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# Milk Production and Marketing in Ghana: The Case of Accra Plains

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**Abstract**
The study was carried to determine fresh milk production and marketing practices of herdsmen (N=150) within Accra plains of Ghana. They were interviewed in the area concerning their production and marketing practices. Milk production was seen as a major income earner for the herdsman and his family in Ghana. Majority (53 %) of the active labor force involved in milking were below the ages of 30 years, of this group 22% are between the ages of 7 and 12. Only twenty percent (20%) received formal training on good quality milk handing. Majority of the milk produced is either sold fresh or processed initially into cheese "wagashi". 98 percent of the respondents do not tie the hind legs of the cow before milking. Actual milking is done in the kraal, which is unhygienic. The main source of water for washing the utensils used for milking is well water. Fresh milk and other products are marketed in the area using three channels thus itinerant assemblers, processor and retailers; they operate mainly within the primary and secondary market centers. From the findings fresh milk production and marketing is done informally using a host of intermediaries.
**Keywords:** Accra plains , fresh milk, Herdsmen, marketing, wagashi

## 1. Introduction

Ghana has about 1.5 million cattle (MOFA, 2011). The West African short horn is the most populous breed, constituting more than 65 percent of cattle population in Ghana. There are 3.11 million sheep and 3.6 million goats. In Ghana milk for human consumption is mainly produced from cattle thus milk production in this case refers, to milk from cattle. Mainly the herdsmen do milk production, majority of who are Fulanis. According to Hill (1964), Omore et al., (2009) Addo et al., (2011), in the southern Savanna of Ghana herds are generally larger in size mainly between 20 and 200. In many cases however, these herds are property of absentee owners and cared for by hired Fulani herdsmen. Their remuneration most of the time is the right to the milk sold from the herds as well as a third calves from a female. This milk is then sold either fresh or processed in the Urban and peri- urban areas of the country. The farming families also use some for home consumption as well as feed calves. The herdsmen's wife may generate some extra income by the production of wagashi a soft cheese prepared from fresh milk (FAO, 2004). Milk is a liquid containing nutrients in suspension. Its exact composition varies from species to species, but for the main part these nutrients may be classified as fat, protein and other solids. Consumers have come to value these nutrients in their diets. Farmers have been encouraged to engage in commercial dairy farming to produce raw milk to satisfy consumer demand, and dairy processors have enabled raw milk to be transformed into a wide variety of products to stimulate this demand (FAO, 2012). The composition of milk varies according to a range of factors, including species, stage of lactation and diet. Essentially, the product is an emulsion of fats (both saturated and unsaturated), proteins (casein and whey proteins), lactose, minerals (including calcium, potassium, magnesium and zinc), vitamins (including A, B, D and E) and other solids in water. The total solids content of cow's milk is some 13%, with fat representing about 4%, protein about 3.5% and lactose about 5%. Raw milk is highly perishable and as such needs to be quickly transported to consumption centres and for processing into less perishable forms. Moreover, raw milk is typically more than 80 % water, resulting in relatively high transportation cost per unit, and limiting the quantities that can be marketed by individuals without vehicular transports (Staal 2004; Staal, Delgado, and Nicholson 1997). According to Food and Agriculture Organization, Ghana consumes less milk than the required minimum of 120 kg per annum. Despite the low consumption of milk. Demand for milk and milk products in the country exceed the local production leaving a huge deficit that had to be met by imports. Available statistics in 2002 from ministry of trade and presidential initiative puts domestic milk production at an estimated amount of 34,000 metric tonnes and an additional amount of an average 37,195 metric tonnes of liquid milk equivalent (LME) was imported annually into the country Ghana, (MOFA 2004). In 2010, the total amount of milk imported into Ghana was 28,267.5 metric tonnes. Dairy industry in Ghana faces a lot of challenges such as predominance of local or indigenous low milk yielding cattle, coupled with poor farm management practices by herdsmen and farm owners, other factors are absence of credit to farmers to purchase cattle feeds and to reduce the incidence of diseases through regular vaccinations and acquisition of drugs and other veterinary services. Smallholders do milk production and marketing and thus marketing is undertaken in the informal market. According to Ngigi (2003) 80% of the milk supplied and consumed in Urban and peri-urban areas in Kenya is informal and

