



## Rural Poultry Farming with Improved Breed of Backyard Chicken

P.K. Pathak and B.G. Nath\*

ICAR-Research Complex for NEH Region, Sikkim Centre, Tadong-737102, Sikkim, India

\*Corresponding author's email: drbichitra.nath@gmail.com

### ABSTRACT

Livestock and poultry rearing is an imperative factor for improving the nutritional security of rural poor in India. Rural farmers rear *Desi* type chicken with low egg and meat production in backyard system. For developing the rural poultry farming, improved backyard poultry like Vanaraja/Gramapriya birds rearing is of utmost important. These improved birds can rear in both intensive and free ranging system. Birds can be reared for egg production in small numbers (10-20) in free range conditions if plenty of natural feed resources are available. Chicks need brooding during initial 6 weeks of age to maintain the required body temperature and to protect from predators. In nursery rearing, feeding of broiler starter up to 28 days is better option but it can also be formulated with locally available materials. At 42 days of age, the birds can be let out under backyard free-range conditions. Birds should be vaccinated specifically against the Newcastle disease and fowl pox. The backyard poultry farming with improved birds provide a solution to food security to the needy villagers paving a way for sustainable agriculture in rural areas of India.

**Keywords:** Backyard Chicken, Gramapriya, Rural, Vanaraja

### INTRODUCTION

Livestock and poultry sector provide a major contribution to India's economy (Nath et al., 2012). In poultry sector impressive growth has been achieved in the intensive poultry farming in India, but the rural poultry sector remained rather stagnant. The native chicken varieties adopted in free-range backyard conditions for centuries contribute about 11% of total egg production in India (Kumaresan et al., 2008). Due to their low productivity (annual egg production: 50-60 nos.), their contribution to the total egg output was almost static for the last few decades.

Therefore, the consumption of eggs in rural areas is far below the national average egg consumption. Increasing the genetic potential of the local native chicken varieties greatly helps in increasing the availability of poultry meat and eggs in rural areas.

#### Rural poultry farming

Rural poultry farming involves rearing of improved chicken varieties under free range, semi intensive or intensive conditions (Buragohain et al., 2007). Rearing method largely depends on the type of the bird reared, availability of resources and the preference of the local population for meat or eggs. Specific varieties of birds are available for rearing for meat or eggs and few varieties for both (dual purpose). Having realized the importance of backyard rural poultry farming (RPF) in India, several research organizations developed different backyard chicken varieties which are presented in Table 1.

**Table 1.** Different improved breed of backyard chicken

Name	Feather pattern	Purpose	Organization
Gramapriya	Multicolour	Dual	PDP, Hyderabad
CARI- Nirbhic	Multicolour	Dual	CARI, Izatnagar
CARI- Shyama	Mixed colour	Dual	CARI, Izatnagar
Vanaraja	Multicolour	Dual	PDP, Hyderabad
Gramalaxmi	Mixed brown	Egg	KAU, Mannuthy
Nicobari	Black and white	Egg	CARI, Portblair

#### Advantages of rural poultry farming

- Alleviates protein malnutrition in vulnerable groups viz. expectant women, feeding mothers and children.
- Waste material (insects, ants, fallen grains, green grass, kitchen waste, vegetable waste etc.) can be efficiently converted in to egg and chicken meat for human consumption.
- Minimizes environmental pollution per unit poultry produce, which is otherwise a major problem with the intensive poultry farming.
- Provides additional income to the rural households (women).
- Integrates well with other agricultural operations.
- Aids in enhancing the soil fertility in backyards (15 chickens produce 1- 1.2 kg of manure/day).
- Produce of rural poultry farming fetches high price compared to those produce from intensive poultry Farming.

h) Eggs and meat from birds reared under free range conditions have low cholesterol concentration compared to those produced under intensive poultry farming.

i) Generate employment opportunity in rural areas and help in checking migration of people to urban areas.

j) Provides egg and meat with almost no or meager investment through backyard poultry farming in free range system.

In rural areas of India, chicken reared in backyard are mostly *Desi* type with low egg and meat production (Ghosh et al. 2005) and there is need of introduction of improved dual purpose bird having capacity to lay more eggs and gain higher body weight than the local or *Desi* birds.

