College of Agricultural and Natural Resources

Department of Animal Production and Technology

Assessment of Major Dairy Husbandry Practices in Cheha Districts, Gurage Zone, South Nation Nationalities and People State, Ethiopia

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APPROVAL SHEET

WOLKITE UNIVERSITY

As senior research project advisors, I hereby certify that I have read and evaluated this senior research project prepared, under my guidance, on assessments of major dairy husbandry practices Cheha district Gurage Zone, SNNPRS, Ethiopia "I recommend that it be submitted as fulfilling the senior research requirement.

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LIST OF ABBREVIATION

AI	Artificial Insemination
CIA	Central Intelligence Agency
CSA	Central Statistical Agency
GDP	Gross Domestic Product
FAOSTAT	Food and Agriculture Organization for United Nation
FMD	Foot and Mouth Disease
LRRD	Livestock Research for Rural Development
m.a.s.l.	Meter above sea level.
MOA	Ministry of Agriculture
MOARD	Ministry of Agriculture and Rural Development
NSC	Nug seed cake
SNNPS	South Nation Nationalities and People State
SPSS	Statistical Package for Social Science

LIST TABLE

Contents

ABSTRACT

The study was conducted in Cheha districts with the objective of assessing major dairy cattle husbandry practices. Data were collected using semi – structured questionnaire, key informant interview and personal observation. Stratified random sampling was used for data collection. The woreda was classified into two parts (i.e. urban and rural) areas and three kebeles were selected purposively based on their dairy production potential. A total of 45 individuals were interviewed randomly, 15 from each kebele. Data were analyzed using SPSS version 22. Descriptive statistics like percentage, frequency, mean and ranges were used to interpret the data. The major feed resources reported in study area were a combination of natural pasture, hay, crop residues, and Agro – industrial by products like brewery waste and wheat bran in urban (66.67%) and rural (46.67%)areas. All small holder dairy cattle producers in study area kept their dairy cattle in stall barn house both in urban and rural areas. All respondents in both urban and rural areas provide water for dairy cattle purposively. About 80% and 90% of respondent indicated good access to veterinary service. Majority of the respondent in urban and rural area mentioned natural mating as the major breeding systems. It could be conclude that the veterinary service in the area was comparatively good, but improvement of other management is a crucial husbandry practice.

Key Words: - Dairy cattle, husbandry practice

1. INTRODUCTION

1.1. Background

Dairy production plays vital role in agriculture of world milk and other products stable in the diet of most developed countries (phlips, 2009). The main dairy cattle production countries in the World are united state, Holland, Germany, France, and India (Nigussie, 2010). Dairy cattle production is an essential economic activity in most part of Africa's farming system for rural and urban society. In developing countries 115 millions of dairy cattle productions 88 million tons of milk annually where as 107 million cows produced 370 of tones in developed countries (Nigussie, 2010).

Ethiopia is believed to have the largest livestock population in Africa. Despite its huge population, the livestock sub sector in the country is less productive. Compared to its potential, the direct contribution to the national economy is limited (Sintayehu et al., 2008). Consequently, the national milk production and the overall milk consumption in Ethiopia are very low, even compared with other least developed African countries (Melesse K. and Beyene F., 2009). Per capita consumption of milk in the country is as low as 17 kg per head while the average figure for Africa is 26 kg per head (Gebrewold et al., 1998).The agricultural sector in Ethiopia, engaging 85% of the population, contributes 52% to the gross domestic product (GDP) and 90% to the foreign exchange earnings (CSA 2008). The major agricultural activities are crop farming and livestock production based on small scale holdings (MOARD, 2007). With an Ethiopian population over 90 million people growing at an annual rate of 3.2%, 8th rank worldwide (CIA, 2011), pressure on the agricultural sector is constantly increasing.

