

Original Research Article

**An analysis of the challenges faced by small scale backyard chicken farmers
of Dhemaji district of Assam**

ABSTRACT

Aims: The present study was conducted to know the challenges faced by the small scale backyard chicken ~~rearers~~ farmers of Dhemaji district of Assam.

Study design: The data obtained on various challenges faced by the farmers under the study were tabulated and analyzed statistically by using Garrett's Ranking Technique.

Place and duration of study: The study was conducted at Krishi Vigyan Kendra, Dhemaji, Assam Agricultural University, Simen Chapori, Dhemaji, Assam during the year, 2020-21.

Methodology: For the purpose, a questionnaire was prepared for surveying and data were collected about various challenges in backyard chicken rearing faced by the farmers of the district. The farmers were asked to identify the challenges he or she and the fellow farmers of their villages faced with respect to rearing of local chickens in their locality and to rank the challenges from 1 to 20 according to the seriousness of the challenges faced by them.

Results: Lack of suitable germplasm was found to be the major challenge of poultry farmers with mean score of 74.89 and ranked first among the constraints in backyard chicken rearing. Higher incidence of diseases (68.95), unavailability of feed and feed ingredients (66.55) and mortality of young chicks (63.00) were ranked second, third and fourth major challenges, respectively. On the other hand, non availability of vaccine, higher cost of feeds and feed ingredients, lack of extension training or service, high cost of farm equipments were ranked fifth, sixth, seventh and eighth, respectively, as challenges in backyard chicken rearing. Lack of organized marketing facilities, lack of knowledge on scientific poultry farming, high cost of chicks, presence of middle man, higher mortality during brooding period, inability to diagnose sick birds, inadequate veterinary facilities, seasonal price fluctuations, high cost of medicaments, lack of credit facilities, social problems like damaging of the standing crops by the birds and complaint by neighbours, loss of birds due to predators or thieves were some other constraints of lower importance as indicated by the respondents for the backyard chicken farmers surveyed during the study.

Conclusion: From the study, it can be concluded that the small scale backyard poultry farmers of Dhemaji district of Assam have a lot many challenges in chicken rearing in village

conditions, the major being the lack of suitable germplasm and higher incidence of diseases. To address such problems there should be proper initiatives from government level as well as in farmers' collaborative approach to introduce some newly developed improved chicken breeds and awareness about proper disease prevention and bio-security measures and creation of other facilities.

Key words: *Backyard chicken, challenges, vaccines, extension training, chick mortality*

Formatted: Font: Not Bold

1. INTRODUCTION

The total poultry population in our country was 851.81 million in 2019, out of which the total numbers of backyard poultry was 317.07 million with an increase of 45.8% compared to 19th Livestock Census in the 2012, whereas the commercial poultry has increased by 4.5% in the same period with the total population of 534.74 million [1]. In the same year the poultry population of Assam was 46.70 million with an increase of 71.63% over the last Census. The growth rate itself signifies the importance of this segment in livelihood of the rural masses of our state as well as our country. Backyard poultry is an age-old traditional practice where small numbers of native chickens are reared with or without inputs under the free-range scavenging conditions. In the year, 2020, the backyard poultry farming contributed about 17.8% (18.41 billion) of total egg production (103.32 billion) of India [2]. The total egg production in Assam was 514.8 million, out of which 503.2 million (92.36%) are contributed by indigenous chicken [3]. Thus, indigenous chicken plays a significant role in egg as well as meat production in Assam. To reduce the peril of malnutrition, particularly in rural areas, backyard poultry farming can be one of the best options. The chicken rearing requires less investment and easily manageable, even by the children and women. Backyard chicken serves multiple purposes with economic, social, cultural and religious value for the people of the state. It is mainly comprised of rearing *desi* varieties of chicken characterized by low input scavenging system with occasional supplementary feed of home grown grains. This system of production is marked by slow growth, high mortality due to spread of infectious diseases and worm infestation, exploitation by middle man, seasonal price fluctuations, non-availability of vaccines, lack of scientific training, awareness etc. alongside the other challenges. Backyard chicken has the potentiality to alleviate poverty, empower rural women, eradicate malnutrition and provide subsidiary incomes and gainful employment in rural areas, especially the tribal-populated areas. This sort of farming also has huge scope for farther expansion as the produce from this system is highly accepted by the masses across the

