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Original article

Assessment of feed resources in urban and peri-urban areas of mid and high land of Bale

Aliyi Kedu Jarso*

Sinana Agricultural Research Center, P.O. Box 208, Bale Robe, Ethiopia.

*Corresponding author: sadiigooroo@gmail.com

A R T I C L E   I N F O

A B S T R A C T

The survey was conducted in urban and peri-urban areas of mid and high land of Bale during September 2017 to June 2018 with the objective of identifying available feed resources, its utilization methods and constraints related to feeding. The three major towns of Bale zone Ginir, Goba and Robe and the villages surrounding them and having a border with the town were included. A total of 180 household were selected using both purposive and random sampling techniques. Out of the total respondents 66.1% were indicated feed and feeding system as primary constraints. In peri-urban the principal dry season feed resources available to livestock in the study area include crop-residue, stubble grazing, natural pasture and hay in their descending order. Milled grain, Agro-industrial byproduct and by product of local beverage "atela" are the main supplements used. In urban, feeds are mostly purchased from flour milling and oil producing houses. Despite high price and shortage of supplementary feeds, about 80% of the total respondents are supplementing concentrate to their dairy cattle. The total mean supplements of protein sources 0.94kg and energy sources 1.22kg per lactating cow provided per day and one lactating cow costs 31.66 and 30.87birr in average in urban and peri-urban area respectively to produce the total average milk of 3.65 litters. The overall average daily dairy production output is 65.90 birr and the average net profit is 2.36 and 34.76 birr per day/cow for local and cross breed respectively. Feed quantity and quality problem was the first ranked followed by lack of

improved breed and health problem. Hence, to bring a meaningful increase in livestock productivity livestock should be supplemented with a reasonable quantity and quality feeds. Similarly, the traditional husbandry practice, management of natural pasture and feeding value of crop residues should be improved.

1. Introduction

The livelihood of peoples in urban and rural area of Bale is influenced by livestock in various ways. In rural area partially mechanized crop production seeks the draught power from animals particularly equines and cattle. Cattle particularly oxen are used as draught power in cultivation of crops. In urban and rural areas cattle is the main source of milk. Urban are the main holders of human population which needs different Agricultural products in variety. Livestock products are the most important components of human food of which milk is mainly plays an important role in providing balanced diet for both adults and infants. Now a days the population of town dwellers is spectacularly increasing without significant change in milk yield. According to the population projection of Ethiopia by Central Statistical Agency (2010) by the end of 2017 the population of Robe and Goba town will increase by 15.21% in average which was 62,167 and 44,884 respectively in 2014 without satisfactory effort made to improve the production and productivity of milk and dairy cows in the area.

Livestock feed is one of the most important constraints which affecting production and productivity. The value chain study by SNV (2006) in peri-urban producers of Ethiopia indicated that the most important problem of the dairy cattle are feed and health which covers up to 29% and 22% of the total dairy product sale respectively in which the margin (return) from the sale was only 14% of the milk sales price. In Goba and Robe more than 80% of the respondents on the study of AI service efficiency in urban and peri-urban indicated as feed shortage is the primary problem and more than 48% of them indicated the problem associated with bloating (Aliyi, 2015). Now days different agro-industries are immerging in urban areas of Bale which could be a promising livestock feed source. Related to this there is also an indication of in appropriate feed utilization in which cow death and bloating problems are frequently reported. Urban and peri-urban production system of Bale high and mid-land was also not studded in a way it can support for farther development plan and strategies and open pathway for further studies. Therefore; the objective of this study is: To assess the availability of feed resource and feeding constraints in the study area.

2. Materials and methods

2.1. Study sites

The study was conducted in three major towns of Bale zone Ginnir, Goba and Robe and the villages surrounding them. The intra-urban farmers are considered as urban where as farmers outside the town administration is considered as peri-urban. The towns were selected based on their human population which influences the demand and availability of milk supply and existing dairy enterprises that produce milk and supply to the nearby towns.

