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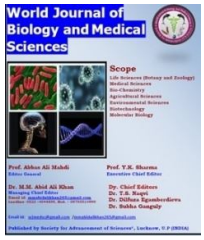

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RESEARCH PAPER

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Assessment on Challenges and Opportunities of Introducing Exotic Dairy Cattle Breeds at Smallholder Level in Chencha District, Southern Ethiopia

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ABSTRACT

The study was conducted in Chencha district of Gamo Gofa zone, Southern Nations, Nationalities and People Regional State with the objectives to describe the challenges and opportunities of introducing exotic dairy cattle breeds at smallholder level. Multi stage purposive and random sampling techniques were employed to select target farmers. Structured questionnaire, focused group discussions, secondary data sources and field observations were used to generate the required data. A total of 150 households were selected from ten kebeles, five rural and five town.. The survey results revealed that the overall total family size and land holding were 5.2 and 0.6ha, respectively. The purpose of keeping cattle was as source of income (milk production), draught, dung and security. The key feed resources were communal grazing and private pastures. Most important challenges of dairy production in the study were feed shortage disease and parasite, inadequate extension support and lack of experience in improved dairy cattle management. There is also a problem of getting improved dairy animals or AI services. Most of the AI technicians complained that liquid nitrogen is not readily available (86.7%) and the remaining 13.3% had no problem in getting liquid nitrogen. More than three fourth of the AI technicians (76.7%) believed that there is a risk of indiscriminate insemination while the others either did not have any idea about the problem (13.3%) or

believed it can be controlled. The golden opportunities of dairy production in Chencha were high market demand of milk and milk products and conducive agroecology to grow forage for animal feed.
Key Words: Cross Breed Animals, Artificial Insemination, Challenges, and Opportunities.

INTRODUCTION

The agricultural sector in Ethiopia engaging 80% of the population contributes 52% of the gross domestic product (GDP) and 90% of the foreign exchange (MoA, 2000). Ethiopia has the largest cattle population in Africa (52.13 million heads of cattle) (CSA, 2012) and contributes 40% to the annual agricultural output and 15% total gross domestic product. Cattle produce a total of 1.5 million tonnes of milk and 0.331 million tonnes of meat annually (FAO, 2005). The major Livestock population in Ethiopia is estimated to be 39,714, 653 cattle, 14, 326, 206 sheep and 11, 155, 218 goat (CSA, 2006). Livestock are kept in all of the farming systems of Ethiopia by pastoralists, agro- pastoralists, and crop-livestock farmers. Dairy production is an important component of livestock farming in Ethiopia. The huge and diverse livestock population, varied and conducive agro-ecology for dairying, increasing demand for dairy products in urban and peri-urban areas, long-standing culture of dairy products consumption, and favorable policy are indicators of the importance and potential of dairying in the country. However, productivity of dairy animals in general is limited. This results in shortage of supply of dairy products and requires the country to spend hard currency to import dairy products from abroad. It is, therefore, essential to explore the existing dairy production environment, analyse constraints of dairy production, identify opportunities for dairy development, and devise pertinent and workable strategies for sustainable market-oriented dairy development in the country.

For years or decades Ethiopia ranked first in cattle population in Africa, but the dairy industry is not developed even as compared to east African countries like Kenya, Uganda and Tanzania. Regarding dairy production, the national milk production remains among the lowest in the world, even by African standards (Zegeye, 2003).

To meet the ever-increasing demand for milk, milk products and their contribution to economic growth, genetic improvement of the indigenous cattle has been proposed as one of the options. Genetic improvement of the indigenous cattle, basically focusing on crossbreeding has been practiced for the last five decades in Ethiopia.

Several organizations including international and national agricultural research centers, the World Bank, Ministry of Agriculture, and non-governmental organizations (NGOs) have developed and promoted the use of improved dairy technologies to help increase farm productivity and smallholder income in Ethiopia (Freeman *et al*. 1998). Different dairy development projects have also been launched at different times and at different parts of the country. Dairy Rehabilitation and Development Project (DRDP), Smallholder Dairy Development Project (SDDP), which was started in April 1995 (Ojala, 1998) and National Livestock Development Program (NLDP) are some to mention. However none of the mentioned organizations and projects did anything on the challenges and opportunities of introducing exotic dairy cattle breeds in Gammo Goffa Zone.

