Indian J. Anim. Prod. Mgmt. Vol. 29 (3-4) 41-45 (2013)

CARCASS CHARACTERISTICS OF GRAMAPRIYA BIRDS UNDER DIFFERENT SYSTEMS OF MANAGEMENT

NISHANT PATEL[1], DILIP KUMAR JHA[*] and SUSHIL PRASAD[2]
Department of Livestock Production and Management, College of Veterinary Science and Animal Husbandry, BAU, Ranchi, Jharkhand-834006

Received : 09.12.2013 ***Accepted : 20.12.2013***

ABSTRACT

In semi-intensive system of management, the dressing percentage with giblets was observed to be maximum (75.00±0.66 %) followed by deep litter (74.16±1.02 %) and backyard (73.88±0.49 %) system of management of male birds. In case of female the values were 67.201.44 %, 63.97±0.64 % and 66.04±0.78 % respectively under deep litter, semi-intensive and backyard system of management. In semi-intensive system of management, the dressing percentage without giblets was observed maximum (71.75±0.64 %) followed by deep litter (71.05±0.98 %) and backyard system of management in male birds. The corresponding values in case of female birds were 59.53±0.68 %, 62.51±1.52 % and 60.93±0.61 % under semi-intensive, deep litter and backyard system of management. The effects associated with different systems of management were observed to be significant in defeathered weight (%) in female, breast (%) in female and giblet (%) in male.

Key words: Gramapriya, deep litter, semi intensive, backyard, carcass.

Indian agriculture contributes 28 per cent to the GDP of which 17% is contributed by poultry. Today India ranks the third in eggs and fifth in broiler production in the world [1]. The Indian poultry industry is growing at the rate of 8 to 10 % for eggs and 15 to 20% for broiler production[10]. The knowledge of carcass and economic traits in chicken is important for the formulation of breeding plans for further improvement of birds. Carcass traits of a bird indicate its genetic constitution and adaptation with respect to the specific environment. Gramapriya bird was developed at Project Directorate on poultry at Hyderabad for backyard poultry production in rural and tribal area by using Random bred meat control population as male line and a White Leghorn selected population as female line [4, 9]. It is an egg type bird preferred by farmer for their coloured plumage with better growth rate and more eggs production [6]. It resembles desi hen in flavor and delicacy and best suited for preparation of tandoori type desi chicken dishes. Gramapriya bird is suitable for free range system and backyard farming provided with low cost inputs in nurseries to deliver optimal performance in rural condition[3, 8]. These birds have better adaptability to adverse conditions and better immunocompetence which gives the strength for

[*]Corresponding Author- SRF, AICRP on Poultry Breeding, RVC, Ranchi,
Email- drdilip20071@gmail.com
[1]Part of MVSc Thesis of 1st Author, Deptt. of LPM, RVC, Ranchi, Jharkhand-834006.
[2]Univ. Proff., Deptt. of LPM, RVC, BAU, Ranchi, Jharkhand-834006.

the maximum survivability of these birds under rural poultry farming conditions. A study was conducted to see the carcass traits of Gramapriya birds under Deep litter, Semi Intensive and Backyard system of farming under agro-climatic condition of Chotanagpur.

MATERIALS AND METHODS

A total nos. of 300 Gramapriya chicks were hatched and brooded up to two months of age under deep litter system of management. After two months of brooding, these chicks were transferred to three different group's i.e. Deep litter, Semi-Intensive and Backyard system of management. In each system of management 100 birds were kept. Standard managemental and healthcare practices were followed throughout the experimental period. The experiment was conducted at Ranchi district of Jharkhand which is located between 22^0 45'-$23^0$45' North latitude to 84^0 45'-84^0 50' East longitude. It experiences subtropical climate, characterized by hot summer from March to May and well distributed rain fall during southwest monsoon from June to October. All the chicks were immunized and dewormed as per schedule[2].

Twelve Gramapriya birds (six male and six female) from each group were slaughtered at the end of experiment in order to find out the carcass yield along with their cut-up parts. Birds were kept off fed for at least 6 hrs with adequate provision of water during the fasting period. Just before sacrifice each bird under different experimental groups was weighed individually for their live weight and then sacrificed by front neck incision with sharp knife and allowed to bleed. Bleeding was allowed till it was completed with cessation of all reflexes. After complete bleeding, scalding was done by dipping the birds in hot water (55^0C) for 2 minutes. The feathers were plucked manually and washed with clean water. The head was removed at its atlanto-occipital articulation followed by cutting of shanks. Evisceration was done by opening the abdominal cavity of the bird.

