



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2022; SP-11(11): 88-91  
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Received: 14-08-2022

Accepted: 17-09-2022

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## Production traits of the native chicken variety maintained at college of poultry production and management, Hosur

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### Abstract

The production parameters of the Native chicken variety maintained at College of Poultry Production and Management, Hosur were studied at Poultry Farm Complex (PFC), Veterinary College and Research Institute, Namakkal during the period between April 2020 and April 2021. The production parameters like body weight, body weight gain and feed conversion ratio were studied.

**Keywords:** Native chicken, body weight, feed consumption

### Introduction

Poultry farming is one of the fast growing industries in India in which the organized sector of poultry industry is contributing nearly 67 per cent of the total output and the rest 33 per cent by the unorganized sector. Indigenous chicken contributes high quality animal protein in the form of eggs and meat for home consumption as well as for sacrifices and are also easily managed by all even the poorest of the poor including women and children [1]. Traditional chicken production plays a key role in the livelihood of rural residents in developing countries, being an immediate income source and by improving the nutritional status of the rural household [4]. Native chicken is one of the commonly used local animal protein and iron sources [7]. The indigenous chicken always fetches almost thrice the price of broilers because of its taste and flavour. The native chicken variety is well received by the community for backyard rearing.

### Materials and Methods

A sum of 540 male and 540 female day old chicks (total 1080 chicks) of the native chicken variety were received from CPPM, Hosur and were individually weighed, wing banded and distributed randomly into three replicates for each sex. Each replicate had 180 chicks of either sex and were reared up to 20 weeks of age and the growth performance were recorded. Individual sex wise body weights (g) were recorded at weekly interval up to 20 weeks of age by using electronic weighing balance nearest to 1.0 g accuracy. Feed consumption (g) and feed consumption ratio (FCR) was recorded at weekly interval up to 20 weeks of age and weekly and cumulative feed conversion ratio was calculated.

$$\text{FCR} = \frac{\text{Amount of feed consumed (g)}}{\text{Body weight gain (g)}}$$

### Statistical analysis

The body weight and feed consumption ratio were done using descriptive method of statistical analysis.

**Table 1:** Mean ( $\pm$  S.E.) cumulative body weight (g) of the Native chicken variety maintained at CPPM, Hosur from 0 to 20 weeks of age

