J Krishi Vigyan 2024, 12(4) : 920-922
DOI : 10.5958/2349-4433.2024.00157.8
ISSN 2319-6432 (Print)
ISSN 2349-6433 (Online)

Productive performance of White Pekin Ducks Reared under a Semi-Intensive System in Assam

Prabhat Baruah[1], Sanjoy Borthakur[2], Trishnalee Saikia[3], Bhoirab Gogoi[4], Manoranjan Neog[5] and Ranjit Kumar Saud [6]
Krishi Vigyan Kendra, Jorhat (Assam)

ABSTRACT

Productive performance of White Pekin ducks reared under semi-intensive system in Jorhat and Majuli districts of Upper Assam has been studied through Front Line Demonstration (FLD) programme organized by Krishi Vigyan Kendra (KVK) Jorhat during 2020 to 2024. Study envisaged the key performance indicators including body weight gain at various ages, mortality rate, feed intake, feed conversion ratio (FCR), gross return per duck, gross cost per duck, and benefit-cost ratio (BCR) and compared against local Pati ducks. The BCR for White Pekin ducks was found to be 1.63, indicating significantly higher profitability compared to a BCR of 1.19 for local ducks. It has been revealed that White Pekin ducks has significant advantages in respect of other performance parameters like growth rate, FCR, and economic returns over the local breeds.

Key Words: Benefit-cost ratio, Evaluation, Performance, Semi-intensive system, Upper Assam, White Pekin duck.

INTRODUCTION

In different regions of India, farmers tend to favour duck farming instead of chicken farming because ducks experience fewer disease outbreaks, exhibit lower mortality rates, and are easier to manage. Duck farming holds substantial importance in the agricultural landscape of Assam, particularly for small and marginal farmers who rely on it for income, food security, and nutritional benefits. The indigenous Pati duck, although widely reared, has limitations in meat production due to slower growth rates and lower feed conversion efficiency. On the other hand, the White Pekin duck, recognized as a broiler breed, is celebrated for its rapid growth and high meat yield, making it more suitable for commercial purposes (Nath *et al*, 2022). White Pekin ducks are renowned for their high-quality meat and are raised globally in commercial duck farms. While there are a significant number of literatures (Stęczny *et al*, 2017; Kokoszyński *et al*, 2019; Rabbani *et al*, 2019) regarding different aspects of white pekin duck production in a commercial feeding setup within a confined system, there is limited knowledge about the growth performance of this duck breed when raised in a semi-intensive system.

This study aimed to evaluate the productive performance of White Pekin ducks under a semi-intensive system in the Jorhat and Majuli districts of Upper Assam, specifically comparing their performance with that of local Pati ducks. The study used statistical analysis to assess significant differences in growth rate, feed conversion efficiency, and overall economic viability between the two breeds. The objective of the study was to popularize the breed among the small and marginal farmers of the districts and enhance the income as well as nutritional security.

MATERIALS AND METHODS

Study Area and Flock Composition

The study was conducted between 2020 and 2024 in Jorhat and Majuli districts of Assam, under the auspices of the front-line demonstration (FLD) programme organized by KVK Jorhat. A total of 900 White Pekin ducks were reared in a

Corresponding Author's Email - borthakursanjoy@gmail.com
[1]Subject Matter Specialist (Animal Science), [2]Senior Scientist and Head, [3]Subject Matter Specialist (Agril. Economics),
[4]Subject Matter Specialist (Horticulture), [5]Director of Extension Education, AAU, Jorhat,
[6]Associate Director of Extension Education, AAU, Jorhat

Table 1. Body Weight of White Pekin vs Local Pati Ducks at Different Ages.

Age (Days)	White Pekin (kg)	Local Pati (kg)	p-value
1	0.068 ± 0.005	0.053 ± 0.004	< 0.01
15	0.390 ± 0.012	0.225 ± 0.007	< 0.01
45	1.76 ± 0.20	0.635 ± 0.12	< 0.01
60	2.71 ± 0.25	0.710 ± 0.15	< 0.01

Table 2. Feed Intake, FCR, and Mortality Rate of White Pekin vs Local Pati Ducks.

Parameter	White Pekin	Local Pati	p-value
Feed Intake (kg)	6.16	2.75	< 0.01
FCR	2.70:1	3.87:1	< 0.01
Mortality Rate (%)	2.00	6.00	< 0.05

semi-intensive system, which allowed them access to natural foraging during the daytime while providing supplementary feed to meet their nutritional needs. The ducks were housed in well-ventilated shelters at night to ensure their comfort and safety.

Data Collection

Data were meticulously collected on various performance parameters, including body weight at 1 day, 15 days, 45 days, and 60 days, along with feed intake, feed conversion ratio (FCR), mortality rate, gross return, and gross cost per duck. This data collection aimed to create a comprehensive profile of the performance of White Pekin ducks, which was then compared against the performance metrics of local Pati ducks reared under similar conditions.

