

PRODUCTION PERFORMANCE OF COLOURED BROILER BREEDER HENS UNDER HOT HUMID CONDITION

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Abstract: Present study aimed to evaluate the performance of Coloured synthetic broiler breeder hen under hot humid climatic condition of Odisha. For this study 500 birds from the age of 22nd week to 52nd week were selected. In this study the experimental bird were fed the ration containing 16% CP and 2800 kcal ME/kg (As per BIS 2007). Result of this study revealed that the hen housed and hen day egg production at 25th week were 2.01% and 2.01% and at 52th week were 48.45% and 50.00% respectively. The highest hen housed and hen day egg production was 63.74% and 65.37% respectively at 39 week of age. Body weight at 22th, 30th, 40th and 52th week of age was 2514.475±15.54g, 3190.5075±41.63g, 3563.75±39.23 g and 3619.625±40.76 g respectively. Egg weight, shape index, shell surface area, breaking force, egg shell thickness, albumen index, yolk index and Haugh unit were 66.24±0.77 g, 74.95±0.87, 76.67±0.58 cm², 2358.95±23.64, 0.34±0.005 mm, 9.38±0.35, 41.15±0.71 and 85.56±1.53 respectively at 52th week of age. The study shown that the overall production performance of Coloured synthetic broiler hens was observed better in hot humid climatic condition in coastal region of Odisha.

Keywords: Albumen index, Breaking force, Hen day egg production, Hen house egg production and Haugh unit.

Introduction

Poultry production has strong presence in Indian economy, where broiler production is rapidly growing sector having big contribution in agriculture economy. Production of broiler breeder is more important than broiler and layers. Broiler parent stock not only selected for their broiler traits but also for egg production and reproduction traits. Performance of broiler and layer varies according to agro climatic zones indifferent regions. India's food basket is changing rapidly in favour of high value food products, including animal products. Broilers are major source of poultry meat in country which is best source of high quality protein with less fat. Poultry meat contains more protein and essential amino acids when compare to other meats (Munegowda *et al.*, 1988). The exploitation of genetically diverse stocks for improving economic traits, such as body weights and annual egg production is one of the approaches in the breeding programmers of chicken. An ideal broiler strain has to be evolved to make the

demand of poultry meat. The net economic merit of a laying flock depends not only on the total number of eggs produced but also on the egg weight and other egg quality traits. Evaluation of the external and internal quality of chicken eggs is important because of consumer preferences for better quality eggs. Keeping in this view the present experiment have been undertaken to evaluate the performance of Coloured synthetic broiler breeder hen in terms of egg production, growth, egg quality traits and other egg related traits in Odisha.

Materials and methods

An experiment was conducted in farm of college of Veterinary Science and Animal Husbandry, OUAT, Bhubaneswar, Odisha. In this investigation total of 500 coloured synthetic broiler breeder sire line birds were reared from 22nd week of age to 52nd week of age. In this study the experimental bird were fed the ration containing 16% CP and 2800 kcal ME/kg (As per BIS 2007). Ingredients of breeder diet are shown in Table 1. Standard feeding and management procedure and routine vaccination programme were carried out in experimental birds. Body weight of all the birds were measured by weighing balance from 22th to 52th week of age. Daily egg production was recorded in both the group from first day of lay till experimental period and hen housed and hen day egg production were calculated at different age groups. For the study of egg quality traits namely egg weight, shape index, yolk index, albumen index, Shell surface area, breaking force, egg shell thickness and Haugh unit eggs were randomly collected from both group at 52th weeks of age. Shape index, yolk index, albumen index, Haugh unit, shell surface area and breaking force were calculated by standard formula. Statistical analysis is done by one way ANOVA using the SPSS software (version 22.0). The data are reported as mean \pm SE, and differences were regarded as significant at $P < 0.05$. Statistical procedures and tables were used from Snedecor and Cochran (1989).

Table: 1 Ingredient composition of breeder diet

Ingredients	Percentage
Maize	60.00
Soyabean Meal	19.50
De oiled Rice bran	12.00
Mineral mixture	3.00
Oyster shell meal	5.00
Common Salt	0.30
L-Lysine	0.03
DL- methionine	0.05
Tracemin	0.10
Feed additives (g/kg of diet)	

Biocholine	0.50
Biobantox	0.50
Layvit	0.50
Livoline	0.25
E-sel-powder	0.10
K-zyme	0.50

Result and discussion

Body weight

The mean body weight of coloured synthetic broiler breeder hens were 2514.47±15.54 to 3619.62±40.76 g from 22nd to 52th week of age (Table 2). The highest mean body weight were observed at 52th week of age and there was significant ($p<0.05$) difference was observed between weeks. Contrary to our finding Rao *et al.* (2000) reported that the lower body weight in broiler breeder up to 48 weeks of age and by Islam *et al.* (2014) in Vanaraja at 52 weeks of age. The difference in body weight from our study is might be due to breeds, age and management systems.

Table: 2 mean ± SE body weight of coloured synthetic broiler breeder hens

Age in weeks	Body weight (g)
22	2514.47±15.54 ^a
30	3190.50±41.63 ^b
40	3563.74±39.23 ^c
52	3619.62±40.76 ^d

Means with different superscripts a, b, c and d in column differ significantly ($P<0.05$)

Egg production

The mean hen housed egg production was 2.01% at 25th week of age and 48.45% at 52 weeks of age with highest production 63.74% at 39 weeks of age. Similarly mean hen day egg production at 25th week of age was 2.01% and at 52 week of age was 50.00% and highest production obtained at 39 week of age as 65.37% (Table 3). Similar to our finding the hen day and hen housed egg production was reported by Rao *et al.* (2000), Malik *et al.* (2011) and Murad *et al.* (2003) in broiler breeder hens.

Table: 3 Egg production of Coloured synthetic broiler breeder hen in different ages

Age in weeks	Hen Housed Egg Production %	Hen Day Egg production %
25	2.01	2.01
26	6.32	6.32
27	14.5	14.5
28	26.44	26.44
29	35.17	35.17
30	45.64	45.69
31	47.21	47.59
32	53.96	54.37
33	56.43	57.09
34	61.29	62.83
35	62.61	63.59
36	62.89	63.94
37	62.95	63.27
38	63.06	64.42
39	63.74	65.37
40	61.87	62.57
41	59.65	60.16
42	56.13	57.68
43	55.08	56.66
44	52.07	53.50
45	52.01	54.19
46	51.01	53.70
47	50.17	52.21
48	51.95	54.07

49	51.34	53.43
50	49.11	51.10
51	48.79	50.89
52	48.45	50.00

Egg quality traits

The mean egg weight , shape index , shell surface area , breaking force , egg shell thickness , albumin index , haugh unit and yolk index were 65.573, 74.68, 76.128, 2337.052, 0.349, 9.609, 86.677 and 40.485 respectively on 52 weeks of age (Table 4). Similar to our finding Negi *et al.* 2011 have reported important egg quality traits of White Leghorn, Austro Red and Kalinga Brown breeds of chicken.

Table: 4 mean \pm SE of egg quality traits of coloured synthetic broiler hens

Egg quality traits	52 Week
Egg weight (g)	66.24 \pm 0.77
Shape index	74.95 \pm 0.87
Shell surface area (cm ²)	76.67 \pm 0.58
Breaking force	2358.95 \pm 23.64
Egg shell thickness (mm)	0.34 \pm 0.005
Albumen index	9.38 \pm 0.35
Haugh unit	85.56 \pm 1.53
Yolk index	41.15 \pm 0.71

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