Even if Chencha has potential for production of milk and milk products,

little is known about the existing dairy production, breeding, constraints and opportunities. Most of the information available on characterization of dairy production systems and marketing of milk is limited to in and around Addis Ababa. For researchers in order to design relevant research that suit to the area (study districts), it is essential to understand the existing situations of dairying. Therefore, it is justifiable to generate scientific information on the challenges and opportunities of dairying. With this background and understanding, this study is initiated with the following objectives.

Objectives of the Study

General Objectives

❖ To assess the challenges and opportunities of introducing exotic dairy cattle breeds at smallholder level in Chencha district.

Specific objectives

✓ To investigate the challenges of exotic dairy cattle keeping.

✓ To assess the existing opportunities of introducing and keeping exotic dairy cattle breeds.

MATERIAL AND METHODS

Description of the Study Areas

Chencha Woreda is situated between 1300 m and 3.250m above sea level. Astronomically Chencha wereda is located between 37o 29' 57" East to 37o 39 36 West and between 608 55" North and 60 25'30" South. Due to a high altitudinal range, the area is characterized by diverse agro-climatic distribution and vegetation cover. The Woreda is divided into two agro-ecological zones, namely, Dega and Woina Dega, which account for about 82 and 18% of the total area respectively. Due to its rugged topography the highland area is very vulnerable to soil eroding forces. The rainfall regime in the Woreda is bimodal. The first round of rain occurs between March to April. The second round of rain occurs from June to august. The rainfall distribution in Chencha varies from year to year and across seasons. The annual rainfall distribution in the woreda varies between 900 mm to 1200mm. The minimum temperature in the Woreda varies between 11 to 13 degree centigrade, while the maximum temperature is in the range 18 to 23 degree centigrade (MoA and FAO, 1990). The farming system in the Woreda is a mixed farming system where the crop sub-system and the livestock sub-system are equally important to each other. Due to low natural fertility, low amount of available nutrients and low permeability of the clay or clay loam soils of the highland, soil fertility maintenance is the number one priority to every farmer in the highland.

Sampling Methods and Data Collection

In order to identify the major challenges and opportunities of dairying in the area, farmers/producers were interviewed using pre-tested structured questionnaires. Multi-stage purposive and simple random sampling procedure use. In the first stage, kebeles were identified purposively based on availability of dairy cattle and ten were selected. In the second stage, individual households having dairy cows of any breed and size were identified and listed in selected kebeles. In the third stage, individual dairy cow owner households were randomly selected from the list for an interview. Fifteen households in each kebele were selected making a total of 150 for this study.

The data collected includes: information on household demography, herd composition, breed, sex of animals, housing of cattle, feeds and feeding

methods, constraints and opportunities of introducing exotic dairy cattle breeds.

In addition, data were also collected through group discussion. The discussions were with key informants (women headed HHs, DAs and experts) in the study area in order to gain an in-depth insight about the topics covered during the structured interview. A total of 50 Persons were purposively selected for discussion.

Statistical Analysis

Data collected on the challenges and opportunities of introducing exotic dairy cattle breeds were analyzed using appropriate statistical software–Statistical Procedures for Social Sciences (SPSS 2006). Survey results were analyzed using descriptive statistics. Statistical analysis such as mean comparisons was made for some variables of interest. Levels of significance considered were at alpha of $P < 0.05$.

