Beef Cattle Fattening Practices and Marketing Systems in Gondar Town, Amhara, Ethiopia

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Abstract

The objective of the study was to describe the existing cattle fattening practices and marketing systems. For this study four peasant associations were selected purposively. From each PA 20 respondents (a total 80 HH) were selected randomly from those owners that practices cattle fattening and the data were collected using semi structured questioner and observation. The collected data were analyzed by using SPSS version 20 software. In the study area the feed resources that used for their fattening cattle were 67.5%, 17.5% and 15.0% wheat bran and maize bran, bean coat and rice bran and the mixture of bean coat+pea coat+hay as feeds for their fattening cattle without scientific formulation, respectively. The water sources that used by respondents were 72.5% and 27.5%, river and tape water, respectively. The finding revealed that majority of fatteners was select cattle based on phenotypic characteristics of the cattle by body frame (58.8%), glossy coat color (31.2%), wide/deep body condition (7.5%) and thick neck (2.5%). The survey result indicated 65.0% and 35.0% of respondents used trekking and vehicle (trucking) transporting practices, respectively. Even though, weight measurements had not practiced in the area, 87.5% respondents price set factor were depending on live weight of animals. The current study showed that the main constraints of beef cattle fattening practices in Gondar town were feed cost increase (30.0%), lack of credit (12.5%) and absence of market information (16.2%). In general beef cattle fattening practices in the study area were constrained by various challenges and not supported by improved fattening technology. In order to increase the profitability of fatteners, providing farmers with sufficient training and extension services on improved cattle fattening technologies, major management practices and market information should be mandatory.

Keywords: Beef cattle; Constraints; Fattening practices; Gondar; Marketing

Introduction

In Ethiopia both farming and pastoral household's largely dependent on livestock for their livelihood system. Livestock have diverse function in the live hold systems of Ethiopia farmers in the various farming system [1,2] and serves as a source of food, traction, manure, row materials, cash income foreign exchange earning social and culture identity. In terms of contribution to national economy, livestock contribute about 16.5% of the Gross domestic product (GDP) and 35.6% of the agriculture GDP and currently the subsector supports and sustains livelihoods for 80% of rural population [3].

Cattle fattening is one of the newly incipient activity. The sector is an emerging for employment and income generation for urban and pre-urban dweller, particularly, for those vacant farmers due to urbanization and cattle fattening association organized at small scale micro finance level. Cattle fattening is an effective tool for poverty alleviation and become an important business sector simultaneously, attention need to be focused on small holder cattle fatteners as well as private sector as engines of economic vitality. In Ethiopia governmental and non-governmental organizations currently encourage the emerging small scale as well as commercial fattening farms and support establishments of the sector either in cooperative or private form. However, there is limited information about their constraints, opportunities, challenges, economic efficiencies, production potentials and performance of beef animal under this sector [4]. Beef cattle are one of a few agriculture commodities in Ethiopia for which the country earn foreign currency through both live and process forms of the commodity exports and also most of rural poor are engaged in rearing it to fulfill their daily needs and economy gaps. Though, the town is characterized as huge number of indigenous Fogera cattle population, meat demand and the presence of large abattoir owners are not getting enough benefit from there fattening activities. Moreover, there might be a number of challenges which limits profitability of beef cattle fattening systems in the area. So, conducting research and raising appropriate improvement strategies of cattle fattening have to be mandatory.

Materials and Methods

Description of the study area

The study was conducted in Gondar town, Amhara Regional State, Ethiopia from February to June 2018. The area is located at 738 km away from Addis Ababa in North West of Amhara region. The area lies between latitude and longitude of 12°36′N 37°28′E with an elevation of 1966 meters above sea level. Gondar has a varied landscape, dominantly covered with ragged hills and plateau of land formations. The annual average temperature and rain fall were 19.7°C and 1772 mm, respectively which could be categorized under mid highland climatic zone. The area is also classified mainly in to two seasons, the wet season, ranging from June to September and the dry season extended from October to May [5].

