

## Fatty acids composition of meat from nellore or nellore x Santa gertrudis females reared on pasture (#485)

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### Introduction

Bovines of different genetic groups should present distinct fatty acids (FA) compositions of meat, especially when reared on pasture. The aim was to compare the FA composition from pure and crossbred females, reared and finished on pasture.

### Methods

Breeds assessed consisted of purebred Nellore (16) and ½ Nellore + ½ Santa Gertrudis (NE+SG) crossbred (16). All animals were reared on pasture and slaughtered with 32 ± 1.5 month-old. Carcasses were chilled for 24 hours, and then *longissimus* muscle (LM) was separated and sliced in steaks. FA were extracted from intramuscular fat of the LM (Folch et al., 1957), and the methyl esters were formed according to Kramer et al. (1997). The FA were quantified by gas chromatography (GC-2010 Plus - Shimadzu AOC 20i auto-injector) with a SP-2560 capillary column (100 m × 0.25 mm diameter, 0.02 mm thick, Supelco, Bellefonte, PA). The experiment was set up as a completely randomized design and data were analyzed using a mixed model.

### Results

The FA 16:0 was higher ( $P < 0.05$ ) for crossbred females, meanwhile the 18:0 had a lower concentration compared to Nellore (Table 1). This is important because 16:0 is responsible for the increase in LDL levels and total cholesterol in human blood plasma, while the 18:0 contributes to reduce LDL. However, the others saturated FA that were different ( $P < 0.05$ ) between genetic groups, all were lower for crossbred animals. The concentration of total branched chain fatty acids was higher in Nellore meat (Table 1). The trans 18:1 isomer is the last intermediate of complete biohydrogenation of 18:0 and they had higher quantities in Nellore, 80% higher than NE+SG (Table 2). They are associated with health benefits for humans (Vahmani et al., 2017). The total n3 FA was higher ( $P < 0.05$ ) for crossbred and the relation of n6:n3 was lower than Nellore females (Table 3); however, this relation showed satisfactory for both genetic groups.

### Conclusion

Females ½Nellore + ½Santa Gertrudis provided a meat with fatty acids composition more favorable to human health than Nellore, due to the lower quantities of some saturated, monounsaturated and n6:n3 relation. Both genetic groups showed favorable n6:n3 fatty acids for human diet.

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### References

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Item	Nellore	½Nel+½SG <sup>1</sup>	SEM	Probability
∑Polyunsaturated	5.24	5.25	0.37	0.89
CLA (18:2)	0.24	0.23	0.01	0.25
t7 c9	0.03	0.04	0.01	0.31
c9 t11	0.21	0.19	0.01	0.28
n-6	2.88	2.50	0.25	0.29
18:2 c6	2.03	1.82	0.16	0.36
18:3	0.02	0.02	0.01	0.78
20:2	0.02	0.01	0.01	0.01
20:3	0.23	0.24	0.02	0.82
20:4	0.75	0.53	0.21	0.48
22:2	0.01	0.27	0.05	0.01
22:4	0.07	0.07	0.01	0.94
n-3	1.47	1.93	0.15	0.04
18:3	0.55	0.52	0.04	0.47
20:3	0.70	0.87	0.09	0.20
20:4	0.08	0.08	0.01	0.58
20:5	0.02	0.02	0.01	0.83
22:5	0.46	0.49	0.04	0.56
22:6	0.06	0.08	0.01	0.20
Polyunsaturated:Saturated	0.12	0.12	0.01	0.87
n-6:n-3	1.96	1.30	0.17	0.01
Others	1.78	2.11	0.06	0.45

**Table 3.** Fatty acids composition from female bovines from different genetic group, reared on pasture 1½Nellore + ½Santa Gertrudis

## Notes

Item	Nellore	½Nel+½SG <sup>1</sup>	SEM	Probability
∑ Monounsaturated	45.54	45.02	0.63	0.70
14:1 c9	0.59	0.74	0.05	0.04
15:1 c10	0.16	0.16	0.02	0.83
16:1 c7	0.31	0.21	0.03	0.01
16:1 c9	3.14	3.66	0.16	0.03
16:1 t9	0.40	0.41	0.03	0.73
16:1 c10	0.03	0.02	0.01	0.07
16:1 t10	0.05	0.02	0.01	0.09
16:1 c11	0.14	0.15	0.01	0.27
16:1 c12 t14	0.02	0.02	0.01	0.69
16:1 c13	0.01	0.01	0.01	0.93
16:1 t13	0.50	0.39	0.06	0.24
17:1 c9	0.98	0.91	0.03	0.12
17:1 c11	0.03	0.06	0.01	0.78
18:1 t6,8	0.06	0.05	0.01	0.08
18:1 c9n9	36.92	36.33	0.53	0.43
18:1 t9n9	0.27	0.27	0.01	0.72
18:1 t11	1.27	1.02	0.05	0.01
18:1 c12	0.06	0.02	0.03	0.38
18:1 t12	0.07	0.06	0.01	0.01
18:1 c6,8 or t13,14	0.14	0.15	0.01	0.54
19:1 c11	0.11	0.09	0.01	0.01
19:1 c13	0.11	0.11	0.01	0.72
20:1 c8	0.07	0.06	0.01	0.09
20:1 c11	0.10	0.10	0.01	0.66

**Table 2.** Fatty acids composition from female bovines from different genetic group, reared on pasture 1/2Nellore + 1/2Santa Gertrudis

Item	Nellore	½Nel+½SG <sup>1</sup>	SEM	Probability
∑ Saturated	44.14	44.37	0.70	0.81
14:0	2.76	3.11	0.14	0.08
15:0	0.39	0.36	0.01	0.12
16:0	25.41	27.03	0.46	0.02
17:0	1.05	0.87	0.02	<.01
18:0	14.07	12.77	0.42	0.04
19:0	0.09	0.08	0.01	0.47
20:0	0.10	0.09	0.01	0.01
22:0	0.02	0.01	0.01	0.03
24:0	0.25	0.05	0.03	<.01
Branched Chain	0.74	0.61	0.03	0.03
14:0 iso	0.05	0.05	0.01	0.11
15:0 iso	0.22	0.20	0.01	0.18
15:0 anteiso	0.22	0.20	0.01	0.33
16:0 iso	0.17	0.14	0.01	0.01
17:0 iso	0.08	0.02	0.03	0.17
Dimethylacetal	2.55	2.64	0.24	0.81
15:0	0.03	0.03	0.01	0.71
16:0	1.42	1.51	0.13	0.63
17:0	0.11	0.11	0.01	0.76
18:0	0.99	0.99	0.09	0.99

**Table 1.** Fatty acids composition from female bovines from different genetic group, reared on pasture 1/2Nellore + 1/2Santa Gertrudis