

CARCASS CHARACTERISTICS OF NORDIC NATIVE CATTLE BREEDS

Nicolai Jensen¹, Mogens Vestergaard¹, Morten Kargo¹, Liisa Keto², Per Ertbjerg³, Gudjon Thorkelsson^{4,5}, Maria Gudjónsdóttir^{4,5}, Maria Kjetså⁶, Mervi Honkatukia⁶, Bjørg Egelanddal⁷, Nina Svartedal⁸, Morten Røe⁹, Freddy W. Fikse¹⁰, Anders H. Karlsson¹¹, Anna Hessle¹¹ and Margrethe Therkildsen^{1*}

¹Aarhus University, Denmark, ²Natural Resources Institute Finland, Animalia, Finland, ³University of Helsinki, Finland, ⁴University of Iceland, Iceland, ⁵Matis Food and Biotech R&D, Iceland, ⁶Nordic Genetic Resource Center (NordGen), Sweden, ⁷Norwegian University of Life Sciences, Norway, ⁸Norwegian Genetic Resource Centre, NIBIO, Norway, ⁹Animalia, Norway, ¹⁰Växa, Sweden, ¹¹Swedish University of Agricultural Sciences, Sweden

*Email of corresponding author margrethe.therkildsen@food.au.dk

I. INTRODUCTION

Livestock has been part of the history of the Nordic people, however today there is a low number of Nordic native cattle breeds as commercial breeds can deliver either higher slaughter weight or higher milk production. Traditionally, Nordic native cattle were raised as dual-purpose breeds giving both milk and meat. This can reduce the total climate impact compared to the separate production of each [1]. Variability of genetic resources supports sustainable agriculture and food security and provides a spectrum of farm product quality [2], however no study on carcass qualities have been carried out. This study aimed to characterize carcass traits of Nordic native cattle breeds according to age categories and categorize them in relation to commercial breeds found in four of the five countries.

II. MATERIALS AND METHODS

The characterisation was done for native breeds selected in each country. From Denmark: Jysk Kvæg and RDM-1970; from Finland: Länsisuomenkarja (Western Finncattle), Itäsuomenkarja (Eastern Finncattle) and Pohjoissuomenkarja (Northern Finncattle); from Iceland: Íslenska kúakynid; from Norway: Sidet Trønderfe og Nordlandsfe (STN), Telemarkfe, Dølafe, Østlandsk Rødkolle, Vestlandsk Rødkolle and Vestlandsk Fjordfe; and from Sweden: Fjällko, Rødkulla, Väneko, Bohuskulla and Ringamålako. The study also included reference beef and dairy breeds: sub-populations of Charolais, Hereford, Holstein, and red dairy cattle (NRF and SRB). Data was based on the national databases of cattle recordings. The characterisation included categories of young bulls (< 12 mo), bulls (> 12 mo), heifers, steers, young cows (< 42 mo) and cows (> 42 mo). Here we present the characteristics of bulls. An adjusted carcass weight at 21.5 mo was calculated using daily net-gain for the breed ($\text{Adj. carcass wgt} = \text{Carcass wgt} + (21.5 \text{ mo} - \text{slaughter age}) * \text{daily net-gain}$). More details can be found in [3].

III. RESULTS AND DISCUSSION

The native breeds can be categorised into breeds having an adjusted carcass weight of about 255 kg, and smaller sized breeds with an adjusted carcass weight of about 210 kg (Table 1). The native breeds had lower adjusted carcass weights than the beef and dairy reference breeds. The beef breeds all had higher conformation score than the native breeds, although Jysk kvæg scored almost like Hereford. The conformation score of some of the heavier native breeds (Jysk kvæg, RDM, Rødkulla, Väneko, and Ringamålako) were higher than for the dairy breeds and the small sized native breeds. The heavier native breeds, except Østlandsk Rødkolle, and Fjällko and Itäsuomenkarja had comparable fat scores to the dairy and beef breeds whereas most of the small sized native breeds had a low fatness score.

IV. CONCLUSION

The heavier native breeds, i.e., Jysk Kvæg, RDM-1970, Østlandsk Rødkolle, Väneko and Rødkulla, had carcass characteristics best fitting into the present market preferences, with moderately high carcass weight, whereas the other breeds should aim for alternative value-added markets.

Table 1 Slaughter characteristics of reference and native breed bulls categorized according to weight at 21.5 mo.

Breed	Age at slaughter, mo	Carcass weight, kg	EUROP conformation	Fat class	Adjusted carcass weight at 21.5 mo, kg ^a
<i>Beef reference</i>					
Charolais, FI	21.7	432	10.0	6.4	428
Charolais, SV	19.6	374	9.1	6.6	413
Charolais, DK	20.7	385	10.6	7.1	401
Charolais, NO	19.8	365	9.0	5.9	395
Hereford, FI	22.9	380	7.3	8.7	357
Hereford, DK	23.8	366	7.7	9.5	326
Hereford, SV	23.1	349	7.5	7.9	324
Hereford, NO	20.4	295	6.4	7.2	310
<i>Dairy reference</i>					
Holstein, DK	14.4	250	3.5	7.4	364
Holstein, FI	20.5	338	4.4	6.8	353
Holstein, SV	19.8	319	4.4	6.4	345
Holstein, NO	19.3	302	4.2	6.1	333
NRF, NO	18.5	301	5.2	6.4	346
SRB, SV	20.2	320	5.3	6.8	340
<i>Native breeds ~ medium size 255 kg</i>					
Jysk kvæg, DK	22.7	291	6.2	7.8	275
Länsisuoemenkarja, FI	21.9	275	4.1	7.1	270
RDM-1970, DK	23.6	295	5.2	7.4	267
Rødkulla, SV	24.9	303	5.6	6.6	261
Bohuskulla, SV	21.3	256	4.4	6.6	258
Østlandsk Rødkolle, NO	19.5	227	4.0	5.1	249
Väneko, SV	29.6	326	5.2	6.7	241
Pohjoissuomenkarja, FI	21.9	244	4.2	7.2	239
Ringamålako, SV	26.1	286	5.6	6.5	238
<i>Native breeds ~ small size 210 kg</i>					
Vestlands Raudkolle, NO	19.3	200	3.9	5.6	221
Fjällko, SV	25.7	258	4.4	6.4	217
Sidet Trønder og Nordlandsfe, NO	19.8	200	3.8	5.9	216
Íslenska kúakynid, IS	25.5	252	4.3	5.3	214
Telemarkfe, NO	18.7	180	4.1	5.3	204
Dølafe, NO	20.5	192	3.9	5.2	200
Vestlandsk Fjordfe, NO	21.0	193	3.9	5.7	198
Itäsuomenkarja, FI	23.2	211	3.8	6.9	196

^aSlaughter age of bulls were adjusted to 21.5 mo (average age of Charolais and Hereford across countries) and the adjusted carcass weight was calculated based on daily net-gain. Denmark (DK), Finland (FI), Iceland (IS), Norway (NO) and Sweden (SE)

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