country with higher prices compared to their commercial counterparts. The eggs of such indigenous hen always fetch double the price of a commercial egg. Despite the high cost of *desi* chicken meat compared to other types, it is always in high demand due to its taste and social and religious values. Backyard chicken rearing in Assam is still in traditional manner without adopting any scientific practices in terms of housing, feeding, management, organized market system and healthcare and biosecurity etc. for which they are deprived of the desired productivity and economic benefits they supposed to get. Therefore, the present study was undertaken to find out the various challenges and to understand the problems perceived by the small chicken rearers of Dhemaji district of Assam.

2. MATERIALS AND METHODS

The present study was conducted in five development blocks of Dhemaji district viz, *Dhemaji, Bordaloni, Machkhowa, Sissiborgaon and Jonaid* during the period of 2020-21. From a total of two hundred thirty seven farmers, two hundred local chicken ~~rearers~~ farmers in backyard system comprising of 40 numbers from each block were selected randomly for the experiment. A minimum of 5 years experience in backyard poultry rearing with 20 to 25 numbers of local chickens was the basic criteria for selection of farmers as respondent. The data was collected by using a semi-structured questionnaire, enlisting different probable challenges through interviews during various field visits, in-campus and out-campus training programmes of KVK, Dhemaji as well as during the farmers visits to KVK for various purposes in different major areas like breeding, feeding, healthcare, marketing and others including social acceptance etc. The respondents were asked to identify the challenges he/ she and the fellow farmers of their villages faced with respect to its rearing in their locality and rank those challenges from 1 to 20 according to the severity of the constraints faced by them. Rank 1 denoted the most severe while rank 20 denoted the least severe of particular constraint. The collected data were tabulated and analyzed statistically by using Garrett's Ranking Technique. The assigned ranks given by the participant farmers were counted into per cent position value by using the following formula given by Garrett and Woodworth [4].

$$\text{Per cent position} = 100(R_{ij} - 0.50)/N_j$$

Where, R_{ij} = Rank given for the i^{th} factor by j^{th} individual; N_j = Number of factor ranked by j^{th} individual.

The per cent position was then converted into scores by referring the table given by [4]. For each factor the scores of the individual respondents were added together and divided by the

total number of respondents for whom scores were added. The mean scores were calculated by dividing the total score by the number of respondents. Overall ranking was obtained by assigning ranks in the descending order of the mean score.

3. RESULTS AND DISCUSSION

The small scale backyard chicken ~~rearers~~-farmers of Dhemaji district of Assam have faced lot many challenges in rearing the local as well as improved varieties of chicken in backyard conditions and those challenges along with their rankings according to their severity are presented in the Table 1. Lack of suitable germplasm was found to be the major challenge of chicken farmers with mean score of 74.89 and ranked first among the constraints in backyard chicken rearing. This may be due to unavailability of chicken breed, chick-hatchery and input dealers for supply of quality chick. Non- availability of chicks and the poor qualities of the available chicks would be the one of the major constraints as reported by many of other researchers [5, 6, 7, 8, 9, 10]. Higher incidence of diseases with mean score of 68.95 was found to be the 2nd important challenge in backyard chicken rearing in the study. Higher disease incidences in chicken might be due mainly to improper healthcare management such as de-worming and timely vaccination of the birds against the common pathogens. The same might also be due to improper housing management, imbalanced feeding and lack of knowledge about bio-security measures on the part of the farmers. Economic condition of the farmers also plays important role here as the most of the farmers from rural areas are not sound economically and hence unable to provide required housing facilities and optimal feeding as per age and stage of growth of their birds. Another reason for more incidence of disease in chicken might be the prevailing high humid climatic condition which creates conducive condition for various bacterial and fungal diseases. The findings in this study in regard to disease incidence in chicken are in agreement with observations of some more workers [8, 10, 11]. The unavailability of feed and feed ingredients (66.55) and mortality of young chicks (63.00) were ranked as the third and fourth major challenges, respectively, in rearing indigenous as well as improved types of chicken in backyard system. Unavailability of feed and feed ingredients and thereby higher costs of the same might be due to non-production of feed ingredients in nearby locality and non-availability of feed mill in the district as well the state. The present findings with respect to poultry feeds and feed ingredients were corroborated with the findings of some other study among chicken ~~rearers~~

