

diets containing soybean, corn, or sorghum silages as forage sources. The experimental diets was composed for: 1 - soybean silage (SS); 2 - corn silage (CS); 3 - sorghum silage (SOS); 4 - 50% SS:50% CS; and 5 - 50% SS:50% SOS, on dry matter basis. Diets consisted of 60% silage and 40% concentrate (corn, soybean meal, urea, and mineral mixture), formulated to be isonitrogenous (12% CP, DM basis). Five adult crossbred Holstein-Zebu bulls, male no castrated, rumen-cannulated with an initial weight of 442 kg were distributed in a 5 × 5 Latin square design. The animals were kept in individual pens of approximately 10 m<sup>2</sup>, with protected feeders and waterier. Effects of diets ( $P < 0.01$ ) were observed on the intakes of all nutrients, with the lowest intakes ( $P < 0.05$ ) of dry matter (DM), organic matter (OM), crude protein (CP), neutral detergent fiber (NDF) and neutral detergent fiber corrected to ash and protein (NDFap) being observed in the animals fed with soybean silage as only forage source. For TDN intake, the highest values were found for diets containing corn silage and it associated with soybean silage. For most nutrients, the highest digestibilities values were found with the diets containing corn silage as only forage source or when it was associated with soybean silage. There was effect to collection time ( $P < 0.05$ ) for ruminal pH (T, hours), adjusting quadratic model ( $Y = 6.0452 + 0.2648 \times T - 0.09955 \times T^2$ ,  $r^2 = 83,4\%$ ), but no effects were observed to diets (D) and collection times and diets interaction (T × D) for the same parameter. However, no effects were detected to diets (D), collection time (T) and collection time and diets interaction (T × D) for ruminal ammonia concentration, with average of 6.25 mg/dL. Our results suggest that soybean silage, as only forage source, results in lower nutrients intake. However, animals fed with this silage had similar ruminal parameters compared the others diets.

**Key Words:** dry matter intake, forage source, ruminal parameter

**T366 Enteric methane emissions in cattle fed diets containing sugar cane or corn silage.** Lays Mariz<sup>1,4</sup>, Stefanie Alvarenga Santos<sup>2</sup>, Laura Franco Prados<sup>1</sup>, Paloma de Melo Amaral<sup>\*1,4</sup>, Diego Zanetti<sup>1</sup>, Gustavo Chamon de Castro Menezes<sup>1</sup>, Sebastiao Valadares Filho<sup>1</sup>, Antonio Faciola<sup>4</sup>, and Luiz Gustavo Pereira<sup>3</sup>, <sup>1</sup>Federal University of Vicosa, Vicosa, MG, Brazil, <sup>2</sup>School of Veterinary Medicine and Animal Science of the Federal University of Bahia (UFBA), Salvador, BA, Brazil, <sup>3</sup>Embrapa Dairy Cattle, Juiz de Fora, MG, Brazil, <sup>4</sup>University of Nevada, Reno, NV.

The objective of this study was to evaluate enteric methane emissions in cattle fed diets containing sugar cane or corn silage. Five rumen-cannulated steers (336 ± 16.6 kg of initial BW) were used in a 5 × 5 Latin square arrangement. The study lasted 105 d and consisted of 5 periods of 21-d each. Animals were housed and fed individually. The 5 experimental diets contained 60% forage and 40% concentrate. Treatments consisted of 5 different forage sources: corn silage (CS), fresh sugar cane (FSC), regular sugar cane silage (SCS0%), sugar cane silage treated with 0.4% calcium oxide (SCS0.4%), and sugar cane silage treated with 0.8% calcium oxide (SCS0.8%). Forage CP levels were adjusted to 11% using a mixture of urea/ammonium sulfate (9:1). Sulfur hexafluoride tracer gas technique was used to measure methane emissions. Feed intake and refusals were measured daily and methane emissions were measured for 5 consecutive days. Data were analyzed using the MIXED procedure in SAS. Data is presented in Table 1. Animals fed-CS had higher DMI ( $P < 0.01$ ) than animals fed sugar cane. Methane emissions when expressed in g/d or in g/kg of DMI did not change among treatments. However, when expressed in g/kg of digestible NDF (DNDF) was lower for CS diet ( $P = 0.05$ ). Methane energy loss did not change among diets; however, it was numerically lower for the CS diet. Treated SCS did not improve intake and did not reduce

