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System of rearing and marketing practices by the backyard poultry farmers in Jharkhand, India

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Abstract

Study was carried out in the state of Jharkhand, and four districts were randomly selected, namely Ranchi, Deoghar, Simdega and Dumka. Two blocks were randomly selected from each district and a total of 400 farmers were surveyed, with 100 farmers from each district. The study was conducted using a pre-tested structured schedule to understand the rearing and marketing practices followed by the poultry farmers. The results showed that most farmers practiced traditional methods in rearing backyard poultry and a considerable number practiced free-range rearing and used leftover grains for feeding birds. Basic management practices like cleaning of the farm on a daily basis was common. The marketing of the poultry was mainly informal. The descriptive analysis showed that the most emphasized practice was marketing, followed by health care practices, while feeding and housing were moderately emphasized and breeding was the least emphasized practice. The statistical analysis further confirmed that the marketing and housing practices were highly variable between the districts, while feeding, breeding, and health care practices were relatively similar but highly traditional. The results of the study reveal the dominance of conventional practices and highlight the need for interventions to improve the productivity of backyard poultry farmers in the state of Jharkhand.

Keywords: Housing, Feeding, Breeding, Management, Marketing

Introduction

The Livestock sector plays an important role in the economy of people of Jharkhand. In Jharkhand, poultry farming is sustainable venture, for the growing demands for meats and eggs. Backyard poultry farming is an important supplementary source of income and reared by 90 percent of rural farmer.

India rank 2nd in the world, producing 149.11 billion eggs and is secured 4th rank for producing 10.50 million tons (BAHS, 2025). The 20th Livestock Census (2019) shows impressive growth in poultry sector compared to the previous census. The total poultry population was 851.81 million in 2019, showing an increase of 16.8% compared to the previous census. The total numbers of bird in backyard poultry was 317.07 million, increasing 46% over the previous census.

Backyard poultry farming is an essential part of the rural livelihood system of Jharkhand, India, as the majority of small and marginal farmers of the region rely on mixed farming practices. The practice of backyard poultry farming has acquired immense importance, as it requires less investment, fewer inputs and provides higher returns in the form of eggs and meat. In the case of Jharkhand, the agricultural potential of the region remains hampered due to the poor quality of the soil and the unpredictable nature of the rainfall. In such a scenario, backyard poultry farming has acted as a dependable alternative source of income for the rural population of the region.

The practice of backyard poultry farming in the state of Jharkhand has largely remained traditional or semi-intensive, as the birds are allowed to roam freely, thereby scavenging for the required fodder like insects, waste, and crop debris. In the case of backyard poultry farming, the local or improved varieties of the native birds have largely remained the preferred choice, as they remain more adaptable to the local climatic conditions of the region. Women and children are also found to play an important role in managing these poultry units. Hence, this activity assumes significant importance in empowering rural women.

The marketing activities of backyard poultry farmers in Jharkhand are generally at a localized scale. The backyard poultry farmers in this region are found to market their products directly to consumers or traders at the local market or in weekly markets called 'haats.' Although this marketing practice helps in immediate cash flow for backyard poultry farmers, it does not ensure proper price realization for their products. Middlemen are also found to interfere in price determination, thus affecting the income potential for backyard poultry farmers.

It is necessary to understand the existing systems in rearing and marketing practices for better identification and improvement in these areas. These aspects are found to play significant roles in uplifting the socio-economic status of backyard poultry farmers in Jharkhand. Keeping these into consideration the study was undertaken with the objective to understand the rearing and marketing practices followed by the backyard poultry farmers.