Age	Male (n)	Female (n)	Pooled (n)
Hatch weight	32.7 $\pm$ 0.15 (540)	32.8 $\pm$ 0.16 (540)	32.8 $\pm$ 0.11 (1080)
1 <sup>st</sup> week	53.6 $\pm$ 0.31 (540)	56.5 $\pm$ 0.34 (539)	55.1 $\pm$ 0.23 (1079)
2 <sup>nd</sup> week	91.5 $\pm$ 0.71 (540)	95.3 $\pm$ 0.94 (538)	93.4 $\pm$ 0.59 (1078)
3 <sup>rd</sup> week	142.2 $\pm$ 1.30 (540)	139.5 $\pm$ 1.40 (538)	140.9 $\pm$ 0.96 (1078)
4 <sup>th</sup> week	202.1 $\pm$ 2.28 (540)	198.1 $\pm$ 2.13 (538)	200.1 $\pm$ 1.56 (1078)
5 <sup>th</sup> week	270.3 $\pm$ 3.14 (539)	264.9 $\pm$ 2.77 (538)	267.4 $\pm$ 2.08 (1077)
6 <sup>th</sup> week	345.3 $\pm$ 3.68 (539)	339.3 $\pm$ 3.45 (538)	342.1 $\pm$ 2.51 (1077)
7 <sup>th</sup> week	441.0 $\pm$ 4.57 (539)	417.2 $\pm$ 4.16 (538)	428.9 $\pm$ 3.09 (1077)
8 <sup>th</sup> week	552.5 $\pm$ 5.62 (539)	502.6 $\pm$ 4.86 (538)	527.4 $\pm$ 3.76 (1077)
9 <sup>th</sup> week	667.2 $\pm$ 22.76 (225)	596.6 $\pm$ 20.0 (237)	631.0 $\pm$ 15.09 (462)
10 <sup>th</sup> week	794.3 $\pm$ 26.65 (234)	682.3 $\pm$ 23.2 (226)	739.3 $\pm$ 17.70 (460)
11 <sup>th</sup> week	925.1 $\pm$ 30.30 (252)	764.2 $\pm$ 24.8 (255)	844.2 $\pm$ 19.59 (507)
12 <sup>th</sup> week	1047.1 $\pm$ 9.33 (539)	843.5 $\pm$ 7.4 (538)	945.4 $\pm$ 6.73 (1077)
13 <sup>th</sup> week	1168.1 $\pm$ 40.17 (216)	925.9 $\pm$ 29.8 (257)	1036.5 $\pm$ 24.66 (473)
14 <sup>th</sup> week	1283.2 $\pm$ 42.29 (237)	1006.0 $\pm$ 33.0 (241)	1143.4 $\pm$ 26.87 (478)
15 <sup>th</sup> week	1395.7 $\pm$ 48.25 (203)	1079.0 $\pm$ 34.7 (251)	1220.6 $\pm$ 29.18 (454)
16 <sup>th</sup> week	1504.3 $\pm$ 51.59 (210)	1138.6 $\pm$ 37.9 (228)	1313.9 $\pm$ 31.87 (438)
17 <sup>th</sup> week	1608.0 $\pm$ 60.98 (135)	1203.3 $\pm$ 45.1 (142)	1400.6 $\pm$ 37.79 (277)
18 <sup>th</sup> week	1710.2 $\pm$ 63.03 (155)	1237.8 $\pm$ 46.2 (143)	1483.5 $\pm$ 39.52 (298)
19 <sup>th</sup> week	1807.5 $\pm$ 64.87 (174)	1269.3 $\pm$ 46.9 (155)	1553.9 $\pm$ 40.75 (329)
20 <sup>th</sup> week	1885.6 $\pm$ 23.01 (506)	1296.8 $\pm$ 15.4 (507)	1591.2 $\pm$ 16.24 (1013)

(n)- Number in parentheses indicate the number of observations

**Table 2:** Mean ( $\pm$  S.E.) body weight gain (g) of the Native chicken variety maintained at CPPM, Hosur from 1<sup>st</sup> to 20 weeks of age

