

Beef Cattle Production Systems, Marketing and Constraints in Ethiopia

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Abstract

This review studies the beef cattle production systems, marketing and constraints with the aim of delivering summarized and the most important information for the producers. The agricultural sector plays an important role in the overall development of the economy of Ethiopia. The sector plays a major role in the national economy and it is the source of income and employment for the rural population. The annual contribution of ruminants to meat production in Ethiopia is estimated at over 3.2 million tones, representing over 72% of the total meat production. Cattle meat accounts for over 70% of the total red meat production and over 50% of the total meat output in Sub-Saharan Africa. Currently in Ethiopia there are 409,869 beef cattle and last year 69,830 beef cattle were slaughtered for consumption and export purpose. There are different beef cattle production systems in Ethiopia. The most common ones are traditional, by-product based fattening and Hararghe fattening system. In Ethiopia, Farmers that live in rural area sell livestock and livestock products to cover household cash expenses and to purchase crop inputs to their families. Live animals are marketed through traditional marketing routes developed over the years which were based on visual assumption on body condition of animals. Livestock pass from primary markets (collection centers) to secondary and tertiary markets to reach the consumer. Cross-border exports are also common in the southeastern, southern and northwestern parts of the country. Marketing of livestock products such as milk, meat, butter, egg, hide and skin is also important to households. In Ethiopia the existing livestock and their products marketing system are generally under developed. The low level of facilities is not conducive to efficient marketing. Transportation is on-hoof, which leads to considerable weight loss of animals as well as physical injuries and health. Trucking is very limited and used only during holidays and festivals to move finished cattle and small stock to city centers and exportable animals to ports. The major bottleneck for beef cattle production in Ethiopian farmers was feed shortage, diseases and parasites, drought, shortage of grazing land, market access, veterinary services, extension services and other infrastructure. Depending on this review; producers improve beef production system through improved feeding and health management systems, producer connect their production system with market orientation and also farmer make their beef production by using young cattle to get high income from the customer.

Keywords: beef cattle, marketing, production, constraints, Ethiopia

1. Introduction

1.1. Background

The agricultural sector plays an important role in the overall development of the economy of Ethiopia. The sector plays a major role in the national economy and it is the source of income and employment for the rural population (Negussie, 2001). The sector accounts for 46% of the gross domestic product (GDP) and livestock contributes 30% to the agricultural GDP and 19% to the export earnings (Azage and Alemu, 1998). Meat production and consumption is important in the Ethiopian economy and ruminants contribute over 3.2 million tons, representing over 72% of the total meat production (Nigusse, 2001).

The annual contribution of ruminants to meat production in Ethiopia is estimated at over 3.2 million tones, representing over 72% of the total meat production. Cattle meat accounts for over 70% of the total red meat production and over 50% of the total meat output in Sub-Saharan Africa (EARO, 1999). Currently in Ethiopia there are 409,869 beef cattle and last year 69,830 beef cattle were slaughtered for consumption and export purpose (CSA, 2016).

There are different beef cattle production systems in Ethiopia. According to MOA (1996) report, in Ethiopia there are three different types of beef fattening systems. Those are traditional, by-product based fattening and Hararghe fattening system. Each of the production systems had their own characteristics and had positive and negative impacts.

Formally, Ethiopia exports approximately 200,000 livestock annually (Yacob and Catley, 2010). This is significantly higher than the annual official exports of cattle (12,934 head), sheep (13,554 head) and goats (1,247 head) between 1998 and 2003 (Asefaw and Mohammad, 2007). In Ethiopia, recent studies estimated that annual illegal flow of livestock through boundaries reaches as high as 320,000 cattle (Workneh, 2006). This being the potential for export, the actual performance has remained very low, leaving most (55 to 85%) of the projected livestock off take for the unofficial cross-border export and the domestic market. These become barriers to understand and analyze the full range of activities required to bring a product (e.g. live animals, meat, milk, eggs, leather, fibre, manure) to final consumers passing through the different phases of production, marketing,

processing and delivery to the consumers.

