J Krishi Vigyan 2020, 9 (1) : 351-354 DOI : 10.5958/2349-4433.2020.00190.7

Short Communication

Demonstration on *Himsamridhi* Variety of Chicken under Rural Poultry Production in District Kangra, Himachal Pradesh

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ABSTRACT

Rural poultry production besides improving the family nutrition also improves the overall agricultural income of households. In the present study the performance of *Himsamridhi* variety of chicken under rural poultry farming in district Kangra, Himachal Pradesh was demonstrated. Day old chicks of *Himsamridhi* variety were supplied to farmers and the performance of birds in terms of mortality up to 4-6wk of age, age at first egg, adult body weight (20 wk of age), annual egg production and economic returns were assessed. Results revealed that mean chick mortality up 4-6 wk was about 12% while the body weight at 20wk in case of male and female birds was 1.61±0.12 and 1.2±0.1 Kg, respectively. The mean age at first egg was observed as 184±2.5d and annual egg production per hen was 112±2.1. In case of economic returns it was found that by rearing a unit of 25 birds a household can generate an income of about Rs 16200/-. Thus it may be concluded that *Himsamridhi* variety of chicken perform well under local agro-climatic conditions and may be reared in areas where demand/price of brown shelled eggs was more.

Key Words: Economic returns, *Himsamridhi*, Performance, Rural poultry.

INTRODUCTION

Backyard poultry rearing is an important component of farming in rural areas. Rural poultry, by supplying high quality protein in the form of meat and eggs, not only improves family nutrition but also adds to the overall agricultural income of household through sale of surplus eggs and meat. As per livestock census 2019 the rural poultry population in India is 317.07 million and has shown a 45per cent growth over 2012. To further strengthen rural poultry production in Himachal Pradesh a new location specific variety of chicken *Himsamridhi* which lays brown shelled eggs has been developed by CSK HP Krishi Vishvavidyalaya, Palampur and present study elucidates the performance of *Himsamridhi* variety of chicken under rural poultry farming in district Kangra, Himachal Pradesh.

MATERIALS AND METHODS

Under Front line demonstrations (2017-19 to 2019-20) 1000, day-old chicks of *Himsamridhi* variety of chicken were supplied to farmers (25 each), in different parts of district Kangra. The farmers were guided about their brooding, feeding and other management practices before supplying the chicks. The chicks were supplied during April to August months and reared by farmers independently. The performance of these birds in terms of mortality up to 4-6 wk of age, body weight (20 wk of age), age at first egg and egg production were assessed through fortnightly or monthly visits. The information about economic returns from production cum sale of eggs and marketable birds and problems faced were generated though personnel interview and the data so generated was subjected to statistical analysis for

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estimation of descriptive statistics using SAS (ver 9.3).

RESULTS AND DISCUSSION

Mortality

Results indicated that mortality up to 4-6 wk of age in different units ranged from less than 05% to as high as 40%. The main factors responsible for mortality were attack by predators followed by suboptimal management and diseases. The main predator reported was mangoose, followed by feral cat and rodents. The present observations are in harmony with Conroy *et al* (2005) who reported that in rural poultry production predation was a more important cause of mortality than diseases. The mortality was more in units supplied during July-August months. These months constitute the rainy season during which due to heavy rains, vegetation grows at a rapid pace and provide a hiding place for predators. Further owing to high humidity likelihood of fungal growth leading to higher level of mycotoxins in feed ingredients and brooder pneumonia in chicks are also more which together may have also contributed towards higher mortality in chicks during these months. Singh *et al* (2019) highlighted that the poultry farmers were not aware about the quality of the feeds available in the market.

Body weight

The body weight at 20 wk of age ranged from 1050g to 1410g in pullets with pooled mean body weight of 1.2±0.1kg and 1260g to 1780g in cockerels with pooled mean body weight of 1.61±0.12kg across all units. These observations are in close agreement with those of Sankhyan and Thakur (2019) who reported that average body weight of *Himsamridhi* birds at 20 wk of age at farmer's backyard was 1239g for female and 1663g for male birds. Body weight was higher in units where farmers were providing commercial feed, followed by units where some supplementary feed in form of grains like maize was provided in addition to kitchen waste. And lowest body weight was recorded in units where only kitchen waste and foraging was practiced. Body weight gain is directly linked to quality and quantity of feed consumed. Better the nutrition provided better will be the body weight attained for any age.

