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## Study of farmer's attitude and consent towards consumption of goat milk and milk product in eastern Chitwan, Nepal

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### Abstract

Goat, although has been the most neglected domesticated species in many parts of the world, is ranked third in terms of global milk production. This study was aimed at assessing farmer's attitude and consent towards consumption of goat milk and its product in eastern Chitwan, Nepal. About 100 goat farmers were interviewed in the study area. The data were collected from July 2019 to August 2019 through personal interview with semi-structured questionnaires. The result showed that the ownership of goat farm under the study area was dominated by males (60.8%). The main reason for adoption of goat farming in study area was for livelihood (80.4%) followed by passion (15.7%). The study shows that majority (90.2%) of farmers were unknown about the breed of goat they were rearing. Jamunapari was the popular breed among the farmers who used goat milk as part of family diet. The average herd size in study area was found to be  $11.03 \pm 0.77$ . Information on farmer's perception towards consumption of goat milk and its product shows that majority (80.4%) don't consume goat milk as a part of the family diet while minority (19.6%) consumes milk infrequently. Most preferred livestock for milk consumption in study area was found to be buffalo and cow. Majority (52.9%) of family were unknown about nutritional benefits of milk while 47.1% family doesn't consume milk even after knowing its benefit. Cultural bias and natural dislike were found to be the main reasons for not consuming goat milk. The study shows the necessity of highlighting the role of goat and its product in national economy and health. Vigorous extension program, marketing strategy, promotion and advertisement regarding goat milk and its product are immediately needed to improve this sector.

**Keywords:** Goat, Milk, Consumption, Extension

### 1. Introduction

Livestock farming, being one of the important agricultural sub sector of Nepal serves as the central source of food, nutrition and livelihood for most of the Nepalese farmers. According to the data from Central Bureau of Statistics (CBS) 2011, livestock covers approximately about 32 percent of agricultural Gross Domestic Product (GDP) and about 11.5 percent of total country GDP. Goats are important component of livestock industry having adaptability to harsh climates which make them suitable for landless and marginal farmers (Zenebe, Ahmed, Kabeta, & Kebede, 2014) [10]. In Nepal, people generally rear cows, buffaloes, poultry, and goat as a part of farming. Although, goat farming is widely practiced by the Nepalese society for meat, yet most of the people do not know about the nutritional value of goat's milk. Goat, also known as the poor man's cow, plays a vital role in terms of providing quality milk. The small body structure, less investment for farming and less consumption of space are the key features that give every farmers an access to rear goats. Also, the labor requirements are also less for the goats. Goats have many unique differences in anatomy, physiology and product biochemistry from cattle and buffaloes which supports the contention of many unique qualities of dairy goat products for human nutrition (Haenlein 2004) [5]. The chemical characteristics of goat milk can be used to manufacture a wide variety of products, including fluid beverage products (low fat, fortified, or flavored) and UHT (ultrahigh temperature) milk, fermented products such as cheese, buttermilk or yogurt, frozen products such as ice cream or frozen yogurt, butter, condensed/dried products, sweets and candies (Ribeiro, A. C., & Ribeiro, S. D. A. (2010) [8]. Goat milk has features like softer curd formation, higher proportion of small milk

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fat globules, and different allergenic properties compared with cow milk; however, key nutritional deficiencies limit its suitability for infants (Clark and Mora García 2017) <sup>[1]</sup>. Moreover, goat milk is also used as therapy against different problems including gastrointestinal disturbances, vomiting, colic, diarrhea, constipation and respiratory problems. (G, G., A, M., A, W., & H, K. 2016) <sup>[3]</sup>. Goat milk is important for prevention of cardiovascular disease, cancer, allergy and microorganism and used for stimulation of immunity. Goat milk is recommended for infants, old and convalescent people. Despite this fact, goat has remained neglected in research and development. Goat now has to be fully exploited to get maximum benefit, particularly meat, milk and milk products having medicinal values (Zenebe, Ahmed, Kabeta, & Kebede, 2014) <sup>[10]</sup>.

The developed countries like Europe, France, USA have explored much about nutritional value of goat's milk, its processing, use and the goat milk products. In those countries, goat's milk is also used as a part of human diet. Goat's milk also plays a vital role in economy there. The Mediterranean area is the main goat milk and goat cheese producer (18%) outside of India (22%), which has the greatest goat milk volume of all countries, but keeps mainly only dual purpose goats meat and milk (Dubeuf *et al.*, 2004) <sup>[2]</sup>. But these things are less exploited in Nepal. Most people even do not know that goat's milk can be consumed and is nutritious too. In the context of Nepal, people majorly focus on cow's and buffalo's milk for consumption following the tradition. There have not been sufficient researches about the attitude and consent of farmer towards consumption of goat milk and milk products. Therefore, the main objectives of our study were to know about the present condition of goat farming in Chitwan, the purpose of rearing goat, farmer's knowledge about goat milk and its nutrition and to aware the local people about the benefits of goat in terms of milk production.