In Ethiopia the major animal sources for the export abattoirs are smallholders in the lowlands, the production systems of which have not been properly characterized. However, measurable stride towards that end has not been made. The constraints and sustainability of the meat export marketing system and potential expansions in relation to sustainable resource utilization and degree of competition with domestic demand have not been investigated in Ethiopia. NEPAD-CAADP (2005) indicated that generally, East African livestock trade is characterized by informal trade between neighboring countries, and the inflow stocks are used either for domestic consumption (Kenya and Uganda), or for re-export and domestic consumption (Somalia) or re-export alone (Djibouti). Informal trade seriously affects Ethiopian economy largely. A large number of livestock and livestock products valued at 917 billion Ethiopian Birr annually are lost via the flow into the neighboring countries informally. Data from Livestock Marketing Authority (LMA) (2001) revealed that an estimated 325,800 cattle, 1,150,000 sheep and goats, 300,000 skins and 150,000 hides go through informal cross-border trade from Ethiopia to other countries.

According to Firew (2007) funding the major constraints for beef cattle production in Ethiopian farmers was feed shortage, diseases and parasites, drought, shortage of grazing land, market access, veterinary services, extension services and other infrastructure. There are a number of challenges and negative impacts which limits profitability of beef cattle production systems in Ethiopia. Therefore, a comprehensive literature review on the current status of beef cattle production system in the country seems to be appealing. There is a need for reviewing the production system, marketing and constraints of beef cattle production.

1.2. Objective

1.2.1 General objective

- To review on beef production system, marketing and constraints in Ethiopia

1.2.2 Specific objectives

- ✚ To review on beef production systems in Ethiopia
- ✚ To review on beef marketing systems in Ethiopia
- ✚ To review on constraints of beef production in Ethiopia

2. Reviews

2.1 Beef production systems in Ethiopia

There are different beef cattle production systems in Ethiopia. According to MOA (1996) report, in Ethiopia there are three different types of beef fattening systems. Those are traditional, by-product based fattening and Hararghe fattening system.

2.1.1. Traditional systems

In traditional beef fattening systems, oxen are usually sold after the end of plowing season when they are in poor body condition. Meat yields obtained from this type of oxen are low, the beef is of poor meat quality and the farmer returns are often inadequate to buy a replacement ox in this type of production system. This is obvious scope to improve this traditional and inefficient system through strategic feeding of good quality forage to fatten animals before they are sold, or to buy and fatten animals sold by others. In the low lands, where pastoralists do not use cattle for draft, cattle are sometimes fattened on natural pasture in good seasons. In average or poor seasons, low land cattle are rarely fattened and often have to be sold in poor condition at low prices.

Cattle are kept mainly for draft power, milk and manure production and are usually only sold when they are too old for these purposes, or drought or cash shortages force people to sell. Oxen are usually sold after the ploughing season while they are in poor body condition. Meat yields are low, the beef is of poor quality and returns to farmers are often inadequate even to buy a replacement ox. Cattle in the lowlands are rarely fattened and are often sold in poor body condition and at low prices. In the lowland, where pastoralists do not use cattle for draft and sometimes fattened on natural pasture in good seasons, however much body weight is lost during long distance trekking to Addis Ababa and the animals may reach market in little better condition than culled highland stock. In average or poor seasons, lowland cattle are rarely fattened and often have to be sold in poor condition at low prices. These traditional systems are very inefficient because they do not use the proven opportunity to add weight and condition to cull animals before slaughter (MOA, 2004).

Grass fattening is a technique which is economical in material and human resources, but which generally implies a certain loss of energy by the animals when they move from one place to another to change the pasture. On the other hand, selective grazing only allows the exploitation of a fraction of the available grass. Furthermore daily-live weight gains are often low, which takes on some significance when the forage products have true economic cost and, in particular, when they are cultivated. Finally, this technique is subject to seasonal fluctuations of the forage production and retains a certain expensive character for this reason (Belete A, 2006).

2.1.2. By-product-Based fattening

This is a type of fattening practices around urban and per-urban area in which the agro-industrial by-product

such as molasses, cereal milling by-product and oilseed meals is the main sources of feed for fattening. In this system grazing land is completely unavailable and crop-residues are only significant roughage source for beef cattle.

