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Assessing Constraints in Pratapdhan Backyard Poultry Farming: A Study of Farmers in Udaipur, Rajasthan, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Poultry farming is critical for the development of the economy. It usually has better returns than other livestock activities in developing countries. The study assessed the constraints of backyard poultry farmers in Udaipur district, Rajasthan, focusing on the Pratapdhan breed under the All India Coordinated Research Project (AICRP) conducted in 2022-23 across four villages from Girwa and Gogunda tehsils, data from 120 farmers revealed that 74.17 per cent of the beneficiary farmers had medium level of constraints faced by respondents, while 13.33% and 12.50% had low and high

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constraints faced by respondents, respectively. In Gogunda tehsil, 75.00% had medium faced constraints, compared to 73.68% in Girwa. The study underscores the importance of targeted training and exposure to improve poultry management and promote sustainable practices in rural areas.

Keywords: AICRP; backyard poultry; constraints; poultry farming; Pratapdhan breed.

1. INTRODUCTION

Poultry farming plays an important role in the national economy and socio-economic development, especially through chickens, which are a commonly raised livestock species. Rural backyard poultry systems play an important role in obtaining the country's nutritional security in rural areas. In India, backyard poultry enterprise has supported poor, landless farmers and other members of backward classes to increase their livelihood, increase their property, and get out of poverty (Islam et al., 2021). The demand for eggs and meat in rural areas is fulfilled by the adherence to backyard poultry (Panda et al*.,* 2008; Nath et al*.,* 2012). Backyard poultry, in particular, contributes significantly to economic development, especially in rural areas, by improving the knowledge and approach of stakeholders. According to the 20th livestock census, the latest census, India has 851.80 million poultry, with 534.74 million in commercial and 317.07 million in backyard farming, backyard pole (AICRP Report 2021-22, BAHS, 2021) has increased by 46%.

Backyard poultry farming, which usually consists of small herds of 5 to 20 birds, is mainly aimed at meeting dietary and small cash needs. The All India Coordinated Research Project (AICRP) on poultry breeding at All India, Udaipur, developed a double-purpose chicken similar to the local Rajasthan birds. It has been well received by farmers due to breed, merey, colored brailer, and a cross of the road island red, due to its high egg production (150–160 eggs per year) compared to local breeds. Pratapdhan birds also have high body weight, including 1.4 to 3 kg and 1.2 to 2.7 kg in men, which contributes to an increase in poultry production in small-scale operations (AICRP Report 2021-22).

2. METHODOLOGY

The study was conducted in the Udaipur district of Southern Rajasthan, focusing on two tehsils, Girwa and Gogunda, which had the highest number of Pratapdhan breed beneficiaries. Four villages—Dedkiya and Jawla (Girwa tehsil), Hanyla and Vishma (Gogunda tehsil)—were purposively selected based on beneficiary numbers. A total of 120 respondents (40 from Dedkiya, 36 from Jawla, 36 from Hanyla, and 8 from Vishma) were randomly chosen for the study. Data were collected via personal interviews using a schedule designed around the study's objectives. Statistical measures, including mean percent score, were used for analysis.

2.1 Assess the Constraints Faced by Farmers

To assess the constraints of backyard poultry farmers, a suitable schedule was developed by enlisting all the possible points in consultation with extension personnel and scientists of KVK. The constraints aspect is categorized into four categories: technological, infrastructural, marketing, and social. The responses obtained from respondents were recorded on a three-point continuum scale, viz., most severe, severe, and least severe, and were assigned 3, 2, and 1 scores, respectively.

3. RESULTS AND DISCUSSION

3.1 Distribution of Respondents According to their Level of Constraints

To get an overview of constraint level, the respondents were categorized into low, medium, and high-level constraint groups based on the calculated mean and standard deviation of the constraint score obtained by the respondents. Table 1, shows that 74.17 per cent of the beneficiary farmers had a medium level of constraints regarding Pratapdhan breed under backyard poultry, while 13.33 and 12.50 per cent of the beneficiary farmers had low and high levels of respectively. Among the respondents from Girwa tehsil, 73.68 per cent of beneficiary farmers had a medium level of knowledge regarding Pratapdhan breed under backyard poultry, while 11.85 and 14.47 per cent of the beneficiary farmers had high and low levels of constraints, respectively. Among the

respondents from Gogunda tehsil, 75.00 per cent of beneficiary farmers had a medium level of constraints faced by respondents, while 11.36 and 13.64 per cent of the farmers had low and high levels of constraints regarding Pratapdhan breed under backyard poultry, respectively. Similarly, Kumar *et.al.* (2017) found that the majority of respondents (63.46 %) fell in the medium level of constraints group, whereas 21.15 per cent of respondents were observed in a high level of constraints group, and remaining 27.00 per cent respondents possessed low level of constraints about adoption of greenhouse technology. The study found that. The majority of the members (58.75%) and non-members (71.25%) belonged to the medium constraints category (Kushwah, 2016).

