



Cattle Fattening, Constraints and Marketing System in North Western Ethiopia

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ABSTRACT

A study was conducted from January to May, 2015 with the objective to assess cattle fattening and marketing system in north western Ethiopia of north Gondar zone by interviewing 120 cattle fattener households selected purposively. 40% of household source of income were livestock production. Half of the respondents selecting cattles for fattening were red coat color and 80% of them were castrating male animals before the commencement of fattening. Fattening length and age for oxen were 3 months and 7 years old, respectively. From the total of respondents the major sources of feed used for cattle fattening were bean straw (26.67%), nug cake (23.33%), chick pea (16.67%), wheat bran (13.33%), barely straw (10%) and teff straw and hay (3.33%). Decisions on end of cattle fattening period were considering on rate of live weight change (56.67%). Market of fattened animals was during main holidays. The price was highest from February to June, whereas low from September to January. Marketing of beef cattle practiced by bargaining and farmers, cattle traders, whole sales and retailers were involved. The maximum and minimum price of fattened cattle in the dry and wet season was 20000 ETB, 10000 ETB and 13000 ETB, 8000 ETB, respectively. Lack of capital (40%) were the main constraint to begin cattle fattening and other constraints were shortage of feed and water, insufficient land, occurrence of disease and lack of awareness in order of importance 26.67%, 16.67%, 10%, 6.67%, respectively. Therefore, from the present study, it can be conclude that cattle fattening in north western Ethiopia of north Gondar zone is one of the potential strategy to improve the livelihood of the family and had a good potential of market flow.

Key words: Cattle fattening, Constraint, Marketing

INTRODUCTION

Global production of beef and veal is forecast at 59.0 million tons, up modestly from the previous year (USDA, 2016). World meat production is anticipated to record a modest expansion in 2015 to 318.7 million tonnes, 1.3 percent, or 4 million tonnes, above 2014 (FAO, 2015). And also growth in meat trade is projected to decelerate compared to the past decade. Globally almost 11% of meat output will be traded. Meat prices reached record levels in 2014, driven mainly by an increasing beef price (OECD-FAO, 2015). Ethiopia is endowed with largest livestock production, which ranks first in Africa and tenth in the world, it has much to gain from the growing global markets for livestock products (CSA, 2013). Livestock is an integral part of Ethiopia's agricultural sector and plays a vital role in the national economy. At present, livestock contributes about 20% of the Growth Domestic Product (GDP), supporting the livelihoods of 70% of the population and the sub sector also account 11% of annual export earnings (SPS-LMM, 2010). According to the report of BoFED (2004), the agricultural sector in the Amahara region contributed nearly 64% to the regional GDP between the periods 1994 to 2001. It is also known that Ethiopia is characterized by a high livestock population with low productivity of animal products, in terms of conventional products such as meat and milk. Despite the large number of livestock, there has been a decline in national and per capita production of livestock, livestock products, export earnings from livestock and per capita consumption of food from livestock (CSA, 2013). Among exports of livestock products, skins and hides have the largest share of exports followed by live animals (MEDAC, 1998; FAO, 1999). Crop mixed farming system is the predominant farming systems in the highlands of Ethiopia. They inhabit nearly 90% of the human population and 70% of the livestock population of the country (Mohamed-Saleem and Abate, 1995). Due to the rising of population growth, lack of land pushing many farmers either to intensify the cropping system or diversify the system using other integrated activities.

Livestock and meat products have been among the fastest growing components of the global agriculture and food industry. This growth reflects not only increasing demand for meat as global incomes have risen, but also improved efficiencies in production, processing and transportation declining real feed prices (Morgan and Tallard, 2015). Global meat trade is forecast to expand at a moderate rate of 1.7 percent in 2015, to 31.2 million tones, a significant slowdown from the 3.1 percent registered last year (FAO, 2015). Meat production and consumption is important in the Ethiopian

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economy and ruminants contribute over 3.2 million tons, representing over 72% of the total meat production (Belete et al., 2010). Even if, the Cattle population in the majority of tropical country is higher, there is a strong unsatisfied demand, due to the increment of population growth in the majority of tropical countries, for milk and meat (FAO, 2015). However, the actual consumption is seriously restricted by the low purchasing power of the majority of the consumers, for whom retail prices are already too high. At the other extreme, the producer is in a difficult position and the course taken, notably for beef, does not allow to envisage the introduction of more intensive techniques, the only ones which would enable an increase in production when the limits of expansion of the pasture area are reached (Reag and Lipper, 2012).

