

Full Length Research Paper

Assessment of cattle fattening and marketing system and constraints affecting cattle fattening in Central Southern Region of Ethiopia

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A study was conducted to characterize cattle fattening and marketing system and to assess constraints affecting cattle fattening by interviewing 165 farmers in Central Southern Region, Ethiopia. Fattening length and age for oxen were 4 months and 7 years, respectively. Light white and red were the best color of cattle selected for fattening whereas black color was not recommended. Majority of farmers fattened castrated male cattle and marketed only during the main holidays. The price was highest from September to April. Farmers, traders and brokers were the 1st, 2nd and 3rd ranked marketing actors, respectively. Feeds used for supplementation were false banana, sweet potato, sugar cane, wheat bran, improved forages, mineral soils and residuals of coffee and beverages. Lack of capital was the main constraint to begin fattening. The results showed that age of fattening oxen was very old and most of the feed resources were locally available. The use of improved forages and concentrate feeds for cattle fattening is a growing practice, however, further work is needed to develop a cost effective feeding strategy by combining improved and locally available feed resources. Non-seasonal fattening and marketing, easy system of credit provision and controlled marketing system were needed.

Key words: Cattle fattening and marketing, selection criteria, marketing season, marketing actors, fattening duration, central southern Ethiopia.

INTRODUCTION

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 account 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,

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Table 1. Type of color, sex and castration of the animals selected for fattening in the study area (%).

Parameter	Welayita (n=32)	Hadiya (n=38)	KT (n=34)	Sidama (n=31)	Gedio (n=30)	Mean (N=165)
Color						
Red	56.20	26.30	16.00	6.50	38.10	28.62
Bulla	40.30	63.20	80.00	90.30	57.90	66.34
Black	0.00	0.00	0.00	0.00	0.00	0.00
Others	3.50	10.50	4.00	3.20	4.00	5.04
Castration						
Castrated	96.90	100	100	90.3	5.30	78.50
Not castrated	3.10	0.00	0.00	9.70	94.70	21.50
Sex						
Male	71.90	86.80	82.40	96.80	94.70	86.52
Female	0.00	0.00	0.00	0.00	0.00	0.00
Both	28.10	13.20	17.60	3.20	5.30	13.48

¹Kembata-Tembaro zone.

representing over 72% of the total meat production (Nigusse, 2001).

Crop-livestock mixed farming system is one of the predominant farming systems in the rural community of the central southern region. Shortage of land due to population pressure pushing many more farmers either to intensify the cropping system and or diversify the system using other integrated activities. Cattle fattening is among an integral componential activities (Getahun, 2008). Despite good fattening potentials associated with ample feed resources, market access, indigenous animal with huge potential for meat production have been expected in the region, because little attention to livestock development in general and animal fattening in particular and much has not been studied about the utilization of available feed, fattening practices and marketing system of animals in the region. Therefore, understanding the role and function of local production and marketing system as well as production constraints is of considerable relevance in future research and development directions and strategies would be given due priority. The objective of this study was thus to characterize and examine cattle fattening and marketing system and to assess constraints that may be required in designing possible interventions for more market-orientation of the production system.

MATERIALS AND METHODS

Description of the study area

The study was conducted in five selected zones of Southern Nation Nationalities and Peoples Regional State. The zones were

Welayita, Kembata-Tembaro (KT), Hadiya, Sidama and Gedio. The zones have different language and culture. The farming system of the zones was crop-livestock mixed farming system and were highly populated areas with a maximum of about 670 persons per km² (except in Gedio zone, Wonago is 900 persons per km²) (Million, 2003). The number of cattle population in Ethiopia were 53,382,194 of which 761,197, 317,239, 207,7636, 160,615, 767,154 were found in Hadiya, Kembata-Tembaro, Sidama, Gedio and Wolayita zones, respectively (CSA, 2011).

Study technique

The study was undertaken in 2 districts of each Welayita, Kembata-Tembaro and Hadiya zones, one district of each Sidama and Gedio zones. The districts and farmers were selected purposefully based on their fattening experiences. A total of 165 farmers in which 32, 38, 31, 34 and 30 heads of households' from Welayita, Hadiya, Sidama, Kembata-Tembaro and Gedio zones, respectively, were selected and interviewed using pre-tested structured questioner.

