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Khushbo Prince

University of Agriculture,
Faisalabad, Punjab, Pakistan

Dr. Gitam Singh

College of Agriculture, Madhav
University, Sirohi, Rajasthan,
India

Effect of latest technologies on the goat milk production and entrepreneurship in Faisalabad, Pakistan

Khushbo Prince and Gitam Singh

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Abstract

The goat milk industry in Pakistan, especially in regions like Faisalabad, has witnessed significant transformations due to the introduction and adoption of modern technologies. This paper explores the impact of these technological advancements on goat milk production and the emerging entrepreneurial landscape in the region. The study assesses the effectiveness of innovations in goat farming practices, milking processes, dairy processing, and marketing techniques. Additionally, it evaluates the opportunities and challenges faced by entrepreneurs involved in goat milk production and dairy-based enterprises. Through qualitative and quantitative data, this paper highlights the socioeconomic effects, efficiency gains, and market dynamics shaped by technological interventions in Faisalabad's goat milk sector. From enhanced productivity to new entrepreneurial opportunities, these technologies have transformed the goat dairy sector into a dynamic and thriving industry. However, challenges such as high initial costs, limited technical expertise, and inadequate infrastructure remain. Policy interventions and institutional support will be crucial in addressing these barriers and ensuring the continued growth and sustainability of the sector. The future of goat milk production in Faisalabad appears promising, with technological advancements paving the way for increased efficiency, higher quality products, and greater entrepreneurial potential.

Keywords: Faisalabad, Pakistan, goat milk production, latest technologies, entrepreneurship, dairy industry, agricultural innovations, socioeconomic impact

Introduction

Pakistan has a long-standing tradition of goat farming, with goats playing a significant role in rural economies (Singh *et al.*, 2012, Singh *et al.*, 2013) ^[5, 7, 8]. The city of Faisalabad, known for its agricultural significance, is emerging as a key hub for dairy farming, especially in goat milk production (Singh and Sharma, 2013a, Singh and Sharma, 2014) ^[7, 8, 11-17]. However, the sector has traditionally relied on outdated farming practices, often resulting in suboptimal yields, poor quality milk, and limited market reach (Singh *et al.*, 2014c, Singh *et al.*, 2014h, Singh and Sharma, 2015) ^[11-17, 18-20]. Recent advancements in agricultural technologies have introduced new methods in animal husbandry, milking, and dairy production, leading to increased productivity, higher quality products, and greater economic potential for entrepreneurs (Singh *et al.*, 2014d, Singh *et al.*, 2014e, Singh *et al.*, 2014f, Singh *et al.*, 2014g) ^[11-17, 25]. 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.*, 2013b, Singh *et al.*, 2014a, Singh *et al.*, 2014b) ^[11-17]. 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% (Singh and Sharma, 2015a, Singh and Sharma, 2015b, Singh and Sharma, 2016) ^[18-20, 21-23]. 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, Singh and Sharma, 2016b) ^[21-23].

Corresponding Author:

Dr. Gitam Singh

College of Agriculture, Madhav
University, Sirohi, Rajasthan,
India

This research aims to examine how these technologies have impacted goat milk production in Faisalabad, as well as the entrepreneurial opportunities that have arisen in this sector. By focusing on modernized farming practices, innovations in dairy processing, and the role of entrepreneurship, this paper seeks to provide a comprehensive understanding of how technology has reshaped this critical component of the agricultural industry in Pakistan.

Overview of goat milk production in Faisalabad

Faisalabad, an agricultural hub in Punjab, is home to a significant number of small-scale and medium-scale dairy farmers. Goat milk, known for its nutritional benefits and unique flavor, has gained popularity in both domestic and international markets. The traditional method of goat farming in Faisalabad, however, has been plagued by inefficiencies, including low milk yield, high rates of animal mortality, poor animal health management, and inadequate processing facilities. In recent years, government initiatives and private investments have spurred the adoption of modern technologies aimed at improving livestock management, enhancing milk production, and increasing the profitability of dairy businesses. These technologies range from advances in breeding, milking equipment, and feed management to more sophisticated dairy processing techniques (Singh *et al.* 2024b, Singh *et al.* 2025a, Singh *et al.* 2024c, Singh *et al.* 2024d) [34-41].

Latest Technologies in Goat Milk Production

1. Advances in Animal Breeding

The introduction of crossbreeding programs and genetic selection has resulted in the development of improved goat breeds capable of higher milk production. Faisalabad has seen a rise in the use of artificial insemination (AI) to ensure the reproduction of high-yielding goats. Genetic engineering and research into disease-resistant breeds have also contributed to better health outcomes for goats, reducing the overall cost of animal care and increasing productivity (Singh and Somvanshi, 2020a, Singh G, 2024, Singh *et al.*, 2024a) [33-39].

