



Research Article

HOUSING, FEEDING AND BREEDING PRACTICES OF BACKYARD POULTRY PRODUCTION IN CHHATTISGARH, INDIA

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Abstract- The current study was carried out in the Bastar district of Chhattisgarh with the specific objective to assess existing housing, feeding and breeding practices related to backyard poultry production of *desi* birds. A total of 120 poultry rearers (12 respondents from each village) were randomly selected from two blocks (Bakawand and Jagdalpur) of Bastar district of Chhattisgarh. The data was composed from selected poultry rearers through a semi-structured interview schedule after initial pretesting. The findings of the study revealed that 68.33 per cent poultry owners constructed separate small houses with locally available materials viz., bamboo, mud, wood, net, jute stalk, tiles, tin, straw etc., with an average height of 2.24 ± 0.07 feet's in order to avoid disputes with neighbours and attack of predators. Feeding practice involved left the birds for scavenging on insects, worms, grasses, seeds and flowers in the morning. In the evening birds were offered kitchen waste, broken rice, and boiled rice to supplementary feed ingredients at average of 50.29 ± 0.87 grams per birds per day. About breeding practices average incubated eggs per birds per year were 18.31 ± 0.24 for breeding with average hatching of 65.76 ± 0.46 per cent. Overall housing, feeding and breeding practice indicated that scientific practices were not followed in tribal areas of Chhattisgarh.

Keywords- Housing, Feeding, Breeding practices, Backyard poultry, Chhattisgarh

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Introduction

India ranks 3rd and 6th in the world in poultry egg and meat production, respectively [5]. Also, 30 per cent of poultry production is in the unorganized sector. Seventy percent of the world's poor depend on livestock as a component of rural livelihoods [4,10], and majority of those families keep poultry [3, 13]. In poultry sector impressive growth has been achieved in the intensive poultry farming in India, but the rural poultry sector remained rather stagnant. The *desi* birds adopted in free-range backyard conditions for centuries contribute about 11 per cent of total egg production of India. Due to their low production potential (Annual egg production: 40-60 nos.), their contribution to the total egg output was almost stagnant for the last few decades. Therefore, the consumption of eggs in tribal areas is far below the national average egg consumption. Thus, improving the backyard poultry farming at rural areas significantly helps in increasing the availability of poultry meat and eggs in tribal areas. According to the National Sample Survey (NSS) report on Livestock possession [6, 7], the land-less, marginal and small scale farmers, which constitute about 90% of the 107 million agricultural house-holds in India, keep about 85% of the poultry stock of the country. The large scale poultry producers are benefiting from the expanding demand for protein and the small poultry rearer unable to take part in the profitable poultry market [1]. For growth to be at all comprehensive, the agricultural strategy must focus on the small and marginal households, who find it difficult to access inputs, recognition, and extension services to market their birds and poultry products [7].

In Chhattisgarh, mostly rural and tribal masses have been keeping poultry by tradition for their livelihood and nutritional security since the time of immemorial. Majority of the farmers are still keeping 10-15 numbers of low input indigenous fowls at their backyard for both egg and meat production to meet their day to day petty expenses and nutritional security. However, the productivity of native indigenous fowls is very low due to their inherent low genetic potential. Hence, there is plentiful scope for improvement of backyard poultry regarding management practices in tribal areas of Chhattisgarh. Backyard poultry rearing is vital and popular source of livelihood in tribal areas of Chhattisgarh. It also helps in accelerating the production performance, health status, better breeding stock and reduces the economic losses from predators. In this context, the study was undertaken to explore the existing housing, feeding and breeding practices in backyard poultry rearing.

Materials and Methods

The present study was purposively carried out in Bastar district of Chhattisgarh because Bastar, remains the terrain of tribes and concerning 70 per cent of the total population comprises tribals, which is 26.76 per cent of the total tribal inhabitants of Chhattisgarh. The Bastar district comprises of seven blocks out of which Bakawand and Jagdalpur blocks were chosen randomly. From each selected block five villages were chosen randomly and from each village twelve poultry rearers were selected randomly constituting a total 120 poultry rearers for the study. The data was collected using well-structured and pre tested interview schedule by covering the dimensions of management i.e. Housing, breeding and

breeding practices implemented by backyard poultry rears. Relevant data pertaining to the study was collected, analyzed using frequency, percentage, standard error and interpreted.