In Ethiopia dairy production system depends mainly on indigenous livestock genetic resources; more specifically on cattle and then goats**,** camels and sheep. Cattle has the largest contribution (81.2%) of the total national annual milk output, followed by goats (7.9%) camels (6.3%) and sheep (4.6%) (CSA, 2009). Despite of its potential for dairy development, productivity of indigenous livestock genetic resources in general is low, and the direct contribution it makes to the national economy is limited. For example, in 2009 average cow milk production was estimated at only 1.54 letters /cow per day (CSA, 2009), and the per capita milk consumption was only about 16kg per year , which is much lower than Africa and world per capita averages of 27kg per year and 100kg per year, respectively(FAOSTAT,

2009). A report stated by CSA (2010/11) indicates that the total production of cow milk is about 4.06 billion letters, and this translates to an average daily milk production per cow of 1.86 letters per day. The MOA (2012) also reported some improvement in per capita consumption of milk estimated it 19.2 kg.

1.2. Statement of the Problem

Productivity of dairy in Ethiopia is negatively affected due to the poor management practices, extensive use of unimproved breed of dairy cattle, lack of interest as well as limited knowledge of the farmers. The above mentioned problems were not so far properly addressed and the problems still exist throughout the country including Gurage Zone. Building up knowledge regarding the current dairy management practices will assist in future interventions in Emdiber, Yefereze, and Keracha kebeles. Therefore this study was conducted considering the above mentioned factors with the following objective.

1.3. Objective of the Study

1.3.1. General objective

- To assess the major dairy husbandry practices in Cheha districts of Gurage Zone, SNNPRS, Ethiopia

1.3.2. Specific objective

- To know the major sources of feed and water for dairy cattle in study area
- To identify the housing system for dairy cattle in study area
- To know the health care situation of dairy cattle in study area

1.4. Significance of the study (expected output)

- ✓ The outcome of this study was used to know dairy management practices in the study area.
- ✓ The information generated was helping the dairy producer to take their own measurement on management practices to their dairy cattle.

1.5. Research Questions

- What are the major dairy husbandry practices in the study area?

2. LITERATURE REVIEW

2.1. Major Dairy Cattle Husbandry practices

2.1.1. Dairy cattle feeding system

The major feeding systems of dairy cattle in rural areas were stall feeding/ zero grazing, herded grazing and tethered grazing systems (Mengistu et al., 2016). Similarly Asrat et al., (2016) indicated dairy cattle feeding systems practices in and around Southern Ethiopia as free grazing, tethering and cut and carrying systems. Three types of dairy cattle feeding systems or practiced like: zero-grazing/stall feeding, zero- and partial-grazing and fulltime-grazing in were also reported in Jimma town, Ethiopia (Belay and Geert, 2016).

Feeding system in small holder dairying is primary based on grazing of natural pasture of low quality and quantity. The benefit of such land may range from more exercise ground the major parts of year. During wet season, some weight gain and milk production is achieved which is followed by variable loses during dry season depending on the pasture on grazing land quality and quantity of vegetation. The lactating animal are given better feeding through supplementation of by product concentrate such as, oil seed cake, wheat bran and milled pulse as a farmer received immediate returns of their investment through saleable milk (Anteneh,2011).

2.1.2 Feed source and feeding of the dairy herd

The dairy cattle feed were based on nature pastures, home grown fodder like elephant grass and crop residues. Natural pastures and other cultivated pastures are available, but instead was left to grow and during the dry season usually at this stage of growth. The quality is poor with few proportion of green leaves compared with the dry leaves. The quality of crop residue available to livestock fluctuates between season due to erratic and poor distribution of rainfall. A success dairy feeding system is defined as on that is delivers the needed of nutrients to each cows at the correct time (stage of lactation to maintain maximum milk product. The feeding system selected must considered delivery of ages, starch, protein and minerals either individual or various combination (LRRD, 2001). Livestock feed resources in Ethiopia are mainly natural pasture, crop residues, improved pastures, forage crops and agro-industrial by products (Alemayehu, 2004). The feeding systems include communal or private natural grazing and browsing, provision of crop residues and cut and-carry feeding. At

present, stock are fed almost entirely on natural pasture and crop residues. Livestock are grazed on permanent pastures, fallow land and cropland aftermath (Alemayehu, 2004). The major roughage feed resources for dairy animals across all the different production systems included natural pasture/grasslands, crop residues, nonconventional feed resources (e.g. leaf and stem of inset, banana and sugarcane, crop thinning) and crop aftermath (with the exception of urban dairy producers). The contribution of these feed resources, however, depends up on the agro-ecology, the types of crop produced, accessibility and production system (Azage et al., 2013). Asaminew and Eyassu(2009) reported that natural pasture, hay, crop residues and non-conventional feedstuffs (local brewery by-products) as the major feeds in Bahir Dar Zuria and Mecha woredas of the Amhara Regional State.