3.2 Technological Constraints

Table 2, depicts that among the technological constraints under backyard poultry, majority (74.44 MPS) of the beneficiary farmers faced "Lack of knowledge about predators' disease management" as the most severe technological constraint and it was accorded, I rank followed by "Lack of knowledge about scientific management of brooder" and "Lack of knowledge & skill about various practices" and accorded II and III rank with 71.39 and 67.13 MPS, respectively. In case of Girwa tehsil, among the technological constraints under backyard poultry, majority 75.88 MPS of the beneficiary farmers faced "Lack of knowledge about predators' disease management" as most severe technological constraint and it was accorded, I rank followed by "Lack of knowledge about scientific management of brooder" and "Lack of knowledge & skill about various practices" and accorded II and III rank with 73.68 and 67.98 MPS, respectively. Out of total respondents from Gogunda tehsil, majority 71.97 MPS of the beneficiary farmers faced "Lack of knowledge about predators' disease management" as most severe technological constraint and it was accorded, I rank followed by "Lack of knowledge about scientific management of brooder" and "Lack of knowledge & skill about various practices" and accorded II and III rank with 67.22 and 46.21 MPS, respectively. According to the study, the mortality of chicken was observed as a major constraint in backyard chicken production in the area of study, followed by diseases, predation, and improper veterinary service at the village level (Weyuma et al*.,* 2015). (Khandait et al*.,* 2011; and Rawat et al*.,* 2015) reported similar findings, which revealed that a major constraint was attack by predators. (Khan, 2006) also reported that the main constraints for the rural poultry rearers were a high incidence of disease, attacks by predators.

3.3 Infrastructure Constraints

The data presented in Table 3 shows that among the infrastructure constraints under backyard poultry, majority 78.33 MPS of the beneficiary farmers faced "non-availability of scientific housing structures" as most severe infrastructure constraint and it was accorded, I rank followed by "Lack of rodent and predator proof houses", and "Shortage of feeding and watering space" were accorded II and III rank with 66.67, and 59.72 MPS, respectively. In case of Girwa tehsil, majority 78.95 MPS of the beneficiary farmers faced "non-availability of scientific housing structures" as most severe infrastructure constraint and it was accorded, I rank followed by "Lack of rodent and predator proof houses", and "Shortage of feeding and watering space" were accorded II and III, rank with 67.11, and 58.77 MPS, respectively. Out of total respondents from Gogunda tehsil, majority 77.27 MPS of the beneficiary farmers faced "non-availability of scientific housing structures" as most severe infrastructure constraint and it was accorded, I rank followed by "Lack of rodent and predator proof houses", and "Shortage of feeding and watering space" were accorded II, and III rank with 65.91, and 61.36 MPS, respectively. The findings were in agreement with those of (Mandal, 2006, Khandait et al*.,* 2011, and Nath et al*.,* 2012).

Table 1. Distribution of the respondents according to their overall constraints

S. No.	Constraint Level	Girwa (n_1=76)		Gogunda (n_2=44)		Overall (n=120)	
		f	%	f	%	f	%
1	Low (< 45.54)	11	14.47	5	11.36	16	13.33
2	Medium (45.54 to 52.82)	56	73.68	33	75.00	89	74.17
3	High (>52.82)	9	11.85	6	13.64	15	12.50
Total		76	100	44	100	120	100

f= frequency, %= per cent, S.D.- 3.62, mean-49.15

Table 2. Technical constraints faced by beneficiaries in adoption of Pratapdhan breed under backyard poultry

S. No.	Technical Constraints	Girwa (n_1=76)		Gogunda (n_2=44)		Overall (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Lack of knowledge regarding improved backyard poultry breeds	48.25	V	46.21	V	47.50	V
2	Lack of knowledge about scientific management of brooder	73.68	II	67.22	II	71.39	II
3	Lack of knowledge & skill about various practices	67.98	III	65.66	III	67.13	III
4	Scarcity & paucity of feed and water	50.44	IV	52.27	IV	51.11	IV
5	Lack of knowledge about predators' disease management	75.88	I	71.97	I	74.44	I

MPS= Mean percent score

Table 3. Infrastructure constraints faced by beneficiary in adoption of Pratapdhan breed under backyard poultry