## 2. Materials and methods

### 2.1 Duration and site of study

The study was conducted in different places of Eastern Chitwan such as Jutpani, Shaktikhor, Tandi, Parsa, Kholesimal mainly covering the municipalities of Kalika, Khaireni, Rapti from July 2019 to August 2019.

### 2.2 Data collection

Semi-structured questionnaires were prepared for each individual household. Primary data was collected regarding demographic information, farmer's purpose of goat farming, their perception about goat's milk, their consent about its consumption, knowledge about goat milk products and their processing in Nepal with the help of personal interview with the goat farmer on the basis of the semi-structured questionnaire. Key informants' interview was also performed to validate data collected.

### 2.3 Statistical analysis

We analyzed our data using the SPSS software, version 20 and calculated the standard errors. From the analysis, we were able to interpret the data for the purpose of knowing how much interested and enlightened are the farmers about the usefulness of goat milk and its products.

## 3. Results and discussions

### 3.1 Demographic information about Goat farmers

The result of present study revealed that majority of goat farmers were from Kalika Municipality (70.6%) followed by

Rapti Municipality (15.7%) and Khaireni municipality (13.7%). Ownership of goat farm under the study area was dominated by males (60.8%). Majority (82.4%) of farmers involved in goat farming were between 21-50 years of age. Hinduism was major religion followed by 82.4% of respondent under study area followed by buddhism (17.6%). Majority(33.3) of goat farmers have education level upto secondary level whereas 43.1% illeterate farmers were also engaging in goat farming in study area. Farming was found to be main occupation among 94.1% of goat farmers followed by Business (5.9%). The main reason for adoption of goat farming in study area was for livelihood (80.4%) followed by passion (15.7%). More than 60% of respondent have rearing experience greater than 10 years.

### 3.2 General information of Respondent

		Percentage
Address	Kalika Municipality	70.6%
	Rapti Municipality	15.7%
	Khaireni Municipality	13.7%
Age	21-50 years	82.4%
	51-77 years	17.6%
Religion	Hinduism	82.4%
	Buddhism	17.6%
Gender	Male	60.8%
	Female	39.2%
Education	Illiterate	43.1%
	Primary	17.6%
	Secondary	33.3%
	College	5.9%
Marital Status	Married	98%
	Unmarried	2%
Primary occupation	Farming	94.1%
	Business	5.9%
Rearing Purpose	Business	3.9%
	Livelihood	80.4%
	Passion	15.7%
Experience	Upto 10 years	40%
	>10 years	60%

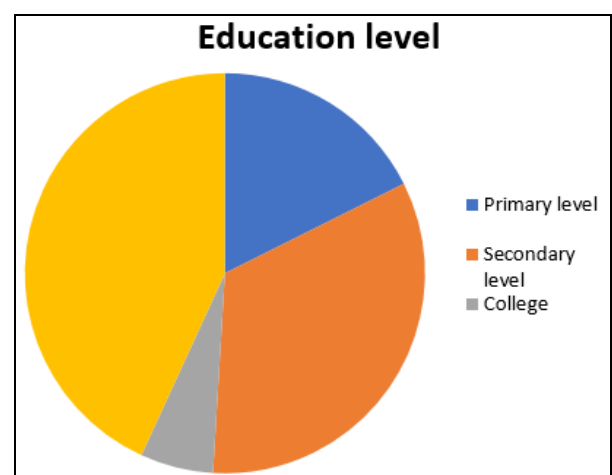


Fig 1: Education level of interviewed Goat farmers of Chitwan

### 3.3 Knowledge about breed and herd size

The study shows that majority (90.2%) of farmers were unknown about the breed of goat they were rearing. Jamunapari was the popular breed among the farmers who used goat milk as part of family diet. The average herd size in study area was found to be  $11.03 \pm 0.77$ .

### 3.4 Status of goat milk consumption

Information on farmer's perception towards consumption of goat milk and its product shows that majority (80.4%) don't consume goat milk as a part of the family diet while minority (19.6%) consumes milk infrequently. Most preferred livestock for milk consumption in study area was found to be buffalo and cow. Majority (52.9%) of family were unknown about nutritional benefits of milk while 47.1% family doesn't consume milk even after knowing its benefit. Main form of consumption was found to be drinking rather than other dairy products like cheese, butter etc.