Robe town is located in the North West part of Bale zone at a distance of 430km from the regional state and country center Addis Ababa. The total land coverage of the town has 12km^2. CSA (2013) was estimated as the population of Robe town and Sinana woreda will be 65,284 and 144,301 respectively in 2015. The town is located at 2400m above sea level with mean annual temperature of 12.5°C which experienced cool temperature and receive 1100mm amount of rainfall.

Goba town is located in the North West part of the zone. It has a distance of 15km from zonal capital Robe and at 445km from the regional state and country center Addis Ababa. The total land coverage of the town is 15km^2. The town has one AI center delivering service for both urban dairy producers and farmers around the town. CSA (2013) was estimated as the population of Goba town and Goba woreda will be 47,135 and 49,597 respectively in 2015. The town is located at altitude of 2500m above sea level with mean annual temperature of 12.5°C which experienced cool temperature and receive 1100mm of rainfall on average.

Ginir town in located in Ginir district which is one of the administrative parts of Bale zone which occupied about 2,384 square kilometers of land. The capital of the district (Ginir) has a distance of 133 km from zonal capital Robe and 633 km from centers of a country called Addis Ababa. CSA (2013) was estimated as the total population district and urban residents could be 170,218 and 28,289 respectively by the end of 2015. The lowest and highest altitude of the district is extended from 1200m-2406m above sea level. The annual average temperature is 25.45°c where as the minimum and maximum temperature is 23.2°c and 27.7°c respectively. The area is bimodal rainfall with annual average rainfall 700mm where as the minimum and maximum rainfall is 200 and 1200mm respectively.

2.2. Types and sources of data

The study was based on primary and secondary data. Primary data related to the socio-economic characteristics of the milk producers such as educational level, land size, livestock owned and also production system related information like feed, cattle breed type, reproduction traits and other service related data was gathered from the sampled dairy producers. Besides information regarding feed production system and storage system was compared with standard of forage production. Some data collected from the districts livestock agency, experts and other stakeholders of the area was used as supportive idea for the data from the interview of dairy producers.

2.3. Sampling method and sample size

For this study, both purposive sampling and random sampling techniques were employed for data collection. The target population was defined as dairy producers in and around the selected towns. Sample sizes were determined by the following formula Thrusfield (2005).

$$\text{Total(n)} = Z\alpha^2 X p \frac{(1-p)}{d^2}$$

Where: P (expected prevalence) = 0.5
d (desired absolute precision) = 0.073
$Z\alpha$ = 1.96.

Based on this formula, the total number of farmers to be sampled was 180. In this study the data was collected from both primary and secondary sources using structured questionnaires (survey) and different reports etc. as described here under.

2.4. Data collection and analysis

Primary information was collected from targets using semi-structured questionnaires and observation. The survey started with questionnaires, which was developed and pre-tested to check appropriateness and clarity of the questions.

Primary data collected from urban and peri-urban dairy farmers across the three towns (Goba, Robe and Ginir) were included socio-economic characteristics of the milk producers such as educational level, land size, livestock owned and also production system related information like feed, cows breed types, reproductive traits, Milk yield and other service related information was gathered from the sampled milk producers. In addition, information was obtained from District Agricultural officers, extension officers and other outside the formal sample to supplement the data.

Information on major feed resources and feeding systems, seasonal availability and opportunities and constraints of feed resource in the area were collected. Descriptive statistics was employed using SPSS 20.0 (Statistical Package for Social Sciences) to describe various variables in the feed resource production systems.

3. Results and discussion

3.1. Dairy cattle production system characterization

3.1.1. Household characteristics

House hold characteristics of the respondents in the study area are presented in Table 1. There was significant difference (P<0.0001) with respect to sex, educational status and age of the respondents across the study area. Out of the total households involved in the study (23.9%) were headed by females. Concerning

educational status, majority (62.2%) of the respondents' had completed primary education while about 12.8% were illiterates. More than 90.0% of the respondents were aged greater than 40 years, while 17 to 25 years aged participants was less than 3.3%. This indicates that less number of youngsters are participating in dairy cattle production. Out of the total participants 28.3% of them are using dairy as their primary income source in which Goba is the highest 67.2% number of respondents.