The following carcass traits were recorded:

1. **Pre-slaughter live weight**: Live weight was recorded before slaughter.
2. **Defeathered weight**: Weight of the carcass was recorded after defeathering.
3. **Dressed weight:** Weight of the carcass was recorded after defeathering and removal of all non-edible portion of carcass.
4. **Giblets weight**: Weight of giblets (liver without gall bladder, heart without pericardium and gizzard without inner linings) were recorded.
5. **Non-edible part weight**: The non-edible weight of the carcass (weight of feather, head, shank, crop, trachea, lungs, gall bladder, kidney, bursa, spleen and intestine) was recorded.
6. **Blood loss percentage**: It is calculated as the ratio of weight of the carcass after slaughter to live weight in percentage.
7. **Dressing percentage:** The dressing percentage was calculated as the ratio of total edible weight of the carcass to the live weight in percentage.

   $$\text{Dressing percentage} = \frac{\text{Dressed Weight}}{\text{Live weight}} \times 100$$
8. **Giblets percentage:** The giblets percentage was calculated as the ratio of giblets weight to the live weight in percentage.

   $$\text{Giblets percentage} = \frac{\text{Giblets Weight}}{\text{Live weight}} \times 100$$
9. **Non-edible part percentage:** The non-edible part percentage was calculated as the ratio of total non-edible weight of the carcass to the live weight in percentage.

   $$\text{Non-edible part percentage} = \frac{\text{Non-edible part weight}}{\text{Live weight}} \times 100$$

10. **Dressing percentage without giblet:** The dressing percentage without giblet was calculated as the ratio of edible weight of the carcass without giblet to the live weight in percentage.

$$\text{Dressing percentage without giblet} = \frac{(\text{Total edible part weight} - \text{Giblet weight})}{\text{Live weight}} \times 100$$

All the data were analyzed as per standard methods [11].

RESULTS AND DISCUSSION

The mean values of carcass yields viz. live weight (g), blood loss (%), defeathered weight (%), breast (%), back (%), giblet (%), non edible parts (%), dressing percentage with giblets and dressing percentage without giblets of the Gramapriya birds reared under different systems of management are presented in table 1. Significantly higher defeathered weight (%) in female of Gramapriya birds were observed in backyard system (90.90±0.63%) followed by deep litter (90.61±0.55 %) and semi-intensive system (88.02±0.44 %) of management. However, no significant difference was observed between deep litter and backyard system of management (table 1). Significantly higher breast (%) in female of Gramapriya birds were observed in deep litter system (22.13±0.34%) followed by semi intensive (20.93±0.27%) and backyard system (20.65±0.44%) of management. However, no significant difference was observed between semi intensive and backyard system of management (table 1).

The giblet (%) was observed to be significantly higher in male bird of backyard system (3.62±0.11%) followed by semi intensive (3.25±0.08%) and deep litter (3.11±0.10%) system of management. However, deep litter and semi intensive system of management did not differ significantly from each other (table 1).

The mean dressing percentage with giblets of male birds were 74.16±1.02%, 75.00±0.66%, 73.88±0.49% reared under deep litter, semi intensive and backyard system of management respectively. In case of females the values were 67.20±1.44%, 63.97±0.64% and 66.04±0.78% respectively. The mean dressing percentage without giblets in male birds were 71.05±0.98%, 71.75±0.64%and 70.26±0.60% reared under deep litter, semi intensive and backyard systems of management respectively and 62.51±1.52%, 59.53±0.68% and 60.93±0.61% in case of female birds (table 1).

The different management system had no significant effect on live weight (g), blood loss (%), back (%), non edible parts (%), dressing percentage with giblet and dressing percentage without giblet except breast of female (%), defeathered weight of male (%) and giblet (%) in male (table 1). The present findings are in close agreement with the findings of [5, 7], who reported edible meat percentage 72.84 and dressing percentage 84.59 in broiler birds.

The dressing percentage with giblet of Gramapriya birds under deep litter, semi-intensive and backyard system of management were 74.16± 1.02, 75.00±0.66 and 73.88±0.49 % in case of male birds and 67.20±1.44, 63.97±0.64 and 66.04±0.78 respectively in case of female birds (table 1). The dressing percentage for Desi õ RIR cross were 73.7%, followed by Desi (73.60%) and RIR õ (WLH õ Desi) (73.5%) reported [7] which is similar to present investigation. However, the values of giblet and non-edible percentage were higher for birds of backyard system than those of birds of deep litter and semi-intensive system of management. Better growth of giblet and non edible parts under backyard system as compared to deep litter and semi-intensive system of management might be attributed to the free movement of birds under backyard system.