In north Gondar there was estimated to have less supply of crop-residues, there may be mishandling and lack of awareness about crop-residue improvement (NGZARDO, 2014). As a result, utilization efficiency of the residues was low. Lack of proper selection of fattening cattle, fattening practice, lack of market information and also poor managements in relation to feeding system, healthcare, housing etc. reduced the performance of cattle fattening (NGZARDO, 2014). Hence, the producer may not get reasonable benefit from their fattening activity unless appropriate improvement strategies have to be introduced. In addition to this, detail studies on sources of feed available for cattle fattening, constraints and marketing system of cattle in the area was not further studied. Thus, on the basis of this background, the objective of this study was, to assessing the cattle fattening practices, constraints and marketing system of cattle fattening in north western Ethiopia of north Gondar zone.

MATERIAL AND METHOD

Description of the study area

The study was conducted in north western Ethiopia of north Gondar zone. The area is located at a distance of 737 km north of Addis Ababa. The area lies between an altitude of 12°35'60"N and longitude of 37°28' 20"E and has an elevation of 2300 masl. Gondar has a varied landscape, dominantly covered with ragged hills and plateau formations. The annual average temperature was 19.7^oc and its annual rainfall was 1772 mm. It could be categorized under winea dega climatic zone. The area is also classified mainly in to two seasons, the wet season, from June to September and the dry season from October to May.

Data collection and sampling techniques

Data to be collected were employed by using purposive sampling techniques. A total of 120 respondents were purposively selected. Both primary and secondary data was employed. The primary data were obtained through structured questionnaire and semi structured interview with the owner of cattle fattener. Secondary information also utilized from Gondar Woredas and zonal Agricultural and Rural Development Office (ARDO).

Statistical analysis

The data was subjected to statistical analysis using Statistical Package for Social Sciences (SPSS) software, version 16.0. Descriptive statistics such as frequency distribution and percentages were used.

RESULTS AND DISCUSSION

Socioeconomic description of households

Socioeconomic descriptions of households are presented in Table 1. From the total of respondents majority of the household heads in the study area were married and among them 80% of males were the responsible person on fattening activity. 66.67% of fattening participants were between the ages of 31-40 and 46.67% of respondents their educational level were completed high school. The major occupation of households in the study area was identified as livestock production, crop and livestock production and Trade, 40%, 26.67%, 23.33% respectively. The average age of the households involving on fattening practices were similar with that of Hossain et al. (2002) which was the average age of the farmers involving on fattening in a range from 27 to 40 years old.

Cattle fattening practice in the study area

Selection criteria of fattening cattle: Parameters of cattle selecting and castration for fattening purpose are indicated on figure 1. From the total of household respondents half of fatteners were select the red coat color (50%) cattle for fattening purpose and bulla (mixed color), white, black were 26.7%, 13.3%, 10% respectively. Castration of animals was also another criterion for fattening in the study area. Accordingly, 80% of the respondents castrate their animals' before fattening while the remaining 20% of the respondents were not recommending for castration. Majority of

the respondents were fatten only male cattle (83.33%), where as 16.67% respondents were kept both male and female animals in the study area. According to the finding of the present study one of the criteria's of fatteners to select animals before fattening were based on the animals coat color however, this criteria's were not agreed with that of the report of Belete et al. (2010) almost all traders do not take coat color as a criterion for selection of beef animals.