The feed resources used for dairy cattle in Gurage area were crop residues; natural grazing and hay were the three top livestock feed resources (Tesfaye and Wondosen, 2019). Despite the, households make insignificant quantity of concentrate and face critical feed shortage during the dry season likewise Azage et al. (2013) reported hay, grass, crop residues mostly barley straw and nonconventional feed stuffs (local brewery by-products, Atella) and industrial by product (wheat bran and NSC) as the major sources of feed for cattle in Southern Ethiopia.

2.1.3. Dairy cattle housing management

The purpose of dairy cattle housing in most part of Ethiopia is to protect cattle from theft and from extreme weather condition (Adebabay, 2009). Most farmers also kept their dairy cattle in shelter. Yilma (1999) showed about 83% of household keeping their cattle in separate house during the night and 17% keeping instanced around their home stead. Similarly Adebabay (2009) study revealed that about 76%, 21% and 7% of dairy producer using isolated, partitioned and paddock house for their animals respectively.

Dairy animals are often housed at night and the type of housing provided varied depending upon the classes of dairy animals, agro-ecology, production system, physiological stage of dairy animals (Azage et al, 2013).Cattle houses in rural areas were constructed from locally available materials; mainly grasses and woods. The floor of livestock houses were made of earthen material and house was roofed temporarily using grasses (Kassu Tsegaye, 2016).

2.1.4. Source, frequency, and distance of water

Water is the most important nutrient for dairy cows. 450 kg non-lactating cow require 30 kg of water per day at normal temperature. Lactating cow consume 4.5 kg to 5 kg of water for each additional kg of milk production. If cows are only able to drink once or twice a day, they will produce less milk, and if adequate water is not available or the quality of water is low, feed consumption will be reduced and performance will be depressed.

Mekonen (2007) reported that water for dairy cattle in Southern regional state of Ethiopia was drawn from pipe (36%), river (35%) and pond (28%). Similarly Worku et.al (2012) reported that dairy cattle producers in West Amhara area used different sources of water as spring (60.2%), pipe (21.4%) and pond (6.2%).

2.1.5. Health care management

Animal health care and improved health management is one of the major constraints of dairy development in Ethiopia, which caused poor performance across the production system. Disturbance and diseases are always occurring in herd, but in order to limit the economic loss, it is important to keep them under control. Good health and management have significant effect on dairy farms. The economic loss due to health disturbance can be attributed to less efficient production, higher veterinary costs and the production factors. A helpful tool for maintaining health of cow is body condition scoring (Mulugeta, 2008). Likewise, the overweight cows are more likely to be affected by mastitis, retained placenta, ketosis and lameness.

Many of the problems from the interaction among the technical and non-technical constraints themselves; for instance, poorly fed animals have low disease resistance, fertility problems, partly because the animal health care system relays heavily on veterinary measures. Moreover, poor grazing management systems continue to cause high mortality and morbidity (e.g. internal parasites). Many of the diseases constraints which effect supply are also a consequence of the non-technical constraints, for example, insufficient money to purchase drugs or vaccines (Ibrahim and Olaloku, 2002).

Contact of livestock brought from various localities through the use of communal pastures and watering as well as marketing places play an important role in the transmission of economically significant infectious and parasite diseases. Such livestock movements could be the cause of direct or indirect transmission of various economically important livestock

diseases (Zinash, 2004).Three types of diseases were identified as major health problems of cattle in Gurage Zone and these involved FMD, Diarrhea and Anthrax (Tesfaye and Wondosen, 2019).

