



PRODUCTION PERFORMANCE OF ASEEL UNDER INDIAN TROPICAL CONDITION

S.EZHIL VALAVAN¹, A.V. OMPRAKASH², A. BHARATIDHASAN³ AND V. RAMESH SARAVANA KUMAR⁴

¹Associate Professor, Poultry Research Station

²Professor and Head, Poultry research Station

³Assistant Professor, Department of Animal Nutrition

⁴Director, CAPS, TANUVAS Tamil Nadu veterinary and Animal Sciences University Chennai, India

Abstract

The present study was conducted to evaluate the Aseel production performance under at the Poultry Research Station, Tamil Nadu veterinary and Animal Sciences University, Chennai, India. Day old Aseel chick was obtained from the Poultry Research Station and hatch weight of Aseel was 33.18 ± 0.91 g. Bi-weekly body weight was recorded to select best individual for next generation. Eight week body weight of male was 610.08 ± 0.23 g, female 575.70 ± 0.14 g and twelfth week body weight of male was 1054.78 ± 1.40 g and female 955.55 ± 1.56 . Total body length measured at 20th week was 75.84 ± 0.20 cm and 61.71 ± 0.79 cm for male and female respectively. Percentage of Hen day egg production for Aseel was 43.28 ± 2.3 . External and internal egg qualities were characterized during the study period.

I. INTRODUCTION

The Aseel is important native chicken breed in India. The Aseel breed is known for its stamina, pugnacity, majestic gait, and dogged fighting qualities (Panda and Mahapatra, 1989). The pure breeds of Aseel are still found in its breeding tract, namely, in the state of Andhra Pradesh and in some areas of the states of Rajasthan and Madhya Pradesh. The Aseel (Yellow) and Aseel (Black) varieties are commonly available among the 8 varieties of the Aseel breed described in the literature (Panda and Mahapatra, 1989). This breed is characterized by its hardiness and ability to thrive under adverse climatic conditions and its meat is considered to have a desirable taste and flavor. Of late, there is renewed interest among consumers and farmers in native germplasm because of the unique hardiness of the breeds, their ability to thrive under adverse climatic conditions, and the desirable taste and flavor of eggs and meat. Hence, a significant demand exists for the Aseel native chicken. As Mohan *et al.* (2008a) recently pointed out, more investigations are required to establish baseline values for production parameters of the Aseel breed and characterize their general performance. Therefore, Aseel need to be systematically evaluated for their various growth and production traits. Hence, the present study was conducted to evaluate various growth and production traits.

II. MATERIALS AND METHODS

The present study was taken up at the Poultry Research Station, Tamil Nadu Veterinary and Animal Sciences University, Chennai, India. A total of 500 chicks of the Aseel breed were utilized for this study. Birds were reared under cage system of management upto four weeks and afterwards reared under deep litter system of management. Birds were given *ad libitum* feeding and water. Body weight

was measured at bi-weekly intervals. Layer house mortality was recorded. Neck, body length, thigh and shank length were measured. Age at first egg, egg weight and part-time egg production were recorded. Egg weight, length, width, shape index, specific gravity, yolk weight, yolk height, yolk color, albumin weight, albumin height, Haugh units were recorded using standard procedures. Feed formulation for Aseel is presented in table 1. The mean and SE for various traits were calculated according to standard statistical procedures (Snedecor and Cochran, 1994).

Table 1. Feed formulation for Aseel under tropical condition

Ingredients	Brooder mash(0-8 week)	Grower mash (9-19 weeks)	Layer mash (20-72 weeks)
Maize	59.00	40.00	57.00
Bajra	-	10.00	-
DORB	4.00	23.80	5.00
Soya meal	24.50	10.70	14.40
Sunflower meal	-	7.00	7.00
Fish meal	10.00	6.00	9.00
Mineral mixture	2.00	2.00	2.00
Shell grit	-	-	5.00
Salt	0.50	0.50	0.50
Methionine	-	-	0.10

III. RESULTS AND DISCUSSION

The mean values of body weight of Aseel are presented in table 2. Day old body weight of Aseel was 33.18 ± 0.91 g observed in the present study. Similar day old body weight was reported by Haunshi *et al.* (2011). Second week body of Aseel ranges from 52.07 to 54.21 g. This is not in accordance with earlier report of Haunshi *et al.* (2011). In the present study, twelfth week body weight of Aseel was ranges from 955.55 ± 1.56 to 1054.78 ± 1.40 g. Singh *et al.* (2007) reported average 40-wk body weight of was 1,755 g. Average body weight Aseel at 26 and 78 wk of age of $1,658 \pm 40$ g and 2,298 g, respectively, were reported by Mohan *et al.*, (2008 b).

Table 2. Bi-weekly body weight of Aseel from day old to 12th week

Day / week	Body weight (g)
Day old chick	33.18 ± 0.91
2 nd Week male	54.21 ± 1.92
2 nd week female	52.07 ± 2.28
4 th week male	86.08 ± 1.29
4 th week female	83.00 ± 2.00
6 th week male	203.48 ± 0.10
6 th week female	187.82 ± 0.84
8 th week male	610.08 ± 0.23
8 th week female	575.70 ± 0.14
12 th week male	1054.78 ± 1.40
12 th week female	955.55 ± 1.56

Table 3. Body measurements of Aseel at 20th week of age

Sex	Thigh length (cm)	Drumstick (cm)	Shank length (cm)	Total body length (cm)
Male	11.38±0.34	17.38±0.30	12.04±0.44	75.84±0.20
Female	9.35±0.17	14.32±0.11	9.08±0.12	61.71±0.79

Thigh length, drumstick, shank and total body length at 20th week is presented in table 3. Thigh length ranges from 9.35±0.17 to 11.38±0.34 cm was observed in the present study. Similar result was reported by Haunshi *et al.* (2011). The total body length ranges from 61.71±0.79 to 75.84±0.20 cm was recorded in the present study.

