Challenges and Opportunities of Dairy Cattle Production in Selected Districts of North Shewa Zone, Oromia, Ethiopia

Fikiru Getaachew[*], Bosenu Abera, Alemnesh Yirda, Baradin Aman

Department of Animal Science, Univesity of Salale, Fitche Town, Ethiopiaa

ABSTRACT

The study was conducted at North shewa zone of Oromia regional state, to assess major challenges face the dairy cattle production and opportunities for dairy development in the study area. A cross-sectional survey was used; three districts were selected from the zone and three kebeles were selected purposively based on dairy potentials. Three hundred sixty respondents were randomly selected for a structured interview. Both focus group discussion and depth interview with key informant was conducted to support the data obtained from the farmers. Almost (83.3%) of the dairy cattle owners were male-headed and mostly completed primary school (46.1%). The family size was between 1 and 5(53%) having had scarce (1.81 ± 0.24 ha) land to produce the large size of dairy cattle. Children were responsible for herding and take care of the dairy cattle. Women were controlled milking, cleaning and marketing of the dairy and dairy products. Inadequate animal feed, animal health problems, poor genetic potentials, limited artificial services, limited livestock credit and insurance service, poor dairy market linkage, absence of dairy technology and lack of institutional support were major identified dairy cattle production challenges while suitable environment, high demand for dairy and dairy product and nearest to the centre as dairy production potentials and the study is highly recommended that planning of dairy policy, provision of credit and insurance, motivating of the formal market channel and improving dairy production inputs(feeds, drugs, semen, technologies, technicians and heifers).

Keywords: Dairy; Challenges; Opportunities; Livestock

INTRODUCTION

Agriculture sub-sector contributes 50% to the national Gross Domestic Product (GDP) and about 85% of total population labour force employment in Ethiopia [1]. The major agricultural activities are crop farming and livestock production based on small scale holdings. Ethiopia is believed to have the largest cattle population in Africa, however, when compared to its potential this subsector contributes to the national economy is limited [2], the livestock population is estimated to be about 60.39million cattle, 31.30 million of sheep, 32.74 million of goats, 11.31 million of equines, 1.4 million of camels and 56.06 million of poultry. Dairy production is an important part of the livestock production systems in Ethiopia.

Ethiopia has a high potential for dairy production and development due to its large livestock populations, conducive environment, emerging market opportunity with countries' increasing population, urbanization trend and rising household income are correlative with leading substantial increase in the demand of livestock product such as meat, milk and its products. Hence, to satisfy the growing demand the livestock product, production has to be improved and the losses occurring to milk should be minimized [3,4].

Despite the large dairy cattle population, milk production per cow per day is very low in Ethiopia. The average lactation period per cow during the reference period at country level is estimated to be about 6 months, and average milk yield per cow per day is about 1.371 litres. The low productivity is principally due to inefficient nutritional and management practices, the low genetic potential of the indigenous cows, high level of disease and parasitic incidence, poor access to extension and credit services, and inadequate information to improve animal performan [5]. Among these constraints, inadequate quantity and quality feed ingredients were identified as a major limiting factor to the development of dairy production in peri-urban and urban dairy systems [6].

The Ethiopian government has given strong attention to the development of smallholder market-oriented dairy production in peri-urban and urban production systems to increase milk production, including north shewa milk shed area. These production systems have tremendous potential for development and could play a significant role in minimizing the acute shortage of dairy products [7]. According to Azageet, et al. to meet the growing demand for milk in the country, milk production has to grow at least at a rate of 4% per annum which in turn entails the design of appropriate and sustainable milk development strategies based on socio-economic, institutional and agro-ecological circumstances that build on the demand of consumers and the needs and opportunities of producers [8,9].

Statements of problem

Dairy cattle producing farmers are suffering from different challenges; getting minimum advantages from dairy production opportunities. Indeed, the demand for milk and milk products is increasing horizontally and vertically.