Table 1. Socioeconomic description of households in north Gondar zone Ethiopia, 2015

Variables	Respondents	%
Sex		
Male	96	80
Female	24	20
Age (year)		
20-30	36	30
31-40	80	66.67
Above	4	3.33
Educational level		
1-4	16	13.3
5-8 (elementary)	24	20
9-12 (secondary)	56	46.67
Above (higher education)	24	20
Source of income		
Livestock production	48	40
Crop and livestock production	32	26.67
Trade	28	23.3
Other	12	10

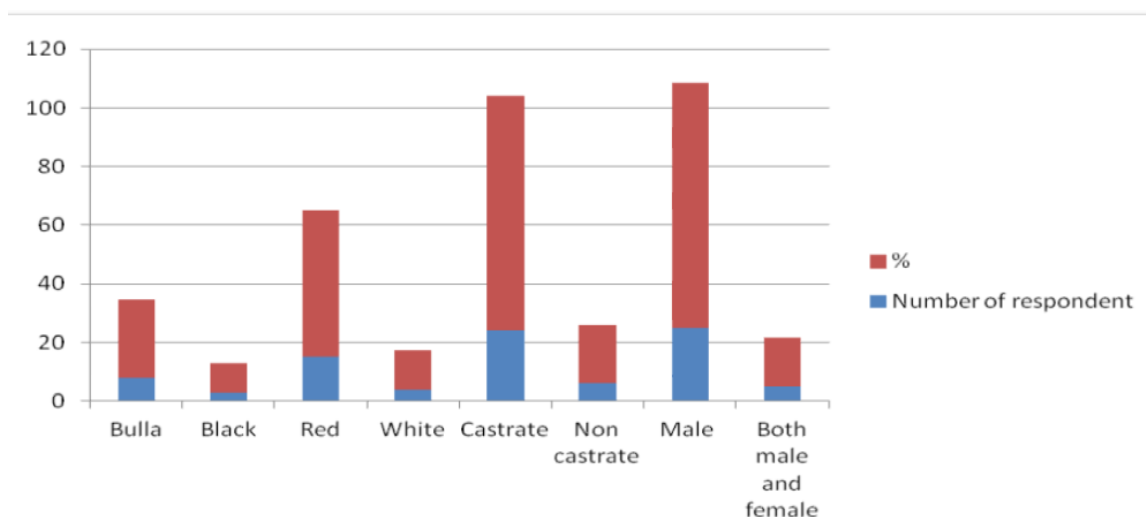


Figure 1. Parameters of cattle selecting and castration for fattening purpose in north Gondar zone Ethiopia, 2015

Age and duration of cattle fattening

Length of time and age of fattening cattle in the study area are indicated in Table 2. The fatteners in the study area select and fatten mature and much older animals (7-8 years old) (53.33%), the durations for fattening end was usually 3 months (83.33%), 3.5 months (13.33%) and Four months (3.33%) of the respondents. Duration of feeding was dependent on feeding method that the cattle being fattened with pure feedlot finished within three months of feeding length.

Cattle age of selection for fattening was similar with that of the report of Belete et al. (2010) which was smallholder farmers commonly fatten mature and therefore much older animals (five to seven years old) for short durations (usually three months). The present findings was also in agreement with that of the report of Takele and Habtamu (2009) and BoARD (2004) who reported that cattle feeders fed cattle usually for four months in southern and northern Ethiopia, respectively. This is also supported by the report of cattlemen's beef board and national cattlemen's beef association (2009) which was most beef cattle spend approximately four to six months in a feedlot just prior to harvest where they are fed a grain-based diet. However, this study was in contrast with that of Habtemariam (2000), farmers in east Ethiopia fed oxen for more than one year which was also significantly exceeds the average fattening length in southern parts of Ethiopia.

Sources of feeds and feeding system

Sources of feed for fattening cattle in Gondar town are indicated on Table 3. From the total of household respondents the feed sources which was used for fattening purpose were bean straw, nug cake, chick pea ,wheat bran, wheat straw and teff straw, 26.67%, 23.33%, 16.67%, 13.33%, 6.67% and 3.3% respectively. The present finding was similar with the report of Takele et al. (2009) in southern region and Belete et al. (2010) in Amhara region of Ethiopia. Major feed resources used as a basal diet for fattening cattle were crop residues. However, according to the report of Shapiro (2016), one of the challenges of cattle fattening were feed shortage such as poor quality of grazing lands, A need for greater knowledge on the use of crop residues and Poor availability of concentrates and feed supplements when needed.