#### Promising features of Vanaraja/ Gramapriya

a) Natural and attractive- multi- color feather pattern.

b) High general immune competence, so perform better under adverse condition.

c) Perform better even with poor quality diets.

d) Grow faster and produce more eggs than *Desi* hen.

e) Produce brown eggs like *Desi* hen.

#### Management of Vanaraja / Gramapriya chicken

Vanaraja/ Gramapriya birds can be reared for egg production in small numbers (10-20) in free range conditions if plenty of natural feed resources are available. But if the local demand is for meat, they can be reared in large number under intensive/ semi-intensive conditions by providing all inputs similar to commercial broilers. These birds need to be reared under proper nursery management up to 6 weeks and later they may be released in free range after 6 weeks of age.

#### Brooding management

Vanaraja/Gramapriya chicks need brooding during initial 6 weeks of age to maintain the required body temperature and to protect from predators. Metal, wooden or any other low cost brooding materials can be used for the purpose and electric bulbs (2 Watts/ chick) can be used as a heat source. The movement of the chicks can be restricted near by the heat source with the help of chicks guard. Initially about 7-10 sq. inches space is recommended per chick under brooder.

#### Housing

Emphatically housing is more important for poultry management. Poultry house may be constructed with available low cost construction materials like bamboo, wooden planks, thatch grass, polythene sheets etc. For rapid growth of Vanaraja and Gramapriya chicken, sufficient space is required for each bird which is presented in Table 2.

**Table 2.** Space requirement for Vanaraja/ Gramapriya chicken

Age (Weeks)	Floor space (ft <sup>2</sup> )	Feeding space (cm)	Watering space (cm)
0-4	0.5	2.5	1.5
4-8	1.0	5.0	2.0
8-12	2.0	6.5	2.5

#### Litter management

Litter materials are used in deep litter system of rearing to absorb moisture from poultry droppings and also provide warmth in winter, coolness in summer. Suitable litter materials like saw dust, rice husk, pieces of hay and straw can be spread up to 5-10 cm thickness and that should be stirred frequently and treated with slaked lime to avoid caking.

#### Feeding management

While rearing the bird under nursery management, complete balanced feed contacting all nutrients; minerals and vitamins should be given. In nursery rearing, feeding of broiler starter up to 28 days is better option but it also can be formulated with locally available materials. Maize is the main feed component for poultry in rural areas. Feeder and waterer can be made of bamboo, card board, boxes etc. and it is important to ensure easy access of feed to all the birds.

Feeding and watering space has to be increased as they grow up. Fresh and clean water should be available at all times as water is one of the important nutrients which are essential for proper body growth and production.

#### Health care management

Backyard poultry birds (Vanaraja/ Gramapriya) should be vaccinated specifically against the Newcastle disease and fowl pox as per the vaccination schedule presented in Table 3.

**Table 3.** Vaccination schedule for Vanaraja/Gramapriya birds

Age	Name of the vaccine	Strain	Dose	Route
<b>In the Hatchery</b>				
1 <sup>st</sup> day	Marek's Disease	HVT	0.20 ml	S/C injection
5 <sup>th</sup> day	Newcastle Disease	Lasota	One drop	Eye drop
14 <sup>th</sup> day	Infectious Bursal Disease	Georgia	One drop	Oral drop
21 <sup>st</sup> day	Pox	Fowl pox	0.20 ml	IM/SC injection
28 <sup>th</sup> day	Newcastle Disease	Lasota	One drop	Eye drop
<b>In the Field</b>				
9 <sup>th</sup> week	Newcastle Disease*	R2B	0.5 ml	S/C injection
12 <sup>th</sup> week	Pox*	Fowl pox	0.20 ml	S/C injection

\*Repeat these two vaccines at every 6 months interval

### Management under free range system

At 42 days of age, these birds will attain 650-750 g weight and by the time they are ready to keep in free range system. These birds can be let out under backyard free-range conditions (10-20 birds/household) depending upon the housing area and natural feed base available. These birds are let loose in day time for foraging while they require shelter at night time. Clean drinking water should be provided before letting them out from the night shelter. The male can be sold when it attains marketable weight of 2-2.5 kg and female should be raised for egg production. Two to three males in a flock of 10-20 birds should be kept to get fertilized eggs for hatching.