Results and Discussion

Housing practices

All the backyard poultry rearers reported that they rear *desi* type and coloured birds. *Desi* birds seem to be the capable indigenous fowl for low input, free range system of rearing for meat and egg requirement in tribal areas. Average years of experience were 15.36 ± 0.69 with a range of 3-40 years, indicating tribal rears have high level of experience. Cent per cent respondents were practicing free range system of poultry rearing with involvement of family labour. In this system respondents generally made small houses with locally available materials viz., bamboo, mud, wood, net, jute stalk, tiles, tin and straw. Use of locally available materials (canut stumps and woods) by poultry beneficiaries in Andaman and Nicobar Islands was also reported by Choudhari *et al.* (2010) [2]. Majority (68.33%) of poultry owners in free range system construct separate house for birds whereas only 31.67 per cent respondents reported that birds and family member share the same home in the night with little consideration of space available per bird. Chicks were kept separately with an approximate area of 0.5 sq. ft. space per chicks in order to overcome huddling and subsequent death. In case of broiler bird 65.00% respondents provided 1 to 1.5 sq. ft. and 35.00% provided 0.5 to 1.0 sq. ft. whereas 60.83 percent layer rearer provided 1.5 to 2 sq. ft space per bird, and 39.17% provided 1 to 1.5 sq. ft. space for layer approximately, above finding concurred with Mandal *et al.* (2006) [11] in Bareilly,

Uttar Pradesh.

Although, birds were left in free range during day time, however, some respondents housed the birds in the poultry houses or bamboo baskets in the night and afternoon. The poultry houses were constructed at different heights, about 45.00 per cent respondents in free range system had the poultry house with height of 1-2 feet, 0-1 feet (28.33%), 2-3 feet (15.83%) with a mean of 2.24 ± 0.07 feet's, and 10.83 per cent hang poultry houses from roofs in order to avoid disputes with neighbours and attack of predators. In free range system only 48.33 percent respondents provide any litter material for their birds. [Table-1] reveals that in free range system 20.00% respondents used straw followed by rice husk (11.67%), dry leaves/gunny bag (10.83%), saw dust (4.17%) and wheat *busa* (1.67%) as a litter material. Availability of this material as per the cropping pattern prevailing in this region could be the possible reason for this trend.

Arrangement of poultry house that 8.33% backyard poultry rearer used chick guard followed by 23.33% used hover, 36.67% used electric supply, 49.17% use to maintain optimum temperature, 66.67% planted trees around poultry house and 57.50% had their poultry house well connected with road. About arrangement at required interval that 36.67 percent of backyard poultry farmer changed litter at required intervals of 8 to 12 months, 32.50% used disinfectants and white washing of poultry house and 38.33% used to clean and disinfect the equipment. Most of the respondent did not know the effect of room and equipment disinfection, white wash and litter change on health and production performance, so don't do at required intervals. Majority of respondents were aware about the provision of light to the growing birds to fulfil that requirement they were providing artificial light ranges from 3-8 Hr with mean of 2.87 ± 0.26 Hrs in night hours.

Table-1 Distribution of poultry rearers according to housing practices in free range rearing

Materials/Activities in housing practices	Bakawand (n=60)		Jagdarpur (n=60)		Total (N=120)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Wall material used						
Brick	2	3.33	3	5.00	5	4.17
Mud	25	41.67	22	36.67	47	39.17
Bamboo net	21	35.00	19	31.67	40	33.33
Metal net	12	20.00	16	26.67	28	23.33
Floor materials used						
Mud	35	58.33	38	63.33	73	60.83
Bamboo net	21	35.00	16	26.67	37	30.83
Metal net	4	6.67	6	10.00	10	8.33
Roof materials used						
Tiles	2	3.33	2	3.33	4	3.33
Asbestos sheet	11	18.33	16	26.67	27	22.50
Bamboo net	21	35.00	15	25.00	36	30.00
Metal net	12	20.00	14	23.33	26	21.67
Straw	14	23.33	13	21.67	27	22.50
Litter material						
Saw dust	3	5.00	2	3.33	5	4.17
Rice husk	6	10.00	8	13.33	14	11.67
Wheat <i>busa</i>	0	0.00	2	3.33	2	1.67
Straw	11	18.33	13	21.67	24	20.00
Dry leaves/ gunny bags	8	13.33	5	8.33	13	10.83
Not used any litter material	32	53.33	30	50.00	62	51.66
Arrangement of poultry house						
Chick guard	3	5.00	7	11.67	10	8.33
Hover	12	20.00	16	26.67	28	23.33
Electricity supply	21	35.00	23	38.33	44	36.67
Maintain optimum temperature	27	45.00	32	53.33	59	49.17
Trees planted at your poultry house	42	70.00	38	63.33	80	66.67
Poultry house well connected with road	32	53.33	37	61.67	69	57.50
Arrangement at required interval						
Litter change	20	33.33	24	40.00	44	36.67
Disinfection and white washing of poultry house	16	26.67	23	38.33	39	32.50
Clean and disinfect of equipment	20	33.33	26	43.33	46	38.33

