

Constraints and Opportunities on Small Scale Dairy Production and Marketing in Gondar Town

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Abstract: The study was conducted in Gondar town of Amhara Regional State with objective of assessing challenges and opportunities of dairy production and marketing of milk products in Gondar district. This study was conducted in six purposively selected kebeles (kebele 03, 10,15,18,19 and 20). Ten dairy farmers from each kebele were selected purposively (low, medium and high producers). Data were collected from sixty dairy households and cooperatives using semi structured questionnaires. Survey data collected from six kebeles was analyzed using descriptive statistics. The study showed that dairy production was significantly affected by the use of improved feed, demand for milk, number of cross breeds, training, financial support and education of the household heads. Generally land shortage, scarcity of feed and high price, seasonality of demand particularly in fasting time and absence of processing industry were the major challenges of dairy production and marketing in the area. The study showed that there is a high demand for dairy products in the area. Therefore, establishment of dairy industry should receive a due consideration in order to improve dairy production and marketing.

Key words: Marketing system • Dairy • Cooperatives • Processing

INTRODUCTION

Ethiopia holds a substantial potential for dairy development mainly due to its large livestock population [1]. Despite the large cattle population and the prevailing favorable climatic conditions and resources for livestock Production, current milk production is low which is reflected in the low per capita milk production and increasing trend in import of milk and milk products [2]. Like most developing countries, Ethiopia's increasing human population, urbanization trends and rising household incomes are leading to a substantial increase in the demand for livestock products, particularly milk and Meat. In order to meet the growing demand for milk in Ethiopia milk production has to grow at least a rate of four percent per annum [3]. Bridging this wide gap calls for the design of appropriate and sustainable dairy 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 [4].

Similar to other parts of Ethiopia, dairy production in Amhara Region is dominated by smallholders who are estimated to contribute approximately 98% and 97% of total and marketed milk production, respectively [5]. In 2002 milk production was estimated at 493 million liters out of which below 1% was marketed, 41% was consumed at home and the rest 58% processed into butter and other derivative dairy products [5]. Considering milk has no close substitute, to the estimated total population of 3.5 million dairy cows in approximately 3 million smallholders [6], suggests that this sub-sector employs many Ethiopians who derive a regular source of cash income and balanced nutrition.

The mainstay of the population in the Gondar region is rain-fed subsistence agriculture and about 73 percent of smallholders practice mixed crop-livestock farming, 19 percent practice crop cultivation while the remaining eight percent under take livestock rearing [7]. Like other parts of the region, milk production is an integral part of the farming system in the west Gondar zone. Local milk production is mainly from indigenous zebu cattle which

are kept by about half a million small holder farming households [8], most of whom are poor. The potential for increasing demand for milk due to growing urbanization; the high income elasticity of demand for milk; the predominance of smallholdings in the most suitable peri-urban dairy production areas; the central role that livestock play in nutrient cycling in mixed farms; and, increased income generation opportunities [8]. There is increasing private sector activity through various actors, including small traders, private dairy processors and farmer groups, each innovating mechanisms for collecting and retailing milk and for providing inputs and animal reproduction and health services. The changes have also shifted the patterns of incentives in the dairy sub-sector, [9]. In relation to this, [10], in their recent study conclude that, over the last decade following the political changes in 1993, the dairy sector in Ethiopia has shown considerable progress. Total milk production grew at an estimated rate of 3 percent as compared to 1.8 percent during the period of 1975-1992, thus ending the long-time trend of declining per capita milk production in the country. The progress achieved is mainly due to technological intervention, policy reforms and cow population growth

Objective of the Study:

- To assess the dairy production and marketing system on small scale dairy production level in the study area.
- To identify the major constraints and opportunities of dairy production in the area.

Scope of the study: The study was restricted to Gondar city, which is found in Amhara National Regional State of Ethiopia. Gondar has eleven local administrations. This study conducted on small holder dairy farmers as well as dairy cooperatives in Gondar. The study has focused on this area to describe dairy production and marketing system and to identify factors, challenges and prospects of dairy production and marketing system in Gondar.

