

Review on the Trend of Goat Milk Production, Consumption, Challenges and Opportunities in Ethiopia

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Review Article

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ABSTRACT

The objective of this review paper is to indicate unexploited recourse and different breeds, opportunities, and constraints of goat production and trend of consuming goat milk and goat milk products in some parts of Ethiopian regions that is potentially unexploited for local and foreign investors to engaging in goat milk production though breed improvement in Ethiopia. Ethiopia has huge population of goat in Africa with diversity of breeds and distributed in different agro ecology of the country. Goats have the ability to survive in different agro-ecologies that makes goat with unique characteristics. The breeds of goats in Ethiopia is poor productive of meat and milk due to several factors. Despite of their low productive, goat has many socio-cultural, socio-economic and national benefits. Although goat milk drinking has nutritional and medicinal benefits, goat milk and milk products consuming is affected due to different factors in Ethiopia. Shortage of feed and water, prevalence of disease, poor management, lack of breeds improvement and shortage of improved dairy goat, lack of productivity recording and socio-cultural image to consume goat milk, lack of community awareness to ward drinking goat milk and low productivity of indigenous goat are among the constraints of goat milk production and milk consuming in Ethiopia. The diversity of local goat breed in Ethiopia, availability of communal grazing land, intervention of government and NGO, as well as nutritional and medicinal values of goat milk drinking is the opportunities of production.

INTRODUCTION

Goat population of Ethiopia ranks high both in Africa continent and the globe in general (FAOSTAT 2014). The number of goats reported in the country is estimated to be about 52.5 million. Out of these total goats, 70% are females and about 30% are male and indigenous breeds accounting for 99.97% of the total. Goats are important

component of livestock industry having adaptability to harsh climates which make them suitable for landless and marginal farmers. Goat production is an integral component of the existing farming systems by providing multifunctional roles to its owners especially for poor pastoral communities, because they have a unique ability to adapt and maintain themselves in severe climates or habitats. Most smallholder farmers and pastoralists in Ethiopia keep few to large number of goats for food (meat, milk), income, dung, wool, and skin production, as well as to fulfill numerous cultural and religious roles. Other than religious and cultural values, they are used as a source of risk mitigation during agricultural failures, property security, and financial savings. In Ethiopia, goat is maintained fewer than two production systems namely mixed and pastoral and agro pastoral production systems. Feed and water shortage, disease, predators, market access and information shortage are the main constraints of goat and mil production in Ethiopia. Community-based goat improvement program with full participation of the beneficiaries and because goat as are highly adaptive to harsh environment in pastoral areas are great opportunities of goat production [1].

LITERATURE REVIEW

Goat production system in Ethiopia

In Ethiopia, there are two production systems of goat, namely mixed and pastoral and agro pastoral production systems. In Ethiopia, various factors could be considered to categorize small ruminant production systems like degree of integration with crop production, contribution to livelihood, level of input and intensity of production, agro-ecology, and length of growing period and relation to land and type of commodity to be produced. In the country goat are kept under traditional extensive systems and raised in two major production systems: Mixed crop-livestock and pastoral/agro-pastoral production systems.

Mixed crop-livestock production system

This system is generally found in areas where the altitude ranges between 1500 and 3000 m.a.s.l., and has adequate annual rain fall. Goats are managed in low-input, extensive grazing systems based on communal lands and native pastures natural pasture, fallow land, crop residues and other non-conventional feeds were the main feed resources. Grazing/browsing management that goats are under controlled feeding and close supervision in wet season by herders, and tethered for the purpose of avoiding crop and vegetation damage, saving labor and protecting from predators. Rivers are the most important sources of water during dry and wet seasons and provide nighttime shelter for goat throughout the year to protect them from predators reported that rivers as the most important sources of water during dry and wet seasons. In dry season water shortage has occurred less than 1 month and goat watered at home, the reason was kids are not able to move long distance with an adult [2-4].

Pastoralist and agro-pastoralists production system

Under Ethiopian pastoralist and agro pastoralist production system found below 1500 m.a.s.l. and where the annual precipitation is less than 500 mm. in this system Livestock are maintained as a principal activity Reproductive and Growth Performance of Goat in and rangeland is the main land resource. In pastoral and agro-pastoral areas sheep and goats are important components of the farming system, which benefit small holder farmers in generating cash income as well as milk despite their potential in the area, productivity of sheep and goat remained quite low. Therefore, it is crucial to systematically describe the production systems in order to plan and design appropriate research and development interventions that are relevant to the specific systems. Producers under this system have a permanent residence and their movement is limited in terms of both distances and duration. In the sub moist/moist lowlands, agro pastoralism is the main mode of production. Crop and livestock

production are both important activities. They are browsers and highly selective feeders-a strategy that enables them to thrive and produce even when feed resources, except bushes and shrubs, appear to be non-existent. This characteristic is especially desirable in fragile environments [5,6].