Dairy cattle producers of Ethiopia in general and north shewa, in particular, are facing several challenges which faced in the dairy farm development. These include limited genetic resources, inadequate veterinary service provision, poor management, inadequate animal feed resources, reproductive challenges and market-related challenges and also creates different opportunity which includes; livestock genetic resources and production system, access services and land inputs, agricultural extension services and technologies, income generation and employment opportunities [10]. In line with dairy farm development prospects, getting accesses to services and inputs that could help promote dairy production and productivity is high; as it promotes the motto of government policy in creating employment opportunities at the household level. However, the strength and quality of challenges and opportunity and plan of dairy cattle production in the study area is not well identified and documented

Objectives

The specific objectives of the current study are:

1. To assess major challenges face the dairy cattle production in the study area

2. To identify the production potentials of dairy cattle in the study area

MATERIALS AND METHODS

Description of study area

This study was conducted in North Shao Zone of Oromia National, Regional State which is located in Northwest of Addis Ababa on the main road to Gojam, to cover some selected woredas, districts like Wuchale, and Degem.

Degem district has 16 Kebeles and 2 towns (Hambiso and Alidoro); Hambiso is the capital. is located at 125 Km from Addis Ababa receives an average annual rainfall of around 1100 mm, The maximum altitude of Degam is 3500 m. a. s. l. whereas the minimum altitude is 1550 m.a.s.l and the average annual temperature 14 °C, known by highland agro ecology with mixed crop-livestock farming systems in which livestock in general and dairy production, in particular, contributes significantly to livelihoods. Wuchale district is located at the 9°17'N-9°48'N latitude and 38°45'E-39°13'E longitude; 78 Km from Addis Ababa, the capital city of Ethiopia, and 34 Km

from Fiche, the capital city of north shewa zone. The district has three major administrative towns as MukeTuri (district capital), Wobori, and Gimbichu. The highest elevation of the district is 2880m, the lowest is 1200 m, and the average elevation is 2412 m above sea level. That means the districts have the three major classifications of landform such as highland, lowland and valley with other minor landform classification with mean annual rainfall is ranged from 1000 mm-1800 mm.HidhabuAbote is located about 147 km North of Addis Ababa. The District has a total area of 454 square kilometres and is home for 95896 people among which 48278 are Female (Projected from CSA 2006 and HidhabuAbote District Municipality Demographic Data, 2006) with an average population density of 167 per km^2. Administratively the District is subdivided into 20 localities of which 19 localities are rural supporting 96.5% of the population and 1 locality is urban centre (Ejere town).

Research design

After a cross-sectional survey, a descriptive which is defined by Orodho, as a method of collecting data from a sample of respondents by asking questions was applied. This research technique collects in-depth insights from the respondents by using questionnaires and interview schedules. Hence, the study used a simple quantitative and qualitative methodology of data collection techniques were selected by the researchers for both data analysis and presentation.

Sample size and sampling techniques

From the districts of North Showa zone, three districts were selected purposively based dairying potential, accessibility, and budget. And three kebeles were selected purposively again; from selected kebeles, the numbers of householders were selected randomly based on sample size. Given the central importance of scale of operation in the study, efforts were made to select a representative sample of households (small, medium and large) covering

differences in the extent of dairy development, likely potential for further development, types of production, and scale of activity. The number of the household going to be sampled in this study will be determined by the formula of Yamane.

$$N = \frac{Z^2 PQ}{d^2}$$

Where N= sample size, z=standard statistical value under normal distribution curve, with significance level at 5%, P=proportion of farmer engaged in dairy cattle production assumed=50% (0.5), q=1-P=0.5 and D=standard error at 0.05.

Sources and methods of data collection

In the current study, both primary and secondary data were used. Secondary data was collected from documented data or technical reports of the respective district's office of livestock and fisheries. Primary data was generated through consultation meetings, Focus Group Discussions (FGDs), in-depth interview with key informants.

To obtain primary data of the dairy farm, a semi-structured questionnaire was developed and pre-tested. Finally, the formal survey was conducted by trained enumerators under close supervision and participation of the researchers. Data was collected on the challenges, opportunities and prospects of dairy production and productivity of the study area Moreover, data concerning the traditional measures taken by dairy cattle producing societies to solve problems associated with livestock husbandry practices.

Data analysis and interpretations

Collected data was managed into Microsoft Excel. The quantitative and qualitative data were coded and analyzed using the means and frequency procedures of Statistical Package for Social Sciences (SPSS, 2013). Chi-square test was used to examine differences between levels of significance of different quantitative variables among districts.

RESULTS AND DISCUSSION

House hold characterization

The background of the respondents summarized in Table 1, reveals that almost all (83.3%) of dairy producers were male similarly across study districts (P>0.05). This result suggested that men take the lead of dairy production business. The current result is in agreement with the findings of previous studies by Teferee, et al. for Addis Ababa and in northwest Ethiopia, who reported most of the urban dairy farmers were male-headed [11].

