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## Propagation of backyard poultry farming for nutritional security in rural areas

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### Abstract

Poultry production has been a household activity in India since time immemorial. India ranks 3rd in egg production and 7th in chicken meat production in the world. In India most of the commercial poultry production is concentrated in urban and peri urban areas. Backyard poultry farming plays a major role in the rural economy and women empowerment. Though, still it is contributing 30% to the national egg production, the rural backyard poultry is the most neglected one. The major limiting factor in the way of increasing consumption of egg and poultry meat in the rural area is the poor availability. The demand of eggs and meat of rural areas to be met by backyard poultry rearing. Backyard poultry rearing also finds an important role to fulfill the need of stress free and harmful residues free birds. The sale price of eggs and birds on free range rearing were much higher than the sale price of commercial eggs and broilers.

**Keywords:** Backyard poultry, nutritional security, rural economy

### Introduction

The poultry industry in India represents a major success story in the present era in agricultural production arena. Poultry production has been a household activity in India since time immemorial. However, scientific poultry production in India gained momentum during the last four decades due to concerted efforts of the Government of India through policies, institutions and focused research besides the initiatives taken by the private sector. India ranks 3rd in egg production and 7th in chicken meat production in the world <sup>[1]</sup>. Though, India has a vast poultry population around 40 per cent of the birds in the country are in the backyard <sup>[2]</sup>. In India most of the commercial poultry production is concentrated in urban and peri urban areas. India has 72.22 per cent of its population living in rural areas and about 89 per cent rural livestock householders' rear poultry as an important supplementary source of cash income <sup>[3]</sup>. Much of the eggs and meat produced are consumed by the urban or semi urban population while the rural and tribal areas have little access therefore the villages must have to be independent in the poultry production to meet their need. The rural populace has less purchasing power. They can take upper hand in backyard poultry rearing to fulfill their needs. The demand of eggs and meat of rural areas to be met by backyard poultry rearing <sup>[4; 5; 6]</sup>. The cage rearing of poultry are no more encouraging from the welfare issue point of view. Backyard poultry rearing also finds an important role to fulfill the need of stress free and harmful residues free birds <sup>[7; 8]</sup>.

Traditional / backyard poultry farming plays a major role in the rural economy and women empowerment. Though, still it is contributing 30% to the national egg production, the rural backyard poultry is the most neglected one <sup>[9]</sup>. The major limiting factor in the way of increasing consumption of egg and poultry meat in the rural area is the poor availability. The rural people can take the advantages of this poor availability and divert them towards this rural poultry farming. High rise of feed cost, unavailability of good germplasm, high disease incidence and mortality, predation, shortage of scavenging area, resistance from the neighbours, malnutrition in birds, low egg production, lack of veterinary assistance in the villages, lack of awareness and knowledge about poultry practices often become major hindrance in rural poultry production. There is wide gap for the per capita availability of eggs in rural and urban India.

About 25 per cent of the people living in urban areas consuming 75 per cent of the eggs and almost 100 per cent of the broilers produced in India because most of the commercial poultry egg and meat production is concentrated in the urban and semi urban areas. Due to their operation being of an industrial nature, the private sector is not inclined to go to the rural areas, particularly to the landless and small farmers including women. For the poorest of the poor and the landless, the major issues are food security and supplementary income generation, which are not addressed by the private commercial sector.

Poultry sector especially backyard farming plays a crucial role in livelihood of millions of people and women empowerment. The health conscious people are ready to pay more money for the free range poultry product. The sale price of eggs and birds on free range rearing were much higher than the sale price of commercial eggs and broilers<sup>[10]</sup>.

In India most of the commercial poultry production is concentrated in urban and peri urban areas. Traditional poultry farming plays a major role in the rural economy which account for about 80% of the world's poultry production. Poultry population in rural areas has increased marginally from 63 million to 73 million in past 35 years. The incidence of protein hunger among susceptible groups like children, women, pregnant mother and aged people can be alleviated by adopting small scale poultry farming in backyards of rural households. The backyard poultry relies on cost inputs in the form of kitchen waste, cheap locally available grains, tender leaves of grasses, worms, insects and other material available for scavenging. In every village it is essential to establish backyard poultry to provide high quality protein as a

nutritional security to vulnerable groups and supplementary income using minimum inputs.

### What is Back yard Poultry?

According to Mandal *et al.*<sup>[6]</sup> it is a low input or no input business. It is characterized by indigenous night shelter system<sup>[11; 12]</sup>, scavenging system<sup>[13; 14]</sup> with little supplementary feeding<sup>[11; 15; 12]</sup>, natural hatching of chicks<sup>[16]</sup>, poor productivity of birds<sup>[17; 18]</sup>, local marketing<sup>[11; 19; 12]</sup> and no health care practice<sup>[11; 12]</sup>.