Methods to decide finishing period of fattening cattle

Decisions on end of cattle fattening finishing period are indicated on Figure 2. From the total of respondents deciding finishing period of fattening cattle in the study area were based on considering rate of live weight change (56.67%), while 40% of them were anticipated current and future prices, and others by calculating feeding length (3.33%).The present study were in line with Shitahun (2009) ending of cattle finishing period was decided by considering live weight change of fattening cattle with visual observation based on their feed intake (84.97%) and by anticipating the current and future price (15.03%).

Table 2. Length of time and age of fattening cattle in north Gondar zone Ethiopia, 2015

Duration	Respondents	%
3 month	100	83.3
3.5 month	16	13.33
4 month	4	3.33
Total	120	100
Age of fattening cattle in year		
6 to7	32	26.67
7 to 8	64	53.33
Above	24	20
Total	120	100

Table 3. Sources of feed for fattening of indigenous breed cattle in north Gondar zone Ethiopia, 2015

Sources of Feed	Respondents	%
Bean straw	32	26.67
Wheat straw	8	6.67
Barely straw	12	10
Chick pea	20	16.67
Nug cake	28	23.33
Wheat bran	16	13.33
Teff straw and hay	4	3.33
Total	120	100

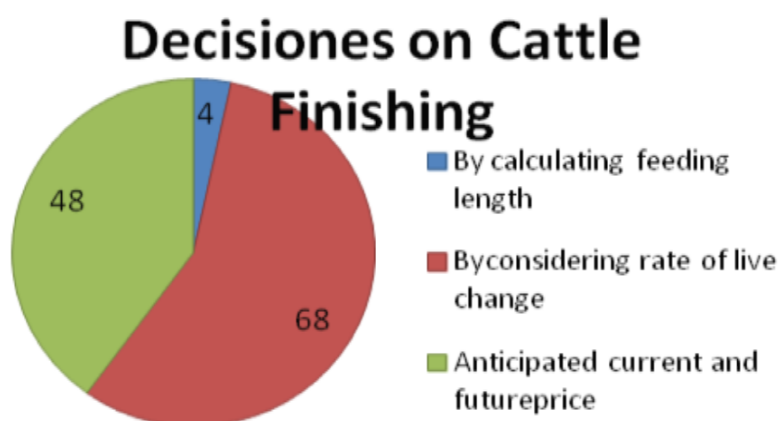


Figure 2. Decisions on end of cattle fattening finishing period in north Gondar zone Ethiopia, 2015

Season of cattle fattening and marketing

Results on season of cattle fattening and marketing in Gondar town are indicated on Figure 3. From the total of household respondents 60% were participated fattening at the time of holiday however, 40% of them were involved on the time of non holiday and 66.67% of cattle fattening were starting from mid February up to June, this may be due to the price of cattle for fattening is low in the market. In some extent cattle fattening activity was starting from September to January (33.33%), targeting to deliver fattened cattle for Meskel and Christmas. The price of beef cattle in Gondar town after fattening on average was 15000 ETB. The maximum and minimum price in the dry and wet season was 20000 ETB, 10000 ETB and 13000 ETB, 8000 ETB respectively.