Commercial feedlot is a confined yard area with watering and feeding facilities where livestock are completely handled or mechanically fed for the purpose of production. This type of production system gets their feed from agro-industrial by-product from urban areas. Number of heads that would fatten at a cycle was variable across the farms depending on the capacity of the farms. From that reason, commercial feedlots finished relatively large number of animals at a time than small scale fattening (Tsegay T and Mengistu U, 2013).

According to Belete A (2006) funding around Gondar town the type of beef fattening was intensive type of fattening in such a way that the beef producers feed their beef cattle the cotton seed cake and the hulls of pea and bean as well as oil seed cake so that the finish the cattle in short period of time and also get premium process from the sale. The time for fattening was time bounded and was adjusted with their regular buyers.

2.1.3. The Hararghe fattening system

In this system peasants buy young oxen from the adjacent lowlands pastoral areas, use them for several years, and then fatten and sell them before they become old and emaciated. The systems are largely based on cut-and carry feeding of individual tethered animals. Grazing is rare because they put in ranches. Few concentrate are used to increase meat production.

According to () funding farmers buy young oxen from the adjacent low land pastoral areas, use them for ploughing for several years and then fatten and sell them before they become old and emaciated. This system is largely based on cut-and-carry (zero grazing) feeding of individually tethered animals in which free grazing is rare. Intensive feeding of the available feed supply to young oxen they are using for draught power could best describe this fattening practice. The feed types for this are entirely obtained from crop production especially from maize and sorghum.

Grazing systems of cattle in the study area varies with season; during dry season free grazing (11.7%), herded (45.7%), tether feeding (41.4%) and zero grazing (1.4%) were practiced, while during wet season free grazing (4.2%), herded (5.8%), tethered (88.3%), zero grazing (1.7%) were practiced. Free grazing and herded grazing were higher in dry than wet season, on the contrary tethered grazing was practiced at higher rate in wet season than dry season because most of the land were free from crop production in dry season than wet season; this way the farmers protect their cattle from destructing other farmers cropland. The major reason tethered feeding practiced in the area to a large extent was small land holding. The predominant animal feed in dry season was Stover and crop residues followed by natural grazing. Cut and carry system was practiced for feeding of the grass, residue, Stover and/or weed (Estefanos T, 2014).

According to Firew (2007) funding the major constraints for beef cattle production in Ethiopian farmers were feed shortage, diseases and parasites, drought, shortage of grazing land, market access, veterinary services, extension services and other infrastructure. There are a number of challenges that limiting the profitability of beef cattle production systems in Ethiopia. Therefore, an exhaustive literature review on the current status of beef cattle production system in the country seems to be appealing. There is a need for reviewing the production system, marketing and constraints of beef cattle production. Moreover, information's on either negative impact or the success stories of beef cattle production including its marketing and constraints could be used by beneficiaries to increase income level of producers.

2.2 Beef cattle marketing systems in Ethiopia

Marketing involves all activities involved in the production and flow of goods and services from point of production to hands of consumers. Marketing includes all activities of exchange conducted by producers and middlemen in commerce for the purpose of satisfying consumer demand. All business activities facilitating the exchange of goods and service are included in marketing (Lemma et al., 2005).

In Ethiopia, Farmers that live in rural area sell livestock and livestock products to cover household cash expenses and to purchase crop inputs to their families. Live animals are marketed through traditional marketing routes developed over the years which were based on visual assumption on body condition of animals. Livestock pass from primary markets (collection centers) to secondary and tertiary markets to reach the consumer. Cross-border exports are also common in the southeastern, southern and northwestern parts of the country. Marketing of livestock products such as milk, butter, egg, hide and skin is also important to households (Azage et al., 2010).

According to Belete A (2006) funding in Fogera district, farmers buy oxen during the dry season especially from January to March for traction purpose. After they finished soil tillage (dry period activity) they fed either by cut grass from the privately owned pasture two to three times in a season or crop residues such as chick pea straw, lentil straw, rice straw, bean straw, field pea straw and finger millet straw. Beef Producers preferred the period from May to September so as to gain premium prices. Market places for beef animals were Bahir dar and Woreta livestock markets. Beef cattle at Woreta market do not fetch good price because the demand for beef in Woreta is lower than Bahir dar. This is due to low purchasing power of the consumers in

Fogera itself.