### The characteristics essential for scavenging chicken

**Colour of birds:** The rural people preferred the dual purpose coloured birds which lay brown shelled eggs. Better immune competence has been reported for coloured birds in comparison to white plumage.

**Morphology and temperament of birds:** The lighter bird with longer shanks and strong wings has a greater chance of escaping from predators by fast running and flying to reach a safer place.

**Disease resistance:** The birds to be used in scavenging must be resistant to common poultry diseases as they have to roam in to dirty surroundings in search of food and water.

**Self propagation:** Self propagation is essential requirement for the scavenging birds as it is difficult to get the replacement stocks. Local birds are good mothers.

Poultry enterprises may vary from basic backyard poultry keeping to mechanized and automated production plants. Various types of poultry enterprises are illustrated in Table 1.

**Table 1:** Types of poultry enterprises

	Backyard poultry	Farm flock	Commercial poultry farm	Specialized egg production	Integrated egg production
Subdivision of egg production	Pullet growing, feed production	Hatchery production separate from farming	Feed production separate from poultry farms	Chicken meat production becomes independent of egg production	Separate enterprises reintegrated as a business
Main management characteristic	Natural hatching	Artificial hatching and sexing	Feed mixing	Egg processing plant	Controlled-environment houses
Type of farming	Subsistence farming	Mixed farming	Joint egg and meat production	Eggs industry(single commodity)	Egg complex
Labour	Part-time	Part-time	Full-time	Division of management and labour	Separate daily work and random work
Building	Free range	Water feeder	Water feeder	Manure disposal equipment	Egg belt automatically controlled house

Backyard poultry production is at the subsistence level of farming. Birds live free range and hatch their own eggs. Their diet is supplemented with crop by product, waste or food leftovers. The labour involved in backyard poultry production is part-time.

Farm flock production is slightly more specialized. Eggs are hatched at a separate location where the hatch and the sexing of the birds are controlled.

Commercial poultry farm production involves full-time labour and is geared toward producing on a sufficient scale for the sale of both eggs and poultry meat.

Specialized egg production consists of separating poultry for meat and egg production. In the egg producing plant, specialized employees oversee specific aspects of egg production.

Integrated egg production is the most advanced enterprise and involves full mechanization and automation of the egg

production cycle including battery egg laying, temperature controls, scientific feeding and mechanized egg collection methods.

### Why Rural /Backyard/Family Poultry?

- Rearing of rural poultry hardly requires any infrastructure.
- Alleviates protein malnutrition in vulnerable groups viz. expectant women, feeding mothers and children in rural / tribal populations.
- Birds under backyard farming efficiently convert the wastes material (insects, ants, fallen grains, green grass, kitchen waste, vegetable waste etc.) into high quality proteins for human consumption.
- It provides additional/subsidiary income to the rural households (mainly women) and can met the day to day expenses.

- Rearing birds in small numbers in backyard can minimize environmental pollution which is otherwise a major problem with the intensive poultry farming.
- The backyard poultry can easily integrate with other agriculture, horticulture, fisheries and livestock farming practices.
- The chicken also serves as an efficient waste disposal system.
- Maintain soil fertility- 15 no. of chicken produces 1 -1.2 kg of manure per day which can directly apply in the field.
- The free range poultry products fetches more prices than commercial poultry products as it is stress free.
- Low cholesterol concentration in eggs produced by free range birds.
- Generate employment opportunity in rural areas and help in checking migration of people to urban areas.
- Provides egg and meat with almost no or meager investment through backyard poultry farming in free range system.
- Little supplementary feeding can also improve the performances of rural poultry.
- Indigenous poultry meat and egg are always preferred by the people because of the characteristic flavor, aroma and taste.
- The meat from indigenous poultry like Kadaknath has aphrodisiac property.
- Rearing of native fowl is of socioeconomic importance which requires low or no inputs.
- Rearing of local poultry can contribute to family nutrition.

Introduction of a dual-purpose bird like Vanaraja, Giriraja, Gramapriya, Krishna-J, Kalinga brown, Krishi bro etc. which have higher genetic potential, resembling the 'desi' (indigenous) birds in their physical characteristics, hardiness and colour, more egg laying capacity in the scavenging (free ranging) system, better body weight have gained popularity throughout the country.

Some of the improve varieties developed by various organizations /agencies which resembled to indigenous birds but performed better than indigenous poultry under low input systems are given in table 2.