The educational background of the respondents was good, most (46.1%) of them have completed primary school followed by illiterate (36.4%), secondary school (11.1%) and college (6.4%). The results, in general, indicate that dairy cattle owners in the study areas are mainly literate; suggesting that with good extension and training program they can improve their dairy production and marketing, which supported by Ofukouet, et al. suggestions [12].

The majority (53%) of family size was failed between 1 and 5 in number, followed by 6 up to 10 (45.6%) and very few 1.4%) family size was above 10 per household. Family size influences the availability of labour in the households for dairy cattle management and there was a significant (P<0.05) difference in family size observed among study districts. This result is lower than the report

of Haile, et al. in Hawassa town and Bahirdarzuria [13,14].

Landholding and land use

The landholding in north shewa zone of Oromia region is less when compared with other zones of Oromia. Table 2, shows that the mean landholding per household of the study area was 1.81 ± 0.24 hectares. Farmers used the land for dual purposes, 1.3 ± 0.21 and 0.5 ± 0.03 for crop production and pasture production respectively, which is significantly (P>0.05) similar across the study districts.

An overall of about (80%) of respondents reported that land was used majorly for livestock rearing and crop production, while few (20%) of respondents were allocated their land for livestock production only.

Dairy cattle size and herd structure

Cattle holding of the study area was significantly (P<0.05) different across the zone districts. The result obtained from the survey reveals that the crossbred (hybrid) dairy cattle were dominant over another breed structure. The hybrid lactating cows were higher (0.98 ± 0.04), followed by hybrid pregnant cows (0.90 ± 0.04) and hybrid heifer (0.83 ± 0.05). As the current study summarized in Table 3, local cattle were significantly less than hybrid cattle.

The overall mean number of cows per household is quite lower than that reported from Dire Daw, Shashemene-Dilla milk shed and agreed with urban dairy farm sizes in Ethiopia [15-17]. This is due to feed shortage and some other problem faced the dairy production of the study area. However, the farmers suggested that having crossbreed cows is much more advantageous in high yield, disease and harsh condition withstanding when compared to pure exotic dairy cows and having a large number of local cattle.

Table 1: Characterization of respondents (Percentage %).

Description of the character		Study districts			Total	P-Value
		Degam(N=120)	HidhabuAbote(N=120)	Wachale(N=120)	(N=360)	
Sex	Male	85.8	80	84.2	83.3	0.458
	Female	14.2	20	15.8	16.7	
Educational background	Illiterate	35.8	39.2	34.2	36.4	0
	Primary	43.3	57.5	37.5	46.1	
	Secondary	13.3	3.3	16.7	11.1	
	College and above	11.7	0	7.5	6.4	
Family size(in number)	01-May	35	60	64.2	53	0
	06-Oct	61.7	40	35	45.6	
	>10	3.3	0	0.8	1.4	

Table 2: Landholding in hectare (Mean ± SE) and land using (percentage%) systems responded by householders.

Description of the characteristics	Study area			Total	P-Value
	Degam	Hidhabuabote	Wachale		
Average landholding per household	1.66 ± 0.09	1.51 ± 0.16	2.27 ± 0.69	1.81 ± 0.24	
Landholding for crop production	1.27 ± 0.06	0.9 ± 0.10	1.74 ± 0.62	1.3 ± 0.21	0.296
Landholding for pasture production	0.39 ± 0.03	0.61 ± 0.06	0.53 ± 0.07	0.5 ± 0.03	0.03
Land use for crop-livestock	78.3	94.2	67.5	80	0
Land use for livestock only	21.7	5.8	32.5	20	

Table 3: Dairy cattle herd size and structure (Mean ± SE) of north shewa zone.

