

## A Study on Milking Practices Adopted by Karauli Goat Farmers in Dang Area of Rajasthan

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**ABSTRACT:** The purpose of this study is to draw attention to the value of goat milk as well as the potential and future growth of dairy goats in the nation. India has a large caprine resource base, with 37 distinct goat breeds scattered across several bioclimatic region. India is the country that produces the most goat milk worldwide. Due to increased awareness of the therapeutic, nutraceutical, and medical advantages of goat milk and its products, as well as their potential for export, commercial dairy goat rearing in India has become more popular in recent years. The present investigation was carried out to study milking practices adopted by Karauli goat farmers in Dang area of Karauli and Sawai Madhopur districts Rajasthan. Information was collected through personal interviews with 160 Karauli goat farmers (80 from each district). Majority (89.37 per cent) of Karauli goat farmers followed the knuckling method of milking. All the Karauli goat farmers milked their goats twice a day. Most of the Karauli goat farmers (76.25 per cent) do not wash the udder and teats and their hands before milking. All three types of utensils bucket, brass pot and bhagona were used for milking and their use by the farmers was 37.50, 35.00 and 27.50 per cent, respectively. Majority (46.25 per cent) of the Karauli goat farmers used sand and clean water for cleaning of milking utensils followed by ash with water (44.37 per cent) and cleaning detergent with water (9.37 per cent) in the present study area.

**Keywords:** Karauli, Goat farmers, milking practices and knuckling.

### INTRODUCTION

According to FAOSTAT 2018, there were 18.71 million tonnes of goat milk produced worldwide in 2018. India contributed 33% of the total with 6.17 million tonnes of milk. 53.12% of the world's goat milk is produced in India, Sudan, Bangladesh, Pakistan, and France, which are the top five nations in terms of output. Goats make up around 9% of the livestock GDP due to their versatility in providing meat, milk, skin, wool, hair, and dung, among other things. In India, the majority (>90%) of goats are raised using a low input/high output production technique on community rangeland. In spite of a 56% slaughter rate and a 15% death rate, India has 148.88 million goats, the second-highest number after China (DAHD, 2019). As a result, goats are one of the most widely distributed livestock species.

When it comes to farm animals, goats are regarded as the earliest species to be domesticated, sometime between 9000-7000 BC. This long association between goats and human indicates the variety of products goat can provide (Hundal *et al.*, 2016). Rajasthan has 20.84 million goats, accounting for 14.0% of India's total goat

population. Goat milk contributed about 2.93% of the total milk produces. The country stands first in goat milk production and is sharing 26.31% of goat milk production in the world (Annual Report, DAHD, 2021-22). Indigenous goat's productivity is below their genetic potential, which is due to a lack of suitable breeds, a lack of regionally specific structural goat improvement programs, poor technology adoption, the depletion of grazing resources, and an unorganized market (Singh *et al.*, 2018). Cattle and buffalo milk, together with its by products, have long been associated with the dairy industry and provide more than 94% of the world's milk. However, milk from less common dairy animals including goats, sheep, camels, mithun, donkeys, and yaks also makes up a sizeable portion of the total, and in recent years, milk from these species has been identified for certain health advantages exclusive to that species. Goats hold a significant position among minor dairy species because to their medicinal characteristics, contribution to certain ecologies, and export potential (Haenlein, 2001; Park *et al.*, 2007; Barlowska *et al.*, 2011; Yangilar, 2013; Verrucka *et al.* 2019; Verma *et al.*, 2020). They also hold this position due to their abundance.

The majority of goat management techniques that have a substantial impact on performance, don't need a lot of resources or specialized knowledge. However, given the current underdeveloped status of goat husbandry in the majority of the country, timely and cautious utilization of the resources or input is required. It is vital to pay greater attention to scientifically advised goat management practices. According to past studies, goat keepers are falling behind in adopting new and enhanced scientific technologies. It is crucial for goat farmers to employ best management practices and innovations in addition to relying on government subsidies and incentives in order to establish a sustainable goat production sector (Boz, 2015). Goat milking practices are a crucial part of general management techniques. It is difficult to formulate guidelines to introduce the improved suggested practices for goat farmers to adopt based on the information currently available on goat rearing practices in field conditions. Goat farming is an extremely important source of livelihood for many marginal farmers in the Indian state of Rajasthan. This state in particular has semi-arid and arid regions that are well-suited for goat rearing. The demand for goat meat, as well as goat milk, is high in this state, making goat rearing a profitable enterprise for animal husbandry farmers. Hence, with this background the present study was conducted to know the milking practices adopted by Karauli goat farmers in Dang area of Rajasthan.

## MATERIAL AND METHOD

The Present study was conducted in the Karauli and Sawai Madhopur districts of Rajasthan selected purposely keeping in view the fact that the districts have the highest population of Karauli goats. Two tehsils from each identified districts namely Karauli and Sapotra from Karauli district, Sawai Madhopur and Khandar from Sawai Madhopur district were selected. Four villages were selected from each identified tehsil and 10 farmers were randomly selected from each identified village. The total sample size for the study was 160 goat keepers. The data were collected with the help of a pre-tested and well structured interview schedule by holding a personal interview with respondents by the researcher. The collected data regarding milking management practices adopted by Karauli goat farmers were analyzed by using percentage and chi-square test as and where ever necessary.

## RESULTS AND DISCUSSION

The results of data regarding *viz.*, method of milking, frequency of milking, cleaning of udder and teats before milking, washing of hands before milking, utensils used for milking and cleaning of milking utensils by Karauli goat farmers are presented under the following sub-heads.