2.1.6. Breeding system

The pairing of female and male animals for the purpose of reproduction on a farm using artificial Insemination (AI) or natural methods is known as mating (Willam and Simianer, 2011). Similarly Godadaw et al. (2015) reported that the breeding practice of dairy cattle are mostly natural mating in which bulls can be used for either free mating (uncontrolled mating) in the range land or controlled mating and the use of AI in small scale were applied in dairy cattle breeding for production or reproduction purpose. In the same ways, Gebremichael (2015) also reported that mating of dairy cattle about 35%,42.77% and 22.22% were in central zone of Tigray are relied on natural mating , AI without synchronization and AI with synchronization respectively.

Regarding technology transfer of breed improvement and trait preference of dairy cattle in that area was based on milk yield, fertility, body weight, feeding behavior, temperament, and color and disease resistance ability. Operational breeding, efficient and systematic strategy are needed to bring about any considerable progress in the dairy sector. The development in dairy sector in Ethiopia with other developing countries can be expanded with the selection within the native cattle besides crossbreeding (Zelalem et al., 2011).

Female calves born at the farm were retained and reared as replacement heifers, with the exception of those which had to be disposed for one reason or another. (Getnet, 1999) also reported to be one of the major problems of cows and heifers available for breeding were mated to bull kept at the farm. Heat detection of cows was carried out cattle attendants and behavioral change of the cows in heat. There is no artificial insemination service and inbreeding. (Afras Abera, 2019) also study most Ethiopian farmers use natural, unplanned and uncontrolled mating system by using breeding from communal grazing and a few farmer use AI for improvement of breed and production by upgrading the genetic makeup of indigenous breed of cattle. In Ethiopia indigenous animals are the dominant source of milk across all the production systems with the exception of urban and peri-urban dairy system where improved crossbreds have significant contribution (Azage et al, 2013).

3. MATERIALS AND METHODS

3.1. Description of the Study Area

The study was conducted in Cheha districts. It is located in Gurage Zone of Southern Nations, Nationalities and Peoples Regional State (SNNPRS), Ethiopia. The capital of the district, Emdiber, was located at 188 km south of Addis Ababa and about 30 km from Wolkite town, the capital of Gurage Zone. Cheha is bordered on the south by Enemorina Eaner, on the west by the Oromia Region, on the north by the Wabe River which separates it from Abeshge and Kebena, on the east by Ezha, and on the southeast by Gumer and Geta. 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 (m.a.s.l). It has a total area of 57,315 ha of which 40,190 ha was cultivated. The district constitutes 38 *kebeles*. The average annual rainfall of the area was about 1268.04 mm and the average maximum and minimum temperature in the study area was 24.97^{o}C and 10.69 ^{o} C, respectively. Based on the 2007 Census conducted by the CSA, this woreda has a total population of 115,951, of whom 56,851 are men and 59,100 women; 8,992 or 7.76% of its population are urban dwellers.

3.2. Data Sources and Methods of Data Collection

In order to achieve the objective of the study both primary and secondary sources of data were used. Primary data were collected through personal interview using semi – structured questionnaire. Besides, key informant interview and personnel observation were made during data collection. Secondary data were collected from published and unpublished documents.

3.3. Sampling Techniques and Sample Size

Before conducting field survey data collection, discussion was performed with the head of Cheha district agricultural office on the objective of the study and also kebeles& farmers selection. The woreda was stratified into two parts (i.e. urban and rural) areas based on their dairy production potential. There were total of 38 kebeles in the district (28 rural and 10 urban), the study was conducted in three purposively selected kebeles (Emdiber from urban, Yefereze and, Keracha from rural kebeles) based on relative abundance of dairy producers and road accessibility. A total of forty five (45) households were randomly selected, fifteen (15) households from each Kebeles or (15) households from urban and (30) households from rural.

3.4. Data Analysis

The data were checked and organized using Microsoft Excel 2007. Next to this, the data were analyzed using SPSS program version 22. Descriptive statics like percentages, frequency, mean, range etc were used to compare results. Chi – square test was used to see if there is any significance difference between rural and urban kebele.

