



## **Traditional Beef Cattle Fattening and constraints in Damot Pullassa Woreda, Wolaita Zone, Sothern Ethiopia**

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### **Abstract**

Multi stage sampling was employed to select one hundred sampled respondents to assess traditional beef cattle fattening and constraints using a pretested structured and semi-structured questionnaires in Damot Pullassa Woreda, Wolaita Zone, Sothern Ethiopia. About 80% of the respondents were found in the age range of 25 and 64 while the rest 20% were having age more than 65 years old. Natural mating system was mainly used by all (100%) respondents as a means of breeding system of beef cattle in the study area. Income was the main reason that 83.33% of the sampled respondents practiced beef cattle fattening. Grass is used as a basal feed and proportions of supplementary feed that are used for cattle fattening. Minerals salt (local name “aduwa”) and traditional brewery waste (“atela”) also used as a means of supplement feed for the fattened cattle. About the respondents (40%) argued that they used spring water as source water for the fattening cattle. In the same manner, about 25, 20 and 15% of them used hole water, river and pipe water. Higher proportion of respondents (41.6%) of them argued that scarcity of feed is one of the major factors to affect beef cattle fattening while about 20% of them responded that shortage of land affect beef cattle market. Therefore, for effective animals fattening there should have a means to improve quality and quantity of feeding system. In addition to this, to improve the breeding system artificial insemination should be introduced and implemented to enhance the beef cattle fattening operation in the study area.

**Keywords:** Natural mating, breeding system, beef cattle, fattening operation

### **Introduction**

The country Ethiopia is found in sub Saharan Africa region by which the region is heavily dependent on agriculture. As a result the agriculture sector plays an important role in the national economy of the country. Livestock is an integral part of agriculture and contribution of live animals and their products to agricultural economy. Ethiopia has the leading livestock population in Africa and it accounts 40% for agricultural economy. The Agricultural sector also plays an important role in the overall development of the country economy and it is the source of income

and employment for the rural production (Nigussie, 2001).

Beef cattle production system in Ethiopia is based on small scale fattening system by which animals obtained mainly from draft, dairy, land pastoralists. The annual contribution of ruminants to meat production in Ethiopia is estimated at over 3.2 million tones which represents 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). According to CSA (2016) survey result Ethiopia has about 409,869 beef cattle and last year 69,830 beef cattle were slaughtered for consumption and export purpose.

Even though, the country Ethiopia has a huge potential for fattening animal there are different challenges that hampering the productivity. Among those factors challenges associated with feed source, disease, market accesses composes the major portions. For instance, Teklehaymanot *et al.* (2017) indicated that feed shortage was considered as the major constraint affecting the production and productivity of the fattening animals and livelihood of the farmers in and around Mekelle, Tigray, Ethiopia. In the same manner, lack of market to sell fattened animals was also a constraint for beef cattle fattening and this could be due to unorganized marketing system, and unplanned fattening periods such as being dependent on cultural holidays and season. The same result was also recorded by Estefanos (2014), who reported, the major constraints to cattle production were shrinkage of grazing land (62.4%), feed shortage (15.8%) and low productivity of the local cattle (7.5%) in East and West Zones of the high lands of Harerge, Eastern Ethiopia.

Although, the country has huge resource of indigenous animals which are potentials for meat production the productivity is low because of little attention given to livestock development in general and animal fattening in particular and much has not been studied about the

utilization of available feed. Consequently, farmers in Ethiopia provides both basal and supplementary feeds in a stall feeding system which is in close agreement with fourth live stock development project. Ayele *et al.*, (2003) reported that current knowledge on live stock market structure performance and price is poor and inadequate for designing policies and institutions to overcome perceived problem in the marketing system. Even though, beef cattle fattening is widely practiced and potential in Damot Pulassa Woreda, its production system and constraints is not well identified documented so far. Therefore, this study was designed to assess traditional beef cattle fattening and constraints.

## Materials and Methods

### Description of the Study Area

The Study was conducted in Damot Pullassa Woreda of Wolaita Zone southern Ethiopia. The Woreda is located approximately at a distance of 152 and 357 km away from Hawassa and Addis Ababa respectively. The Woreda is found with an altitude range of 1600 and 1800 m.a.s.l. The maximum and minimum temperature is 32<sup>0</sup>C and 17<sup>0</sup>C respectively. The main rainy season was in between June to September (long rainy season) short rainy season lasts from October to February and May. The Woreda is known to have large number of livestock according to the (DPWAO, 2000) it comprises 52817, 8972, 5482 and 4,084, cattle sheep goat and equine respectively.