Sampling method

The PA was selected purposively based on the availability of cattle fattening practices and 4 PA were selected. From each selected PA, 20 HHS and cooperative fatteners (a total of 80 respondents) were selected and interviewed based on cattle fattening possession.

Methods of data collection

Both primary and secondary data was collected. The primary data was gathered by using questionnaires, Focus group discussions, and direct observation.

Questionnaire interviews was developed to discover demographic characteristics, cattle selection for fattening, and feed resource utilization and feeding system, frequency of fattening per year, housing and other major husbandry practices, constraint of cattle fattening practices and marketing system of live fattened cattle. The questionnaires were pre-tested and readjusted before the actual data collection started. Field observations on feed management, house management and cattle selection for fattening were an important component of the study process.

Data analyses

Data was done by using Microsoft excel spread sheet and analyzed using SPSS software version 20.0 and descriptive statistics was used to quantify and summarized the data.

Results and Discussion

Beef cattle fattening system

The present finding revealed that all respondents were (100%) used by products based fattening system in which the major feed resources for cattle fattening were agricultural industrial by products. According to the respondents response their sources of income were livestock production (5.0%), crop livestock production (31.2%) and other (63.8%).

Beef cattle management practices

Feeding system for beef cattle: From the interviewed households, all were feed their fattening cattle by using feedlot finishing system (open feedlot confinement). That might be due to open feedlot confinement is the cheapest type of feedlot construction. The confinement type which used in the area were fence (88.75%) and tethering of animal on the tree (11.25%).

Feed resources for cattle fattening

According to the respondents 67.5%, 17.5% and 15.0% respondents use wheat bran and maize bran, bean coat and rice bran and bean coat +pea coat+hay as feeds resources for their fattening cattle, respectively. Similarly, Teklehaymanot et al. reported that types of feed used for cattle fattening in and around Mekelle were 64.8% concentrate like grains and wheat bran and 35.2% were roughage [6]. This is disagreeing with Shitahun et al. reported that among the major basal feeds given for the fattening cattle in Bure district fresh cut green forage took the higher proportion (59.48%) of beef respondents and followed by maize stover, hay and pasture grazing with 20.92%, 10.46% and 9.15% of the respondents, respectively [7]. All the respondents did not use Atela (local brewery products) as supplementary feed. This

finding disagrees with Adugna who reported that backyard fattening in Arsi Negelle area was based on areqe atella (a residue resulting from home distilling of an alcoholic liquor, areqe) [8]. Most of the respondents (75.0%) did not practiced conservation of feed and only 25.0% were conserve feed in the form of hay. The finding revealed that 75.0% of the respondents didn't have grazing land and the remaining 25.0% of respondents had their own private grazing land. All of the respondents did not formulate ration scientifically (Table 1).

Type of feed	Frequency N=80	Percent %
Wheat bran and maize bran	54	67.5
Bean coat and rice bran	14	17.5
Bean coat+pea coat+hay	12	15
Atela	-	-
Conserved feed hay		
Yes	20	25
No	60	75
Grazing land owned		
Individually	20	25
No grazing land	60	75
Scientific feed formulation		
No	80	100

Table 1: Feed resources for cattle fattening in the study area.

Water source and watering

The water sources of cattle fatteners in the study area were 72.5% and 27.5%, river and tape water, respectively. Similarly, findings in Bure woreda revealed that river (58%), spring (32%), and hand dug well (10%) were the three types of identified water sources [7]. The time of water provision were any time they required (52.6%), once a day (31.2%), twice a day (1.2%) and the other 15.0% of the respondents did not give water to their fattening cattle due to mixing of feed with high quantity of water. The current finding indicated that majority of respondents (52.6%) give water for their cattle when they need. Which disagree with Shitahun et al. reported that with respect to watering frequency in Bure district about 72% and 28% of the respondents offered drinking water for their fattening cattle twice and three times per day, respectively [7]. The present finding also revealed that all respondents did not have any shortage of water.

