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Inter-Quarter Variation in the Prevalence and Severity of Teat-End Hyperkeratosis in Dairy Cows

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Introduction & Aim

Teat-end hyperkeratosis (THK) is a common welfare issue in dairy cows, causing pain and discomfort. It is closely linked to both the udder morphology and the milking system. This study aimed to assess whether the prevalence of THK differs between the fore- and hindquarters of dairy cows.

Methods

A total of 492 cows (n = 1,968 teats) from a commercial dairy farm in Évora, Portugal, were evaluated for THK. The presence and severity of THK were scored on a scale of 1 (no lesion) to 4 (very rough skin).

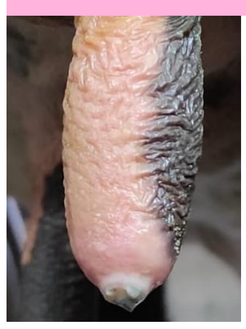
1 - No ring

The teat-end is smooth with a small, even orifice.

2 - Smooth or Slightly rough ring

A raised ring encircles the orifice. The surface of the ring is smooth, or it may feel slightly rough, but no fronds of old keratin are evident.

3- Rough ring



Ring with isolated fronds or mounds of old keratine extending 1-3 mm.

4- Very Rough ring

A raised ring with rough fronds or mounds of old keratin extending 4 mm or more from the orifice.

*Adapted from: G. A. Mein *et al.*, *AABP-NMC International Symposium on Mastitis and Milk Quality*, 2001, p. 11.

Cows were classified into one of the following categories: hindquarters (**HQ**), forequarters (**FQ**), both quarters (**HFQ**), or all teats (**ALL**) affected.

Data were analyzed using the Kruskal–Wallis' test, followed by Dunn's post hoc test in R.

Results

Cow were mostly classified with score 1 and 2 (**Fig. 1**.). Of the 288 cows (58.5%) with THK, 22 had lesions only in the FQ, 7 in the HQ, 5 in HFQ, and 254 in ALL (**Fig. 2**).

Notably, the severity of THK was lower in cows with lesions on ALL (2.2±0.03) compared to those with lesions confined to the FQ (3.14±0.09), HQ (3.0±0.16), and HFQ (3.0±0.19).

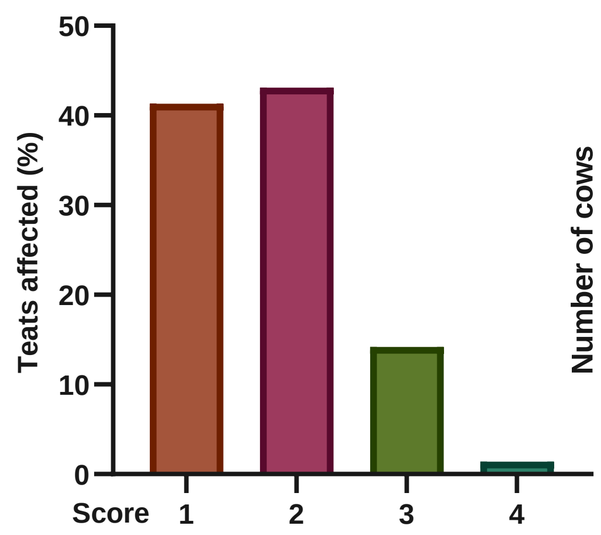


Fig. 1. Teat-end hyperkeratosis score distribution across teats

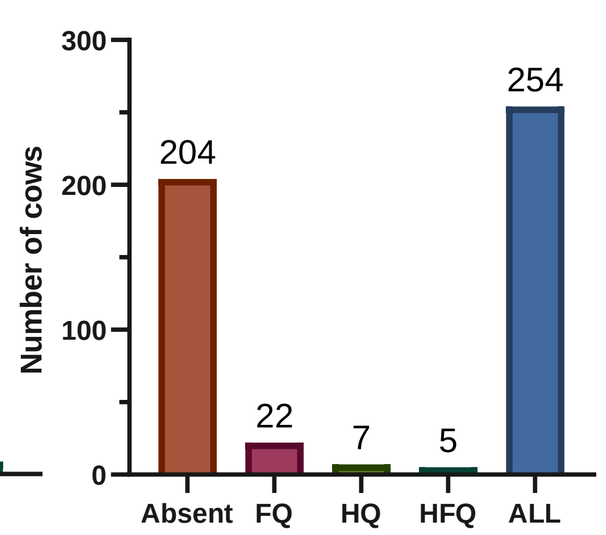


Fig. 2. Teat-end hyperkeratosis frequency across quartes.

Conclusions

This study found a high prevalence of THK affecting all teats, regardless of the quarter, suggesting a significant influence from the milking system. However, the severity of THK was greater when only one to three teats were affected, potentially reflecting variations in the morphology of individual teats within the same udder.

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