unprocessed. One necessary condition for increased milk production is the provision of assured marketing outlets that are sufficiently remunerative to producers (Bardhan et al., 2012). Experience from countries like Uganda and Kenya pointed to marketing outlets being key initiator of milk production by smallholders (Sintayehu et al., 2008). However according to Karikari et al., (1998), in Ghana most consumers often prefer imported dairy because it is perceived that the locally produced milk is done under unhygienic conditions and therefore is considered unsafe. In Ethiopia dairy processing and marketing is basically limited to smallholder level and hygienic qualities of products are generally poor Zelalem and Faye (2006). This confirms the conclusion of Omore (1999), which states that over 75 percent of the fresh milk marketed in many developing countries is sold raw through informal channels where regulations such as pasteurization is not implemented. The study was undertaken to evaluate how milk is produced and marketed in the Accra plains, as well as the constraints of dairying in the area. This information is important for policy on the reduction of poverty among herdsmen.

## 2. Materials and Methods

2.1. Study Area

The survey was undertaken between April and August 2012 in the areas with highest cattle populations in the Accra plains. These are - Tulaku and Ashiaman, Ashiyie-fulani, Tse-Addo, Asutuare and Prampram-Ningo area. Another interview was conducted in three fresh –milk market at Ashaiamang, Nima/Mamobi and Asutuary market.

Accra plains happen to be the area with the highest concentration of cattle production in Southern Ghana. Accra plains as defined by Varley and White (1958) is that triangular piece of land stretching eastward from Kokrobite between the Akwapim scarp and the Sea, the eastern boundary being demarcated by the Volta River. The plain is characterized by open grassland with scattered clumps of trees and isolated patches of savannah vegetation. The climate is dry the average rainfall being only 30 inches.

2.2 Sampling Procedure

A convenience sampling method was used in this survey. The questionnaires were administered with help of the vertinary officers, who were familiar with these herdsmen. The focus was on the herdsmen because milk production is mainly in their hands. In all 150 herdsmen were interview (each from a different farm), of whom 10%(N= 15) were from Nungua farm and Tulaku /Ashiaman area, 24% (N=36) were from Ashiyie-Fulani area, 3.3% (N=5)were from Tse-Addo area, 30.3%(N=50) were from Afienya /Asutuare /Akuse and 29.3% (N=44) were from Prampram-Ningo/ Sege area of the Accra plains.

2.3 Data Collection

A structured questionnaire, was used for the interviewed at the heardsman residence thus at the kraal. The questionnaires were administered with help of the vertinary officers, who were familiar with these herdsmen. It covered the following areas- socio-economic characteristics, milk production systems, milk quality and milking practices and milk marketing. The focus was on the herdsmen and any other hired labor because milk production is mainly in their hands.

2.4. Data Management and analysis

The data was analysed using Statistical Package for the Social Sciences statistical was used to analyse the data.

## 3. Results and Discussion

3.1Background of milk producers

Milk production was seen as a major income earner for the herdsman and his family in Ghana. Majority (53 %) of the active labor force involved in milking were below the ages of 30 years, of this group 22% are between the ages of 7 and 12. Twenty percent (20%) between the ages of 30 to 39 years and the remaining 27 percent above 40 years. A greater part (77%) of the respondents involved in milk production had received various levels of formal education. 16.7 percent had only up to primary school, 50 percent up to junior high school level, and 6.7 percent had up to senior high school and 3.3 had up to tertiary level. All the respondents were involved in the actual milking of cows at the farm. Only twenty percent (20%) received formal training on good quality milk handing. In term of marriage 70 percent were married.

3.2 Milk production and Utilization

Daily milk production in the study area ranges between one (1) gallon (4.5 litres) and five (5) gallons (22.5litres), the average daily production is three gallons (13.5 litres). Total annual production of milk is estimated to be between 1638 and 8190 litres. 3% of the respondent produced at least 1638, 34% between 2457litres and 3276 litres, 40% between 4095and 5733 and 23% between 6552 and 8190 litres.

Milk was utilized in the following manner; for household consumption, marketed as fresh milk as well as processed into other dairy products. 22 percent of the respondents sold it fresh, whilst 78 percent use part it as for home consumption, processed and the greater part sold as fresh milk. These farmers throughout the year produced milk thus seven days in the week; however the total amount was dependent on the number of lactating cows per the farm and the weather. In all 87 percent of the respondents' milk between 1 to 20 cows on daily

basis, whilst the remaining 13 percent milk more than 20 cows, the highest numbers of cows were 41.