Cattle health care management

The present finding indicated that all the respondents faced with animal health problem like lemness (45%), bloat (37.5%), anthrax (10%) and parasite (7.5%). This finding is consistent with Haftu et al. respondents confirmed that the most important diseases affecting cattle's in northern Ethiopia were FMD (17.7%), Pneumonic Pasteurelosis (15.5%), Ecto parasitic/tick infection (14.9%), Anthrax and GIT Parasitism (each with equal response of 11.5%) [9]. All the respondents (100%) had a chance to get animal health clinic nearby their residence that might be considered as an opportunity for easy

access but respondents indicate that the most of clinics were private (Figure 1).
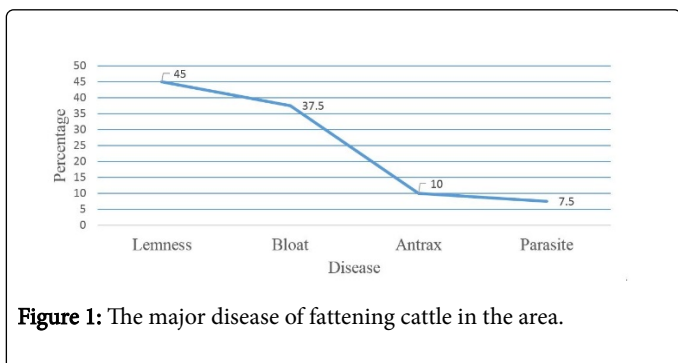

Figure 1: The major disease of fattening cattle in the area.

Cattle herd identification system

According to the respondents response (40%) were use color identification, (40%) were naming and (20%) not use any identification. This is disagreeing with Negele and Ayalew (2017) reported that most of the respondents (73.75%) did not use any method to identify their animals. But only 26.25% of the HHs used ear tag for identification purpose in Bure district. The combination of the identification and registration of an animal individually, with a unique identifier, or collectively by its epidemiological unit or group, with a unique group identifier (OIE Terrestrial Animal Health Code, 2008) (Figure 2).
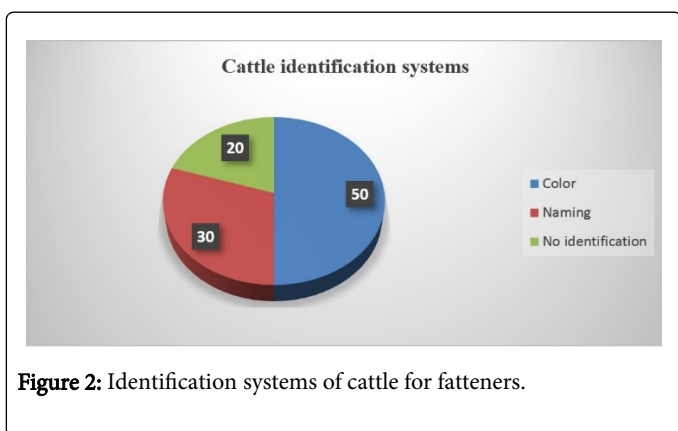

Figure 2: Identification systems of cattle for fatteners.

Beef cattle marketing system

Selection criteria of beef cattle for fattening: Different criteria have been used for purchasing of cattle to be fattened. The finding revealed that majority of farmers were selected cattle for fattening based on body frame (58.8%), glossy coat color (31.2%) and the other (7.5%) and (2.5%) of them choose wide/deep body condition and thick neck, respectively. This study also consistent with fatteners in Welayta and northern part of Ethiopia were selected their animal by using phenotypical selection criteria like select tall height, big and stand hump, good body condition, and glossy coat cattle [10,11]. According to the result of the current study, the body frame selection criteria had significant effect (P<0.05) on the live-weight change and gross profit of fattening cattle. Which is consistent with reports in different area of Ethiopia that interviewed traders would not prefer to purchase black coated animal at market place due to consumer preference [12,13] (Table 2).

Selection criteria	Frequency N=80	Percent %
Body frame	47	58.8
Wide/deep body condition	6	7.5
Thick neck	2	2.5
Glossy coat color	25	31.2

Table 2: Purchasing selection criteria of beef cattle for fattening.