Materials and Methods

The study was carried out in the state of Jharkhand, which consists of 24 districts in total. Multi stage random sampling method was used to select the four districts for conducting this study. The districts are Ranchi, Deoghar, Simdega, and Dumka. From each district, two blocks were randomly selected for conducting this study. From each block, 50 respondents were interviewed using a pre-tested structured interview schedule. Hence, this study consisted of a total sample size of 400 respondents distributed across four districts, where each district consisted of 100 respondents. Bundu and Namkum are two blocks in Ranchi district, while Mohanpur and Devipur are two blocks in Deoghar district. Similarly, Simdega and Kurdeg are two blocks in Simdega district, and Jarmundi and Jama are two blocks in Dumka district. The respondents were selected purposively farmers engaged in backyard poultry farming having at least minimum 30 numbers of birds. Structured interview schedule was prepared with the help of experts and relevant literature. Later the interview schedule was pretested in the neighbouring district of the study area to check its reliability and validity. To check the reliability of the data split half method was used and the value obtained was found to be 0.89 which revealed that the schedule possessed a high level of reliability. Content validity was used to check the validity of the schedule. Data was collected using personal interviews at the convenience of the respondents during the period between October and December 2025. Data regarding housing, feeding, breeding, management and health care and marketing practices of poultry was collected using personal questions directly asked to the respondents. Data was compiled and analyzed using frequency counts. Statistical analysis was carried out using SPSS software as per the procedure mentioned in Snedecor and Cochran (1994) [18]. Descriptive statistical measures such as arithmetic mean, standard error (S.E.), and coefficient of variation (C.V.%) were used for interpretation.

Results and Discussion

The findings presented in Table 1 reveal that a majority of the respondents practiced traditional poultry rearing practices. In housing practices, 52.00%, 51.00%, 72.00% and 65.00% of the respondents in Ranchi, Deoghar, Simdega and Dumka districts, respectively, practiced free-range housing. Similar findings on the predominance of

traditional backyard poultry and free-range practices were reported by Meena *et al.* (2017), Kumar *et al.* (2018), Kumar *et al.* (2020) Kumar and Agarwal (2024) [8] and Khurshid (2024) [5]. Similarly, Singh and Pundir (2019) [14] observed that backyard poultry rearing in tribal areas is largely characterized by low cost housing and dependence mostly on scavenging.

While under feeding practices, 70.00%, 68.00%, 65.00% and 68.00% of the respondents in the respective districts offered leftover grains as feed for their poultry. The findings on the predominance of feeding practices based on household waste and leftover grains were reported by Ahuja *et al.* (2019) [11] and Gupta *et al.* (2020) [4].

In breeding practices, 56.00%, 48.00%, 36.00% and 39.00% of the respondents used non-descript rooster breeds for breeding purposes. The findings on the predominance of non-descript breeds and non-scientific breeding practices were reported by Prasad (2026) [12] and Kumaresan *et al.* (2008) [6].

Under management and health care practices, the daily cleaning of the sheds was reported by 86.00%, 82.00%, 76.00% and 68.00% of the respondents in Ranchi, Deoghar, Simdega and Dumka districts, respectively. Deworming was also practiced by 54.00%, 49.00%, 34.00% and 37.00% of the respondents, while the proper disposal of the dead birds following the standard protocol was observed among 39.00%, 43.00%, 21.00% and 24.00% of the respondents. The practice of vaccination of the birds for the control of diseases like Newcastle Disease (RD) and Infectious Bursal Disease (IBD) was practiced by 26.00%, 27.00%, 19.00% and 14.00% of the respondents. The poor practice of vaccination and health care of the backyard poultry was reported by Singh *et al.* (2018) [16] and Deka *et al.* (2013) [2]. Furthermore, 77.00%, 74.00%, 89.00%, and 91.00% of the respondents sold the birds to the local vendors. The marketing of the backyard poultry was done through the local vendors and the dominance of the middlemen was highlighted by Kumar *et al.* (2017) [10] and Rath *et al.* (2015) [13]. The findings clearly indicated that poultry farmers predominantly adopt traditional modes of poultry rearing. This, in fact, underlines the need for conducting training programs to raise the knowledge levels of poultry farmers regarding scientific poultry management, which will eventually result in enhanced productivity.

The descriptive statistics of backyard poultry management practices adopted in four districts, namely Ranchi, Deoghar, Simdega and Dumka, are presented in Table 2. The mean values along with their associated standard errors (S.E.) provide a clear idea about the relative importance of different parameters of backyard poultry management practices adopted by the respondents.

The results show that the parameter of marketing was found to have the maximum overall mean value, i.e., 8.78 ± 0.09 . Out of all the districts, Simdega (9.64 ± 0.12) and Dumka (9.11 ± 0.11) have higher mean scores, indicating the higher emphasis on the implementation of marketing practices. It might be attributed to improved local market linkages and higher consumer demand for backyard poultry products, which was also reported by Verma and Yadav (2019) [19].