Data analysis

The data collected were analyzed using SPSS (version 16). Descriptive statistics such as mean and percentages were used to summarize data as required. In addition single factor ANOVA test was employed to analyze differences among the five study zones of the region with respect to various quantitative response variables. When ANOVA declares significance, mean comparison was made using Duncan Multiple Range Test.

RESULTS

Criteria to select cattle for fattening

As indicated in Table 1, the majority of the respondents

Table 2. Fattening duration (months) and age (years) of fattening oxen in the study area.

Parameter	Welaita (n=32)	Hadiya (n=38)	[†] KT (n=34)	Sidama (n=31)	Gedio (n=30)	Mean (N=165)
Duration	3.56±0.76 ^a	3.75±1.05 ^a	4.0±1.0 ^a	4.26±1.20 ^{ab}	4.74±1.97 ^b	4.00±1.24
Age	7.23±3.12 ^b	7.12±1.39 ^b	7.65±1.99 ^b	6.87±2.11 ^b	5.42±1.57 ^a	6.92±2.22

^{abcd} means with different superscript across rows are significantly ($p < 0.05$) different, [†]KT= Kembata-Tembaro zone.

Table 3. Season of marketing (%), rank of marketing actors and the role of brokers (%) in marketing fattened animals in the study areas.

Parameter	Welaita (n=32)	Hadiya (n=38)	[†] KT (n=34)	Sidama (n=31)	Gedio (n=30)	Mean (N=165)
Marketing season (%)						
Main holidays	56.20	50.00	58.80	74.20	94.70	66.78
main holidays and non holidays	43.80	50.00	41.20	25.80	5.30	33.22
Rank of marketing actors						
Farmer	2	2	1	1	1	1.40
Trader	1	1	2	2	2	1.60
Broker	3	3	3	3	3	3.00
Brokers have negative role	96.9	97.40	70.60	77.40	84.20	85.30

[†]Kembata-Tembaro zone.

(66.34%) indicated that light white color was the best animal color selected for fattening followed by the red color, 28.62%. None of the farmers recommended selecting black colored animals for fattening purpose. Castration of animals was also a criterion for fattening in the region. Accordingly 78.50% of the respondents castrate their animals for fattening while the remaining 21.50% of the respondents do not recommend castration. However, farmers castrating their oxen for fattening were significantly ($p < 0.05$) lower in Gedio zone than other zones. Almost all of the farmers (94.70%) in Gedio zone do not castrate their oxen for fattening. Majority of the respondents (86.52%) fatten only male cattle, where as 13.48% of the respondents fatten both male and female animals. None of the farmers fatten only female cattle in the study area. In addition to the above criterions, all farmers purchased fattening cattle of tall height, good body condition and big and stand-high hump.

Smallholder farmers in the region commonly fatten mature and much older animals (7 years old) for short durations (usually four months) (Table 2). The fattening duration of oxen in Gedio was significantly ($p < 0.05$) higher than that of Welayta, Hadiya and Kembata – Tembaro but it was similar to Sidama. The fattening duration of oxen in Wolaita, Hadiya and Kembata – Tembaro and Sidama were similar. As indicated in Table 2, the average age of fattening oxen was 6.92 years. The average fattening age of oxen in Welayta, Hadiya,

Kembata – Tembaro and Sidama zones were similar but significantly ($p < 0.05$) higher than that of Gedio zone.

Season of marketing and marketing actors of fattened cattle

As indicated in Table 3; 66.78% of the respondents market their fattened animals during the main holidays whereas about 33% during both the main holidays and non-holidays seasons. In the region, there was no well organized cooperatives that perform fattening and marketing of animals. There were different factors that constrain the market price of fattened animals in the region. Among these, season of marketing and marketing actors are the two important factors. All of the respondents in the region reported that the market price of fattened animals was highest from September to April. None of the farmers use scientific measurements to weigh the live weight of animals when purchasing and selling.