Table 1: Average values for different carcass traits of Gramapriya bird under different management systems.

Parameters		Deep Litter	Semi-Intensive	Backyard
Live weight	Male	1877.20±4.63	1967.20±5.56	1802.80±5.15
	Female	1440.40±6.41	1362.80±6.82	1326.80±6.52
Blood loss (%)	Male	3.25±0.52	2.94±0.43	2.71±0.40
	Female	3.37±0.34	3.07±0.19	2.63±0.16
Defeathered wt. (%)	Male	89.82±0.62	88.99±1.00	89.83±0.25
	Female	90.61±0.55^{a}	88.02±0.44^{b}	90.90±0.63^{a}
Breast (%)	Male	25.85±0.75	26.47±0.70	24.83±0.58
	Female	22.13±0.34^{a}	20.93±0.27^{b}	20.65±0.44^{b}
Back (%)	Male	18.73±0.28	19.73±0.60	18.59±0.39
	Female	20.73±0.57	20.13±0.45	19.79±0.45
Giblets (%)	Male	3.11±0.10^{b}	3.25±0.08^{b}	3.62±0.11^{a}
	Female	4.69±0.27	4.44±0.07	5.11±0.38
Non-edible parts (%)	Male	25.70±0.89	25.30±0.34	27.03±0.70
	Female	34.11±1.47	37.40±0.75	36.43±0.64
Dressing % with giblet	Male	74.16±1.02	75.00±0.66	73.88±0.49
	Female	67.20±1.44	63.97±0.64	66.04±0.78
Dressing % without giblet	Male	71.05±0.98	71.75±0.64	70.26±0.60
	Female	62.51±1.52	59.53±0.68	60.93±0.61

Note: Mean values under the same superscript in a row did not differ significantly ($P < 0.05$).

CONCLUSION

It can be concluded that the carcass traits of Gramapriya birds was maximum under semi intensive system of than deep litter and backyard system of management.

REFERENCES

1. Bardhan, D.; Tewari, S.K. and Dabbas, Y.P.S. 2005. Indian poultry sector and WTO analysis for some poultry implications and future strategies. *J. Global Economics,* **1** (2): 67-81.
2. Chauhan, H.V.S. and Roy, S. 2003. *Poultry disease diagnosis and treatment.* 2nd edn. New Age International (P) Limited, Pub. New Delhi. p 196 – 236.
3. Giri, S.C. and Sahoo, S.K. 2012. Performance of gramapriya chicken under extensive and intensive system of management. *Indian Vet. J*. **89** (1): 52-55.
4. Haunshi, S., Doley, S. and Shakuntala, I. 2009. Production performance of indigenous chicken of northeastern region and improved varieties developed for backyard farming. *Indian J. Animal Sci.* **79** : 901-05.
5. Itankar, V.A., Galkate, U.V., Deshmukh, G.B. and Rokde, S.N. 2010. Effect of dietary AFB1 on growth performance, carcass traits and meat sensory attributes in broiler chicken. *Indian J. Poult. Sci*. **45** (3): 353 - 56.
6. Jha, D.K. and Prasad, S. 2013. Production performance of improved varieties and

indigenous breed of chicken in Jharkhand. *Indian J. Poult. Sci.* **48** (1): 109-12.

7. Menawat, S.N.; Jain, L.S. and Sharma, V.V. 1977. A note on growth rate and production in desi and exotic fowls and their intermitted. *Indian J. Anim. Sci*. **47** (2): 854 – 55.

8. Niranjan, M, Sharma, R.P., Rajkumar, U., Reddy, B.L.N., Chatterjee, R.N. and Battacharya, T.K. 2008. Comparative Evaluation of Production Performance in Improved Chicken Varieties for Backyard Farming. *International J. Poult. Sci.* **7**: 1128-31.

9. Reddy, M.R., Panda, A.K., Praharaj, N.K. Rama Rao, S.V. Chaudhury, D. and Sharma, R.P. 2002. Comparative evaluation of immune competence and disease resistance in dual purpose chicken Vanaraja and Gramapriya vis a vis coloured synthetic broiler. *Indian J. Anim. Sci.* **72**: 6-8.

10. Shrivastava, A.K. 2011. Poultry development in Jharkhand. Symposium on sustainable livestock and poultry development in Jharkhand. *Birsa Agric. Univ. Ranchi.* Pp: 38.

11. Snedecor, G. W. and Cochran, W.G. 1994. Stastical Methods, 9th edn., lowa State Univ. Press, Ames, U.S.A.

★ ★ ★