Ranchi (8.16 ± 0.08) and Deoghar (8.22 ± 0.05) have higher mean scores, indicating the importance of marketing practices, which might be due to the difficulties faced during the process of market access, pricing, or the involvement of intermediaries. The comparatively lower scores in Ranchi

and Deoghar indicate moderate adoption of marketing practices, which may be due to limited awareness and market exposure. Similar constraints were highlighted by Singh *et al.* (2018) [16] in rural poultry systems.

The second highest mean score has been recorded for management/health care, which is 7.90 ± 0.07 . There is a slight variation among the districts. Deoghar (7.94 ± 0.11), Dumka (7.91 ± 0.02), Simdega (7.88 ± 0.06) and Ranchi (7.86 ± 0.04) have recorded higher mean scores, indicating the importance of disease prevention and health care practices during poultry management. The low standard error values have recorded uniformity, indicating the awareness of the importance of the practice. Feeding management showed a moderate mean score in the overall average, which is 4.66 ± 0.08 . The values are more or less the same in all the districts. Dumka has a higher mean score than the others, 4.69 ± 0.05 , followed by Simdega 4.67 ± 0.12 , whereas Ranchi and Deoghar have 4.65 ± 0.09 and 4.61 ± 0.04 , respectively. This indicates that the attention given to feeding management is moderate, and most of the farmers are using the available feed resources rather than adopting a scientific approach in feeding management.

The mean score recorded in the housing management is 4.31 ± 0.08 , which is low compared to the mean scores recorded in marketing and disease control management. The mean score in the Deoghar district is higher than the others, 4.96 ± 0.12 , which indicates a variation in housing management in the districts. Ranchi, Simdega, and Dumka have 4.06 ± 0.06 , 4.07 ± 0.03 , and 4.13 ± 0.07 , respectively. Breeding management had the least overall mean value (3.73 ± 0.10). This suggests that breeding management is the least emphasized aspect of backyard poultry management. The mean values of the parameters in the districts are more or less the same: Ranchi (3.81 ± 0.11), Deoghar (3.73 ± 0.06), Simdega (3.71 ± 0.14) and Dumka (3.67 ± 0.06). The low mean values of the parameters indicate that the respondents are either not aware of the breeding management techniques or are using traditional breeding management techniques, like the use of non-descript local breeds.

The study results indicate that the most dominant aspect of backyard poultry management is marketing and disease control, followed by feeding and housing management and then breeding management, which is the least emphasized aspect of backyard poultry management. The low values of the standard error indicate the consistency of the perceptions of the respondents on the parameters. The comparative statistical analysis of different parameters of poultry management is shown in Table 3. In addition to the coefficient of variation% values and F-values, significance levels were also considered for analysis.

The analysis revealed that marketing is a very important parameter, and it ranked the highest priority among all parameters. It recorded a high value of CV% (10.23%), along with a very high significant value of F-value (58.23) for significance level < 0.01 . It revealed significant variation among different respondents, indicating that marketing is a very important parameter in influencing poultry management practices. The significant values recorded for marketing and health care parameters are due to significant differences among different respondents, which may be due to differences in accessing markets, involvement of middlemen, and realization of prices. The significance of marketing and health care parameters over other management practices is supported by Kumaresan *et al.*