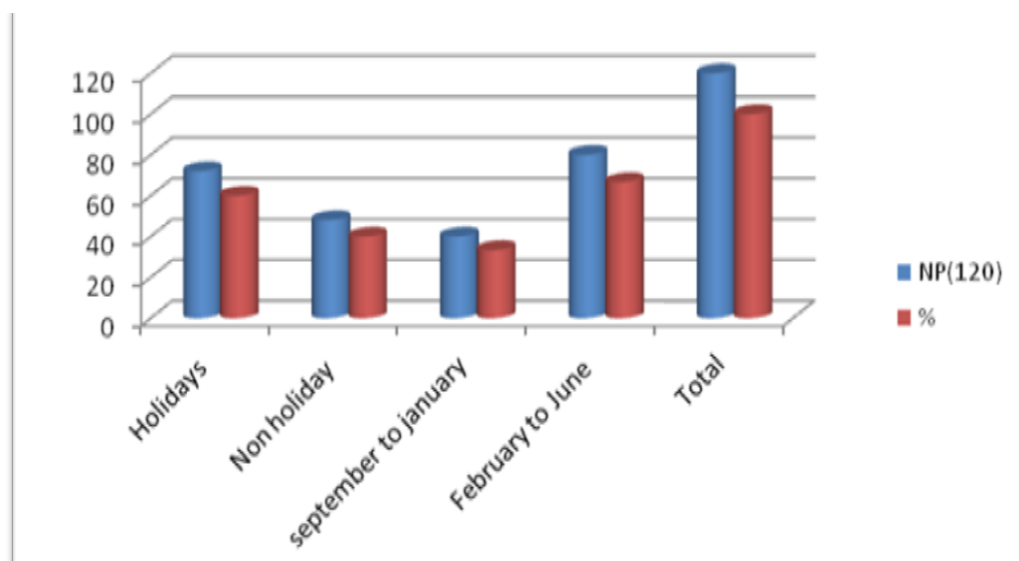


Figure 3. Seasons of cattle fattening and marketing in Gondar town in north Gondar zone Ethiopia, 2015

Season of cattle fattening were agreed with the reports of Takele et al. (2009) which was studied at Welaita, who reported that cattle fattening was a seasonal operation with a peak from June to September and this is governed by seasonality pattern of feed availability and main holidays. This low extent of cattle fattening activity for meskel and Christmas market was due to the presence of enough fresh grass feed, supply of fattened cattle is greater than the demand and decreased purchasing price of fattening cattle. It was also associated with low market demand for fattened cattle because of the custom of the local people preference towards consumption of fattened sheep and goats instead of fattened cattle during Christmas. Starting from July up to August, cattle fattening was totally absent in the study area. However, the market price of fattened cattle was in contrast with Belachew (2004) and Takele and Habtamu (2009) the market price of fattened cattle in northern parts of Ethiopia was highest from September to April. The reason for this might be due to the availability of the main holidays in September (meskel) and December (Christmas). Marketing system of fattening cattle was under developed due to the knowledge, performance of fattener and less attention given by livestock subsector. In addition to this Habtemariam (2009) also stated that the price of cattle lower during the dry season due to the shortage of feed and water.

According to the present study the fatteners sell their fattened cattle by visual estimation negotiation with customer in the study area. The price of fattening cattle depends on weight and age of the animals. Hence, fattening more closely resemble to fattening of culled cows, however, the fattener decide the end of finishing period of fattening cattle by considering rate of live weight change in the study area. However this was in agreement with the findings of Alemayehu (2003) who reported that marketing of livestock was not determined on the basis of weight and which was unfavorable marketing system and discourages price on the producers.

Marketing channels of beef cattle

The channels of beef cattle marketing found in the study area are shown in Figure 1. Before and after the Holidays, animals are taken to local market for selling, on market days. Buying and selling are completed through bargaining practice. In the process of cattle marketing farmer, whole seller, trader and butchers are involved.

The report of the present study were agreed with that of Rashid (1969) marketing channel referred to the sequential arrangement of various marketing intermediaries involved in the movement of products from producer to consumers. Participants in beef cattle was also in line with that of Belete et al. (2010), participants in beef cattle marketing in fogera, are producers, middlemen or brokers, traders and consumers however, butchers and hotel owners directly buy beef animals directly from the producers.

Major constraints affecting cattle fattening in north western Ethiopia

Factor affect cattle fattening in the study area are indicated on Table 4. Fatteners suggest different constraints that hindered the performance of cattle fattening activity in the study area. Lack of initial capital, shortage of feed and water, insufficient land, occurrence of disease and lack of awareness (40, 26.67, 16.67, 10 and 6.67% respectively).

The present study was similar with the finding of Belete et al. (2010) reported that the critical constraints to improve dairy and beef cattle production in the Woreda are feed shortage, high disease prevalence, shortage of improved dairy breeds, poor extension service, Artificial Insemination (AI) and veterinary services, lack of working capital, marketing problems for dairy and beef products during the long fasting periods, lack of market information system and lower purchasing power of the local consumers in Amhara region of Ethiopia. However, it was in contrast with Getnet (2003) reported that feed quality and quantity is the main limitation to animal production in Ethiopia.

