

Eating quality of filet and round from grazing Holstein bulls and Limousine x Holstein Bulls and Heifers

Margrethe Therkildsen¹ and Mogens Vestergaard²

¹Department of Food Science, Aarhus University, DK-8830 Tjele, Denmark

²Department of Animal Science, Aarhus University, DK-8830 Tjele, Denmark

Mogens.Vestergaard@agrsci.dk
Tel. +4587157843



Margrethe.Therkildsen@agrsci.dk
Tel. +4587158007



INTRODUCTION

Production of organic beef from young cattle is not very developed in Denmark, in spite of a well-established organic dairy production with male off-spring. These calves are sold to conventional production, because of low performance in organic production systems. The purpose of this study was to test a concept for production of organic beef based on crossbred animals from dairy cows sired with a beef breed.

tured scale from 0 to 15, with 0 representing minor taste characteristics and tough meat and 15 representing intense taste characteristics as well as tender meat. The filet (LD) was prepared as 20 mm steaks on a frying pan to an internal temperature of 63°C and the round (SM) was prepared as a roast in an oven (100°C) to an internal temperature of 63°C.

RESULTS/DISCUSSION

CB showed an improved daily gain, EUROP conformation, but not fatness compared with HB, which was inferior compared with the CH (Table 1).

Table 1 Production and slaughter quality characteristics of grazing Holstein bulls (HB) and Limousine x Holstein bulls (CB) and heifers (CH)

	HB	CB	CH
Average daily gain 2 nd summer, g/d	1081 ^a	1357 ^a	847 ^c
Carcass weight, kg	272 ^b	315 ^a	249 ^c
EUROP conformation	3.0 ^c	7.0 ^a	5.3 ^b
EUROP fatness	1.0 ^b	1.2 ^b	2.9 ^a
pH ₂₄ LD	5.88	5.61	5.55
pH ₂₄ SM	5.62	5.56	5.59

^{a,b,c}Means within a row without common superscript letters are different at P < 0.05.

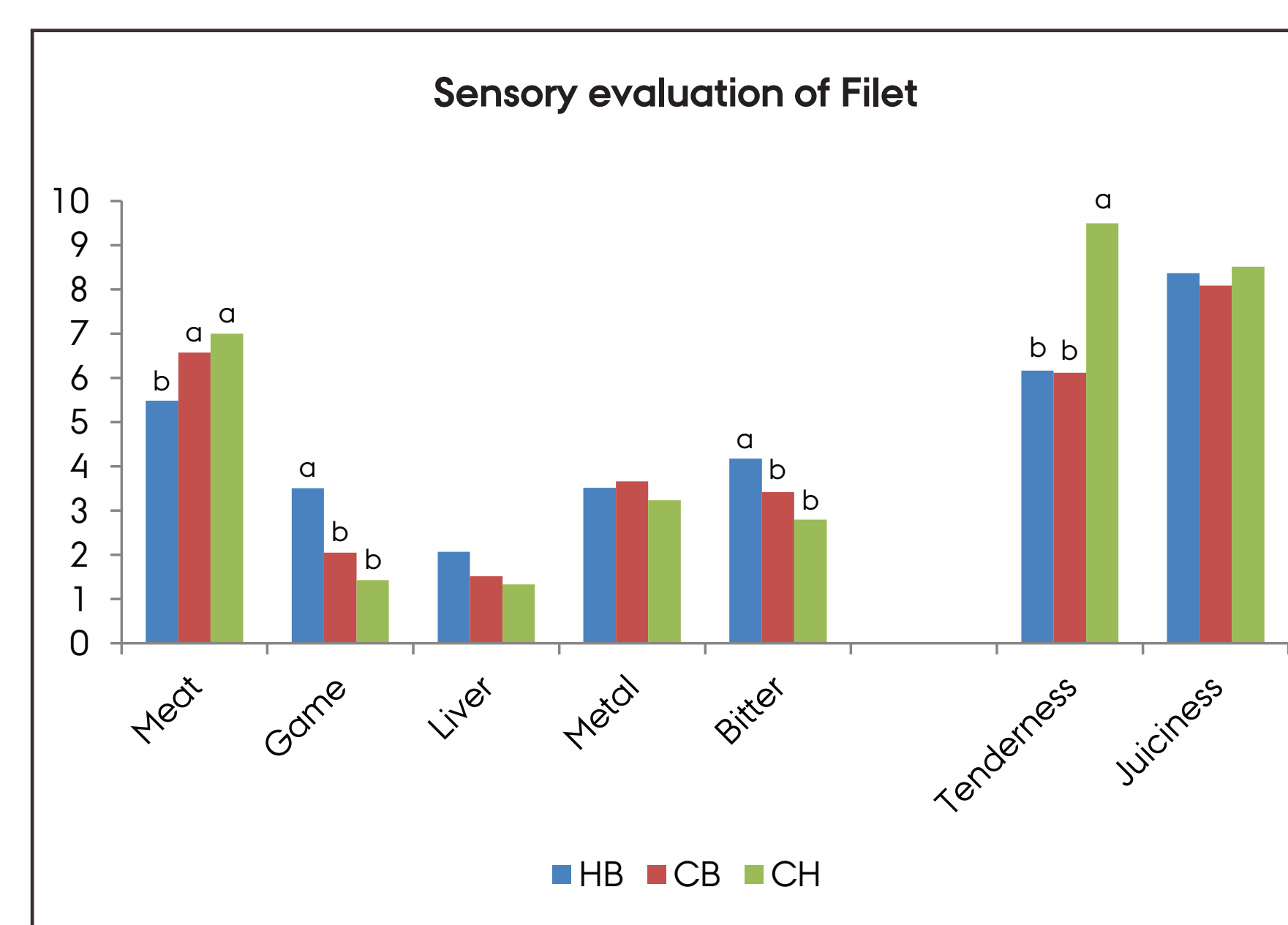
The sensory evaluation showed more intense taste characteristics of the filet from HB compared with the other groups (figure 1), but no significant difference in the round (figure 2), whereas the tenderness of the filet and round from both HB and CB were inferior compared with CH, and is expected to be too low to fulfil consumer expectations of tender beef.



