



# Review On Current Milk Production Status, Existing Production Constraints and Opportunities in Ethiopia

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## Abstract

The objective of this paper was aimed to review on the current dairy production and major constraints and opportunities of cow milk production in Ethiopia. Based on their location milk production systems are assigned as rural, peri-urban and urban milk productions system in the country. The highest percent of milk in Ethiopia comes from rural milk production which is mostly from indigenous breed dairy cattle and at most it is consumed at home for family since it does not market oriented production system. Peri-urban dairy production systems are mainly located at the edge of the town areas in which most of the dairy cattle producers are working depend on hybrid cows and practiced supplementary concentrate feeding, there by dairy keepers are involved in fluid milk market. Urban dairy cattle production systems are practiced with little or no land resources for the production and it is the most market oriented dairy production system compared to other milk production systems. Urban areas producers use crossbred, as well as high grade, dairy animals and better house and feed management access. Concentrates, roughages, and non-conventional feeds are the main feed resources which are used in urban dairy cattle production system. The constraints of dairy cattle production differ with in the three production systems and among different locations which categorized in technical and non-technical constraint in general. Cattle population, divers' genetic resource of cattle, growing demands of milk, urbanization, increasing population, availability of land for forage development etc. are opportunities of milk production in Ethiopia.

**Keywords:** Dairy Production System; Rural Production; Urban Production; Peri- Urban Production

## Introduction

Ethiopia holds the largest cattle population from Africa which has estimated to be about 70 million heads of cattle. Out of total cattle population, the female cattle constitute about 56 percent and the remaining 44 percent are male [1]. About 97.4% of the total cattle in the country are local breeds. The remaining are hybrid and exotic breeds that accounted for about 2.3 percent and 0.31 percent, respectively and there are milking cows are about 15.04 million heads [1] In 2020/21, there was 4.96 billion liters of cow milk produced per year in the country [1]. Peri-urban and urban performed in areas where the population becomes high, and the agricultural land is scares and with better management and bread improvement while commercial the pure exotic animals are limited to commercial or government farms [2] per capita consumption of milk is approximately 19 kg per year in Ethiopia [3].

## Milk production system

Dairy production systems in Ethiopia can also categorize to rural, peri-urban, and urban and commercial dairy production systems from which rural dairy small-holder system supply includes

pastoralists, agro-pastoralists, and mixed crop–livestock producers share largest total milk produced and contributing 98% of the milk [4]. Per capita consumption of milk is approximately 19 kg per year in Ethiopia [3]. The quality of milk produced in Ethiopia is poor and below the standard due to poor pre-milking and post-harvest handling practices and highly characteristics of the milk perishability [5]. Neglecting hygienic condition of the milking condition environment and milk containers, absence of udder and teats cleaning practices, failure to use towel for udder washing and drying, and poor personal hygiene of the milkers are the factors contribute for poor and substandard microbial quality of milk in Ethiopia dairy production [6].

## Rural dairy production system

Pastoralists, agro-pastoralists, and mixed crop–livestock producers are grouped under the rural dairy cattle production system (Gebresellasie, 2019). From the total milk production, 98% is contributed by small-holder dairy farmers which representing about 85% of milk producers (Mebrate et al., 2019). Due to highly perishable nature of dairy products and its potential to transmit

zoonotic disease and other pathogens and toxins, it is difficult for dairy farmers to exchange in urban markets [7]. The rural milk production system is highly reliant on the low productivity of the indigenous zebu cattle breeds that can produce 400–680 liters of milk per cow per lactation period.

**Peri-urban dairy production**

Peri-urban dairy production systems are mainly located at the edge of the town areas which have comparatively better access to urban centers in which dairy cattle products are extremely wanted [8]. Most of the dairy cattle producers depend on hybrid cows and they practiced supplementary concentrate feeding (Gebresellasia, 2019). It possesses animal types ranging from 50% crosses to high grade Friesian in small to large sized farms and contributed only 2% of the total milk production of in Ethiopia. This sector owns most of the country 's improved dairy stock [9]. Their main source of animal feed is home produced hay for some, and pastured hay for other with or without additional supplemental feed. The animals they keep range from 50% cross breeds to high grade Friesians. This sector controls most of the country's improved dairy stock (Getabalew et al; 2019).

