Review Article

REVIEW ON TRADITIONAL COW MILK PRESERVATION METHOD AND MARKETING PRACTICE IN ETHIOPIA

Abstract

The purpose of this review was to evaluate different reviews in different regions on traditional Ethiopian milk storage methods and marketing practices. Ethiopian farmers have a traditional system of handling milk containers that vary from place to place. Milking jars are thoroughly washed before smoking treatment, to mention a few, but the cleanliness of the wash water has been questioned. Milk processing began with the goal of turning fresh milk into long-lived dairy products and reducing food poisoning. Processing alone cannot solve the milk quality problem. Therefore, it is important to use proper processing and storage materials and to take the necessary precautions when handling milk and dairy products. Milk processing is progressing in Ethiopia. In the country, the average milk producer produces small quantities. The market for supplying fresh milk to consumers is not always easy, and local processors can suffer from problems such as power outages and disruptions in transportation. In most parts of the country, existing production and local marketing systems cannot easily meet growing demand. The degree of vertical and horizontal integration in the milk marketing system can vary from country to country or between regional and domestic milkfish. Therefore, this review should evaluate traditional domestic milk storage methods and marketing practices.

Keywords: Dairy Products; Marketing Restrictions; Milk Preservation; Traditional Practice

Introduction

According to Food and agriculture organization [FAO] (13), global milk production increased by 150 million tons annually from 2002 to 2007. Africa contributes only 5% of the world's milk production, and Ethiopia is not one of the four largest milk-producing countries, despite having the largest cattle population on the continent [Egypt, Kenya, South Africa and Sudan (13). Ethiopians have used milk as part of their diet for centuries. Like most countries in sub-Saharan Africa, Ethiopia cannot keep up with the growing demand for milk and milk Products that respond to population growth (4). Some authors show that Ethiopia, together with smallholders and herders, produces and supplies 98% of the country's total annual milk production (34). Milk production, processing and home satisfaction system. Usage depends on region, tribe and culture. This alienates traditional knowledge of milk production, processing and usage. (2.) studied traditional milk handling and processing at

Ost-Wollega, as well as the quality of raw milk. Traditional dairy handling practices, dairy storage, use, consumption, and marketing systems in the East Shore Zone have been reported (20). (3) also investigated the production, handling, traditional processing methods and milk quality of Bahir Dar dairy products in stable regions.

In fact, most of the milk produced outside the city center is processed into dairy products at the household level using traditional techniques (27). In the countryside of Ethiopia, it is estimated that 40% of the milk produced is butter and only 9% is cheese. In fact, temperature can determine the quality of milk, and some reports indicate that traditional butter ferments slowly at room temperature, providing local consumers with easy-to-store and long-lived dairy products. Dairy products mainly used for personal consumption due to their high nutritional value. In addition, the purchase of inputs such as feed, fertilizers, improved plant varieties, groceries and non-food sources is a source of income (22). However, the quality of milk produced in Ethiopia is low and below standard. This is due to improper handling before and after milking and the perishable properties of milk (30). The loss of milk from Ethiopian farms is estimated at 13%, mainly due to spoilage during milking and transport, as well as poor hygiene and spoilage due to use in containers suitable for milk storage (12). Another factor contributing to the loss of milk on farms was the low level of technology used to store milk by converting liquid milk into value-added dairy products. However, in many cases, the sour and unsold fresh milk is later sold to the farmer's family at a lower price, and the nutritional value of the milk is maintained, so the operating loss is only a partial loss of value. Many also consume sour milk. If surplus milk is available to market and family needs, and if up to 50% of the population refrains from dairy consumption during tents and other fasting periods, surplus liquid milk will be converted to butter and cottage cheese (12).

Handling and Preservation of Milk and Milk products

These are different types of milk storage techniques in different parts of the country. Smoking milk devices with different types of plants is one of the cultural practices for extending shelf life and adding flavor to products. Ancient Egyptians and Romans already knew about the antiseptic effects of salting, drying and smoking. Smoking produces cresol and other antibacterial compounds, reducing the effects of 4,444 microorganisms and their products (23). In Ethiopia, the loss of most dairy products is a combination of inadequate production and / or handling practices, lack of technical knowledge of clean milk production, and inadequate hygienic quality of control dairy products produced in Ethiopia. Caused by (35). In Ethiopia's semi-dried Borana Plateau, Gorfa (Kussaa) milk is usually designated to be produced by Gorfa (Titus). Concentrated fermented milk specially stored for guests (8). In the cold season, some rural farmers put milk by the fire to promote fermentation when

they want to drink sour milk and stir it daily (19). If production and handling hygiene standards are poor, ambient temperature stability and this can be very poor at high ambient temperatures, and the risk of spoilage is also very high (32). The most commonly used milk storage methods in Ethiopia are listed below.