RESULT AND DISCUSSION

Demographic Characteristics of respondent households

Sex, educational level and family size of respondents are given in table 1. Of the 150 household heads interviewed 61(40.7%) were females while the rest 89(59.3%) were males. Based on this study the average family size of the respondents were 7.5 persons. Similar with this finding Keralem (2005) reported 7.44 of average family size in Enbese district of Amhara region. The role of education is obvious in affecting household income, adopting technologies, demography, health, and as a whole the socio-economic status of the family as well. Considering the respondents' level of education, 33(22%) of those interviewed persons had not received any formal or informal education. The rest were at different stages of literacy ranging from primary education to completion of secondary school. Education is an important entry point for empowerment of rural communities and an instrument to sustain development. The emphasis under this activity was to ensure that community members (children and adult) get basic education service and have as many as literate community members that could strive to solve their problems by themselves.

Table 1. Sex, educational level and family size of respondents

Variables	% of respondents	
	Town	Rural kebeles
Female	44	40.7
Male	56	59.3
Illiterate	17	22
Primary school	45	42
Secondary school	33	36

Household holdings in study sites

The average holdings of cattle, total land, cows, heifers, calves, oxen, sheep, goat and chicken are presented in Table 2. Household in the rural kebele owned more livestock numbers and large hectare of land compared with those living in the town. The possible reason might be the population is more densely and human population per unit area is high in the town leading to shortagae of land and livestock.

Table 2. Mean and standard error of land and livestock holding of households in study area.

Holdings	Mean with standard error		Sig.
	Town	Rural kebeles	
Mean total land holding/HH (hectare)	0.015	1.2±0.5b	0.02
Average family size	3±0.03	5.5±0.4	0.010
Cattle	3±0.3b	5.13±0.01a	0.004
Calves	1±0.3a	1.1±0.1a	0.000
Heifers	0.9±0.1b	1.3±0.02a	0.02
Cows	2±0.05a	2.2±0.022a	0.000
Oxen	0.2±0.6b	1.3±0.2a	0.001
Cross breed cattle	2±0.02a	2.3±0.11a	0.000
Goat	0.09±0.22b	0.8±0.02a	0.003
Sheep	1.2±0.3b	5.21±0.07a	0.033
Equine	0.3±0.003b	1.47±0.07a	0.031
Chicken	3.1±0.2a	5.3±0.06a	.001

a, b, means with the different superscripts across rows are significantly different at (P<0.05).

Purpose of keeping cattle

The purpose of keeping cattle in Chencha district is given in table 3. Livestock for smallholder farmers of the country in general and in the highland production systems in particular are essential component of agriculture and are source of food, power, organic fertilizer and income (Hadera, 2001). In the study area cattle were kept mainly to produce milk for household consumption and male calves with the intension of providing draught power later on. As indicated in the table, 67%, 14%, 11 % and 8% of the respondents keep cattle respectively for the purpose of milk production, draught power, dung for fertilizer and security. The most important significance of cattle is that they are an asset that can readily be converted into cash needed to purchase of farm inputs like fertilizers and improved seeds for the next crop production cycle (Asrat, 2013). The role of animal dung in the area is high related to land scarcity where it is used as fertilizer for farm land.

Table 3. Purpose of keeping cattle in Chencha district.

Purpose	% of total respondents (n=150)		Total
	Town	Rural kebeles	
Milk production	67(89)	50(67)	117(78)
Draught power	-	11(14)	11(0.7)
Dung production	4(5)	9(11)	13(0.87)
security	8(10)	6(8)	14(0.93)

The role of animal dung to the *enset* based mixed crop–livestock system. In rural or mixed crop/livestock production system, the primary purpose of keeping cattle is also noted by other authors for different crop/livestock production systems in different parts of the country (Tadesse et al, 2005; Yigrem et al, 2008). In all the study kebeles, farmers hold dairy cows followed by heifers as their future herd replacement animals. The dominant dairy cattle breed across all the producers

was a Friesian cross and only few respondents keep Jersey crosses. None of the smallholder urban dairy producers had breeding bulls mainly due to shortage of space and difficulties of management including shortage of feed. On the other hand, some of the medium scale dairy producers and all of the large scale specialized dairy producers had breeding bulls as an alternative to artificial insemination.