Table 1
Characteristics of the respondents in three towns and two production systems.

Sources of variation		Town								P-Value
		Ginir		Robe		Goba		Total		
		N	N %	N	N %	N	N %	N	N %	
Production system	Urban	29	49.2%	30	50.0%	31	50.8%	90	50.0%	
	Pre-urban	30	50.8%	30	50.0%	30	49.2%	90	50.0%	
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	
Sex of the participants	Male	54	91.5%	23	38.3%	60	98.4%	137	76.1%	
	Female	5	8.5%	37	61.7%	1	1.6%	43	23.9%	<.000
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	
Age of the participants	17-25	0	0.0%	6	10.0%	0	0.0%	6	3.3%	
	25-33	6	10.2%	2	3.3%	1	1.6%	9	5.0%	
	32-40	2	3.4%	0	0.0%	0	0.0%	2	1.1%	<.000
	>40	51	86.4%	52	86.7%	60	98.4%	163	90.6%	
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	
Marital status of the participants	Unmarred	4	6.8%	6	10.0%	0	0.0%	10	5.6%	
	Marred	50	84.7%	54	90.0%	61	100.0%	165	91.7%	<.002
	Widow	5	8.5%	0	0.0%	0	0.0%	5	2.8%	
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	
Education status of the participants	Illiterate	5	8.5%	18	30.0%	0	0.0%	23	12.8%	
	Primary	36	61.0%	35	58.3%	41	67.2%	112	62.2%	<.000
	Secondary	18	30.5%	7	11.7%	20	32.8%	45	25.0%	
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	
First income source of the participants	Crop production	50	84.7%	42	70.0%	20	32.8%	112	62.2%	
	Livestock Production	0	0.0%	10	16.7%	41	67.2%	51	28.3%	
	Employed	9	15.3%	0	0.0%	0	0.0%	9	5.0%	
	Pit trade	0	0.0%	8	13.3%	0	0.0%	8	4.4%	<.000
	Total	59	100.0%	60	100.0%	61	100.0%	180	100.0%	

3.2. Herd size

Average number of cattle owned per house hold and breed distribution across town and production system are presented in Table 2. The average number of cross bred dairy cattle per house hold was significantly different (p<0.05) across the production system. Total cross cattle holding per household in the urban area was somewhat higher than peri-urban households. Average cross cattle herd size was 3.36 in urban households and 2.83 in peri-urban households. Proportion of cattle holding in both urban and peri-urban in current study is slightly lower compared to the value reported by (Solomon et al., 2009) in Sinana/Dinsho district of Bale highlands. This may be due to few improved breed of dairy cattle was reared in urban and peri-urban areas than other rural areas of Arsi-Bale highlands, where more cattle are kept for draught power purpose. Herd size of local bred dairy cows in peri-urban households was 5.16 on average, which is 2.93 in urban area.

3.3. Livestock production constraints

In the study area out of the total respondents 66.1% of them were indicated feed and feeding system problem as primary constraints of the area. Bloating, sudden death, stunt growth, low milk production and general health problems was among the main problems raised related to feed and feeding. This agrees with study by FAO

(2012) which indicates animals fed on imbalanced diets frequently have a higher load of parasitic infestations that will utilise vital essential nutrients and cause health problem, stunt growth and poor productivity. Parasitic load in dairy animals affects growth, milk production and general health. Lack of improved breed were also among the main constraints ranked second in the area where as lack of health, milk marketing and cattle management problem was 3rd, 4th and 5th constraints raised respectively in the area.

Table 2
Average number of cattle per house hold.

