



RESEARCH ARTICLE

Awareness and Practice of Claw Trimming in Cows within Smallholder Zero-Grazing Dairy Units in Kikuyu District, Kenya: A Survey Study

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ABSTRACT

This study was conducted in 100 smallholder zero-grazing dairy units in Kikuyu district, Kiambu county of Kenya. The objective was to evaluate how much smallholder farmers knew about the importance of claw trimming and whether or not it is practiced in the smallholder zero-grazing dairy units. After a purposive selection of farms, data was obtained using a questionnaire administered through interviews to the smallholder farmers as respondents. Among the interviewed farmers, 94% (n=94) indicated they were aware that claw trimming in dairy cows was essential while 6% of the farmers were only vaguely aware of its importance. Only 43% (n=43) of the farmers reported that claw trimming had been done at least once in the last one year in their zero-grazing units. Of these 43 farmers, 65.1% (n=28) said their cows had claws trimmed once per year, 30.2% (n=13) said they were trimmed twice per year and 4.7% (n=2) said trimming was done more than twice per year. In the 43 zero-grazing units in which claw trimming was reported to have been done, it was done by either a veterinarian or an animal health assistant. Among the farmers in these 43 zero-grazing units, 69% (n=30) of them said overgrowth of the claws was the reason for trimming in their smallholder units, while 30.2% (n=13) of them said that lameness from other causes was the reason for trimming. All the farmers from the 94% of the zero-grazing units in which claw trimming had been done at least once, were informed of its necessity by either a veterinarian or an animal health assistant. All the farmers in the 100 zero-grazing units indicated willingness to have claws of their cows trimmed regularly. It is concluded that, most farmers in these smallholder zero-grazed dairy units were aware that claw trimming is a recommended routine practice, but only few of them had it done on their cows. This had an influence on the disorders that occurred on the claws of dairy cows in these smallholder zero-grazing units.

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INTRODUCTION

Smallholder zero-grazing dairy units in Kenya vary in their designs and management practices. The management practices at times vary even within the same unit. These variations predispose dairy cows to likelihood of occurrence of lameness particularly from claw disorders (Nguhiu-Mwangi *et al.*, 2008a; Nguhiu-Mwangi *et al.*, 2012).

Lameness, an indication of impaired gait in cows, can be caused by congenital abnormalities, infectious, non-

infectious or metabolic conditions as well as trauma (Mohammadnia and Khaghani, 2013). It causes economic losses and affects the welfare of dairy cattle because of the resulting pain or discomfort (Whay *et al* 1997; Dyer *et al* 2007). A claw condition causes most of the lameness in cattle (Sogstad *et al.*, 2006; Nguhiu-Mwangi *et al.*, 2008a). Some claws lesions are clinical, thus manifesting lameness while others are sub-clinical being diagnosed only after exposure by hoof trimming.

Horn production is counter-balanced by regular claw trimming (Nacambo *et al.*, 2004; Mülling *et al.*, 2006).

Functional claw trimming is performed to restore natural claw conformation that provides proper anatomical weight distribution between the claws. It has been shown that trimming of the claws reduces development of some claw conditions as well as incidence and degree of lameness in cattle (Manske, 2002). However, unskilled trimming could over-shorten walls of the claw and cause excessive thinning of the sole, hence resulting in worse degree of lameness (Blowey, 2002). These problems can be avoided by performing proper trimming redirecting weight-bearing pressure to the abaxial claw walls which are the strongest part of the claw (van der Tol *et al.*, 2004).

The subjective methods of claw trimming determine normal sole thickness from anterior (towards the toe) to posterior (towards the heel bulb) part using average values of dorsal wall length and heel height. In the hind feet, the medial claw is used as a guide for how much the lateral claw should be trimmed (Blowey *et al.*, 2004). However, these subjective methods do not achieve the best results because use of average values does not adequately solve the problem of individual claw variations. Conversely, the objective method determines normal sole thickness by trimming the horn of the sole until the physical overgrowth appears shed-off or seems just short of disappearance. The objective method is a good way to determine whether the sole has been trimmed to its normal thickness, thus it returns the overgrown bovine hoof to normal (Ladd and Eureka, 2005).

An evaluation of how much smallholder farmers know about claw trimming in cows and whether it is or not practiced in the smallholder zero-grazing dairy units in Kenya, was the objective of this study.