Container Smoking

Smoking a container by burning a piece of wood from a particular tree or bush has the advantage of giving the product a special taste and aroma, disinfecting the container, reducing the number of microorganisms and extending the shelf life of the product. The report of (25) upheld this assumption because the development of aerobic mesospheric microorganisms in non-smoking milk progressed more and more rapidly compared to smoking containers. In most rural areas of Ethiopia, containers for milking and storing milk and dairy products are often smoked to delay the acidity of milk and achieve the value of milk needed for milking (2, 19). These are various techniques for smoking milk containers. The container is turned upside down until it emits smoke and spins around for a few minutes with the container lid open (12). Some authors reported that the milking equipment was smoked by burning chips from Olea Africana or Acaciabusia in Borana (12). In southern Ethiopia, milking equipment was routinely smoked using wood (14). But the same author says that Olea Africana is the most widely used for fermented milk production in the region. He pointed out that it is a smoking material. Due to the good taste and stability of fermented milk, it has been selected as the most promising facility for the production of fermented dairy products in Ethiopia. (9) reported that farmers in the semi-arid pastures of Borana in southern Ethiopia smoke milk press containers with burning chips such as Gum arabic tree, Cordia glifa, Cardia ovules, or Convertum. This is consistent with the results of(25), who reported that smoking slowed down the rate of unwanted microbial contamination and increased the rate of fermentation. However, during high milk production times, milking and storage containers are not smoked to facilitate fermentation. Mohammed (2004) also reported that smoking in milk containers was used as a conservation method in areas inherited by farmers. Milk fermented in smoked containers had a good taste that was usually accepted in many Ethiopia (14). In addition to importing a pleasant taste, these container smoking practices have a bacteriostatic effect on the growth of microorganisms. For example, the compatible milk volume of the milk sample shown reached 10 CFU / ml within 24 hours (25).

Container scrubbing

The plants used to scrub milk containers vary by location and home, suggesting different materials that need to be thoroughly identified in different parts of Ethiopia. Milk containers are thoroughly washed, smoked and then scrubbed with foil of desirable scent, which may vary from place to place (14, 2; 19). The most frequently used

system for cleaning containers on the East Shore and storing milk and dairy products was also described by (19). He suggested that increasing the fermentation rate could solve the problem by scrubbing the milk storage container with herbaceous plants. Of the many herbaceous plants used to scrub milk storage bottles to fix problems, scrubbing the container with the verb scum sinaiticum (Oromifa gala rabbit) is used to normalize fermentation. And such herbs can help vibrate or selectively colonize some desirable organisms, grow microorganisms, and grow and breed a farming group of microorganisms in the container. Creates an ideal environment for fermenting (19 Similar trades have been observed in Ethiopia's semi-dry grazing system. Before adding fresh milk, a milk container with Endostmeumtereticlulisor Osmium hardness leaves can be scrubbed (9). Fungi generally appear to be more sensitive to food flavors and spices than Gram-positive bacteria (James et al., 2005). In Ethiopia, various factors interact to impair the hygienic quality of dairy products. Unsanitary production, handling, processing and sales. Lack of cooling systems, especially near producers, extended transport times, inefficiencies in regulatory systems and quality control structures (21). Recently, while the demand for longer shelf life has been maintained, consumers' preference for natural foods that do not contain chemical additives has increased (10). Hurdle technology has proposed a conscious combination of existing and new conservation technologies to establish serious hurdles that reduce the viability of existing microorganisms (Listener and Gores, 1995). This led to the study of naturally occurring canned foods containing plant extracts such as LPS, lactoferrin, lysozyme, enthusiastic seeds and their essential oils, sulfur and phenolic compounds (29). In most cases, milking animals should be set aside at night or placed in an enclosure with the rest of the cows. Dairy cows are contaminated with manure and urine because these areas are not kept clean except for the removal of manure. Cleaning the cow's udder and hind limbs is not a habit, so milk is contaminated during milking. Cows milked in the shade of Klar pastures and in front of farms are not a clear milking environment. Hygiene standards for milk production are considered inadequate (12).