MATERIAL AND METHODS

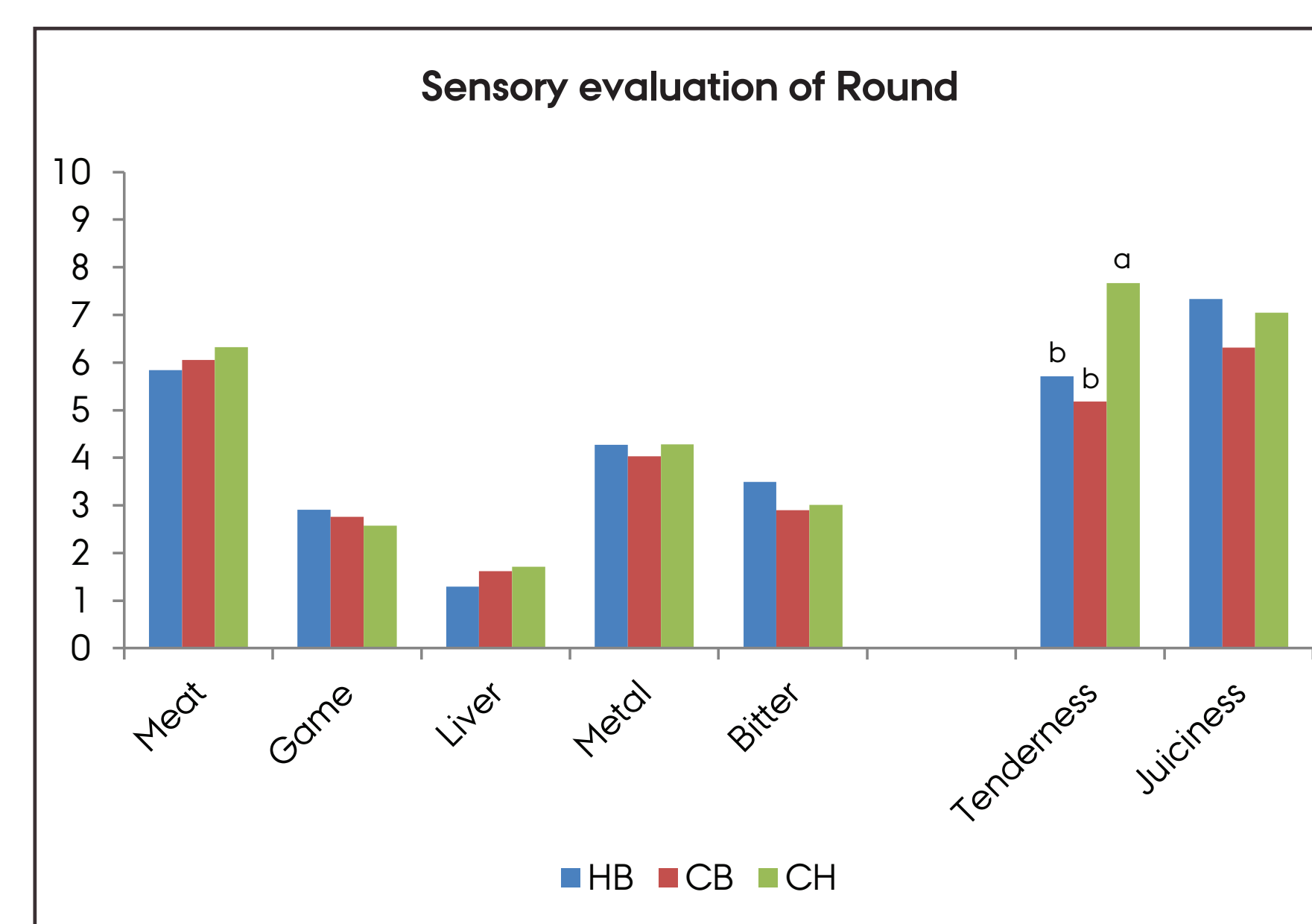
The experiment included a comparison between spring-born pure-bred Holstein bulls (HB), cross-bred Limousin x Holstein bulls (CB) and heifers (CH), 15 of each group. After weaning the calves were raised outdoor on pasture the 1st summer and indoor on a low energy grass-haylage ration over winter followed by pasture the 2nd summer and slaughter at a fixed age of 16.9 mo directly from pasture. The carcasses were classified according to the EUROP scale for conformation and fatness and 24 h post mortem the filet (M. longissimus dorsi) and Round (M. semimembranosus) from 8 animals of each treatment group were sampled and aged at 4°C for additional 13 days before storage at -20°C until sensory evaluation.

