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A review on rural poultry farming: A sustainable livelihood option

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Abstract
Backyard poultry farming plays a crucial role in enhancing livelihoods and nutritional security in rural areas of India. Despite India's significant growth in commercial poultry, rural households still face challenges in accessing quality animal protein. Backyard poultry production offers a viable, low-cost means for providing nutritious food, especially eggs and chicken meat, which are affordable and accessible protein sources. This farming system, predominantly managed by rural women, contributes to food security, poverty alleviation, and empowerment.

Keywords: Rural poultry, backyard poultry, indigenous poultry breeds, Poultry management

Introduction
India is an agrarian country, with about two-thirds of the population involved in agriculture and related activities, including animal husbandry and fisheries. A shortage of animal protein is one of the major factors contributing to frequent health problems in rural areas. Ensuring the availability of nutritious food with adequate supplementation of animal proteins is essential to protect rural people from protein malnutrition and promote proper growth and good health (Dinesh *et al*., 2025) [1]. Rearing of chickens in small numbers has been an essential, integral component of human evolution for food and recreational purposes since ancient times (Chatterjee, 2017) [2].

Backyard poultry farming is a vital component of the rural economy and contributes significantly to women's empowerment. Despite accounting for nearly 30% of India's total egg production, this sector remains largely overlooked (Sheikh *et al*., 2018) [3]. Backyard poultry is a profitable enterprise requiring minimal initial investment, yet it offers substantial economic returns and can be conveniently managed by women, children, and the elderly. Even households that cannot afford larger livestock species are generally able to maintain a small flock of backyard birds (Laxmi *et al*., 2021) [4].

In many rural settings, poultry rearing is viewed as an accessible entry point for poverty alleviation, providing both nutritious food and a dependable source of income. It has gained recognition as an important livelihood activity for socio-economic upliftment, particularly among vulnerable groups such as landless labourers and small or marginal farm families. By generating self-employment opportunities and supplying protein-rich food at an affordable cost, backyard poultry farming remains an important livelihood strategy for rural households (Ahuja *et al*., 2008) [5].

India possesses a rich diversity of indigenous chicken breeds, each adapted to specific agro-climatic regions. Notable breeds include Ankaleshwar from Gujarat and Aseel, which is widely distributed across Chhattisgarh and Andhra Pradesh. The Bursa breed is native to Gujarat and Maharashtra, while Chittagong is found mainly in the northeastern states of Meghalaya and Tripura. Danki and Kalasthi are prominent breeds of Andhra Pradesh, whereas Daothigir and Miri originate from Assam. Other important Indian breeds include Ghagus from Andhra Pradesh and Karnataka, Harringhata Black from West Bengal, and the highly valued Kadaknath of Madhya Pradesh, known for its black meat.

Kashmir Favorolla represents the native poultry of Jammu and Kashmir, while the Nicobari chicken is confined to the Andaman and Nicobar Islands. In northern India, the Punjab Brown breed is common across Punjab and Haryana, while Uttara is native to Uttarakhand. Tellichery from Kerala, Mewari from Rajasthan, Kaunayen from Manipur, Hansli from Odisha, and Aravalli from Gujarat further demonstrate the vast genetic diversity of Indian poultry. Collectively, these breeds play a vital role in rural livelihoods and the conservation of indigenous genetic resources.

What is Backyard Poultry?

Backyard poultry refers to a low-input or even no-input poultry production system commonly practiced in rural areas. As described by Mandal *et al*. [6], this system is characterized by the use of simple, indigenous night shelters and a scavenging-based feeding pattern with minimal supplementary nutrition. Birds are generally reared under natural conditions, where hatching occurs through broody hens rather than artificial incubation. Productivity is typically low due to the absence of scientific management, limited or no healthcare practices, and dependence on local resources. The produce usually eggs and meat is sold through local markets, making backyard poultry an accessible livelihood option for rural households.

Conventional and Improved Varieties of Backyard Poultry Birds

In rural poultry farming, households typically rear between 5 and 50 birds under a traditional extensive scavenging system, with minimal or no specialized management for feeding or housing. Chickens raised under these backyard conditions are generally low producers of both eggs and meat, and backyard desi birds contribute about 32.11% of India's total egg production. However, their share has remained stagnant for decades due to inherently low productivity, with annual egg output averaging only 50-60 eggs per bird. While most villagers keep non-descript desi birds, several regions also rear local breeds, crossbreeds, and improved strains developed for better performance. To enhance the potential of rural poultry farming, improved varieties suitable for free-range, semi-intensive, or even intensive systems have been promoted. Various research institutions across India have developed high-yielding backyard poultry strains such as Gramapriya, CARI-Nirbhic, CARI-Shyama, Vanaraja, Gramalaxmi, and Nicobari. Among these, the first four are dual-purpose types, while the remaining are primarily egg-type birds. A study by Roy *et al*. (2007) [7] reported that Vanaraja performed better than the RIR breed in the hill agro-climatic regions of West Bengal, particularly in terms of body weight gain and reduced mortality.