Feeding and watering practices

In backyard poultry rearing, metallic, plastic or earthen feeders and waterers were used by few respondents, whereas 31.67 per cent and 36.67 per cent respondents never used waterers and feeders respectively. A perusal of [Table-2] indicates that 40.83 percent of backyard poultry farmer used mud/earthen pots as

waterer followed by not using waterer (31.67%), metallic (19.17%) and plastic waterer (8.33%). With regards to feeders majority 45.83% of rearer were using mud/earthen pots as feeders followed by metallic feeder (10.83%) and plastic feeder (6.67%). For feeding practice in tribal areas was generally left the birds for scavenging in the morning and evening and gave feed on return so that they make

up for the deficient amount. The birds generally scavenge on insects, worms, grasses, seeds, and flowers etc. which are locally available. Majority (98.33%) respondents offered kitchen waste to supplementary feed ingredients, rice/broken rice (92.50%), boiled rice (80.00%), Broken wheat (8.33%) and 1.67% were giving readymade ration purchased from market for feeding the birds kept in the backyard system. Amount of feed ranges from 35-80 gms per birds per day with a mean of 50.29 ± 0.868 gms. About 50.00% provided low amount (35-50 gm), 40.83% provided medium amount (50-60 gm) and 9.17% high (65-80 gm) offer in

morning or evening, Thakur *et al.* 2013 [14] reported similar finding in hills of Himachal Pradesh. Source of drinking water, 48.33 per cent respondent of free range system used water from pond followed by tube well (34.17%) and 17.50% respondent used tap water, similar result was also reported by Saha, 2003 [12] in North 24 Parganas, West Bengal. The percent respondent reported that source of drinking water was the open drains around hand pump and some time fresh water was provided in waterer during the day time.

Table-2 Distribution of poultry rearers according to feeding practices in free range rearing

Material/ Activities in feeding practices	Bakawand (n=60)		Jagdarpur (n=60)		Total (N=120)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Type of waterer						
Mud/earthen pots	26	43.33	23	38.33	49	40.83
Plastic	4	6.67	6	10.00	10	8.33
Metallic	10	16.67	13	21.67	23	19.17
Not used	20	33.33	18	30.00	38	31.67
Type of feeder						
Mud/earthen pots	27	45.00	28	46.67	55	45.83
Plastic	3	5.00	5	8.33	8	6.67
Metallic	5	8.33	8	13.33	13	10.83
Not used	25	41.67	19	31.67	44	36.67
Type of feed ingredient (multiple responses)						
Rice/ broken rice	53	88.33	58	96.67	111	92.50
Boiled rice	46	76.67	50	83.33	96	80.00
Broken wheat	3	5.00	7	11.67	10	8.33
Kitchen waste	60	100.00	58	96.67	118	98.33
Readymade ration purchased from market	0	0.00	2	3.33	2	1.67
Frequency of feeding						
Once a day	53	88.34	46	76.67	99	82.50
Twice a day.	2	3.33	6	10.00	8	6.67
Ad-lib.	5	8.33	8	13.33	13	10.83
Amount of feed (in gm/day/birds)						
Low (35-50)	31	51.67	29	48.33	60	50.00
Medium (50-65)	25	41.67	24	40.00	49	40.83
High (65-80)	4	6.66	7	11.67	11	9.17
Mean \pm SE	49.75 \pm 1.20		50.83 \pm 1.26		50.29 \pm 0.87	
Source of drinking water						
Pond water	35	58.33	23	38.33	58	48.33
Tube well	17	28.33	24	40.00	41	34.17
Tap water	8	13.33	13	21.67	21	17.50