### A. Method of milking

The present study revealed that majority (89.37 per cent) of the respondents followed the knuckling method of milking while, only 10.62 per cent of respondents

followed the stripping method. None of the goat farmers followed the full hand method of milking. The present findings are supported by Tanwar *et al.* (2008) who reported that majority (93.33 per cent) of the respondents followed the knuckling method of milking in tribal areas of Udaipur district of Rajasthan. Sabapara *et al.* (2014); Kumawat (2016); Gameti (2018); Bagri (2022) also reported similar findings in their respective studies areas.

### B. Frequency of milking

It was found in the present investigation in the study area all the respondents milked their goats twice a day. Similar results were reported by Sandhu (2017) who reported that majority (91.11 per cent) of the goat keepers milked their goats twice a day in south west Punjab. Sorathiya (2015); Kumar (2018); Bagri (2022) also reported similar results in their findings.

### C. Cleaning of udder and teats before milking

Majority (76.25 per cent) of the farmers do not wash the udder and teats before milking and only 23.75 per cent of farmers wash the udder and teats of goats before milking. The present findings are similar to the findings of Bagri (2022) who reported that majority (81.25 per cent) of Sojat goat farmers do not wash the udder and teats before milking and only 18.75 per cent of Sojat goat farmers wash the udder and teats of goat before milking. Sabapara *et al.* (2014); Kumawat (2016); Fogya (2017); Kumar (2018) also reported similar findings.

### D. Washing of hands before milking

Majority (76.25 per cent) of the farmers do not wash their hands before milking and only 23.75 per cent of farmers wash their hands before milking. The present observations are in agreement with the findings of Bagri (2022) who reported that majority (81.25 per cent) of Sojat goat farmers do not wash their hands before milking and only 18.75 per cent of Sojat goat farmers wash their hands before milking.

### E. Utensils used for milking

The present results indicated that three types of utensils bucket, brass pot and bhagona were used for milking and their use by the farmers was found by 37.50, 35.00 and 27.50 per cent, respectively. The present findings are in agreement with the observation of Kumawat (2016) who reported that utensils bucket, brass pot and bhagona were used by goat farmers for milking and their use by the farmers was 38.00, 31.50 and 30.50 per cent, respectively in Jobner area of Rajasthan. Fogya (2017); Bagri (2022) also reported similar findings.

### F. Cleaning of milking utensils

The majority (46.25 per cent) of the goat farmers used sand and clean water for cleaning milking utensils followed by ash and water (44.37 per cent) and cleaning detergent and water (9.37 per cent). These findings are in accordance with the findings of Bagri (2022) who reported that majority (53.12 per cent) of the Sojat goat keepers used sand and clean water for cleaning milking utensils followed by ash and water 24.38 per cent and detergent and water (22.50 per cent).

**Table 1: Milking practices adopted by Karauli goat farmers.**

Sr. No.	Milking Practices	Karauli	Sawai Madhopur	Overall	$\chi^2$ value
<b>1.</b>	<b>Method of milking</b>				0.000
A.	Full hand	0 (0.00)	0 (0.00)	0 (0.00)	
B.	Knuckling	72 (90.00)	71 (88.75)	143 (89.37)	
C.	Stripping	8 (10.00)	9 (11.25)	17 (10.62)	
<b>2.</b>	<b>Frequency of milking</b>				0.00
A.	Two times	80 (100.00)	80 (100.00)	160 (100.00)	
B.	Three times	0 (0.00)	0 (0.00)	0 (0.00)	
<b>3.</b>	<b>Cleaning udder and teats before milking</b>				4.969*
A.	Yes	13 (16.25)	25 (31.25)	38 (23.75)	
B.	No	67 (83.75)	55 (68.75)	122 (76.25)	
<b>4.</b>	<b>Washing hands before milking</b>				4.969*
A.	Yes	13 (16.25)	25 (31.25)	38 (23.75)	
B.	No	67 (83.75)	55 (68.75)	122 (76.25)	
<b>5.</b>	<b>Utensils used for milking</b>				0.649
A.	Bucket	30 (37.50)	30 (37.50)	60 (37.50)	
B.	Brass pot	30 (37.50)	26 (32.50)	56 (35.00)	
C.	Bhagona	20 (25.00)	24 (30.00)	44 (27.50)	
<b>6.</b>	<b>Cleaning of milking utensils</b>				4.911
A.	Sand and clean water	33 (41.25)	41 (51.25)	74 (46.25)	
B.	Ash and water	42 (52.50)	29 (36.25)	71 (44.37)	
C.	Cleaning detergent and water	5 (6.25)	10 (12.50)	15 (9.37)	

\*Significant (p<0.05), \*\*Significant (p<0.01); (Figure in parenthesis indicate percentage)

## CONCLUSIONS

The findings of the present study showed that majority of Karauli goat farmers followed knuckling method of milking. Farmers milked their goats twice a day which is good for getting maximum milk yield. Farmers do not follow cleaning udder and teats before milking and washing their hands before milking. Farmers used bucket for milking which is good utensils for milking. Farmers used sand and clean water for cleaning utensils. Other significant problems with goat dairy growth include milk acquisition, processing, and marketing. These problems may be resolved by providing the right legislative support, offering incentives, and working with state-level milk production federations to acquire goat milk and add value. The present study suggests creating awareness among Karauli goat farmers about proper scientific milking practices and hygiene maintenance during the milking process to avoid unhealthy milk production.

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**Conflict of interest.** None.

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