



## Consumer Perceptions on the Quality and Marketing of Milk in Moyale, Kenya

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*Pastoral income diversification can depend on increasing market involvements. One option is for pastoralists to sell more dairy products to local towns. We used focus-groups involving high-income households, low-income households, managers/owners of hotels and restaurants, and managers of a local milk-processing cooperative in Moyale, Kenya, to answer questions concerning why, how, and where they buy milk, how they assess milk quality, satisfaction with milk quality, and whether milk quality can be improved. All consumers recognize the value of high-quality milk. Higher-income consumers typically procure raw, packaged, or powdered milk at a quality and price they find satisfactory. Problems occur for low-income consumers, however, who must buy raw milk from traders at open-air markets. Traders pool raw milk from many sources and routinely adulterate it with water and other substances prior to sale. Low-income consumers are unsatisfied with the quality of milk they can buy. Discussants offered ideas as to how such problems might be addressed. These include raising awareness on milk-handling procedures and helping consumers organize to affect change in the behavior of traders. Local health authorities also need to be more vigilant about milk-quality enforcement. Some higher- and lower-income consumers said they could pay more for higher-quality milk.*

### Background

Pastoral risk management can involve the sustainable diversification of incomes and assets at the household level. This may require greater participation of pastoralists in markets. Markets accessible to pastoralists take varied forms. For example, pastoral livestock can be sold in long, international marketing chains, but dairy products can be sold in short, local chains. Sale of small quantities of dairy products has long been known as important for pastoralists in east Africa, especially for poorer households that have little else to sell. Growing towns and settlements in the rangelands offer opportunities for increased incomes for pastoralists via sales of dairy products. Moyale, a town straddling the border escarpment between Ethiopia and Kenya, now has over 40,000 residents in total. Moyale appears to be an important terminal market for pastoral dairy products from both southern Ethiopia and far northern Kenya. The highly seasonal rangeland environment around Moyale imposes large constraints for increasing the quantity of dairy products that might be sold because the forage and water supplies for milking stock fluctuate with rainfall. In contrast to quantity, however, there may be scope to improve the quality of dairy products that reaches consumers in places like Moyale, particularly if the consumers are able and willing to pay higher prices for improvements in quality. If the latter is true, then technical or policy interventions that improve the quality of marketed milk could be justified in a demand-driven research format. Limited information

concerning the quality of pastoral dairy products offered for sale in rangeland towns indicates that the quality of milk, for example, is often very poor. Here we report on preliminary findings dealing with perceptions of several categories of Moyale consumers concerning their local milk market.

For this research, we first used key informant interviews to sort out the varied categories of consumers. Focus group discussions (two per consumer category) were then organized for lower-income residents, higher-income residents, managers of a milk-processing cooperative (PARMCO), and managers/owners of small restaurants and hotels. Consumers also varied with regard to whether or not they had pastoral versus non-pastoral backgrounds, as culture could influence their values and perceptions about dairy products. Each focus group consisted of six to eight participants and lasted up to two hours. People were asked: (a) why they buy milk; (b) where they buy milk; (c) how they assess milk quality; (d) whether or not they are satisfied with the quality of milk they can buy; (e) whether or not the quality of milk on the market can be improved; and (f) whether or not they are willing or able to spend more money on higher-quality milk. More methodological details and a justification for the focus group approach are available from the authors.

## Findings

Regardless of wealth status, households tend to purchase milk for similar reasons, namely to have milk for general household consumption, feeding children, preparing tea, making sour milk and butter, and for dealing with certain health ailments. Butter is used to cook food, as hair ointment, and as a baby food supplement. Restaurants and hotels tend to buy milk for use in tea and other menu items for customers. The PARMCO purchases raw milk from known suppliers and then processes it for sale to the public in sealed plastic bags. Overall, good-quality milk is highly valued by all consumers as a nutritious and healthy food. Conversely, focus groups noted that consumption of poor-quality milk can be unhealthy and even dangerous. Milk can transmit diseases like brucellosis and Rift Valley Fever. Drinking rancid milk can result in diarrhoea and vomiting.