Sources of variation		Cattle breed	N	Mean(Number cattle per house hold)	S.E	F-value	p-value
Production system	Urban	Cross breed cattle	90	3.36	0.39	3.57	0.060
	Pre-urban	Cross breed cattle	90	2.30	0.40		
	Total	Cross breed cattle	180	2.83	0.28		
	Urban	Local breed cattle	90	2.93	0.34	17.38	0.000
	Pre-urban	Local breed cattle	90	5.16	0.41		
	Total	Local breed cattle	180	4.04	0.28		
Town	Robe	Cross breed cattle	60	1.27	0.32	46.74	0.000
	Goba	Cross breed cattle	61	5.92	0.55		
	Ginir	Cross breed cattle	59	1.22	0.25		
	Total	Cross breed cattle	180	2.83	0.28		
	Robe	Local breed cattle	60	4.05	0.47	15.80	0.000
	Goba	Local breed cattle	61	2.30	0.42		
	Ginir	Local breed cattle	59	5.85	0.44		
	Total	Local breed cattle	180	4.04	0.28		
	Robe	Total cattle	60	5.33	0.43	18.377	0.000
	Goba	Total cattle	61	8.21	0.16		
	Ginir	Total cattle	59	7.07	0.37		
Total cattle			180	6.88	0.21		

Source: The field survey.

Table 3
The prioritization of livestock production constraints in the study area.

Livestock production constraints in the area	Production system						Rank
	Urban		Peri-urban		Total		
	N	N %	N	N %	N	N %	
Feed and feeding problem	63	70.0%	56	62.2%	119	66.1%	1
Lack of improved breed	52	19.8%	48	53.33%	100	55.56%	2
Health problem	27	30.0%	20	22.2%	47	26.1%	3
Milk marketing problem	22	18..0%	30	3.33%	53	24.4.0%	4
Cattle management problem	10	11.11%	26	29.00%	36	20.00%	5

Related to cattle management system more than 90% of the participants in urban area are keeping their cattle in house made up of local material. Only 5% of the participants are using good standard houses for their cattle. In peri-urban production system only 16% of the participants are keeping their anima in separate house.

3.4. Feed resources and feeding system

In the study area, the availability of feed resources has no significant variation in urban production system with season with respect to quality, quantity and type of feed except price of the feed. But in peri-urban production system the feed resource availability and quality had variation with the season. In peri-urban the principal dry season feed resources available to livestock in the study area included crop-residue, stubble grazing, natural pasture hay agro-industry byproducts and by product of local beverage *"atela"* in their descending order of magnitude. In urban most of the time feeds are purchased from flour milling and oil producing houses.

Table 4
Table of supplementation regime by season in the study area.

Production system		During dry season		During wet season only		Both dry and wet season		No supplementation at all	
		N	N%	N	N%	N	N%	N	N%
Robe (N=60)	Urban (N=30)	2	6.67	0	0.00	28	93.33	0	0.00
	Peri-urban (N=30)	0	0.00	0	0.00	28	93.33	2	6.67
Goba (N=60)	Urban (N=30)	0	0.00	0	0.00	28	93.33	2	6.67
	Peri-urban (N=30)	0	0.00	0	0.00	18	60.00	12	40.00
Ginir (N=60)	Urban(N=30)	0	0.00	0	0.00	24	80.00	6	20.00
	Peri-urban (N=30)	8	26.67	0	0.00	18	60.00	4	13.33
Total (N=180)		10	5.56	0	0.00	144	80.00	26	14.44

Source: The survey.

The most common supplement feeds are oil seed cakes, wheat bran, four house by products, wheat short and other by product of local beverage. Whereas, during the wet season, the principal feed resources were natural pasture, crop-residue, hay and stubble grazing in their descending order of intensity of use by producers in peri-urban. All most all respondents of urban householders were dependent on purchasing of Agro-industrial by products and local beverage. However, livestock production was constrained from getting year round feed supply both in quality and quantity across the study area. This may be due to failure of feed management and inappropriate feeding system.