Available Feed Resources in Chencha district

Feed resources in the study area are given in table 4. The major roughage feed resources for dairy animals across all the different kebeles in the study areas included natural pasture/grasslands, crop residues, private grazing, non-conventional feed resources (e.g. leaf and stem of enset) and concentrates. Dairy producers in the area ranked grazing natural pasture as their first priority followed by crop residues. None of farms used commercial mineral leaks except common salt, which was usually added to supplements. Grazing in the wet season on public open fields and road sides, and foraging in the dry season on a road and in a village waste disposal and marketing areas were practiced in the area. Similarly, studies conducted on urban and peri-urban dairy production in central Ethiopia have reported semi zero roadside and public open field grazing as a source of feed (Yoseph, 1999). Grazing or foraging in a city is attributed to shortage of grazing and exercise field and scarcity of conserved feed for stall-feeding. The main sources of feed for cattle in accordance to importance or percent of respondents utilizing them were natural pasture, crop residues, private grazing, non-conventional feeds and purchased concentrates. The respective proportions were 69, 60, 52, 49 and 33%. Only 24.5% of the respondents cultivate and use improved forages in the area. According to the group discussion, The major reasons for not growing improved forages were lack of awareness about improved forages and land shortage. Among the feed resources, natural pasture and crop residues contribute the largest source of feed to livestock in the study area, which is in line with the reports from the other highland areas of Ethiopia (Getachew, 2002; Alemayehu, 2004).

Similarly, Samuel (2005) also reported as crop residues were important feed sources and about 99.2 percent of the farmers use this feed at first priority in ada liben district. This is also in agreement with the report of Abate et al. (1993) who found that about half or more of all animals feed in the Ethiopian highlands is in the form of crop residues (straws, stubble, chaff or weeds from crop plots).

Provision of supplemental feed for animals particularly for oxen and cows was found to be a common practice in the study area. About 33 percent (n=150) of the farmers in the area used additional feed for their animals as supplementary feed. Among the different supplementary feeds used, Noug cake (Guizotia abyssinica) as a sole and in combination with others was the main supplementary feed being used by farmers in the area. Wheat bran is also frequently used in combination with others. Supplementation of dairy animals depends on the level of production and on vulnerability of the different classes of dairy animals and season in the study areas. Supplementation of dairy animals with mineral is limited across all the dairy production systems in the study sites. Feed conservation is one of the components of feed management to ensure year-round feed availability. Conservation of crop residues for animal feed is not a common practice across all

the study areas because of lack of knowledge, unavailability of adequate feed to conserve, poor way of harvesting and threshing of crops and inadequate extension support.

Table 4. Available feed resources in Chencha district.

Feed resources	Frequency (%)			
	Town	Rural kebeles	Total	Sign. level
Natural pasture/communal grazing	35(47)	68(91)	103(69)	0.042
Private grazing	24(32)	54(72)	78(52)	0.033
Improved forage	23(30)	18(24)	41(27)	0.00
Concentrates	33(44)	16(21)	49(32.6)	0.001
Crop residues	26(35)	64(85)	90(60)	0.300
Non-conventional feeds	25(33)	49(65.7)	74(49.3)	0.025

Contrary to this Samuel (2005) reported that 94.8 percent of farmers practiced feed conservation as major strategy to overcome feed shortage in ada liben district. The same author also showed that 83% of the respondents were found to add and mix local beverage byproduct, salt and Noug cake (Guizotia abyssinica) with crop residues in order to increase the palatability and nutritive value.

Housing Management of dairy cattle

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). The different types of cattle houses used in the study area is given in table 5.

In the study area farmers keep cattle in sheds which were normally small structures made of corrugated metal sheet and floored with mud (soil), blocks of stone or concrete. The majority (55%) of the households in the town areas separate houses for their animals even though it is not hygienic and have different limitations (eg. Overcrowding, young and aged animals together etc). Contrary to this most farmers (48%) in the rural kebeles kept cattle within the family house and it has to be avoided because of chance of transmission of zoonotic diseases to human beings. Similar housing conditions were also reported by Asrat et al (2012) in Boditti areas. According to the respondents, cattle are housed together with the family because of the fear of thieves, to protect animals from extreme environmental hazards and also for ease of husbandry practices such as feeding, milking, waste management. On the other hand, in the town, housing cattle with the family was not common and was only practiced by farmers (12%) around the periphery of the town. The floor system of houses also differ between the town and rural kebeles of the study area and concrete floor was used by 30.2% of respondents in the town which is significantly ($p>0.5$) higher than in rural kebeles (7%).

