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Popular Article

Backyard Poultry Farming in India

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Abstract

Backyard poultry farming (BYPF) is one of India's most powerful tools against rural poverty and malnutrition. This article reviews the status, production systems, breeding advances, nutritional strategies, and health management practices of BYPF in India. Today, backyard poultry contributes nearly 17.8% of the country's total egg production, a feat driven largely by rural women, indigenous breeds, and improved varieties developed by institutions such as ICAR-Directorate of Poultry Research, Hyderabad. With the right policy support and community-based approaches, BYPF holds great promise for food secure and economically resilient rural India.

1. Introduction

Walk through any Indian village and you will likely see a few hens pecking at the ground, a rooster on the fence, chicks darting underfoot. These are not pets, they are working animals, part of a centuries-old tradition known as backyard poultry farming (BYPF). Archaeological evidence places chicken domestication in the Indus Valley as early as 2500 BC, with even older evidence from China around 6000 BC (Zeuner 1963; West & Zhou 1988). Domestication was followed by the migration of chickens from Asia to Europe, Africa, and the Americas, leading to the remarkable diversity of breeds we know today. The Red Junglefowl is considered the progenitor of all domesticated chickens, and the bond between poultry and people has only deepened across millennia (Alders, 2012).

Though India's commercial poultry sector has taken a quantum leap over the last five decades, this growth has been largely confined to urban and peri-urban areas. For the roughly 65% of Indians who live in villages, where the staple diet is rice or wheat and protein intake is considerably low, access to affordable eggs and chicken meat from commercial farms remains limited by cold chain gaps and low purchasing power (Rajkumar *et al.*, 2010). BYPF bridges this divide. It requires minimal investment, produces nutritious food at the household



level, and generates supplementary income for some of the country's most vulnerable families. The modern scientific phase of BYPF in India began about four decades ago, gaining momentum with the initiation of research on high-performing birds suitable for rural conditions—a transformation that continues to this day.

2. Status and Scale

Backyard poultry accounts for approximately 15.51 % or 23.13 billion of India's total annual egg production of 149.11 billion eggs (BAHS, 2025). Yet this average masks stark rural-urban inequality: production levels, transportation infrastructure, and market access differ sharply between urban centres and remote rural or tribal areas (Chatterjee & Rajkumar, 2015).

More than 70% of BYPF activity involves small traditional flocks of fewer than 20 birds per household, raised almost entirely on scavenged feed with little or no purchased inputs. The birds consume household waste, insects, fallen grains, and green fodder, utilizing resources not directly useful to humans or livestock. India practises four types of BYPF: the traditional backyard system, semi-intensive farming (50-200 birds with partial supplementation), small-scale intensive farming (200+ birds on complete rations), and native chicken farming, each serving different market and livelihood needs (FAO 2014; Rajkumar *et al.*, 2010). The selection of system depends on local market demand, availability of natural feed, food habits, and the farmer's resource base.

3. Improved Breeds: A Game Changer

The greatest transformation in Indian BYPF over the past four decades has been the development of improved chicken varieties tailored specifically for village conditions. The University of Agricultural Sciences, Bangalore, was a frontrunner, releasing Giriraja in 1989, India's first scientifically designed rural poultry variety (Ramappa, 2001). The milestone that truly changed the landscape came in 1999 when ICAR-DPR, Hyderabad released Vanaraja, a dual-purpose variety that looks like a native bird but lays 110-120 eggs annually, compared to only 40-65 eggs from indigenous hens and was accepted by farmers across diverse agro-climatic regions (FAO, 2004; Rajkumar *et al.*, 2010). Gramapriya, a prolific brown egg layer capable of over 160-180 eggs per year under farm conditions, followed. Srinidhi, is another dual-purpose variety capable of giving 150 eggs in backyard conditions. Swetasri is an egg type popularly known as white gramapriya, which survives well in backyard, capable to give 180-200 eggs (Rajkumar *et al.*, 2018).

The ideal backyard variety must resemble a native bird in appearance (multicoloured plumage, longer shanks), perform well on a low plane of nutrition, adapt to diverse agro-



climatic environments, and maintain strong natural immunity. Two breeding strategies are followed: crossbreeding for faster productivity gains, and selective breeding within indigenous breeds for permanent improvement without compromising unique traits. Selective breeding within indigenous breeds like Aseel has achieved 145 eggs per laying cycle, a remarkable jump from an unselected baseline of 64 eggs while preserving the flavourful meat, distinct appearance, and natural hardiness that consumers and farmers prize (Haunshi *et al.*, 2019; Padhi, 2016).

4. Feeding Strategies: Nursery to Free Range

BYPF rearing occurs in two distinct phases, each with its own nutritional logic. During the nursery phase (0-6 weeks), chicks are confined and require artificially provided warmth, protection from predators, and balanced nutrition. Research at ICAR-DPR established that BYPF varieties need metabolizable energy of 2400 kcal/kg and crude protein of 16%, significantly less than commercial broilers making locally prepared feeds from maize, rice bran, and oilseed cake supplemented with a vitamin-mineral premix perfectly adequate (Rama Rao *et al.*, 2005, 2006). The protein level can be further reduced to 14.5% by increasing total sulfur amino acids, offering additional cost savings for smallholder farmers. Calcium requirements of 0.7% and available phosphorus of 0.35% were found optimum for healthy bone development in young BYPF chicks.