Farmers feed their animal by mixing different concentrate feeds with roughages. In this study area dairy cows are fed with mixture of crop residue and wheat short, wheat bran and byproduct of local beverage *"atela"* and oil factory by-products like linseed cake. However, oil seed cakes are not preferred by farmers for lactating cows, since they have their own perception on harmful effect of oil seed cake on butter quality and cow fertility. The percent of respondents supplementing in both dry and wet season was almost the same in urban and peri-urban. The availability of byproduct of local beverage *"atela* and malt industry by product feed is highly scarce in all town where survey was carried out since the malt industry is not found in the area and most of the local residents are not making local beverage since it is prohibited by Muslim religion.
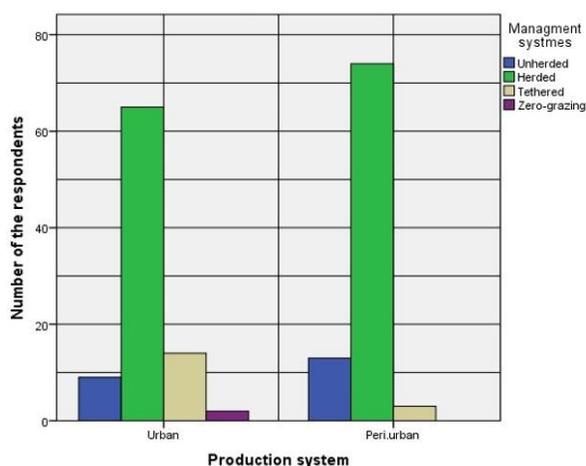
Fig. 1. Responses of the participants on wet season dairy cattle management systems in the study area.
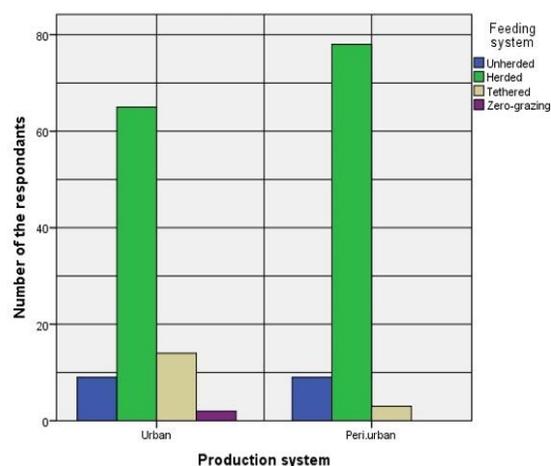
Fig. 2. Responses of the participants on dry season dairy cattle management systems in the study area.

More than 65% of the respondents in both urban and preri-urban lactating dairy cattle are herded with other cattle fig. 1 and 2. According to the responses of the participants the total mean supplements of the protein 0.94kg and energy 1.22kg per day for dairy cow is below the standard sated by FAO (2012). The amount of protein and energy source supplements provided for dairy cow is significantly varied ($p<0.05$) within town and production system. The amount of supplements provided for their cattle is relatively higher in urban compared to peri-urban.

Table 5
Responses of the participants on their daily supplements per lactating cow in kg.

Sources of variation		Supplements for lactating cow/day in Kg	N	Mean	SE	F-value	p-vale
Production system	Urban	Energy source supplement	90	1.25	0.08	0.228	0.634
	Peri-urban	Energy source supplement	90	1.19	0.09		
	Total		180	1.22	0.06		
Production system	Urban	Protein source supplement	90	1.07	0.03	11.587	0.001
	Peri-urban	Protein source supplement	90	0.81	0.07		
	Total		180	0.94	0.04		
Town	Robe	Energy source supplement	60	1.14	0.08	17.609	0.001
	Goba	Energy source supplement	61	1.02	0.02		
	Ginir	Energy source supplement	59	1.95	0.28		
	Total		180	1.22	0.06		
Town	Robe	Protein source supplement	60	0.67	0.07	19.281	0.001
	Goba	Protein source supplement	61	1.02	0.02		
	Ginir	Protein source supplement	59	1.27	0.13		
	Total		180	0.94	0.04		

*mean variation is significant at F-value < p-value at α=0.05

3.5. Cost of milk production

Table 6
Responses of the participants on their daily cost of feed per lactating cow.