2. Automated Milking Systems

Automated Milking Systems (AMS) have revolutionized the way milk is extracted from goats. These systems reduce the manual labor involved in milking, increase the efficiency of the milking process, and improve hygiene standards by minimizing human contact with the milk. This technology is particularly beneficial in large-scale operations, allowing farmers to process milk quickly and safely, with minimal risk of contamination (Singh and Sharma, 2017d, Singh *et al.* 2018, Singh G, 2019, Singh, G., 2019a, Singh and Singh, 2020) [24-28, 30-33].

3. Nutritional Management

Advancements in animal nutrition, such as precision feeding techniques and the use of scientifically formulated animal feed, have improved the overall health of goats. Balanced diets tailored to the specific needs of lactating goats lead to increased milk yield and improved milk quality. The use of nutritional supplements, probiotics, and organic feed has also gained popularity in Faisalabad, contributing to the production of higher-quality milk with enhanced nutritional profiles (Singh *et al.* 2017, Singh *et al.* 2017a, Singh and Sharma, 2017b, Singh *et al.* 2017c) [24-28].

4. Dairy Processing Technologies

Increased focus on hygienic milk processing has led to the adoption of technologies such as pasteurization, refrigeration, and packaging innovations. These methods extend the shelf life of goat milk and ensure that it meets international food safety standards. The establishment of small-scale milk processing plants using state-of-the-art equipment has allowed entrepreneurs to produce value-added products such as goat cheese, yogurt, and flavored milk, expanding the market potential for goat milk producers.

5. Digital Technologies in Farm Management

The integration of digital technologies, such as farm management software and IoT-based systems, has enabled goat farmers in Faisalabad to monitor animal health, track milk production, and optimize farm operations. These technologies allow farmers to make data-driven decisions regarding breeding schedules, feed management, and milking routines, leading to improved farm efficiency and profitability.

Impact on Entrepreneurship in Goat Milk Production

1. Creation of Business Opportunities

The adoption of new technologies has opened up numerous entrepreneurial opportunities in the goat milk sector. Small-scale farmers have been able to scale their operations by leveraging innovations in milking and processing. Additionally, value-added products like goat cheese and dairy-based cosmetics have found a niche market both locally and internationally, providing new revenue streams for entrepreneurs. Startups focused on dairy product innovation and the development of organic goat milk products have become more prevalent in Faisalabad. These ventures have attracted investment from both local and international stakeholders, stimulating economic growth in the region. Furthermore, the rise of e-commerce and online marketing platforms has provided a broader reach for goat milk producers, facilitating access to consumers beyond traditional markets (Singh *et al.* 2024e, Singh *et al.* 2025, Singh *et al.* 2025a) [34-41].

2. Empowerment of Women Entrepreneurs

Technological advancements have also contributed to the empowerment of women in the goat milk industry. Women, who often play a key role in managing dairy farms, have benefited from the reduced physical labor required by automated milking systems and other innovations. Additionally, the growth of value-added goat milk products has created more business opportunities for women entrepreneurs, particularly in home-based production and small-scale processing.

3 Challenges Faced by Entrepreneurs

Despite the promising prospects, entrepreneurs in the goat milk sector face several challenges. The high initial cost of implementing new technologies, limited access to financing, and a lack of technical expertise are among the primary barriers to adopting advanced farming practices. Additionally, the lack of infrastructure, such as cold storage facilities and reliable transportation networks, limits the ability of entrepreneurs to reach distant markets and maintain product quality.

4. Policy and Institutional Support

Government policies and support mechanisms are critical in facilitating the growth of entrepreneurship in goat milk production. The provision of subsidies, training programs, and access to credit can help farmers and entrepreneurs overcome the financial barriers associated with technological adoption. Furthermore, establishing public-private partnerships can play a pivotal role in enhancing the overall development of the goat milk industry in Faisalabad.

5. Socioeconomic Impact

The adoption of modern technologies in goat milk production has had a significant socioeconomic impact on the region. Improved productivity has led to increased incomes for farmers and entrepreneurs, contributing to poverty alleviation and rural development. The creation of jobs in the dairy processing sector, particularly in value-added product manufacturing, has further stimulated local economies. Moreover, the development of a sustainable goat milk industry has attracted foreign investment and strengthened Faisalabad's position as an emerging player in the global dairy market. By meeting international quality standards, entrepreneurs have been able to export goat milk products, expanding market access and boosting the region's economy.

