



# Poultry Farming : A Sustainable Livelihood Option for Tribal and Rural Women in Srikakulam District, Andhra Pradesh

Ch Balakrishna\*, K Bhagya Lakshmi, S Neelaveni, V Hari Kumar, S Kiran Kumar, B Suneetha, S Anusha and B Mounica

ICAR-Krishi Vigyan Kendra, Acharya N G Ranga Agriculture University,  
Amadalavalasa, Srikakulam Dt. Andhra Pradesh-532185

## ABSTRACT

The present study was conducted by Krishi Vigyan Kendra, Srikakulam to evaluate the productive and economic parameters of the improved breeds such as Vanaraja, srinidhi and Rajasri birds in the backyards as an income generation activity. Rural and tribal women of North coastal Andhra Pradesh are traditionally involved in rearing of back yard poultry as a livelihood option. Back yard poultry farming in Srikakulam district is mainly dependant on raising indigenous poultry birds which are slow in growth, poor food conversion ratio as well as prone to diseases frequently. A total of 150 units, with 20 birds, waterer and feeder each were supplied, to farm women spreading 74 villages, in 23 mandals in the district. One month old birds were supplied after completion of early day's vaccination schedule. Technical assistance was given to the farmers through skill training programs, group discussions, advisory services and diagnostic field visits to enhance the knowledge level. The growth and economic parameters were collected by conducting field level survey. The results of the study revealed increased growth rate (116%) as well survival (93%) was observed, benefit cost ratio 2.02 and 1.05, and net returns per unit Rs.5150/- and Rs 220/- in superior breeds vanaraja/srinidhi and local birds respectively.

**Key Words:** Backyard poultry, improved breeds, Livelihood, Rural women, Economic empowerment

## INTRODUCTION

In India, the expansion poultry industry has been restricted to commercial poultry farming. Even though, about 15-20 percent of total poultry output is derived from "backyard" production, almost 11 % of national egg production was from back yard poultry (Kumaresan *et al.* 2008) most of the production is consumed by urban and semi urban areas and consumption by the rural people was quite low.

Backyard poultry plays an important role in poverty alleviation by generating additional income and nutritious food in rural and tribal areas (Singh *et al.*, 2022). There are several other reasons like provision of quality animal protein, source of additional income and religious/cultural considerations for taking up back yard chicken

rearing by rural and tribal communities (Alders *et al.*, 2009). According Pica-Ciamarra and Otte, (2008), statistically a landless poor agricultural labour family starts with 1 or 2 non-descript low yielding local or desibirds in the backyard, which will grow up into an average flock size of 8 to 9 birds per household. These backyard flocks only make a negligible contribution to rural livelihoods, as the net income per bird or say month was very low with respect to standards or poverty line set by the Government of India (Ghosh *et al.*, 2005). Poultry breeders from different research organizations, State agriculture universities in association with department of Animal Husbandry have understood the significance of backyard rural poultry farming in India. The initiation has lead for successful developing different backyard poultry

breeds, which were penetrating fast into the backyard poultry farming by farmers from many parts of the country. These superior breeds include: Egg type: Gramapriya, Athulya, Krishi layer, Swethapriya, CARI Sonali, CARI Priya. Meat type: Krishibro, CARIBRO Vishal, CARIBRO Dhanraja, CARIBRO Mrityunjay, CARIBRO Tropicana. Dual purpose: Vanaraja, Giriraja, Swarnadhara, Gramalakshmi, Gramasree, Srinidhi, Kamrupa, Narmadanidhi, Pratapdhan, Jharsim, CARI Debendra, CARI Hitcari, CARI Upkari, CARI Shyama, CARI Nirbheek

In India nearly half of the population is women and rural and tribal women mostly involved about 60-75 % activities of agricultural and animal husbandry comparing with men (Deka *et al*, 2014). Women in rural and tribal areas of North coastal Andhra Pradesh are traditionally involved in rearing of backyard poultry as a livelihood option and enormous scope and perspective for the poultry farming in rural area (Bhattacharjya *et al*, 2020). Hence promoting backyard poultry tribal and rural areas was identified as suitable activity for income generation and to improve the nutritional status of family as a whole. Krishi Vigyan Kendra, Srikakulam was involved in rural development activities since 1985, out of many of these activities KVK Srikakulam has demonstrated rearing of superior breeds like Vanaraja, srinidhi and Rajasri birds in their backyards as an income generation activity especially for rural and tribal women under ATMA, NICRA and TSP programmes.

