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Study of management and care of milk and milk products in hotels of Sirohi district, Rajasthan

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Abstract

The hospitality sector in Sirohi District, Rajasthan, relies significantly on milk and milk products to cater to diverse culinary preferences. Effective management and care of these perishable commodities are crucial to ensure food safety, quality, and customer satisfaction. This paper examines the current practices, challenges, and strategies for handling milk and its derivatives in the hotels of Sirohi District, with a focus on compliance with the Food Safety and Standards Authority of India (FSSAI) guidelines. The effective management and care of milk and milk products are vital for the hospitality industry in Sirohi District. By addressing current challenges and adhering to FSSAI guidelines, hotels can ensure the delivery of safe and high-quality dairy-based offerings to their patrons, thereby enhancing customer satisfaction and contributing to public health.

Keywords: Management and care, milk and milk products, hotels, Sirohi district

Introduction

Sirohi District, located in the southwestern part of Rajasthan, is renowned for its rich cultural heritage and tourism. The local hospitality industry plays a pivotal role in the district's economy, offering a variety of traditional and contemporary dishes, many of which incorporate milk and milk products. Given the perishable nature of dairy products, proper management is essential to prevent spoilage, contamination, and foodborne illnesses. India today stands first in the area of milk production at the world level, with an annual growth rate of about 4%. The country's milk production in 2010 was estimated to be 110 million tons. A large quantity of milk produced in the country, amounting to over 46%, is being consumed as liquid milk. The production and use of animal products in the use of human diet is receiving tremendous attention. (Singh *et al.*, 2012) [18]. The productive improvements among dairy animals can be made through proper management, feeding, handling, etc., which may influence the expression of productive characters as per their heritability nature. Before identifying the animals for breeding and production purposes, screening of animals shall be performed on the basis of physical traits (Singh et al., 2013) [19-21]. The goat population of our country increased from 47.14 million in the year 1951 to 124.5 million during 2005 (Singh and Sharma, 2013a) and (Singh and Sharma, 2014) [22, 24-29]. In today's competitive business environment every organization is dependent on environmental forces for meeting the organizational objectives and publicity through advertisements offers an opportunity for the commercial as well as non-commercial organizations to cope up with the fast changes and spread relevant information (Sharma and Mehta, 2020) [4, 5, 13]. Management and organization are an integral part of every business and it includes the activities of setting goals, identifying course of action, framing plans and implementation through coordination of skilled and unskilled labour to achieve service organization (Sharma, K. 2019). Along with the economical development, knowledge workers as a carrier of intellectual capital, become indispensable key people for enterprises to build and maintain a competitive advantage (Sharma and Mehta, 2020a).

Environmental sustainability is propagated by favorable decision and making strategies which safeguard the interest of our surroundings and nature to ensure protection of natural vegetation with more emphasis on protecting the natural support system essential for existence of human life (Sharma, *et al.* 2020b) [8,10,11,16,13].

Human Resource Management facilitates implementing of various HR functions like recruitment, induction, training, performance appraisal, etc. and engulfs planning & development of employees or preservation of knowledge capital (Sharma and Agrawal, 2020c). Environmental sustainability refers to preserving the environment for future generations and support human life. It is an action that involves decision making that protects the natural world and realise the full impact of business organizations on the environment (Sharma and Agrawal, 2021). The changing circumstances and the zeal to learn have eradicated the hassles and barriers of teaching from remote destinations and owing to the growing importance of lifelong learning, online learning has become a popular tool for learning in adverse conditions (Sharma and Choudhary, 2020d). Digital education is a priority task of government of India and is crucial to impart education to the disinterested students of rural school (Sharma and Choudhary, 2020e).

