ASSESSMENT ON MILK PRODUCTION AND MARKETING SYSTEM IN CHEHA WEREDA GURAGHE ZONE IN SNNPR ETHIOPIA

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ASSESSMENT ON MILK PRODUCTION AND MARKETING SYSTEM IN CHEHA WOREDA, GURAGE ZONE SOUTHERN, ETHIOPIA

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LIST OF ABBREVIATION

AADPA	Addis Ababa Dairy Producers Association
ALPPIS	Addis Livestock Production and Productivity Improvement services
ATVET	Agricultural Technical and Vocational Educational Training
CSA	Central Statistics Authority
DA	Development Agent
DDE	Dairy Development Enterprise
FAO	Food and Agriculture Organization
FTC	Farmer Training Centers
GDP	Gross Domestic Product
TLU	Tropical livestock unit
MD	Millennium Development
MOA	Ministry Of Agriculture
MoARD	Ministry of Agriculture and Rural Development
NAIC	National Artificial Insemination center
NGO	Non-Governmental Organization
SNNP	Southern Nations, Nationalities, and Peoples
SSA	Sub Saharan Africa
UAE	United Arab Emirates
USD	US Dollar

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ABSTRACT

The study was conducted in Cheha Woreda, Gurage zone on assessment of milk production and marketing system. The study was done by taking of 60 households by random sample after purposive selections of three kebeles and 20 respondents from each kebeles. Questioners was developed and interviewed used for primary and secondary data collection. And the constraints associated to its milk production in Cheha district. In the study area was production system is extensive (54.7%), intensive (17.3%) and semi intensive (28.0%). And their marketing system is informal. The major cattle breed kept by farmers was local breed and cross breed zebu X Local breed. The major feed resources in the study area were natural pasture (41.7%), crop residue (23.3%) and agro industrial by product (6.6%). The major constraints to milk production in the study area were feed shortage (45.1%), disease prevalence (15.6%) and (1.54 litter low milk yield of local cow. The major constraint of milk marketing in the study area were season, access to market distance, transportation problem. Thus strong extension works is needed and create awareness about the importance of dairy and dairy products and their values.

Key Words *Marketing System Milk, Milk Production*

1. INTRODUCTION

1.1. Background

Ethiopia holds a large livestock population (Mohammed *et al*., 2004).From which 59.5 million heads of cattle, 30.7 million heads of sheep, 30.2 million heads of goats,11.01 million heads of equines,1.21 million heads of camels and 56.56 million of poultry (CSA, 2016/17). There is large cattle population and favorable climatic conditions, Even though the current milk production in the country is low. This is reflected by the low per capita milk consumption and increasing trend in imports of milk and milk products (Getachew, 2003).

Milk is an important source of nutrients to human and animals. It is meant to be the first and the only food for the offspring of mammals is almost complete food (Pandey and Voskuil, 2011).Like most developing countries, Ethiopia increasing human population, urbanization trends and raising household income are leading to a substitution increase the demand for live stock products, particularly milk and meat. In order meet the growing demand for milk in 4percent per annum. (Azage Tegegne, 2002). Birding this wide gap calls for the design of appropriate and sustainable dairy development strategies based on socio economic development strategies institutional and agro ecological circumstance that build on the demand of consumers and the needs and opportunity of producers.(Syntayehu yigerem et al,.(2008).

The total annual national milk production in Ethiopia comes from about 10 million milking cows and is estimated by 3.2 billion liters that is, 1.54 L/cow on average (CSA, 2014). while based on market orientation, scale, and production intensity, dairy production system can be categorized as traditional small holders privatized state farm and urban and peri- urban systems (Ahmed et aal,2003).Total milk production in Ethiopian is estimated at around 1.2 million tons per annual and increase at rate of 1.21 for milk production for indigenous cattle and 3.5% from the improved cattle. The per capita consumption of milk in Ethiopia is about 16kg per person per year. This is much lower than the Africa and world average capital is 27kg and 100kg per year respectively (Azage, 2003). In Ethiopia fresh milk sales by small holder producers are important only when they are close to formal milk marketing facilities, such as government enterprise or milk groups, producers far from formal marketing outlets prefer to produce other dairy products instead, such as cooking butter and cottage cheese. The vast majority of milk produced outside

urban centers in Ethiopia is processed into dairy products by the households, and sold to the traders or other households in local markets (Muriuki et *al*., 2001).South Nations, Nationalities and Peoples Region is the third highest potential region of the country in livestock production having 11.04 million cattle population next to Oromia and Amhara which owns about 22.50 million and 14.22 million cattle population respectively (CSA, 2014). With average productivity of 1.65 liter per day per cow, the total annul milk yield in SNNPRS is 667, 562 tons (CSA, 2010), from which 88.6% is consumed at home, 2.29% is sold, 0.36 is paid in kind for wage and 8.73% is processed into other dairy derivates (CSA, 2010)

1.2 Statement of the Problem

Basically milk production and marketing system in developing countries are established for the purpose of livelihood and used as an income for small enterprise. Milk production and marketing system are not well develop because of low production of milk, high seasonality of milk production, and its marketing, easy spoilage of milk due to long distance walk of producers to the market, lack of milk collecting facilities and materials, lack of market oriented organization, weak vertical integration between milk production and urban consumption centers, weak vertical integration between milk marketing and consumer, low demand and high trans action cost.

1.3. Significance of the study

Most importantly it is expected that the study will signify the performance of milk production and marketing system, to signify the integration between production and marketing with consumers from the outset that non-governmental organization, governmental organization and other private sectors to take precaution and will be see the instrument for police makers and development plans.

