Many retailers have already adopted a "No Antibiotics Ever" (NAE) policy for some meat sources. Therefore, natural alternatives that would satisfy this growing public health concern about antibiotic resistance while meeting the needs (to support feed efficiency and net profit) of beef producers would have value. 1,185 Angus breed steers in a sixty thousand cap. commercial feedlot (TX) were involved in a randomized block design to evaluate the effect of a blend of flavouring phytocompounds (Kender Beef 101, Kender Bio Tech, CO) on performance, mortality rate and margin of non-implanted steers fed with no antibiotics over a 189-d period study. Animals were weighed (852 ± 78.3 lbs of initial LW) and randomly distributed in 8 pens located back to back within one alley. A total mixed diet was offered ad libitum (57.2% DM, 15.2% CP, 2.9% NPN, 8.2% CF and 3.5% Fat). Tested diet was supplemented with 100g/tonne (as DM basis) of the proprietary blend of flavouring phytocompounds via a micro-dosing machine. Veterinary observations, cost of medicine and death were daily reported. Live weight gain was not different between groups (NS) but steers from the tested group needed significantly less total feed intake (3.84 vs 3.71%LW, $P < 0.01$) to achieve the same growth performance. Subsequently, feed efficiency tended to be optimised in the supplemented group (8.10 vs 7.80, $P = 0.078$). Total deaths averaged 7 and 5 in both CTL and tested groups, respectively (1,23 vs 0.81%, NS). Medicine cost was significantly lower in the tested group compared to the CTL one (0.03 vs 2.21 USD/hd, $P < 0.01$). Finally, calculated net profit was higher by 31 USD/hd for the tested group (263 vs 294 USD/hd, $P = 0.067$). In Angus steers fed a NAE diet, the flavouring phytocompounds (Kender Beef 101) supplementation supported feed efficiency and improved net profit for the beef producer.

Key Words: botanicals, feeding efficiency, NAE beef production

PSXI-29 Assessing enteric methane emissions from Nellore and Angus-Nellore crossbred cattle in a tropical, intensive beef cattle production system. Isabella Cristina F. Maciel[1], Fabiano A. Barbosa[2], Thierry R. Tomich[3], Ramon C. Alvarenga[4], Ludhiana R. Ferreira[5], Jason Rowntree[6], Logan R. Thompson[7], Ângela Maria Q. Lana[8], [1]*Michigan State University,* [2]*De Heus Animal Nutrition B.V.,* [3]*Embrapa Dairy Cattle,* [4]*Embrapa Maize & Sorghum,* [5]*Federal University of Minas Gerais, Veterinary School,* [6]*Michigan State University,* [7]*Michigan State University,* [8]*Federal University of Minas Gerais, Veterinary School*

Crossbreeding has been used to improve performance in beef cattle; however, the effects of breed composition on methane production, yield and intensity from cattle in a tropical intensive system remain unknown. To assess the impact of breed composition on enteric methane emissions, Nellore (NE; yr 1: BW = 171.5 ± 19.4 kg; n = 10; yr 2: BW = 215.8 ± 32.3 kg, n = 25) and Angus-Nellore crossbred (AN; yr 1: BW = 214.2 ± 26.4 kg, n = 10; yr 2: BW = 242.5 ± 32.2 kg, n = 25) were compared. At trial onset, 10 mo old steers grazed *Megathyrsus maximus* 'Mombaça' in the grazing period (GP) and then were finished in a feedlot (FL) (35:65% corn silage:concentrate diet). Steers (n = 8) from each breed composition were randomly selected in GP and FL to measure CH_4 production using a sulfur hexafluoride technique and DMI using titanium dioxide. The NE produced 19% less CH_4 than AN in GP (17.21 vs 21.17 kg, $P < 0.01$), and no difference was observed in FL (22.34 vs 22.67 kg, $P > 0.10$). However, in FL, NE had greater CH_4 intensity (CH_4/ADG) compared to AN (122.76 vs 97.49 g/kg, $P < 0.01$). Furthermore, CH_4/carcass weight was greater for NE than AN (0.079 vs 0.067 g/kg CW, $P < 0.01$). Breed composition did not influence CH_4 yield (CH_4/DMI) in either phase. The percentage CH_4/GEI (Ym) for GP was higher for AN than NE (4.5 vs 3.8%), but lower than the IPCC recommended Ym of 6.5%. In FL, Ym was similar between breed composition (5.0%) and greater than the IPCC Ym of 3%. In our study the introduction of Angus into Nellore has potential to reduce CH_4 intensity in tropical climates, resulting in less methane emission per kg beef produced.

Table 1. Effects of breed composition on methane emissions of beef cattle in grazing and feedlot tests (where NE = Nellore, AN = Angus-Nellore crossbred)

	Breed composition		SEM	*P* Value		
Item	NE	AN		Breed	Year	Breed *Year
Grazing						
DMI[1], kg/day	5.95	6.23	0.31	>0.10	-	-
BW[2], kg	314.67	336.64	9.33	0.07	-	-
ADG[3], kg/day	0.68	0.73	0.03	0.22	-	-
CH_4, kg/period	17.21	21.17	0.85	<0.01	-	-
CH_4, g/kg DMI	14.31	16.76	1.32	0.17	-	-
CH_4, % GEI[4]	3.86	4.50	0.14	0.05	-	-
CH_4, g/kg ADG	119.53	140.03	8.09	0.07	-	-
Feedlot						
DMI[1], kg/day	9.29	12.44	0.39	<0.01	0.10	<0.01
BW[2], kg	386.18	488.62	4.87	<0.01	<0.01	0.25
ADG[3] kg/day	1.49	2.26	0.07	<0.01	0.13	<0.05
CH_4, kg/period	22.34	22.67	0.98	>0.10	0.05	>0.10
CH_4, g/kg DMI	18.52	17.83	0.89	>0.10	<0.05	<0.05
CH_4, % GEI[4]	5.10	4.90	0.10	0.49	0.38	<0.05
CH_4, g/kg CW[5]	0.079	0.067	0.10	<0.01	0.16	0.52
CH_4, g/kg ADG	122.76	97.49	6.86	<0.01	>0.10	0.06

[1]DMI = Dry matter intake;
[2]BW = Body weigh;
[3]ADG = Average daily gain;
[4]GEI = Gross energy intake;
[5]CW = Carcass weigh

Key Words: greenhouse gas emission, ruminants, sustainable intensification