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Effect of deworming on backyard poultry performance in rainfed areas of Jammu region

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Abstract

A field level study was conducted to evaluate the impact of deworming on backyard poultry productivity (Vanraja/Chabro birds) in rainfed areas of Jammu region under different management and feeding regimen. Five villages namely Khara Madana, Sumbli, Badakhetra, Sangarh and Sol Takki villages were selected randomly from Samba district of Jammu region (2016-2019). One hundred forty beneficiaries were selected randomly (20 beneficiaries/village/year) from these villages and each beneficiary was provided unsexed ten to fifteen backyard birds (approx. 38-45 days old chicks) after imparting training and tips on backyard poultry rearing. The birds were dewormed with Fenbendazole powder @ 7.5 mg/kg body weight within 60-70 days of age as per convenience. The results revealed that during 2016-2017, dewormed Vanraja birds showed significantly higher body weight from 60 days onwards in comparison to untreated birds. However, mean body weight of dewormed Chabro birds remains unaffected except in Sumbli village at 160 days of age. Further it was found that Vanraja birds matured late and yielded higher eggs in comparison to Chabro birds. Whereas, in Chabro birds, average egg production was lower, but body weight gain was higher. It may be inferred that deworming improves body weight gain in backyard birds.

Keywords: Vanraja, Chabro, backyard, deworming

Introduction

Backyard poultry farming (BPF) is a profitable supplementary income source and is common among rural and landless families in India. It has low/nominal investment and has high economic returns. Moreover, small flocks of backyard birds can be easily managed by women, children and the elder people of house. Meat and eggs from such birds are rich source of protein and energy for poor households. There is still fascination about desi eggs and meat in Indian consumer's, hence their demand is always prevalent. Backyard poultry contributes nearly 30% of Indian egg production (Singh *et al.* 2009) ^[10]. As the products of backyard birds are nearly organic, it fetches higher price and has reasonable demand. BPF is characterized by an indigenous night shelter system, scavenging, natural hatching of chicks, low productivity of birds, scant supplementary feed, local marketing and minimal health care practices. Although poultry population of our country secures 5th position (851.81 million; 20th livestock census), but 25% of the birds are still reared in unorganized sector. Also, backyard poultry population of the country is 317.07 million in 2019 and has shown remarkable growth by 45.8% over previous census (217.49 million numbers; 19th livestock census). As per 20th livestock census, the total egg production from backyard poultry is 18.41 billion numbers contributing 17.8% of the total production of egg and average yield per year per desi fowl (backyard) for the year 2017-18 is 107.96 eggs/year.

Backyard poultry farming is a type of organic farming with no harmful residue in egg and meat and has an eco-friendly approach. Further, these are very active in pest control, provide manure and required for special festivals and traditional ceremonies. It provides supplementary income in shortest possible time with very minimum capital investment, simple in operation and ensures availability of egg and meat even in remote rural areas. As the local birds are used mostly, they got better adaptability and protect themselves from predators and diseases. Backyard poultry, due to its least demanding nature in terms of infrastructure has been widely accepted by the rural poor. It can be incorporated in the existing agriculture and livestock based integrated farming system (Bhagat *et al.*, 2005 and Sahu *et al.*, 2014) ^[3, 9]. The indigenous poultry birds produce only 60-80 eggs per year and meat production is also very less.

Commercial backyard poultry production can be easily boosted in the state with the introduction of improved varieties of poultry which can lay 130-200 eggs per year and also produce more meat. In J&K poultry farming is emerging an important enterprise and is assisting to create income and employment for the rural youths of the state. There is immense potential of poultry farming in the state. As majority of rural folk are well versed with backyard poultry rearing, transforming poultry management through a few scientific interventions can lead to sustainable livelihoods from regular income, food security and nutrition. Keeping in view the above points, present study was envisaged to study the effect of deworming on body weight of backyard birds.