1.3. Objectives

1.3.1 General objective

To assess milk production and marketing system in Cheha district

1.3.2 Specific objective

To asses production and marketing in the study area

To asses milk marketing system in the study area

To assess the major constraints of milk production and marketing system

2. LITERATURE REVIEW

2.1. Milk Production System in Ethiopia

Dairy production is practiced all over Ethiopia by pastoralists. Agro pastoralists and crop livestock farmers involving vast number of small scale, medium scale, and large scale farmers and Classified by different literature depending on several factors. According to Alemu Gebrewold et al, (2000). Dairy production system can be traditional small holders, private state farmers urban and per-urban system based on market orientation, scale and production intensity, also can be broadly categorized in to urban, per-urban and rural milk production system, based on their location (Teshay Redda, 2002). Another researcher also classifies the dairy sector in Ethiopia based on climate, landholding integration with crop production as small scale rural, per-urban, and urban (Dereje Tesgaye *et al.*, 2005).

Following debrah, (1992) dairy production in SSA can classified in to traditional and improved production system. Regarding dairy, the Ethiopian milk production remains among lowest in the world, even by the African standard. Livestock play vital role in economic development particularly as society evolve from subsistence agriculture into cash-based economics. Ethiopia is endowed with good dairy production potential mainly due to relative fair natural resource milk production systems can be identified based on various criteria. Milk production systems can be broadly classified into urban peri-urban and rural milk production systems based on location (Asrat *et al*, 2013).

2.1.1 Traditional milk production system

The traditional production system includes subsistence, pastoralist and agro pastoralist system (debrah., 1992). The system is not market oriented and most the milk produced in it is retained for home consumption (Tsehay Redda, 2002). House hold will hold a mixture of cattle, sheep, goat, and camel, seasonally, a majority of the stock is moved to follow water and pasture resources for livestock. Mineral soil salt is also feed resources for live stock feed in both wet and dry season (kedija Hussien et al., 2008). The level of milk surplus is determined by the demand for milk of the household and its neighbors, the potential to produce milk in terms herd size, production season and access to a nearby market. The surplus is mainly processed using traditional technology and milk products such as butter, ghee, ayib and sour milk are usually

marketing through the informal market after the households satisfy their needs (Tsehay Reda, 2002). In the rural area of the high lands, producers keep mostly zebu cattle which have lower milk production. The average milk production can range from 400-600 liter for a 200 day lactation period (2-3 liter per day per head).

2.1.2 Improved milk production system

The improved milk production system includes intensive small holder system and urban /pre urban, semi intensive/intensive dairy systems (Debrah, 1992). Commercial production system is labor and inputs intensive as compared to the other systems. Most of the feed resource based on purchase and some part of the feed requirement will be fulfill from own source. These farm uses improved dairy animals with different exotic gene level (LDMPS, 2007). Both urban and dairy urban systems are located near Addis Abeba and regional towns and take advantage of urban markets (Tsehay Reda., 2002).

Dairy farmers in the dairy urban and urban area are specially targeting consumer in the nearby town and city. The urban milk production system consist of small, medium, and large dairy farms producing about 35 million litter of milk annually the total urban milk production, 73% is sold, 10% is left for household consumption, 9.4% goes to calves and 7.6% to processed in to butter and ayib. In terms of marketing, 71% of the producers sell milk directly to consumers (Tsehay Reda, 2002). The majority of the pure animals reside on commercial or government farms, although the number of farms housing these animals was unknown as the time of the assessment. In the Addis Abeba vicinity there are an estimated 5,000 dairy producers with grade and cross breed caws producing 34 million liters per year (Azage Tegegne, 2002).

The pre-urban milk production system includes smallholder and commercial dairy farmers near Addis Abeba and other regional towns. This center controls most of the country improved dairy stock. Because of the scarcity of land, cattle are maintained under confined systems were feed is provided directly to cattle. Producers would rely mainly rely on cut and fodder (44%), brewers waste (35%), oil seed cakes (16%), commercial feed (3%) and others (2%) (Tsehay Redda, 2002).

2.2 Milk Marketing System in Ethiopia

Milk marketing is an incentive for farmers to improve production. It stimulates production, raise milk, raise farmer income and living standards and create employment in rural areas (Assaminew Tassew, 2007). According to win rock (1989), marketing includes all activities performing in moving commodities from the producer to consumer. It also includes all exchange activities of buying and selling, all activities physical performed to give the commodity increased utility all the auxiliary activities such as financing, risk bearing and disseminating information to participants in the marketing process (SintayhuYigerem etal.,2008).The Ethiopian milk marketing system is not well developed (Getachew Felleke., 2003).As is common in other African countries (e.g. Kenya and Uganda). Dairy products in Ethiopia are channeled to consumers through both formal and in formal dairy marketing system (hollway et al., 2000).

2.2.1 Formal marketing system in Ethiopia

In the formal marketing system milk is collected at the cooperative or private milk collector centers and transported to processing plants. Milk quality tests by acidity using alcohol and clot on boiling test, clot on boiling test, density test are performed on delivery, their by assuring the quality of milk (Muriki and Thrope., 2001).Until 1991 formal market of cold chain and pasteurized milk exclusively dominated by dairy development enterprise. Generally the total formal market of milk is small. Dairy farm owners as a result sell their milk and milk products formal market was limited to urban and per-urban areas where collection of milk is possible, (Negash., 2012).