4. RESULT AND DISCUSION

4.1. Socio-economic characteristics of the Study area

Majority of the respondents 80% and 70% in urban and rural area were male respectively. Most of the respondents ages fall between 40 and 46 and 33-40 in urban and rural kebeles respectively. Majority of the respondents were married in both urban and rural area. There was a significant difference between urban and rural respondents in their educational level. The majority of the households in urban area reaching high school and above, while the majority of the households in rural area were illiterate and primary level educated.

Table 1.Household characteristics of study site

Description		% Respondent		X^2	Sig. level
		Urban (N=15)	Rural (N=30)		
Sex of the respondent	Male	80.00	70.00	0.511	0.475
	Female	20.00	30.00		
Age of the respondent	19-25	0.00	3.33	7.904	0.245
	26-32	33.33	23.33		
	33-40	20.00	30.00		
	40-46	33.33	26.67		
	47-53	0.00	10.00		
	54-60	0.00	6.67		
	60-67	13.33	0.00		
Marital status of the respondent	Married	53.33	76.67	4.228	0.238
	Single	33.33	10.00		
	Divorced	6.67	3.33		
	Widow	6.67	10.00		
Educational level of the respondent	Illiterate	26.67	26.67	13.661	0.008
	Primary school	13.33	46.67		
	Secondary school	26.67	10.00		
	Preparatory school	0.00	13.33		
	Higher education	33.33	3.33		

Chi square is tested at 5% level of significant

4.2. Major Dairy Husbandry Practices

4.2.1. Dairy cattle feeds source and feeding system in Study area

The major feed types reported in the study area were a combination of natural pasture, hay, crop residues, and agro- industrial by products like brewery by products, and wheat bran (*furushka*) in urban (66.67%) and rural (46.67%) areas. There were no significant differences on sources of dairy cattle feeds in urban and rural areas. Those household who mentioned feeding concentrate, majority of them indicated getting it from private trader (Table 2). All respondents (100%) provide inset leaf for their dairy cattle during dry season. The major grazing system of the study area was free grazing system (53.33% and 53.33%) in urban and rural areas respectively. Unlike rural kebeles, higher frequency of household in urban kebeles reported zero frequency. This is due to the fact that there is shrinkage of grazing land in urban area a result of population growth, expansion of cultivation and investment.

Table 2. Major feed resources and feeding system in study area

Explanatory variables		% Respondent		X^2	Sig. level
		Urban (N=15)	Rural (N=30)		
Major types of feed source for dairy cattle	Natural pasture only	20.00	43.33	3.281	0.512
	Hay only	0.00	0.00		
	Crop residues	0.00	0.00		
	Improved forage only	0.00	0.00		
	Hay and concentrate feeds	6.67	3.33		
	Natural pasture, hay and crop residues	6.67	3.33		
	Natural pasture and crop residues	0.00	3.33		
	Natural pasture, hay, crop residues, concentrate	66.67	46.67		
Source of concentrate feed	Own farm	0.00	0.00	3.189	0.203
	Private	60.00	30.00		
	Government	0.00	10.00		
	NGO	13.33	3.33		
	Own farm and private	0.00	0.00		
Provision of inset leaf for dairy cattle	No	0.00	0.00	0.000	1.000
	Yes	100.00	100.00		

Chi square is tested at 5 % level of significant

This survey was in agreement with the report of some scholars who stated hay, grass, crop residues and nonconventional feed stuffs (local brewery by-products, Atella) and industrial by product (wheat bran and NSC) as the major sources of feed for cattle in Southern and Amhara Region as well as in the country (Alemayehu, 2004; Azage et al., 2013; Asaminew and Eyassu, 2009; Ayeneshet et al., 2017). Likewise, Tesfaye and Wondosen (2019) revealed crop residues; natural grazing and hay as three top livestock feed resources in Gurage Zone. Abebe et al., (2014) also reported similar result for Ezha woreda, Gurage zone.

