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Production performance of TANUVAS Aseel chicken in Cauvery Delta region of Tamil Nadu

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Abstract

The production and reproduction performance of TANUVAS Aseel chicken was evaluated at Poultry unit, Livestock Farm Complex, Veterinary College and Research Institute, Orathanadu, Thanjavur. The mean age at first egg and 50 percent egg production were 159 and 206 days, respectively. The mean hen day and hen housed egg production were 41.70 ± 4.06 , 40.26 ± 0.33 , 125.01 ± 1.89 and 120.37 ± 0.15 eggs at 40 and 72 weeks of age, respectively. The mean egg weight (g), fertility rate, total hatchability and fertile hatchability in TANUVAS Aseel chicken were 46.79 ± 0.11 , 86.68, 72.11 and 83.19 percent. The better production performance of TANUVAS Aseel chicken than native chicken may favour the farmers in Cauvery delta region of Tamil Nadu to improve their livelihood and nutritional security. The overall means of production and reproductive parameters estimated in this study indicates that TANUVAS Aseel chicken performs well under prevailing agro-climatic conditions of Cauvery delta region of Tamil Nadu to improve their livelihood and nutritional security.

Keywords: TANUVAS aseel, egg production, production performance

Introduction

TANUVAS Aseel is a superior variety of native chicken developed by Poultry Research Station, TANUVAS using strains of Aseel from Central Poultry Development Organization (CPDO), Bhubaneswar (Base population), Directorate of Poultry Research (DPR), Hyderabad and from a private entrepreneur and champion breeders. All the birds were brought into the genetic pool and random breeding was carried out. Later on, individual selection was carried out in the male for higher body weight and family selection was done in female for more egg number (part time egg production). Accordingly, a dual-purpose native variety of Aseel with all the characteristic features of the breed was evolved for table purpose with continuous selection and breeding for six generations, which is maintained at Poultry Research Station, Tamil Nadu Veterinary and Animal Sciences University, Chennai. This dual-purpose bird is well received by farming community because of its better growth rate and egg production capability. However, very scanty information is available regarding production and reproduction performance of TANUVAS Aseel chicken in Cauvery delta region of Tamil Nadu. Hence, the present study was carried out to evaluate the production and reproduction performance of TANUVAS Aseel chicken in Cauvery delta region of Tamil Nadu.

Materials and Methods

Hatching eggs were received from Poultry Research Station, Tamil Nadu Veterinary and Animal Sciences University, Chennai for this study. After hatching, the chicks were brooded in litter floor and all standard management practices were followed. At the end of 16th week birds were graded and elite males and females were chosen for breeding. A total of forty five cockerels and three hundred and forty pullets were housed in Poultry unit, Livestock Farm Complex, Veterinary College and Research Institute, Orathanadu, Thanjavur, Tamil Nadu. Throughout the study period mash feed was given. During the entire period of lay 16 hours of photoperiod was given and the eggs laid from were used for hatching after selection. The data on age at first egg, daily egg production, daily feed consumption, egg weight and mortality were recorded till culling. From the recorded data the average egg weight, hen day egg production, hen housed egg production, percent fertility and percent hatchability were calculated.

Results and Discussion

The production performance of TANUVAS Aseel Chicken was presented in Table 1. The mean egg weight (g) of TANUVAS Aseel Chicken was 46.79 ± 0.11 grams. The earlier studies reported that the mean egg weight (g) in Aseel chicken with range of 38.8 ± 0.6 to 48.27 ± 0.52 g (Ezhilvalavan *et al.* 2016; Haunshi *et al.* 2011; Maurya SK and Yadav BM 2018; Mohan *et al.* 2008; Rajkumar *et al.* 2017; Singh *et al.* 2008) [1-

6]. Further, the mean egg weight (g) in other *desi* birds was 46.16 ± 1.72 , 42.91 ± 1.94 and 40.25 ± 2.39 , respectively (Vij *et al.* 2006) [7]. These results indicates that, the egg weight of TANUVAS Aseel is closer to the above findings and slight variations in egg size might be due to other attributes like systems of rearing, climatic conditions, type of feed, feeding pattern etc.

