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Production performance of Nandanam chicken 4 in Cauvery delta region of Tamil Nadu

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Abstract

Production performance of Nandanam chicken 4 was evaluated at Poultry unit, Instructional Livestock Farm Complex, Veterinary College and Research Institute, Orathanadu, Thanjavur. At the end of 72 weeks of age the average egg weight (g), percent hen day egg production, percent hen housed egg production and percent mortality were 49.28±0.26, 53.14, 47.19 and 14.44 respectively. The present study revealed that the total hen day and hen housed egg production of Nandanam Chicken 4 is 193 and 172 eggs / hen / year. The better production performance of Nandanam Chicken 4 may favour the farmers in Cauvery delta region of Tamil Nadu to improve their livelihood and nutritional security.

Keywords: Nandanam chicken 4, egg production, production performance

Introduction

Nandanam chicken 4 is a synthetic dual purpose chicken developed through the reciprocal crossing of White Leghorn and Rhode Island Red. The crosses were pooled together and improved upon sustained selection and breeding for five generations, is maintained at Poultry Research Station, Tamil Nadu Veterinary and Animal Sciences University, Chennai. It is a dual purpose multi-colour plumage bird, lays brown shelled egg and non-broody in nature. This bird is well received by farming community because of its more egg production capability. This study was carried out to evaluate the production performance of Nandanam chicken 4 in Cauvery delta region of Tamil Nadu.

Materials and Methods

Ninety pullets were housed in Poultry unit, Instructional Livestock Farm Complex, Veterinary College and Research Institute, Orathanadu, Thanjavur. The birds were maintained in deep litter system using mash feed. The feed formulation was done based BIS (2007) ^[1] recommendation and nutrient composition is presented in table I. During the entire period of lay 16 hours of photoperiod was given. Throughout the study period all standard management practices were followed. The data on daily egg production, feed consumption and mortality were recorded from 21 to 72 weeks of age. Average egg weight, percent hen day egg production, percent hen housed egg production and percent mortality were calculated at 28 days interval.

Results and Discussion

The production performance of Nandanam Chicken 4 is presented in table II. The average egg weight (g) at the end of 40 and 72 weeks of age was 44.79±0.30 and 49.28±0.26 grams respectively. Premavalli *et al.* (2016) ^[2] and Chitra (2019) ^[3] reported that the egg weight of Nandanam Chicken 4 under intensive and free range systems as 53.55±0.76 and 52.0±0.62g respectively. Rajkumar *et al.* (2017) ^[4] reported that the mean egg weight at 40 and 72 wk of age in Aseel bird was 38.8± 0.6 and 47.5± 0.7 g respectively. The higher egg weight in Nandanam Chicken 4 when compared to Aseel chicken may be due to gene action of White Leghorn and Rhode Island Red. In addition to this the variations in egg size might be due to attributes like systems of rearing, climatic conditions, type of feed, feeding pattern etc.

The mean hen day egg production of Nandanam Chicken 4 at the end of 40 and 72 week of age was 53.59 and 50.20 percent respectively, whereas the hen housed egg production was found to be 53.14 and 47.19 percent respectively. When compared to the results observed by Kanagaraju *et al.* (2016) ^[5] the birds reared in Cauvery delta region are performing better.

The total hen day and hen housed egg production was 193 and 172 eggs / hen / year respectively which is closer to the findings of Chitra (2019) ^[3], who reported 176 eggs/ hen / year. But in Aseel hen the mean egg production at 72 weeks of age was 64 numbers which

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might be due to the presence of broodiness character, the primary reason for lowered production in native chicken (Rajkumar *et al.* 2017) [4]. The higher egg production in

Nandanam Chicken 4 might be due to the influence of genes of Rhode Island Red and White Leghorn birds, which are lack in broodiness character.

Table 1: Ingredients and nutrient composition of Layer diet

Ingredients (%)	Layer mash
Maize	47.200
Soy bean meal	27.000
Deoiled rice bran	15.000
Shell grit	6.520
Calcite	3.000
Dicalcium phosphate	0.250
Sodium chloride	0.560
DL-Methionine	0.100
Sodium bicarbonate	0.050
Trace mineral mixture ¹	0.200
Vitamin AB ₂ D ₃ K mix ²	0.015
Vitamin B-complex ³	0.025
Liver supplement	0.030
Choline chloride (60%)	0.100
Total	100.050
Nutrient composition*	
ME (kcal/Kg)	2460
Crude Protein (%)	18.00
Crude Fibre (%)	9.00
Calcium (%)	3.75
Available phosphorus (%)	0.37

* Calculated values

¹Trace mineral mixture - Each 5 kg contains - Manganese - 270 g, Zinc - 260 g, Iron - 100 g, Iodine - 10 g, Copper - 10 g, Cobalt - 5 g and Selenium - 1.5 g.

²Vitamin AB₂D₃K mix - Each gram contains - Vitamin A - 82,500 IU, Vitamin B₂ - 50 mg, Vitamin D₃ - 12000 IU and Vitamin K (stabilized) - 10 mg.

³Vitamin B-complex - Each gram contains - Vitamin B₁ - 8 mg, Vitamin B₆ - 16 mg, Vitamin B₁₂ - 80 mg, Vitamin E - 50 to 80 mg, Niacin - 120 mg, Folic acid - 8 mg, Calcium D pantothenate - 80 mg and Calcium - 86 mg.

Conclusion

The present study revealed that the total hen day and hen housed egg production of Nandanam Chicken 4 is 193 and 172 eggs / hen / year which is far better than the production performance of *desi* chicken. The study shows that the

Nandanam chicken 4 excels in egg production performance in high humid Cauvery delta region of Tamil Nadu. Hence Nandanam Chicken 4 is performing well in Cauvery delta region, farmers can rear this bird to improve their livelihood and for nutritional security.

Table 2: Production performance of Nandanam Chicken 4

S. No.	Age in weeks	No. of birds	Hen day egg production (%)	Hen housed egg production (%)	Mean egg weight (g)	Mortality (%)
1	21-24	90	17.28	17.22	43.41 ± 0.34	2.22
2	25-28	88	64.73	61.75	44.09 ± 0.38	3.41
3	29-32	85	61.95	58.13	44.51 ± 0.57	1.18
4	33-36	84	64.59	57.9	46.18 ± 0.94	7.14
5	37-40	78	61.95	53.69	45.38 ± 0.64	0
6	41-44	78	62.55	54.21	45.74 ± 0.44	0
7	45-48	78	60.53	52.46	47.12 ± 0.70	0
8	49-52	78	56.32	48.81	49.09 ± 0.65	0
9	53-56	78	58.01	50.28	52.63 ± 0.43	0
10	57-60	77	52.97	45.60	53.93 ± 0.61	1.28
11	61-64	77	46.94	40.16	52.54 ± 0.66	0
12	65-68	77	45.64	39.05	53.98 ± 0.50	0
13	69-72	77	40.07	34.29	53.44 ± 0.48	0
21-40 weeks			53.59	50.20	44.79 ± 0.30	13.33
21-72 weeks			53.14	47.19	49.28 ± 0.26	14.44

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