### Feeding management

Vanaraja/ Gramapriya birds under free-range can easily pick up its food the backyards once it learns to scavenge in the household surrounding. Under free-range conditions the necessity of supplementary feed/feed ingredients mostly depends on the free area available in the backyards, intensity of vegetation and availability of waste grains, insects, grass seeds etc. Generally, the birds under free-range conditions can meet their protein requirement through scavenging, but, the possibility of energy deficiency is common. Therefore, feeding the birds with different locally

available cereals (like maize, bajra, ragi, jowar, broken rice, with equal parts of rice polish or rice bran) is always beneficial to sustain the production under free-range conditions (Bhattacharya et al., 2005). If the problem of broken/ shell less eggs observed, calcium source (lime powder, shell grid etc.) should be supplemented @ 3-4g/ bird/day

### Health management

The most important diseases that affect birds under free range farming is the Newcastle (Ranikhet) disease. Night shelter should have good ventilation, adequate light and protection from predators. The materials used for night shelter such as wood and bamboo offer a good hiding place for external parasites. Therefore periodic cleaning of night shelter is essential. Since the chicks move in free range, there is a possibility of parasitic infestation. The deworming at 2-3 months interval is required.

Under free-range conditions, adult birds should be vaccinated against Newcastle disease at 6 months interval, preferably before the onset of summer. Vaccination of native birds along with Vanaraja/ Gramapriya is recommended. The performance of improved breed (Vanaraja/Gramapriya) of chicken under backyard system of rearing is presented in Table 4.

**Table 4.** Comparative performance of Vanaraja, Gramapriya and Local chicken under backyard system of rearing

Parameter	Performance		
	Vanaraja	Gramapriya	Local chicken
Mortality up to 10 weeks	Less than 5%	Less than 5%	Less than 4%
Mortality up to 20 weeks	Less than 10%	Less than 12%	Less than 8%
Mortality during laying stage	Less than 12%	Less than 15%	Less than 10%
Average age at first lay (days)	152	145	184
Average body weight at first lay (g)	2.30	2.18	1.25
Average annual egg production (nos.)	171	178	60
Colour of egg	Tinted	Tinted	Tinted
Average Egg weight at 40 <sup>th</sup> weeks (g)	51	49	41

### Suggestions for obtaining high returns from backyard poultry farming

- Protect from predators.
- Provide additional concentrate feed.
- Provide clean and fresh drinking water.
- Provide optimum space to avoid overcrowding.
- Proper vaccination, de-worming and veterinary care.
- Regular disinfection of poultry house and surrounding.

The backyard poultry farming with improved birds provide a better livelihood security to the poor farmers paving a way for sustainable agriculture in rural areas.

### REFERENCES

Bhattacharya M., Buragohain R., Ahmed FA., Pathak PK. and Ghosh MK., 2005. Laying performance of Vanaraja birds in high altitude areas of Arunachal Pradesh under backyard system of rearing. Conference and National Symposium,

Indian Poultry Science Association, Project Directorate on Poultry, Hyderabad, from 2-4 February 2005. pp 198

Buragohain R., Ghosh MK., Ahmed FA., Pathak PK. and Bhattacharya M. 2007. Growth performance of Vanaraja birds in high altitude areas of Arunachal Pradesh. Indian Veterinary Journal, 84: 302- 303

Ghosh MK., Ahmed FA., Buragohain R., Pathak PK. and Bhattacharya M. 2005. Growth performance of Vanaraja birds in high altitude areas of Arunachal Pradesh under Backyard system of management. XXII Annual conference and National Symposium, Indian Poultry Science Association, Project Directorate on Poultry, Hyderabad, from 2-4 February 2005. pp 198  
Kumaresan A., Bujarbaruah KM., Pathak KA., Chettri B., Ahmed SK. and Haunshi S. 2008. Analysis of a village chicken production system and performance of improved dual purpose chickens under a subtropical hill agro- ecosystem in India. Tropical Animal Health Production, 40, 395-402.

Nath BG., Pathak PK. and Mohanty AK. 2012.  
Constraints Analysis of Poultry Production at  
Dzongu Area of North Sikkim in India. Iranian  
Journal of Applied Animal Science, 2 (4), 397-  
401.