

Characteristics of farm-level practices attributed to postharvest milk losses in smallholder and pastoral systems in Kenya

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INTRODUCTION

Postharvest milk losses occur as a result of altered milk quality which reduces production and economic returns from producing herds. Milking, feeding and marketing practices may be responsible for these losses. This study characterized these practices in smallholder and pastoral herds and determined the extent of their contribution to milk quality and PHL.

THE MESSAGE

Inadequate hand and udder hygiene spread mastitis in herds which causes high postharvest milk losses (PHL). Milk price and transportation costs discourage participation of low producing farmers to formal markets.

METHODS

- Cross sectional surveys were conducted with random sampling of 114 smallholder herds in Nakuru County and purposive sampling of 15 pastoral camel herds in Isiolo County, Kenya.
- All lactating cows/ camels were tested for mastitis (California Mastitis Test (CMT)) and milk samples collected for laboratory analysis.
- Somatic cell counts (SCC) was used as confirmatory test for mastitis test and as an indicator of milk quality and PHL.
- Descriptive, Inferential statistics and regression models were used to determine extent of association between practices and SCC, and factors' affecting farmers' decision to participate in formal or informal markets.

RESULTS

Characteristics of on-farm practices

- Personnel hands, udder washing and drying before milking were practiced in smallholder rural (94%) and peri-urban farms (100%) but not in pastoral herds (0%) due to lack of water.
- Milking was done in a cowshed in peri-urban system (80%) while rural (70%) and pastoral (100%) milked in open field (Figure 1).



Figure 1. Milking routine in smallholder rural (left) peri-urban (center) and pastoral camel herds

- Milk marketing was mostly through aluminum containers in peri-urban (85%) and in rural (57%) but not in pastoral (0%).

Effects of on-farm practices on milk quality (SCC)

- Hands washing, udder washing and udder drying reduced animals' contamination by mastitis pathogens during milking, hence lower SCC (Figure 2).

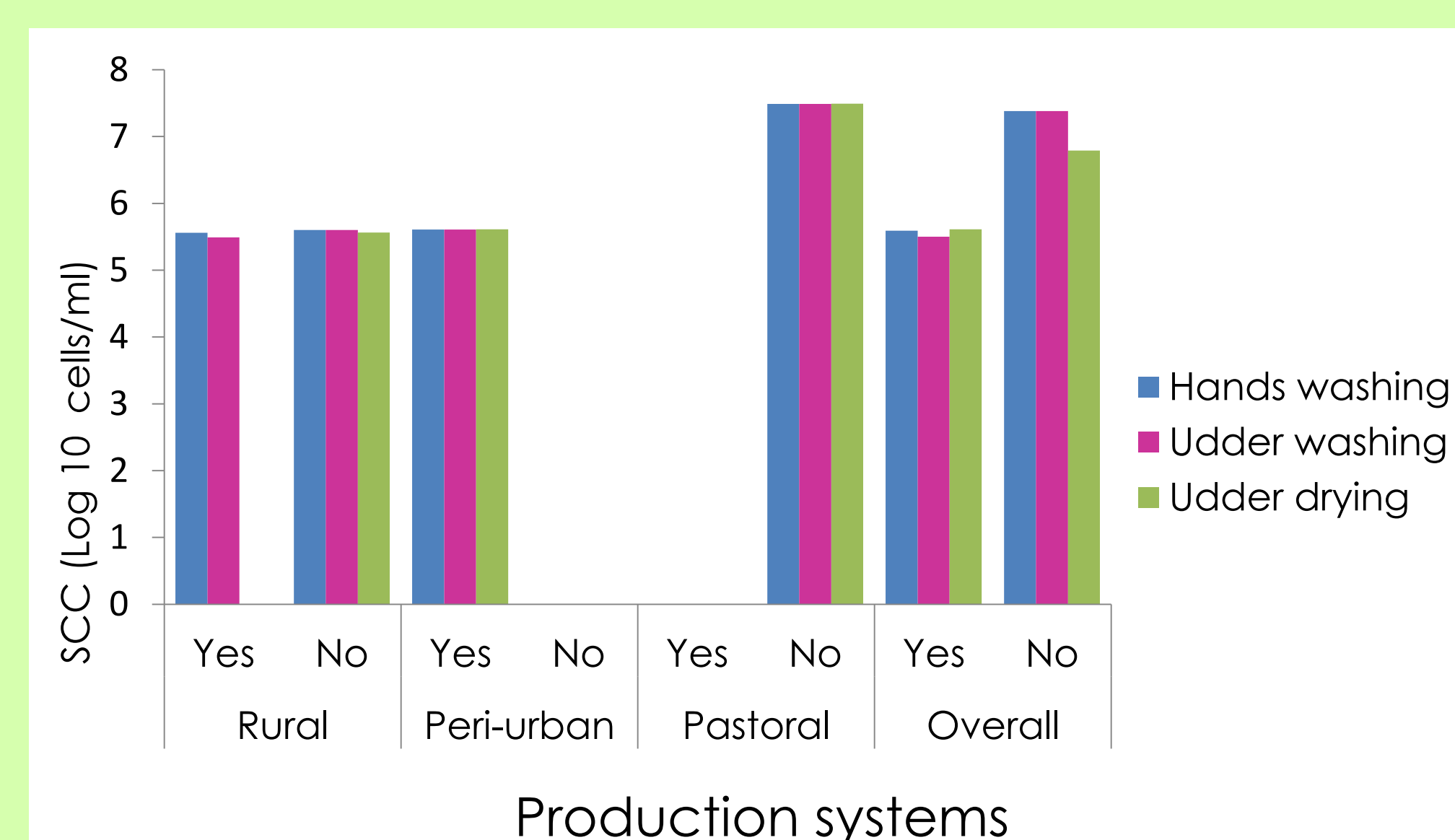


Figure 2. Effects of pre-milking practices on milk quality

- Milk PHL due to high SCC ($\leq 400,000$ cells/ml) were estimated at 7%, 27% and 57% in peri-urban, rural and pastoral respectively.