(2008) [6], Singh *et al.* (2018) [16] and Khurshid (2024) [5]. Management and health care practices were ranked second (II) with a relatively lower CV of 8.54%. However, the F-value was found to be non-significant, i.e., $0.26 < 0.05$, which indicates that the variation was minimum across the districts. This indicates that though the management and health care practices followed by the farmers are similar, they are mostly traditional and lack scientific uniformity. The feeding management was given the third priority (III) with a CV of 17.15%. The F-value was found to be non-significant, i.e., $0.16 < 0.05$, which indicates that there was no substantial variation between the districts. This indicates that the feeding management is relatively uniform, and most of the farmers seem to rely on the locally available and cheap feed resources, i.e., leftover grains. Housing management was ranked at number four (IV) and had a CV of 18.54%, while the F-value was highly significant at 32.19 and $p < 0.01$. The high significance value indicates that there are significant differences in housing management across districts, which could be attributed to differences in resource availability, levels of awareness, and climatic conditions. However, the low ranking also indicates that housing management is not at the core of farmers' activities at this moment in time. Breeding management was ranked lowest in order of priority at number five (V) and had the highest CV at 26.79%, indicating significant variability across respondents. However, the F-value was non-significant at 0.34, indicating that differences are not significant across districts. The high variability could be attributed to unscientific and inconsistent methods used in breeding, including the use of non-descript local breeds. The results suggest that there are notable variations in the aspects of marketing and housing management, whereas aspects of feeding, breeding and health care practices have been relatively uniform and traditional. The priority ranking suggests that the farmer is more concerned about aspects of marketing and critical technical aspects of breeding and scientific management have received relatively lesser importance. This suggests the need for conducting training programs on improved aspects of breeding, feeding, and health care practices to enhance the productivity and profitability of poultry farming.

Conclusion

The findings reveal that backyard poultry farming in Ranchi, Deoghar, Simdega, and Dumka is mostly traditional, with free-range systems, leftover feeding and non-descript breeds. Although simple management practices, including cleaning, are practiced, scientific practices, including vaccination, deworming, and scientific breeding, are not adopted. Marketing was found to be the most important, followed by health care, and then feeding and housing, which received moderate importance. Breeding was found to be the least important, reflecting a knowledge gap. The findings suggest that there is a need to provide training and extension support to backyard poultry farmers in Ranchi, Deoghar, Simdega and Dumka, especially in relation to scientific breeding, feeding, housing, health care and marketing, to enhance productivity and income.

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Table 1: Frequency distribution of the respondents based on rearing and marketing practices in backyard poultry production

Practice	Ranchi (n=100)	Deoghar (n=100)	Simdega (n=100)	Dumka (n=100)
Housing practices				
Rearing of flocks in free range	52 (52.00)	51 (51.00)	72 (72.00)	65 (65.00)
Provision of temporary kutcha house	40 (40.00)	43 (43.00)	25 (25.00)	32 (32.00)
Provision of well ventilated shed	8 (8.00)	6 (6.00)	3 (3.00)	3 (3.00)
Feeding practices				
Kitchen waste	22 (22.00)	26 (26.00)	32 (32.00)	29 (29.00)
Left over grains	70 (70.00)	68 (68.00)	65 (65.00)	68 (68.00)
Commercial feed	8 (8.00)	6 (6.00)	3 (3.00)	3 (3.00)
Breeding practices				
Identification of common Indigenous breeds of backyard poultry	24 (24.00)	28 (28.00)	22 (22.00)	25 (25.00)
Use of non-descript breeds of rooster for breeding purpose	56 (56.00)	48 (48.00)	36 (36.00)	39 (39.00)
Differentiation of fertile egg from infertile egg (candle method)	3 (3.00)	1 (1.00)	0 (0)	0 (0)
Preservative methods to enhance shelf life of an egg	7 (7.00)	3 (3.00)	1 (1.00)	0 (0)
Management/Health care practices				
Cleaning of sheds on daily basis	86 (86.00)	82 (82.00)	76 (76.00)	68 (68.00)
Deworming	54 (54.00)	49 (49.00)	34 (34.00)	37 (37.00)
Vaccination against common disease	26 (26.00)	27 (27.00)	19 (19.00)	14 (14.00)
Used of ectoparasiticides (neem, lime, herbal)	21 (21.00)	17 (17.00)	5 (5.00)	7 (7.00)
Identification of common diseases (Ranikhet, Fowl pox, IBD)	6 (6.00)	2 (2.00)	1 (1.00)	1 (1.00)
First aids measure for ailing birds	27 (27.00)	21 (21.00)	18 (18.00)	17 (17.00)
Disposal of dead birds following necessary protocols	39 (39.00)	43 (43.00)	21 (21.00)	24 (24.00)
Marketing				
Sale of flock to local vendor	77 (77.00)	74 (74.00)	89 (89.00)	91 (91.00)
Reaching urban market for optimum sale	23 (23.00)	26 (26.00)	11 (11.00)	9 (9.00)

Figure in Parentheses indicate the percent

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