Hen day egg production, hen housed egg production, age at sexual maturity, annual egg number and livability are presented in the table 4. Percentage of hen day egg production and hen housed egg production recorded in the present study was 43.28± 2.3 and 41.43± 2.5 respectively. However, Haunshi *et al.* (2011) observed that 40 week egg production was 36.23.

Table 4. HDEP, HHEP, age at sexual maturity, annual egg number and livability of Aseel

Production performance	values
Hen day egg production %	43.28± 2.3
Hen housed egg production %	41.43± 2.5
Age at sexual maturity (days)	144
Annual egg production (20-72 weeks)	159
Livability %	94.29

In our study, age at sexual maturity of Aseel was 144 days. In contrary to our finding, age at sexual maturity was higher in the study of Mohan *et al.* (2008 a, b). This might have been because, in the later part of the growing stage of birds, the day length prevailing at the experimental location was decreasing; hence, the age at sexual maturity was delayed in Aseel. However, the age at sexual maturity of the Aseel was 29 week under field conditions (Singh *et al.* 2000 b). Mohan *et al.* (2008 a,b) reported age at first egg production for Aseel was 154 days.

Annual egg production was recorded in the study was 159 at 20-72 weeks. However, Singh *et al.* (2000b) reported an average egg production of 33.17 eggs / hen per year under field conditions for the Aseel breed. The lower egg production in the Aseel breed is due to the broodiness condition observed in this breed. Under Indian conditions, commercial White Leghorn chickens with a 20-week age at sexual maturity and an adult body weight of 1.2 to 1.5 kg lay about 108 eggs in 40 week. Percentage of livability was recorded in our study was 94.29. Aseel birds seemed to have higher layer house survivability on both an individual and a combined sex basis as reported by Haunshi *et al.* (2011).

Mean external and internal egg quality parameters are presented in table 5. Egg weight of Aseel at 40 weeks was 48.27 ± 0.52. Similar study was reported by Haunshi *et al.* (2011). However, Singh *et al.* (2000 b) reported an average egg weight of 41 g for the Aseel breed, whereas Singh *et al.* (2000 a)

reported an average egg weight of 47.81 ± 0.18 for the same breed under field conditions. This variation in egg weight might be due to variation in the age of the hens from which the eggs were collected under field conditions. Mohan *et al.* (2008b) reported average egg weights of 40 and 52 g at 26 and 78 week of age, respectively, for the Aseel breed. In another study, Singh *et al.* (2007) reported average egg weights of 47 g for the Aseel breed.

Egg quality traits	values
Egg weight at 40 weeks	48.27 ± 0.52
Shape index	78.02 ± 0.25
Albumen index	0.077 ± 0.001
Yolk index	0.390 ± 0.001
Haugh unit	76.02 ± 0.45
Yolk colour	7.25 ± 0.22

Shape index was 78.02 ± 0.25 observed in the present study. A similar shape index (75.46) was reported for Aseel eggs collected in field conditions (Singh *et al.*, 2000 a), but once again, no mention was made of the age of the Aseel hens in their report. Values of albumen index, yolk index, Haugh unit and yolk colour are in accordance with the earlier reports of Haunshi *et al.* (2011).

From this study, we concluded that the Aseel exhibited better growth performance and need to be compared with other native chicken breeds of India.

BIBLIOGRAPHY

- [1] Haunshi, S., M. Niranjana, M. Shanmugam, M. K. Padhi, M. R. Reddy, R. Sunitha, U. Rajkumar and A. K. Panda, 2011. Characterization of two Indian native chicken breeds for production, egg and semen quality, and welfare traits. *Poul. Sci.*, 90 :314–320
- [2] Mohan, J., K. V. H. Sastry, R. P. Moudgal, and J. S. Tyagi. 2008a. Performance profile of Kadaknath desi hens under normal rearing system. *Int. J. Poult. Sci.* 43:379–381.
- [3] Mohan, J., K. V. H. Sastry, R. P. Moudgal, and J. S. Tyagi. 2008b. Production and other characteristics of Aseel Peela desi hens under normal rearing system. *Int. J. Poult. Sci.* 43:217–219.
- [4] Panda, B., and S. C. Mahapatra. 1989. Common breeds of poultry. Pages 6–18 in *Poultry Production*. ICAR, New Delhi, India.
- [5] Singh, D. P., R. Narayan, M. C. Kataria, S. Kumar, and S. K. Mishra. 2007. Evaluation, conservation and utilization of Indian native breeds of chicken. Pages 90–91 in *Annual Report—2007–08*. Central Avian Res. Inst., Izatnagar, India.
- [6] Singh, D. P., R. Narayan, M. C. Kataria, S. Kumar, and S. K. Mishra. 2007 a. Evaluation, conservation and utilization of Indian native breeds of chicken. Pages 90–91 in *Annual Report—2007–08*. Central Avian Res. Inst., Izatnagar, India.
- [7] Singh, U., R. K. Gupta, M. Singh, and B. S. Gurung. 2000b. Reproduction and production performance of Aseel, an indigenous breed of chicken. *Int. J. Poult. Sci.* 35:202–204.
- [8] Snedecor, G. W., and W. G. Cochran. 1994. *Statistical Methods*. 8th ed. Affiliated East-West Press, New Delhi, India, and Iowa State University Press, Ames.