Description	Study area (TLU)			Total	P-Value
	Degam	HidhabuAbote	Wachale		
LPC	0.47 ± 0.05	0.27 ± 0.05	0.05 ± 0.01	0.26 ± 0.03	0
LoLaC	0.69 ± 0.06	0.29 ± 0.05	0.13 ± 0.03	0.37 ± 0.03	0
HyLaC	0.50 ± 0.06	1.18 ± 0.10	1.25 ± 0.07	0.98 ± 0.04	0
LoDC	0.18 ± 0.03	0.10 ± 0.03	0.03 ± 0.01	0.10 ± 0.01	0
HyDC	0.02 ± 0.01	0.40 ± 0.08	0.18 ± 0.04	0.20 ± 0.03	0
HyPC	0.27 ± 0.04	1.25 ± 0.08	1.17 ± 0.07	0.90 ± 0.04	0
LH	0.35 ± 0.04	0.11 ± 0.02	0.03 ± 0.01	0.16 ± 0.02	0
HyH	0.22 ± 0.04	1.15 ± 0.12	1.10 ± 0.07	0.83 ± 0.05	0
LoB	0.42 ± 0.05	0.19 ± 0.04	0.06 ± 0.02	0.22 ± 0.02	0
HyB	0.21 ± 0.04	0.76 ± 0.09	0.50 ± 0.07	0.49 ± 0.04	0
LoOx	1.66 ± 0.09	1.01 ± 0.10	0.45 ± 0.07	1.04 ± 0.06	0
HyOx	0.06 ± 0.02	0.55 ± 0.08	0.50 ± 0.07	0.37 ± 0.03	0
LoFcal	0.47 ± 0.05	0.15 ± 0.02	0.04 ± 0.01	0.22 ± .02	0
HyFCal	0.20 ± 0.03	0.75 ± 0.10	0.8 ± 0.07	0.59 ± 0.04	0
LoMCa	0.27 ± 0.04	0.19 ± 0.04	0.04 ± 0.01	0.16 ± 0.02	0
HyMCa	0.22 ± 0.04	0.49 ± 0.06	0.44 ± 0.05	0.38 ± 0.03	0

Note: TLU: Tropical Livestock Unit, LPC: Local Pregnant Cow, HyLaC: Hybrid Lactating Cow, LoDC: Local Dry Cow, HyDC: Hybrid Dry Cow, HyPC: HybridPregnant Cow, LH: Local Heifer, HyH: Hybrid Heifer,LoB: Local Bull, HyB: Hybrid Bull, LoOx: Local Ox, HyOx : Hybrid Ox, LoFcal: Local Female Calf, HyFCal: Hybrid Female Calf, LoMCa: Local Male Calf, HyMCa: Hybrid Male Calf, LoLaC: LocalLactatingCow.

Herding and feeding practice

The result shown in the Table 4, reveals that children (26.9%) were responsible for herding dairy cattle. Most (20.8%) of respondents were hired labour for herding and some cattle were kept indoor (17.2%). The whole family which mean women, men and children (11.7%) also took care of the dairy cattle and the results were not similar (P<0.05) among study districts.

Almost all (28.6%) of the family members women, men, hired labour and children were feeding dairy cattle which was not significantly (P<0.05) similar across study districts. The majority (77.8%) of the respondents have supplemented dairy cattle with supplementary feed similarly (P>0.05) in the study area. Almost all (84.2%) of the respondents responded that they do not offer non-conventional feeds for dairy cattle.

Milking, cleaning, processing and marketing of milk

In north shewa zone, the milking practice type was traditional hand milking. The milking was majorly (67.5%) practised by women twice a day, which means morning and afternoon. During milking, no sanitation teats were washing and drying was not practised, and the producers believe that during calf suckling for milk let-down, the teat gets washed by the saliva of a calf and therefore it is not as such important to wash the teat before milking. Moreover, the milking area, Milking utensils and some storage materials were cleaned by women (60.8%) and considered as women's mandatory activity (Table 5).

In the study area, fresh milk, butter, fermented or soured whole milk (ergo), cottage cheese (ayib) and buttermilk (arera) are both formally and informally marketed. Women (71.9%) were traditionally processed the milk into different dairy products, but, the most marketable dairy product in the study area was raw milk. Milk marketing is informal; milk is transported from the local market places to the nearby towns by donkeys and women's back. Thus, females (48.9%) among family members were involved in marketing milk and milk products. The present result is comparable with that of reported on informal milk marketing system for urban dairy producers in the central highlands of Ethiopia [18].

Major challenges of dairy cattle production

Challenges and problems for dairy development vary from place to place. According to the respondents in study area there were various challenges facing dairying industry. These were inadequate animal feed, animal health problems, poor genetic potentials, limited artificial services, limited livestock credit and insurance service, poor dairy market linkage, absence of dairy technology and lack of institutional support.