All the interviewed dairy producers in the area said they clean the barn every day. Most farmers managed their dairy animals together and calves kept in one corner of the same house or separately in another house.

Table 5. The different types of cattle houses used in the study area.

Types of house	Percentage of respondents		p-value
	Town	Rural kebeles	
With family house	12	48	0.031
Adjacent to family house	23	37	0.010
Separate house but all animals together	55	15	0.200
Floor system			
Concrete floor	30.2	7	0.32
Floored by blocks of stone	46.5	41	0.000
Non-cemented floor	23.3	51	0.025

Challenges of keeping Exotic breeds

Introducing and keeping exotic dairy cattle at farmers level is constrained by many factors. Feed shortage, disease and parasite, lack of experience in handling and managing cross breed dairy animals, lack of extension support are some to mention.

Feed shortage and Diseases

Feed shortage is one of the limiting factors for increasing production and productivity of livestock in most of the agro-ecological zones in Ethiopia. In line with this the feed requirements of those cross breed dairy animals is very high compared with the local indigenous animals. This is due to their enormous size and productivity levels. Feed shortage occurs both in the dry and in the wet season; however, the shortage was severe during the dry season. Out of the total respondents, 91.6.% encountered seasonal feed shortage. Shortage of feed is also aggravated due to that respondents in the area have no experiences in conservation of feeds either in the form of hay or silage. To overcome the seasonal shortage of feed, the communities have been used purchased feed which is usually high in price and is not easily affordable to small holder farmers.

The contribution of grazing on natural pasture is estimated to be 78 percent 32.76 million tones) of dry matter feed available annually in the highlands of Ethiopia (Alemayehu, 1987). However, grazing lands are gradually being brought into cultivation to satisfy the needs of the increasing human population. At the same time, crop yields are falling due to increased cropping pressure causing shorter fallow periods. Concentration of livestock on the shrinking grazing lands caused overstocking leading to soil degradation, which in turn has resulted in a decline in livestock productivity (Daniel, 1996). Also the quality and quantity of the pasture varies markedly over the season and with the type of management (Getenet and Lendin, 2000). Moreover, beside to overgrazing, the other main problem related to natural pasture utilization is that grass growth is seasonal, but livestock feed requirements are continual. During the wet season there is relatively excess herbage, followed by a long dry period of critical feed shortage (Zelalem et al., 1995). With the poor quality of livestock feed in the country, the feed shortage is also exaggerated by its erratic and seasonal supply. Hence, there is sever feed shortage during the dry season and at the beginning of the main rains. The most critical period is between April and the beginning of July, when all feed resources is virtually depleted (Getachew et al., 1993). In spite of this fact, seasonal feed deficiencies cause loss of weight that was gained during more favorable periods.

Diseases and parasites are the major constraints in keeping cross breed dairy cattle. Health problems cause high mortality and reduced reproductive and growth performances resulting in reduced output per animal. There is an institutional dimension to the health problem, which is inadequate veterinary service delivery. Problems related to service giving include absence of preventive veterinary services such as vaccination and accessible and adequate veterinary clinics resulting in unethical and inappropriate use of drugs from illegal sources.

Table 6. Challenges of keeping exotic cattle base on the first priority of respondents.