Ethiopian farmers have a traditional system of handling milk containers that vary from place to place. Some (12) reported that milking jars were thoroughly washed before smoking, but questioned the cleanliness of the wash water. The disinfecting effect of the incense treatment is provided by the hot embers placed in the container for a few minutes.(25) Control studies have found the role of these types of treatments in reducing microbial contamination compared to uncooked containers. If fermentation failure or deterioration of fermented milk quality is observed in southern Ethiopia, the production vessel will be burned (14). (19) reported the use of Olea Africana, Janiperous Procures, Protean and used Dracaena Afromantana, Schaffleravalkesil, Schefflega Abyssinia, Osmium hardness, In reticulala, and Solanum species for shore zone milk containers in the Oromia

region. The method of protecting milk from spoilage remains empirical, but we strive to provide at least some support to milk producers. When assessing the techniques used to produce traditional dairy products, the characteristics and quality of milk produced in developing countries include milk and bacteria from dairy farmers in advanced dairy countries that use refrigeration. It must be taken into account that it cannot be compared in terms of quantity. Milk cooler and bulk milk collection. On the other hand, practices that limit dairy spoilage exist in developing countries, including boiling milk immediately after production, the use of lactose fermentation to reveal lactose spoilage by lactic acid bacteria, and disinfection methods including: increase. : Smoking used containers of milk and dairy products. In most developing countries, the preservation and preservation of milk spoilage is very important (12).

Milk and Milk Products Utilization in Ethiopia

Earlier reports indicate that in most parts of Ethiopia, farm-produced milk is fed to calves, consumed by families and sold in local markets O` Mahoney and Ibrahim (1985). In some households, only the husband has the privilege of drinking milk. This is usually a husband and depends on the number of cows under the age of 1 who can get fresh milk. Milk and products are part of the Ethiopian mane diet. At the household level, consumption patterns are defined as a combination of type, quantity and frequency of dairy products consumed (Mulllions et al., 1994). Small producers regularly sell two-thirds of their total milk volume, with the remaining one-third for self-consumption. It is estimated that only 5 of the 20 large products reportedly sold their total purchases during that period, the remaining 15 sold 80% of their total purchases, and the remaining 20% remained for home use. Siegfried and Braham (1991). In idyllic areas, the diet is based on fresh or sour milk, and milk residues are not well treated. Due to the large size of the herd per household, there is more milk surplus per capita than in the highlands (31). The production and consumption of liquid milk is limited by seasonal fluctuations, leading to price fluctuations (IPS, 2000). Secondary products such as butter and long-term fermented milk are most likely to be produced for personal consumption and marketing if the milk supply exceeds the daily needs of the household during and shortly after the long rainy season (8).

In the lowlands, the increased supply of milk in the home due to the seasons and the large number of herds increases household consumption in a manner different from that required to sell dairy products. For example, 66% of the total milk purchased is consumed at home and 24% is sold or provided to other households (8). However, in the East Borena Olomia region, about 1.2 kg (85.7%) of total production was sold per week, with the remaining 0.2 kg used for personal consumption. On average, about 3.0 liters / household / day was produced, of which about 2.5 liters (88.3%) were stored for further processing and the remaining 16.7% was

used daily. On average, about 1.4 kg of butter was produced at home per week (20). According to (15) 68% of the total milk produced is used for human consumption in the form of fresh milk, butter, cheese and yogurt, the rest is given to calves and wasted in the process. Milk and dairy consumption varies geographically between highlands and lowlands, with varying degrees of urbanization. Due to poor infrastructure and inefficient marketing systems, poor marketing links between local producers and urban consumers may also have accelerated imports. Several reports show that milk demand is flexible in terms of income and price (15).

Milk and Milk Product Marketing in Ethiopia

If milk or dairy products are not sold, they are kept for home consumption and production levels are kept low (14). This low level of production has led to an increase in demand for the effects of dairy products, along with a general decline in local production over the years as a result of rapid population growth. (BelavadiNiyogi, 1999) pointed out that rapid urbanization in the same developing countries has created domestic demand for domestic production, especially high quality foods that create market opportunities for milk and dairy products. Unfortunately, most of the country's existing production and local marketing systems cannot easily meet growing demand. The degree of vertical and horizontal integration in the milk marketing system can vary from country to country or between regions and domestic milkfish (Mohammed et al., 1997).

In fact, in some cases most milk can be sold and consumed as raw milk, while in other cases it is possible to sell and consume some processed dairy products such as cheese and butter in addition to raw milk. I can do it. In the lowlands, milk is sold in the traditional way, with women and children sold directly to consumers traveling long distances in hot climates. Lowland market access is an important element of milk marketing. Shepherds living near the city through a rangefinder have the advantage of sealing liquid milk compared to households in more distant areas. Various studies in the Borana region show that marketing types, market distances, seasons, and family wealth in dairy sales are the main indicators of milk and dairy sales. .. In the Borana region, on the other hand, the frequency and quantity of dairy products processed depended on the size of the herd and its distance from the market Holden and Coppock (1991).

