), November (LM2) and December (LM3). Pastures were analyzed for NDF, ADF and H<sub>2</sub>SO<sub>4</sub> soluble lignin (Lig<sub>sa</sub>). An *in vitro* gas production procedure was followed, rumen contents of two fistulated wethers fed alfalfa hay were collected two hours after morning feed. Three batches of 33 of bottles (3 bottles by experimental forage, 3 with alfalfa as standard, and 3 blanks) were incubated for 24 h. Cumulated gas was collected at 8 h and from 8 to 24 h in separated bottles and methane was measured by gas chromatography. Fiber fractions and methane production at 8, 8 to 24 and 24 h were analyzed in a complete randomized design (PROC GLM, SAS; Tukey test). LM2 presented smaller ( $P < 0.05$ ) NDF, ADF and Lig<sub>sa</sub> (369, 282 and 114 g kg DM<sup>-1</sup>, respectively), than LM1 (478, 363 and 201 g NDF, ADF and Lig<sub>sa</sub> kg DM<sup>-1</sup>, respectively); similar ( $P > 0.10$ ) and intermediate values were observed in LM3 (419, 324 and 139 g NDF, ADF and Lig<sub>sa</sub> kg DM<sup>-1</sup>, respectively). Methane in gas accumulated in 24h was greater ( $P = 0.027$ ) in LM2 than in LM3, presenting LM1 intermediate and similar ( $P > 0.20$ ) values (19, 16 and 18 mg CH<sub>4</sub> gOM<sup>-1</sup> for LM2, LM3 and LM1, respectively). Methane measured in gas accumulated up to 8 h was greater ( $P < 0.02$ ) in LM1 and LM2 than in LM3 (8, 7 and 5 mg CH<sub>4</sub> gOM<sup>-1</sup> for LM1, LM2 and LM3, respectively). No differences ( $P = 0.26$ ) in CH<sub>4</sub> production was registered in gas collected from 8 to 24 h of incubation (11 mg CH<sub>4</sub> gOM<sup>-1</sup>). Results suggest that pastures regrowth may vary in methanogenic potential.

Key words: methane, *Lotus uliginosus*

	0	8	24	24		CP	NDF		FD		L	
		a			a			A				
LM1	7.6	a	10.9	18.5	b	20.7	47.8	a	36.3	a	20.1	A
LM2	7.1	a	12.1	19.1	a	22.4	36.9	b	28.2	b	11.4	B
LM3	5.3	b	10.3	15.6	b	23.5	41.9	b	32.4	b	13.9	b
P	0.0		0.259	0.05		0.269	0.015				0.10	
a vs	1		8	5		2	2		0.03		6	
b	0.0			0.02								
ab	2			7			0.058		0.01			
							0.1		0.01			