

## ABSTRACT

Milk retail innovation that assures quality and safety should be attractive to consumers, traders and regulatory authorities in Kenya to address public health and trade concerns in the dairy industry. This study estimated operational cost and retail margin in milk vending machine (ATM) enterprises then compared milk from ATM with packaged milk and milk from plastic containers for consumer perceived risks and preferences, and observed quality. The data was obtained in a survey in five towns through interviews and milk sampling for laboratory quality tests. Results revealed that retail margin per litre of milk is up to US\$ 0.1, with average running cost of US\$ 102.67 monthly (1US\$=100KES), of which more is spent in servicing (58.4%) and paying license fee (24.0%). To consumers, high risk of adulteration, unhygienic handling, bacterial contamination and antibiotic presence is less with ATM milk and packaged milk than with milk from plastic containers. The risk of chemical contaminants present in milk is considered less for milk from ATM and from plastic containers than packaged milk. Consumers have preference for milk from ATM over packaged milk because of price, consistent availability, hygienic premises, and traceability in addition to being free from chemical and biological hazards. Compared to milk from plastic containers, milk from ATM is less prevalent in unsafe bacterial load (<24.0% vs >68.0%) but more prevalent in presence of antibiotics and hydrogen peroxides (>7.6% vs <4.5%). Milk from ATM and packaged milk are not distinctly different in prevalence of unsafe contaminants. These results demonstrate that ATM is a competitive business for retailing affordable pasteurized milk with safety advantages to consumers. Though consumer accept milk from ATM on perception of being safer than raw milk and as safe as packaged milk, ATM does not guarantee safety and quality. Consequently, the government must prioritise educating dairy value chain actors starting with farmers on value of milk quality and strengthening surveillance, quality control and setting standards for ATM milk retailing.

### Keywords

Consumer preferences; Food standards; Hazards; Milk dispensing machine