Research Methodology

Study Area: A cross-sectional and retrospective study was conducted from March to May 2015 in Gondar town, North West part of Ethiopia. Gondar town is capital city of North Gondar administrative zone, which is one of the eleven administrative zones located in western parts of

Amhara regional state. The area is 750Km North west of Addis Ababa at latitude, longitude and altitude of 12.3-13.8° N, 35.3-35.7°E and 2,200 m.a.s.l respectively. The annual minimum and maximum temperature of the area vary between 12.3-17.7°C and 22-30°C respectively. The livestock population of North Gondar is estimated to be 1,936,514 cattle (exotic cross and local), 524, 083 sheep, 682,264 goats, 36,828 horse, 12,473 mules, 223,116 donkey and 3,165,068 poultry [11].

Sampling Techniques Data Collection and Analysis: In order to achieve the stated objective for this study the researcher used purposively sampling methods was used to select a total of six Peasants Association (PA) from urban and surrounding areas for conducting this study. And also, two large scales and 58 smallholders a total of 60 dairy farmer cooperators are selected both from urban and surrounding areas. These were randomly selected to collect the primary information through semi structure questioner. Both primary and secondary data were collected during the study. And the Primary data was gathered from small scale household dairy farm owners and cooperatives in the respective kebeles through interviews and questionnaires. The secondary data were taken from the respective town agricultural offices, zonal office of agriculture and from previously written documents, annual reports, published and unpublished documents. The survey data was managed in such a way that the qualitative as well as quantitative variables were used during the study. The questionnaire data was entered in to MS-excel soft ware's and also coded for analysis. The qualitative parameters included are dairy farm owner, type dairy feeds, dairy production system and constraints of milk production in survey kebeles were summarized using descriptive statistics. The quantitative parameters were included the family size of the households, amount of milk produced per day, lactation length, lactation yield, daily and milk yield were presented in the forms of tables. Descriptive statistics such as the frequency, maximum, minimum and percentage were used for quantitative data.

RESULTS AND DISCUSSION

The majority of the household members were illiterate (do not read and write) and have a negative effect on the development of the dairy production sector in the area. Farmers need to be given training on modern dairy farming practice in which the respondents (93%)

Table 1: Types of Dairy Feed Resource Used in Dairy Farm Householder

Major types of animal feed	% of total respondents (Rst) in each PA(N=60)						Total % of Respondents
	Kebele 03	Kebele 10	Kebele 15	Kebele 18	Kebele 19	Kebele 20	
Crop residue	70.5	75	78.6	11.7	3.33	26.67	65
Industrial by-product	23.5	100	92.9	100	100	75	68.3
Natural pasture hay	100	100	100	100	100	100	98.3
Improved forage and silage	5.88	0	0	0	0	0	1.66

were 18-50 years of age and the average age was found 15 years and maximum and minimum age of the respondents was 60 and 18 years respectively. Family size of the respondent ranged from one to eleven members, households with 1-4 and 5-8 members were most often observed and majority of the respondents (66.66%) were married; 31.66% single and the remaining 1.66% were divorced.

Based on the finding on the above (Table 1) the percentage of agro-industrial by-product users were lower (68.3%) as compared to the major feed sources (natural pasture hay) were it accounts about (98.3%) of feed source. This could mainly be attributed to price increase, high transport cost availability of concentrate and demand competition. In the study kebeles, the dominant feed was crop residues with regard to its importance for lactating cows and maize thinning, wheat straw, teff straw and barley straw also crucial contribution for dairy cattle production. In most cases, wheat straw was used in more than 50% of the other crop residue types in the study area, while all other crops account for the remaining 50% of the crop residues.

Common Feed Sources of Dairy Cattle: Majority of farmers reported that wet brewery grain which accounts (97%) and wheat bran (56%) are the most common feed resources across the six kebele followed by bean bran (39%), sorghum bran (29%) and tella atela (24%) correspondingly. Nuog cake was the least used resource. This result showed difference with the finding with Firew and Getnet [12], who reported that the use of agro-industrial by product in the Amhara National Regional State as livestock feed especially for fattening and dairy were not commonly used. There were no many improved forage feeds like (elephant grass, alfalfa white, sesibania, vetch and Rhodes grass) user in study area.

The research result depicted that the major sources of feed for dairy cattle in the study area were, grass hay, crop residues, agro-industrial by-products, forage and local brewery by-products. Generally, crop residues from cereals such as wheat, barley, teff straws and maize

Table 2: Income diversification from dairy products

S/N	Variables	%
1	Milk selling practice	93.33
2	Butter selling practice	5
3	Cheese selling practice	1.667

thinning were basal diets of the animal in the study area. This result showed in agreement with the findings of Seyoum *et al.* [13], who reported that the major basal feed resources for cattle in the highlands of Ethiopia were natural pasture hay and crop residues. According to Zewdu [14], the use of improved forages, such as Napier grass, Rhodes grass, alfalfa white, vetch and Sesbania were not common and does not used as concentrate feed in the study area. However, those respondents who owned crossbred cows feed concentrate feeds like Nuog seed cake, sorghum bran, bean bran and wheat bran to their animals.