Variables	Frequency (%)			p-value
	Town	Rural kebeles	Total (N=150)	
Feed shortage	75(100)	62(82)	137 (91.6)	0.000
Disease	20(27)	42(55)	62(41.3)	0.002
Lack of experience in dairy cattle management	8(10.6)	32(42)	40(26.6)	0.047
Lack of extension support	8(10.6)	19(25)	27(18)	0.003

Lack of extension support and experiences in keeping cross breed dairy cattle

In the study area farmers have also problems in getting support from extension staff. Availability of improved technologies and inputs are critical to transform the traditional subsistent production systems into market-oriented profitable enterprises. Both generation of technologies and devising efficient delivery systems are essential in this endeavor. Quite a number of improved livestock technologies and inputs (improved breeds, forage seeds, feeding practices including fattening packages, veterinary inputs) have been generated and/or adopted from elsewhere. However, because of inefficient delivery of these services, improved technologies and inputs remained unavailable or inaccessible to the producers.

The improved crossbreed, grade and pure exotic dairy cattle are usually in short supply and when available, the high cost is a major problem. The few government crossbreed heifer multiplication centres that used to distribute in-calf crossbreed heifers to producers at reasonable prices have been sold after the introduction of the privatization policy. Prices of crossbreed cows and heifers are now unaffordable by the poor and the average smallholder farmers that would have liked to engage in the dairy business.

Demand for improved livestock technologies is likely to be observed among farmers. In rural kebeles 71% of respondents and 43.5% in town showed interest for inputs and services. A survey (Zelalem 2007) showed that only 14.3% and 3.8% of livestock technology adopters and non-adopters respectively use purchased feeds like cowpea, hay and grain, while 85.7% and 96.2% of adopters and non adopters, respectively do not use any kind of input.

Dissemination of information and knowledge on agricultural technologies through mainly government agencies is currently the strategy adopted to enhance agricultural productivity. However, such services are not up to expectations. Besides, those who received improved technology did not apply to their dairy cattle because either it was not affordable, accessible or easy to apply.

Availability and Efficiency of AI service

Despite the challenges of feed shortage, disease, poor extension support, still

farmers have interest to rear cross breed dairy animals. But still there are also problems in getting those cross breed animals or artificial insemination services. Farmers/producers particularly in the rural kebeles, use natural mating as breeding. There are different factors that determine the preference of breeding methods in the area. These factors include: access and cost of AI service, ease of getting preferred service, access of breeding bull, number of services required till conception, knowledge of estrus detection and size and performance of female animals in the area. When the aforementioned factors are not considered, almost all (87%) of the households in the area prefer AI. Results of the focus group discussions have revealed that there were no functionally effective responsible bodies at wereda levels to coordinate the AI services and no proper mechanisms of controlling indiscriminate inseminating/breeding.

Moreover, it was found with full consensuses that there were problems associated with the AI service with regard to properly carrying out responsibilities by the wereda agriculture bureaus in that these institutions did not perform their responsibilities appropriately to correct the continuing problems associated with the AI service in the area. Regarding the motivations of AI technicians, 86.67% of them were totally unmotivated while the remaining had some motivation (13.33). Nearly all (96.7%) of the AI technicians responded that they never got on job trainings and other incentives. About three fourth (73.3%) of the AI technicians were not giving service during weekends while others did so on personal agreements (26.3%) in which they receive additional payments from the farmers.

Most of the AI technicians complained that liquid nitrogen is not readily available (86.7%) and the remaining 13.3% had no problem in getting liquid nitrogen. More than three fourth of the AI technicians (76.7%) believed that there is a risk of indiscriminate insemination while the others either did not have any idea about the problem (13.3%) or believed it can be controlled. Ninety-three percent said that they do not believe that NAIC was doing its responsibilities properly. Eighty seven percent of the AITs revealed that farmers were willing to pay more fees for the services provided they get reliable and quality services.

On the other hand, 80 percent of them revealed that they do no get necessary supports by the respective wereda and regional bureaus of agriculture to perform their duties appropriately. Ninety three percent of the farmers who participated in the questionnaire surveys bitterly demonstrated that they were not getting reliable and consistent AI service and 81% of them explained the reasons for that as absence of service on weekends & holidays, shortage of AITs and shortage of inputs.