Statistical Analysis

Descriptive statistics, including means and standard deviations, were computed to evaluate the performance parameters for both breeds. A two-sample t-test was employed to compare the means of the two groups, with p-values calculated to assess the significance of differences observed. A significance level of 0.05 was established for all statistical tests to ensure robust conclusions.

RESULTS AND DISCUSSION

Body Weight Gain

The results indicated that White Pekin ducks exhibited significantly higher body weights at all assessed stages compared to local Pati ducks. Specifically, at 60 d of age, White Pekin ducks reached an average weight of 2.71 kg, whereas local Pati ducks averaged only 0.71 kg. The observed differences in body weight were statistically significant ($p < 0.01$), demonstrating the superior growth rates of White Pekin ducks.

The significant differences in body weight indicate that White Pekin ducks were better suited for commercial meat production compared to local Pati ducks, making them a more favorable option for farmers seeking higher yields.

Feed Intake and Feed Conversion Ratio (FCR)

In terms of feed efficiency, White Pekin ducks demonstrated a higher total feed intake, averaging 6.16 kg per duck over 60 days, compared to only 2.75 kg for local Pati ducks. Despite the higher feed intake, White Pekin ducks achieved a significantly better feed conversion ratio (FCR) of 2.70:1, while local Pati ducks had an FCR of 3.87:1 ($p < 0.01$). This efficiency indicated that White Pekin ducks convert feed into body mass more effectively, which is crucial for profitability in duck farming. Ghosh *et al* (2022) has also reported similar results.

The superior feed conversion ratio of White Pekin ducks not only underscores their efficiency in feed utilization but also highlights their potential for increased profitability for farmers who rear them.

Economic Performance

Economic evaluation further substantiated the advantages of rearing White Pekin ducks. The gross return per White Pekin duck was Rs. 670/-, significantly higher than the gross return of Rs. 400/- local Pati duck ($p < 0.01$). Although the gross cost per duck for White Pekin was Rs. 412/- compared to Rs. 336/- for local Pati ducks, the resultant benefit-cost ratio (BCR) was more

Table 3. Economic Comparison of White Pekin vs Local Pati Ducks

Economic Parameter	White Pekin	Local Pati	p-value
Gross Return (Rs)	670.0	400.0	< 0.01
Gross Cost (Rs.)	412.0	336.0	< 0.05
Benefit-Cost Ratio (BCR)	1.63	1.19	< 0.01

favorable for White Pekin ducks at 1.63 versus 1.19 for local ducks.

The higher BCR for White Pekin ducks indicates their superior profitability, despite the slightly elevated costs associated with their rearing, reinforcing the economic viability of choosing this breed for meat production.

CONCLUSION

The findings of this study clearly indicated that White Pekin ducks, when reared under a semi-intensive system in Upper Assam, significantly outperform local Pati ducks across various performance metrics. The statistical analysis confirmed these differences were highly significant ($p < 0.01$), particularly concerning growth performance and feed conversion ratios. The ability of White Pekin ducks to achieve faster growth rates translates directly into higher gross returns and improved benefit-cost ratios, rendering them a more viable option for commercial meat production. The increasing adoption of White Pekin ducks in the Jorhat and Majuli districts underscores their profitability and aligns with the needs of local farmers seeking sustainable income sources.

REFERENCES

Das S and Kalita D (2023). Feeding Practices and Their Effects on Growth Rate in Pekin Ducks: A Study from Assam. *J Poult Sci and Technol* **25**(2): 75-83.

Ghosh S, Saha M, Md Habib and Sahu NC (2022). Growth Performance and Meat Quality of White Pekin Ducks Reared in Backyard Farming System. *Asian J Dairy and Food Res* **41**(4): 495-499.

Kokoszyński D, Wasilewski R, Saleh M, Piwczyński D, Arpášová H, Hrnèar C and Fik M (2019). Growth performance, body measurements, carcass and some internal organs characteristics of pekin ducks. *Animals* **9**(11): 963.

Nath NC, Sharma, P, Saikia J and Mahanta J (2023). Comparative Study on Productive Traits of Ducks in Assam. *J Livestock and Poult Res* **18**(2): 45-52.

Rabbani MAG, Das SC, Ali MA, Hassan MR and Ali MY (2019). Growth performance of pekin ducks under full confinement system fed diets with various nutrient concentrations. *Asian J Biological Sci* **12**(4): 717-723.

Steczny K, Kokoszynski D, Bernacki Z, Wasilewski R and Saleh M (2017). Growth performance, body measurements, carcass composition and some internal organ characteristics in young Pekin ducks. *South African J Anim Sci* **47**(3): 399-406.

Received on 2/11/2024 Accepted on 20/11/2024