2.2.2 Informal milk marketing system

Dairy farm owners as a result sell their milk and milk products informally to vendors or village consumers. Few producers located to near to urban areas sold their milk and milk products informally to hotels, cafeteria houses and direct to consumers. (Woldemichael, 2014).In the informal milk marketing system it involves direct delivery of fresh milk by producers to consumers in the immediate neighborhood and sells to traders or individuals nearby town. It characterized by no licensing requirement to operate or to work, easy to operation, low cost of operation, high production compare to formal marketing system, no rule and regulation to operate (SNV, 2008).

The hygienic condition is small and very poor. The informal milk marketing system exist in Ethiopia both commercial and smallholder farmers use the informal channel to sell milk and milk products. Generally informal milk marketing system is low profitable compare to formal and it is illegal.

2.3 Actors in Milk Marketing in Ethiopia

In any marketing system, various actors participate in marketing of commodities and process of transaction made (Holloway et al, 2000). (Getachew Felleke *et a*l., 2010). Classified the actor in the dairy industry as macro, meso and micro actor (Getnet Haile (2009). The main actors in Ethiopia dairy industry are direct actors service providers and enabling environment.

2.3.1 Direct actors

Producers do supply more distant consumers directly depend on individual circumstances such as the amount of surplus, the cost of transport and the availability of sales in the immediate locality. There are obvious economic trade-offs for dairy in both extra costs and time incurred ,limiting how far and how much effort producers will make. Prices paid by consumers depend on the region (milk-surplus/deficit area), but even more so the micro-locality of milk available in the immediate neighborhood (woldemichael Somano., 2008). Majority of rural smallholder producers may be excluded from the emerging value chain due to capacity limitations. Small producers lack the necessary technological organizational and institutional capacity for successful participation in the market. They are less organized and distant from market, lack economies of scale, face higher transaction costs and lack institutions for risk management (Tesfaye Lemma etal., 2009). Urban and pre-urban smallholders are the main supplier of raw milk in the dairy industry.

Most of milk processor does not have dairy farm. Even those who have their own farms are souring mainly from small holders, recently cooperative are playing an important role in ensuring sustainable supply of raw to the industry by coordinating the flow of the milk from their members and assisting members by supplying inputs to the dairy farms (Getachew Felleke etal.,2010). Many cooperative are established since 1991 for marketing of raw milks of small holder in the urban and pre-urban areas. Bezabeh Emana (2009).

Reported that there are 180 cooperatives engaged in milk production and marketing operating in different parts of the country. The most successful cooperatives are and some cooperatives found in selale area, selale union is active union which is doing well, and selale dairy union do not have chilling facilities but aluminums and plastic bucket used for collect milk from the producers (Getachew Felleke et al,.2010). Small scale processors are those who are limited them to small scale niche market like formajo. Small scale processors are directly buying raw milks from union, cooperatives and individuals (SNV. 2008).

Retailers these include dairy marketing intermediaries such as super markets and other small and large scale retailers who trade dairy as part of other retail activity mainly involving sale of other house hold consumer (wolde Michael somano,2008).The growth in super market has been triggered by the urban population increase income growth of relatively well, more over other super markets also exist in major towns of the country which distribute milk and milk products processed by milk processing companies based in Addis Abeba (Getachew Felleke etal,.2010). Consumers this is the last link in the dairy marketing chain. From the consumer point of view, the shorter the marketing chain, the more likely is the retail price going to be low affordable (Getanet Haile, 2009).

2.3.2 Service provider

There are about40 feed retailing private business in the urban and pre-urban milk shade areas of the country. Along with the feed supplied from these companies milk producers also use crop residues, hay and other by products from wheat flour and brewery factories, the service of the financial institutions development of dairy sector in Ethiopia is of paramount importance however the different business operator in the marketing are complaining on the commercial banks particularly in terms of flexibility and speed decision (Getnet Haile, 2009). There are nine insurance companies and one of the biggest of all, which is state, owned insurance companies have different types of policies for property and in relation to man power. Most of the insurance companies have not policies for live stock some of the insurance policies (Getnet Haile, 2009). However their policies lack flexibility and suitability to address the peculiarities of the various live stock holders. In addition, no insurance policies are available no potential losses on un expected natural disaster or to cover potential perils for milk product in transport or storage (SNV2008).

2.4 Major Constraints of Milk Production

As SNV (2011) survey of the study portrays that low genetic potential of productivity trait in combination with the substandard feeding, health care and poor management practices are expected to be the main contributors to the low productivity in Ethiopia milk production and productivity is low due to different constraint such as lack of market, lack of adequate information on livestock resource inadequate permanent trade routes, other factors like feed, water, holding grazing land, lack of provision of transport, lack of infrastructure, prevalence of disease. In generally, based on production system, dairy cattle production in Ethiopia is grouped as pastoralists, agro-pastoralist, mixed crop livestock producer, urban and per-urban dairy Cattle system (Ketema,2000; Zegeye,2003).

2.5. Major constraints of milk marketing system

The dairy sector is characterized by small-scale, scattered, and unorganized milk-animal holders; low productivity; inadequate and inappropriate animal feeding and health care; lack of an assured year-round remunerative producer price for milk; an inadequate basic infrastructure for provision of production inputs and services; an inadequate basic infrastructure for procurement, transportation, processing and marketing of milk; and lack of professional management and Other important characteristics of the dairy sector are the predominance of mixed crop-livestock farms and the fact that most of the milk animals are fed on crop by-products and residues, which have very low opportunity cost. (K. Rajendran,et al 2004).