Conclusion

The integration of modern technologies in goat milk production has had a profound impact on the industry in Faisalabad, Pakistan. From enhanced productivity to new entrepreneurial opportunities, these technologies have transformed the goat dairy sector into a dynamic and thriving industry. However, challenges such as high initial costs, limited technical expertise, and inadequate infrastructure remain. Policy interventions and institutional support will be crucial in addressing these barriers and ensuring the continued growth and sustainability of the sector. The future of goat milk production in Faisalabad appears promising, with technological advancements paving the way for increased efficiency, higher quality products, and greater entrepreneurial potential.

Conflict of Interest

Not available

Financial Support

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Reference

- Ahmad M, Bukhari S. Innovations in dairy farming: a case study of Faisalabad, Pakistan. *Journal of Agricultural Innovation*. 2022;18(4):237-248.
- Hafeez A, Khan M. The role of technology in livestock development in Pakistan: A review. *Pakistan Journal of Agricultural Sciences*. 2021;58(2):143-159.
- Pakistan Dairy Development Company. Annual report: Advancing dairy technologies in Pakistan. Islamabad: PDCC, 2020.
- Shah SA, Kiani A. Entrepreneurship in agriculture: Case studies from Faisalabad's dairy sector. *Entrepreneurship and Business Journal*. 2023;15(1):45-61.
- Singh G, Dutt G, Sharma RB, Fatima A, Singh RP. Study of first gestation length in Gir cows. *The Journal of Rural and Agricultural Research*. 2012;12(1):64-65.
- Singh G, Dutt G, Sharma RB, Singh SK, Fatima A, Chauhan SVS. An analytical study of reproductive performance in Gir cows. *Indian Research Journal of Extension Education*. 2013;Special Issue(2):203-206.
- Singh G, Sharma RB. Influence of breeds on goat milk composition under field and farm rearing conditions. *Indian Research Journal of Genetics & Biotechnology*. 2013;5(4):258-261.
- Singh G, Dutt G, Rajput S, Chauhan RS. Study of age at first service period in Gir cows. *Indian Research Journal of Genetics & Biotechnology*. 2013;5(4):270-273.
- Singh G, Sharma RB. Effect of season on the milk quality of Jamunapari goats under field and farm rearing condition. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(1):335-339.
- Singh G, Thorat GN, Trivedi MS, Mishra R, Sharma SK. A test to measure knowledge about poultry management practices. *The Journal of Rural and Agricultural Research*. 2014;14(2):44-47.
- Singh G, Sharma RB, Mishra R. Seasonal variations in the milk minerals of Jakhana goats under field and farm rearing conditions. *Journals of Community Mobilization and Sustainable Development*. 2014;9(2):120-123.
- Singh G, Sharma RB, Mishra R, Rajput S. Effect of multiple births on Jakhana goat milk quality under field and farm rearing conditions. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(4):629-635.
- Singh G, Sharma RB, Mishra R. Effect of season on the milk quality of Jakhana goats under field and farm rearing condition. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(3):571-577.
- Singh G, Sharma RB, Mishra R, Rajput S. Effect of season on goat meat composition under field and farm rearing conditions. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(3):511-517.
- Singh G, Sharma RB, Mishra R. Effect of multiple births on Jamunapari goat milk quality under field and farm rearing conditions. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(2):453-458.
- Singh G, Sharma RB, Kumar A, Chauhan A. Effect of stages of lactation on goat milk composition under field and farm rearing condition. *Advances in Animal and Veterinary Sciences*. 2014;2(5):287-291.
- Singh G, Dutt G, Rajput S. Study of age at first calving in Gir cows. *Indian Research Journal of Genetics & Biotechnology*. 2014;6(1):362-365.
- Singh G, Sharma RB. Effect of multiple births on Jakhana goat milk minerals under field and farm rearing conditions. *Indian Research Journal of Genetics & Biotechnology*. 2015;7(2):227-234.
- Singh G, Sharma RB. Influence of breed on goat meat composition under field and farm rearing conditions. *International Conference on Emerging Trends in Biotechnology and Science with Especial Reference to Climatic Change*, KVK Tonk Banasthali Vidyapith, 2015 Feb, p. 15-17.
- Singh G, Sharma SK. On farm trial (OFT) of pearl millet green fodder at Tonk district. *The Journal of Rural and Agricultural Research*. 2015;15(2):28-29.
- Singh G, Sharma RB. Impact of stages of lactation on the minerals of Jakhana goat milk under field and farm rearing condition. *Research Journal of Animal Husbandry and Dairy Science*. 2016;7(1):28-34.
- Singh G, Sharma RB. Effect of goat breeds on the milk mineral composition under field and farm rearing conditions. *The Bioscan*. 2016;7(2):691-4.