**Table 2:** Improve varieties of Chicken developed by various organizations /agencies

Name	Type	Organization
Cari Nirbheek	Dual type	Central Avian Research Institute, Izatnagar
Cari Shyama	Dual type	Central Avian Research Institute, Izatnagar
Upcari	Egg type	Central Avian Research Institute, Izatnagar
Hitcari	Egg type	Central Avian Research Institute, Izatnagar
Cari-Devendra	Dual type	Central Avian Research Institute, Izatnagar
Cari Sonali	Egg type	Central Avian Research Institute, Izatnagar
Cari Priya	Egg type	Central Avian Research Institute, Izatnagar
Vanaraja	Dual type	Directorate of Poultry Research, Hyderabad
Gramapriya	Dual type	Directorate of Poultry Research, Hyderabad
Srinidhi	Dual type	Directorate of Poultry Research, Hyderabad
Swarnadhara	Dual type	UAS, Bangalore
Giriraja	Dual type	UAS, Bangalore
Girirani	Dual type	UAS, Bangalore
Krishna-J	Dual type	JNKV, Jabalpur
Nandanam	Dual type	TANUVAS, Chennai
Krishipriya	Dual type	Kerala Agricultural University
Gramalaxmi	Egg type	Kerala Agricultural University
Kuroiler	Dual type	Kegg farms Pvt Ltd, Gurgaon
Jharsim	Dual type	BAU, Ranchi
Pratapdhan	Dual type	MPUAT, Udaipur
Kamrupa	Dual type	Assam Agricultural University, Guwahati
Kalinga Brown	Egg type	CPDO, Bangalore
Kaveri	Egg type	CPDO Bangalore
Chabro	Meat type	CPDO Bangalore
Satpura desi	Dual type	Yashwant Agritech Pvt Ltd.
Nicobari	Egg type	CARI, Portblair

The exotic birds were tried for rearing in backyard/rural poultry production but they are not successful due to high mortality & poor performance due to low input management and harsh climatic conditions. Panda <sup>[20]</sup> reported that the eggs and meat produced from the backyard sector accounts 40% of the total production of our country but almost all these are utilized by urban people because poor people earning money by selling these produce to purchase their minimum livelihood. Besides chicken other poultry birds like duck, turkey, swan etc. can also be reared in backyard for nutritional security as well as for subsidiary income in rural areas.

Backyard/ free range poultry farming is characterized by rearing chicken in small numbers (10-15) by each household in the backyards under free range system. The birds are allowed for foraging during the day time while at night they are provided with shelter, made of locally available low cost

materials. Having realized the importance of backyard poultry farming in India, the scientist of ICAR and State Agricultural Universities developed several varieties for backyard farming mostly in tribal areas are reported that they perform much better than the local/desi chicken. Some of them are listed below.

Thus there is a need to take up specific rural poultry production programs, to meet the requirements of the rural consumers while constituting a source of subsistence income as a subsidiary occupation by taking up colored bird units ranging from 20 to 50 birds per family in their backyards. Such units require very little hand feeding and can give a fairly handsome return with bare minimum night shelter.

For the development of backyard poultry in the rural and tribal areas, the government, however, should extend all support to this system of production since this is a means of

livelihood of poorer sections of the society and will help in food production, food security, gender equity and providing employment to the rural women. Improvement of local breeds and their conservation for future use also should be the joint responsibility of the Government and farming community to make backyard poultry a grand success.

### Constraints of backyard poultry

- 1. Low productive and reproductive efficiency:** The productivity in indigenous birds is very much low. Hens usually lay 50-70 small eggs/hen/year under backyard conditions. Village chickens reach sexual maturity at about 6 months of age.
- 2. Mortality:** The most common reason of the high mortality rates observed in small scale poultry flocks, particularly in tropical countries, is Newcastle disease [21; 22]. Most common predators are dogs, cats, snakes, eagles, hawks and thieves.
- 3. Veterinary health care and extension services:** In rural areas there is a lack veterinary health care and extension service for backyard poultry.
- 4. Housing and nutrition:** Only night shelter can protect chickens from weather extremes. Little supplementary feeding can improve the birds performance.

### Strategies for improvement of backyard poultry

**Self Help Groups:** Formation of Self Help Group (SHG) to take this activity for promoting rural development. Women folk are an important workforce in the rural areas to carry out the farming activities.

**Insurance:** Community Managed Insurance of birds could be done for protecting households against these risks and as well as to assure asset replacement.

**Vaccination:** Women can be trained for poultry vaccination. Total vaccination can be planned by SHGs at village level or gram panchayats.

**Chick rearing centres:** Regular availability of chicks is to be made by Chick rearing centres at reasonable rates.

**Community Hatchery:** Community hatchery should be established at village/Panchayat levels to facilitate the beneficiaries for hatching their eggs.

### Conclusion

The poor and marginal farmers are mostly dependent on poultry farming for their livelihoods; growth of the rural poultry sector can definitely contribute to poverty alleviation in India. Village chickens provide cheap, readily harvestable protein-enriched white meat and eggs with high quality, digestible protein for immediate home consumption and sale for income generation. Therefore it is very much necessary to raise awareness about this activity. It can not only give employment to the rural small and marginal farmers but can also play an important role in women empowerment and overall socioeconomic development.

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