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Comparative study of the performance of Giriraja and indigenous poultry birds under backward farming system in Manipur, India

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ABSTRACT

A comparative field study was conducted to find out the performance of Giriraja and indigenous/ desi poultry birds under backyard farming system in nine valley and hill districts of Manipur. Data with respect to age at first egg production, egg weight, annual egg production, live body weight at 48th weeks of age and mortality rate were collected from the 180 farmers rearing minimum of 20 birds. The average age at first egg production was found to be 155 days and 184 days with average egg weight of 52 gm and 40 gm respectively for Giriraja and desi chicken. The average egg production, live body weight at 48th weeks of age and mortality of Giriraja was found to be 136 numbers, 3.1 kg (male), 2.3 kg (female) and 14% respectively. While that of desi birds was 53 numbers, 1.6 kg (male), 1.2 kg (female) and 8% respectively. The backyard poultry farming with improved variety like Giriraja birds provide a source of livelihood and food security.

1. Introduction

The poultry sector is possibly the fastest growing and most flexible of all livestock sectors. Poultry sector is one of the fastest growing segments of the agricultural sector in Northeast state of India including Manipur.Backyard poultry farming generates a small income and savings, especially for women, enhancing the capacity to cope with shocks and reduce economic vulnerability. Majority of the people of Manipur in rural areas or tribal people keep few numbers of livestock like cattle and pigs and poultry like indigenous or desi chicken or ducks in their backyards under the traditional system of rearing to meet their day to day petty expenses and nutritional security. Backyard poultry converts low quality waste products such as kitchen wastes, left over foods etc. into high quality proteins in terms of meat and egg under rural condition. The eggs and meat produced by backyard poultry is the only source of the cheapest and best quality proteins in rural areas. And people generally preferred the desi chicken for eggs and meat over the improved varieties of chicken because of their better taste, texture and flavour. But under the traditional system of rearing, the production of desi chicken is usually very low due to their inherent low genetic potential giving only 50-60 numbers of eggs per laying cycle and body weight of adult male is around 1.5-1.8 kg and that of adult female is around 1.0-1.3 kg thereby making the backyard system of rearing desi chicken 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). Giriraja is a breed of chicken developed by Karnataka Veterinary, Animal, and Fishery Sciences University in Bengaluru, India.It is a dual purpose breed and suited for mixed and backyard farming. There are several reports of promising productive and reproductive performance of Giriraja birds under backyard farming from various parts of the country. However, information on systemic studies on the productive and reproductive performance of Giriraja birds under backyard system in Manipur is unavailable at present. Therefore, keeping the above points in view, the present study was undertaken to assess various economic traits of Giriraja birds under backyard farming in the state of Manipur.

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2. Materials and methods

The present study was undertaken in both valley (viz. Imphal West, Imphal East, Bishnupur, Kakching, Thoubal) and hill districts (viz. Churachandpur, Kangpokpi, Senapati and Ukhrul) of Manipur on the Giriraja and Desi birds which were maintained at farmer's field. Data's were collected from 180 farmers those are maintaining a minimum of 20 birds under backyard system. Data with respect to age at first egg production, egg weight, annual egg production, live body weight at 48th weeks of age and mortality rate were collected from the farmers through semi structured interview schedule. Sufficient probing and clarifications were made to make clear understanding. The data were analyzed using appropriate statistics tool.

3. Results and discussion:

The finding of the present study on the average age at first egg production, egg weight, annual egg production, live body weight at 48th weeks of age and mortality rate are presented in Table 1.The average age at first egg production were found to be 155 days and 184 days respectively for Giriraja and desi chicken. The differences in the age at first egg production might be due to the genetic differences of the birds. Cross-breeding results in early sexual maturity compared with pure-bred hens. This character is also influenced by many environmental factors, such as temperature, humidity, nutrition and day length. The result agrees with the finding of Neupaneet al. (2014). Yogeshpriya S (2015) and Islam et al. (2014) also recorded higher values in case of indigenous chicken. The average egg weight of Giriraja and desi chicken recorded during the present study were 52 gm and 40 gm respectively. Similar findings were also observed by Semmaranet al. (2008), Yogeshpriya S (2015) and Zamanet al. (2015).