Organization have grown interest in strategies which address environmental aspects and pursue new opportunities for sustainability creating a competitive landscape to comeback the effect of environmental destruction and take into consideration organization practices for initiating environment protection (Sharma and Agrawal, 2019a). Education system in historical times was sound enough to impart knowledge through practical training and building a strong relationship between Guru and Shishya (Sharma, et al. 2020f). Health care Services are the primary need and is very crucial for an economy like India where a large population to serve the increasing demand for high quality health care services (Sharma and Jain, 2021a). The competitive business environment around the globe has made advertisement an important tool for every organization to create a buzz in the society (Sharma and Gupta, 2017). Advertisements to spread information regarding social issues are known as social advertisements. In recent times, many commercial organizations have initiated advertising their brands accompanying with a social message which was earlier done only by government and non-government organizations with an objective of social welfare (Sharma and Gupta, 2020g). Sirohi, known as the "Land of Monasteries," has a rich agricultural and dairy heritage. Goat milk, a traditional product in the region, is highly nutritious and hypoallergenic, making it an attractive choice for health-conscious consumers. (Sharma, et al. 2025) [17].

The Gir breed, which is rated as a relatively better milk producer of indigenous breeds, needs exploration of its production potentiality with a view to knowing its further prospect. Improvement can be made through proper management, feeding, handling, and other environmental conditions that will influence the expression of characters, but a limit of which is set by the heredity of the individual (Singh *et al.*, 2013b).

Goats are an integral part of livestock production and play a vital role in the socio-economic structure of the rural poor. The aim of this study was to project the importance and significance of goat milk with special reference to Indian field and farm rearing conditions. There are adverse ecological and physiological constraints in the Indian system of goat farming. Poultry farming is an ancient business in India, but scientific upkeep of poultry is very new. It has got economic, nutritional, industrial, recreational, and research importance. It also plays an important role in improving the economy of the poultry

Various government and non-government owner. organizations have also recognized the importance of poultry farming as an employment-generating enterprise and are engaged in motivating more and more entrepreneurs to take up this enterprise (Singh et al., 2014a). Goats play a vital socio-economic role in Asian agriculture, particularly for resource-poor people living in harsh environments (Singh et. al., 2014b). The global goat population currently stands at 921 million, of which over 90% are found in developing countries. Asia is home to about 60% of the total world goat population and has the largest goat breed share of 26%. Goats play a vital socioeconomic role in Asian agriculture, particularly for resource-poor people living in harsh environments. Non-cattle milk accounts for approximately 15% of the total milk consumption by humans worldwide (Singh et al., 2014c). Goats are more often poorly managed, and this is attributed to their ability to survive under harsh conditions and also because most people in rural areas rear goats for their subsistence purposes to support their families. This benefit is often not shown in national statistics because of informal trading and slaughtering (Singh et al., 2014d). The milk is naturally homogenized since it lacks the protein agglutinin. The milk also has a more similar makeup (percentage of fats, etc.) to human milk than cow's milk. For these reasons, goat milk may be recommended for infants and people who have difficulty digesting cow's milk (Singh et al., 2014e). Goat meat, being a high-quality protein source, is the choicest meat in the domestic market. It is leaner than other red meats, and its fat has desirable fatty acids. The goat was domesticated as early as 6-7 BC, as evidenced by archaeological remains collected in western Asia (Singh et al., 2014f). The major population of India is primarily dependent on an agricultural-based system for their daily life, including goat keeping, that constitutes an important rural business of small marginal farmers and landless laborers (Singh et al., 2014g). Reproductive management of an animal is governed through a number of parameters, viz. age at first conception, age at first calving, first gestation length, etc. However, this study is limited to studying the reproductive management in terms of the age of the animal at first calving (Singh et al., 2014h). Goats, which were known as "wet nurses of infants" in the United Kingdom and "poor man's cow" in India, were the first animals to be domesticated. Goat milk contains less lactose than cow's milk, so it is less likely to trigger lactose intolerance (Singh and Sharma, 2015). Goat meat, being a high-quality protein source, is the choicest meat in the domestic market. It is leaner than other red meats, and its fat has desirable fatty acids. The goat was domesticated as early as 6-7 BC, as evidenced by archaeological remains collected in western Asia. It has since played a significant socioeconomic role in the evolvement of human civilization around the world (Singh and Sharma, 2015a). Pearl millet was recognized as a main source of energy for livestock and is fed at critical times, such as during lactation, illness, and for weight gain. Farmers felt that grass is more useful to fill the animals' stomachs and would therefore come before crop stover as a feed. Farmers preferred Deda over Kona because it has more biomass (Singh and Sharma, 2015b). This explains why goat farmers seldom consider the possibilities of increasing production through either crossbreeding or artificial insemination. A very important aspect in this regard is the awareness of risk by resource-poor farmers and

