

COMPARATIVE PERFORMANCE OF DIFFERENT VARIETIES OF CHICKEN UNDER BACKYARD SYSTEM OF REARING IN TRIBAL AND RURAL AREAS OF WEST GODAVARI DISTRICT, A.P.

Dr. E. Karuna Sree¹ Dr. T. Vijaya Nirmala² and Dr. R.V.S.K. Reddy³

¹Senior Scientist & Head, KVK, ²Scientist, KVK & ³Director of Extension,
Dr YSR Horticultural University, Venkataramanna gudem, West Godavari Dist, A.P.

E-mail: kvk_vrgudemaphu@rediffmail.com

Abstract: Rural families rear *Desi* type chicken with low egg and meat production in backyard system. For developing the rural poultry farming, improved backyard poultry birds rearing is of utmost important. These improved birds can rear in both intensive and free ranging system. The growth and production performance of three chicken varieties were evaluated in the present study by KVK, Venkataramannagudem in rural and tribal areas. 1500 birds of these three breeds were supplied to rural and tribal families as demonstration and for nutritional security among the rural and tribal families during 2014-15 and 2015-16. The body weights were significantly varied in Vanaraja, Gramapriya and Aseel chicken varieties. The body weights were significantly higher in Vanaraja and Gramapriya than Aseel chicken. The comparative estimate of egg production revealed that egg production for Gramapriya is comparatively higher than Vanaraja followed by Aseel chicken. Performance of Vanaraja and Gramapriya under tropical condition of the West Godavari was found satisfactory and the birds are well adapted to local agro-climatic condition under free range system of production. The backyard poultry farming with improved birds provide a solution to food security to the needy villagers paving a way for sustainable livestock in rural areas of India.

Keywords: Egg production, Gramapriya, Body weight, Tribal farmers.

Introduction

In India, the demand for local chicken and eggs is very high as compared to the broilers and layer eggs due to their better taste, texture and flavor as perceived by the local population (Sapkota *et al.* 2002). However, the existing traditional poultry farming is unable to meet the ever increasing demand for poultry meat and eggs due to growing population of the region. Traditionally *desi* varieties are used for backyard poultry production whose production potential is very low around 60-80 eggs per year, thus making the backyard poultry less economical. Therefore, to increase the productivity of backyard poultry farming, the improved varieties which are look alike indigenous chickens are now being massively introduced in the region (Singh *et al.* 2002). At the same time there is need to collect,

characterize and improve the native chickens for production traits which will otherwise be lost in near future by genetic erosion or due to introduction of improved varieties.

Grampriya is an egg type and Vanaraja is a dual purpose variety developed at Project Directorate on Poultry for backyard poultry production in rural and tribal areas (Reddy *et al.* 2002). Aseel chicken is indigenous to India and they have greater robustness, disease resistance and well adaptability to local environment and also popular for its vigor, alertness and fighting behavior (Horst P, 1988). The present study aimed at evaluating the comparative performances of improved varieties such as Vanaraja and Gramapriya and Aseel under extensive system of rearing.

Material and Methods

A total of 1500 unsexed day old chicks were reared in deep litter house at Poultry unit, Krishi Vigyan Kendra, Venkataramanna gudem, upto 8 weeks on balanced diet and vaccinated as per the recommended protocol. At the end of 8th week, a total of 1500 birds such as Vanaraja, Gramapriya and Aseel were distributed to 171 identified beneficiaries from BPL families of rural and tribal areas of West Godavari district during 2014-15 and 2015-16. Data was collected from the beneficiaries through semi structured interview schedule. Sufficient probing and clarifications were made to make clear understanding. The data were analyzed using appropriate statistics tool.

Table 1: Families covered under demonstration

S.no	Name of the villages	No.of families covered	No.of birds supplied
1	Kamaihkunta	63	630
2	Lankapalli	23	180
3	Bandarla gudem	12	120
4	Rajanagaram	08	80
5	Pandugudem	14	120
6	Peddakapavaram	14	120
7	Vellamilli	09	82
8	Kadiyadda	07	63
9	Bangarugudem	08	40
10	Bapirajugudem	02	10
11	Krishnapuram	04	20
12	Tadepalligudem	04	20
13	Venkataramanna gudem	03	15
	TOTAL	171	1500

Results and Discussion

Table 2: Comparative performance of Vanaraja, Gramapriya and Aseel chicken under backyard system of rearing

S.No.	Name of the breed	Average Age at first egg production	Average annual egg production	Average egg weight at 40 th weeks (g)	Average body weight at 48 weeks age
1.	Vanaraja	152 days	160	51	3.22
2.	Gramapriya	145 days	178	49	2.5
3.	Aseel	184 days	62	41	1.5

Body weight is the direct reflection of growth and it influences the production and reproduction traits of birds. The average body weights at 48 weeks of age were recorded as 3.22 kg, 2.5 kg and 1.5 kg in case of Vanaraja, Gramapriya and Aseel chicken respectively. The significant effect of genetic group on body weights of chicken was reported by many workers (Mohammed et al, 2007; Devi and Reddy, 2005; Chatterjee et al, 2007) similar to the present study. The body weights at different ages in Vanaraja and Gramapriya were significantly higher. Niranjana and Singh (2005) observed higher body weights, 1860 g and 2773 g at 20 and 40 week of age in Gramapriya birds respectively.