In the region, the key actors of marketing fattened animals are Farmers (1st ranked) Traders (2nd ranked) and Brokers (3rd ranked). Even though brokers are the third ranked actors in decision making to market fattened animals, they have a crucial role in bargaining for traders and farmers by getting about 100.00 Ethiopian birr (ETB) per fattened cattle on average from both sides (that is,

Table 4. Types of feeds and feeding system of fattening animals in the study area (%).

Parameter	Welaita (n=32)	Hadiya (n=38)	¹ KT (n=34)	Sidama (n=31)	Gedio (n=30)	Mean (N=165)
Method of feed provision						
Stall feeding	84.40	78.90	94.10	90.30	100	89.54
Grazing only	0.00	0.00	0.00	0.00	0.00	0.00
Stall feeding and grazing	15.60	21.10	5.90	9.70	0.00	10.46
Feeds used for supplementation						
Enset (false banana)	75.00	74.00	88.00	77.40	89.50	80.78
Sweet potato	78.00	20.00	88.00	78.00	89.50	70.70
Sugar cane	30.00	65.00	20.00	73.40	78.50	53.38
Wheat bran	62.50	86.80	76.50	90.30	57.90	74.80
Residuals and mineral soils	100.00	71.10	76.00	90.30	100.00	87.48
Improved forages	34.40	34.20	76.50	77.40	26.30	49.76

¹Kembata-Tembaro zone.

they have a role in decreasing and increasing the price of fattened animals). Accordingly, about 85% of the respondents reported that the brokers have a negative role in marketing fattened animals. While about 14.70% of the respondents believe that brokers are resource persons for they know information about the price situation on that marketing day.

Feeds and feeding system of fattening cattle

Farmers in the surveyed areas have experiences in supplementing locally available high nutritious feeds. In the region, all respondents responded that major feed resources for their fattening animals and used as a basal diet are crop residues and natural pasture. As indicated in Table 4, supplementary feeds for fattening animals were whole parts of enset (false banana) (89.54%), sweet potato vine and tuber (70.70%), sugar cane (53.38%), mineral soils and residuals of coffee and beverages (87.47%) and improved feeds especially desho grass (*Brachiariabrizantha*) (49.76%), Napier grass (*Pennisetumpurpleum*) (49.76%) and concentrate feed (wheat bran) (74.80%). Farmers in the region do not feed their animals with silage and urea treated crop residues. Majority of the respondents (89.54%) provide both basal and supplementary feeds in a stall feeding system where as 10.46% of the respondents alternate the feeding systems in the form of stall feeding and grazing (Table 4). Farmers in the region reported that during the first few weeks of fattening period or prior to actual fattening period, farmers having enough private grazing lands keep their fattening animals on good and enclosed pasture land for a short time per day for

exercising, herbage consumption purpose, take a time to clean the barn and to reduce the feed cost.

Constraints affecting fattening of cattle

Farmers have put different ranks for the most known constraints of fattening in the study area. Lack of initial capital is the first ranked constraint whereas lack of credit provision, unavailability and poor quality of feed, lack of awareness and land shortage were the second, third, fourth and fifth ranked constraints of cattle fattening in the region, respectively.

DISCUSSIONS

Criteria for cattle to select for fattening and fattening length

Consistent with Takele et al. (2009) and BoARD (2004), fatteners in Welaita and northern part of Ethiopia select fattening cattle of tall height, good body condition and big and stand-high hump in addition to coat color and sex. Contrary to these results, almost all traders in Amhara region of Ethiopia do not take coat color as a criterion for selection of beef animals (Belete et al., 2010). The present findings find similarities with Takele et al. (2009) and BoARD (2004) who reported that cattle feeders fed cattle usually for 4 months in welaita area of southern Ethiopia and Bahrdar area of northern Ethiopia, respectively. In contrary, MOA (1996a) reported that the age and duration of fattening cattle in western part of the country were one years old and for 6 months,

respectively. According to Habtemariam (2000), farmers in east Ethiopia fed oxen for more than one year which is also significantly exceeds the average fattening length in southern parts of Ethiopia.