After 6 weeks, birds are released to scavenge, foraging for 6-11 hours daily on insects, fallen grains, kitchen scraps, and green fodder (Maphosa *et al.*, 2004). However, scavenging alone cannot meet full nutritional needs. A major study across four agro-climatic zones of India, tropical, humid subtropical, cool-temperate, and semi-arid, found energy deficits of 9-20%, protein deficits of 40-50%, and phosphorus deficits of up to 83% in different regions (Prakash *et al.*, 2020). This wide regional variation makes it essential to develop region-specific supplementary feeding strategies. Evening supplementation with locally available energy-rich cereals (corn, broken rice, sorghum, millets) addresses the energy shortfall, while calcium supplementation via shell grit, stone grit, or lime powder during the laying phase prevents shell-less eggs and leg weakness in hens. The use of alternate protein sources, sesame, sunflower, cottonseed, and guar meal can keep the cost of supplementary feed low without affecting performance.

5. Health Management

Maintaining flock health under free-range conditions is one of the most challenging aspects of BYPF. Unlike commercial farms, backyard flocks cannot be managed under strict biosecurity: birds mix with wild animals, drink from open water sources, and roam through



shared village spaces. Newcastle Disease (ND) and Fowlpox are the most common and economically devastating diseases in BYPF, particularly in hot and humid coastal regions. The development of thermostable ND vaccines has been a game changer, removing the cold chain requirement that previously made vaccination impractical in remote areas (Alders & Pym, 2009). Community-based vaccination drives led by NGOs, para-vets, and local government extension workers have proven effective both in India and Sub-Saharan Africa (Alders *et al.*, 2010). Birds are also exposed to avian influenza, infectious bronchitis, infectious bursal disease, and Marek's disease, all of which require regular monitoring.

Internal parasites (nematodes, cestodes, trematodes) and external parasites (lice, mites, fleas, bugs) are pervasive under free-range conditions due to constant exposure to contaminated feed, water, and soil. Periodic mass deworming at six-monthly intervals is standard practice in India, typically scheduled a week before ND vaccination to improve immune response. Providing fresh drinking water in the early morning, before birds leave to scavenge, significantly reduces infection from contaminated sources. Keeping poultry houses dry and well-ventilated minimises the risk of external parasitic infestation. Improving veterinary extension services, disease surveillance, and accurate reporting at the village level remains a critical priority for the long-term health and productivity of BYPF systems (Alders, 2012).

6. Women, Income and Nutrition

Backyard poultry is, in a very real sense, women's work. Women manage the overwhelming majority of BYPF activities such as feeding, watering, cleaning, and selling birds and eggs. In Zimbabwe, studies have found that 95% of village poultry flocks are owned and managed by women (Mapiye *et al.*, 2008), and very similar patterns hold across rural India. BYPF is considered an integral income-generating activity for women in developing countries, drawing on locally available, low-cost inputs such as household waste, green fodder, insects, and small amounts of supplementary feed (FAO 2007; Sambo *et al.*, 2015). For rural women who have few other avenues for independent income, the backyard flock provides financial agency, social standing, and nutritional leverage for their families (Sharma & Chatterjee, 2009; Rajkumar *et al.*, 2010).

The economics are modest but genuinely meaningful. A unit of just 20 Vanaraja birds can generate net returns of approximately Rs. 5,200, while 20 Gramapriya hens can yield around Rs. 7,000 under traditional backyard conditions (Rajkumar *et al.*, 2018). On a per-pair basis, Vanaraja delivers a net profit of Rs. 595-705 and Gramapriya Rs. 820-930. A study from Arunachal Pradesh found Vanaraja farming 46.78% more profitable than native chicken



rearing, with a benefit-cost ratio of 2.84 (Baruah & Raghav, 2017). Beyond direct income, eggs and chicken provide high-quality animal protein that is otherwise scarce in village diets dominated by rice or wheat. The visible nutritional impact of BYPF has been particularly noted in North-Eastern hilly regions, remote tribal communities, and other areas where protein deficiency and malnutrition are most acute.

7. Conclusion

Backyard poultry farming in India simultaneously addresses protein malnutrition, rural unemployment, women's empowerment, and household income security. The introduction of improved chicken varieties, region-specific nutritional strategies, and community-based health models has elevated BYPF from mere subsistence to a genuinely remunerative activity. Challenges remain, flock health, marketing channels, genetic erosion of native breeds, and region-specific nutritional gaps, but each is surmountable with institutional support and farmer-centric research. As India pursues doubling farmers' incomes and achieving nutrition security, the backyard flock deserves a central place in national agricultural policy. The next time you see a hen scratching in a village yard, remember: she is working for India.

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