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Performance Analysis of 'Narmada Nidhi' Poultry Under Backyard Farming System in Mandla District of Madhya Pradesh

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Abstract

Backyard poultry farming (BYPF) is an important activity to empower tribal women socially and economically, as it generates cash income and provides employment opportunities, while increasing production of valuable foods (eggs and meat) that improve household nutrition. The present study was conducted in six villages of Narayanganj and Niwas blocks of Mandla District. Data were collected through a structured interview schedule by personal interview method. After proper extension interventions, six self-help-groups were formed and each group was provided with 50, (eight weeks age growing) Narmada Nidhi chicken to analyse its performance parameter under backyard system. The study shows that, average age and weight at sexual maturity obtained in this study were 160.5 ± 3.60 days and 1415 ± 10.12 g, respectively. The annual average egg production obtained was 165.27 ± 3.15 eggs/hen/year. The mean value egg weight, egg length and egg width was 48.67 ± 2.92 g, 51.91 ± 1.02 mm and 40.32 ± 3.01 mm, respectively while the yolk weight, albumen weight, shell weight, shell thickness and yolk color were 16.43 ± 1.78 g, 25.76 ± 2.67 g, 5.87 ± 0.94 g, 0.42 ± 0.08 mm and 6.01 ± 3.98 , respectively.

Key Words: Backyard, Narmada Nidhi, poultry, self-help group, Performance, Tribal people.

Introduction

Backyard poultry farming (BYPF) is an important venture and integral part of mixed farming in most of the tribal villages of Mandla District of Madhya Pradesh. At the same time, it provides an excellent opportunity for gainful employment to idle or unemployed members of tribal communities. Further, the meat and egg of backyard poultry (BYP) are more highly valued than that of industrially produced birds due to its comparatively superior taste and texture. Traditionally, the village poultry in tribal areas is based on non-descript varieties of poultry stock and their productivity is also very low as compared to improved BYP. Thus, to improve the livelihood of tribal peoples a more holistic and self-reliant SHG approach is necessary not only in terms of improvement of income, employment and nutritional status but also in terms of community development and gender empowerment. The organized BYPF will provide an avenue for resource-poor tribal people to increase production, improve their livelihoods, reduce malnutrition, and thereby, contribute to the goal of overall poverty alleviation.

Materials and Methods

The present study was conducted in Narayanganj and Niwas blocks of Mandla District of Madhya Pradesh have a sizeable proportion of tribal population as well as farmers who are interested to adopt backyard poultry farming as a means of livelihood. Three villages were selected randomly from each block for the present study. On the basis of existing status and constraints perceived by tribal poultry owners suitable extension strategies was developed in active consultation with the scientists of All India Co-ordinated Research Project on Poultry Breeding, other departments of the College of Veterinary Science and Animal Husbandry, Jabalpur to improve the backyard poultry farming practices in Mandla district. Then after organizing the awareness campaigns and exposure visits women SHG (10 tribal women in each) was formed from each village. Thus, the total number of SHGs and members were 06 and 60, respectively. The Centre of All India Co-ordinated Research Project on Poultry Breeding, Nanaji Deshmukh Veterinary Science University, Jabalpur has developed a coloured bird 'Narmada Nidhi' and has all the attributes of village poultry in terms of colour, hardiness and ability to thrive in scavenging conditions without any major changes in traditional backyard poultry farming system. Therefore eight weeks age Narmada Nidhi chickens were used in this study. A total of 240 growing females and 60 growing males Narmada Nidhi were distributed to six SHGs over six villages.

Data Collection

Data on egg production were collected daily by the participating farmers using a format prepared for this purpose and data on egg quality parameters was collected during the peak egg production. The overall quality of an egg can be discussed under two broad categories namely, external and internal quality (Monira *et al.*, 2003). Egg quality parameters were determined from 300 (50 from each village) fresh clean eggs laid by the distributed chicken. Eggs were weighed using an electronic digital balance. The yolk weight was taken after gently separated the yolk from the albumen and the differences [between egg weight- (shell weight + yolk weight)] were considered as albumen weight. Egg length, egg width and eggshell thickness were measured using caliper and Yolk color was determined by adjusting the score of yolk color on color fan from Roche (Vuilleumier, 1969).

Results and Discussion

Age and Weight at Sexual Maturity

The average age and weight at sexual maturity of Narmada Nidhi chicken obtained in this study were 160.5 ± 3.60 days and 1415 ± 10.12 g, respectively. The early sexual maturity obtained in this study may be due to the longer duration of light and the hot climate (Regassa *et al.*, 2013).

Egg Production Performance

In this study the annual average egg production of Narmada Nidhi chicken managed under backyard condition was 165.27 ± 3.15 eggs/hen/year. The peak hen day egg production percent was achieved at 29-31 weeks of age and the peak hen day egg production was 68.22%. The egg production pattern was similar across the villages in all SHGs this might be due to similar management practices delivered. It was found that the egg production of Narmada Nidhi was in agreement with the data available in AICRP on Poultry Breeding report, NDVSU, this indicates the suitability of backyard farming system for this breed.

Egg Quality Characteristics

Mean values for internal and external egg quality traits of the eggs showed that egg weight, egg length and egg width was 48.67 ± 2.92 g, 51.91 ± 1.02 mm and 40.32 ± 3.01 mm, respectively while the yolk weight, albumen weight, shell weight, shell thickness and yolk color were 16.43 ± 1.78 g, 25.76 ± 2.67 g, 5.87 ± 0.94 g, 0.42 ± 0.08 mm and 6.01 ± 3.98 , respectively. In all the six villages, egg quality characteristics have shown similar trend might be due to the similar

management practices. Good shell thickness is economically important trait in commercial egg production as it may help to reduce the percentage of broken eggs.

The yolk color obtained in the present study was lower than that reported by Zaman et al. (2004), Cicek and Kartal kanat (2009), who reported 9.3 and 11.94 on DSM color fan from Roche; this might be due to the difference in scavengable feed resource of this study areas. Dark yellow, which is a preferred color by costumers, it is provided when they feed on herbage, insects and dung (Kirkpinar and Erkek, 1999). This indicates that the yolk color changes depends on chicken feed, the village chicken egg yolk color is darker than the commercial because they are fed on different herbages and insects. According to Premavalli and Viswanathan (2004), yolk color can vary as a result of nutrition, age, system of management and genetic makeup.

Conflict of Interest: All authors declare no conflict of interest.

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