

## Means of Transportation of Fattening Cattle, Services While Shipping and Institutional Support in Dessie and Kombolcha Towns, Ethiopia

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**Abstract:** The aim of this research was to identify means of transportation of fattening cattle, services while shipping and institutional support in urban and peri-urban *kebeles* of Dessie and Kombolcha towns, Ethiopia where scientific intervention could be initiated for further improvement in the sector. In this study structured questionnaire administered to a total of 337 cattle fattener households (190 from Dessie and 147 from Kombolcha towns). Complete enumeration techniques were applied to select urban and peri-urban *kebeles*. The data generated included means of transportation, services while shipping, who transport cattle, condition of transportation infrastructure and institutional support and extension services. The results indicated that 100% cattle fatteners were used trekking in both study towns. None of cattle fatteners (100%) in both study towns provides services while trekking cattle. Poor cattle path was one of constraint reported by cattle fatteners. Inadequate practical training and support concerning fattening cattle transportation was the challenges reported by cattle fatteners that affect the fattening sector. As a result, to protect cattle fatteners for risk and to avoid the impact of aggressive cattle on human the concerned bodies should offer better commitment in the cattle transportation sector.

**Key words:** Fattening Cattle • Means of Transportation

### INTRODUCTION

Cattle fattening is an effective tool for poverty alleviation and has become an important business of the small farmers as well as urban dwellers. Particularly, the sector is good opportunity for employment and income generation for the rural poor, especially landless, destitute and divorced women [1]. However, expansion and productivity is constrained quantitatively and qualitatively by poor means of transportation, lack of appropriate services while transportation. All forms of transport are potentially hazardous for animals, regardless of whether travel is between or within countries, or by road, rail, air or sea. However, experience shows that animals can be transported under suitable conditions without harm to their welfare. The provision of suitable conditions and the establishment of a mutually satisfactory framework for regulating the international transport of animals depend on an understanding of welfare needs and of the biological basis for disease, stress and suffering [2].

Much body weight is lost during long distance trekking and the animals may reach market in little better condition. These traditional systems are very inefficient because they do not use the proven opportunity to add weight and condition to cull animals before slaughter [3]. Transportation of cattle from the production areas to the slaughterhouse is always accompanied by some degree of stress that subsequently influences the overall quality of the beef [4]. The main factors involved with “transport stress” to include pre-transport management, noise, vibration, novelty, social regrouping, crowding, climatic factors (temperature, humidity and gases), restraint, loading and unloading, duration of transit, resting during transport, feed and water deprivation and waiting time after arrival before slaughter [5]. These factors compromise the welfare of the animals and reduce meat quality: lean colour, drip and cook-out losses [6, 7]. Incidences of dark-cutting beef provide information about the welfare of cattle during handling, transport and lairage [8]. Furthermore, the intensity of stress varies depending on the means of transportation employed.

Cattle transported by railcar reportedly were less stressed and lost 4% less live weight than those shipped through equivalent distance in trucks [9]. Therefore, putting knowledge into evidence concerning the transportation of animals destined for slaughter can be of assistance in reducing mortality during transportation, reducing skin and carcass damage, increasing the quality of meat supplied to consumers and consequently reducing economic losses to the beef industry [10]. Hence, with the above background this research was designed to identify means of transportation of fattening cattle, services while shipping and institutional support in Dessie and Kombolcha Towns of Ethiopia.

## MATERIALS AND METHODS

**Description of the Study Area:** The study was conducted in Dessie and Kombolcha towns. Dessie is located in northern part of Ethiopia in Amhara National Regional State, South Wollo Zone at a distance of 400 km from Addis Ababa, Ethiopia. Its astronomical location is at 11°8'N -11°46' North latitude and 39°38'E- 41°13' East longitude. Relatively it is bounded by Kutaber *Woreda* in the north, DessieZuriya *Woreda* in the east and by Kombolcha town in the south. The topography of Dessie is a highland type surrounded by 'Tossa' mountain [11]. Its elevation ranges between 2,470 and 2,550 meter above sea level (<http://en.wikipedia.org/wiki/Dessie>, retrieved in December 2014). Annual maximum and minimum temperatures of Dessie are 23.7 °C and 9 °C, respectively, recorded in 2015 (Kombolcha meteorology station). Dessie is one of the reform towns in the region and has a city administration consisting of municipality, 10 urban and 6 peri-urban *kebeles*.