Age	Male (n=3)		Female (n=3)		Pooled (n=6)	
	Weekly	Cumulative	Weekly	Cumulative	Weekly	Cumulative
1 <sup>st</sup> week	20.9 $\pm$ 1.01	20.9 $\pm$ 1.01	23.7 $\pm$ 0.41	23.7 $\pm$ 0.41	22.3 $\pm$ 0.81	22.3 $\pm$ 0.81
2 <sup>nd</sup> week	37.9 $\pm$ 4.55	58.8 $\pm$ 5.55	38.8 $\pm$ 2.61	62.5 $\pm$ 2.81	38.3 $\pm$ 2.11	60.6 $\pm$ 2.65
3 <sup>rd</sup> week	50.7 $\pm$ 3.09	109.4 $\pm$ 8.33	44.2 $\pm$ 6.51	106.7 $\pm$ 9.13	47.5 $\pm$ 3.28	108.1 $\pm$ 4.99
4 <sup>th</sup> week	59.9 $\pm$ 15.80	169.4 $\pm$ 23.75	58.5 $\pm$ 4.10	165.2 $\pm$ 10.97	59.2 $\pm$ 6.54	167.3 $\pm$ 10.51
5 <sup>th</sup> week	68.0 $\pm$ 3.94	237.4 $\pm$ 24.05	66.4 $\pm$ 10.57	231.7 $\pm$ 0.47	67.2 $\pm$ 4.53	234.5 $\pm$ 9.73
6 <sup>th</sup> week	75.1 $\pm$ 8.19	312.5 $\pm$ 17.34	74.3 $\pm$ 4.93	305.9 $\pm$ 4.54	74.7 $\pm$ 3.83	309.2 $\pm$ 7.35
7 <sup>th</sup> week	95.8 $\pm$ 16.03	408.3 $\pm$ 18.81	77.8 $\pm$ 1.92	383.8 $\pm$ 6.43	86.8 $\pm$ 7.81	396.0 $\pm$ 9.96
8 <sup>th</sup> week	111.5 $\pm$ 2.21	519.8 $\pm$ 16.60	86.2 $\pm$ 6.73	469.9 $\pm$ 11.71	98.8 $\pm$ 6.82	494.8 $\pm$ 14.66
9 <sup>th</sup> week	116.7 $\pm$ 3.96	636.5 $\pm$ 13.72	91.4 $\pm$ 10.35	561.3 $\pm$ 1.46	104.1 $\pm$ 7.63	598.9 $\pm$ 19.23
10 <sup>th</sup> week	125.5 $\pm$ 4.69	762.0 $\pm$ 11.40	87.5 $\pm$ 13.57	648.8 $\pm$ 14.97	106.5 $\pm$ 10.94	705.4 $\pm$ 28.73
11 <sup>th</sup> week	129.1 $\pm$ 15.81	891.2 $\pm$ 23.05	81.5 $\pm$ 16.46	730.4 $\pm$ 18.50	105.3 $\pm$ 14.81	810.8 $\pm$ 41.13
12 <sup>th</sup> week	123.2 $\pm$ 1.99	1014.3 $\pm$ 24.77	80.5 $\pm$ 1.82	810.9 $\pm$ 16.86	101.8 $\pm$ 10.50	912.6 $\pm$ 51.25
13 <sup>th</sup> week	121.7 $\pm$ 8.49	1136.0 $\pm$ 21.86	79.6 $\pm$ 1.32	890.5 $\pm$ 16.42	100.6 $\pm$ 10.87	1013.2 $\pm$ 61.13
14 <sup>th</sup> week	114.7 $\pm$ 28.38	1250.7 $\pm$ 7.86	79.2 $\pm$ 1.58	969.7 $\pm$ 17.47	96.9 $\pm$ 14.32	1110.2 $\pm$ 69.28
15 <sup>th</sup> week	112.4 $\pm$ 9.27	1363.2 $\pm$ 3.25	77.9 $\pm$ 0.94	1047.5 $\pm$ 17.79	95.2 $\pm$ 9.25	1205.4 $\pm$ 77.65
16 <sup>th</sup> week	107.7 $\pm$ 4.89	1470.9 $\pm$ 7.87	67.7 $\pm$ 16.76	1115.2 $\pm$ 33.08	87.7 $\pm$ 12.05	1293.1 $\pm$ 88.19
17 <sup>th</sup> week	105.2 $\pm$ 3.49	1576.1 $\pm$ 8.47	55.4 $\pm$ 8.99	1170.6 $\pm$ 24.65	80.3 $\pm$ 12.78	1373.4 $\pm$ 99.86
18 <sup>th</sup> week	100.8 $\pm$ 5.14	1676.9 $\pm$ 4.06	36.0 $\pm$ 1.08	1206.6 $\pm$ 23.65	68.4 $\pm$ 16.01	1441.7 $\pm$ 115.59
19 <sup>th</sup> week	98.5 $\pm$ 7.44	1775.4 $\pm$ 3.67	29.8 $\pm$ 11.83	1236.4 $\pm$ 12.73	64.2 $\pm$ 17.73	1505.9 $\pm$ 132.12
20 <sup>th</sup> week	77.5 $\pm$ 2.35	1852.9 $\pm$ 5.98	27.7 $\pm$ 14.59	1264.2 $\pm$ 23.15	52.6 $\pm$ 13.55	1558.5 $\pm$ 144.53

n - Number of observations from three replicates in each sex

**Table 3:** Mean ( $\pm$ S.E.) feed conversion ratio of the Native chicken variety maintained at CPPM, Hosur from 1<sup>st</sup> to 20 weeks of age