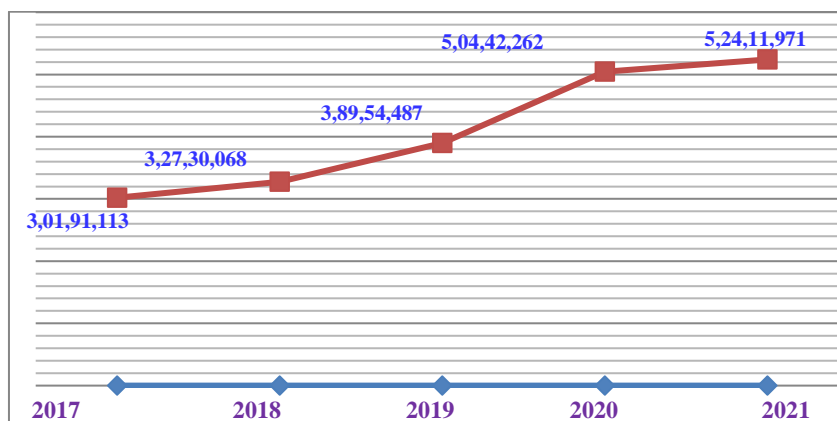
Purpose of keeping goats

Goats are mainly maintained for fulfilling multiple roles, ranging from multicultural purpose (such as dowry and slaughtering different color goats for different ceremonial activities), to providing meat, milk and manure in Ethiopia. The primary reason for rearing goats among owners in the three districts was for income generation (immediate cash earning). Milk production was the second purpose of goat rearing. The Ethiopia communities' used small ruminants as wealthy accommodation (using goats as saving capital) and in various social circumstances (to confer social identity and status; as well as ceremonial uses [7-9].

Indigenous goat breeds population

According to Ethiopian central statistics annual livestock estimation date shows, the number of indigenous goat population increasing from time to time. The total number of indigenous goat in the estimation years of (2017-31,191,113), (2018-32,730,068), (2019-38,954,487), (2020-50,442,262) and (2021-52,411,971), respectively. The increasing number of indigenous goat population is indicate that the available opportunities to improve goat production as well as its products such as, meat and milk production to maximize the economic benefits from goat resource for families and country. The incremental progress of indigenous goat population of Ethiopia from 2017 to 2021 is graphically, showed in below Figure 1.

Figure 1. Indigenous goat breed, (CSA, 2017-2021).

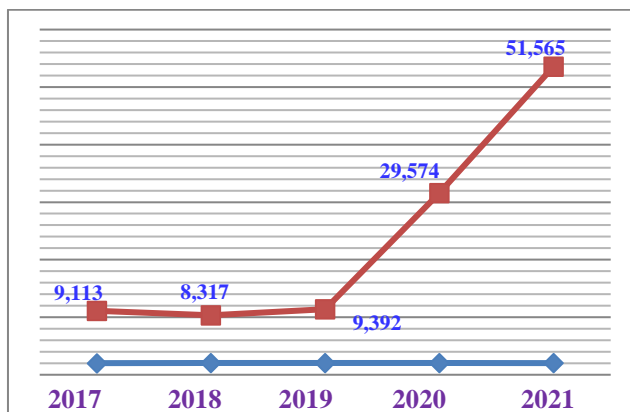


Hybrid and exotic goat breed population

According to Ethiopian central statistics annual livestock estimation date shows that the number of Hybrid goats population increasing from year to year. The total number of Hybrid goats in the estimation years of (2017-9,113), (2018-8,317), (2019-9,392), (2020-29,574) and (2021-51,565), respectively [10-15].

The increasing number of Hybrid goat population is indicate that the available option to improve goat production productivity as well as its products such as, meat and milk production to maximize the economic benefits from goat resource for families and country. The incremental progress of indigenous goat population of Ethiopia from 2017 to 2021 is graphically, showed in below Figure 2.

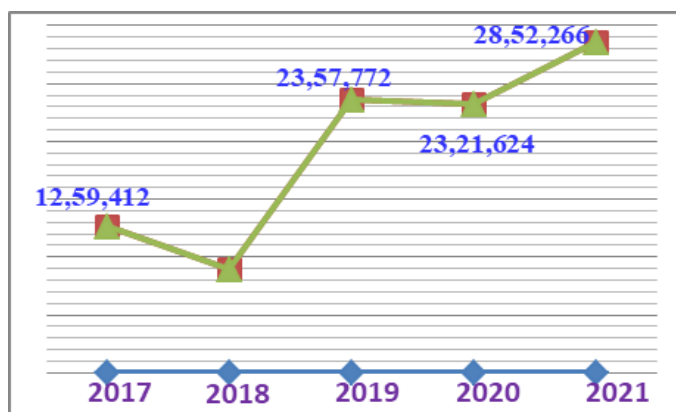
Figure 2. Exotic and hybrid goat (CSA, 2017-2021).