3 MATERIALS AND METHODS

3.1. Description of the Study Area

The study was conducted in Cheha districts; the district is located in Gurage Zone of Southern Nations, Nationalities and Peoples Regional State (SNNPRS), Ethiopia (Figure 1). The capital of the district, Endbir, is located at 188 km south of Addis Ababa on the way to Wolkite town, the capital of the Zone. The geographical location of the study area extends from 8° 00' 18.9" to 8° 15' 28.53" N and 37° 35' 46.48" to 38° 03' 59.59" E at an elevation ranging from 900 to 2812 meters above sea level (masl). It has a total area of 57313.85 ha of which 40190 ha is cultivated. The district constitutes 38 rural kebeles. As it is true to the other parts of Ethiopia, rainfall and temperature conditions depend on elevation. The average annual rain fall of the area is about 1268.04 mm and the average maximum and minimum temperature in the study area is 24.97 ^{o}C and 10.69 ^{o}C, respectively (Woreda's Agricultural Office,2011).

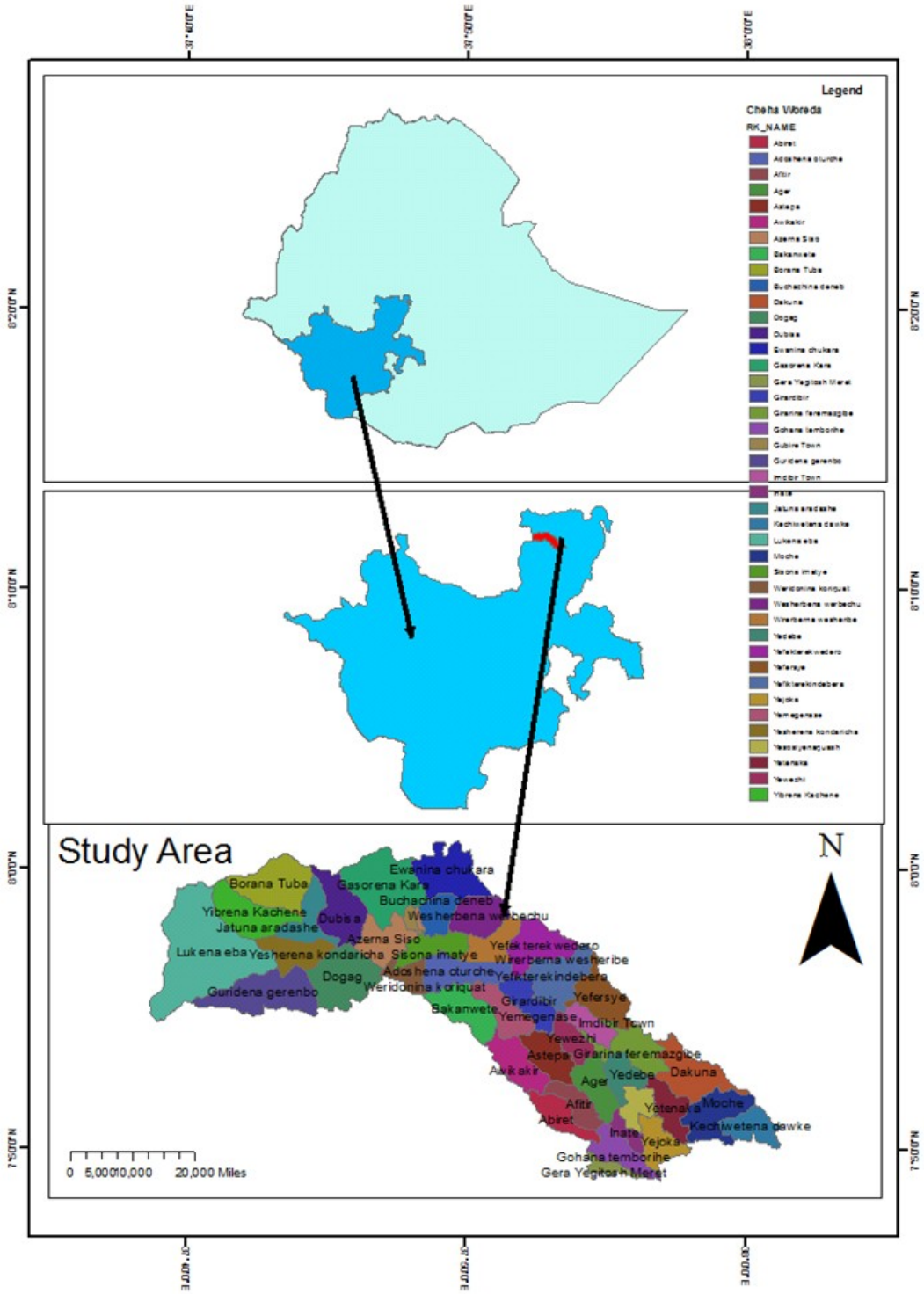


Figure 1.Map of the study area.

3.2 Method of Data Collection

Both primary and secondary data was collected. Primary data was collected from sample respondent through interview, by using questionnaires and direct observation. Secondary data were collected from previous reported of agricultural office and from book and internet.

3.3 Sampling Method and Sampling size

Both purposive and random sampling techniques were used Purposive sampling technique was used to select representative kebeles, while random sampling techniques was used for house hold selection.