The average age at first egg production in Aseel chicken was 184 days which was more when compared with Vanaraja and Gramapriya birds. Among these two improved varieties, age at first egg production was less in Gramapriya (145 days) than Vanaraja (152 days). This difference might be due to the genetic difference between the three groups of birds. However, Zuyie *et al.* (2009) recorded higher values of age at first egg than the present value in case of Vanaraja chicken under extensive system of rearing and Islam et al.(2014) also recorded higher values in case of indigenous chicken.

Egg production determine the success of poultry enterprise. The comparative estimate of egg production revealed that egg production for Gramapriya (178) is comparatively higher than Vanaraja (160) followed by Aseel (62) chicken. This difference in egg production might be due to different genetic makeup of desi and improved varieties of chicken. Chutia (2010) found an overall mean for annual egg production of indigenous chicken which ranged from 53.8±0.23 to 58.4±0.26. However, Kumaresan *et al* (2008), who reported that annual egg production of Vanaraja birds under the backyard system of rearing was 176± 9.

Table 3: Return generated from various components

Particulars	Vanaraja	Amount (Rs.)	Gramapriya	Amount (Rs.)	Aseel	Amount (Rs.)
i. Sale of eggs	Avg. Annual egg production: 160 eggs/ hen @ Rs. 6/egg	960.00	Avg. Annual egg production: 178 eggs/ hen @ Rs. 6/egg	1068.00	Avg. Annual egg production : 62 eggs/ hen, @ Rs. 8/egg	496.00
ii. Sale of birds	Avg. annual body weight : 3.22 Kg, @ Rs. 160/ Kg	515.20	Avg. annual body weight:2.5 Kg, @ Rs. 160/ Kg	400.00	Avg. annual body weight: 1.5 Kg, @ Rs. 250/ Kg	375.00
Total gross income per hen/year		1475.2		1468.00		871.00

While studying income, it was found that, income contributed from Aseel chicken was less in comparison with that of Vanaraja and Gramapriya chicken which was may be due to production of more number of eggs and also due to high body weight gain by improved birds.

Conclusion

From the study, it can be concluded that Vanaraja and Gramapriya birds performs better than Aseel chicken in terms of age at first egg laying, annual egg production and body weight under backyard system of rearing . So, farmers from rural and tribal areas of West Godavari district can rear Vanaraja and Gramapriya chicken for their livelihood and nutritional security.

References

- [1] Chatterjee, R.N., Rai, R.B., Pramanik, S.C., Sunder, J., Senani, S. and Kundu, A. 2007. Comparative growth, production, egg and carcass traits of different crosses of Brown Nicobari with White Leghorn under intensive and extensive management systems in Andaman, India. *Livestock Research Rural Development*, 19 (12).
- [2] Chutia H (2010). Study on some productive and reproductive traits of indigenous chicken of Dhemaji district of Assam. M.V.Sc. Thesis, Assam Agricultural University, Khanapara, Guwahati, Assam, India.
- [3] Devi, K.S. and Reddy, P.M. 2005. Genetic studies on certain economic traits in White Leghorn and crossbred chicken. *Indian Journal of Poultry Science*, 40: 56-58.

- [4] Horst, P. (1988). Native fowl as reservoir for genomes with direct and indirect effects on productive adaptability. 18th Worlds Poultry Congress. Nagoya, Japan 1988 ; pp. 99 -105.
- [5] Islam, R., Kalitha, N and Nath, P (2014). Comparative performance of Vanaraja and Indigenous chicken under backyard system of rearing. *Journal of Poultry Science and Technology*, 2(1): 22-25.
- [6] Kumaresan A, Bujarbaruah KM, Pathak KA, Chhetri 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 and Production*, 40: 395-402.
- [7] Mohammed, M.D., Abdalsalam, Y.I., Kheir, A.R.M., Jinyu, W. and Hussein, M.H. (2005). Growth performance of indigenous and Exotic crosses of chicken and evaluation of general and specific combining ability under Sudan condition. *International Journal of Poultry Science*, 4: 468-471.
- [8] Niranjana, M. and Singh, N.P. 2005. Performance of Gramapriya under intensive and free range conditions of Tripura. In National symposium (IPSACON 2005) on Indian poultry production in changed global scenario: Challenges and Opportunities, pp: 197.
- [9] Reddy, M.R., Rao, G.N., Sharma, R.P., Reddy, B.L.N., Gupta, B.R. and Satyanarayana, A. (2002). Genetic study on juvenile traits of Vanaraja chickens. *Indian Journal of Animal Sciences*, 74 (12): 1229-1231.
- [10] Sapkota, D., Islam, R. and Sheikh, I.U. (2002). Conserving poultry biodiversity of India. *Livestock International* 6 (12): 20-23.
- [11] Singh, R.V., Saxena, V.K. and Sharma, D. (2002). Technological developments in the poultry sub-sector; In technology options for sustainable livestock production in India. Proceedings of the workshop on Documentation, Adoption and Impact of Livestock Technologies in India. Pp: 99-103.
- [12] Zuyie R, Sharma VB, Bujarbaruah KM and Vidyarthi VK (2009). Performance of Vanaraja birds under intensive system of rearing at different altitude in Nagaland. *Indian Journal of Poultry Science*, 44:411-413.