Sources of variation		Types of feed fed within a day	N	Mean (Cost feed/cow/day in birr.)	S.E.	F-value	p-value
Production system	Urban	Energy source feed	90	4.18	0.30	0.225	0.636
	Peri-urban	Energy source feed	90	3.97	0.32		
	Total		180	4.07	0.22		
	Urban	Protein sources feed	90	9.13	0.60	2.813	0.095
	Peri-urban	Protein sources feed	90	7.53	0.74		
	Total		180	8.33	0.48		
	Urban	Roughage feed	90	16.91	1.10	0.407	0.524
	Peri-urban	Roughage feed	90	15.88	1.05		
	Total		180	16.39	0.76		
	Urban	Mineral supplied	90	0.88	0.10	0.000	1.00
	Peri-urban	Mineral supplied	90	0.88	0.07		
	Total		180	0.88	0.06		
	Urban	Cost of water	90	0.43	0.08	0.479	0.49
	Peri-urban	Cost of water	90	0.50	0.07		
	Total		180	0.47	0.05		
	Urban	Health and other costs	90	0.1258	0.02	0.841	0.36
	Peri-urban	Health and other costs	90	0.1076	0.01		
	Total		180	0.1167	0.01		
Total production cost/cow/day in urban			90	31.66	1.56		
Total production cost/cow/day in Peri-urban			90	30.87	1.67		
Total production cost/cow/day			180	31.14	1.57		

* mean variation is significant at F-value < p-value at α=0.05
*each feed type costs are calculated from daily consumption per cattle multiplied by current cost of feed in kg/gm/Liter/Quintal in the market

The value chain study by SNV (2006) in peri-urban producers of Ethiopia indicated that the most important problem of the dairy cattle are feed and health, which covers up to 29% and 22% of the total dairy product sale respectively. This study reviled that one lactating cow costs 31.14 birr in average to produce the total average milk of 3.65 litters. The main energy supplement feed used in peri-urban is wheat bran whereas the most common protein source supplement feeds is linseed cakes. The cost of energy source feed is relatively small in peri-urban area compared to urban this is due to farmers in peri-urban area uses another alternative such as maize and barley flour produce by their own. Barley straw and hay are among the most common roughage feeds used in the study area. Dairy producers in urban relatively costs higher than peri-urban this is related to purchasing and transportation. The cost of mineral supplements indicated in Table 6 include the table salt and other local mineral soils such as "bole or boji" used in the area.

Despite daily high cost of production 31.41 birr per cow was used by the producers the overall average milk yield per day/cow is only 3.6 litter Table 7. The yield is only 1.95 liter for local cows and 5.35 liter for cross breed cows. This is slightly better than the national average 1.9 milk yields of local cows and less than current national average milk which is 6 liter per cow per day for cross breed cow respectively.

Table 7
Responses of the participants on their daily total milk yield per cow in liter.

Sources of variation		Dairy cows breed types	N	Mean (milk yield/cow in L)	S.E.	F-value	p-value
Production system	Urban	Cross breed	90	5.69	0.41	1.66	0.201
	Peri-urban	Cross breed	90	4.86	0.48		
	Total cross breed cow		180	5.35	0.31		
Production system	Urban	Local cow	90	2.32	0.17	14.42	0.001
	Peri-urban	Local cow	90	1.7	0.06		
	Total local cattle		180	1.95	0.08		
Town	Robe	Cross breed	60	6.5	0.93	5.12	0.008
	Goba	Cross breed	61	5.17	0.37		
	Ginir	Cross breed	59	4.76	0.57		
	Total cross cow		180	5.35	0.31		
Town	Robe	Local cow	60	2.23	0.16	10.90	0.001
	Goba	Local cow	61	2.17	0.00		
	Ginir	Local cow	59	1.46	0.08		
	Total local cow		180	1.95	0.08		
Overall milk yield/day			180	3.65	0.19		

*Mean variation is significant at F-value < p-value at $\alpha=0.05$

The overall mean total sale of the milk per cow per day in the study area is 65.90 birr is significantly varied (p<0.05) in production system and also across towns. The highest milk sale per day per cow is observed in urban area 92.53 birr and 132.69 birr in Robe town.

Table 8
Response of the participants on their daily milk sale per cow in birr.