3.3.1 Sample Size

From the total of 38 kebeles in the Woreda 3 representative kebeles was selected purposively. From each selected Kebele we have randomly selected thus a total of 60.

3.4 Method of Data Analysis

The primary data collected from household survey through semi-structured questionnaires were processed (data was check for accuracy; data entries were coded, coded data were entered in to computer). Processed data were analyzed by using Statistical Package for Social Science version 20 (SPSS, 2017) software. Descriptive statistics such as percentage, frequency mean were used to summarize the results of the study.

4. RESULT AND DISCUSSION

4.1 House Hold Profile of the Respondent

As indicated in the table below shows that out of the total interviewed respondents (N = 60), 73.3% were male and the rest (26.7%) were female household members of different age and educational status. Most (73.3%) of the respondents were married, while 16.7% and 10.0% were single and divorced respectively. About 52.0% of the respondents ranged in age between 20–40 years and 41–60 years (26.0%) and 61-80 year (22.0%) respectively. Regarding the religion of the respondents, 45.0% were Muslim followers, 41.7% were orthodox, 13.3% were protestant followers. With respect to educational status of the household head, the majority of dairy producers were illiterate. From the interviewed respondents about 50.0% illiterate and 33.3% read and write 15.0% between primary and secondary school and 1.7% above secondary school respectively.

Table 1house hold profile of the respondent

No	**Description**	**Number of respondent**	**Percentage**
1	**Sex**		
	Male	44	73.3%
	Female	16	26.7%
2	**Age**		
	20-40	30	52.0%
	41-61	17	26.0%
	61-80	21	22.0%
3	**Marital status**		
	Married	44	73.3%
	Single	10	16.7%
	Divorced	6	10%
4	**Religion**		
	Muslim	27	45.0%
	Orthodox	25	41.7%
	Protestant	8	13.3%
5	**Education status**		
	Illiterate	30	50.0%
	Can read and write	20	33.3%
	b/n primary and secondary school	9	15.0%
	Above secondary school	1	1.7%

4.2. Livestock Holding In the Study Area

Livestock species and composition are presented in (table2), the result showed that cattle were account (71.1%), followed by sheep (15.6%) and goat (13.3%) unlike donkey, horse and poultry were found few in the study area. On the other hand, camel and swine were indicated in the study area. The number of cattle was observed to be higher in the stock, possible reason would be cattle has multiple uses for farmers for instances cattle use for working, milking, breeding, fattening and cash income. The number of sheep was however observed to be higher in the stock than goats, possibly due to the ease of handling, management and the practices of herding them along with cattle.

The current result was in agreement with Suleiman (1998) study; in farming stock is comprised mainly for cattle and to some extent sheep and goat with little poultry. The present study was also in comparable to daodu *et al.* (2009) study in oyo area of southwest Nigeria who resulted that; of the ruminant cattle were more with 48% of the population compared to sheep 28% and goats 24%. More ever girma *et al.* (2014) had reported similar finding to current result who accounted cattle, sheep, poultry and donkey.

The result also indicated that breeding cattle (lactating and pregnancy) were dominantly found the herd due to the fact that they are reserved or breeding and milk production with few bulls retained to replace those sold. As presented in (table2), the respondents indicated that the majority of lactating cows (66.7%) was found in sisena ematye. The reason may be in they have large grazing land and dairy cooperatives. The current study was in consistence with mohammed (1990) and (girma *et al*., 2014) study. Girma *et al* (2014) had found in both urban and per-urban production system Adam Tulu (Ethiopia); higher numbers of cows are pregnant and lactating.

Table 2 livestock holding in the study area

Livestock	Kebele name							
	Sisena ematye (%)		Buchachin (%)		Gasore (%)		Total	
	N=20	Herd size/hh	N=20	Herd size/hh	N=20	Herd size/hh	N=60	Herd size
Cattle	10	0.667	5	0.333	4	0.267	19	0.422
Total	44	2.93	25	1.667	23	1.533	92	2.04
Sheep	1	0.06	2	0.133	4	0.267	7	0.156
Goat	3	20	1	0.067	2	0.133	6	0.133
Donkey	2	13.3	1	0.067	1	0.067	4	0.09
Horse	0	0	0	0	0	0	0	0
Poultry	2	13.3	1	0.067	1	0.067	4	0.09
Swine	-	-	-	-	-	-	-	-
Camel	-	-	-	-	-	-	-	-

4.3 Milk Production System

Table 3milk production system in the study area

Description	Use (%)
Intensive	17.3%
Extensive	54.7%
Semi intensive	28.0%

As indicated in the above (table3) production system were mostly dominated by extensive production system (54.7%) this type of milk production is not market oriented and the milk used to house hold consumption rather than sold. This result is similar with, (Tsehay Redda, 2002) studies were extensive milk production system is not market oriented and most the milk produced in it is retained for home consumption. Some respondent was used, semi intensive

(28.0) and intensive milk production system (17.3) based on milk cow production system thus study were similar from Asrat, et al.,(2013) studies milk production systems can be broadly classified into intensive semi intensive and extensive dairy cattle production system.

4.4. Milk production, consumption, and disposal pattern

Table 4 milk production, consumption, and disposal pattern in the study area

Variables	**Sample locations**		
	Sisena Ematye (%)	Buchachin (%)	Gasore (%)
Home consumption	48.6	52.4	46.7
Milk consumed by calves	8.3	12	5.4
Milk processed into other products	11.2	9.3	22.6
Milk sold	31.9	26.3	25.3
Total	100	100	100

The above table indicates. The share of milk sold in Sisena Ematye, Buchachin and Gasore, respectively was found to be 31.9%, 26.3% and 25.3% of the total milk produced per day per household.