3.3 Milk production and handling practices

Milking was done by hand in the study area once a day before grazing. It was done either by the herdsman, his wife and children or by any other hired hand especially in the farms that had several cows to milk. In most case milking was done by the herdsman (51%), wives (27%) and children or wards of herdsmen (22%). The age of these children ranges between seven 7 and twelve 12 years. On the milking practices, (98%) of the respondents do not tie the cows tail during milking thus, milking was not done in a specific location, most of the time it was done in the kraal which is not hygienic. The surveyed farmers, says they used different milk utensils for collecting, storing and processing milk. Majority 68 percent of the producers use plastic utensils and the rest 32 percent used aluminum. One major factor affecting the quality of dairy products is related to adequate performance of milking procedures and cleanness of the milking utensils. 67 percent of respondents wash their hands before milking with 73 percent using water from wells and dams, whilst 27 percent used tap water. Most (83%)used hot water, in the milking process. After milking, 77 percent covered the milk and washed utensils with water and detergents. Of this group, 80 percent used cold water and detergent, 17 percent used hot water and detergent and three percent used only hot water.

Forty five percent of the respondents did not dry the utensils used for milking whilst 24 percent dry the utensils using heat and the remaining dry it under the sun. The procedure of cleaning and collection as reported from the study were similar to results obtain from Ethiopia by Yousif (2003) and Sintayehu et al., (2008).

Tying the hind legs as well as the tail of the cow with rope during manual milking is very critical since it will reduce the risk of contamination of the milk especially when it wags it tail. But from the field, 98 percent of the respondents do not tie the tail during milking. Another good practice is that milking should be done at a specific clean place or environment all the time, but most of the respondents do not have any specific clean area where they perform this activity. This is not a good practice since it can lead to contamination.

Hand washing before milking and adequate washing of the utensils used, but for it to be effective in improving quality the product it has to be done with tap running water and soap. From the result only 27 percent use tap water, the remaining 73 percent use water from the dam and well, within this group only 17 percent boil the water before using. This is incomplete cleaning and may hinder the role of elementary hygiene practices because it likely that these ponds (dams) might not be very clean

3.4 Marketing of milk in Accra plains

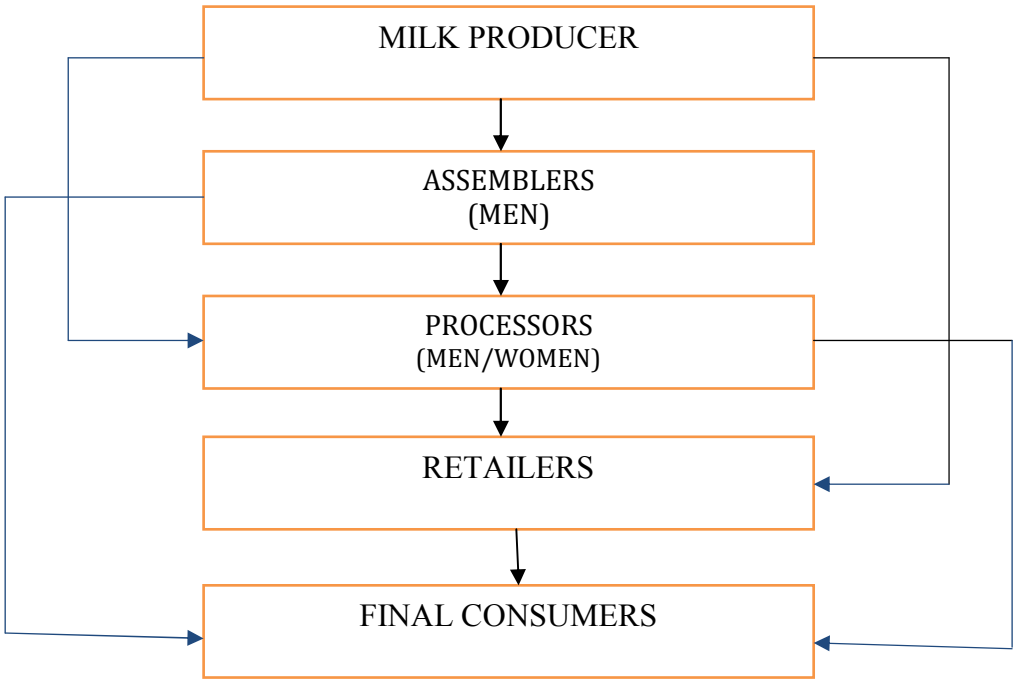
From the field result, more than 80 percent of farmers collect milk for financial purposes, thus its marketing is important to them. Milk is either marketed fresh or processed into wagashi at the farm level. At the primary collection centres milk is sold fresh because that is what the customers want. These centres are not too far from the farms; they are located in Amrahia, Ashiyie, Akuse, Asutuary, Somanya and Ashiaman. The main secondary markets in the plain are located at Nima/Mamobi market; Ashaiman/Tulaku and Mallam Atta market in Accra the Urban centre. In Ethiopia cattle produces 83 percent of the total milk and 97 percent of the cow milk comes from indigenous breeds and most consumers prefer unprocessed fresh milk due to its natural flavour and availability, taste and lower price (SNV, 2008).