Egg production of poultry birds determines the success of poultry enterprise. The average egg production of Giriraja was 136 and that of desi chicken was 53 numbers per laying cycle during the present study. The difference in the egg production may be due to differences in the genetic makeup of the birds, feeding, management and health care. Similar findings were also recorded by Bharambe and Garud (2012).Yogeshpriya S (2015) also reported higher egg production of Giriraja as compared to desi birds. The production of the birds was found to be higher during the winter season as compared to summer season which may be due to adverse effects of high ambient temperatures.

Average live body weight of Giriraja at 48th weeks of age was found to be much higher than the desi birds. Body weight is the direct reflection of growth and it influences the production and reproduction traits of birds. Significant effect of sex on the body weight of the birds was also observed during the study. The average body weight at 48th weeks was recorded highest in Giriraja male (3.1 kg) followed by Giriraja female (2.3 kg), desi male (1.6) and desi female (1.2 kg).Similar finding on the average body weight were also reported by Shresthaet al.(2004);Yogeshpriya S (2015).The significant effect of genetic group on body weights of chicken have been reported by many workers (Mohammed et al. 2007;Devi and Reddy 2005; Chatterjeeet al 2007).The average mortality rate of the Giriraja was found to be higher than that of desi birds which may be due to better adaptability and disease resistant of desi birds.

Table 1. Comparative performance of Giriraja and Indigenous/ Desi chicken of Manipur under backyard system of rearing

Sl. No.	Name of the breed	Average age at first egg production (days)	Average egg weight (gm)	Average annual egg production (Number)	Average live body weight at 48th weeks of age		Mortality rate (%)
					Male (Kg)	Female (Kg)	
1	Giriraja	155	52	136	3.1	2.3	14
2	Indigenous/ Desi chicken	184	40	53	1.6	1.2	8
	t value	33.65*	29.32*	199.82*	55.01*	42.86*	28.71*
	P- values	8.62E-25	4.20E-23	4.46E-47	6.92E-21	8.86E-28	7.56E-23

4. Conclusion

From the present study, it has been seen that Giriraja breed of chicken adapted well to environmental condition of Manipur and performed very well in both valley and hill districts of Manipur under backyard farming system when compared to desi chicken in terms of average age at first egg production, egg weight, annual egg production, live body weight at 48th weeks of age and mortality rate. Therefore, the poultry farmers both from valley and hill districts of Manipur can rear the Giriraja chicken under backyard farming to meet their day to day petty expenses and nutritional security.

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6. References

Bharambe VY and Garud PK (2012).Comparative performance of some improved poultry crossbreds under Konkan region of India. Indian J. Hill Farm25(1): 48-52

Chatterjee RN, Rai RB, Pramanik SC, Sunder J, Senani S, 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): 1-10

Devi KS,Reddy PM (2005). Genetic studies on certain economic traits in White Leghorn and crossbred chicken. Indian Journal of Poultry Science 40: 56-58

Islam R, Kalitha N, 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

Mohammed MD, Abdalsalam YI, Kheir ARM, Jinyu W, Hussein MH (2007). Growth performance of indigenous and Exotic crosses of chicken and evaluation ofgeneral and specific combining ability under Sudan condition. International Journal of Poultry Science 4: 468-471

Neupane D, Karki M, Shrestha SB (2014). Intensive management of new Hampshire, Giriraja chickens for generating premium cash income. Nepal J. Sci.&Technol 15(2): 23-28

Semmaran M, Sasidhar PVK, Majumdar S, Chander M, Tripathi H (2008). Adoption behaviour of Giriraja backyard poultry by farmers in Karnataka. Indian J. Poultry Sci43 (3): 343-345

Shrestha SB, Mandal P, Sah RB (2004).Studies on production traits in Giriraja chicken. In: Proceedings of the sixth national workshop on livestock and fisheries research 1-2 July Pp:1-24

Singh RV, Saxena VK, 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

Yogeshpriya S (2015). Comparative study of Giriraja and Desi birds under backyard system of rearing in farmers field. Vet. Sci. Res. J 6 (2): 100-102

Zaman MA, Sorensen P, Howlider MAR (2015).Egg production performances of a breed and three crossbreeds under semi-scavenging system of management.Livestock Res. Rural Develop 16**:**1-12