their emphasis on minimizing it (Singh and Sharma, 2016). Goats, being a multipurpose animal, produce meat, milk, skin, fiber, and manure. The country is endowed with a large and biologically diverse population of goats. (Singh and Sharma, 2016a). The nutritional value of milk is closely related to its composition, which is affected by factors such as breed, diet, stage of lactation, season, etc. Goat milk has more calcium (Ca), phosphorus (P), potassium (K), magnesium (Mg), and chloride (Cl) and less sodium (Na) and sulfur (S) content than cow milk (Singh and Sharma, 2016b). Livestock production is the backbone of Indian agriculture, contributing 7% to national GDP and being a source of employment and livelihood for 70% of the population in rural areas. India ranks first in terms of milk production (129.7 million tonnes); however. productivity is quite low, mainly because of the scarcity of feeds and fodders (Singh et al. 2017). Animals reared in intensive production systems consume a considerable amount of protein and other nitrogen-containing substances in their diets (Singh et al. 2017a). Small ruminants have a large impact on the economy and food supply of people in subtropical and tropical countries. This benefit is often not shown in national statistics because of informal trading and slaughtering (Singh and Sharma, 2017b). Jamnapari (or Jamunapari) is a breed of goat originating from the Indian subcontinent. Since 1953 they have been imported to Indonesia (popular as Etawa goats, and their mixture with a local goat called "PE," peranakan Etawa, or Etawa mix), where they have been a great success. It is bred for both milk and meat. The name is derived from the rivers Yamuna, Jamuna (West Bengal), and Jamuna (Bangladesh) of India and Bangladesh. There is a great variation in coat color, but the typical coat is white with small tan patches on the head and neck. The typical character of the breed is a highly convex nose line with a tuft of hair, yielding a parrot mouth appearance (Singh et al. 2017c). The consequence of domestication was a change in the phenotypic characteristics of wild goats, which resulted in the development of a multiplicity of goat breeds or types. These breeds or types were distributed across the world as a result of the migration and translocation of humans, usually due to changing climatic conditions and natural resources (Singh and Sharma, 2017d). Goats play a vital socio-economic role in Asian agriculture, particularly for resource-poor people living in harsh environments. Non-cattle milk accounts for approximately 15% of the total milk consumption by humans worldwide. Asia contributes approximately 59% to world goat milk production (Singh et al. 2018) [42]. There is a large commercial chicken industry that provides us with eggs and meat. A major constraint to poultry production is the high value placed upon crop production rather than livestock production. Over recent decades the poultry industry has made tremendous adjustments to meet the increasing demand for an inexpensive and safe supply of meat and eggs (Singh, G. 2019) [43-44]. India is endowed with a significant share of the world's livestock population, steadily and continuously. Buffalo growing predominantly animals of poor countries with a very high density of livestock and human population and with poor feed resources. In tropical and subtropical regions, dairy cattle usually depend exclusively on native or introduced pastures as their only source of nutrients, and in particular, during critical periods of the year, such as the winter or dry season, the animals cannot fulfill their nutrient requirements