Material and Methods

The present study was conducted in the rainfed area of Jammu region namely Khara Madana, Sumbli, Badakhetra, Sangarh, and Sol Takki Villages of Samba district of Jammu region during the year 2016-2019. The persons who were already involved in the rural backyard poultry were selected for the study. The farmers were imparted training before start of the intervention and exposure visit were also conducted to gain more practical knowledge by the stake holder. The volunteers (women) from such families were motivated to attend the trainings. Preference was given to the rural women and unemployed youth belonging to schedule castes, schedule tribes and other backward castes. The volunteers showing deep interest in adopting the technology were also given preference. Each beneficiary has been provided with ten to fifteen, 38-45 days old chicks. During 1st year, Vanraja birds (10 birds/farmer) and during second year, Chabro birds were distributed (15 birds/farmer) to the selected farmers. All the help has been provided to the beneficiary to prepare the housing using locally available resources for providing the shelter to backyard poultry. Experts regularly monitor the performance of the chicks supplied at the door steps besides providing health care and technical support. As gastrointestinal parasites considerably affect the overall growth of the birds, deworming of the poultry was done with (fenbendazole@7.5 mg/kg body weight) in drinking water at 60-70 days age. The body weight of the birds was recorded as mentioned in results table 1 and 2 and egg yield of birds was also recorded. Statistical analysis was done as per Snedecor and Cochran (1994) [13].

Results and Discussion

Results revealed that in Vanraja birds treatment group has significantly ($P<0.05$) higher body weight throughout the trial after 60 days of dewormer supplementation. Similar findings were observed by Bhardwaj and Bhatnagar, 2004 [4] who found that there was huge inter-bird variability in the numbers of worms present. Although worms do not usually kill the birds, they can weaken them significantly, making them more susceptible to death because of immunosuppression. But in Chabro birds, birds show higher body weight after 120 days of dewormer supplementation in Sumbli village, whereas Sol

Takki birds revealed no effect of dewormer supplementation in terms of body weight. It will not be out of place to mention that dewormed birds had numerically higher body weight in all the villages. However, the untreated birds did not gain weight appreciably and their mean body weights remained lower than the mean body weights of treated group. This finding is supported by Bhat *et al.*, 2014 [5], as they asserted that significant difference in body weights was observed between treated and untreated birds. Similar findings were observed by Singh *et al.*, 2009 [10], who found that the parasite infected birds gained only 1925 ± 0.788 g live weight (10.7 g day⁻¹) whereas birds treated with endoparasitic drug fenbendazole gained 2525 ± 9.215 g live weight (14.03 g day⁻¹) at the end of the 120 days period of the field trial. A strong negative correlation ($r = -0.355$) was observed between the weight gain and the total worm count in untreated group, whereas a weak negative correlation ($r = -0.0188$) was noticed in treated group. Also, an interesting observation was found that village namely Sumbli which acts as a cul-de-sac (minimum transportation) had birds with superior body weight in comparison to the rest of villages. It was also evident from the data that in terms of body weight Chabro attained body weight fastly in comparison to the Vanraja birds (2429.22 kg at 345 days for Vanraja birds vs. 2227.98 kg for Chabro birds at 220 days of age). Further Singh *et al.*, 2016 observed that this technology needs low input and provide high output in terms of good quality protein especially for growing and malnourished children. Poultry Sector, besides providing direct or indirect employment to rural women is also a important tool for subsidiary income generation for many landless and marginal farmers. It also provides nutritional security especially to the rural poor. The beneficiaries were also questioned regularly for an egg yield/bird and it was found that Vanraja birds yielded around 50 eggs/bird in 100 days (yield started at six months of age) whereas Chabro birds started laying eggs at 7 months of age and yielded around 32 eggs /bird in 100 days after start of laying. In J&K there is 69 per cent shortfall in the poultry meat and 97 per cent shortfall in the poultry egg production (Lal *et al.*, 2019) [6]. The population of J&K is mainly non-vegetarian (above 80%) as it imports livestock products of over Rs 2000 crores per annum from neighboring states so there is always a demand of meat, milk and eggs and their products, which provide a great opportunity to the farmers to sale their produce at competitive prices. It was found that the backyard poultry production system in adopted villages was traditional and poorly remunerative. Therefore, the present intervention of dual purpose improved breed of Vanraja and Chabro, thrived well under balanced feeding management and lay more eggs and meat production in turn which improves the livelihood security among the tribal people. The present findings are in similarity with Miao *et al.*, 2005 [7] who observed that development of village chicken enterprises can be sustainable way of improving feed security and livelihoods of the resource poor farmers.