Kombolcha is an industrial town found in the north-central part of Ethiopia in South Wollo Zone of the Amhara Regional State of Ethiopia. It is situated at a distance of 377 km from north of Addis Ababa, 505 km from the Regional capital city, Bahirdar, 23 km from the zonal town Dessie and 533 km from port Djibouti. Astronomically, the town is located at about 11° 6' N latitude and 39° 45' E longitudes. The delimitation of the town is bounded by Dessie Zuria *Woreda* in the North East and North west, Kalu *Woreda* in the South and Albuko *Woreda* in the South West [12]. Mean annual rainfall is 1046 mm while annual maximum and minimum temperatures are 28.1 °C and 12.9 °C, respectively, recorded in 2015 (Kombolcha meteorology station). The town is located in a range of altitudes between 1,500

and 1,840 meter above sea level. Kombolcha is one of the reform towns in the region and has a town administration municipality, 5 urban and 6 peri- urban *kebeles* [13]

**Sampling Procedure and Sample Size:** Based on objectives of the research and the parameter-required pre tested structured questionnaire was prepared. The questionnaire comprised data or information on means of transportation, service while shipping, who transport cattle, institutional support and cattle transport infrastructures and challenges related to cattle transportation. Accordingly, those urban and peri-urban *kebeles* where a cattle fattening is practiced, were considered in both study towns. Accordingly, 3 and 6 urban, 4 and 6 peri-urban *kebeles* were selected from Dessie and Kombolcha towns, respectively. Complete enumeration technique was applied to select urban and peri-urban *kebeles*. Due to manageable number of cattle fatteners, complete enumeration technique was applied to select individuals from urban and peri-urban *kebeles* of Kombolcha town. While, systematic random sampling technique for peri-urban and complete enumeration technique for urban cattle fatteners was applied to select individual household in Dessie town. In peri- urban *kebeles* of Dessie town, sampled households were determined based on the principle of probability proportional to size'. The sample size (n) was determined using the formula recommended by Arsham, [14]  $N = 0.25/SE^2$  Where: N: number of sample, SE: standard error, with the assumption of 4% SE. Consequently, 190 (41 urban and 149 peri-urban) from Dessie and 147 (66 urban and 81 peri-urban) cattle fatteners household from Kombolcha town were selected and interviewed.

**Data Collection and Analysis:** A single visit formal survey was employed to collect all the required data. To strengthen the survey data, group discussions were held with individuals who have knowledge and experience on cattle fattening practices. In addition, key informant interviews were made with towns and *kebeles* Agricultural Experts and Development Agents. Field observation was carried out to take different pictures. Researcher personal observations in the study towns related to fattening cattle transportation were also incorporated. Accordingly, focus group discussions and key informant interviews were conducted between February and April, 2016 whereas the household level surveys were carried out in May, June, July and August of the year 2016. Consequently, all the collected data were coded and entered into a database

using statistical package for social sciences (SPSS). Descriptive statistics such as percentiles and frequencies were used to analyze the data using the SPSS statistical software (SPSS for windows, release 20, 2011).

## RESULTS AND DISCUSSIONS

**Fattening Cattle Means of Transportation in Dessie and Kombolcha Towns:** In urban and peri-urban areas of both study towns, the entire cattle fatteners (100%) were used trekking while marketing. In Dessie town 100 % of urban cattle fatteners were trek cattle by laborers, while, the entire peri-urban cattle fatteners (100 %) trek by themselves. In Kombolcha town, almost all of peri-urban cattle fatteners (97.5 %) were trek cattle by themselves, whereas, in urban *kebeles* 75.8 % and 24.2 % cattle fatteners were trek cattle by themselves and laborers,

respectively (Table 1). Generally, with respect to method of transportation, in urban and peri-urban areas of the current study towns, all of the cattle fatteners were used trekking (Figure 1). The current result is similar to Shitahun [15] who indicated fattening cattle trekked on foot while purchasing and selling. Producers, travellers and cattle traders trekked their cattle to the market place on foot. Tesfaye [16]. In the current both study towns in one marketing day a cattle marketer particularly the urban cattle fatteners has a capacity to acquisition averagely 3-4 cattle. Therefore, it was not economical to assign a truck and pay averagely 3000-4000 birr/car or 300 birr per ox. Besides, they fear the damage of cattle during trucking due to absence of appropriate car for cattle trucking, poor road transportation and car manipulator ability, aggressive nature of cattle and loading and unloading difficulties due to absence of the structure in the market



Fig. 1: Cattle trekking in Dessie town



Fig. 2: While aggressive cattle disturb human being and car traffics in Kombolcha towns

Table 1: Cattle means of transportation and services in Dessie and Kombolcha towns