### 3.5 Reason for not consuming goat milk

Majority(43.5%) of respondent opined that Cultural bias and natural dislike were found to be the main reasons for not consuming goat milk whereas remaining 41.5% respondent were not habituated to goat milk.

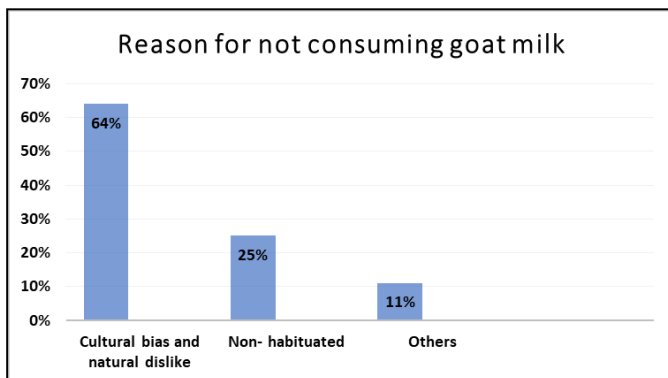


Fig 2: Reason for not consuming goat milk

## 4. Discussions

Milk, an important part of family diet derived from different species, is consumed worldwide. Cattle, buffalo, goats, sheep and camels are the major species contributing to the global milk production. From the study, cow and buffalo milk were found to be the most preferred milk over goat milk which coincide with the finding of Utami (2014) [9]. It was also found out that cultural bias, natural dislike and non-habituation were the main reasons for not consuming goat milk. The study done by Guney and Ocak (2013) [4] has also reported that personal dislike, taste and strong smell were the reasons why farmers do not consume goat milk in Turkey. Research has shown that the hydrolysis of fat catalyzed by lipase enzymes in goat milk is the main problem that causes organoleptic defect leading to the strong smell and taste of goat milk and its products (Park 2001; Martinez *et al.* 2011) [7, 6]. These factors also may be related to the lower consumption of goat milk than that of cows and buffaloes. Although female participation in agricultural sector is more than 50%, the ownership of goat farming was dominated by males (60.8%). This might be due to limited access to capital, technical education as well as due to the culture of confining women in unpaid domestic labor in developing countries like Nepal.

Goat farming was popular among people between 21-50 years of age and average age of respondent was around 40

years. It suggests that majority of respondents were in active and productive stage and are keen to adopt new technology and practices. Although, goat farming was found to be main occupation among respondents, very few (3.9%) were raising goats for the business purpose. This revealed that majority of farmers are still adopting traditional method of farming only for subsistence purpose. Similarly, majority of farmers were unknown about the breed of goat they were rearing and reared the goats only for the sake of their passion. This revealed poor extension service in study area as well as lack of knowledge, skill and awareness among people. Almost 90% of farmers in the study area were null about the fact that products like cheese and yoghurt are made and sold in foreign countries. The farmers had not even heard about the goat milk processing centers in different places of Nepal. From the results, it shows that majority of the farmers were illiterate (43.1%) which could be the main reason for the lack of knowledge about the nutritious value of goat milk among them. Among the respondents that are not aware of the nutritional benefits of goat milk, only minority (16%) of them showed their willingness to consume the milk as part of their daily diet based on the information given by interviewers regarding nutritional benefits of goat milk.

## 5. Conclusion and Recommendations

Goat farming, although the most practiced livestock farming in the Eastern part of Chitwan, through the survey we came to find out that the people there are not well informed about the nutritious value of goat's milk and its products. Milk, being an extremely chief ingredient of a balanced diet, goat's milk can be used for the sake of gaining nutrition, processing into valuable products, earning money for livelihood, consuming as a part of human diet, as a substitute of cow's milk to those who are allergic to it and last but not the least, becoming healthier. If enlightened about these facts, people can make maximum benefits by selling the products made from goat's milk, milk itself and also can earn foreign currency by exporting to foreign countries. In addition to economy, goat's milk also helps to uplift the health sector of Nepalese farmer as it has low fat contents and less allergens than cow's milk. Thus, given that the attitude and consent of farmers towards goat milk and milk product can be changed, the food, nutrition and economic security of Nepalese are surely going to be upgraded.

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## 7. Conflict of interest

The authors declare that there is no conflict of interest with present publication.

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