Table 1. Damot Pullassa Woreda Livestock Composition

Type of live stock	Composition
Cattle	52817
Sheep	8,972
Goat	5482
Equine	4084

Source: Damot Pullassa Woreda Agricultural office (2000)

### Sampling Method and Sampling Size

Multi stage sampling was employed for the study. In the first stage, Damote Pullasa Woreda which has a total of twenty three Kebeles was selected for the study. In the second stage, five Kebeles were selected

based on the potential of beef fattening. Finally, from each selected Kebele 20 households were selected purposively based on the experience and involvement in beef cattle fattening practice. This, a total of 100 households (i.e. 5 Kebeles \* 20 households) were included for study.

**Data Collection**

For the study both primary and secondary sources of data were used. The primary data was obtained by preparing semi-structured questionnaires and interviews and discussion with target groups. The secondary data was obtained from journals, articles, written documents and annual reports.

**Data Analysis**

Both primary and secondary data collected were analyzed by means of descriptive statistical analysis such as percentage, mean and the results were reported by table.

**Results and Discussion**

**Socio economic Characteristics of respondents.**

According to table 2, the largest portion of respondents (80%) was found in the age range of 25

and 64 while the rest 20% were having age more than 65 years old. This shows that the largest portions of respondents are within productive age group and this has positive effect in the performance of beef fattening activity in the study area. Concerning sex of the respondents the study showed that all of respondents are male. This indicates that female participate in the other aspects of agricultural activities. The present finding is slightly higher than the finding of Teklehaymanot *et al.* (2017) who indicated that about 96.3% of the respondents participated in beef cattle fattening were males in and around Mekelle, Tigray, Ethiopia. The study also revealed that from the total respondents (95%) of them are married while only 5% of them are single. This shows that most of the respondents are married and none of them are divorced.

Table. 2 Age structure, Sex composition, and marital status of household in the study area

Demographic characteristic	Attribution	No of respondents	Perecentage
Age	25-64	80	80
	>65	20	20
Sex	Male	100	100
	Female	-	-
Marital status	Married	94	95
	Single	6	5

As it is indicated in table 3, the higher (50%) of the respondents were illiterate. Similarly, about 26.6, 16.6 and 6.6% of the respondents were completed basic education, elementary and high school educational level respectively. In addition to this the development agents in the study area discussed that it creates difficulty in technology transfer because it requires long time to educate them to adopt the new

technology. Therefore, strong attention should be given to improve the educational status of the respondents in the study area. Concerning family size of the respondent the majority (73.3%) of them have 5 up to 8 family sizes whereas about 11.6 and 15% of the respondents have less than five family sizes and greater than eight family sizes respectively.

Table. 3 Level of education and Family size of household in the study area

Level of education	Illiterate	50	50
	Basic education	26	26.6
	Elementary school	14	14.4
	High school	10	10
Family size	<5	11	11.6
	5-8	73	73.3
	>8	15	15

**Breeding method**

The breeding method of the respondents is described in table 4. According to the respondents, all of the respondents (100%) use natural mating. According to the present finding there is low awareness to use artificial method of insemination in the study area. Even though, there are different reasons for the low

use of artificial insemination, lack of facilities and skilled manpower of artificial inseminations were the major ones according to the information collected from the sampled respondents in the study area. Therefore, great attention should be given by the respected governmental and non-governmental bodies to intensify and use widely the benefits obtained from artificial insemination methods.

Table 4. Breeding methods of the respondents in the study area

Breeding method	Number of Respondents	Percent
Natural mating method	100	100
Artificial method	-	-

**Purpose of Beef Cattle Fattening**

As it is indicated in table 5, most of the sampled respondents (83.33%) practiced beef cattle fattening as a means of income. In the same manner about 10 and 6.66% of the respondents kept cattle for both income and consumption and for other assets respectively.

According to this finding, the majority of respondents practiced beef cattle fattening for the purpose of income source. Cattle keeping is important role in the overall development of the country’s economy and it is the source of income and employment for the rural population. Meat production and consumption is important in the Ethiopia economy Nigusie (2001).

Table. 5 Importance of beef cattle fattening

Parameter	Number of respondents (N=100)	Percentage
Source of an income	83	83.33
Source of income and consumption	10	10
For other asset	7	6.66

**4.5 Feed Resource and Feeding System**

In the study area, grass is used as a basal feed and proportions of supplementary feed that are used for cattle fattening are described in table 6. Accordingly, about 33% of the respondents use green and dry maize as supplementary feed while 21, 18, 10, 6, 5, of respondents use green and haricot bean, boiled maize and haricot bean, wheat bran, root and tuber crops, left over hot drink made from coffee leaf respectively . However about 4 and 3% of the sampled respondents use minerals salt (local name “*aduwa*”) and traditional

brewery waste (“*atela*”) and as a means of supplement feed for the fattened cattle. The sampled respondents in the study area provide grass at large proportion of the total feed in take at the start of fattening period to minimize fattening cost. However, the amount of grass offered gradually decrease moreover, it was reported that feed in take is reduced as the quality of feed offered gets poorer and as the finishing period advances. This is because of the fact that fattening period advances since the animal tend to show more preference for grains, root and tuber crops than grass.