In general, the wealthier residential consumers, retail outlets, and the PARMCO cooperative are able to buy milk products of higher quality in and around Moyale. This includes raw milk from local producers, heat-treated (UHT) milk in packets that comes from elsewhere in Kenya, and imported powdered milk. Raw milk is often procured via contractual arrangements between consumers and known producers. Higher-income consumers tend to be satisfied with the quality of milk they buy. Poorer people, in contrast, tend to buy raw milk offered by traders at local open-air markets. The source of this raw milk is unclear and diverse and it can originate from producers in southern Ethiopia or northern Kenya. Lower-income consumers are generally dissatisfied with the quality of milk they can find.

Overall, our study respondents noted that milk quality is related to cleanliness and purity. Higher-quality milk from pastoral producers is typically found during rainy seasons while lower-quality milk occurs during dry seasons when the overall supply is reduced. Raw milk with a high probability of cleanliness and quality can be obtained via special arrangements that are made between consumers and certain producers as noted above. Wealthier consumers can supply their own (clean) plastic containers to transport such milk, and this transportation can be carried out by the consumers themselves or via middlemen. In contrast, the quality of raw milk for sale to poorer people at open-air markets is highly variable. The focus groups noted that poor-quality milk typically results from adulteration that is routinely carried out by the traders or middlemen. Raw milk from various sources that is destined for the open-air markets is pooled by traders upon arrival in Moyale. The volume and physical properties are then enhanced using additions of water, chemicals (tetracycline, local substances), and solids (wheat flour). In some cases lower-value camel milk may be mixed with higher-value cow milk and sold as cow milk. Raw milk that arrives in Moyale from Ethiopia or Kenya may be

carried by sellers on foot, but it more commonly arrives in plastic containers on public transport (buses or minivans.) Milk is collected from a 100-km radius to the north of Moyale in Ethiopia where there is a tarmac road and where milking stock are raised in a more productive, semi-arid environment. Milk is also collected from a 30-km radius to the south of Moyale in Kenya where road conditions are very poor and where milking stock are raised in a less productive, arid environment.

All consumers assess milk quality in several ways that includes color, taste, and texture. Other creative tests occur, and these include use of boiling, dipped matches, and looking for milk layering or separation properties. Boiled milk of higher quality will yield foam, for example, and will not have a burned residue at the bottom of the cooking pot. A match dipped in watered-down milk will not light. Lower-quality milk will often layer into water, milk, and solids.

Consumers vary in the degree that they handle or process purchased milk. Higher-income consumers who purchase raw milk procure it early in the day from trusted sources and then they boil the milk and use it within 24 hours. Higher-income consumers from non-pastoral backgrounds tend to supply their own containers for raw-milk procurement to reduce the risk of contamination and smoky aromas that arise from pastoral fumigation practices. According to the managers/owners of the hotels and restaurants, there are several quality levels of milk on the market that they can access, and this includes milk from both cows and camels. Like wealthier households, the managers/owners of hotels and restaurants have specific suppliers that they trust to deliver higher-quality milk. The hotels and restaurants tend to boil and refrigerate milk before offering it to their customers. Similarly, the PARMCO cooperative advises their suppliers to bring high-quality, non-fumigated milk, even if it means that PARMCO pays higher prices. The PARMCO has special equipment for pasteurizing and processing milk.

