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Performance of Namakkal chicken -1 under semi-intensive farm system in Namakkal district of Tamil Nadu

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Abstract
Rural poultry farming involves rearing of improved chicken varieties under free range, semi intensive or intensive conditions. The annual egg production of native chicken varieties adopted in free- range backyard conditions are in the range of 50-60 eggs only. The total income received from rearing of desibirds is not sufficient for the farmers to raise their livelihood status. At this juncture, to increase the income level of farmers, Krishi Vigyan Kendra, Namakkal conducted a On Farm Trail (OFT) on Namakkal Chicken -1, which was developed by Tamil Nadu Veterinary and Animal Sciences University. One hundred-day old chicks were procured from VCRI, Namakkal poultry farm and after two weeks of brooding they were given to five progressive farmers of Namakkal district. Farmer was rearing birds under semi-intensive system and fed grains, concentrate feed and *adlibitum* greens. Birds were vaccinated against Newcastle disease and Fowl Pox. The feed intake, egg production and mortality rate were recorded daily and weight gain was recorded once in a week. The weight gain at 16th week of age was 1734.60 ± 13.78 grams for male birds and 1508.60 ± 6.66 grams for female birds. The egg production was 157 ± 1.14 numbers at 72 weeks of age. The production performance was at par with other crossbred varieties of desibirds. Hence it was concluded that the Namakkal Chicken -1 bird is suitable for crossbred desibird farming in Namakkal district for higher profits.

Keywords: Namakkal chicken-1, feed intake, weight gain, egg production

Introduction
Livestock and poultry rearing is an imperative factor for improving the nutritional security of the rural poor in India. Rural farmers usually rear desi type chicken (native chicken) having low egg and meat production potential. Most of the backyard poultry production comprises of rearing indigenous birds with poor production performances (Patra and Singh, 2016) [4]. The potentiality of indigenous birds in terms of egg production is only 50 to 60 eggs/ bird/ year and meat production is also very low (Patra and Singh, 2016) [4]. However, the backyard poultry production can be enhanced by adopting improved strains of chicken that can promise better production of meat and egg. The crossbred poultry farming is a viable and promising enterprise to improve the socio-economic status of farmers in rural areas with low-cost initial investment and high economic return along with guarantee for improving protein deficiency among the poor (Chakrabarti, 2014). Vanaraja is an example of a superior stock developed by the project directorate on poultry, Indian Council of Agricultural Research (ICAR), Hyderabad for backyard farming in rural and tribal areas of India. It is a choice dual purpose colored bird and has significantly contributed to the overall economy of the rural people in terms of eggs and meat (Bhattacharya *et al*., 2005) [1]. Increasing the genetic potential of the local native chicken varieties greatly helps in increasing the production of poultry and eggs. TANUVAS has developed Namakkal Chicken-1suitable for backyard rearing. This new crossbred chicken lay 150-180 eggs in a year with feed supplementation under backyard rearing without broodiness (Moorthy *et al*., 2011) [3]. The body weight at 17 weeks of age is 2106g (male) and 1526g (female) with feed efficiency of 2.44 and 2.26 respectively and livability of 95.00 per cent (Moorthy *et al*., 2011) [3]. In order to assess the performance of Namakkal chicken in semi intensive farming system of farming the experiment was conducted by Krishi Vigyan Kendra at different farm locations in Namakkal.

Materials and Methods

One hundred numbers of Namakkal Chicken -1 day old chicks were procured from Poultry farm complex, Veterinary College and Research Institute, Namakkal under ICAR funded on farm trial research. The chicks were brooded at KVK farm for two weeks. They were vaccinated against Ranikhet disease at the age of one week using F1 strain. All live chicks were distributed to five progressive farmers to conduct trial in their farm. In the farmer field, the birds were reared under semi-intensive system from 3 weeks of age onwards. They were fed with concentrate feed and broken rice, sorghum, and cut pieces of small onion were provided as supplementary feeding. The birds were vaccinated against Ranikhet disease at the age of eighth week using another strain (RDVK). In addition, they were also vaccinated against fowl pox disease at the age of 10th week. The growth and production performance of Namakkal Chicken-1 were recorded under farm condition. The egg production was recorded on daily basis for 12 months, and reported in three distinct periods' *viz*., for 36th week, 48th week and 72 week. The growth pattern of birds as body weight gain was taken at 4th week, 8th week, 12th week and 16th week. The data were analyzed statiscally to assess the egg production and weight gain performance in farm conditions.

Results and Discussion

In the present study, the performance of Namakkal Chicken-1 under semi-intensive system of management in farmer field was assessed. The pullet egg production was commenced at the age of 20th weeks. The egg production performance of Namakkal Chicken-1 under farm conditions at 36th weeks, 48th weeks and 72 weeks were 54.80 ± 1.655, 86.60 ± 1.939, 157.00 ± 1.140 numbers, respectively. The average mean body weight of birds at different ages, *viz*., 4th, 8th, 12th and 16th weeks were 219.60 ± 7.39, 525 ± 6.40, 860 ± 25.06, 1734.60 ± 13.78 and 186.20 ± 4.81, 479.00 ± 6.16, 830 ± 8.67, 1508.60 ± 6.66 grams for male and female birds, respectively. The average concentrate feed consumption at 20 weeks of age were 55 g/bird/day, 40 weeks of age were 65 g/bird/day, and 72 weeks of age were 85 g/bird/day respectively, besides providing grains and greens adlibitum.

The table 1 and 2 indicated that the performance of Namakkal Chicken-1 birds in terms of egg production and body weight gain, respectively. The results showed that, Namakkal Chicken-1 birds reared in the tropical area of Namakkal district on semi-intensive system exhibited normal physiological condition for laying age. They were active and able to consume routine feed and water intake. The survivability rate was 78% at the end of 72 weeks. The egg (brown colour) fetches equal price (Rs.8 /egg) as that of native desi bird's eggs which gave higher benefit to cost ratio (1: 1.3).

The results revealed that the Namakkal Chicken-1 birds had high egg productivity under semi-intensive system of management which is almost similar to the standard farm condition results in same and other crossbred desi chickens (Moorthy *et al*., 2011 and Vikramachakravarthi *et al*., 2014) [3, 5]. Also, it was observed that the Namakkal Chicken-1 birds were shown higher body weight gain at different age of growth.

Conclusion

It was concluded that Namakkal Chicken - 1 birds farming might be a suitable venture under the prevailing agro-climatic conditions in Namakkal district, to fetch higher returns similar to other crossbred desi bird farming.

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Table 1: Average egg production performance of Namakkal Chicken-1 birds

Age	Egg Production (No.)
36th week	54.80 ± 1.655
48th week	86.60 ± 1.939
72 week	157.00 ± 1.140

Values are represented as Mean ± SE.

Table 2: Measurement of average body weight (gram) at different age periods (Mean ± SE)

Age	Male birds (gms)	Female birds (gms)
4th week	219.60 ± 7.39	186.20 ± 4.81
8th week	525 ± 6.40	479.00 ± 6.16
12th week	860 ± 25.06	830 ± 8.67
16th week	1734.60 ± 13.78	1508.60 ± 6.66

Values are represented as Mean ± SE.

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Not available

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