These table was more consistent with results obtained from study conducted by Felleke and Geda (2001) on dairy production system in Ethiopia in Addis Ababa and regional towns found that of the total urban milk production, 73 percent is sold, 10 percent is left for household consumption, 8.3percent goes to calves and 11.2 percent is processed into butter and ayib (cottage cheese). With regard to per capita consumption of milk by sampled dairy households, the highest figure was obtained in Buchachin (9.3%), whereas the lowest in gasore (5.2 %). The volume of milk processed into other dairy products (butter, cheese, ergo, soured butter and/ skim milk) was found to be the highest in Gasore (22.6%) and the lowest in Buchachin (9.3%). Majority of dairy products marketing intermediaries of the study areas identified during the survey period were found not to use milk cooling tank and other milk preservation technologies that could enable continuous procurement of milk and contribute to increase in quality and quantity of raw milk.

4.5. Factor Affecting Milk Production System

Table 5 major factor affecting milk production in the study area

Parameters	**Kebeles name**							
	Sisena ematye		Buchachin		Gasore		Total	
	N=20	%	N=20	%	N=20	%	N=60	%
Feed shortage	9	45.0	8	40.0	10	50.0	27	45.1
Health problem	6	30.0	6	30.0	5	25.0	17	28.3
Water scarcity	4	20.0	4	20.0	3	15.0	11	18.3
Feed cost	1	5.0	2	10.0	2	10.0	5	8.3
Major disease								
mastitis	3	20	2	13.3	2	13.3	7	15.6
FMD	-	-	-	-	1	6.7	1	2.2
anthrax	2	13.3	1	6.7	1	6.7	4	8.9
Prevention methods								
traditional	8	40.0	7	35.0	5	25.0	20	33.3
modern	7	35.0	9	45.0	10	50.0	26	43.3
Both modern and traditional	5	25.0	4	20.0	5	25.0	14	23.4

FMD=Foot and mouth disease

As presented in (table5), shortage of feed (45.1%), health problem (28.3%), water security (18.3%) and Increase cost of Food (8.3%) were major challenges affect milk production and productivity. The cause for shortage of feed may be due to most natural pastures areas are converting to crop production more ever, overgrazing is common due to population explosion. Shortage of feed and water are more aggravated during dry season. To alleviate this problem more farmers are in seasonal movement to search feed and water for their cattle. Similar to current study denial (2000) was also reported in north gondar,Ethiopia whom stated that shortage feeds for dairy cattle production is major problem due to the shifting of natural pasture to crop

land. In comparable to current results, laisser *et al* (2015) study in agro- pastoral communities of lake zone in Tanzanian reported that shortage of feeds and water were ranked 2nd and3rd, respectively especially during the dry season, other constraints included high price of veterinary drugs, low genetic potential of zebu cattle, and lack of markets for their animals especially during the rainy season when road to live stock markets are not passable.

4.6. Prevalence of diseases and their prevention method

The major types of diseases and their prevention methods are presented in (table 6). It reveals that mastitis (15.6%) was the major diseases outbreak in the study area. The effect is more severe during summer and spring season because in those periods, the environment is conductive for ticks' reproduction. Similar study was conducted by rosati *et al* (2009) who reported that mastitis may developed if the quarter becomes intended as when the cow lies in mud or manure and bacteria intended the teat canals. Health care is one of management aspects of dairy cattle production. To improve the production of dairy cattle should be keep healthy.

As indicated in majority of respondents' farmers used modern medicine (43.3%) especially in to prevent and treat. This might be due to study areas are usually suitable for different microbes and parasites growth thus can be causal agent for different diseases for cattle in area. This can be justified by, naturally, study areas are rainy across all season; this conditions conductive for growth of microbes and parasites. In (fao-livestock sector brief, 2003) had reported there are six organized faculty of veterinary medicines and one national veterinary laboratory in Ethiopia. This faculty produces yearly skilled human resources to meet the demand of the producers while the national veterinary institute produces over 14 different bacterial and viral vaccines against various infectious animal diseases. The faculty is also another source of part-time animal health professionals that serve the dairy producers and accounts for 18% of clinical service and 4.7% of drug provision during treatment.

4.7. Feed Source and Feeding System

Table 6 dairy cattle feed sources and feeding system in the study area

Feed sources	**Kebele**							
	SE		**BU**		**GS**		**Total**	
	N=20	%	N=20	%	N=20	%	N=60	%
Natural pasture	8	40	7	35	10	50	25	41.7
Crop-residues	5	25.0	4	20	5	25	14	23.3
Enset	3	15.0	3	15	2	10	8	13.4
Agro industrial by products	1	5.0	2	10	1	5	4	6.6
Natural pasture and crop residues	3	15.0	4	20	2	10	9	15
Feeding system								
Free grazing	13	65	14	70	9	45	36	60.0
Rotational grazing	5	25	6	30	8	40	19	31.6
Zero grazing	2	10	-	-	3	15	5	8.4

SE= sisena ematye **BU**= buchachin **GS**=gasore.