In relation to this, 64% of them said that they pass estruses of in heat cows without breeding them while 34% said that they use bull/ natural mating at times where they do not get the AI service. The study has clearly confirmed that 93.1% of all the farmers participated in the study areas showed dissatisfaction with the overall AI service. In some places, it was observed that farmers trek their cows for more than 10km round trip to get the AI service though they couldn't be sure to get the service after traveling for such a long distance.

The majority of farmers (91.5%) confirmed their willingness to pay more fees for the service provided they get reliable, efficient, and effective services. Thirty percent of the farmers said that they usually have herd health problems, which directly and indirectly have impacts

on the efficiency of the AI service. The diseases of major importance in order of prevalence were mastitis (39%), tuberculosis (24%), problems associated with calving (17%), and others. Similar to the current findings Desalegn et al.(2007) also reported that AITs have a problem of different facilities in conserving liquid nitrogen in Ethiopia.

Opportunities of keeping cross breed dairy cattle

The reasons of expanding dairy production in Chencha by respondents are given in table 7. Even though many problems and constraints that may hinder the development of the dairy sector were identified in the area, the majority of dairy producers of both in the rural kebeles (73.5%) and town (61%) were willing to continue, expand and/or involve in dairying in the future. The rest of the producers were not willing to expand dairying in the future for various reasons. About 24.5 and 5% of the respondents in the rural kebeles and 13 and 4% in the town, respectively, indicated that they will maintain their stock or stop dairying, respectively. Generally the rural kebele producers were more willing to continue and expand dairying due to relatively large land holdings to grow different forage for animal feeds and high market demand of milk and milk products.

Because of the rapid urbanization, substantial population growth and change in the living standard by urban societies in the area, the demand for good quality and quantity of dairy products are increasing.

On the other hand, Chencha is one of the districts in SNNPR that is known to receive enough amount of rainfall that can be used to grow various types of grasses, legumes and browses through different production strategies which is important in supplying year round animal feed. Similarly, the environmental condition of the area is favorable to rear livestock including exotic or cross breed dairy cattles. The integration of livestock production is important as they can be intermediate cash sources during crop failure time.

Table 7. Respondents' reasons for future expansion of dairy in Chencha.

Attributes	Frequency(%) of respondents			p-value
	Town	Rural kebels	Total	
High demand of milk and milk products	51(68)	34(45)	85(56.6)	0.0031
Surplus milk yield of cross breed animals	15(20)	27(36)	42(28)	0.002
Availability of AI services and extension support	8(11)	14(19)	22(14.6)	0.000

The reasons of expanding dairy production, in the area were high demand of milk and milk products, surplus milk yield from cross breed animals and availability of AI services and extension support. As shown in the table, most of the respondents (68% in town and 45% in rural kebeles) are willing to expand the production of dairy due to high demand of milk and milk products.

CONCLUSIONS AND RECOMMENDATIONS

A cross-sectional survey on the challenges and opportunities of introducing exotic dairy cattle breeds at small holder level in Chencha district were undertaken. The major challenges of introducing exotic dairy cattle breeds in the area were feed shortage, disease and parasite,

inadequate extension support and AI services. Feed shortage both in quality and quantity is the prior problem identified. On the other hand high demand milk and milk products, conducive agroecology to grow animal feeds and high milk yield from cross breed dairy cows were assessed as the golden opportunities of dairy production in the area. Development of dairy industry in the studied areas could be achieved with the contribution and integration of different stakeholders in a sustainable way.

- In order to respond to high milk demand in the study area and exploit potentials and resources available there, provision of genetically superior dairy cattle and/or good breeding services as per the needs of producers is one of the prerequisites for the development of dairying in the studied area.
- The other major challenges to dairy production are feed shortage, disease and inadequate AI services
- Training is recommended for both extension workers and farmers to bridge the knowledge gap. Thereafter, refresher courses for relevant information should be in place at planned intervals.
- Areas that need particular attention are AI, training for producers on improved management of dairy animals and parasite and disease control.
- Sustainable extension service should be established in order to improve animal feed resources management, efficient artificial insemination service and animal health care to bridge the existing gaps.

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