Indigenous dairy goat population

Ethiopian central statistics annual livestock estimation survey date indicated that the number of indigenous dairy goat population increasing from year to year. The total number of indigenous dairy goat in the estimation years of (2017-9,113), (2018-8,317), (2019-9,392), (2020-29,574) and (2021-51,565), respectively. The increasing number of indigenous dairy goat population is indicate that the available option to improve goat production productivity as well as its product such as, meat and milk production and productivity through improvement to maximize the economic benefits from goat resource for families and country [16]. The incremental progress of indigenous dairy goat population of Ethiopia from 2017-2021 is graphically, showed in below Figure 3.

Figure 3. Indigenous dairy goat, (CSA, 2017-2021).



DISCUSSION

Daily milk yield and lactation length of indigenous goat

Although in Ethiopia no specialized dairy goat that rearing for the purpose of milk production, there is milk production from indigenous goat for family consumption in different parts of the country especially in arid and semi-arid areas. Despite the large number of goats and their contributions to the livelihood and the national economy, goat productivity in Ethiopia is low due to different factors. According to different scholars indicated that Ethiopia, goat have different milk yield performance/day and lactation length on station. Arsi-bale goat breeds milk yield/day

0.21 kg and 86 day of lactation length whereas; Abergele goat breeds milk yield/day 0.46 kg and 62.5 days of lactation length. The Afar goats breed milk yield/day 0.28 kg and 84 day of lactation length. The Begait goat breeds milk yield/day 0.63 kg and 61.5 day of lactation length. Also Begait goat breeds milk yield/day 0.55 kg and 111 day of lactation length and 0.75 kg and 101 kg. The Borana and Borana Somali goat breed milk yield/day 0.45 and 0.36 kg with 84 lection length on the station. Whereas, the Somali goat types milk yield/day 0.84 kg On-station. The variation between breeds indicates a higher probability of enhancing milk production through phenotypic and marker-assisted selection [17-20].

Goat milk consumption in Ethiopia

Even though, milk production and productivity of Ethiopian indigenous goat breed is poor, the communities in Ethiopia, especially those who are living in pastoralist and agro pastoralist and people in arid and semiarid areas used consuming goat milk. In Ethiopia, about 16.7% of milk consumed is contributed from goat production. Although some community parts of Ethiopia consume goat milk, the majority of the communities in the country are not consuming goat milk and milk products. The consumption of goat milk in Ethiopia is affected by different factors such as, cultural attitude of the community to ward consume goat milk and milk products. Poor productivity of indigenous goat of milk production and lack of awareness of the communities to consume milk of goat also the other factor that affects the consumption [21-23].

Constraints of goat milk production and consumption

The primary constraints of goat production were disease, feed shortage and lack of superior genotype in order. Disease problem may have resulted from climatic condition, poor veterinary and limited extension service. Disease and feed shortage were the constraint of goat production as reported by in different places of Ethiopia. Socio-cultural, communities' awareness and low productivity of indigenous goat are also the constraints of milk consumption Ethiopia [24-27].

Opportunities of goat milk production

The diversity and huge number of indigenous goat breeds in Ethiopia that distributed in different agro-ecology is one of the opportunities toward improving the production and productivity of goat milk. Enough grazing (communal as well as individual) land that was not utilized for growing food crops is the opportunities of goat production in Ethiopia. The Modest interventions on the existing flock impediments, such as minimizing flock loss through diseases and parasites control and proper feeding during dry seasons could potentially boost the flock performances. Goat production can significantly benefit the owners or producers because goat as are highly adaptive to harsh environment in pastoral areas. At federal government level, there is pastoral standing committee which works on improving life pastoral communities. There are also many Non-Governmental Organizations (NGO) that are working on improving living and livelihood through improving the production and productivity of their animals. Government is also working to solve the challenges. The nutritional and medicinal values source of goat milk makes preferable to consume more goat milk than cow milk [28-31].

CONCLUSION

Ethiopia has ranking in the number of goat population in Africa. Despite of, ranking the country does not exploit more profit from its goat resource, because of different constraint factors. Goat has the ability to survive in harsh environments, different agro-ecologies and perform more meat and milk production if the management is improved. Goat milk consuming affected due to socio-cultural, lack of awareness of communities to ward drinking of goat milk and low productivity of indigenous goat factors. Feed and water shortage, lack of improvement goat

indigenous goat breeds and diseases are mentioned as the factors negatively affect goat and goat milk production in the country. Availability of communal grazing land, different breeds of local goat resource in the country and the intervention of government and different NGOs toward the improvement of goat and goat milk production could mentioned as opportunities of goat production in Ethiopia.

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