Type of feed sources and feeding system in the study area has its own impact of dairy cattle production and reproduction performance. Reveal from (table 4), the major feed resource of dairy cattle in the study area were; natural pasture, enset (leaves, stem, and roots), crop residue (from teff, maize, barley and wheat) and some farmers also used non- conventional feed like atela and salt. However, the availability of feed resources was varying across kebeles; in sisena ematye more farmers used natural pasture (41.7%) and crop- residues (23.3%) to feed their cattle than buchachin and gasore on contrary to only some farmers had used enset as source's feed in sisena ematye, buchachin than gasore. The reason may be as the researchers observed during the study moreover, human populations are slightly sparse. On the other hand, gasore, they are highly populated and they have small land size for cropping and grazing however, these areas are potential of perennial crop like enset etc.

The current result in line with asaminew (2007) who reported the major feed in Bahir Dar zuria and mecha were communal grazing, crop residues, hay, private grazing land and non-conventional feed. Moreover the major basal feed resources for cattle in the highlands of Ethiopia are natural pasture, crop residue and stubble grazing seyoum *et al*., (2001). The current

study and gashaw (1992) result was similar in crop residues which accounts for 27% of total annual feed supply in the highlands around selale district during the dry season.

When feed their cattle most were used free grazing (60%) and rotational grazing (31.6%) but zero grazing (8.1%) (Cut and carrying feeding system) was used by only some farmers, of which most were from midland. However, the results of current study were disagreed to girma *et al* (2014) study in urban and peri-urban dairy production system (adam tulu, ethiopia) due to shortage of grazing land most farmers feed their dairy cattle by cutting green feeds, crop residues, agro-industrial byproducts, katikala, atela and mill byproduct. The current study was comparable with Nanyeenya *et al* (2008) study in uganda who reported that crop residues, kitchen wastes like crop peelings, sheaths and haulms, stems and leaves of cereals and bananas left after harvests and crop thinning of mostly cereals like maize are major sources of feed for cattle on crop-livestock production systems.

Similar study was also conducted by esap (2008) which stated that grazing of pastures, fallow lands and crop-residue are major feed resource of livestock, the study also state that the increasing human population and expansion of cropping in to grazing area, the importance of natural pasture is a source of feed is decreasing the time to time. In (azege *et al*., 2004) had reported seventy three percent of the feed is provided from natural grazing; 14% from crop residues and only 0.2% improved forages. There is still 7% deficit in the amount of dry-matter required by the livestock. This existing condition stimulates private investment in the feed resources sector to enhance the development and production of high quality feed to increase milk production per cow per day.

4.8. Milk and milk product marketing in the study area

Milk marketing in the study area was informal, and the participants are producers, caterers and consumers. The major producers who participate in fluid milk marketing are those who own indigenous and crossbred cows. The dominant informal milk marketing is based on contractual agreement between the producer and the client. Prices are negotiated and the milk is delivered on daily basis.

Dairy farm owners as a result sell their milk and milk products informally to vendors or village consumers. Few producers located to near to urban areas sold their milk and milk products

informally to hotels, cafeteria houses and direct to consumers. Report by Woldemichael (2014) is in agreement with this report and disagree with Negash (2012) studies that reported formal market was limited to urban and per-urban areas where collection of milk is possible. Zegeye (2003) and Lemma (2004) came with the same conclusion that both rural and urban milk is distributed from producers to consumers through the informal (traditional) means. The practice of milk sell at Cheha district and nearby towns is inefficient milk production and cultural restrictions (taboos) toward selling fresh whole milk followed by lack of market are the most common reasons reported. This result is similar to Belay *et al.,* (2015) whose report implies 21.3% and 19% of the women did not sell fresh milk mainly due to scarcity and cultural reasons. The study area has crossbred and indigenous cows and has better market access milk. The price of one liter of milk is from ETB 20 birr the marketable amount could be increased by organizing and strengthening dairy co-operatives to collect and deliver milk to consumers and by stimulating demand. There is a marketing chain which shows milk marketing flow chain.

Table 7 milk and milk product price chain in the study area

Description	Price inbirr
Milk(1liter)	20-30 ETB
Cheese(1kg)	25-30
Butter(1kg)	120-130

4.9. Factor affecting milk marketing system

Table 8 major factor affecting milk marketing in the study area

Variables	**Sisena Ematye(%)**	**Buchachin(%)**	**Gasore(%)**
Milk preservation problem	35.7	21.6	35.3
Transportation problem	15.75	17.4	18.4
Season dry/wet	26.25	18	36.3
Market distance	22.3	43	10
Total	100	100	100

As indicated in the above table shows according to respondents in the study area were milk preserve by locally made equipments like clay pot and put the clay pot in cooler area in order to

reduce the growth of microorganisms. Among those selected study areas were Sisena Ematye, Buchachin and Gasore respectively was found to be 35.7(%), 35.3 (%) and 21.6(%) were used traditional preservation technique. So this type of preservation technique has a great impact on the quality of milk and milk product markets in the study area due to lack of modernizing preservation equipment.

Regarding with the transportation mechanism in the study area were affects the fresh milk and milk product in the study area by 17.4(%), 15.75(%) and 11(%), due to sales fresh milk ongoing by foot for long distance. were found to be, Buchachin, Sisena Ematye and Gasore ,respectively.

Moreover according to the respondent in the study area reflects that the wet season in the study areas price of dairy product is lower through 36.3 (%), 26.25 (%) and 18 (%) respectively in Gasore,Sisena Ematye and Buchachin. Regarding with Access to market/distance to town Fresh milk couldn't be kept for long hours before consumed or processed. Distance from market was a major factor that dairy farms from selling fresh milk to urban consumers. According to the respondent there is a problem in access distance to town late provide for consumers and from farm to urban there is small distance far so fresh milk are spoiled during far distance, in Buchachin, Sisena Ematye and Gasore by 43(%),22.3(%) and 10(%) respectively.