Table.3. Grazing types employed in urban and rural kebele of Cheha woreda

	% of the respondent			
Grazing types	Urban (N=15)	Rural (N=30)	X^2	Sig. level
Free grazing	53.33	53.33		
Rotational grazing	0	0		
Zero grazing	20	0	7	0.03
Mixed grazing system	26.667	46.667		

4.2.2. Dairy Cattle housing system in Study areas

All smallholder dairy cattle producers in study area kept their dairy cattle in stall barn house both in urban and rural areas. Significantly higher number of urban dairy cattle producer (93.33%) reported a separate barn for cattle. Whereas most rural household (66.67%) mentioned keeping dairy cattle within family house by making a partition. All respondents stated cleaning dairy cattle barn both in urban and rural kebeles. Majority of the respondents both in urban and rural kebeles stated cleaning daily (Table 4)

Comparable to this study Adebabay (2009) study revealed that about 76%, 21% and 7% of dairy producer using isolated, partitioned and paddock house for their animals respectively. Yilma (1999) also showed about 83% of household keeping their cattle in separate house during the night and 17% keeping instanced around their home stead.

Table 4.Housing system in study area

Description		% of the respondent		X^2	Sig.level
		Urban (N=15)	Rural (N=30)		
Location of the respondent	Urban	100.00	0.00	0.000	1.000
	Rural	0.00	100.00		
Types of barn used	Stall barn	100.00	100.00	0.000	1.000
	Free stall barn	0.00	0.00		
	Others	0.00	0.00		
Do you have separate dairy cattle house	No	6.67	66.67	14.464	0.000
	Yes	93.33	33.33		
Do you clean your dairy's barn	No	0.00	0.00	0.000	1.000
	Yes	100.00	100.00		
Frequency of barn cleaning	Daily	66.67	83.33	3.107	0.375
	Three times per week	20.00	10.00		
	Two times per week	0.00	0.00		
	Once a week	6.67	6.67		
	Not at all	0.00	0.00		

Chi square is tested at 5% significant level

4.2.3. Source, frequency and Distance of the Water

All respondents in both urban and rural areas provide water for dairy cattle purposively. The sources of water in study area were river, ground water, and pipe water (Table 5). Significantly higher number of rural household (73.3%) stated river as a primary source. About 66.67% and 73.33% of respondent in urban and rural areas respectively, mentioned shortage of water during dry season. The majority of smallholder dairy cattle producers provide water once per day (53.33% and 86.67%) in urban and rural areas respectively. The significantly higher watering frequency at rural kebeles may be due to availability of rivers and streams in most of the year. The major distance of water source in urban area were less than 1km (93.33%) while in rural area greater than 3km (66.67%) during dry season.

This survey was relatively similar to the result reported on smallholder dairy cows husbandry practices in selected Districts of Sidama Zone, Southern Ethiopia (Yetera et al., 2018) revealed that the most common sources of water are river, pond, tap and spring water.

Similarly Mekonen (2007) reported that water for dairy cattle in Southern regional state of Ethiopia was drawn from pipe (36%), river (35%) and pond (28%).

Table 5.Water source, watering frequency and distance of water source

Description		% of respondent per location		X^2	Sig. level
		Urban (N=15)	Rural (N=30)		
Do you give water for dairy cattle purposely	No	0.00	0.00	0	1
	Yes	100.00	100.00		
What is the source of water	River	40.00	73.33	12.331	0.015
	Pond	0.00	0.00		
	Ground water	26.67	23.33		
	River and pipe	20.00	0.00		
	Pipe water	13.33	0.00		
	River and ground	0.00	3.33		
Availability of water throughout the year	No	66.67	73.33	0.216	0.642
	Yes	33.33	26.67		
Watering frequency	Once per day	53.33	86.67	11.042	0.012
	Twice per day	33.33	6.67		
	Thrice per day	13.33	0.00		
	Adlibitum	0.00	6.67		
Distance from water source	< 1km	93.33	20.00	21.814	0.000
	1-2km	0.00	3.33		
	2-3km	0.00	10.00		
	> 3km	6.67	66.67		

Chi square is tested at 5 % significant level

4.2.4. Health Care management

Majority of the respondent both in urban (80%) and rural (90%) areas mentioned getting access to veterinary services. The reason behind was in this survey, the selected kebeles were closed to the woreda veterinary service where there were access veterinary services. The sources of veterinary services in study area were from private and government. But the major sources of veterinary services in study area were from government both in urban and rural (53.3% and 83.3%) respectively.