In Ethiopia the existing livestock and their products marketing system are generally under developed. The low level of facilities is not conducive to efficient marketing. Transportation is on-hoof, which leads to considerable weight loss of animals as well as physical injuries and health. Trucking is very limited and used only during holidays and festivals to move finished cattle and small stock to city centers and exportable animals to ports. Poor infrastructure development hampers the flow of trade stock from pastoral areas to consumption sites (Belete A, 2006).

According to Belachew and Hargreaves (2005) funding beef cattle marketing in Ethiopia is not characterized by small-scale business with very few assets, personalized trading (mostly with known people), and trading over very short distances from the producer. The implication is that animals in Ethiopia have to be traded several times in order to reach the large and distant terminal trade markets. This has the tendency of increasing handling costs, thereby raising retail and suppressing farm gate prices. Markets are dispersed with remote distances lacking price information. Ayele et al. (2003) reported that the number of animals offered in a market is usually greater than the number demanded, so there is usually excess supply.

2.3 constraints of beef cattle production in Ethiopia

The major constraints for cattle production in Ethiopian farmers was feed shortage, diseases and parasites, drought, shortage of grazing land, market access, veterinary services, extension services and other infrastructure. Among those constraints inadequate supply of quality feed, drought, diseases and parasites were the main reasons for low productivity of the indigenous cattle breeds and are the major factors limiting cattle productivity in Ethiopia (Firew, 2007).

2.3.1. Shortage of grazing land

Grazing on natural pasture is the most common practice for all species of animals in the Borena rangeland in particular and in Ethiopia general. According to Daniel T (2008) funding grazing land is not enough for the production of beef cattle. According to Richard (1990) funding the Borena grazing management system essentially there is an area of grazing which is defined in terms of right of access and which are customarily used by a group of villages. According to Sora (2006) rangeland of Borena has been severely degraded. The grazing area is shrinking from year to year. Bush encroachment is one of the key problems, which has invaded over 50% of Borena rangelands. Over grazing is a common feature in the grazing area and depletion of topsoil has become apparent.

2.3.2. Shortage of capital

According to Belete et al. (2010) funding shortage of capital was the first constraint to cattle fattening in Amhara region of Ethiopia. Credit provision was a crucial problem to animal fatteners in the region which might be due to sources of financing, generally involving subsidized, low interest credit; tend not to allow small holders to borrow money unless they are organized in groups or through cooperative arrangements (Azage et al., 2006). Also, lack of initial capital is the first ranked constraints whereas lack of credit provision was the main challenges in Central Southern Region of Ethiopia (Shewangizaw W et al., 2014).

Smallholder farmers need support of working capital if they are to be engaged in cattle fattening investment program. Farmers who are willing to involve in beef cattle fattening program are not able to purchase animals due to lack of capital. Farmers found in the Fogera plain (Wagatera, Kidist Hana, Shina, Shaga and Nabega) who have better pasturelands do not get any credit service from any institution around the living area. Microfinance institutions need to review their lending programs to ensure farmers interested in livestock enterprises benefit from their services. Formation of farmers' cooperatives could also be one strategy to pool resources together to have a better voice in accessing credit and such an option need to be explored in the future (Belete A et al., 2010).

2.3.3 Weak extension services

Cattle fattening is based on grazing on natural pasture and crop residues and as such intensive cattle fattening is not practiced in Fogera area. The best way to help farmers understand and accept new concepts is to demonstrate to them on small scale in their own environment. Farmers in this area do not practice improved fattening due to lack of knowledge. Since feed scarcity is also the main problem in Fogera, stronger extension services and trainings on forage production (especially backyard forage production) is vital. Extension activities should focus on feed resource management such as communal and private grazing land improvements (clearing unpalatable species and weeds, e.g. amykila), rotational grazing and fodder conservation system (haymaking), irrigation and over sowing of the improved forage species. Training of farmers on feeding regimes and marketing information through extension is vital for beef cattle fattening development program in the woreda (Belete A et al., 2010).

