Short Communication

PRODUCTION PERFORMANCE OF KHAKI CAMPBELL DUCKS IN BACKYARD SYSTEM AND ITS ECONOMICS IN ASSAM STATE OF INDIA

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ABSTRACT

A study was conducted in four flood-prone villages at Krishi Vigyan Kendra, Assam Agricultural University, Dhubri to assess the production performance of Khaki Campbell ducks and the economics of rearing them under NICRA (National Innovations in Climate Resilient Agriculture) project. A total of 10 farmers were selected from Dhubri village on the basis of their experience in duck farming. Two hundred day-old Khaki Campbell ducklings, twenty numbers irrespective of sex per household, were distributed and reared up to 72 weeks. On attaining 30th week of age, the male ducks were sold out. The data including body weight, mortality, age at first egg and egg production were recorded. The average age at first egg was 163.0±3.6 days, and 30th week mean body weight was 1.8±0.1 kg. The mean egg production and mortality rate were 180.8±4.1 and 13% respectively during the study period. It was found from the study that Khaki Campbell duck farming has contributed notably to the livelihood of the rural farmers with benefit-cost ratio of 1.87.

Keywords: Duck farming, Livelihood, Benefit Cost Ratio

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INTRODUCTION

Duck keeping is a traditional practice among the rural women of Assam since time immemorial. In Dhubri district of Assam, majority of the rural households have a pond nearby and most of the woman members rear 8 to 10 Pati ducks in backyard system for their nutritional security. These ducks are maintained by providing only kitchen waste; while, the rest of the nutrient requirements are met from foraging. During festival seasons,

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there is a huge demand for duck meat in Assam. There is also high demand for duck eggs because of their size. By the sale of duck eggs, the household women earn money for their day-to-day petty expenses. Thus, duck farming plays an important role in poverty alleviation among the rural communities of this region. However, the desi ducks that commonly reared by the farmers lay only about 80 eggs in a year (Bharali and Borah, 2018). On the other hand, Khaki Campbell, an exotic breed and Chara and Chambelli varieties of Kuttanad, an Indian breed produce more numbers of eggs compared to the desi ducks. Although, it is widely considered that these ducks perform well in different agro-ecological zones of Assam and produce remarkably higher number of eggs, not much information is available in the literature on their performance and economics. Therefore, the production performance of Khaki Campbell ducks in village poultry production system and their economics were evaluated in this study.

MATERIALS AND METHODS

This study was carried out during the years 2020 and 2021 in four villages, namely, Udmari Pt -III, Udmari Pt -IV, Udmari Pt -V and Barshi Pt –I near Bilasipara in Dhubri district of Assam. About 80% people in this region depend on agriculture and allied sectors. The socio-economic condition of the people living in these villages is very poor as flood is a major constraint for agriculture and livestock production. For the present study, 10 farmers from the four above mentioned villages were selected based on experience and having housing arrangement for accommodating twenty numbers of ducks, were also imparted 3 days training. Each farmer was also supplied with 20 numbers of day-old Khaki Campbell ducklings; thus, a total of 200 ducklings were used for the study. Initially brooding arrangement was made for the day old ducklings and were fed with duck starter feed during first three weeks. They were vaccinated against duck plaque at six weeks of age and other standard management practices on feeding and disease prevention were followed. The data on weekly body weight, feed intake, age at first egg, egg production, number of eggs sold were recorded. On completion of 30th week, drakes were sold out; while, the female ducks were retained for egg production. At the end of the study at 72 weeks, all the female ducks were sold out and the economics was calculated. The data recorded in the study were subjected to statistical analysis by the method described by Snedecor and Cochran (1995).