Parameters	Dessie town n (%)			Kombolcha town n (%)			Overall total N=337
	PUK n = 149	UK n = 41	Total n=190	PUK n= 81	UK n = 66	Total n=147	
Means of transportation							
· Trekking	149 (100)	41 (100)	190 (100)	81 (100)	66 (100)	147 (100)	337 (100)
· Trucking	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Who trek cattle							
· Laborers	0 (0.0)	41 (100)	41(21.6)	2(2.2)	50(75.8)	52(35.4)	93(27.6)
· Owner	149 (100)	0 (0.0)	149(78.4)	79(97.5)	16(24.2)	95(64.6)	244(72.4)
Service provision while trekking							
· No	149 (100)	41 (100)	190 (100)	81 (100)	66 (100)	147 (100)	337 (100)
· Yes	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

PUK refers to Peri-urban *Kebeles*; UK denotes to Urban *Kebeles*

Table 2: Institutional support and extension services in Dessie and Kombolcha towns

Parameters	Dessie town n (%)			Kombolcha town n (%)			Overall totaln =337
	PUKn= 149	UKn = 41	Total n=190	PUKn= 81	UKn = 66	Total n=147	
Institutional support							
· No	149 (100)	41 (100)	190 (100)	81 (100)	66 (100)	147 (100)	337 (100)
· Yes	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Training access and and extension services							
· Yes	149 (100)	0 (0.0)	149 (78.4)	0 (0.0)	66 (100)	66(44.9)	215(63.8)
· No	0 (0.0)	100 (41)	41 (21.6)	100 (81)	0 (0.0)	81(55.1)	122(36.2)

PUK refers to Peri-urban *Kebeles*; UK denotes to Urban *Kebeles*

as well as in the fattening farm. On the other hand, as per group discussion, cattle fatteners were reported that trekking was desirable for feedlot cattle to avoid recall of the previous management system and to adopt the new one. They reported that, after long distance trekking and fasting cattle would not be selective and take the new ration with enthusiasm. In the current both study towns urban cattle fatteners were used laborers, whereas, peri-urban cattle fatteners trek by themselves while trekking (Table 1).

**Service Provision for Fattening Cattle While Transportation:** None of cattle fatteners (100%) in both study towns provides services while trekking cattle (Table 1). Laborers trek cattle long distance without service except watering. No rest and no feed, unless otherwise the cattle unable to move. This is due to laborers considering their time and no area was reserved to do such services in both study towns. Even, watering service also depends on the availability of water across the path. Generally, such practice leads to increase stress on cattle. The current findings agree with ANON, [17]

who reported stress reduces the fitness of an animal and this can be expressed through disease and death, or failure to grow and breed.

With some exception, peri-urban cattle fatteners were allocate time for rest and grazing while trekking. This is due to peri-urban cattle owners trek by them. On average cattle fatteners were trek cattle 25 km per day. Generally, there was a poor cattle trekking system in the current study towns. Absence of well-structured cattle path and service while trekking were reported as main constraint for cattle fattening. Sometimes aggressive cattle disturb human being and car traffics with in the towns (Figure 2). Poor cattle path was one of constraint reported by the entire cattle fatteners in Dessie towns of two *kebeles*. As per group discussion, some peri-urban cattle fatteners found distance to market in *Tita* and *Boru-selase* raised the inaccessibility of the major cattle market so called ‘Segno Gebya’. Fatteners retreat to fatten as they wished due to difficult to trek fattened cattle long distance and fear of aggressive cattle impact on human during trekking. Therefore, market establishment should consider the centrality for the user.

### **Institutional Support and Extension Services While Transportation:**

In both study towns, all of urban cattle fatteners (100%) were accessed modern training related to cattle fattening practices but not transportation aspect, while, the entire peri-urban cattle fatteners (100 %) not acquired training at all in the modern cattle fattening practices as well as transportation aspect. They practiced based on their traditional experience (Table 2). Inadequate practical training and lack of institutional support concerning fattening cattle transportation was the challenges reported by cattle fatteners that affect the fattening sector. The current finding support Tesfaye, [16] who reported farmers reported that livestock production was not assisted by appropriate extension services regarding feed management, improved husbandry practices, product processing, marketing and so on.

### **CONCLUSION AND RECOMMENDATIONS**

Absence of cattle transportation path and service while trekking was a challenge for the sector in both study towns. Trekking is the only means of cattle transportation in both study towns. In addition, while laborers trek cattle no service provided due to absence of reserved area and service for fattening cattle. In addition, poor cattle path dominantly available. As a result, to protect cattle fatteners form risk and to avoid the impact of aggressive cattle on human the concerned bodies should offer better commitment. Hence, the towns Agriculture Offices and other concerned bodies should accomplish activities to scale up the transportation sector.

To answer transportation and related problems the concerned bodies should arrange appropriate service area for rest and service such as watering and feed with reasonable price for sustainable cattle fattening practices. In addition to, trekking other means of cattle transportation systems such as railway and road with well-designed car should be planned. Moreover, to protect cattle fatteners for risk and to avoid the impact of aggressive cattle on human well-structured cattle path should be considered during road construction.

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