[farmers](#) [5, 10, 12, 13]. High mortality in birds reared in backyard environment was perceived as one of the serious constraints. This might be due to lack of knowledge of the farmers about the diseases of the birds and poor bio-security in the farm including non-adoption of various preventive measures like periodic vaccination and de-worming of the birds and this finding is in line with the findings of [Kalamkar \[5\]](#), [Prasad et al. \[14\]](#), [Gopala et al. \[15\]](#) and [Bhimraj et al. \[16\]](#) [use single format \(name or numbering\)](#). On the other hand, non availability of vaccine with score of 58.10 is ranked 5th in the list of challenges in backyard chicken rearing which was in agreement with the findings of [Kalamkar \[5\]](#) and [Nath et al. \[6\]](#). This might be due to lack of awareness among the farmers about importance of vaccines and thereby the demand for vaccines is very low in the drug houses for which they do not keep enough vaccines in the store. Higher cost of feeds and feed ingredients (53.32) is ranked sixth and the lack of extension training or service (51.52) ranked seventh in the study. Cost of the poultry feed is genuinely more here as the major ingredients of poultry feeds i.e. maize and soybean meal are not cultivated in this region or the state as a whole for which poultry feed mill is not a common find here. The observations about the feed and feed ingredients' cost in this study is in agreement with the findings of many other researchers [5, 10, 12, 13, 14, 18] in different states of the country, who also found that the feed costs is an important factor in profitability in backyard poultry farming. The lack of extension services or trainings on chicken rearing and other government programmes for poultry farmers also reported to be notable problem in village poultry rearing and similar kind of observations are opined by some more workers [6, 10, 12, 13, 17]. The high cost of farm equipments was also noted to be a problem in poultry farming in this study which ranked 8th (50.68) as the farm equipments like feeders, drinkers and brooders are the essential requirements of such farms, which are very costly in this part of the state compared to other places. Lack of organized marketing facilities (50.06) was another challenge (9th rank) recorded here, which corroborated with the findings of [Chasura et al. \[19\]](#). Smaller sized farms and fluctuation on the demand of meat round the year play important role in creation of organized marketing facilities. Initiative from the government and other semi-government agencies is also lacking in this respect. Next challenge in the order of importance as recorded by the respondents was lack of knowledge on scientific poultry farming with the score of 49.87, which may be due to lack of exposure of the farmers to scientific poultry rearing and trainings among others. The chicken [rears](#) [farmes](#) are also of the opinion that the traditional knowledge on chicken farming is not enough for modern day chicken production and required sufficient training on such aspects from which they have largely been deprived off. Some other workers also opined the same as one

Formatted: Strikethrough

Formatted: Strikethrough

of the constraints in poultry rearing in rural areas [5,8,10,20]. High cost of chicks (49.53) was another finding as challenge in village chicken during the study which was in agreement with the reports of [10] and [18].

Table 1. Challenges faced by small scale backyard chicken farmers of Dhemaji district of Assam and their rankings

Sl. No.	Constraints	Garrett's Total Score	Garrett's Mean Score	Rank
1	Lack of suitable germplasm	14978	74.89	1
2	High cost of chicks	9905	49.53	11
3	Lack of knowledge on scientific poultry farming	9973	49.87	10
4	Lack of extension training/ service	10304	51.52	7
5	High cost of farm equipments	10136	50.68	8
6	Unavailability of feed and feed ingredients	13310	66.55	3
7	Higher cost of feeds and feed ingredients	10664	53.32	6
8	Higher incidence of diseases	13790	68.95	2
9	Mortality of day-old and young chicks	12600	63.00	4
10	Inability to diagnose sick birds	8618	43.09	14
11	Non availability of vaccine	11620	58.10	5
12	High cost of medicaments	7926	39.63	17
13	Lack of organized marketing facilities	10012	50.06	9
14	Seasonal price fluctuations	8102	40.51	16
15	Presence of middle man	9700	48.50	12
16	Higher mortality during brooding period	8734	43.67	13
17	Inadequate veterinary facilities	8455	42.28	15
18	Social problems likedamaging of the standing crops by the birds and complaint by neighbours	6867	34.34	20
19	Lack of credit facilities	7192	35.96	18
20	Loss of birds due to predators	6914	34.57	19