Table 1: Body weight (g) of backyard poultry (Vanraja) at different intervals of age (2016-2017)

| Village | 0days* | | 60 days | | 120 days | | 300 days | |
|--------------|-------------|-------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | C | T | C | T | C | T | C | T |
| Khara Madana | 203.15±2.55 | 202.31±1.56 | 1083.85 ^a ±11.35 | 1228.4 ^b ±10.51 | 1970.00 ^a ±25.01 | 2165.00 ^b ±22.79 | 2320.81 ^a ±29.11 | 2425.61 ^b ±40.22 |
| Badakhetra | 200.00±2.59 | 201.54±1.99 | 1057.69 ^a ±12.58 | 1246.54 ^b ±9.05 | 1914.23 ^a ±16.95 | 2285.77 ^b ±19.11 | 2291.75 ^a ±26.20 | 2512.55 ^b ±31.22 |
| Sangarh | 201.62±2.54 | 203.08±1.45 | 1056.92 ^a ±12.50 | 1222.31 ^b ±15.26 | 2018.46 ^a ±23.75 | 2309.23 ^b ±20.17 | 2420.61 ^a ±39.52 | 2603.99 ^b ±38.66 |

^{a,b}Mean with different superscript differs within the row ($P<0.05$)

*denotes 45 days of age

Table 2: Body weight (g) of backyard poultry (Chabro) at different intervals of age (2017-2019)

| Village | 0days* | | 60 days | | 120 days | | 150 days | | 180 days | | 210 days | | 240 days | |
|---------------|------------------|------------------|------------------|------------------|------------------|------------------|--------------------------------|----------------------------------|----------------------------------|----------------------------------|--------------------|--------------------|--------------------|--------------------|
| | C | T | C | T | C | T | C | T | C | T | C | T | C | T |
| Sumbli | 286.40± 10.07 | 290.00± 8.72 | 632.60± 22.33 | 636.4 ±21.98 | 836.40 ±48.47 | 854.60 ±38.86 | 1880.00 ^a ±96.95 | 2300.00 ^b ± 192.35 | 2130.80 ^a ± 150.24 | 2490.30 ^b ± 150.54 | 2440.50± 90.54 | 2630.30± 140.50 | 2720.40± 110.15 | 2850.30± 110.60 |
| Soul Takki | 284.80± 6.31 | 289.60± 10.68 | 612.40± 14.79 | 611.40± 19.77 | 824.20 ±29.44 | 851.60 ±44.47 | 1820.20 ±123.33 | 2040.00 ±100.56 | 2090.40± 100.45 | 2200.40± 100.60 | 2320.40± 110.10 | 2430.50± 95.32 | 2615.30± 90.85 | 2710.20± 100.50 |

^{a,b}Mean with different superscript differs within the row ($P < 0.05$)

*denotes 45 days of age

Conclusion

It may be concluded that backyard poultry farming provides an ideal option for hilly areas to generate additional income through this low input and high output venture within a very short span of time. Besides, this enterprise fulfils the nutritional requirement of their family members particularly the growing children and women. Although, lack of technical knowledge, less availability of feeds and high mortality of days old chicks are the major constraints, which can be addressed through strategic intervention.

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