According to the discussion made with focus group and information gathered from the respondents the primary constraint of the dairy cattle production in the study area was feed problem. The ever increasing of feed price (44.2%), unavailability of feed resource (34.7%) and low quality of feed (21.1%) were responded by the farmers (Table 6), which was similar the report of west hararghe zone dairy cattle production [3,4]. According to Mebrate, et al. the major constraints affecting milk production potential of dairy cattle in most parts of Ethiopia are the shortage of feed due to low grazing land [19]. Farmers were ranked animal feed problem as major dairy cattle production and the expense for feed is much higher than the profit obtained from the dairy product.

The producers also responded to the lack of improved dairy cattle as second challenges of dairy development in the study area. High price for the improved dairy cattle (38.6%) to purchase, shortage of improved dairy cattle (37.2%) and lack of appropriate breeding strategies (24.2%) were a major problem with breed improvement to enhance production potential of dairy producers of the study area. The demand for crossbred cows is high in the study area, but supply is far below the demand. Ethiopia doesn't have a functional breeding policy. Most of the cattle breeding activities have been executed under strategy set by various individual organizations [20].

Table 4: Herding and feeding practices (%) of dairy cattle in the study area.

Description activities		Study woreda(%)			Total(N=360)	P-value
		Degam(N=120)	Hidhabuabote(N=120)	Wachale(N=120)		
Herding practice	Men	5	0.5	10	5.3	0
	Women	1.7	10	7.5	6.3	
	Children	34.2	30.8	15.8	26.9	
	Hired	7.5	47.5	7.5	20.8	
	Indoor	34.2	0	17.5	17.2	
	Both men and women	7.5	0	15.8	7.8	
	Women, men and children	5	10	20	11.7	
	Men and children	5	0.8	5.8	3.9	
Feeding practice	Men	8.3	14.2	5.8	9.4	0
	Women	20	5.8	5	10.3	
	Children	6.7	1.7	8.3	5.6	
	Hired	15	13.3	18.3	15.6	
	Both men and women	20.8	2.5	21.7	15	
	Women and children	22.5	2.5	21.7	15.6	
	Women, men, hired labour and children	6.7	60	19.2	28.6	
Do you offer the supplementary feed?	Yes	84.2	76.7	72.5	77.8	0.08
	No	15.8	23.3	27.5	22.2	
Do you offer non-conventional feeds?	Yes	12.5	6.7	28.3	15.8	0
	No	87.5	93.3	71.7	84.2	

Table 5: Milking, cleaning and marketing of dairy (%) in the north shewa zone.

Description of activities		Study district (%)			Total (N=360)	P-Value
		Degam(N=120)	HidhabuAbote(N=120)	Wachale(N=120)		
Milking practice	Men	25	12.5	25	15.3	0
	Women	47.5	85	47.5	67.5	
	Children	8.3	0	8.3	3.9	
	Hired	8.3	0.8	8.3	7.5	
	Men, women and children	10.8	1.7	10.8	5.8	
Cleaning	Men	6.7	8.3	0	5	0
	Women	61.7	58.3	62.5	60.8	
	Children	12.5	19.2	7.5	13.1	
	Hired	4.2	4.2	12.5	6.9	
	Women and children	15	10	17.5	14.2	
Process of milk	Men	5	0	5	3.3	0
	Women	61.7	97.5	56.7	71.9	
	Children	9.2	0	0.8	3.3	
	Hired	0.8	0.8	6.7	2.8	
	Women and children	5	1.7	30.8	12.5	
	Not process	18.3	0	0	6.1	
Sales of the dairy and dairy product	Men	40.8	20	19.2	26.7	0
	Women	25.8	70.8	50	48.9	
	Children	14.2	7.5	8.3	10	
	Hired labor	0.8	0	7.5	2.8	
	Men and women	15.8	0.8	14.2	10.3	
	Men, women and children	2.5	0.8	0.8	1.4	

Table 6: Milk handling and processing techniques in the study area.