Age	Male (n=3)		Female (n=3)		Pooled (n=6)	
	Weekly	Cumulative	Weekly	Cumulative	Weekly	Cumulative
1 <sup>st</sup> week	2.8 $\pm$ 0.13	2.8 $\pm$ 0.13	2.5 $\pm$ 0.05	2.5 $\pm$ 0.05	2.7 $\pm$ 0.09	2.7 $\pm$ 0.10
2 <sup>nd</sup> week	3.0 $\pm$ 0.37	2.9 $\pm$ 0.28	2.7 $\pm$ 0.10	2.6 $\pm$ 0.07	2.8 $\pm$ 0.17	2.8 $\pm$ 0.13
3 <sup>rd</sup> week	3.1 $\pm$ 0.04	3.0 $\pm$ 0.18	3.1 $\pm$ 0.14	2.8 $\pm$ 0.09	3.1 $\pm$ 0.06	2.9 $\pm$ 0.10
4 <sup>th</sup> week	3.2 $\pm$ 0.74	3.1 $\pm$ 0.40	3.2 $\pm$ 0.35	2.9 $\pm$ 0.19	3.2 $\pm$ 0.33	3.0 $\pm$ 0.18
5 <sup>th</sup> week	3.3 $\pm$ 0.06	3.1 $\pm$ 0.30	3.5 $\pm$ 0.11	3.1 $\pm$ 0.14	3.4 $\pm$ 0.09	3.1 $\pm$ 0.13
6 <sup>th</sup> week	3.4 $\pm$ 0.37	3.2 $\pm$ 0.16	3.9 $\pm$ 0.29	3.3 $\pm$ 0.17	3.6 $\pm$ 0.22	3.2 $\pm$ 0.10
7 <sup>th</sup> week	3.5 $\pm$ 0.59	3.2 $\pm$ 0.12	3.9 $\pm$ 0.54	3.4 $\pm$ 0.25	3.7 $\pm$ 0.33	3.3 $\pm$ 0.12
8 <sup>th</sup> week	3.5 $\pm$ 0.04	3.3 $\pm$ 0.09	4.0 $\pm$ 0.29	3.5 $\pm$ 0.15	3.8 $\pm$ 0.15	3.4 $\pm$ 0.09
9 <sup>th</sup> week	3.5 $\pm$ 0.11	3.3 $\pm$ 0.06	4.3 $\pm$ 0.57	3.6 $\pm$ 0.19	3.9 $\pm$ 0.32	3.5 $\pm$ 0.11
10 <sup>th</sup> week	3.6 $\pm$ 0.14	3.4 $\pm$ 0.04	5.3 $\pm$ 0.94	3.8 $\pm$ 0.14	4.5 $\pm$ 0.58	3.6 $\pm$ 0.13
11 <sup>th</sup> week	4.0 $\pm$ 0.57	3.4 $\pm$ 0.08	6.3 $\pm$ 1.47	4.1 $\pm$ 0.05	5.2 $\pm$ 0.85	3.8 $\pm$ 0.16
12 <sup>th</sup> week	5.0 $\pm$ 0.07	3.6 $\pm$ 0.08	6.6 $\pm$ 0.25	4.3 $\pm$ 0.06	5.8 $\pm$ 0.41	4.0 $\pm$ 0.18
13 <sup>th</sup> week	5.8 $\pm$ 0.44	3.9 $\pm$ 0.07	7.1 $\pm$ 0.16	4.6 $\pm$ 0.06	6.4 $\pm$ 0.37	4.2 $\pm$ 0.18
14 <sup>th</sup> week	7.0 $\pm$ 1.90	4.1 $\pm$ 0.02	7.5 $\pm$ 0.15	4.8 $\pm$ 0.04	7.2 $\pm$ 0.77	4.4 $\pm$ 0.18