MATERIALS AND METHODS

Study area

The study was carried out in Kikuyu District, Kiambu County of Kenya, between June and August 2013. Kikuyu District is a peri-urban area of Nairobi, the capital city of Kenya. The district occupies an area of 236 square kilometers with approximately 265,829 residents living in about 77,045 households. Many of these households have dairy cows raised in smallholder zero-grazing production units as enterprise through which people enhance their livelihoods.

Study design and data collection

The study was carried out by administering a questionnaire to farmers owning smallholder zero-grazing dairy units. A total of 100 smallholder zero-grazing dairy units were purposively selected for data collection. The use of purposive selection was for logistical reasons, in which the willingness of farmers to participate was the main reason and the other was based on getting smallholder zero-grazing dairy units that met the selection criteria for the study. For this study, a smallholder unit was defined as one that had a minimum of 2 and a maximum of 10 adult dairy cows. The study area was divided into 4 zones, which were named North, South, East and West. A total of 25 smallholder units were randomly selected from each zone. One questionnaire was administered to each farmer (respondents) through interview by the investigator. The data collected were

entered and stored in Microsoft Office Excel 2007. Data was verified and validated as correct entries as per the questionnaires. The responses of each question were computed into a percentage of the total number of respondents.

RESULTS

The responses of the questionnaire from the farmers are presented in Table 1. Among the farmers interviewed, 94% (94) were aware that claw trimming was essential for cows, and all of them said they were informed of its importance by either a veterinarian or an animal health assistant. The rest (6%) were vaguely aware of the importance of claw trimming. The responses indicated that claw trimming had been done at least once in the last one year in only 43% (43) of the smallholder zero-grazing dairy units. The farmers in 65.1% (28) of these 43 units said their cows had claws trimmed once per year, 30.2% (13) said they were trimmed twice per year and 4.7% (2) said trimming was done more than twice per year. In these 43 zero-grazing units, claw trimming was reported to be performed by either a veterinarian or an animal health assistant. Among the farmers in these 43 zero-grazing units, 69% (30) of them said claw overgrowth was the reason for trimming, while 30.2% (13) of them said that lameness from other causes was the reason for trimming. At the end of the interview, all the farmers in the 100 smallholder zero-grazing dairy units said they were willing to have claws of their cows trimmed regularly.

DISCUSSION

The awareness of claw trimming by a high percentage of smallholder farmers may be attributed to the fact that the smallholder zero-grazing units evaluated were in the practice area served by the veterinary ambulatory clinic of the University of Nairobi. Therefore, the farmers may have been informed about claw trimming by the University ambulatory clinicians. However, embracing of routine claw trimming practice by only a few of the smallholder zero-grazing dairy units in the study area may have been influenced by several factors including reluctance by the veterinarians and animal health assistants to perform the procedure owing to difficulties exacerbated by poor restraint facilities in these units as previously reported (Nguhiu-Mwangi *et al.*, 2008b). Other reasons could be refusal by farmers, due to fears emanating from costs of the procedure and reduced milk yield on the day of trimming after the cows struggle during restraint.

Nevertheless, it is surprising that all the farmers expressed willingness to have their cows trimmed despite only few of them practicing it in zero-grazing units. It is positive that in those zero-grazing units where claw trimming was done, it was performed by veterinarians and animal health assistants and not by the farmers themselves. The reason the farmers do not perform claw trimming on their own is probably due to lack of both skills and the hoof trimming equipments. They should nevertheless be discouraged from performing it on their own because when unskilled persons carry out claw trimming, it may result in more lameness (Blowey, 2002).

Table 1: Responses from a questionnaire on awareness and practice of claw trimming in cows within the smallholder zero-grazing dairy units in Kikuyu district, Kenya.

Questions asked to the farmer	Responses in % (number of respondents)	
<i>Is claw trimming important?</i>	Yes	94* (n = 94)
	No	6 (n = 6)
<i>Claw trimming ever been done?</i>	Yes	43* (n = 43)
	No	57 (n = 57)
<i>Frequency of claw trimming?</i>	Once per year	65.1** (n = 28)
	Twice per year	30.2 (n = 13)
	More than twice per year	4.7 (n = 2)
<i>Reasons for claw trimming?</i>	Claw overgrowth	69** (n = 30)
	Other causes of lameness	30.2 (n = 13)
<i>Who did the claw trimming?</i>	Veterinarian/animal health assistant	100** (n = 43)
<i>Who informed you about claw trimming?</i>	Veterinarian/animal health assistant	100*** (n = 94)

*, **, *** indicate percentage calculation denominator of 100, 43 and 94 respectively

However, smallholder farmers should be instructed that claw trimming is inevitable for horn balancing from continuous production in order to reduce the risk of developing claw lesions (Nacambo *et al.*, 2004; Mülling *et al.*, 2006). It should therefore be done regularly as needed, but nevertheless by skilled professional personnel.