Description of activities		Number of respondents(n)=360	
		Frequency	Percent
Milk equipment for milking	Plastic	298	82.8
	Aluminium can	25	6.9
	Elemtu	37	10.3
Milk equipment for storage	Plastic	250	69.4
	Aluminium can	37	10.3
	Clay pot	73	20.3
Smoking milk vessels	Yes	252	70
	No	108	30
Is there any new technology for storage and processing milk	Yes	354	98.3
	No	3	0.8
	I don't know	3	0.8
Do you process milk?	Yes	279	77.5
	No	81	22.5
What types of dairy products do you make	Butter	82	22.8
	Cheese	4	1.1
	Butter and cheese	274	76.1
Selling of raw milk	To individuals	142	39.4
	To cooperatives	92	25.6
	To retailer's	126	35

Furthermore, the farmers complain about inadequate artificial insemination technicians (31.1%), shortage of quality semen (30%), lack of ability to detect estrus and pregnancy (21.7%) and low conception rate (17.2%) as major problems of artificial insemination. As reported by Shiferaw, et al. [20], the AI service has been inefficient for different reasons in rural areas where smallholder farmers, some of these reasons are infrastructure, managerial and financial constraints, inefficient heat detection and improper timing of insemination, embryonic death and the very small number of AI technicians compared with the number of cows in a given area. Indicated that the Ministry of Agriculture assigns one AI technician to serve farmers of one district. It is practically impossible for an AI technician to satisfy the demands of all the producers in a given district. Consequently, the general productivity of the dairy herd kept by smallholder producers is very low.

Based on the level of the management and ecology of the production area, the prevalence of different infectious and non-infectious disease, internal and external parasites was listed by farmers during focus group discussions and interview. Lema, et al. reported an overall disease occurrence of 46.8 and 33.6 percent in urban and peri-urban dairying in the central highlands, respectively. The farmers were responded that the shortage of drug and veterinary technicians (45.6%), shortage of veterinary clinic centres (35.6%) and poor quality and the high price of the drug (18.9%) were major animal health problems [21].

Improving market access to the dairy product creates an opportunity for enhanced dairy production. However, low price for dairy and dairy products (32.8%), absence of well-organized market system (27.2%), absence of market information and regulations (23.3%),

and Seasonal market and price fluctuations (16.7%) has to be reported by the producers as major market problems across the study area no promotional activities are being carried out and no price regulation mechanisms, there are no functional quality controls and payment system, which is in line with the report of Lema, et al. [21].

Livestock credit and insurance is a mandatory factor to develop modern dairy. The farmers of the study area were unable to get adequate credit to run dairy business (38.7%), Livestock insurance institution (27.8%), and livestock credit association (23.9%) and unable to use business (9.7%). This implies that farmers of the study area cannot start a modern dairy farm because of lack of investment cost.

Majority (71.7%) farmers of the study area were responded that there was no dairy development technology improves dairy production, handling, storing, processing and transportations. Even though, there were several dairy improvement challenges in the study area, the governmental or nongovernmental organizations extension service (65.3%) of the sector to cope up the limitations was very low; which is similar significantly(P>0.05) across the zone [22-26].

The opportunity of the dairy industry in north shewa zone

Although many challenges of the dairy sector were discussed in the area, the interviewed households and farmers at group discussions were understood that dairy farming supports livelihoods of society under low input production system, generates income and creates employment opportunity under market-oriented production system. Moreover, dairying is a good investment in the study area because of the various opportunities discussed (Table 7) [27-32].

Table 7: Major identified challenges of dairy production of north shewa zone.

Challenges		Study districts(%)			Total	P-Value
		Degam	HidhabuAbote	Wachale		
Feed related problem	High feed price	55.8	28.3	48.3	44.2	0
	Shortage of feed	18.3	53.3	32.5	34.7	
	Low quality(not dairy based formulation)	25.8	18.3	19.2	21.1	
Breed related challenges	Shortage of improved dairy breed	39.2	34.2	38.3	37.2	0.58
	High price for improved dairy breed	40.8	36.7	38.3	38.6	
	Lack of appropriate breeding strategies	20	29.2	23.3	24.2	
Artificial insemination	Shortage of semen	16.7	50.8	22.5	30	0
	Lack of qualified technicians	30	31.7	31.7	31.1	
	Ability to detect estrus or pregnancy	20.8	17.5	26.7	21.7	
	Low conception rate	32.5	0	19.2	17.2	
Health and diseases	Shortage of veterinary clinic center	39.2	35	32.7	35.6	0
	Shortage of drug and technicians	50.8	36.7	49.2	45.6	
	Poor quality and high price of drug	10	28.3	18.3	18.9	
Credit and insurance	Inadequate credit to run dairy business	41.7	38.3	3.8	38.6	0.075
	Low business skill to use and run the business	5	7.5	16.7	9.7	
	Absence of livestock credit association	26.7	22.5	22.5	23.9	
	Absence of livestock insurance institution	26.7	31.7	25	27.8	
Market problems	Low price for dairy and dairy products	39.2	15	44.2	32.8	0
	Absence of market information and regulations	25.8	20.8	23.3	23.3	
	Seasonal market and price fluctuations	18.3	15	16.7	16.7	
	Absence of a well-organized market system	16.7	49.2	15.8	27.2	
Is there any governmental or NGO support?	Yes	35.8	33.3	35	34.7	0.92
	No	64.2	66.7	65	65.3	
Is there dairy technology?	Yes	35.8	23.3	25.8	28.3	0.075
	No	64.2	76.7	74.2	71.7	