3.4.1 Milk marketing channels in Accra plains

The marketing channel is made up of the various individuals who handle fresh milk as it moves through the marketing process. The channels are the routes through which fresh milk flow from producer to the ultimate consumer. Fresh milk marketing in the Accra plains generally pass through three groups of actors along the chain of distribution before reaching the final consumer. These are assemblers, processors, and retailers as shown in figure 1.

Figure 1: Flow scheme for dairy marketing chains in the Accra Plains




It showed that dairy marketing in the study area involves more intermediaries, each of whom adds some delivery or transformation services to the product. Fresh milk from the farm is either sold to itinerant collectors (assemblers) and the herdsman`s wife at the farm gate or it is delivered by the herdsman to other processors as well as retailers at either the primary collection centre or at the secondary market centre.

3.4.2 Assemblers

The assemblers (itinerant collectors) collect raw milk at the farm gate and wagashi (soft cheese) and deliver to the processors and wholesalers /retailers in the markets. Milk assemblers are mainly men who actually move from farm to farm collecting raw fresh milk while wagashi assemblers are female. The result from the field also shows that there are some farms that the herdsmen serve as assemblers where they supply direct to the retailers at the secondary markets. The retailers are either mobile or sedentary traders. They mainly sell wagashi in small quantities. Some of herdsmen double up in both roles as producers and retailers of milk. Their wives are generally the wagashi processors, this especially so for those farms located far from the market centres.

3.4.3 Processors

These dairy processors are mainly involved in the production and sale of soft cheese or wagashi. Hard cheese, Burkina, and Fura. Some of these processors produce yoghurt on a larger scale and in a more formal manner. Most of the wagashi processors are women, who are either the herdsmen wives or relations.

3.4.4 Retailers

Ghana's small-scale dairy retailers are individual dairy product sellers that deal with the sale of milk and processed dairy products. They are either mobile or sedentary. They buy their supplies from herdsmen, processors or assemblers. Though the smallest among the major agents in small-scale dairy marketing and processing, they are interspersed in many towns and offer employment mainly to family members. At the secondary markets located in the Urban centres such as Tulaku, Mallam-Atta and Nima markets mainly retail processed milk as well as wagashi.

3.5 Challenges in Milk Production and Marketing

The challenges faced by those involved in production included lack of fresh grass to feed the cows as well as lack of adequate clean water for the animals and high transport fares. This is so for those herdsmen who also bring the milk to the urban areas to sell. The main challenges faced by the itinerant collectors concerns the distances they have to cover especially since some of the farms are faraway from the major roads, thus they spend a lot on transport fares. The main challenges for retailers concerned lack of storage facilities at the market to store the left over milk and yogurts.

## 4. **Conclusion**

Milk production in the study area is done manually at the farm without tying the hind legs and tail of the cow. Children aged between seven and twelve years are used in the milk production process. Majority of the

producers are not formally trained in how to produce quality milk thus leading to contamination. Milk is marketed informally using a host of intermediaries, chief among them being the itinerant collectors who travel from farm to farm collecting fresh milk and then selling to others in both the primary and secondary market centres.

**5.Recommendation**

The following recommendation could be considered to for improving on the quality of milk and its marketability in Accra plains.

- Government should establish more collection centres in the plain so that milk can sterilized before marketing to consuming public
- All dairy farmers in the plain must be trained on good dairy handling practices
- All members of the supply chain must be identified, trained in good dairy handling practices and registered by the various local authorities
- Farmers must be encouraged to adhere to good quality dairy practices since it will lead to increase consumption and then reflect in sales price.

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