

Comparative Performance of Aseel, *Kadakhnath* and Local Breed of Poultry in Mayurbhanj district of Odisha

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ABSTRACT

The present study was carried out to assess the growth performance among local breed, *Aseel* and *Kadakhnath* breed of poultry chicks. A total of 400 day old chicks were procured from local hatchery (200 chicks each of *Aseel* and *Kadakhnath* breed) and were provided 10 chicks each of both breeds to 20 farmers for raising under backyard poultry system. Birds of local breeds were procured by the farmers themselves. The body weight, egg production and net return were recorded for 40 weeks duration and found significantly higher in *Aseel* breed as compared to local and *Kadakhnath* breed of poultry. Likewise, the acceptability and adaptability of the *Aseel* breed of poultry was significantly ($P<0.01$) more than that of local breed and *Kadakhnath* breed. The incidence of disease in *Aseel* breed of poultry was significantly ($P<0.01$) less than that of Local and *Kadakhnath* breed of poultry.

Key Words: Breed, Body weight, Egg, Growth, Performance, Production, Poultry.

INTRODUCTION

The economy of Odisha depends on agriculture, hence government always give primary importance to the development of agriculture sector. In addition to the traditional agriculture, importance is also given to the allied agriculture sectors like animal husbandry, fishery and horticulture. Now a days, poultry rearing in the backyard, goatry, sheep rearing and mushroom cultivation are becoming the ways of different entrepreneurship development. Among all these entrepreneurial activity, poultry rearing is one of the most important entrepreneurial activity. The consumption of poultry meat has been increasing day by day across the world. However, indigenous breeds of poultry are important source of animal proteins and could be a very helpful food group helps in combating the nutritional deficiencies as well as in income generation of the rural and tribal masses.

Mayurbhanj is a tribal dominated district having 58.74% of the different tribal and PVTG (Particularly Vulnerable Tribal Group) people belonged to this district. Areawise Mayurbhanj is

the largest district in Odisha. It has more than 39% of the forest and hilly area out of total geographical area (4049 Sq.Km.). It contains most of the natural plants and there is big opportunity for the development of animal sectors. In most of the household anybody can find either poultry or goatry or both. It has been delineated that native chicken are well known for their adaptability to local agro-climatic conditions, hardiness, ability to utilize locally available feed, requiring minimum care and management besides having a unique flavor and taste. The eggs and meat of these birds reared in the family fetches premium price due to high consumer preference even in the urban areas where plenty of eggs and poultry meat from commercial units are available (Thomas *et al*, 2023).

Aseel and *Kadakhnath* are becoming progressively more popular as pure and out-crossed lines for their benefits in production traits and resistance to disease (Arora *et al*, 2011; Haunshi *et al*, 2011). Biswas *et al* (2010) emphasized that inspite of a drastic increase in the import of high yielding strains from across the world, the local breeds are still preferred in their native environment mainly due to its special capabilities

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Table 1. Comparison of body weight among *Aseel* and *Kadakhnath* and local breed of poultry.

Trait	Local breed	<i>Aseel</i>	<i>Kadakhnath</i>
Body weight (g)			
1 day	32.0	34.0	29.5
1 st week	46.08	48.06	46.89
2 nd week	65.06	71.87	60.45
4 th week	145.56	149.45	113.89
1.5month	255	267	193
4.5 month	755	1005	945
5 month	849	1235	1124
1 year	925	1459	1410
Age at first egg production (days)	178	175	172
Age at Sexual maturity	208	215	201

Table 2. Comparison of other trait among Local *Aseel* and *Kadakhnath* breed of poultry with the traditional poultry breed

Breed	Body weight (kg/yr/10 birds)	Increase in body weight (%)	Egg prod. (nos/bird)	Increase in egg prod. (%)	Gross cost (Rs/ 10 birds)	Net return (Rs/ 10 birds)	B:C
FP (Local breed)	9.00	-	42	-	1550	990	1.60
T1(<i>Aseel</i>)	14.59	62.1	58	38.09	1600	1250	1.81
T2(<i>Kadakhnath</i>)	14.10	56.6	48	14.2	1610	1100	1.63

i.e., good foraging, less cost and efficient mothers. The *Aseel* and *Kadakhnath* are the two native breeds of India. The *Aseel* breed is known for its stamina, hardy meat and fighting qualities. Most of the people in Mayurbhanj considered *Aseel* breed chicken as their local breed poultry. *Kadakhnath* breed of poultry is native to village Jhabua of MP. The meat of this breed is locally known as Kalamashi due to its black colour meat. Therefore, an effort was made to assess comparative performance of *Aseel*, *Kadakhnath* and Local Breed of poultry.