because forage is either scarce or of low quality (Singh, G., 2019a and Singh et al. 2025c). Milk-secreting tissues and various ducts throughout the udder can be damaged by bacterial toxins, and sometimes permanent damage to the udder occurs. Severe acute cases can be fatal, but even in cows that recover, there may be consequences for the rest of the lactation and subsequent lactations (Singh and Singh, 2020). Livestock has become an integral part of all interventions aimed at reducing rural poverty and enhancing food and nutrition security. The dairy livestock owners who raise cattle and buffaloes are vet ignorant of scientific management practices (Singh and Somvanshi, 2020a) [46]. The goat is thought to have been the earliest domesticated ruminant and, of all the species of domesticated animals except the dog, has the widest ecological range. Originating in Asia, goats have spread over all the continents and inhabit almost all climatic zones from the Arctic Circle to the equator (Singh, G., 2024). Man, animal, and nature are in a symbiotic relationship for their survival and sustenance. The balance maintained among the three for several millennia has been disturbed by the overexploitation of natural resources to meet the demands of the increasing population of men and animals (Singh et al., 2024a). The nutritional value of milk is closely related to its composition, which is affected by factors such as breed, diet, stage of lactation, and season. Goat milk has more calcium (Ca), phosphorus (P), potassium (K), magnesium (Mg), and chloride (Cl), and less sodium (Na) and sulfur (S) compared to cow milk (Singh et al. 2024b) and (Singh et al. 2025a). Minerals are required by dairy animals for their metabolic functions, growth, milk production, reproduction, and health. Animals cannot synthesize minerals inside their bodies, and usually, feeds and fodders fed to the dairy animals do not provide all the minerals in the required quantity (Singh et al. 2024c). The goat is thought to have been the earliest domesticated ruminant and, of all the species of domesticated animals except the dog, has the widest ecological range (Singh et al. 2024d). The productive improvements among dairy animals can be made through proper management, feeding, handling, etc., which may influence the expression of productive characters as per their heritability nature. (Singh et al. 2024e). The production and use of animal products in the use of human diet is receiving tremendous attention. (Singh et al. 2025 and Singh et al. 2025b, Singh et al. 2025d).

Current Practices in Milk Management

Hotels in Sirohi source milk from local dairy farms, cooperatives, and vendors. The Sirohi goat breed, indigenous to the region, is a notable source of milk, valued for its nutritional benefits and hypoallergenic properties. A study by Sharma *et al.* (2025)^[17] highlighted the potential of goat milk as a flagship product in the district's hospitality sector, emphasizing the need for effective management and marketing strategies.

Challenges in Handling Milk and Milk Products

The primary challenges faced by hotels in managing dairy products include:

Supply Chain Issues

Ensuring a consistent and timely supply of fresh milk can be challenging due to logistical constraints and variability in local production.

Storage Limitations: Many establishments lack adequate refrigeration facilities, leading to potential spoilage and waste.

Quality Control: Maintaining the quality and safety of milk products is critical, necessitating regular testing and adherence to hygiene standards.

FSSAI Guidelines and Compliance

The Food Safety and Standards Authority of India (FSSAI) has established comprehensive guidelines to ensure the safety and quality of milk and milk products. Key recommendations include:

- Sanitary and Hygiene Requirements: Maintaining clean and well-ventilated storage areas, ensuring proper sanitation of equipment, and implementing personal hygiene protocols for staff.
- **Temperature Control**: Storing milk at 4-6°C if not distributed within 3-4 hours of milking to prevent bacterial growth.
- Handling and Transportation: Using dedicated containers for milk, ensuring they are cleaned and sanitized regularly, and protecting milk from exposure to contaminants during transport.

Strategies for Effective Management

To enhance the management and care of milk products, hotels in Sirohi District can adopt the following strategies:

- 1. Establishing Reliable Supply Chains: Partnering with local dairy farmers and cooperatives to ensure a steady supply of high-quality milk.
- **2. Investing in Infrastructure**: Upgrading storage facilities with appropriate refrigeration units to maintain optimal temperatures.
- **3. Training Staff:** Conducting regular training sessions on hygiene practices, proper handling, and storage techniques in line with FSSAI guidelines.
- **4. Implementing Quality Control Measures**: Regularly testing milk for contaminants and adhering to the 'First Expired, First Out' (FEFO) principle to manage inventory.

Conclusion

The effective management and care of milk and milk products are vital for the hospitality industry in Sirohi District. By addressing current challenges and adhering to FSSAI guidelines, hotels can ensure the delivery of safe and high-quality dairy-based offerings to their patrons, thereby enhancing customer satisfaction and contributing to public health.

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