- Traders in informal markets offered higher milk price (0.35 Eur./litre) as an incentive for farmers to produce better quality milk from good practices (Figure 3).
- Consistent milk uptake and support services of formal markets attracted high producing farmers despite lower price (0.25 Eur./litre).
- This was a disincentive to implementing good practices, hence lower quality (Figure 3).

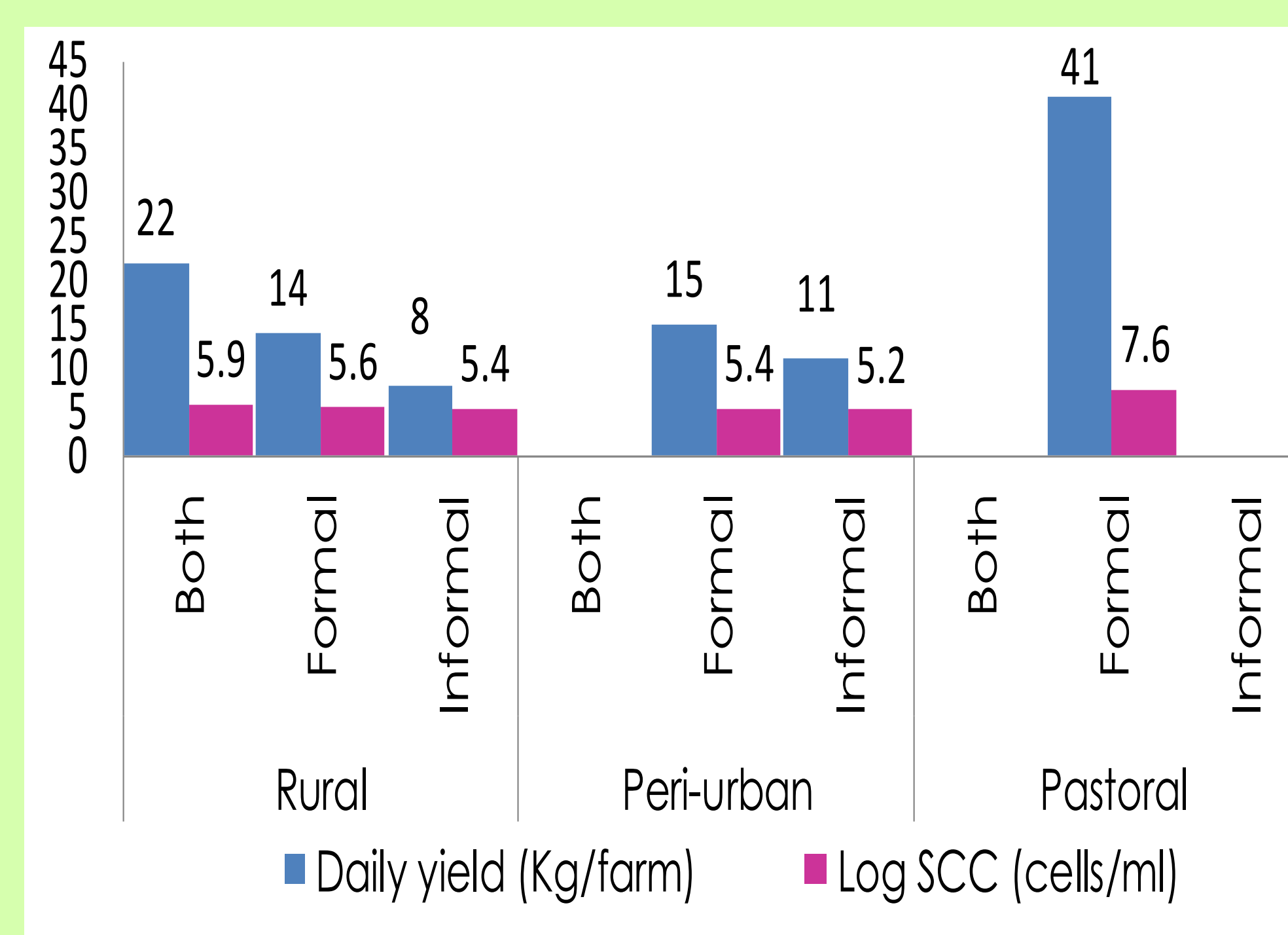


Figure 3. Farm gate quality and quantity of milk sold to different marketing channels

Implications for milk PHL

- Pre or post milking teat dipping may complement current practices to help reduce SCC and PHL;
- Improving water access in pastoral system will improve hygiene hence contribute to reduction of PHL;
- Regulations should be reinforced to maintain informal milk quality beyond farm gate and increase milk price to farmers in the formal market.