Rural poultry production systems

Production systems vary across regions depending on ecological, socio-cultural, and economic factors. These systems influence productivity, mortality rates, and overall profitability.

Extensive scavenging system

- Birds rely primarily on scavenged feed: insects, grains, kitchen waste, green vegetation.
- Minimal housing; birds roost in trees or makeshift shelters.
- Low productivity (40-60 eggs/hen/year for indigenous birds) but high adaptability.

Semi-Intensive System

- Controlled scavenging combined with 25-40% supplementary feeding.
- Improved housing with perches, nest boxes, and predator protection.
- Moderate egg production (120-150 eggs annually) depending on breed.

Intensive Smallholder System

- Utilizes formulated feed, proper housing, and health management.
- Higher growth rate with improved breeds (up to 1.5-2 kg by 10-12 weeks).
- Requires capital but offers stable production.

These systems demonstrate that productivity increases with intensification but at the cost of higher input requirements, which can challenge resource-poor farmers (Singh *et al*., 2017) [8].

Women in Rural poultry production

Ogunlade *et al*. (2013) [9] highlighted the significant socio-economic role of women engaged in rural chicken production, noting that poultry keeping is a widespread activity among rural women across many countries. Traditionally, women have been regarded as the primary custodians of rural poultry (Okitoi *et al*., 2007) [10], with most relying on indigenous domestic birds reared under extensive backyard or semi-intensive systems. Backyard poultry farming, often operated on a small scale, serves as an important income-generating enterprise predominantly managed by women (Kitalyi, 1998) [11]. According to Nielsen *et al*. (2003) [12], this system allows women to earn a steady supplemental income with minimal investment while managing production entirely within the household. Although the financial returns from rural poultry farming may be modest, it remains a familiar and accessible livelihood skill for many economically disadvantaged women. As noted by Jensen and Dolberg (2003) [13], involvement in backyard poultry rearing can help women move toward a positive economic cycle, ultimately improving their socio-economic status.

Advantages of Backyard Poultry

Backyard poultry farming offers numerous advantages, particularly for rural small-scale and marginal farmers. It provides a dependable source of employment and supplementary income while requiring minimal investment, especially in terms of feed costs. Compared to intensive poultry systems, rural chicken rearing often yields higher-value products, as free-range birds produce meat and eggs with lower cholesterol levels and better nutritional quality. Backyard poultry is also one of the most effective strategies for ensuring a steady supply of eggs and meat in rural areas, offering an affordable source of animal protein essential for combating malnutrition. The system is simple enough to be managed by any family member including women, children, and the elderly making it a household-friendly enterprise. Additionally, it contributes to savings by providing eggs, meat, and natural manure for gardens, while also serving as an enjoyable and fulfilling activity for many rural families.

Future prospects of backyard poultry farming in India

According to existing literature, birds raised under traditional backyard poultry systems are usually nondescript or desi types, characterized by low growth rates, poor productivity,

and weak reproductive performance. To enhance these outcomes, it is essential to introduce improved poultry varieties that can perform better under rural conditions. In most villages, scientific practices related to nutrition, housing, and health management are not followed, which further limits productivity. Therefore, it is increasingly important to transition from conventional backyard rearing to modern, scientifically managed backyard poultry farming. Such a shift would not only improve flock performance but also encourage more farmers to adopt this enterprise as a viable and profitable livelihood option.

Conclusions

Growth in the backyard poultry sector can undoubtedly contribute to poverty reduction in India, as most poor and marginal farmers possess limited resources and often depend on poultry farming for their livelihood. In addition to alleviating poverty, backyard poultry can significantly improve the nutritional status of rural households, as eggs and meat from backyard birds are among the most affordable and accessible sources of high-quality animal protein.

Backyard poultry also holds immense potential for generating rural employment and enhancing women's empowerment, given that women are traditionally involved in managing household poultry. Moreover, the growing gap between the demand and supply of poultry meat and eggs in India creates considerable opportunity for expanding backyard poultry farming.

However, the growth, productivity, and reproductive performance of traditional desi backyard chickens remain low. To improve these traits, the introduction and adoption of superior, improved poultry germplasm are essential. The success of backyard poultry farming also depends on farmers adopting scientific management practices, including proper healthcare, balanced and adequate nutrition, timely vaccination, and improved housing systems.

Efforts should focus on enhancing production performance while ensuring comprehensive support services such as veterinary care, extension advisory, and market linkages, which are crucial for making backyard poultry more profitable and sustainable.

Currently, major limitations in backyard poultry include inadequate technical skills among farmers, low productivity of indigenous birds, limited access to high-quality germplasm, fluctuating feed availability and cost, and insufficient veterinary support. To overcome these challenges, it is necessary to introduce improved bird varieties suitable for backyard systems and strengthen farmers' competencies in general management, feeding, housing, and disease prevention.

Conflict of Interest

Not available

Financial Support

Not available

Reference

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