Table 4. Factor affect cattle fattening in north Gondar zone Ethiopia, 2015

Factors	Respondents	%
Lack of initial capital	48	40
Shortage of feed, water	32	26.67
Insufficient land	20	16.67
Occurrence of disease	12	10
Lack of awareness	8	6.67
Total	120	100

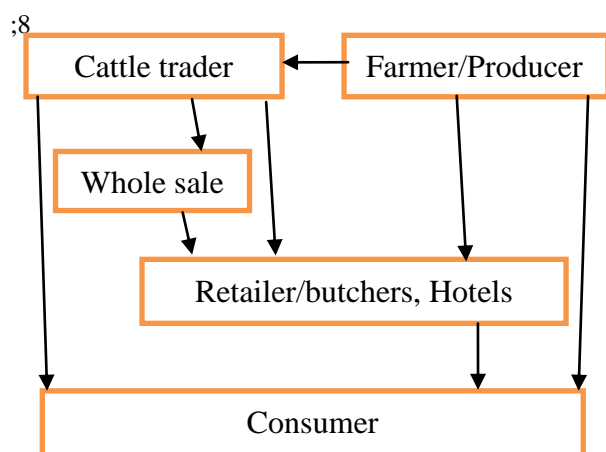


Figure 4. Flow chart illustrating marketing channel of beef cattle in north Gondar zone Ethiopia, 2015

CONCLUSION

The overall results of the present study showed that the major occupation of households in the study area is on livestock production. Fatteners using oxen for fattening purpose are old, red coat color and castrated. The feed sources used for cattle fattening are bean straw, nug cake, chick pea, wheat bran, barely straw and teff straw and hay. The major fattening practice is starting from mid February up to June. Their feed sources were crop residues and industrial by-products. The maximum price recorded during the dry season and the lowest price is in wet season. The major constraints for fattening practices is lack of initial capital, shortage of feed and water, land shortage, occurrence of disease and lack of awareness. Generally, cattle fattening practices is one means of household livelihood improvement in north western Ethiopia of north Gondar zone. Based on this information, it is recommended that, the government should give due attention on market channels of fattened animals in north Gondar zone. Extension policies and strategies on fattening practices, feed improvement strategies, credit service, training and extension service (advice on beef selection, feeding, health care and market information) and further researches on reproductive performance of fattening cattle and carcass quality related to feeding in north Gondar zone should be conducted.

Competing interests

The authors have no competing interests to declare.