Preferred cattle type for fattening

According to the respondents type cattle of breed that used to fattening purpose were local breed (58.8%), cross breed (10.0%) and both local and cross breed (31.2%). This result aligned with Teklehaymanot et al. reported that breed of animals used for fattening in and around Mekelle, Ethiopia were 86.1 local and 13.9 cross breeds of cattle [6]. The survey also revealed that the majority of the respondents were preferred cattle for fattening matured bull (65.0%) and remaining proportion preferred old oxen (35%). The present finding revealed smallholder farmers were commonly fatten mature (68.0%) and much older animals (32%) (Five to seven years old) for three months durations. Similarly, Teklehaymanot et al. reported that the preferred sex and age of fattening cattle were 100% male and Medium (3-4 years) 57.4% and old (over 4 years) 42.6 % in and around Mekelle, Ethiopia, respectively [6].

Determination of cattle fattening periods

According to the respondents responses they were determine the end of the finishing period by considering body condition (25%) and anticipated current and future price (75%). The present study was disagreeing 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 3).

Determinant of finishing	Frequency	Percent
Period	N=80	%
Live weight change	-	-
Considering body condition	20	25
Anticipated current and future price	60	75
By calculating feeding length	-	-

Table 3: Determination of cattle fattening periods in the area.

Market information and transportation of cattle

Regarding sources of market information, most of the HHs use relatives (43.8%), Neighbors (50.0%), cooperatives members (3.7%) and own market visit (2.5%). In the study area price set factor were depends on weight of animal were (87.5%) and age were (12.5%) also the demand of beef cattle increases on the time of holidays. This is in line with the reported by Ebrahim et al., that finished cattle are sold at attractive price due to maximum consumption of beef during main holidays [14]. Survey result indicated that some respondents used 65.0% and 35.0%, trekking and vehicle transport (trucking) to and

from the market, respectively. This finding was disagreeing with Yacob reported that 100% of the respondents trek their cattle to the near terminal market in Moyale [15].

Constraints of cattle fattening practices

The main constraints of beef cattle production in Gondar town were feed cost increase (30%), lack of governmental feed processing factories (17.5%), absence of market information (16.2%), lack of credit (12.5%), lack of cattle transportation systems (5.0%), shortage of land (5.0%), disease (3.8%) and improved cattle fattening technologies (5%). Similar to this report shortage of feed, lack of credit facilities, price variation in different markets, disorganized marketing system, the problem of transporting cattle for marketing were the problem for cattle fattening in different countries [16-19] (Table 4).

Constraints	Frequency N=80	Percent %
Lack of governmental feed processing factories	14	17.5
Transport cost	8	10
Absence of market information	13	16.2
Lack of credit	10	12.5
Improved cattle fattening technologies	4	5
Feed cost increment	24	30
Land shortage	4	5
Disease	3	3.8

Table 4: Constraints of cattle fattening practices in the study area.

Conclusions and Recommendations

The identified fattening systems in the area were by-product-based fattening system which is known in urban area because grazing land is unavailable. The main feed types used to fatten cattle were wheat bran, maize bran, bean coat and rice bran these are considered as a basal diet. However, market information is crucial to reduce information gaps and uncertainties that exist in the agricultural sector, in area there was no access to formal market information before sale. Even though, weight measurements had not practiced in the area majority of respondents (87.5%) price set factor were depending on weight of animal. The main constraints or prominent challenge in the area raised by cattle fatteners were feed shortage, lack of governmental feed processing factories, transport cost increment, absence of market information, lack of credit and improved cattle fattening technologies.

Recommendations

Based on the above conclusions, the following recommendations were forwarded: -

- In order to increase the quality and number of animals fattened, providing farmers with sufficient training and extension services on improved cattle fattening technologies, market information should be crucial.
- Specifically, training and extension advice are urgently required in selection, feeding, healthcare, and market information to improve the performance of cattle fattening practice in the study area

- Further research and development work should be encouraged to alleviate feed cost increment through different options such as utilization of local by product.

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Competing Interests

The authors declare that they have no conflict of interest with respect to the research, authorship or publications of this review.

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