Presence of middleman is another challenge which results in amplified market price of the meat as well as eggs of indigenous chicken but the ~~rearers-farmers~~ usually do not get their due share. The middlemen use to give minimal price to the farmers for their produce and most of the profit they use to keep in their pocket. Therefore, the respondents gave high weightage to this problem and placed it on 12th rank during the survey. Higher mortality of chicks during brooding period is another constraint, which might be due to inferior chick quality, lack of knowledge and experience on proper and scientific brooding management as well as improper feeding management. This challenge is also supported by the findings of ~~Kalamkar [5] and Sheikh et al. [20]~~. Inability to diagnose sick birds is another problem identified by the farmers during the study which might be due to lack of knowledge and exposure of the farmers about the diseases commonly occurred in chicken which lead to increase morbidity and mortality in the birds. Another major constraint in chicken rearing in rural conditions is

Formatted: Strikethrough

inadequate veterinary facilities, which is ranked 15th out of 20 identified challenges here but it was ranked higher in the ladder by other researchers [7, 8, 10, 21] as it is a common problem in most of the places due to the shortage of manpower in the governments' Animal Husbandry and Veterinary Department and un-proportionate veterinary facilities to the livestock and poultry population. The farmers could not avail necessary veterinary services in timely manner due to non-availability of veterinary officers and efficient field staff leading to severity in disease conditions in birds and their death in majority of the cases. Inadequate veterinary service was also reported to be a major constraint among small scale pig farmers in the same district of the state [22]. The seasonal fluctuation in the market price of the village chicken was also identified as risk and uncertainty in the market and it is found to be in agreement with the findings of few other researchers [5, 6, 10, 15, 19, 21]. Some more challenges in backyard chicken rearing are high price of medicaments, lack of credit facilities, loss of birds due to predators or thieves, social problems like damaging of the standing crops by the birds and complaint by neighbour etc. It was observed that the poor access to credit facilities to the chicken rearers was an important factor to improve overall poultry husbandry practices, especially for the landless, marginal and small farmers. Lack of credit facilities from government and other financial agencies is also reported as the constraint in chicken rearing by Nath et al. [6], Chaudhary [8] and Islam et al. [10]. Likewise, loss of birds due to predators or thieves during scavenging of birds was also reported as a problem in local poultry rearing by few workers [7, 8]. The social problems like damaging of the standing crops by the birds and complaint by neighbours was found to be least important problems in backyard chicken rearing as observed in the study.

Formatted: Strikethrough

4. CONCLUSION

It can be concluded that the small scale backyard poultry farmers of Dhemaji district of Assam have a lot many challenges in chicken rearing in village conditions, the major being the lack of suitable germplasm and higher incidence of diseases. However, addressing various constraints as per their merits and proper planning can minimize the severity of problems and ensures better productivity with higher margin of profit from small scale poultry farming. For that to happen the farmers must have wide knowledge base on various aspects of chicken rearing especially the diseases management by proper and timely vaccination and bio-

security measures as the higher disease incidence was emerged as one of the most important constraint. Therefore, the small scale poultry farmers may be trained through various short and long duration training programme by different training providers including KrishiVigyanKendras for minimising those constraints and to uplift the economic conditions of poultry farmers. There should also be proper initiatives from government level as well as in farmers' collaborative approach to introduce some newly developed improved chicken breeds and awareness about proper disease prevention and bio-security measures and creation of other facilities.