The sensory evaluation was done by a nine-member trained sensory panel on an unstruc-



^{a,b}Columns within a trait with different letters are different at P < 0.05.

Figure 1 Sensory evaluated taste and texture characteristics of filet (LD) from grazing Holstein bulls (HB) and Limousine x Holstein bulls (CB) and heifers (CH)

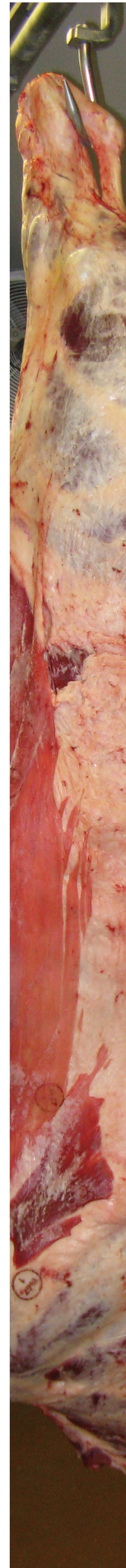


^{a,b}Columns within a trait with different letters are different at P < 0.05.

Figure 2 Sensory evaluated taste and texture characteristics of round (SM) from grazing Holstein bulls (HB) and Limousine x Holstein bulls (CB) and heifers (CH)

CONCLUSION

Crossbred Limousine x Holstein bulls and heifers may be an alternative to purebred Holstein bulls in organic beef production of young cattle because of the improved gain, carcass conformation and taste, but the fatness and texture of the crossbred bulls need to be improved through changes in the production strategy, especially feeding prior to slaughter, and in the pre and post mortem handling.



Acknowledgments

This project is part of the Organic RDD programme, which is coordinated by International Centre for Research in Organic Food Systems, ICROFS. It is funded by The Danish AgriFish Agency, Ministry of Food, Agriculture and Fisheries and by Aarhus University. Danish Crown is acknowledged for excellent support at sampling of muscles, Camilla Bejerholm, Danish Meat Research Institute, Technological Institute, Roskilde is acknowledged for excellent performance of sensory analysis and Jens Askov Jensen, Aarhus University for excellent technical assistance.