methane emissions. The results from this study suggest that compared with sugar cane diets, corn silage diets may reduce methane emissions per unit of DNDF, which may lead to higher energy efficiency.

**Table 1 (Abstr. T366).** Mean values for intake and enteric methane emissions in steers

Item	Treatment					SEM	P-value
	CS	FSC	SCS 0%	SCS 0.4%	SCS 0.8%		
DMI (kg/d)	7.11	5.23	3.87	4.29	4.08	0.26	0.01
Methane emissions							
g/d	204.01	138.27	147.9	141.21	139.57	16.13	0.47
g/kg DMI	23.77	26.73	37.33	30.01	30.23	432.58	0.19
g/kg DNDF	164.37	298.47	201.43	169.17	220.82	14.69	0.05
Methane energy loss							
Gross energy intake (%)	7.08	7.78	10.93	8.79	9.12	0.67	0.22

**Key Words:** corn silage, sugar cane, methane emissions

**T367 Effects of oscillating dietary crude protein on nutrient intake, digestibility, performance, and carcass traits of finishing crossbred bulls in feedlot.** Paloma de Melo Amaral<sup>\*1,3</sup>, Stefanie Alvarenga Santos<sup>2</sup>, Laura Franco Prados<sup>1</sup>, Lays Mariz<sup>1,3</sup>, Lyvian Cardoso Alves<sup>1</sup>, Ana Clara Baião Menezes<sup>1</sup>, Faider Alberto Castano Villadiego<sup>1</sup>, Flavia Adriane de Sales Silva<sup>1</sup>, Sebastiao Valadares Filho<sup>1</sup>, and Antonio Faciola<sup>3</sup>, <sup>1</sup>Federal University of Vicosa, Vicosa, MG, Brazil, <sup>2</sup>School of Veterinary Medicine and Animal Science of the Federal University of Bahia (UFBA), Salvador, BA, Brazil, <sup>3</sup>University of Nevada, Reno, NV.

Protein is a costly nutrient and excessive dietary N is an important environmental concern. The finishing period may offer the possibility of reducing dietary CP without negatively affecting beef-cattle production. This reduction may be achieved by oscillating dietary CP during the finishing period. Therefore, the goal of this study was to evaluate the effects of fixed or oscillating dietary CP on nutrient intake, digestibility, performance, and carcass traits of crossbred bulls in the finishing period. Twenty-four bulls (417 ± 54 kg of initial BW) were used in a complete randomized block design in a 2 × 2 factorial arrangement with 6 replications per treatment. The treatments were: Constant 11% CP (11-11), constant 13% CP (13-13), oscillating 11-13% CP (11-13), and oscillating 13-11% CP (13-11). The experiment lasted 72 d and oscillating treatments switched diets at d 37. Animals were housed and fed individually. Data were analyzed using the MIXED procedure in SAS and significance was declared at  $\alpha = 0.05$ . Partial data are presented in Table 1. There were no interactions ( $P > 0.05$ ) between fixed and oscillating CP level. There were no effects ( $P > 0.05$ ) of CP levels on intakes of DM, OM, NFC, and TDN. There were no effects ( $P > 0.05$ ) of CP levels on ADG or in carcass traits. We concluded that there were no benefits of oscillating dietary CP levels for crossbred bulls with ADG of approximately 2 kg/d in feedlots. There were no performance or carcass traits benefits of feeding more than 11% CP in the diets of crossbred bulls in feedlots.

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