Table 1: Production performance of TANUVAS Aseel Chicken

| S. No. | Parameter | Values |
|--------|---|---------------------------------------|
| 1. | Age at first egg (Days) | 159 |
| 2. | Age at 50 per cent egg production (Days) | 206 |
| 3. | Mean egg weight (g) | 46.79 ± 0.11 |
| 4. | Hen Day Egg Production (HDEP) in numbers | |
| | i. Upto 40 weeks of age ii. Upto 72 weeks of age | 41.70 ± 4.06 125.01 ± 1.89 |
| 5. | Hen Housed Egg Production (HHEP) in numbers | |
| | iii. Upto 40 weeks of age iv. Upto 72 weeks of age | 40.26 ± 0.33 120.37 ± 0.15 |
| 6. | Percent fertility (%) | 86.68 |
| 7. | Total hatchability (%) | 72.11 |
| 8. | Fertile hatchability (%) | 83.19 |

The mean age at first egg in TANUVAS Aseel was 159 days. It is reported that the age at first egg in the Aseel flock was range with of 154 to 214 days (Ezhilvalavan *et al.* 2016; Haunshi *et al.* 2011; Maurya SK and Yadav BM 2018; Rajkumar *et al.* 2017) [1, 2, 3, 5]. The mean age at sexual maturity of Non-descript Desi (ND), Hilly (H) and Naked Neck (NN) chicken under intensive management system was 157, 155 and 152 days respectively (Faruque *et al.* 2010) [8]. The overall estimated mean age at first egg in TANUVAS Aseel chicken was shorter in comparison with earlier published reports. Further, Vij *et al.* (2006) [7] reported that the mean age at first egg (months) in Danki, Kalasthi and Ghagus breeds of chicken as 7.37 ± 0.034 , 7.16 ± 0.24 and 5.75 ± 0.255 months respectively. The mean age at 50 percent egg production in TANUVAS Aseel was 206 days, which is in close agreement with findings of the of Haunshi *et al.* (2011) [2] reported as 213 days. The overall estimated mean age at first egg in TANUVAS Aseel chicken was shorter in comparison with earlier published reports. The earlier age at first egg and 50 percent egg production are justifiable for TANUVAS Aseel, because the present birds under study were already undergone rigorous selection pressure and are kept under intensive system of management.

The mean hen day and hen housed egg production of TANUVAS Aseel at 40 weeks of age were 41.70 ± 4.06 and 40.26 ± 0.33 eggs per bird respectively. At the end of 72 weeks the hen day and hen housed egg production recorded were 125.01 ± 1.89 and 120.37 ± 0.15 eggs per bird respectively. This value for this parameter is higher in comparison with previous report of Aseel chicken with range of 18 to 64 eggs (Haunshi *et al.* 2011; Vij *et al.* 2006; Rajkumar *et al.* 2017; S. K. and B. M. Yadav 2018) [2, 7, 5, 2]. Whereas Ezhilvalavan *et al.* (2016) [1] reported the mean egg production of 159 eggs per bird from 20-72 weeks of age. The prominent broodiness character might be the primary reason for lower production in native chickens in general and *Aseel* in particular. The favorable contributing factors for better hen day and hen housed egg production in TANUVAS Aseel chicken is due to variations in broodiness period, intensive system of rearing along with focused selection objectives in past generations.

The fertility rate, total hatchability and fertile hatchability in

TANUVAS Aseel chicken were 86.68, 72.11 and 83.19 percent. Under intensive management system, the fertility rate in Non-descript Desi (ND), Hilly (H) and Naked Neck (NN) chicken were 89.65, 91.55 and 84.98 percent respectively (Faruque *et al.* 2010) [8]. Similarly, the mean hatchability percentage of the above-said birds was 88.63, 79.23 and 57.66 respectively (Faruque *et al.* 2010) [8]. However, Rajkumar *et al.* (2017) [5] reported low fertility rate as 67.18%, hatchability as 44.71% on total eggs set and 80.87% on fertile eggs set in Aseel chicken. Premavalli *et al.* (2020) [9] reported that selection of hatching eggs weighing between 44 - 52 g is best suitable for obtaining better hatching performance in Aseel chicken. The fertility was influenced many factors like breed, nutrition, age, and management practices of birds. The variations in fertility and hatchability might be due to the differences in age of the birds and environmental conditions. The low reproductive performance might be due to the fact that the birds were brought from the field and reared under captive conditions under a new environment, leading to reduced fertility and hatchability among the birds.

Conclusion

The present study revealed that the mean egg weight (g), percent fertility, percent hatchability on total egg set and percent hatchability on fertile eggs set, hen day and hen housed egg production of TANUVAS Aseel was better than the production performance of native Aseel and other *desi* chickens. Further, the study highlights that the TANUVAS Aseel excels in egg production performance in high humid Cauvery delta region of Tamil Nadu. Hence TANUVAS Aseel is performing well in Cauvery delta region, farmers can rear this bird to improve their livelihood and for nutritional security.

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