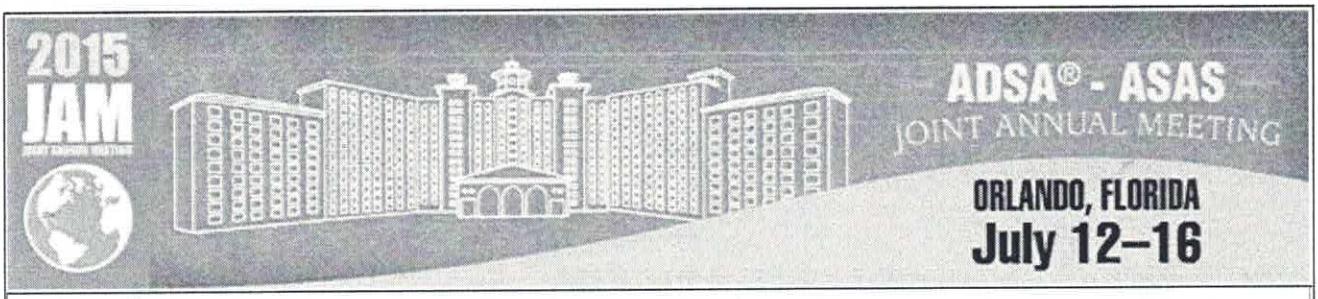

Viewing Abstract # 65212

Abstract Preferences

-1st Section Preference:
Dairy

-2nd Section Preference:
Ruminant Nutrition

-Presentation Format:
poster

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I understand

Relationship between rumen methanogens and methane production in crossbred Holstein-Gyr steers

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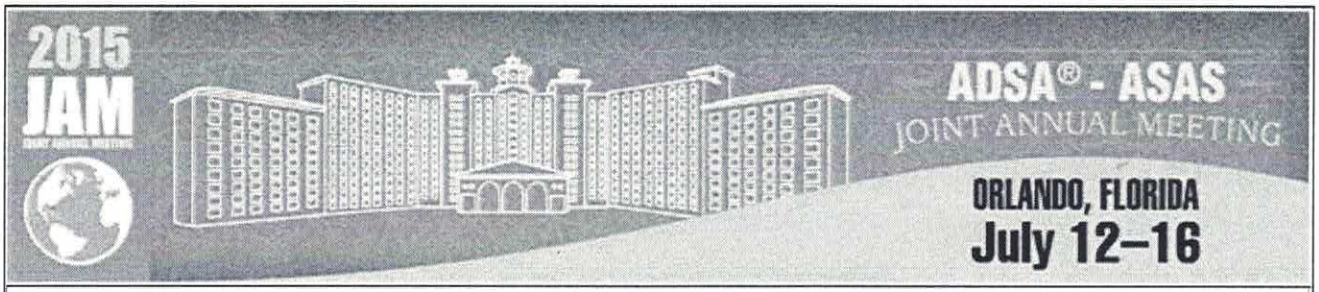
The aim of this study was to evaluate the bacterial community composition by Denaturing Gradient Gel Eletrophoresis (PCR-DGGE). Eighteen steers Holstein x Gyr with average body eight 155±5 kg d^{-1} were randomly distributed in a completely randomized design with 3 treatments and 6 repetitions. The diet was calculated for average daily gain of 1.2 kg/d and an average weight of 240 kg, using the requirements for crossbred steers estimated by BR-Corte. Forage:concentrate ratio (based on DM) used was 60:40 and the animals received dietary treatment 1.2% MS of BW; 1.9% MS of BW and *ad libitum* intake, as maintenance, intermediate and high gain treatment, respectively. The daily feed intake was recorded and animals were weighed weekly each 28 days. The production of methane enteric by the animals was measured by open-circuit respiration chambers for 2 consecutive 24-h days. To assess the genetic diversity of the ruminal microbial community, 50 mL of rumen fluid samples were collected at the slaughter. DNA was extracted and processed by phenol-chloroform and bead beating method. PCR reaction used universal primers to amplify the V3 region to amplify the 16S rRNA of archaea Nested-PCR was performed to amplify a shorter region of the archaea 16S rRNA, using the primers ARC344f-GC/517r for archaea. PCR-DGGE patterns were analyzed using BioNumerics software 5.1 with which hierarchical cluster comparisons were carried out to group similar profiles and to generate a binary matrix of band classes. All the images were normalized using the internal control samples and the comparison among whole profiles was performed using the Dice similarity coefficient. The total number of the detected bands represented the species richness. Shannon-Wiener index was calculated based on relative band intensity and the total of number bands of each DGGE profile. The statistical analyses were done using the software R. The methane emission was affected by the treatments ($p < 0.05$) but there has no effect of the treatments on the richness index also de Shannon-Wiener ($p > 0.05$). No differences in archaeal population were detected between treatments.

KEYWORDS
archaea
greenhouse gas
global warning



Viewing Abstract # 64945

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Dairy

-2nd Section Preference:
Ruminant Nutrition

-Presentation Format:
poster

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I understand

Energy expenditure and methane emission in dairy heifers using the face-mask method

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The aim of this study was to evaluate the effect of feeding levels (FL) and breed (B) on energy expenditure as heat production (HP) and methane emission in dairy heifers using the face-mask method. Twenty four heifers, 8 Holstein, 8 Gyr and 8 Holstein-Gyr crossbreed (F1) with average live weight (LW) of 440 ± 88 kg and average age of 27.5 ± 0.8 months, were housed in tie stall and randomly distributed to the treatments in a 2x3 factorial design (feeding level of 1.17% LW or 1.46% LW, on dry matter (DM) basis and breed). The diet was offered as a total mixed ration (700g/kg of corn silage and 300g/kg of concentrate, on DM basis). O2 consumption, CO2 production and CH4 emission data were measured using Sable System (Sable Systems, Henderson, NV) coupled with a face-mask for 30 minutes per day, for three days. Heart rate (HR) (beat/min) was registered over 72 h using Polar Equine transmitter (Model RS800CX G3, Polar Electro Enc.). Three measurements of oxygen pulses (O2P) (mL O2/beat) were registered. Total daily O2 consumption (L/day) was calculated as O2P times daily mean HR. Daily HP was calculated as total daily O2 consumption times the constant 20.47 KJ/L of O2. Data were subjected to analysis of variance and means were compared by Student–Newman–Keuls test ($P < 0.05$). No effect of the interaction between B and FL was observed for any of the variables analyzed. HR, O2P and HP (Kcal/kg LW0.75) did not differ among B and FL. F1 heifers presented higher DM intake (DMI) and higher daily mean gain (DMG) in comparison to Holstein and Gyr breeds (6.18, 5.36 and 4.14 kg DM/day; 674.3, 480.8 and 435.4 g/day, respectively). Animals fed at 1.46% LW level presented higher DMI, DMG, BW and methane emission (g/day). Methane emission was higher for F1 animals (161.3 g/day), but did not differ from Holstein breed (141.1 g/day). Animals from Gyr breed fed at 1.17% LW presented lower DMI, DMG and BW as well as inferior CH4 production (98.3 g/day).
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KEYWORDS
green house gas
heat production
zebu