RESULTS AND DISCUSSION

Production Performance

The data on mortality rate, bodyweight, egg production and age at first egg are depicted in Table 1. Although standard management practices were followed, a total of 26 (13%) ducks died due to diseases like enteritis and coccidiosis during the study period. Roy *et al*. (2017) also reported similar mortality rate of 15% in Khaki Campbell ducks reared up to 18 months in backyard system of management. At 30th week, the mean body weight recorded was

1.8 kg. The finding on mean body weight is in line with the findings of Bharali and Borah (2018), where they reported mean body weight of 1456.33 g in Khaki Campbell duck at 25th week of age with higher mean body weight in drakes (1655.50 g). Slightly higher body weight observed in the present study might be due environmental variation and availability of more scavengeable feed resources like snails, insects, forage and aquatic weeds in the study area. The mean age at first egg was 163 days and the mean egg production per duck was 180.5. Roy *et al*. (2017) reported that the average age at first egg and annual egg productions of Khaki Campbell duck was 172 days and 193 numbers respectively. In a similar study, Bharali and Borah (2018) compared the performance of Khaki Campbell and Desi ducks and reported that the age at first egg of Khaki Campbell and desi ducks were 173.55 and 245.45 days, respectively. They also reported that Khaki Campbell and Desi ducks laid 164 and 86 eggs respectively. Slightly earlier age at first egg and higher egg production in Khaki Campbell ducks recorded in the present study might be attributed to better management and feeding practices followed in the study area.

Expenditure and Return

The data on economics *viz.,* total expenditure and income from selling of eggs and live ducks are presented in Table 2. A total of 11,935 eggs were produced by 66 ducks reared in 10 households and were sold in the local market at the rate of Rs. 8 per egg. Thus, from selling of eggs, an income of Rs. 95,480 was generated. After 30th week of age, the drakes and on completion of laying at 72 weeks of age, the spent female ducks were sold at the rate of Rs. 250 per kg live weight. A total of 311.78 kg of live ducks were sold at the end of the study and the income generated from the sale of live ducks was Rs. 77,945, making the gross income of Rs. 1,73,425 from 200 ducks.

Feed is considered to be the major contributor in the production cost of livestock farming (Singh *et al*., 2009). In the present study, the major expenditure was incurred on feeding. A total of 2,518 kg of feed was consumed by the ducks during the study period and the expenditure incurred on this was Rs. 75,540. Jha and Chakrabarti (2017) also reported that feed cost constituted the highest expenditure for Khaki Campbell ducks under backyard rearing condition. Other expenditures on the cost of day-old ducklings, medicines and supplements were Rs.17,000. Thus, the total expenditure incurred in rearing 200 Khaki Campbell ducks was Rs. 92,540.

A net income amounting to Rs. 80,885 was generated by all the ten households involved in this study. The cost of production per duck was Rs. 462.70 and the net income per duck was Rs. 404.42. In the present study, the benefit-cost ratio realized was 1.87. Roy *et al*. (2017) also reported higher benefit-cost ratio in rearing Khaki Campbell duck compared to desi ducks in backyard system of management.

Table 1. Production performance of Khaki Campbell ducks

Performance parameters	Values (mean±SE)
Mortality (%)	13%
Body weight at 30 weeks (Kg)	1.8±0.4 (n=176)
Total Egg Production/bird	180.5±4.1 (n=66)
Age of bird at first egg (in days)	163±3.6 (n=66)

Table 2. Expenditure and income particulars of Khaki Campbell duck rearing

Particulars	Amount (Rs.)
Total feed consumed (Kg)	2,518.0
Cost of feed @ Rs. 30/Kg	75,540.00
Cost of 200 Khaki Campbell ducklings @ Rs. 75/- per duckling	15,000.00
Cost of Medicine, supplements etc.	2,000.00
Gross Expenditure	92,540.00
Expenditure per household	9,254.00
Cost of production per bird	462.70
Sale of eggs (11935nos.) @ Rs. 8/- per egg	95,480.00
Sale of live duck (311.78kg) @ Rs. 250/- per Kg	77,945.00
Total Gross income	1,73,425.00
Net Income	80,885.00
Gross income per house hold	17,342.50
Net income per house hold	8,088.50
Gross income per duck	867.12
Net income per duck	404.42
Benefit cost ratio	1.87

CONCLUSION

From the above study, it can be concluded that the performance of Khaki Campbell ducks in village conditions is a successful activity, which can provide a subsidiary income to the rural households.

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