MATERIALS AND METHODS

An assessment of three poultry breeds under semi intensive system at backyard was conducted in four villages namely Kadalibadia, Badakhaladi, Bholagadia and Gundihudi during 2021-22. A total of 400 day old chicks were procured from local hatchery (200 chicks each of

Aseel and *Kadakhnath* breed) and were provided 10 chicks each of both breeds to 20 farmers for raising under backyard poultry system. Birds of local breeds were procured by the farmers themselves. The various parameters namely body weight, egg laying (days), age at first egg production (days) and sexual maturity (days) were studied. The body weights were recorded at day old, one week, second week, fourth week, 1.5 month, 4.5 month, 5 month and after 1 year and weight gain was calculated. Home made feed mixture was offered by the farmers to all three categories of birds kept under backyard system of rearing. The data were statistically analysed by SPSS, and excel-22. Sensory evaluation of meat was conducted by 5 panelist of Govt. Veterinary Assistant Surgeons of Mayurbhanj district. Five point Likert scale was used for sensory evaluation rating.

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Table 3. Sensory evaluation for acceptance of poultry meat.

Sensory trait evaluation	Local breed	<i>Aseel</i>	<i>Kadaknath</i>
Taste	9.2	8.7	6.8
Colour	8.2	8.6	4.2
Flavour	8.9	8.8	4.3

RESULTS AND DISCUSSION

The mean values of sexual maturity, age at first egg laying, body weight, egg production of these poultry breeds were compared with the traditional practice of local breed chicks (Table 1). The higher body weight was observed in *Aseel* breed as compared with local breed and *Kadaknath* breed of poultry chick.

In the present study, age at first egg laid was 175 d and 172 d in *Aseel* and *Kadaknath* birds, respectively. In contrary to present finding, age at first egg was slightly lower in the study of Haunshi *et al* (2011) and Thangadurai and Shanmugam (2019). However, Ezhil Valavan *et al* (2016) reported age at first egg production was 159 days. This might be due to the genetic potentiality of birds, growing stage of the birds, managemental differences and study location. It has been documented that total egg production determines the success of poultry enterprises and better income to farmers (Vinothraj *et al*, 2020).

The body weight of the *Aseel* breed at one year of age was 1.459kg and was significantly ($P < 0.001$) higher than that of local breed (0.9 Kg) and *Kadaknath* breed of poultry (1.410kg). The body weight of the *Aseel* breed and *Kadaknath* breed was 62.1% and 56.6% higher than that of the local poultry breed, respectively. Similarly the egg production of the *Aseel* breed of poultry was 58 numbers and was significantly ($P < 0.001$) higher than kadaknath (48 nos) and local breed (42 nos) of poultry. The net return from rearing ten *Aseel* poultry birds was Rs. 1250/- and was significantly higher than rearing of local breed (Rs 990/-) and *Kadaknath* breed of poultry. The benefit cost ratio of *Aseel* breed poultry (1.81) which was also significantly higher than *Kadaknath* breed of poultry chick and local breed of poultry chick. These results were in agreement with Shanmathy *et al* (2018) who concluded that *Aseel* birds had better production performance than the Kadaknath which can be used for crossbreeding. However, Deori *et al* (2024)

reported that kadaknath chicken has demonstrated comparable performance to local varieties in terms of production in the hill ecosystem. These results further strengthen the findings of Acharya and Behera (2019) who reported that backyard poultry farming is an effective tool to strengthen the livelihood of resource poor farmers and landless labourers in rural area with low-cost initial investment. It provides eggs and meat for family consumption and additional income to the rural households.

The sensory evaluation traits like taste, colour and flavour were studied for the acceptance of the three breeds by five point Likert scale. The taste and flavour of the local breed was significantly ($P < 0.01$) more accepted by the panelist in comparison to the *Aseel* and *Kadaknath* breed of poultry whereas the colour of the meat of the *Aseel* breed was more preferred by the panellist in comparison to the local breed and *Kadaknath*.

CONCLUSION

The result of the present study carried out in Mayurbhanj district of Odisha showed the growth rate, egg production, and net return from *Aseel* breed of poultry chick was significantly higher than local breed and *Kadaknath* breed of poultry. Acceptability and adoptability rate as per sensory evaluation was higher for local poultry breed followed by *Aseel* and *Kadaknath* among the tribal people of this district. Hence, in overall among these three breeds *Aseel* breed was the most accepted and profitable breed for the tribal community.

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