**Urban milk production**

Urban milk productions the most market-oriented production system compared to other production systems [10,11]. Urban areas producers use crossbred, as well as high grade, dairy animals. However, only 1% of the dairy cattle from the total population of dairy cattle of the country are kept under urban dairy cattle production system [12]. Concentrates, roughages, and non-conventional feeds are the main feed resources which are used in urban dairy cattle production system. Moreover, roadside grazing, fruits of plants and wastes also used in urban dairy cattle production system [11]. According to Assaminew et al. [13], the average number of hybrid dairy cattle were greater in urban than that of peri-urban dairy cattle production system. Grass, hay, crop residues and concentrates were regularly used dairy cattle feeds in both urban and peri-urban areas [13].

**Current milk production situation**

About 97.4 percent of the total cattle in the country are local breeds. The remaining are hybrid and exotic breeds that accounted for about 2.3 percent and 0.31 percent, respectively and there are milking cows are about 15.04 million heads and 8.1 million camels [1]. Total cow milk production for the rural areas of the country is about 4.96 billion liters. The average lactation period of cow about seven months, and average milk yield per cow per day is about 1.482 liters [1]. From the total national milk, the highest share was covered by cattle 78% similarly 70% of meat produced, Ministry Agriculture and rural development [14,12]. Ethiopian consumption of milk is approximately 19 kg per capita/ year [3]. To meet the growing demand for milk in Ethiopia, milk production has to grow at least at a rate of 4% per annum [15]. Even though, Ethiopia registered huge number of cattle populations there is no significant benefits earned from livestock resource. Mainly attributed to low genetic potential of the indigenous breeds, limited availability of

feed, high disease prevalence and poor animal health services, low level of husbandry, and limited extension and research support.

**Number of milking cows**

According to Ethiopian central statics agency (CSA) data shows that the number of milking cow is indicating incremental from year to year (Figure1). The numbers of milking cow are 11.8 million in (2016/17), 12.39 million in (2017/18), 12.4 million in (2018/19), 12.57 million in 2019/20, and 15 million milk cows (CSA, 2016/17-2020/21).

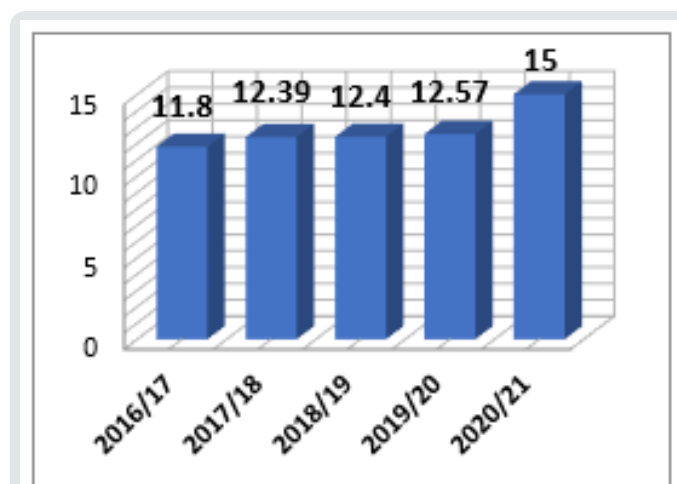


Figure 1: Number of milking cows in million head Sources (CSA, 2017-2021).

**Milk produced in billion liters /year**

Ethiopian CSA data shows that the amount of milk produced in billion liters is increasing from year to year (Figure 2). The amount of milk produced in billion liters is 3.1 billion liters in (2016/17), 3.1 billion liters in (2017/18), 3.3 billion liters in (2018/19), 3.89 billion liters in 2019/20, and 4.96 billion liters in (CSA, 2016/17-2020/21).