## MATERIALS AND METHODS

Superior breeds of Vanaraja, Srinidhi, Rajasri variety of unsexed day old chicks were procured from Directorate on Poultry, Hyderabad and PVNR Telangana state veterinary university, Hyderabad and transported to KVK Srikakulam. These chicks were reared in deep litter house at Poultry unit, up to 4wk on the balanced diet and vaccinated as per the recommended protocol (Table 1). To ensure successful implementation of the programme, the beneficiary identification was done by involving different organization like NGOs like CAVS, ARTS, BREDS, and BYC etc. The criteria for selection of beneficiaries were adopted for rearing of superior birds on the basis of their income, knowledge aspects involved in the rearing and management of poultry birds. A total of 150 families were identified and distributed about 3000 number of one month old superior variety chicks (20 numbers to each beneficiary). Out of which 50% of units were belong to the tribal communities. The beneficiaries identified were provided capacity building to family both wife and husband to strengthen their livelihood improvement, knowledge and economic empowerment. During the training programme knowledge test of trainees was conducted before demonstration to assess the improvement of knowledge through the demonstrations.

The production parameters such as survival, body weights of both cock and hen, percentage increase in body weight after six months of rearing was recorded. In addition reproductive parameters such as age at first sexual maturity, egg production

**Table 1. Vaccination Schedule**

Age	Disease	Vaccine	Dose	Mode
1 <sup>st</sup> Day	Merex	H.V.T.	0.2 ml	Below Skin
7 <sup>th</sup> Day	Newcastle	Lasota	One Drop	In Eye
15 <sup>th</sup> day	IBD (Infectious Bursal Disease)	Gumboro	One Drop	In Eye
21 <sup>st</sup> Day	New Castle (Booster )	Lasota	One Drop	In Eye
28 <sup>th</sup> Day	IBD (Booster )	Gumboro	One Drop	In Eye
9 <sup>th</sup> Week	Newcastle	R 2 B	0.5 ml	Below Skin

**Table 2. Production parameters of poultry birds.**

Age of birds	Mean Survival %	Superior birds (Kgs)		Mean Body weight	Country birds (Kgs)		Mean Body weight	% Increase in body weight		Average
		Cock	Hen		Cock	Hen		Cock	Hen	
6 months	85-93	2.725	2.125	2.425	1.25	1.0	1.125	120	112	116

per year, and mean egg weight and economic parameters viz. total cost, net returns, and BC ratio, were collected from the beneficiaries through making frequent visit to the demo units.

## RESULTS AND DISCUSSION

### Productive Parameters of backyard poultry

The data (Table 2) showed that the average body weight gain superior variety and desi birds were 2.425 Kg and 1.125 Kg, respectively. The results were showing an increased body weight in male and female is 120% and 112 % respectively with an average of 116% similar results were reported in earlier studies by Singh *et al* (2018) and Nirmala *et al* (2020).

In the present demonstration, the reproductive parameters documented were clearly noted that 2-3 time increase in average egg production compared to the locale variety from 50-80 to 160-170 eggs per female per year. Similar findings were also reported by Kumari (2009) and Mathialagan (2014) and observed more egg weight than desi bird egg. It was observed early sexual maturity i.e less than 170 d compare with local birds more than 200 d (Table 3).

In the present observation more than 85 % survival was observed where as in local birds it

is only of 70-80 %. The most common reason of the high mortality rates observed in back yard poultries was Newcastle disease (Alders *et al*, 2010 and Thieme *et al*, 2014) and can cause up to 100% mortality annually (Samal, 2011). And another reason for low survival was predators are dogs, cats, snakes, eagles, hawks and thieves. Predation can be reduced by close monitoring of birds during scavenging and keeping them in proper houses during the night.

### Economic parameters of Back yard poultry

The superior breed chicks unit consists of 20 birds were supplied to the beneficiaries at the age of one month were reared for further five months in backyards. The birds were marketed at the rate of Rs 225/- per kg. In the outside market the rate for local birds were more I.e. Rs 250/- than that of superior birds because of consumer preference. A similar result was observed when the surplus birds and eggs were sold to the consumers directly (Chaturvedani *et al*, 2015). The gross income generated through sale of birds was Rs 10150/- whereas gross income through sale of local birds is Rs 4220/-. Expenditure for rearing superior birds Rs 5000/- and local birds were Rs 4000/-. Though the market rate of local birds was more than the superior breeds the net

**Table 3. Reproductive parameters of poultry birds.**

Feature	Vanaraja/ Rajasri/Srinidhi	Desi birds
Mortality upto age of 20 weeks	Less than 10%	20-30 %
Age at first sexual maturity	152-165 d	186- 225 d
ABW at 6 months age	2.4 Kg	1.12 Kg
Egg Production per year	160-170	50-80
Mean egg weight	50 g	40 g

**Table 4. Economic parameters of back yard poultry.**

Sr. No.	Particulars	Rearing of Superior birds Vanaraja/ Sriidhi/Rajasri) in Rs.	Rearing of Desi birds in Rs.
1	Cost of birds	2000	1000
2	Feed cost	2000	2000
3	Others	1000	1000
4	Total cost	5000	4000
5	ABW	2.425	1.125
6	Survival	93	75
7	Total biomass	45.105	16.88
8	Gross returns @225/ Kg superior breeds, @ 250 for desi breed	10148.625	4219
9	Net returns	5148.625	218.8
10	BC Ratio	2.029725	1.055

income was more in case of improved breeds due to higher average body weight and survival (Table 4).