REFERENCES

- Alemayehu M (2003). Country Pasture/Forage Resource Profile, Ethiopia. P10.APRU (Animal Production Research Unit). 1986. Livestock and Range Research in Botswana APRU, Ministry of Agriculture, Gaborone, Botswana, 1: 162.
- Barry I Shapiro, Getachew Gebru, Solomon Desta, Asfaw Negassa, Kidus Negussie, Gezahegn Aboset and Henok Mechal (2016). Ethiopia livestock master plan Roadmaps for growth and transformation. A contribution to the Growth and Transformation Plan II (2015-2020). PP 45-46.
- Belachew H (2004). Livestock Export From Ethiopia: Problems and solutions FAO EXCELEX Project Workshop.
- Belete A, Azage T, Fekadu B and Berhanu G (2010). Cattle milk and meat production and marketing systems and opportunities for market-orientation in Fogera woreda, Amhara region, Ethiopia. IPMS k2 (Improving Productivity and Market Success) of Ethiopian Farmers Project Working Paper 19. ILRI (International Livestock Research Institute), Nairobi, Kenya, 2: 65.
- BOARD (Bureau of Agriculture and Rural development) (2004). Livestock feeding strategy manual. Bahir Dar.
- BOFED (Bureau of Finance and Economic Development of Amhara Region) (2004). Annual report. BOFED, Bahir Dar, Ethiopia 1:23.
- Cattlemen's beef board and national cattlemen's beef association (2009). Modern Beef Production Fact Sheet. www.ExploreBeef.org.
- CSA (Central Statistics Authority) (2013). Statistics Report on Farm Management Practices, Livestock and Farm implements. Part II, Addis Ababa, Ethiopia 1:14-15.
- FAO (2015). Food Outlook, Biannual Report on Global Food Markets. Food and Agricultural organization in the United Nation. PP 6.
- FAO (Food and Agriculture Organization of the United Nations) (1999). FAO STAT 1999, <http://apps.fao.org/cgi-bin/nph.db>.
- Getnet A (2003). Feed resource development and utilization: possible options and recommendations under Ethiopian condition. Training handout prepared for agricultural subject matter specialist, holeta agricultural research center, Holeta, Ethiopia, 2 (3): 24.
- Hailemariam Teklewold1, Getachew Legese, Dawit Alemu and Asfaw Negasa (2009). Determinants of Livestock Prices in Ethiopian Pastoral Livestock Markets: Implications for Pastoral Marketing Strategies. PhD Candidate, University of Gothenburg, School of Business, Economics and Law; Department of Economics. P 13.
- Habtemariam K (2000). Livestock production, household food security and sustain-ability in smallholder mixed farms: A case study from Kombolcha Woreda of Eastern Ethiopia. MSc thesis. Swedish University of Agricultural Sciences, Department of Rural Development Studies, Uppsala, 63(2): 41.
- Hossain S (2002). Socio-economic upliftment of rural poor through cattle fattening. M. S. Thesis, Department of Animal Science, BAU, Mymensingh, Banglades, 6: 22-24.
- MEDC (Ministry of Economic Development and Cooperation) (1998). Survey of livestock and fisheries development. MEDC Agricultural Development Department, Livestock Team, Addis Ababa, Ethiopia. 2: 65.
- MOA (Ministry of Agriculture) (1996). Animal and Fishery Resource Main Department. Addis Abeba, Ethiopia. PP 78-81.
- Mohamed A, Ahmed A, Ehui S and Yemesrach A (2004). Dairy Development in Ethiopia. EPTD discussion. International Food Policy Research Institute. Washington, DC. USA PP. 123: 41-42.
- Mohamed-Saleem MA and Abate T (1995). Feed Improvement to Support Intensification of Ruminant Production Systems in the Ethiopian Highlands. In: Proceedings of the 3rd National Conference of the Ethiopian Society of Animal Production, Addis Ababa, Ethiopia, 27-29 April 1995.
- Morgan N and Tallard G (2015). Markets and Trade Division, Food and Agriculture Organization. PP. 2-6
- Negussie B (2001). Borena Zone: Outcome of Small Rains Anxiously Waited. Report on a Rapid Assessment Mission, 14-24 September 1999. P. 5.
- OECD/FAO (2015). OECD FAO Agricultural Outlook 2015, OECD Publishing, Paris. PP. 119-120. http://dx.doi.org/10.1787/agr_outlook-2015-en.
- Rashid A (1969). The marketing of jute in Pakistan national and international aspect west Pakistan Agricultural university liyalpur 257.
- Rege JEO and Lipner ME (eds) (2012). African animal genetic resources: their characterization, conservation and utilization. Proceedings of the research-planning workshop held at ILCA (International Livestock Research Center for Africa), Addis Ababa, Ethiopia, 4(3):172.
- Shitahun (2009). Cattle fattening practice and marketing system in Bure woreda, amhara region Ethiopia.
- SPS-LMM (2010). Trade Bulletin Issue I. Focus on Ethiopia's meat and Live Animal Export Peters, K. J. and Thorpe, W. 1989. Trends in On-Farm Performance Testing of Cattle and Sheep in Sub-Saharan Africa. International Livestock Centre for Africa, Addis Ababa, Ethiopia.
- SPSS (Statistical Package for Social Sciences) version 16.0.
- Takele T and Habtamu L (2009). Traditional Backyard Cattle Fattening in Wolayta: Systems of Operation and the Routine Husbandry Practices. Ethiopian Journal of Animal Production. 9(1): 39-56.
- USDA (2016). Livestock and Poultry: World Markets and Trade. United States Department of Agriculture. Foreign Agricultural Service/USDA Office of Global Analysis.