



Fat quality and intramuscular fatty acid composition of Brahman × Thai native and Charolais × Thai native crossbred cattle



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Introduction

Intramuscular (i.m.) fat contributes to quality of meat, including texture and flavour. I.m. fat content and its fatty acid composition are the major factors affecting human health. A low polyunsaturated fatty acid (PUFA) to saturated fatty acid (SFA) ratio of ruminant fats is a risk factor for coronary heart disease. On the other hand, meat containing high amounts of n-3 PUFA and conjugated linoleic acid can be beneficial to human health.

The objective of the present study was (1) to assess fatness parameters and i.m. fatty acid composition of *longissimus dorsi* (*ld*) muscle of Brahman (BRA) and Charolais × Thai native (CHA) bulls and (2) to identify the optimum genotype and slaughter weight of cattle for the fattening system in Northern Thailand.



Brahman × Thai native bulls



Charolais × Thai native bulls

Results

The results showed that CHA exhibited lower carcass fat scores, higher marbling scores and i.m. fat compared to BRA. Therefore, CHA may offer a better meat quality, especially with regard to tenderness and juiciness. However, triglyceride and cholesterol content was lower, linolenic acid (C18:3 n-3), docosapentaenoic acid (C22:5 n-3) and total n-3 PUFA content higher, and ratios of n-6/n-3 PUFA and C18:2 n-6/C18:3 n-3 lower in BRA. Compared to CHA, this fatty acid composition of BRA meat may benefit human health.

Increasing slaughter weight from 500 to 600 kg had neither an effect on fatness parameters nor on i.m. fatty acid composition. Since the economical benefit increases with carcass weight, slaughter weights up to 600 kg can be recommended for both genotypes.

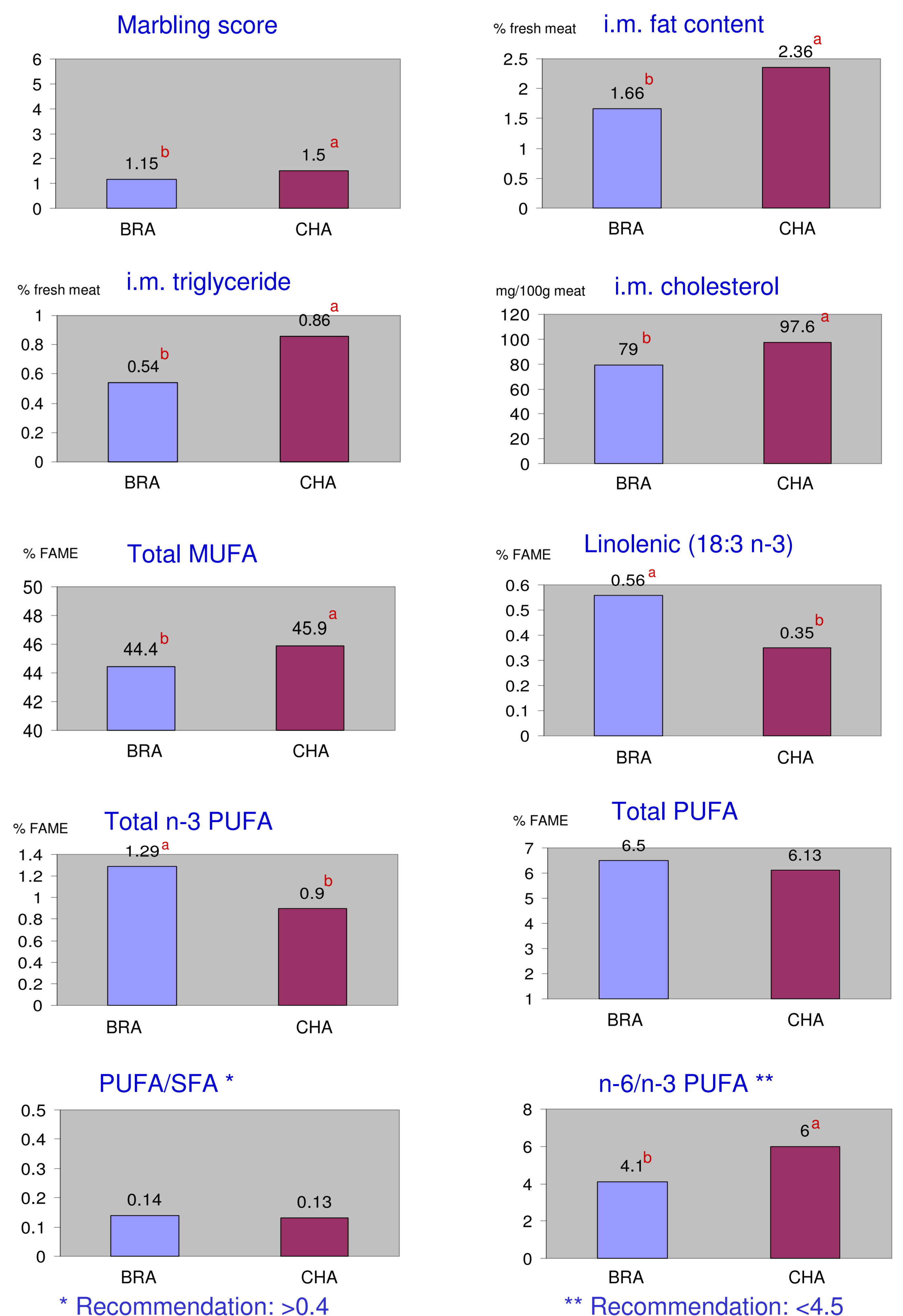
Conclusion

To achieve a better meat quality especially with regard to tenderness and juiciness, fattening CHA up to 600 kg live weight is recommended. On the other hand, the fatty acid composition of BRA meat may benefit human health. Hence, it is suggested that BRA can be used for fattening especially in pasture or extensive systems to provide “healthy beef” for an alternative market.

Materials and Methods

The study was conducted on a commercial beef cattle farm in Chiang Mai, Thailand. In total, 34 BRA and 34 CHA were used. The bulls were kept under practical farm conditions and were randomly selected for slaughter at 500, 550 and 600 kg body weight. Fatness parameters were determined as carcass fatness score, marbling score and intramuscular fat, triglyceride and cholesterol contents.

Intramuscular fatty acid composition was determined by measuring individual fatty acids, SFA, monounsaturated fatty acids (MUFA), PUFA, n-3 and n-6 fatty acid contents and PUFA/SFA, n-6/n-3 and C18:2 n-6/C18:3 n-3 ratios.



a, b: P<0.05