

MEAT QUALITY OF FORAGE-FED HEREFORD BEEF CATTLE IN A COASTAL REGION ON SMALL-SCALE ORGANIC FARM



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Keywords: beef, semitendinosus muscle, wet ageing, technological properties



FARM and ANIMALS

Beef cattle were grazed on coastal grasslands during summer and fed silage from cultivated pastures in winter. Grain was excluded from the ration. In winter, the animals were housed in a barn with access to an outdoor area.

THE AIM

The study aimed to evaluate the effects of two different sires on the growth performance of their male offspring and the meat quality of the *m. semitendinosus* during a 28-day wet ageing period.

STATISTICS

Data were analysed in R using a linear model (LSM \pm SD).

CONCLUSION

The sire had no significant effect on the growth performance of the offspring; however, live weight was accurately predicted based on the age of animals. The sire influenced specific meat traits, including redness and colour stability. In contrast, the ageing process primarily affected water loss characteristics. These findings underscore the importance of both genetic background and post-slaughter handling in optimising meat quality.

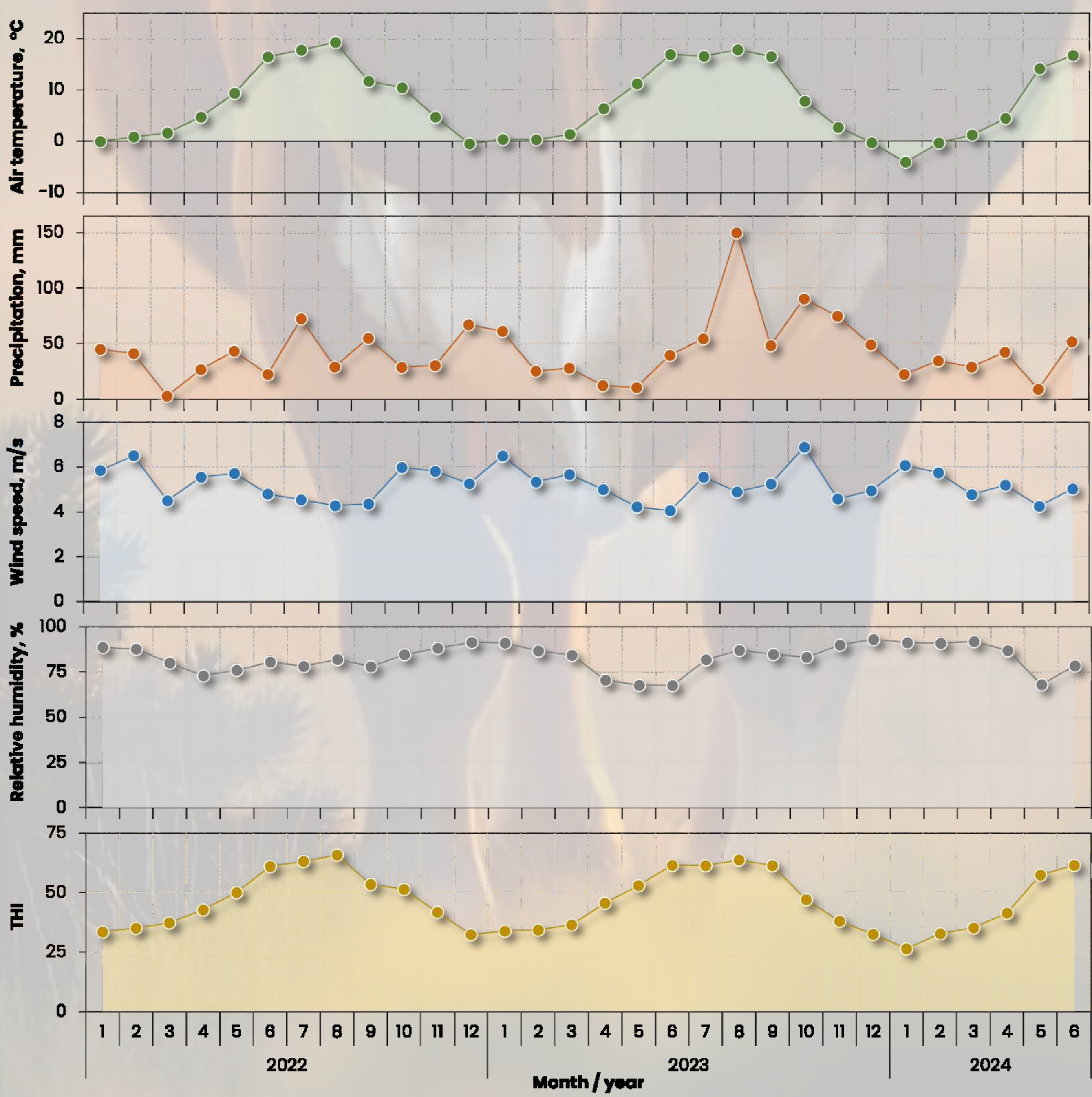
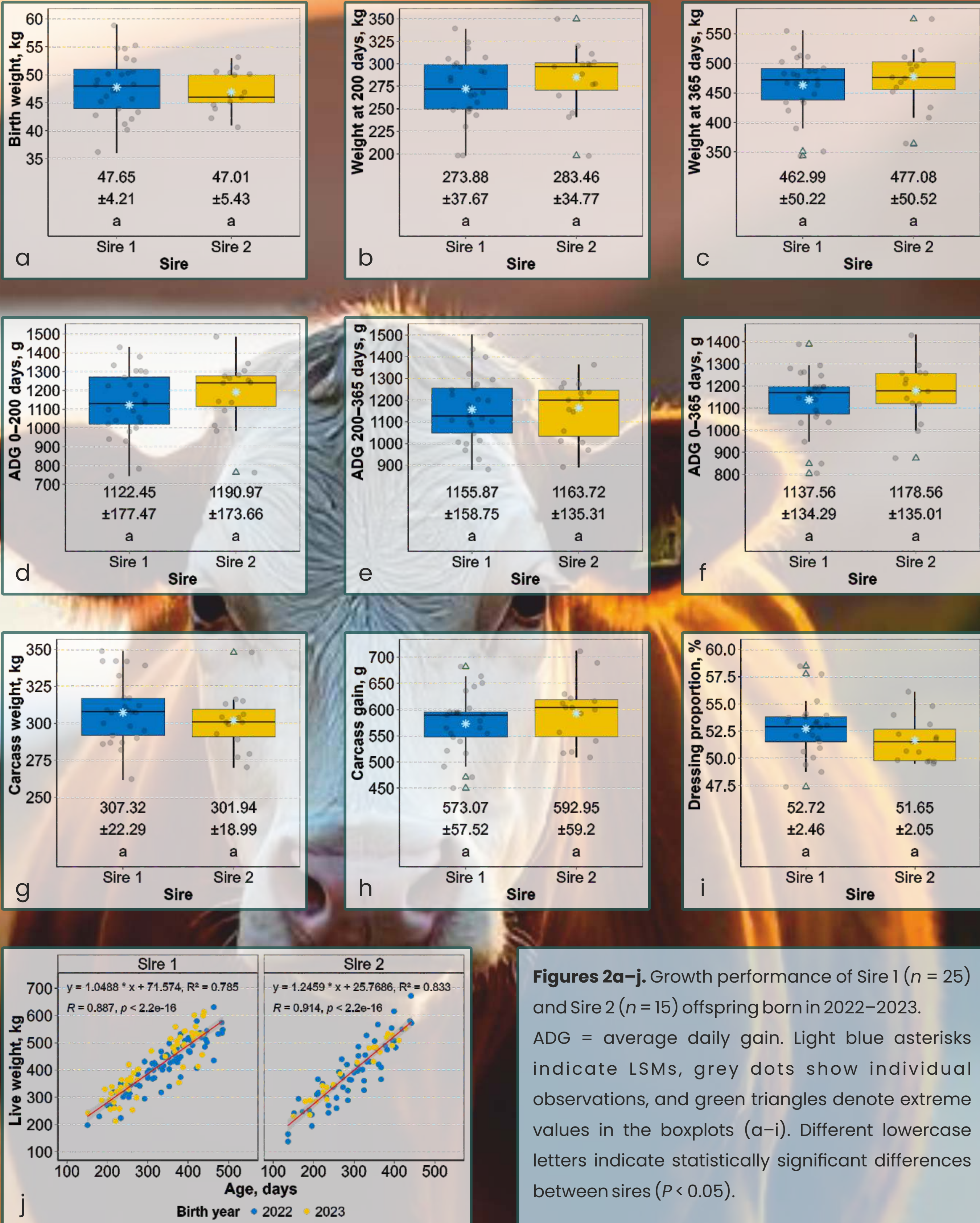
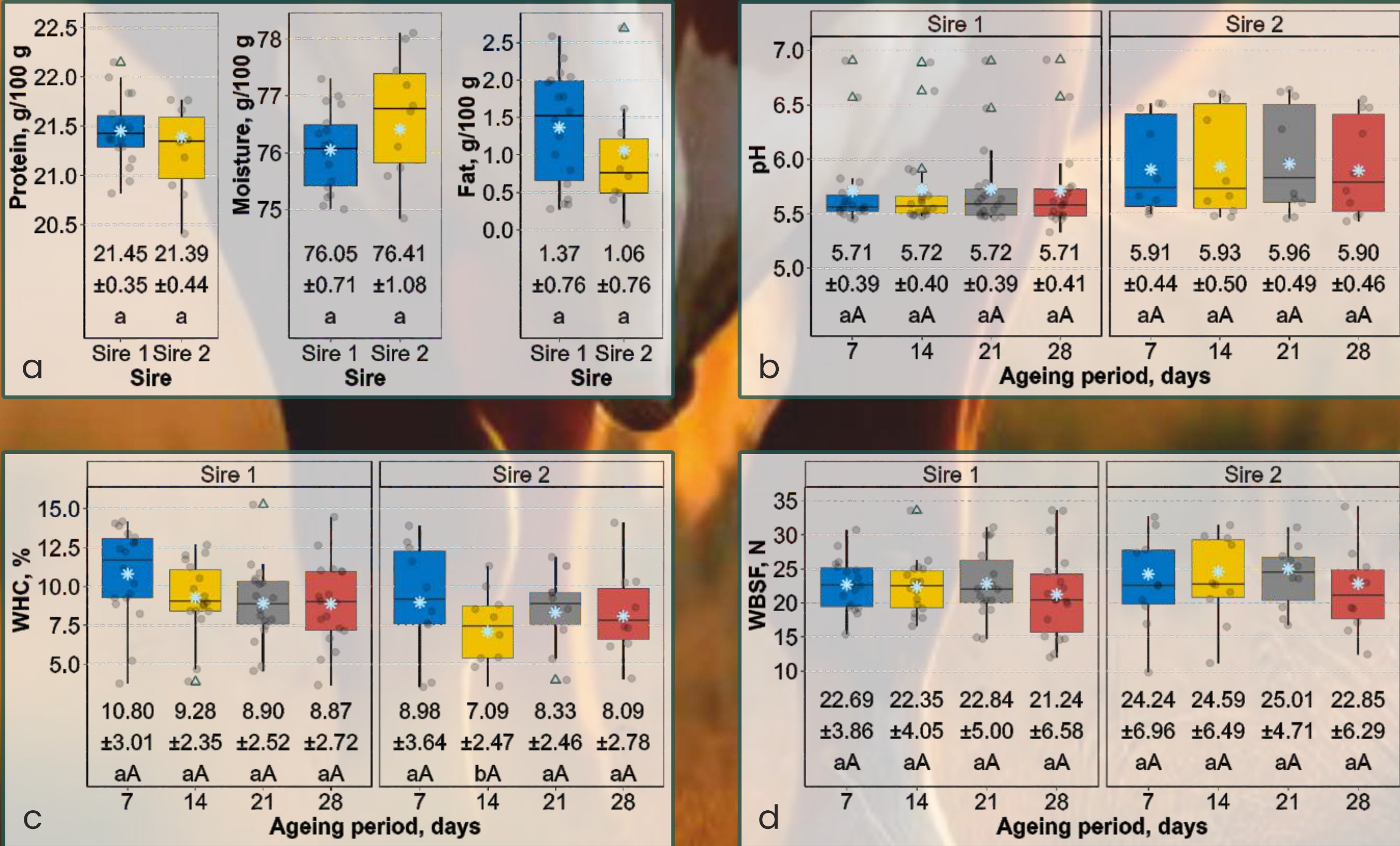