As observed during the current study, dairy farmers in the districts practice the informal marketing system where they sell their products to neighbors or in the local markets showed in (Table 2) above. In the study area the majority (93.3%) of dairy farmers produced whole milk as the predominant dairy product for sale while 5% of households produce butter for home consumption and income generation. Out of the interviewed producers in the urban production system the majority of households (96%) were market oriented. The dairy marketing system found in the studied areas was dominantly informal marketing milk was sold mainly on contract basis and in cash to consumers directly in different price. This is because of there is only very few formal dairy products shops in formal and common market place with fixed price.

The average milk yield in study area was showed 12.6 and 8.5 liter of milk per day per cow from crossbreed and local cows respectively. This finding is not similar with the finding of Anteneh [15], who reported that average milk yield per cow per day from cross breed and local cow were 9.63 and 2.10 l respectively. This variation in the average milk yield per cow between cross breed and local cow is attributed due to the difference in breed, management and feed systems.

Table 3: Local breed and cross breed milk production and lactation length.

Local breed		Percent	Cross breed		Percent
LL					
5-7 month		78.33	7-9		75
8-10 month		21.66	9-11		25
DMY			DMY		
3-6 liter		20	10-14 liter		94
7-10 liter		63.33	14-18 liter		3.33
10-14 liter		16.66	18-22 liter		6.66
Average LL	Min. val	Max. val	Average LL	Min	Max. val
6.65 month	5 month	10 month	8.5month	7 month	11 month
Average DMY	Min. val	Max.val	Average DMY	Min.val	Max.val
8.2 liter	3 liter	14 liter	12.6 liter	10 liter	22 liter

Key: min val= minimum value, LL= lactation length, max val= maximum value, DMY= dry matter yield

Table 4: Problems and Constraints of dairy Production in the studied area

Factors (constraints)	Percentage (%)
Land shortage	33.33
Feed shortage	13.33
Veterinary service	5
Diseases prevalence	3.33
Water shortage	1.667
Lack of improved dairy breeds	1.667
Poor government attention	3.33
Feed cost enhancement	23.33
Lack of improved dairy breed	1.667
Lack of improved forage and pasture	10
Poor transportation access to sell produced milk	3.33

Cattle productivity in the study area was affected by a number of factors and the most important constraints associated with milk production were land shortage, feed shortage, disease prevalence, poor government attention, poor veterinary service, lack of improved dairy breed, high cost of feed, water shortage, lack of improved forage pasture and poor transportation. This is mainly due to the problems associated with shortage of land, less government attention, shortage of seed supplier and seed cost absence of adequate knowledge.

This study result was showed in line with the finding of Bedasa [16], who reported that improved forages production was rarely practiced in highlands of Blue Nile Basin of Ethiopia. The major constraints facing by dairy farmer was land shortage (33.33 %) of the respondents and the result showed in agreement by Belay *et al.* [17] and Derese [18]. Moreover, high feed cost (23.3%), feed shortage (13%), insufficient veterinary service (5%) water shortage (1.67%), disease prevalence (3.33%), lack of improved dairy breed (1.67) were the main constraints and poor government attention and poor transportation access to produced milk (1.67%) were the most important constraint found in the study area and this study result was agreed with Zelalem and Ledin [19].

CONCLUSION AND RECOMMENDATIONS

Based on this study the main constraints for small scale household dairy production were land shortage, feed shortage and inefficient veterinary service, low genetic potential of indigenous cows, disease prevalence, high feed cost fluctuation and poor transportation access to sell produced milk. As a result, strategies designed to develop the dairy sector should take in to consideration. Moreover, the emerging dairy cooperatives in the area should be encouraged and supported by the government and other concerned stakeholders and they should be provided with different incentive approaches by the regional government or other concerned bodies. Therefore, dairy processing industry establishment, support for dairy producers and cooperatives and improving access to services should receive a due consideration in order to improve dairy production and marketing in the study area by all dairy development stakeholders and other both governmental and nongovernmental concerned bodies. The researchers would recommend the following important points; the demand for milk and milk products should continue as the human population become rise and urbanization increased in the area.

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