

Fatty acid profile has no effect on consumer eating quality scores of lamb

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Red meat is marketed as a source of “good” fatty acids that benefit human health (Wood *et al.* 2003). Some brands also claim eating quality benefits, validated by a positive correlation found between unsaturated fatty acids and consumer flavour scores in British lamb (Angood *et al.* 2008). We hypothesised that an increased concentration of unsaturated fatty acids in Australian lamb will increase consumer flavour and overall liking scores.

Lambs (n=179) were sourced from 4 commercial sheep flocks, consisting of 2 age groups (new season, n=89, average age 240 days; old season, n = 90, average age 328 days) and slaughtered at a commercial abattoir. Loin samples were taken for intramuscular fat (IMF) and fatty acid profile analysis. Eating quality assessment of the loin was undertaken by untrained consumers who scored samples for overall liking and liking of flavour on a scale of 0 to 100. Linear mixed effects models in SAS were used to analyse consumer scores. The base model included fixed effects for age class (new season, old season) and flock within killgroup, with animal identification and consumer identification within eating quality session included as random terms. Total unsaturated, saturated, 3 or 6 fatty acid terms were tested in the base model as individual covariates, and loin IMF% was also tested in each model as an additional covariate. Non-significant ($P > 0.05$) terms were removed in a stepwise manner.

Consumer scores for overall liking and liking of flavour did not have an association with total 3 or 6 fatty acids. Total unsaturated fatty acids had a positive association with overall liking scores, increasing by 12.4 over a 5000mg/100g increase in fatty acid content ($P < 0.001$, Figure 1a). These effects were not significant when IMF% was included in the model (Figure 1b).

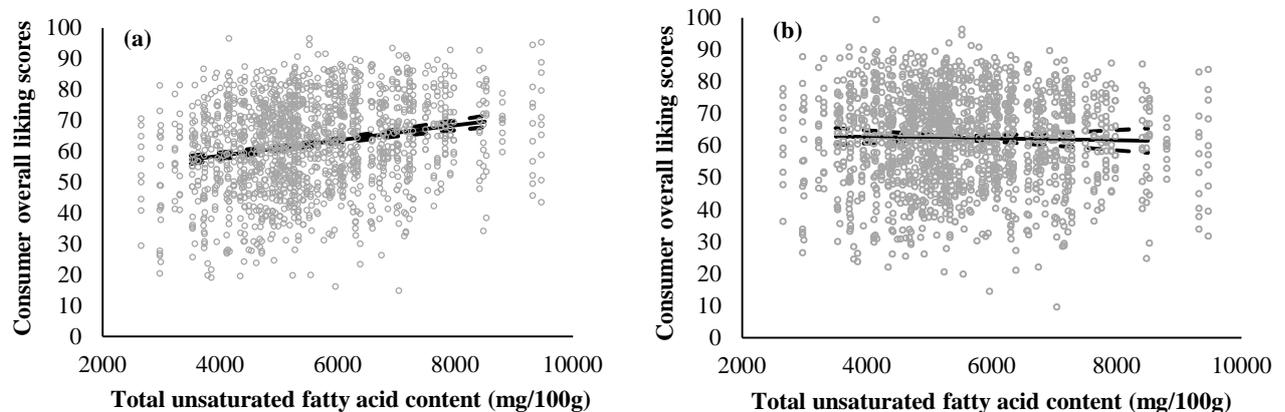


Figure 1. Effect of unsaturated fatty acid values (mg/100) \pm SE on consumer overall liking scores (a) and effect of unsaturated fatty acid values (mg/100) \pm SE on consumer overall liking scores when accounted for by intramuscular fat % (b).

In contrast to our hypothesis there was no effect of fatty acids on overall liking and liking of flavour scores, with the impact on eating quality accounted for by IMF%. There was no 3 effect on eating quality despite often being attributed to differences in flavour between grass and grain fed animals (Fisher *et al.* 2000). These results suggest that brands should not focus on eating quality when marketing lamb for its fatty acid content.

References

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