15 <sup>th</sup> week	7.1±0.53	4.3±0.01	7.8±0.10	5.0±0.03	7.5±0.28	4.7±0.17
16 <sup>th</sup> week	7.5±0.43	4.6±0.02	10.3±2.75	5.3±0.05	8.9±1.31	4.9±0.18
17 <sup>th</sup> week	7.9±0.24	4.8±0.02	12.2±1.92	5.6±0.01	10.1±1.31	5.2±0.20
18 <sup>th</sup> week	8.4±0.35	5.0±0.01	18.8±0.67	6.0±0.01	13.6±2.56	5.5±0.25
19 <sup>th</sup> week	8.8±0.66	5.2±0.01	33.6±19.75	6.4±0.05	21.2±9.98	5.8±0.30
20 <sup>th</sup> week	11.2±0.35	5.4±0.02	41.2±23.65	6.8±0.10	26.2±11.99	6.1±0.35

n - Number of observations from three replicates in each sex

## Results and Discussion

The mean ( $\pm$ S.E.) body weight (g), body weight gain (g) and feed conversion ratio of the Native chicken variety maintained at CPPM, Hosur from 0 to 20 weeks of age are presented in Table 1, Table 2 and Table 3 respectively.

The hatch weight was 32.8±0.11 g and the body weight and weight gain of male and female chicks were comparable up to 8<sup>th</sup> week of age. The body weight of male, female and pooled sex at the end of chick phase (8<sup>th</sup> week) was 552.5±5.62, 502.5±4.86 and 527.4±3.76 g, respectively. Similarly, cumulative body weight gain of male, female and pooled sex at the end of chick phase (8<sup>th</sup> week) was 519.8±16.60, 469.9±14.66 and 494.8±14.66 g, respectively. The weekly body weight gain was recorded as less than 100 g up to 8<sup>th</sup> week age.

The body weight and weight gain of male was higher than female growers from 9<sup>th</sup> week of age. The body weight of male, female and pooled sex at the end of grower phase (20<sup>th</sup> week) was 1885.6±23.01, 1296.8±15.4 and 1591.2±16.24 g, respectively. Similarly, cumulative body weight gain of male, female and pooled sex at the end of grower phase (20<sup>th</sup> week) was 1852.9±5.98, 1264.2±23.15 and 1558.5±144.53 g, respectively. The weekly body weight gain was highest between 10 and 13 weeks of age and ranged from 120-125 g in males, whereas in females it was highest between 9 and 14 weeks of age and ranged from 79.2 to 91.4 g.

The body weight at first three weeks is higher than Miri chicken [6] and indigenous chicken at Bangladesh [11], and for the remaining period of age up to 8 weeks also higher than Miri chicken [6], desi chicken in Assam [12], Aseel chicken [13], TANUVAS Aseel chicken [9] and native chicken variety of Karnataka [5].

The results of this study is comparable with body weight of TANUVAS Aseel chicken [14] and lower than the body weight of Aseel chicken in Pakistan [8].

The body weight at 12<sup>th</sup> week of age in the study is higher than the body weight of Aseel chicken [13], native chicken variety of Belagaum division of Karnataka [5] and TANUVAS Aseel chicken [20] and similarly the body weight at 16<sup>th</sup> week of age is also higher than local chicken in southern Ghana [3] and Aseel chicken [10].

The body weight of this study at 20<sup>th</sup> week of age is higher than *desi* chicken in Assam [12] and native chicken variety of Belagaum division of Karnataka [5] and lower than TANUVAS Aseel chicken [16].

The body weight gain of the study is lower than Aseel chicken in Pakistan [8] and in Uttara Pradesh [13]. The cumulative feed conversion ratio of male, female and pooled sex at the end of chick phase (8<sup>th</sup> week) was 3.3±0.09, 3.5±0.15 and 3.4±0.09 and at 20<sup>th</sup> week of age were 5.4±0.02, 6.8±0.10 and 6.1±0.35, respectively.

The feed conversion ratio observed in this study is better than Aseel chicken in Pakistan [8], Hansli chicken in Odisha [3], Aseel chicken in Uttara Pradesh [13] and native chicken of Belagaum division of Karnataka [5].

## Conclusions

The results of present study on body weight and feed conversion ratio revealed that the male, female and pooled sex attained the marketing age and marketing weight with maximum weekly body weight gain and better feed efficiency at 14-16, 16-19 and 15-16 weeks of age, respectively.

## Acknowledgement

The author is expressed his sincere thanks to the Professor and Head, Department of Poultry Science, Veterinary College and Research Institute, Namakkal for providing the facility required for this research work. The author is very much obliged to M.V.Sc scholars for providing the necessary help to carry out this research work.

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