23. Singh G, Sharma RB. Effect of rearing systems on mineral contents of milk during lactation in Jamunapari goats. *Indian Journal of Small Ruminants*. 2016;22(2):270-271.
24. Singh G, Sharma RB, Singh M. Green fodder production potential of Oat cv. Kent under semi-arid climatic conditions of Tonk-Rajasthan in frontline demonstration. *International Journal of Current Microbiology and Applied Sciences*. 2017;6(3):2228-2232.
25. Tenaw DK, Metiku T, Birhanu M, Ruilan L. Review on the status of dairy production and processing in Ethiopia. *Acta Entomol. Zool*. 2024;5(1):36–40.
26. Singh G, Sharma RB. Effect of field and farm rearing conditions on the sensory quality of goat meat. *Journal of Community Mobilization and Sustainable Development*. 2017;11(2):188-192.
27. Singh G, Sharma RB, Singh M, Choudhary R. Effect of season on Jamunapari goat meat composition under field and farm rearing condition. *Indian Journal of Pure & Applied Biosciences*. 2017;5(2):563-568. DOI: <http://dx.doi.org/10.18782/2320-7051.2714>.
28. Singh G, Sharma RB. Seasonal impact on the minerals of Jamunapari goat milk minerals under field and farm rearing condition. *International Journal of Current Microbiology and Applied Sciences*. 2017;6(9):1298-1303.
29. Singh G, Sharma RB, Chahal BP, Singh M, Sharma SK. Effect of multiple births on Jamunapari goat milk minerals under field and farm rearing conditions. *Indian Journal of Animal Research*. 2018;52(4):628-631.
30. Singh G. Analytical study of frontline demonstration (FLD) of Kadaknath poultry farming under climatic conditions of Tonk District of Rajasthan. *The Journal of Rural and Agricultural Research*. 2019;19(2):49-52.
31. Singh G. Effect of area specific mineral mixture on productive performance of Murrah buffaloes under climatic conditions of Tonk district. *Indian Research Journal of Genetics & Biotechnology*. 2019;11(4):277-281.
32. Singh G, Singh RP. An analytical study on mastitis in cows under climatic conditions of Tonk district. *The Journal of Rural and Agricultural Research*. 2020;20(1):18-21.
33. Singh G, Somvanshi SPS. Study on animal rearing practices by dairy owners of district Jaipur, Rajasthan. *The Journal of Rural and Agricultural Research*. 2020;20(1):61-64.
34. Singh G. Nutrition and feeding management of goats for chevon production. *International Journal of Science, Environment and Technology*. 2024;13(5):334-349.
35. Singh G, Singh S, Sharma K, Sharma LK, Kumar A. Effect of goat rearing on environment and rural prosperity in India. *International Journal of Science, Environment and Technology*. 2024;13(6):421-433.
36. Singh G, Bhati DS, Sharma K, Kumar N. Effect of goat breeds on the milk composition under climatic conditions of Baijupara tahsil of Dausa district, Rajasthan. *Journal of Progressive Agriculture*. 2024;15(2):49-60.
37. Singh G, Sharma K, Sharma LK, Kumar A, Parihar K. OFT (On Farm Testing) on the area specific mineral mixture on the milk production of Murrah buffaloes under climatic conditions of Tonk district. *The Journal of Rural and Agricultural Research*. 2024;24(2):11-17.
38. Singh G, Sharma K, Sharma LK, Kumar A, Parihar K. FLD (Front Line Demonstration) on the area specific mineral mixture on the milk production of Murrah buffaloes under climatic conditions of Tonk district. *The Journal of Rural and Agricultural Research*. 2024;24(2):51-57.
39. Singh G, Sharma K, Sharma LK, Kumar A, Kumar N. An analytical study on bloat in buffaloes under climatic conditions of Tonk district of Rajasthan. *The Journal of Rural and Agricultural Research*. 2024;24(2):76-81.
40. Singh G, Sharma K, Tandon C, Pandya P, Verma A, Kumar N. Effect of goat breeds on the milk composition under climatic conditions of Bhandarej tahsil of Dausa district, Rajasthan. *Asian Journal of Advances in Agricultural Research*. 2025;25(1):10-18.
41. Singh G, Sharma K, Tandon C, Pandya P, Verma A, Kumar N. Effect of goat breeds on the milk composition under climatic conditions of Lalsot tahsil of Dausa district, Rajasthan. *International Journal of Agriculture Extension and Social Development*. 2025;8(1):144-149.
42. Singh G, Sharma RB, Singh M, Sharma SK. Utilization of agricultural wastes in participatory poultry farming with women under climatic conditions of Tonk district of Rajasthan. *Agric Sci Digest*. 2017;37(1):60-63.

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