This survey was different from the report of Tesfaye and Wondosen (2019) who reported shortage of veterinary expertise and related facilities. This may be due to the fact that selected

kebeles closed to urban area where there is access to both government and private veterinary services. Additionally smaller sample size in this survey may result biasness.

Table 6.Health care management in study area

		% of the respondent			
		Urban (N=15)	Rural (N=30)	X2	Sig.level
Sources of veterinary services	Private	13.333	10	5.899	0.052
	Government	53.333	83.333		
	NGO	0	0		
	Private and Government	33.333	6.667		
Access to veterinary services	No	20	10	0.865	0.325
	Yes	80	90		

Chi square is tested at 5% of significant level

4.2.5. Breeding System of the study areas

The major breeding systems in study area were natural mating system (86.667% and 93.333%) in urban and rural area respectively. Artificial insemination also practiced in urban (13.333%) and rural (6.667%) kebeles of the study area. The major sources of bulls were delivered and grown in the house by equal percentage (46.7%) both in urban and rural. There were also other sources of bull like from neighbor in urban (40%) and in rural (43.3%) areas. Uncontrolled natural mating was significantly higher in the rural kebeles (83.3%).Whereas about 40% of urban households practice controlled mating. This may be due to more access to artificial insemination in urban kebeles.

Table 7.Breeding system in study areas

Description on breeding system		% of the respondent			
		Urban (N=15)	Rural (N=30)	X^2	Sig.level
Type of mating system used	Natural mating	86.667	93.333	0.549	0.459
	Artificial insemination	13.333	6.667		
Source of breeding bull	Purchase from market	0	3.333	0.49	0.783
	Delivered and grown in the house	46.667	46.667		
	Getting from neighbor	40	43.333		
Mating control	Control mating	40	10	6.508	0.011

Uncontrolled mating	46.667	83.333

This study was related to Godadaw et al. (2015) who reported that the breeding practice of dairy cattle are mostly natural mating in which bulls can be used for either free mating (uncontrolled mating) in the range land or controlled mating and the use of AI in small scale were applied in dairy cattle breeding for production or reproduction purpose. Likewise, the assessment conducted on dairy production system and its constraints in Horro guduru Wollega Zone, (Belay B. et al., 2015) revealed 93.3% natural mating and 3.9% and2.8% use artificial insemination (AI) and both natural mating and AI, respectively.

5. CONCLUSION AND RECOMMENDATION

5.1. Summary and Conclusion

The major feed resources in study area were a combination of natural pasture, hay, crop residues, inset leaf, and industrial by products like brewery by products, and wheat bran. All small holder dairy cattle producers in study area kept their dairy cattle in stall barn house both in urban and rural areas during night time. The major dairy cattle producer in urban area (93.33%) were prepare separate house whereas most rural household (66.67%) mentioned keeping dairy cattle within family house by making a partition. The sources of water in study area were river, ground water, and pipe water. The rivers were the major sources of water in study area with (40%),and (73.33%) in urban and rural respectively. The major smallholder dairy cattle producers provide water for dairy cattle once per day. There was a shortage of water in study areas during dry season. The major breeding systems in study area were natural mating system.

5.2. Recommendation

Dairy cattle feed in the areas are mainly natural pasture which is nutritionally limited to exploit the maximum milk production potential of local dairy cows. Therefore, awareness creation and promotion on improved forage and multipurpose fodder trees production as well as supplementation of concentrate especially during peak milking period. However, a detail survey is needed to identify key limiting factors and prioritizing them.