**Table 6.** Major supplement feed source

Major supplement feed source	No of Respondents	Percent
Green and dry maize	33	33
Boiled maize and harcoat bean	21	21
Green and dry har coat been	18	18
Root and tuber crop	6	6
Left over hot drink made from coffe leaf	5	5
Atela*	3	3
Mineral salt ( <i>aduwa</i> )**	4	4
Wheat brain	10	10

\* *Atela* means traditional brewery waste

\*\* *Aduwa* means local name to minerals salt

#### 4.6 Major water sources and watering system

As it indicated in table 7, the higher proportion of respondents (40%) argued that they used spring water as source water for the fattening cattle. Similarly about 25, 20 and 15% of them used hole water, river and pipe water respectively. This shows that the higher proportion of the respondent used spring water and a few of them use pipe water as a source of water for the

fattening animals. With regard to the watering frequency, the majority (85%) of respondents indicated that they provide water once a day for cattle while 10 and 5% of them provide water twice and three times a day. This shows that water in lake depends up on the type of feed, weather condition and feeding mineral salt (*Adwa*) are increases or decreases of water intake per day.

**Table 7.** Source of water and frequency of watering in the study area

Major sources	Respondents number (N=100)	Percentage
Spring water	40	40
Pipe water	15	15
Hole water	25	25
River	20	20
Water frequency		
Once a day	85	85
Twice a day	10	10
Three times a day	5	5

#### 4.7 Cattle Fattening Practice

According to table 8, most of the respondents (70%) practiced beef cattle fattening for about 6 up to 10 years whereas about 20 and 10% of them practiced

less than 5 years and greater than 10 years respectively. According to the present findings beef cattle fattening was a long traditional practice performed in the study area.

**Table 8.** Length of time the respondents practiced beef fattening

Cattle fattening Experience	No respondent (N=100)	Percentage
<5 year	20	20%
6-10 year	70	70%
>10 year	10	10%
Total	100	100%

#### 4.8 Duration or Length of Fattening Periods

As it is shown in table 9, concerning of fattening period 50% of respondents argued that fattening duration takes 3 up to 6 month. However, about 30 and 20% of the respondents indicated that it takes 3

month and greater than 6 months respectively. According to their response of the respondent the length of months or duration of fattening period depends on availability of feed, body condition of animals, managing system, and market demand.

**Table 9.** Duration fattening period

Duration (length of fattening period)	No Respondents	Percentage
<3 month	30	30%
3-6 month	50	50
>6 month	20	20

#### 4.9 Constraints of beef cattle fattening

Based on the findings of the current study, there are different constraints affecting the beef cattle fattening practice in the study area. According to table 9, higher proportion of respondents (41.6%) of them argued that scarcity of feed is one of the major factors to affect beef cattle fattening while about 20% of them responded that shortage of land affect beef cattle

market. In the same manner, about 16.6 13.3 and 8.33% of them replied lack of proper selection, initial capital and lack of market information affect beef cattle fattening respectively. In line with the present study Teklehaymanot *et al.* (2017) also indicated that shortage of animal feeds, especially concentrates affects mainly the production and productivity of the fattening animals, and livelihood of the farmers in and around Mekelle, Tigray, Ethiopia.

**Table 10.** Constraints of beef cattle fattening

Factors constraint of beef cattle market	Respondents	Percentage
Scarcity of feed	41.6	41.6
Shortage land	20	20.6
Lack of initial capital	13.3	13.3
Lack of proper selecting of fattening animal	16.3	16.66
Lack of market in formation	8.33	8.33

#### Conclusion

As it is revealed in the findings the largest portion of respondents (80%) was found in the age range of 25 and 64 and all the respondents were male headed. About 50% of the respondents were illiterate. Lack of facilities and skilled manpower of artificial inseminations were the major challenges hampering the use of artificial insemination which forced to use natural insemination method. Most of the sampled respondents (83.33%) practiced beef cattle fattening as a means of income. In the same manner about 10 and 6.66% of the respondents kept cattle for both income and consumption and for other assets respectively. The

respondents in the study area used different feed stuffs like green and dry maize, haricot bean, boiled maize, haricot bean, wheat bran, root and tuber crops, left over hot drink made from coffee leaf, minerals salt (local name “*aduwa*”) and traditional brewery waste (“*atela*”) as a means of supplement feed for the fattened cattle. Feed was the major challenges affecting the beef cattle fattening in the study area. Based on the current findings, strong attention should be given to improve the educational status of the respondents and improved forage system should be introduced for better production of beef cattle fattening in the study area.

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