Age at first egg

Age at first egg varied between 162 to 248 d across different units with pooled average of 184±2.5 d. The median value lied around 185 d with coefficient of variation as 10.51%. The values observed are in close proximity to those observed for *Vanaraja* (187.45±1.02 d) and *Srinidhi* (189.78±2.07d) birds in field conditions (Sarma *et al* 2019). Age at first egg is mainly influenced by age, body weight and day length during growing phase. Since adult body weight was lower in groups where no or little supplementary feeding was practiced, hence age at first egg was also delayed. It was also observed that, the units which were started during March to June months received sufficient day light and hence photo stimulation, which helped in early onset of lay while in the units which were started in July-August, when pullets approached the minimum desired body weight and age, the natural day length was at its lowest and was inadequate for necessary photo stimulation, so the onset of egg laying got delayed.

Egg production

The average annual egg production in different units ranged between 90 eggs to134 eggs/hen with pooled mean of 112±2.1 eggs/hen. The median value for all units evaluated was 115 eggs/hen with coefficient of variation as 13.88%. The egg production observed was less than 140 eggs as reported by Sankhyan and Thakur (2019) for *Himsamridhi* and 131 eggs for *Vanraja* birds (Sankhyan and Thakur, 2016) in Himachal Pradesh. The egg production performance of birds was also influenced by month of hatch or supply of chicks to farmers. The birds supplied during July- August started laying in early March and laid more eggs while the birds which were supplied during March to June months started laying during October-

Table 1. Production performance of *Himsamridhi* variety of chicken.

Parameter		*Himsamridhi*	Kuroiler (Check)
Mortality up to 4-6 wk of age		12 %	16 %
Body weight 20 wk of age	Male	1.61±0.12 kg	2.4±0.15 kg
	Female	1.2±0.1 kg	1.5 ± 0.11 kg
Age at first egg		184±2.5 d	192±3.1 d
Annual egg production per hen		112±2.1 eggs	74±3.2 eggs

November months but laid fewer eggs. It may be due to shorter day length and inadequate photo stimulation. Further during winter the birds are allowed to forage for short duration owing to short day length. Additionally owing to winter conditions the maintenance requirement of birds also increases and thus the birds may not have the surplus nutrients required to lay eggs. Parkash *et al* (2020) has also reported that gross energy and protein intake in foraging chicken was critically low, which limit their production performance. Egg eating by hens was the major problem reported by farmers during laying phase. Under rural poultry farming it was primarily due to imbalanced and inadequate protein and mineral nutrition and sometimes due to overcrowding and non availability of laying nests.

Economic returns

As per farmer's feedback the returns from a backyard poultry unit of 25 birds assuming at least 10 hens completed laying and 10 cocks reached marketable age was presented in Table 2. Cost of chicks was Rs 10/- for *Himsamridhi* and Rs 18/- for Kuroiler (check). Cost of feeding has been considered to be Rs 100/- for male and 300/- for female birds and rearing/labour has been considered nil but for both stocks. The selling price of eggs of either stock has been considered as Rs 10/egg and cock is sold for Rs 300/- for *Himsamridhi* and Rs 450/- for Kuroiler. Similarly sale price of hen at the end of laying cycle has been considered as Rs 200/- for *Himsamridhi* and Rs 300/- for Kuroiler. Thus, a unit of *Himsamridhi* was giving a net profit of Rs 11950/- which was about RS. 1500/- more than keeping similar size unit of Kuroiler variety.

CONCLUSION

It may be concluded that *Himsamridhi* variety of chicken perform well and give higher returns in local agro climatic conditions. Owing to its higher egg production under rural poultry production farmers may opt for *Himsamirdhi* variety of chicken for better returns.

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Table 2. Annual egg production and economics of backyard poultry units.

Parameter	Annual Egg production				% Increase	*Economics of demonstration Rs./ unit)				*Economics of check (Rs./unit)			
	Demo			Check if any		Gross Cost	Gross Return	Net Return	BCR	Gross Cost	Gross Return	Net Return	BCR
	H	L	A										
Chicken-Himsamridhi (New variety)	136	88	112	74	42	4250	16200	11950	3.81	4450	14900	10450	3.35

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Received on 30/05/2020 *Accepted on 17/11/2020*