North Shewa zone is conducive for dairy cattle production; the information obtained from the farmers during group discussion and key informants reveals that the area is very suitable for the exotic and crossbred dairy cattle production with less animal disease-stress that make the area to have a substantial potential for dairy development. According to Asaminew, et al. the area is characterized by dissected high plateaus with mean annual rainfall ranging approximately between 800 mm and 1600mm, and mean annual temperature ranging between 10 and 25°C [13,14]. The area has highland (Badda) 42%, mid highland (Baddadaree) 35%, and 23% lowland (Gammojjii) agro-ecology Gutuet, et al. Thus, the north shewa zone (Salale) is the potential for dairy cattle production [29,33-37].

The human population of Addis Ababa and the study area are the major driving forces that dramatically increase the demand for milk and milk products. Due to population growth and an increase in per capita consumption, demand for milk is expected to increase, even more, in the future years. The demand for dairy products is rising rapidly and prices are being pushed up as demand is met by imported products, particularly powdered milk [37-39].

The area is located adjacent to the Addis Ababa; the capital of the Ethiopia major market centre for the dairy and dairy products. Distance from the market was a major factor that prohibited farmers from selling whole fresh milk to urban consumers. Therefore, the north shewa zone of Oromia regional state is much more advantageous to attract dairy investors and/or motivate farmers than another part of the country.

CONCLUSION

The study was conducted at North shewa zone of Oromia regional state, to assess major challenges face the dairy cattle production and opportunities for dairy development in the study area. A cross-sectional survey was used; three districts were selected from the zone and three kebeles were selected purposively based on dairy potentials. Three hundred sixty respondents were randomly selected for a structured interview. Both focus group discussion and depth interview with key informant was conducted to support the data obtained from the farmers.

Almost of the dairy cattle owners were male-headed and mostly completed primary school. The family size was between 1 and 5 having had scarce land to produce the large size of dairy cattle. Children were responsible for herding and take care of the dairy cattle. Women were controlled milking, cleaning and marketing of the dairy and dairy products.

Challenges and problems for dairy development vary from place to place. According to the respondents in the study area, various challenges were facing the dairying industry. These were inadequate animal feed, animal health problems, poor genetic potentials, limited artificial services, limited livestock credit and insurance service, poor dairy market linkage, absence of dairy technology and lack of institutional support.

The farmers of the study area were understood that dairy farming supports livelihoods of society under low input production system, generates income and creates employment opportunity under market-oriented production system in the suitable environment, high demand for dairy and dairy product and nearest to the centre as dairy production potentials.

RECOMMENDATIONS

Based on the above conclusions the current study is strongly suggested the following forward recommendations:

• Careful planning of dairy policy is required for the generation of appropriate and demand-driven technologies to attain sustainable dairy farm development

• The provision of credit facilities and insurance for dairy farms should be encouraged and promoted.

• Provide appropriate incentives to the private sector so the sector develops and dairy cooperatives

• Improve the availability of vital inputs from production to processing such as quality forage seed, veterinary drugs and milk processing equipment

• Promoting different feed conservation & utilization technologies (hay Bailer, feed choppers, feed Moyers, moulders, etc.)

• Encouraging improved heifer production and establishing community-based bull service stations in a strategic location

• Promoting formal dairy market, regulations, linkages and quality-based price

• Establish targeted dairy extension systems, like dairy advisory services and technical management support.

• Detailed studies should be done on interventions of challenges of dairy development.

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CONFLICT OF INTEREST

There is no conflict of interest

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