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7. APPENDIX

Questionnaire for Major Dairy Husbandry Practices in Cheha district, Gurage Zone, SNNPS, Ethiopia

General Information of the study area

Date of interview_____, Interviewer name: _____

Interviewee code #: _____, Kebele_____, Village_____

A. Socio-economic characteristics

1. Sex and age of the respondent 1. Male _____ 2.Female_____ 3. Age_____

2. Family size (in numbers)_____

3. Marital status 1. Married 2) Single 3) Divorced 4) Widow

4. Educational level of the respondent

1) Illiterate 2) Primary 3)Secondary school 4)Preparatory school

5)Higher education

5. What are the sources of your income?

1) Selling of live animal, 2) Animal products 3) Crop products 4) Fruits and vegetable

5) Chat 6) a combination of _____,

7) Others_____

6) If your answer is among 1 to 4, mention the types of animal, animal products or crop type you sell?_____

B. Dairy cattle husbandry practice

I. Feed resources and feeding system

1. What are the major types of feed you provide for your dairy cattle?

1) Natural pasture 2) Hay 3) Crop residues 4) Improved forage 5) Concentrate

6) A combination of _____ feed type

2.If your answer is among crop residue, improved forage or concentrate, mention their names?

_____

3. If you use concentrate, what is the source of your concentrate feed and price per kg _____?

1) Own farm 2) Private 3) Government 4) NGO 5) 1& 2 6) Others_____

4. If you use improved forage, what is the seed/forage source?

1) Private 2) Own farm 3) Government 4) NGO 5) 1& 2

6) Others_____

5.Do you provide inset leaf for dairy cattle?

1) No 2) Yes

6. If your answer is yes, when you will provide for them? _____

7. Which types of grazing system you use for your dairy cattle?

1) Free grazing 2) Rotational grazing 3) Zero grazing 4) Mixed grazing system

8. How do you provide supplementary feed like hay, crop residue and concentrate feed for your dairy cows?

1). Feeding individually 2). Group feeding

9. How many times you provide supplementary feed per day?

1) One times per day 2) two times per day 3) three times per day

10. At what time you give supplementary feed?

1) At morning 2) at mid-day 3) at night

4) Combination of _____

II. Water provision

1. Do you give water for dairy cattle purposely?

1) Yes 2) No.

2.What is the source of water?

1)River 2) Pond 3) Ground 4) Others

3. Do you get the available water for your dairy cattle throughout the year?

1) Yes 2) No

4. How many times you give water for your dairy cattle?

1) One times per day2) two times per day 3) three times per day 4) Adlibitum

5. At what distance the dairy cow get water during dry season?

1) <1km 2) 1-2km 3) 2-3km 4) >3km

III. Housing system

1. What type of house do you provide for your dairy cattle?

1) Stall barn 2) Free stall barn 3) Others_____

2. Do you have separate dairy cattle house (other than family dwellings)?

1) No ____ 2) Yes

If no/yes why? _____

3. Do you clean your dairy's house?

1) No 2) Yes

4. If your answer is yes, how many times do you clean it?

1) Daily 2) Once a week 3) Rarely 4) Not at all

IV. Health and disease control

1. What are the most common dairy cattle _____ and give them rank?

2.What traditional prevention and control measure do use for each type of diseases? _____

3. What types of veterinary services do you get? _____

Source of veterinary service

1) Private 2) Government 3) NGO 4) 1& 2 5) Others_____

4. Are there sufficient veterinary services for your dairy cows?

1) No 2) Yes

Why not? _____

V. Breeding System

1. Which type of mating system you use for your dairy cow?

1) Natural mating 2) Artificial insemination

2. If you use natural mating, where is the source of your bull?

1) Purchase from market2) Delivered and grown in the house

3) Getting from others_____

3. If you use natural mating, which types of natural mating you use?

1) Control mating 2) uncontrolled mating

4. If you use artificial insemination, where you get semen?

1) Woreda Biro 2) purchase from private owner 3. NGO

5. If you use artificial insemination, how do you detect the heat sign?

1) By observing external sign 2) palpation by AI technician 3) Both