2.3.4. Feed shortage

The main available feed resources for meat production in Fogera are the communal uncontrolled free and private grazing lands but these feed resources were managed in a traditional ways that means all the species of the livestock were allocated to graze these grazing lands together which further was causing overgrazing problems.

During summer, the pastures become muddy and the animals could not be kept on such pastures especially in the Fogera plains. During the dry season crop residues are also among the main feed resources in the study area. In Fogera the conversion of grazing lands in to crop production seems the main reason for scarcity of feed resources. During summer the farmers found in the Fogera plains faced sever feed scarcity because their pastures in these areas were flooded with water coming from Gumara and Rib rivers (Belete Anteneh, 2006).

According to Daniel T (2008) funding at January and February critical feed shortage occurs in pastoral area and the commonly held view is that traditional pastoral societies are increasingly distressed at winter which is the dry period at Ethiopia and as result feed resource decrease both in amount and quality. According to Getnet (2003) reported that feed quality and quantity is the main limitation to animal production in Ethiopia due to the expansion of population.

2.3.5. Water shortage

At dry period there are water shortage problem with poor water quality which results water born diseases for beef cattle. Some of the respondents indicated that there is water scarcity both from the wells and ponds mainly during the dry periods, and the others reported that there is lack of water resource in the area. In relation with the available stock of animals, the ponds are easily accessed, but the wells require a large input of labor to lift water to the surface but there is lack of man power (Daniel T, 2008).

2.3.6. Health problem

Efficient and reliable animal health services constitute an essential prerequisite to livestock development in Borena of pastoral area. Most of the respondents (41.3%) at this area reports that both the government (modern) and traditional medications they use for their beef cattle treatment. The others (38.7%) uses the government service only, (8%) uses traditional medications and (12%) uses private veterinarians and NGO's services (Daniel T, 2008).

According to Belete A et al. (2010) funding the most prevalent diseases in the Fogera were trypanosomiasis and internal parasites (schistosomiasis, fasciolosis (*F. hepatica*) and lungworm). According to Muluaem (1998), the prevalence of faciolosis is very high in Fogera (84.2%), Dera (83.0%) and Libikemkem (82.2%) districts that boarder Lake Tana. The peak infestation period for these diseases is from September to October. The main ectoparasite is tick, especially *Ambliyoma* species, which causes babesiosis. Mange mites are also important ecto-parasites that affect cattle production. Regarding the occurrence of diseases, 87% of respondents agreed that the major diseases such as trypanosomiasis and faciolosis occur during the dry season from September to May. Trypanosomiasis, which is prevalent in 50% of the surveyed kebeles, seriously affects meat production.

3. Conclusion

The agricultural sector plays an important role in the overall development of the economy of Ethiopia. The sector plays a major role in the national economy and it is the source of income and employment for the rural population. The annual contribution of ruminants to meat production in Ethiopia is estimated at over 3.2 million tones, representing over 72% of the total meat production. Cattle meat accounts for over 70% of the total red meat production and over 50% of the total meat output in Sub-Saharan Africa. Currently in Ethiopia there are 409,869 beef cattle and last year 69,830 beef cattle were slaughtered for consumption and export purpose. There are different beef cattle production systems in Ethiopia. The most common known production systems are traditional, by-product based fattening and Hararghe fattening system. In Ethiopia, Farmers that live in rural area sell livestock and livestock products to cover household cash expenses and to purchase crop inputs to their families. Live animals are marketed through traditional marketing routes developed over the years which were based on visual assumption on body condition of animals. Livestock pass from primary markets (collection centers) to secondary and tertiary markets to reach the consumer. Cross-border exports are also common in the southeastern, southern and northwestern parts of the country. Marketing of livestock products such as milk, butter, egg, hide and skin is also important to households. The major constraints for cattle production in Ethiopian farmers was feed shortage, diseases and parasites, drought, shortage of grazing land, market access, veterinary services, extension services and other infrastructure. Among those constraints inadequate supply of quality feed, drought, diseases and parasites were the main reasons for low productivity of the indigenous cattle breeds and are the major factors limiting cattle productivity in Ethiopia.

4. Recommendation

- Producers improve beef production system through improved feeding and health management systems
- Producer connect their production system with market orientation
- Farmer make their beef production by using young cattle to get high income from the customer

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