Despite that wealthier households, hotels, restaurants, and PARMCO are able to access milk of a suitable quality—unlike the poor—all consumers agree in general that milk quality is a major risk in Moyale. To reduce milk-quality problems, the discussants felt that the problem of adulteration by traders and middlemen has to be addressed. It may be possible for Kenyan consumers to go around the traders or middlemen to forge direct links to Kenyan producers, but not for Kenyan consumers to do the same on the Ethiopian side. This is because there is no legal authorization for the latter to occur. Pastoral producers on both sides of the border could be trained in best practices for milk handling, and this has been conducted by KARI in the past at other locations in northern Kenya. To improve milk quality starting at the producer end, the first step would involve improving the hygiene associated with milk

handling. It would be important to advocate the washing of containers with clean, boiled water (no soap) followed by fumigation. For PARMCO, the managers have also considered having their own dairy herd. They have secured one local area for forage production, but PARMCO needs other inputs and support to succeed in this venture.

The lower-income consumers believe it is very difficult to improve the quality of milk for sale at the open markets because milk comes from a wide variety of sources and handled by the traders and middle men. The Kenya Public Health Department has an office in Moyale-Kenya. It needs to supervise milk quality on a regular basis at the open-air markets, and then actively confiscate product that has been adulterated or is otherwise of poor-quality. Besides having the Kenya Public Health Department be more active, another idea was for low-income consumers to have their awareness raised and form a consumer coalition. This would probably involve women who are the most informed purchasers of milk. The coalition might be able to influence the behaviour of traders and middle men by offering price incentives for higher-quality milk and refusing to buy adulterated product.

The managers/owners of restaurants and hotels note that milk quality and safety monitoring should be the joint responsibility of the Kenyan Ministries of Health (Public Health Department), Livestock and Fisheries Development, and the Kenya Agricultural Research Institute (KARI). The discussants are critical of the government departments in the region for not supporting them fully. Currently, the focus groups feel that the Public Health Department only makes active milk-inspections in Moyale-Kenya when a disease outbreak occurs or when there are many complaints from the citizenry. The most recent "safe-milk campaign" occurred in 2006 during a regional outbreak of Rift Valley Fever, for example. Since that time some discussants felt that the vigilance of public health authorities has become reduced. Lack of public health enforcement for milk quality also means that an entity like PARMCO, which allocates scarce resources to inspect raw milk it receives, can be at a disadvantage compared to competitors that do not make a similar effort.

Both high- and low-income households were willing to spend more money on higher quality milk as this was an important safeguard for their health. The issue of exactly how much more Moyale consumers are willing to pay is another research topic that we are pursuing in an associated study. Focus group participants felt, however, that if consumers offered to pay more, those supplying adulterated milk would consequently increase their prices. Discussants also noted that it is the responsibility of buyers to ensure they purchase milk of a suitable quality for the price. Unlike the households, managers/owners of the restaurants and hotels said they were unwilling to pay more for higher quality

milk. This is logical given they are satisfied with the quality of milk they can procure.

## Practical Implications

It appears that the largest problem of milk quality and marketing in Moyale-Kenya deals with how to affect an improvement in milk quality that can be afforded by the lower-income consumers, in particular. This problem has two main components, namely (1) how to overcome the incentives for traders and middle men to adulterate milk offered for sale in the open-air markets; and (2) determining how milk quality could be promoted prior to the arrival of milk at Moyale. Of the possible solutions offered by discussants, the most promising over the short term may involve improving awareness about best milk handling procedures among the producers and helping consumers organize to compel new attitudes and behaviour among the traders and middlemen. Such initiatives could also benefit from increased vigilance of the local health authorities.

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## Further Reading

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The GL-CRSP Pastoral Risk Management Project (PARIMA) was established in 1997 and conducts research, training, and outreach in an effort to improve the welfare of pastoral and agro-pastoral people with a focus on northern Kenya and southern Ethiopia. The project is led by Dr. D. Layne Coppock, Utah State University. Email: lcoppock@cc.usu.edu



The Global Livestock CRSP is comprised of multidisciplinary, collaborative projects focused on human nutrition, economic growth, environment and policy related to animal agriculture and linked by a global theme of risk in a changing environment. The program is active in East Africa, Central Asia and Latin America.

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