The dairy sector In the study area were characterized by small-scale, scattered, and unorganized milk-animal holders; and were used to traditional preservation and transportation technique, and lack of organized milk market and dairy cooperatives .similar explanation was (K. Rajendran,et al., 2004)in India the problems of milk marketing inadequate and inappropriate animal feeding and health care; and inadequate basic infrastructure for provision of production inputs and services; an inadequate basic infrastructure for procurement, transportation, processing and marketing of milk; and lack of professional management and Other important characteristics of the dairy sector are the predominance of mixed crop-livestock farms and the fact that most of the milk animals are fed on crop by-products and residues, which have very low opportunity cost

5. CONCLUSION AND RECOMMENDATION

Dairying is one of agricultural activities and it products have a great contribution to economic development even to the individual house hold consumption and income generation. Milk and milk products are the one which have high nutrient composition. Therefore, proper production and marketing of dairy products are essential in both economical and health aspects. When we see the production and marketing system were informal, improved and traditional milk product is influenced by processing, transportation mechanism, type of preservation material and quality of milking utensils, poor personal sanitation and others.

Informal marketing was the major marketing system in the study area. The major marketable dairy commodities are butter, cheese, yogurt and fresh milk and the price of dairy products are influenced by wet season or dry season, access to market, holidays and others. In general proper handling of dairy products has a great contribution for quality maintenance and provide good quality milk product for market. But handling practice was limited due to several factors. Even though some constraints that hinder safety of dairy product are exist/present.

There is a potential of improving such activities in the area so in order to improve their production and marketing use proper production are important and reduce any type of disease and avoid their constraints that were found in the study area and in order to improve their marketing potential and work to with government sectors and create large relation with consumers and improve their value chain approach dairy cooperative with their consumers.

5.1. Recommendation

- Avoid any type of disease that affect livestock on the study area especially mastitis to avoid this proper milking practice are used.
- Increase milk production in order to reduce scarcity of milk for or improve supply of milk for consumers.
- Increase value chain approach in marketing with consumer cooperatives must co related to gather with consumers with marketing value chain.
- Use proper milk procedure to reduce transmission disease, take proper milking procedure.
- Use improved production system in order to increase their income level and their household living standard
- Strengthening veterinary drug supply and services through participation of both public and private services would also be an essential step to enhance disease control and improve animal productivity and milk production

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7. APPENDIX

WOLKITE UNIVERSITY

College Of Agriculture and Natural Resource

Questionnaire on title of milk production and marketing system in Cheha wereda

Household questionnaires:

1. Date of interview_____ 3. Name of interviewer_____

2. Place of interview_____4. Name of respondent_____

5. Age A. 20-40 B 41-60 C 61-80

6. Sex A, male B, female

7 .Level of education of in the house hold A .Illiterate b. elementary school
c. High school d. University education

8. Marital status A, single B, married C, divorced D, windowed

9. Family size Male_____ Female_____ Total_____

10. Religious: A, Orthodox B, Muslim C, Protestant D Catholic

Milk production questionnaires

1. Do you produce dairy cattle? A, yes B, no

2. If it is yes in question 1, what types of breed are used?

A, Indigenous B, exotic C, hybrid

3. What type of mating system you use to reproduce your dairy cattle?

A .Natural B .AI C. both

4. How many dairy cattle do you have?

A, Indigenous_____ B, exotic_____ C, hybrid_____

5. For what purpose you produce your dairy cows

A .Home consumption B .Income generation

6. If your answer is for income generation, which type of dairy products you sale?

A. Fresh Milk B. Yoghurt C. Cheese

7. What type of cow breed you use for milk production?

A. Local B. Exotic C Cross breeds

8. What types of production system are used?

A, Extensive B, Intensive C, semi intensive

9. Where do you purchase dairy cattle?

A, from agricultural office B, from research center C, from market

10. How do you feed dairy cattle?

A. Free grazing B. Rotational grazing C. Zero grazing

11. Do you use a better veterinary service? A, yes B, no

12. What types of milking technique are used?

13. How many litters do you get per day from one cow?

14. Is there occurrence of mastitis?

15. If it is yes, justify the reason?

16. What are the major feed resources for your cows?

A. Crop residue B. Natural pasture C .Improved forage D. Supplemented feed

17. If your major feed resource is supplemented feed, which type you take to your cows?

A .Wheat bran B. Oil meal C. Others

18. What are the major challenges in milk production?

Milk marketing questionnaire

1. Do you provide milk for market Yes/ No

2. If it is in question 1 yes for whom to provide?

A, for consumer B, for cooperative C, for hotels D, for processor

3. What types of product are providing for market?

A, raw milk B, yogurt C, cheese D, butter

4. How many liters provide for market in one cow?

A, exotic…… B, indigenous…. C, hybrid……

5. What is your major customer?

A, relative B, old customers C, friends

6. How long kilometers go to sell the product?

7. Have you study about milk marketing before now?

9. What types of method are used to preserve milk for long period of time?

10. What are the major challenges in milk marketing?

11. How to solve the challenge of milk marketing?

12. Types of housing system A. Together with family house C. Under shelter

B. Different from family house D. No housing

13. Watering system A. Once a day B. Twice a day

14. What are the major challenges of dairy cattle production?

No.	Challenges	Response
1.	Shortage of feed	
2.	Health problem	
3.	Water scarcity	
4.	Labor scarcity	