The higher net returns from this backyard poultry revealed that tribal women can generate income to develop self-employment and nutritional security. The positive trend on economic returns on rearing of improved breed chicken at their backyards will benefit to the rural and tribal women compared to native poultry strains (Kumari *et al*, 2018). The increased net returns are mainly attributed due to low infrastructure requirement for running backyard poultry (Choudhary and Kumar, 2021). Economic empowerment of women involved in backyard poultry farming was reported earlier studies in the districts of Ananthapur and west Godavari Districts of Andhra Pradesh (Reddy *et al*, 2017, Nirmala *et al*, 2020)

### CONCLUSION

Backyard poultry makes noteworthy contribution to economy. Advancement of the rural backyard poultry sector through introduction high performance breeds can definitely contribute to poverty alleviation and nutritional improvement in tribal and rural areas of Andhra Pradesh. In the present study clearly demonstrated the productivity and economic performance of backyard poultry. It is

necessary to impart capacity building programmes on improved practices by understanding the production constraints, and educating farmers can be viable options to improve backyard poultry production in rural areas.

### REFERENCES

- Alders R G, Bagnol B and Young M P (2010). Technically sound and sustainable Newcastle disease control in village chickens: lessons learnt over fifteen years. *World's Poult Sci J.* **66** (3):433–440.
- Alders R G and Pym R A E (2009). Village poultry: still important to millions, eight thousand years after domestication. *World's Poult Sci J* **65**:181.
- Bhattacharjya R, Haribhushan A, Devi T M and Karam A (2020). Backyard poultry farming, A source of livelihood support and nutritional security for the tribal people of South Garo Hills. *J Krishi Vigyan* **8(2)**:21-24.
- Chaturvedani A K, Lal N, Khyalia N K and Pratap J (2015). Empowering tribal women through backyard poultry in bastar district of Chhattisgarh. *J Krishi Vigyan* **3(2s)**: 19-22.
- Choudhary J L and Kumar L (2021). Practices adopted for backyard poultry rearing in Dungarpur district of Rajasthan. *J Krishi Vigyan* **10(1)**: 204-207.
- Deka R J, Zakir A M M and Kayastha R B (2014). Improvement of rural livelihood through rearing of Chara-Chemballi ducks in Assam. *World's Poult Sci J* ;**70(2)**:397-404.
- Thieme O, Sonaiya E B, Rota A, Alders R G, Saleque M A, and

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- De'Besi G (2014). Family poultry development– Issues, opportunities and constraints. *FAO Animal Production and Health Working Paper* 12.
- Ghosh M K, Ahmed F A, Buragohain R, Pathak P K 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:198.
- Kumaresan A, Bujarbaruah K M, Pathak K A, Chettri B, Ahmed S K 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. *Trop Anim Health Pro* **40** (6):395-402.
- Kumari K N (2009). Back yard poultry farming and improved varieties for back yard rearing. *Livest Int* **13** (2):2-7.
- Kumari P, Somvanshi S P S, Kumar A and Singh B V (2018). Livelihood security of poor families through poultry backyard rearing system in Auraiya district of Uttar Pradesh. *J Krishi Vigyan* **7** (special): 94-96.
- Mathialagan P (2014). Integration of innovations in backyard poultry rearing for empowering rural women. *Int J sci Environ* **3**(6):2190-2196.
- Nirmala T V, Reddy A D, Subbaiah K V, Raju G S, Deepthi V, Sree E K, Sreenivasulu B, Reddy R V S K and Prasad J V (2020). Backyard poultry farming: A tool for tribal women empowerment in west Godavari district of Andhra Pradesh *J Entomol Zool Stud* **8**(6): 1177-1180
- Pica-Ciamarra U, and Otte J (2010). Poultry, food security and poverty in India: Looking beyond the farm-gate. *World's Poult Sci J* **66**(2): 309-320.
- Reddy R V, Bhargavi M and Reddy K K M (2017). A Study on empowerment of rural women through backyard poultry in Anantapur district of Andhra Pradesh. *Int J Livest Res* **7**(9): 212-219.
- Samal S K (2011). Newcastle disease and related avian paramyxoviruses In: Samal, S.K. (Ed.) *The Biology of Paramyxoviruses* Caister Academic Press Norfolk United Kingdom. 69-114.
- Singh S, Chakraborty D, Altaf S, Taggar, R K, Kumar N and Kumar D (2018). Backyard poultry system: A boon to rural livelihood. *Int J Fauna Biol* **5**(1):231-236.
- Singh M, Mollier R T, Paton R N, Pongener N, Yadav R, Singh V, Katiyar R, Kumar R, Sonia C, Bhatt M, Babu S, Rajkhowa D J and Mishra V K (2022). Backyard poultry farming with improved germplasm: Sustainable food production and nutritional security in fragile ecosystem. *Front Sustain Food Syst* **6**: 962268

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