Sources of variation		Cattle breed	N	Mean (Production output in birr)	S.E.	F-Value	P-value
Production system	Urban	Cross breed cow	90	92.53	8.41	4.49	0.037
	Peri-urban	Cross breed cow	90	66.64	8.09		
	Total cross breed cattle output		180	82.10	6.14		
Production system	Urban	Local breed cow	90	41.65	3.03	21.45	0.000
	Peri-urban	Local breed cow	90	28.49	1.23		
	Total local breed cattle output		180	33.50	1.54		
Town	Robe	Cross breed cow	60	132.69	14.75	10.39	0.000
	Goba	Cross breed cow	61	62.05	4.48		

			N				
	Ginir	Cross breed cow	59	100.26	14.25		
	Total cross breed cattle output		180	82.10	6.14		
Town	Robe	Local breed cow	60	33.35	2.99	0.109	0.897
	Goba	Local breed cow	61	32.55	0.00		
	Ginir	Local breed cow	59	34.51	2.34		
	Total local cattle output		180	33.50	1.54		
Overall dairy output/day/cow			180	65.90	6.47		

*mean variation is significant at F-value < p-value at α=0.05

According to the value chain study by SNV (2006) in Ethiopia the margin (return) from the sale was only 14% of the milk sales price. In this study the overall average production output is 65.90 birr Table 8. The overall average daily production cost per cow in the area is 47.25% of the average total sale which is below 51% by SNV (2006). The margin of the total mean of the total sale per day per cow is 34.76% which is 2.9 times higher than the previous study by SNV (2006). This is related to most of the dairy producers both in urban and peri-urban have food crop farm field and utilize straw and other farm by product for low cost.

Table 9
Overall production cost and return from the sale in the area/cow.

Sources of variation		Cattle breed	N	Mean (Production output in birr)	mean (cost of production /cow/day in birr)	Net profit in birr/day/cow	Production cost
Production system	Urban	Cross breed cow	90	92.53	31.66	60.87	34.22%
	Peri-urban	Cross breed cow	90	66.64	31.14	35.5	46.73%
	Total cross cattle output		180	82.1	31.14	50.96	37.93%
Production system	Urban	Local breed cow	90	41.65	31.14	10.51	74.77%
	Peri-urban	Local breed cow	90	28.49	31.14	-2.65	109.30%
	Total local cattle output		180	33.5	31.14	2.36	92.96%
Town	Robe	Cross breed cow	60	132.69	31.14	101.55	23.47%
	Goba	Cross breed cow	61	62.05	31.14	30.91	50.19%
	Ginir	Cross breed cow	59	100.26	31.14	69.12	31.06%
	Total cross cattle output		180	82.1	31.14	50.96	37.93%
Town	Robe	Local breed cow	60	33.35	31.14	2.21	93.37%
	Goba	Local breed cow	61	32.55	31.14	1.41	95.67%
	Ginir	Local breed cow	59	34.51	31.14	3.37	90.23%
	Total local breed cow		180	33.5	31.14	2.36	92.96%
Overall dairy output/day/cow			180	65.9	31.14	34.76	47.25%

Source: The survey.

This study also reviled that the production cost was rapidly increased due to dramatically increasing of livestock feed and health service cost.

4. Conclusion

- Livestock play a significant role to the Urban and peri-urban residents of Bale zone. However, husbandry practices are almost not yet improved, inadequate feed resources both in quantity and quality especially during the dry season were the main limiting factors of livestock production.
- Feed quantity and quality problem was the first ranked followed by lack of improved breed and health problem. Problems related to feeding techniques and high cost of livestock feed in which cost of production is 47.25% of the total average milk sale in the area was highly stressed during focus group discussion.
- Hence, to bring a meaningful increase in production and productivity cattle should be supplemented with a reasonable quantity and quality feeds. Similarly, traditional husbandry practice, management of natural pasture and feeding value of crop residues should be improved.
- Poor productivity of the local breeds might be highly related to poor genetic potential of the cattle or lack of appropriate genetic improvement techniques. Hence, improvement of the productivity of indigenous breeds

through selection program in rural area and improving the potential of the crossbreed cattle in urban should be induced in the area.

Acknowledgments

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