REFERENCES

1. Government of India. 20th Livestock Census 2019 All India Report. Ministry of Agriculture, Department of Animal Husbandry, Dairying and Fisheries, Krishi Bhawan, New Delhi- 01; 2020.
2. Ullengala R, Rama Rao SV, Raju MVLN, Chatterjee RN. Backyard poultry farming for sustained production and enhanced nutritional and livelihood security with special reference to India: a review. *Tropical Animal Health and Production*. 2021;53(1):176:1-14
3. BAHS, 2020. Basic Animal Husbandry Statistics, Department of Animal Husbandry and Dairying and Fisheries (DAHD), Ministry of Agriculture, Government of India, Krishi Bhawan, New Delhi.
4. Garrett HE, Woodworth RS. *Statistics in Physiology and Education*. Vakils Feffer and Simons Pvt. Ltd., Bombay. 1969: 329.
5. Kalamkar SS. Inputs and Services Delivery System under Contract Farming: A Case of Broiler Farming, *Agricultural Economics Research Review*. 2012;25:515-521.
6. Nath BG, Pathak PK, Mohanty AK. Constraints Analysis of Poultry Production at Dzongu Area of North Sikkim in India, *Iranian Journal of Applied Animal Science*. 2012; 2(4): 397-401.
7. Rahman S. Status and Constraints of Backyard Poultry Farming in Mizoram. *Indian Journal of Hill Farming*. 2017; Sp. Iss.:76-82
8. Chaudhary BN, Verma RR, Singh V, Ahmad R, Singh KK. Constraints in production and marketing of broilers & layer farming of poultry birds in Gorakhpur district of U.P. *Journal of Pharmacognosy and Phytochemistry*. 2020;Sp-9(5):106-108.

9. Saini GR, Singh V, Singodia M, Rajoria S, Budania H. Constraints Faced by Broiler Poultry Farmers in Ajmer District of Rajasthan. *Asian Journal of Agricultural Extension, Economics & Sociology*. 2022; 40(10): 84-89.
10. Islam R, Nath P. Constraints Perceived by the Broiler Farmers in Sivasagar District of Assam. *Indian Res. J. Ext. Edu.* 2015;15(1):112-113.
11. Jakir S. Management of Contract farming in Livestock: A case study in poultry industry, MBA Thesis, University of Agricultural sciences, Dharwad; 2008.
12. Mane VS, Dhariya SK, Bhosale SS). Constraint analysis of poultry farming in north Konkan region of Maharashtra. *Indian J. of Poultry Sci.* 2007; 42(2):221-223
13. Sedagha D, Tuffour, M. What holds us back: constraints among broiler producers in Ghana. *Scientific Journal of Animal Science*. 2013; 2(10): 264-272.
14. Prasad KVV, Reddy PVVS, Rao KS, Ram R. Problems in contract broiler farming as perceived by the farmers. *Indian Veterinary Journal*. 2005;82(4):407-409.
15. Gopala GT, Sasidhar PVK, Veeranna KC, Shettar VB, Veerannagowda BG, Umesh BU. Constraints analysis of broiler poultry farming under contract and non-contract systems in Karnataka, India. *International Journal of Current Research*. 2015;7(3):13927-13930.
16. Bhimraj AM, Popat DS, Pandian ASS, Dinani OP. Economics evaluation and constraints of contract and backyard broiler farming. *Bulletin of Environment, Pharmacology and Life Sciences*. 2018;7(4):96-100.
17. Olaniyi OA, Adesiyun IO, Ayoade RA. Constraints to Utilization of Poultry Production Technology among Farmers in Oyo State, Nigeria. *J. Hum. Ecol.* 2008; 24(4): 305-309.
18. Chawke P, Kahate PA, Sul DM, Shelke RR, Nage SP. Constraints in Poultry Production faced by Poultry Owners in Bhandara District, India. *Int. J. Curr. Microbiol. App. Sci.* 2021;10(01): 1390-1395 x
19. Ghasura RS, Sheikh AS, Aswar BK, Rajpura, Charan Rohit RM. Constraints faced by Poultry Farm Entrepreneurs in Gujarat. *International Journal of Rural Studies*. 2013;20: 1-5.
20. Sheikh GRS, Aswar AS, Rajpura BK, Rohit RMC. Constraints perceived by poultry farm entrepreneurs in Banaskantha District, Gujarat. *Intl. J. of Rural Studies*. 2013;20(2):391-394
21. Swain BK, Kumar JA, Parit P, Korikanthimath VS. Constraint analysis of commercial poultry farming in Goa. *Indian Journal of Poultry Science*. 2009;44(1): 137-138.

22. Saikia AK, Gogoi G, Neog, M. Constraints analysis of small scale pig farming in Dhemaji district of Assam. Journal of Krishi Vigyan. 2019; 7(2): 40-45.

Comment [H1]: Write the all references in alphabetically (A-Z) form and check all missing references.

UNDER PEER REVIEW