Table-3 Distribution of poultry rearers according to breeding practices in free range rearing

Activities in breeding practices	Bakawand (n=60)		Jagdarpur (n=60)		Total (N=120)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Source of procuring chicks initially						
Govt. Poultry/ breeding farm	5	8.33	12	20.00	17	14.17
Private farm	1	1.67	1	1.67	2	1.67
Local market	17	28.33	17	28.33	34	28.33
Feriwala	28	46.67	22	36.67	50	41.67
Neighbours/Villager	9	15.00	8	13.33	17	14.17
Frequency of egg collection						
Once a day	46	76.67	41	68.33	87	72.50
Twice a day	14	23.33	19	31.67	33	27.50
Source of fertile/hatching eggs						
Own house	56	93.33	54	90.00	110	91.67
Other poultry owner in village	4	6.67	2	3.33	6	5.00
Hatchery	0	0.00	4	6.67	4	3.33
Number of eggs used for natural hatching (per bird per year)						
13-17 eggs	16	26.67	19	31.67	35	29.17
17-21 eggs	31	51.67	29	48.33	60	50.00
21-25 eggs	13	21.67	12	20.00	25	20.83
Mean \pm SE	18.45 \pm 0.35		18.17 \pm 0.34		18.31 \pm 0.24	
Hatchability percentage						
Low (56-62.73)	18	30.00	12	20.00	30	25.00
Medium (62.73-69.46)	27	45.00	31	51.67	58	48.33
High (62.73-76.19)	15	25.00	17	28.33	32	26.67
Mean \pm SE	65.39 \pm 0.67		66.14 \pm 0.64		65.76 \pm 0.46	

Breeding practices

In free range poultry rearing, choice of good breeding stock is a precursor of good productivity. But majority 41.67 per cent of tribal poultry rearer procured chicks initially from *feriwalla*, followed by local market (28.33%), government poultry breeding farm and neighbours/villager in equal proportion 14.17 percent each and only 1.67% from private farm. A cursory look at the [Table-3] shows that 72.50 per cent respondent having free range system of poultry rearing used to search for egg in scavenging land as well as poultry house mainly during morning hours for egg collection and 27.50% respondent reported search twice for egg during morning and evening respectively. Majority (91.67 %) of the respondent reported that the source of hatching eggs was his own farm, 5.00% took them from other poultry owners in the village and 3.33% took hatched egg from hatchery for breeding purpose, similar finding was reported by Khan *et al.*, 2008 [9] in Uttar Pradesh and Islam *et al.*, 2014 [8] in Assam.

Respondents reported that 17 to 25 eggs used for incubation per bird per year with a mean of 18.31 ± 0.24 eggs. Data in [Table-3] indicate that 50.00 percent respondent used 17-21 eggs/yr/bird for hatching purpose, 29.17% used 13-17 eggs/yr/bird and 20.83% used 21-25 eggs/yr/bird for hatching purpose. All respondent provided bedding material for the nest of hen. Number of hatching eggs varies according to the size of hen. About hatching percentage of incubated eggs ranges from 56 to 76.19 percent, with an average hatchability of 65.76 ± 0.46 per cent.

Conclusion

Free range *desi* poultry rearing plays a vital role in tribal livelihood. *Desi* birds helps in imparting extra income, nutritional security, enlightening cultural and societal functions. The tribal poultry rearers had poor consciousness about feeding, breeding and management practice, which led to the reduction in production potential of *desi* birds. Rather than kitchen scrap and scavenging, supplementation of well-balanced feed plays important role in quality egg production. Appropriate night shelter helps in overcoming environment stress, disease and predators boast a major impact on egg production and body weight gain of birds. Therefore, extension programmes in free range poultry rearing should steps forward in imparting knowledge, awareness and skill about the new scientific progress as well as the recommended practices can exploit the efficiency for improving tribal livelihood and also empowering women. Effective planning and execution of development strategy for free range poultry rearing ensures for poverty reduction in tribal areas.

Conflict of Interest: None declared

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