Figure 1. Meteorological data of the observation site (THI – the average temperature humidity index (National Research Council, 1971)).



Figures 2a–j. Growth performance of Sire 1 ($n = 25$) and Sire 2 ($n = 15$) offspring born in 2022–2023. ADG = average daily gain. Light blue asterisks indicate LSMs, grey dots show individual observations, and green triangles denote extreme values in the boxplots (a–i). Different lowercase letters indicate statistically significant differences between sires ($P < 0.05$).



Figures 3a–e. Meat quality traits of Sire 1 ($n = 16$) and Sire 2 ($n = 12$) offspring born in 2022–2023: WBSF (Warner–Bratzler shear force), WHC (water-holding capacity), and colour parameters (L^* , a^* , b^* – CIE Lab). Light blue asterisks show LSMs, grey dots represent observations, and green triangles denote extremes in the boxplots (a–d). Different lowercase letters indicate differences between sires ($P < 0.05$); uppercase letters show differences across ageing days. Green and red indicate Sires 1 and 2, respectively, in a 3D chart (e); shading from dark to light reflects 7, 14, 21, and 28 days of ageing.



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MINISTRY OF REGIONAL AFFAIRS
AND AGRICULTURE



Funding statement. The implementation of the SAAREVEIS project is supported by the Estonian Rural Development Plan (MAK) 2014–2020 measure 16.2 “Cooperation”, Support for the development of new products, practices, processes, and technologies.



NORDIC-BALTIC FOOD SYSTEMS CONFERENCE AND POLICY FORUM
26–28. May 2025. University of Helsinki, Viikki Campus, Finland