Season of marketing and marketing actors of fattened cattle

Majority of farmers in the region marketed their fattened cattle during the main holidays. This is in agreement with the reports indicated by Takele et al. (2009) who reported that cattle fattening is a seasonal operation in welaita with a peak from June to September and this is governed by seasonality pattern of feed availability and main holidays. Inconsistent to our findings cattle are, however, fattened throughout the year with a peak during dry season in Malawi (Nkhonjera et al., 1988).

None of the farmers use scientific measurements to weigh the live weight of animals while purchasing and selling was in good agreement with the findings of Alemayehu (2003) who reported that marketing of livestock is not determined on the basis of weight and which is unfavorable marketing system and discourages price on the producers' side. The market price of fattened cattle was highest from September to April. Reason for this might be due to the availability of the main holidays in September (*meskel*), December (*x-mas*) and in April (Easter) (Belachew, 2004; Takele et al., 2009) and the coffee crop gets in to the hands of traders then, and their demand for meat at that time is consequently high from November to March (Barry and Ejigu, 2006). Moreover, the high income level of farmers in that season increases meat consumption which has direct influence on the price of fattened animals. As contrary to this report, the market price of fattened animals is highest from May to September in Amhara Region of Ethiopia (Belete et al., 2010). Among the marketing actors, brokers have a crucial role in bargaining for traders as well as farmers or producers by getting about 100.00 birr per a fattened cattle on average from both sides. This is significantly different from broker's fee in Bale livestock market of the same country which was ETB 10/head of cattle (Getachew et al., 2008). In the region, so far there is no well organized cooperatives that perform fattening and marketing of animals. This indicates that marketing systems have not been generally administered (Azage et al. (2006).

Feeds and feeding system of fattening cattle

Major feed resources used as a basal diet for fattening cattle were crop residues and natural pasture which is in

line with the findings of Takele et al. (2009) in southern region and Belete et.al, (2010) in Amhara region of Ethiopia. Consistent to Takele et al. (2009) supplementary feeds for fattening cattle were whole parts of false banana, sweet potato vein and tuber, sugar cane, mineral soils and residuals of coffee and beverages. However, in the present study farmers supplement fattening cattle with improved forages especially desho grass (*Brachiariabrizantha*), Napier grass (*Pennisetumpurpureum*) and concentrate feed especially wheat bran which is not in agreements with Takele et al. (2009) which might be due to the renewed interest of farmers to introduced improved forages and feeds in various parts of the country (Azage et al., 2006). Farmers in southern Ethiopia provide both basal and supplementary feeds in a stall feeding system which is in close agreement with Fourth Livestock Development Project, (MOA, 1996a) which indicated that Hararghe fattening system is largely based on cut-and-carry feeding of individually tethered animals and grazing is rare.

The present study indicated that prior to actual fattening period, farmers having enough private grazing lands keep their fattening cattle on good and enclosed pasture land for a short time per day for exercising, herbage consumption purpose, barn cleaning, to put the animal in better condition while draught and to reduce the feed cost and are in agreement with Takele et al. (2009).

Constraints affecting fattening of cattle

In agreement with the present study, Belete et al. (2010) reported that 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). Getnet (2003) reported that feed quality and quantity is the main limitation to animal production in Ethiopia which is in agreement with the present findings. In line with the present study, the central southern region is highly populated with a maximum of about 670 persons per km² and therefore intensification is probably a better path for this area since there is no possibility for further land expansion (Million, 2003).

Conclusions

The results showed that age of fattening oxen was very

old and most of the feed resources were locally available. The use of improved forages and concentrate feeds for cattle fattening is a growing practice. Initial capital, credit provision, feed availability and quality and lack of awareness were the most constraint factors to fatten cattle. Therefore, further work is needed to develop a cost effective feeding strategy by combining improved and locally available feed resources. Moreover, non-seasonal fattening and marketing, easy system of credit provision and controlled marketing system were needed to enhance the performance of cattle fattening and marketing in the region.

Conflict of Interest

The authors have not declared any conflict of interest.

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