Conclusion

The farmers in these smallholder zero-grazed dairy units were aware that claw trimming is a recommended routine practice in cattle, but only few of them had it done on their cows. This had an influence on the disorders that were found on the claws of dairy cows in these units. Proper training of smallholder farmers on the importance of claw trimming in dairy cows and the effects of not performing it, as recommended, should be undertaken.

REFERENCES

- Blowey RW, 2002. Claw trimming: how should it be done? A comparison of two approaches. In: Proceeding of the 12th International Symposium on Lameness in Ruminants 9th-13th January. Orlando, FL, USA.
- Blowey RW, LE Green, VJ Collis and AJ Packington, 2004. The effects of season and stages of lactation on lameness in 900 dairy cows. In: Proceedings of the 13th International Symposium on Diseases of the Ruminant Digit, 11th-15th February 2004, Maribor, Slovenia.
- Dyer RM, NK Neerchal, U Tasch, Y Wu, P Dyer and PG Rajkondawar, 2007. Objective determination of claw pain and its relationship to limb locomotion score in dairy cattle. *J Dairy Sci*, 90: 4592-4602.
- Ladd S and SD Eureka, 2005. The Kansas adaptation to the Dutch hoof trimming method; In: Hoof Health Conference Proceedings; Hoof Trimmers Association Inc.
- Manske T, 2002. Hoof lesions and lameness in Swedish dairy cattle: prevalence, risk factors, effects of claw trimming, and consequences for productivity. Doctoral Thesis, Swedish University of Agricultural Sciences, Sweden.
- Mohammadnia AR and A Khaghani, 2013. Evaluation of hooves' morphometric parameters in different hoof trimming times in dairy cows. *Vet Res Forum*, 4: 245-249
- Mülling CKW, L Green, Z Barker, J Scaife, J Amory and M Speijers, 2006. Risk associated with foot lameness in dairy cattle and a suggested approach for lameness reduction. In: Proceedings of World Buiatrics congress 2006, 15-19 October 2006, Nice, France.
- Nacambo S, M Hässig, C Lischer and K Nuss, 2004. Difference in length of the metacarpal and metatarsal condyles in calves and the correlation to claw size. In: Proceedings of 13th International Symposium on Lameness in Ruminants, 11th-15th February 2004, Maribor, Slovenija, pp: 104-106.
- Nguhiu-Mwangi J, PMF Mbithi, JK Wabacha and PG Mbuthia, 2012. Risk (Predisposing) Factors for non-infectious claw disorders in Dairy cows under varying zero-grazing systems. A bird's-eye view of veterinary medicine. In Tech Publisher, Croatia, pp: 393-422.
- Nguhiu-Mwangi J, PMF Mbithi, JK Wabacha and PG Mbuthia, 2008a. Factors associated with the occurrence of claw disorders in dairy cows under smallholder production systems in urban and periurban areas of Nairobi Kenya. *Vet Arhiv*, 78: 343-355.
- Nguhiu-Mwangi J, PMF Mbithi, JK Wabacha and PG Mbuthia, 2008b. Prognostic Indicator and the importance of trimming in non-infective claw disorders in cattle. *The Kenya Vet*, 32: 26-40
- Sogstad AM, O Østeras and T Fjeldaas, 2006. Bovine claw and limb disorders related to reproductive performance and production diseases. *J Dairy Sci*, 89: 2519-2528.
- Van der Tol PPJ, JMH Metz, EN Noordhuizen-Stassen, W Back, CR Braam and WA Weijs, 2004. The force and pressure distribution on the claws of cattle and the biomechanical effect of preventive trimming. In: Proceedings of the 13th International Symposium and 5th Conference on Lameness in Ruminants. 11th- 15th February, Maribor, Slovenija, p: 102.
- Whay HR, AE Waterman and AJF Webster, 1997. Associations between locomotion claw lesions and nociceptive threshold in dairy heifers during the peripartum period. *Vet J*, 154: 155-161.