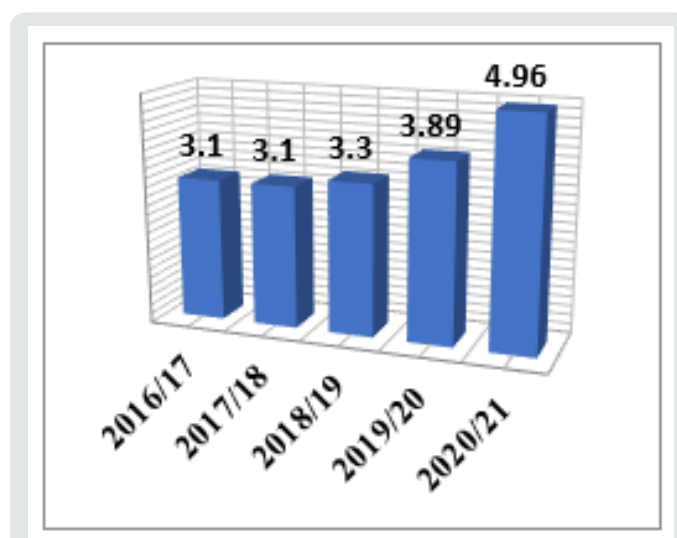


Figure 2: Milk production in billion liters Sources (CSA, 2017-2021).

## Constraint of milk production

The constraints of dairy cattle production differ with in the three production systems and among different locations [16]. As indicated by (Gebresellasie, 2019) high feed cost, land shortage and space limitation, feed quality, availability, and cost problems as well as inadequate extension and veterinary services are the major dairy production system constraints in the Urban and Peri-Urban areas of central Highlands of Ethiopia Shortage of quality feed supply is remain as major problem of dairy production in Ethiopia [17,18]. Urban dairy farmers encountered a challenge due to the increased feed prices [19]. Furthermore, insufficient artificial insemination service, shortage of semen, and shortage of AI professionals have been recognized as factors leading to poor breed improvement in most parts of Ethiopia [19] (Mebrate et al., 2019). Similarly, feed shortage and land scarcity, diseases, poor access to marketplace, restricted market information, lack of improved breed, inadequate artificial insemination (AI) and infrastructure were reported as the primary constraints of dairy cattle production by [20]. The major production problems listed by [21] includes absence of milk processing plants and equipment's, lack of skills, inadequate manufacture space, changeable marketing scheme, shortage of water, poor genetic potential of dairy cows for milk production.

## Dairy production Opportunities

The existence of fast-growing population and urbanization with an extended utilization of milk and its products are the main opportunities of milk production in Ethiopia [16]. The growing demand for milk and its products like fermented milk (Yogurt), butter, cottage cheese, butter milk, ghee and whey offer a good opportunity for dairy producers (Gebresellasie, 2019). Hence a potentially large domestic market is the main opportunities of milk production in Ethiopia [16]. The existence of diverse agro ecologies coupled with diverse flora species rendered in the different parts of the country to have native knowledge in the conservation of milk and its products in the dairy farming system using various sources of herbs [22-26]. There are plenty of opportunities for dairy development listed (Gebresellasie, 2019). On the other hand, development of infrastructural sector, such road access or road construction to connect towns with kebeles, water supply, electrification, communication activities would favor modern dairying [20].

## Conclusion

Ethiopia is fist in cattle population in Africa and 5th from the world. The dairy production system in the country is grouped under rural, peri-urban, and urban dairy production system. Most of milk production of the country is comes from traditional milk production system which is in most from low productive indigenous dairy cattle.

There are technical and non-technical dairy production constraints of Ethiopia dairy production. Animal healthy, animal feeds poor quality and price, poor genetic dairy breed, shortages of milk market, shortage of improved dairy cattle are among the major constraints. Increasing milk demand, increasing

urbanization, growing human population, conducive environment, attractive policy for dairy sector is some of the opportunities of dairy production in general.

## Recommendations

- a) Ethiopia should work to bring up rural milk production to peri-urban production system.
- b) The country should work on forage development to overcome feed scarcity problems.
- c) Different efforts should coordinate to transfer milk production to the next level
- d) Milk collection centers should be constructed to enable market accessibility of small producer.
- e) Foreign investors and breeders of improved dairy cattle should be attracted to invest in Ethiopia.

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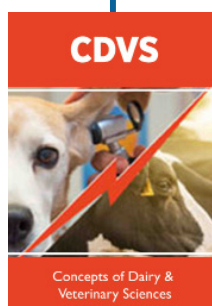
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