

Fatty acid composition of Brangus steers in relation to meat quality and carcass traits

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Introduction

- Beef is rich in essential nutrients
- Perceived as unhealthy - high saturated fat content
- Growing market for healthy foods

Objectives

- Characterize the variation of fatty acid composition in Brangus cattle
- Estimate correlations between fatty acid composition and carcass and meat quality

Methods

- Strip loin steaks - 1,066 Brangus steers
- **Carcass**: hot carcass weight (HCW); fat over the ribeye (FOE); yield grade (YG); dressing percentage (DP); Kidney, Pelvic, and Heart fat (KPH)
- **Meat quality**: marbling, ribeye area (REA), texture, firmness, color
- **Fatty acids**: 11 Saturated fatty acids (SFAs), 6 Monounsaturated fatty acids (MUFAs), 10 Polyunsaturated fatty acids (PUFAs)
- LSMeans procedure - descriptive statistics for carcass, meat quality and fatty acid composition.
- Correlations - estimated with Proc CORR, SAS 9.4

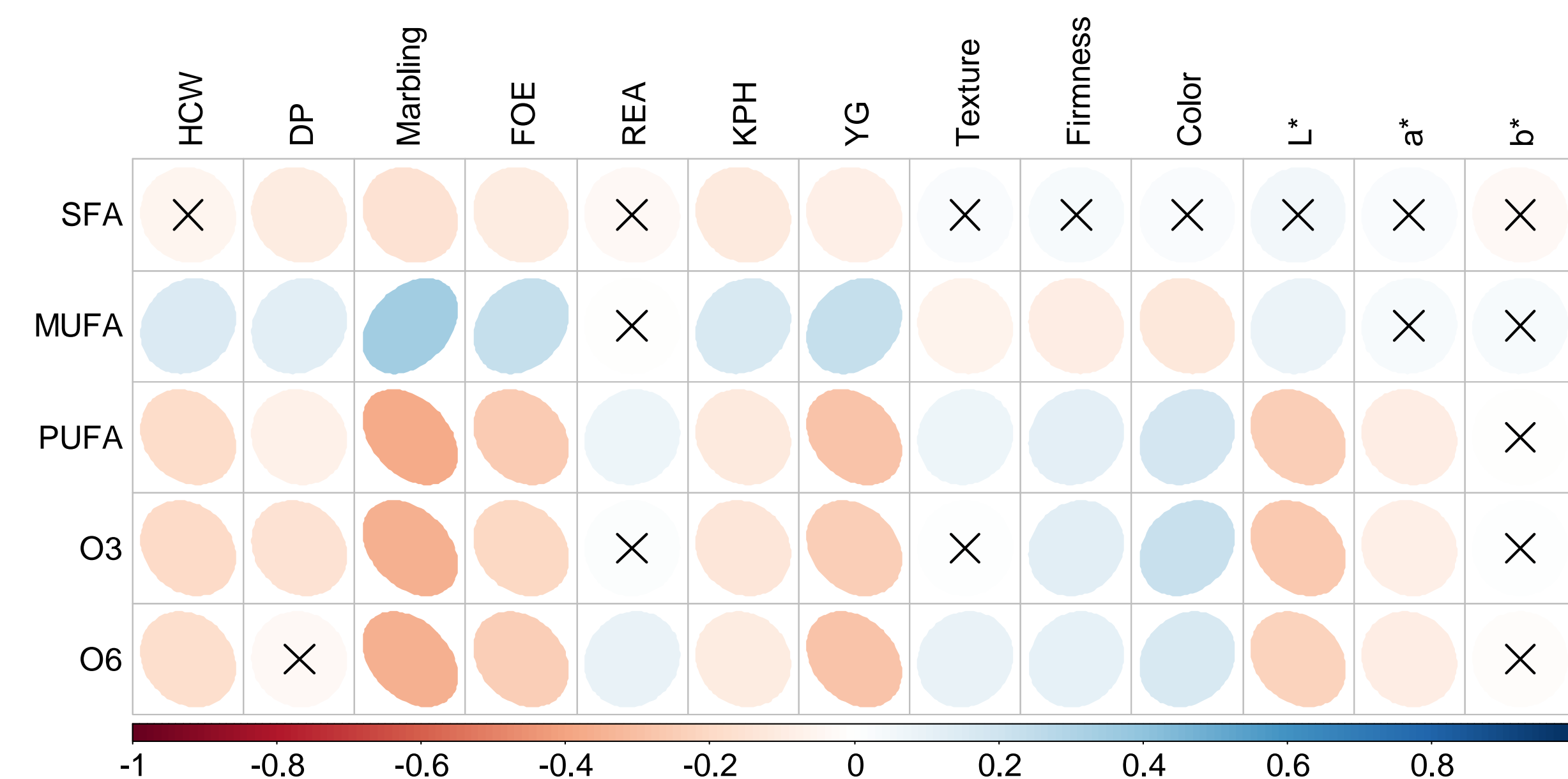


Figure 1. Correlation plot of fatty acid classes and carcass and meat quality traits

	N	Mean	STD	Min	Max
SFA%	1052	47.6	3.1	37.6	63.8
MUFA%	1052	46.3	3.5	31.2	56.5
PUFA%	1052	6.1	2.0	2.8	17.9
O3%	1052	0.8	0.4	0.2	3.6
O6%	1052	5.2	1.6	2.5	15.8
Marbling	1050	436	84	210	850
HCW	1046	822	80.4	479	1114
DP	795	0.6	0.03	0.3	0.8
FOE	1033	0.6	0.2	0.1	1.9
REA	1021	12.9	1.5	8.0	19.0
KPH	1024	2.5	0.4	1	4
YG	966	3.2	0.9	0.5	5.8
Texture	1021	2.5	0.8	1	5
Firmness	1022	2.0	0.6	1	4
Color	1024	1.9	0.9	1	5
L*	1038	36.9	2.6	28.9	48.2
a*	1038	22.0	1.9	15.4	29.6
b*	1038	7.6	5.1	2.1	69.8

Table 1. Simple statistics of measured traits. L*, a*, and b* measured with a colorimeter.

Results

- Numbers of records and unadjusted means, standard deviation, minimum and maximum values are shown in **Table 1**
- Coefficients of variation for SFA, MUFA, and PUFA were 6.5, 7.6, and 32.3 percent, respectively.
- Marbling and YG positively correlated to MUFA ($r = 0.34$ and $r = 0.23$, respectively) and negatively correlated to SFA ($r = -0.15$ and $r = -0.08$, respectively) and PUFA ($r = -0.37$ and $r = -0.29$, respectively)

Conclusions

- Large variations in fatty acid composition suggest it is possible to select or manage for more desirable fatty acid content
- Weak correlations between fatty acid composition and carcass and meat quality suggest it is possible to do this without negatively impacting carcass and meat quality

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