S. No.	Infrastructure Constraints	Girwa (n_1=76)		Gogunda (n_2=44)		Overall (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Poor housing facilities	53.08	IV	59.09	IV	55.28	IV
2	Non-availability of scientific housing structures	78.95	I	77.27	I	78.33	I
3	Lack of rodent and predator proof houses	67.11	II	65.91	II	66.67	II
4	Shortage of feeding and watering space	58.77	III	61.36	III	59.72	III

MPS= Mean percent score

3.4 Marketing Constraints

Table 4, shows that among the marketing constraints under backyard poultry, majority 76.11 MPS of the beneficiary farmers faced "High cost of feed" as most severe marketing constraint and it was accorded, I rank followed by "Poor financial condition of farmers", and "Difficulty in getting loans", were accorded II and III rank with 75.00, and 72.22, MPS, respectively. In case of Girwa tehsil, majority (78.95 MPS) of the beneficiary farmers faced "High cost of feed" as most severe marketing constraint and it was accorded, I rank followed by "Poor financial condition of farmers", and "Difficulty in getting loans", were accorded II and III rank with 75.44, and 74.56, MPS, respectively. Out of total respondents from Gogunda tehsil, majority 75.76 MPS of the beneficiary farmers faced "High cost of chicks" as most severe marketing constraint and it was accorded, I rank followed by "Poor financial condition of farmers", and "High cost of feed", were accorded II and III rank with 74.24, and 71.21, respectively. similar findings were found by (Kumar, 2007; Nepali et al*.,* 2007; Tanwar, 2011; Rajkumar et al*.,* 2014; and Ravikumar and Kumaravel, 2017).

3.5 Social Constraints

Table 5, depicts that among the social constraints in backyard poultry, "Lack of awareness among people about nutritional value of poultry products" was faced by beneficiary farmers as most severe social constraint with 50.28 MPS and accorded I rank, while "Vegetarian food habits of the people" and "Social restriction on poultry farming" were accorded II and III rank with 43.06 and 37.78 MPS respectively. Out of total respondents from Girwa tehsil, majority 48.68 MPS of the respondents faced "Lack of awareness among people about nutritional value of poultry products" as most severe constraint and accorded I rank, while "Vegetarian food habits of the people" was II and "Social restriction on poultry farming" were accorded II and III rank 41.23 and 33.77 MPS respectively. In case of Gogunda tehsil, "Lack of awareness among people about nutritional value of poultry products" was most severe social constraint being faced by beneficiary farmers with 53.03 MPS and accorded I rank, while "Vegetarian food habits of the people" MPS and "Social restriction on poultry farming" were accorded II and III

Table 4. Marketing constraints faced by beneficiary in adoption of Pratapdhan breed under backyard poultry

S. No.	Marketing constraints	Girwa (n_1=76)		Gogunda (n_2=44)		Overall (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	High cost of feed	78.95	I	71.21	III	76.11	I
2	Poor financial condition of farmers	75.44	II	74.24	II	75.00	II
3	High cost of chicks	67.54	V	75.76	I	70.56	IV
4	Difficulty in getting loans	74.56	III	68.18	V	72.22	III
5	High cost of transportation	70.18	IV	69.70	IV	70.00	V
6	High fluctuations in selling price of poultry products	56.14	VIII	68.18	V	60.56	VIII
7	Shortage of local market	48.68	IX	57.58	VIII	51.94	IX
8	Problems in marketing of poultry birds & eggs	61.84	VI	61.36	VII	61.67	VII
9	Lack of poultry cooperative societies	60.96	VII	63.64	VI	61.94	VI

MPS= Mean percent score

Table 5. Social constraints faced by beneficiary in adoption of Pratapdhan breed under backyard poultry

S. No.	Social constraints	Girwa (n_1=76)		Gogunda (n_2=44)		Overall (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Lack of awareness among people about nutritional value of poultry products	48.68	I	53.03	I	50.28	I
2	Vegetarian food habits of the people	41.23	II	46.21	II	43.06	II
3	Social restriction on poultry farming	33.77	III	44.70	III	37.78	III

MPS= Mean percent score

with 46.21 and 44.70 MPS respectively. Similar findings were obtained by (Jat and Yadav, 2016 and Choudhary et al*.,* 2017).

4. CONCLUSION

The conclusions about Pratapdhan poultry farming show that, while it has the ability to uplift the rural communities, it is currently back from several important challenges. These include diseases and hunter controls, poor housing conditions, increased feed prices, limited access to credit and lack of technical information about social obstacles such as low awareness and specific dietary habits. These challenges underline the immediate requirement of concentrated interventions. Further, dealing with these issues can really promote adoption and productivity through farmer training programs, better veterinary assistance, cheap scientific housing options, financial assistance initiatives and awareness campaign. Additionally, it would be important to ensure the long -term viability of Pratapdhan poultry farming.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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