For this reason, butter is replacing liquid milk as women move away from homes with large herds that trade more often. Butter was sold to truck drivers and bus passengers on the route to Addis Ababa, 500 km away. According to (Belachew ,1997), biological interventions to improve the nutrition and health of dairy cows may not result in the desired increase in income for producers if the infeasible market picks up the product. There is sex. The lack of a market can mean that milk and the resources used to produce it (labor, land time) are wasted. Therefore, the proven provision of improved and sustainable milk sales arrangements in small rural areas is

essential for the further development of the country's dairy industry (Tsehy, 2002). An effective milk marketing network benefits both producers and consumers through links to relevant sectors throughout the economy (7). Ethiopia's milk marketing system can be divided into two subsystems. Formal and informal marketing systems.

Formal Marketing system

Formal marketing systems, usually controlled by the government, include the systematic collection, processing and distribution of raw milk and other dairy products at official government-controlled prices. Ethiopia's Dairy Development Company (DDEE) is an example of a formal marketing system in Africa. A formal marketing system for producing milk from state farms, private farms, and self-sufficiency within a km radius of Addis Ababa is calculated on the roadside (milk collection and cooling center) and transported to the center. Processing facility. These are many operational issues that contribute to efficient milk marketing in formal marketing challenges, such as irregular and delayed payments, inefficient plant operations with adequate local supply, and low utilization rates.

Informal Marketing System

In an informal marketing system, owners sell surplus supplies as liquid milk to neighbors and local markets, or in the form of butter or cottage cheese. In the informal market, product-specific fresh milk is delivered directly to nearby consumers and sold to traveling traders and individuals in nearby towns. In the informal market, milk can be transferred from the product directly to the consumer or via two or more market agents. Informal market systems are characterized by lower operating costs, no licensing requirements for higher producer prices, and no restrictions on operational processes compared to the official market (26). The main problems with efficient milk marketing in the informal sector of SSA are low deliveries per farm, seasonal fluctuations in supply and low milk volumes per square kilometer (low density), and transportation routes. Poor and seasonally unavailable, and low levels. Ethiopia has both formal and informal milk marketing systems for education on the collection and storage of high quality milk. Both commercial (urban and suburban) and smallholder (rural) farmers use formal and informal channels to sell milk and dairy products (6).

Ethiopian milk and dairy sales restrictions

In Ethiopia, milk marketing systems are underdeveloped (1), and market access is an important factor, especially in livestock production systems (31). This makes marketing raw milk difficult, with very limited infrastructure and undeveloped sales channels. However, most of the milk produced is sold fresh in the informal market. Due to the lack of infrastructure, only 5% of all milk produced in rural areas is sold as liquid milk. In the absence of a local milk market organization, mass marketing is restricted to the area near the city

(Mohammed et al., 2004). Due to the perishable nature of milk and the high demand for urban consumption, a well-defined conservation and distribution method is required to efficiently collect and transport this mass from widely dispersed rural sources. This affects the amount that can be consumed due to poor quality (1). On the Borana Plateau, households near the market can only sell milk more often. The impact of market distance depends on household wealth, which has been found to be an important factor in dairy marketing (8).

Conclusion

In general, the overall results of this review show that traditional Ethiopian milk storage methods and marketing practices, in which various factors play a role, affect the hygienic quality of dairy products. Unsanitary production, handling, processing and marketing. Lack of cooling systems, especially near producers, extended transportation times, inefficiencies in regulatory systems and quality control structures. In Ethiopia, the milk marketing system is not well developed, and market access, especially in the livestock production system, is an important factor. It's not always easy to reach a market that supplies fresh milk to consumers, but problems such as power outages and interruptions in transportation can plague them, so local processors are for processing facilities. You will be forced to buy extra milk. Therefore, over the course of generations, manufacturers have adopted a number of processes to minimize the loss of value of fat and solid emergency fat (SNF) in liquid milk.

Based on the above conclusion, the following recommendations were forwarded;

Agricultural Advisory Services aims to raise awareness of the economic importance of efficient marketing of milk and dairy products and to establish cooperatives for the production, processing, collection and marketing of milk and dairy products. is. Traditional cow milk storage methods and marketing practices need to be documented for future baselines of cow milk storage methods and marketing practices.

Author Declarations

Ethics approval and consent to participate (Human Ethics, Animal Ethics or Plant Ethics)

Not applicable

Consent for publication

I am highly interested and agree to the policy of this Journal. Whatever you commented me will be incorporated as per as your policy. So I am grateful to join and work with you.

Availability of data and materials: All data are included

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