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A Socioeconomic Analysis of Organic Poultry Farming in Southern Region of Rajasthan

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ABSTRACT

The study was conducted on 240 randomly selected poultry farmers of 16 villages in 08 tehsils of 04 districts at southern region of Rajasthan to identify the socioeconomic conditions of the poultry keepers during the organic backyard / free range poultry production. The analyses of data revealed that majority 71.67% of respondents were of medium age group (30-50 years), had secondary or illiterate level (26.67% or 23.33%) of education and lived in medium sized (<5 members) joint family. Agriculture was the major occupation and 49.17% of poultry framers were small farmers (holding 1-2 ha land), with more than 6-10 years of poultry farming experience. The study revealed introduction of hybrid variety suitable for organic backyard / free range poultry farming and skill up gradation of poultry farmers can bring about a significant improvement in sustainable organic poultry production of the down trodden tribal and non-tribal communities of southern region of Rajasthan.

Key words: Backyard, Farmers, Organic poultry, Socioeconomic

Introduction

Poultry sector is one of the fastest booming agricultural sectors in India, having over 8% annual growth rates (Erdaw and Beyene, 2022). In the world India is the third largest producer of eggs and seventh largest producer of chicken meat (Pandey *et al.*, 2022). Annually in India, 260 million layers generate around 3.4 million tons (74 billion) of eggs, while 3000 million broilers produced about 3.8 million tons of chicken meat (Kanakachari *et al.*, 2022). However, Rajasthan ranks 18th in poultry population (80.24 lakh, Livestock Census, 2012) which is less than 2 % of India's poultry population (Mishra *et al.*, 2019). The per capita availability of egg per year in Rajasthan is very low (11 eggs) as compared to national average of 45 and much lower than eggs recommended by Nutritional Advisory Committee of

ICMR (180 eggs per capita per year) which suggests great scope of improvement in poultry production in Rajasthan. The poultry population under backyard in Rajasthan is 30.33 lakh which is about 38 % of total population (Mishra *et al.*, 2019). The majority poultry production in Southern Rajasthan is under free range / backyard i.e., 94% of total poultry population in southern Rajasthan (Livestock Census, 2012). Therefore, enhancement of poultry production in southern Rajasthan must focus on improving backyard poultry production. In Rajasthan, there are 80.24 lac poultry, of which 30.33 lac are kept in backyards and the remainder 49.91 lac are kept in commercial poultry. With 5.43 lac backyard chickens, Udaipur maintained first place, surpassing Jhunjhunu, Banswara, and Jaipur, which came in second, third, and fourth, respectively (Livestock Census, 2012).

Over the last four decades, India's poultry sector has evolved from backyard rearing to a commercially structured, scientific, and vibrant industry (Biradar *et al.*, 2011). The poultry industry significantly contributes to the socioeconomic improvement of rural populations by providing gainful employment and increasing family income, specifically for landless labourers, small and marginal farmers, and rural women (Singh and Sonwani, 2021). Consumers are now becoming more self-aware of the safety and high-quality of the food items they consume on a daily basis (Ambali and Bakar, 2014). Additionally, when the Purchasing Power (PP) of the average person continues to rise, they are interested in consuming safer products without caring to pay more. Consequently, it is imperative to provide safer poultry products free of microbiological and chemical residues (Biradar *et al.*, 2011). On the other side, the growing argument that intensive cage rearing, forced moulting, etc., are unethical and harmful to animal welfare has started to highlight how the emerging relevance of animal (poultry) welfare started demonstrating its adverse implications for business at an international level (Ben Sassi *et al.*, 2016). So, promoting organic poultry farming more can help us produce poultry products that are safer without negatively affecting the welfare of the animals (poultry).

Organic livestock farming is most suitable to our Indian conditions because of indigenous technical knowledge and practices followed by Indian farmers but organic poultry production is still lagging behind (Chander and Mukherjee, 2005). India has a large population of poultry, and switching just a little from conventional to organic poultry farming could create up a growing market for both domestic consumption and export (Chatterjee and Rajkumar, 2015).

In India, there are currently almost no research studies conducted on organic poultry. The main goal of the current research is to examine the need for the development of organic poultry and to give an evaluation of various interventions that may be used to encourage the production of organic poultry in India.

Materials and Methods

Selection of districts

The present study was conducted for evaluation of

socioeconomic status of organic poultry farmers in Southern Rajasthan, which consists of seven districts namely Dungarpur, Udaipur, Rajsamand, Pratapgarh, Banswara, Bhilwara and Chittorgarh. Out of these seven districts, two tribal districts namely Udaipur and Dungarpur and two Non-tribal districts namely Bhilwara and Chittorgarh was selected purposely on the basis of maximum population of poultry (Table 1) and have the scope of organic poultry farming.

Table 1. Poultry population in MPUAT service area (according to 19th Livestock census, 2012).

Name of Districts	Poultry Population (In Lakh)
Udaipur	504353
Banswara	268707
Bhilwara	117005
Chittorgarh	664418
Dungarpur	177807
Pratapgarh	138149
Rajsamand	36171
Total (MPUAT-SA)	19.07
Rajasthan	80.24
Per cent share of Rajasthan state in total poultry population	23.77

Selection of villages

For selection of villages, a comprehensive list of organic poultry reared was collected from each identified tehsil with the help of personnel of department of Animal Husbandry, patwari and agriculture supervisors. From the list so prepared, two villages were selected from each selected tehsils on the basis of maximum number of poultry farmers. Thus, total sixteen villages were taken for the study purpose and identified for the present investigation. The name of selected villages is given in Table 2.

Selection of respondents

For selection of respondents, a comprehensive list of farmers who were having at least 15-20 poultry birds rearing was prepared from selected village with the help of respective patwari, gram sevek and key informants. From the sites formative list, 15 farmers were selected randomly from each identified village. Thus, the total samples were 240 poultry rearers was included in the present study. The details of village wise selected respondents are given in Table 2.

On the basis of experience gained through pre testing suitable modifications were made in the construction and sequence of questions. In order to arrive at logical interpretation, the data were compiled, tabulated and analyzed as per Snedecor and Cochran (1994).

Results

Age of the respondents

Table 3 shows the distribution of all poultry responders according to their age. As a result, three types were identified: young (under 30 years old), middle (between 30 and 50 years old), and old (over 50 years old). For the Non-TSP and TSP categories, their frequencies were counted and represented into percentage. According to the statistical data in Table 3, of the 240 respondents, 71.67% were into the 30–50 years old, while 15.00% were under 30, and the remaining 13.33% were over 50 years old category.

In addition, a close examination of the data

shows that 18.33% of respondents from the TSP area and 11.67% of respondents from the Non-TSP area were less than 30 years old respectively, while the age range for 76.67% of Non-TSP and 66.67% of TSP area respondents were between 30 to 50 years old. In the Non-TSP and TSP areas, respondents who were older than 50 years old made up 11.66% and 15.0% of the total population respectively. It has been documented that the large number of responders were between the ages of 30 to 50 in both TSP and Non-TSP areas.

Education level of family head

The education-related information of the poultry farmers’ family members was collected and tabulated in Table 4 to establish a viewpoint on the education level possessed by the study’s respondents. They were divided into six categories: illiterate, primary, secondary, senior secondary, graduate, and postgraduate. The respondents’ frequencies were then counted and converted into a percentage of respondents. An analysis of the data found that

Table 2. Village-wise selected respondents.

Selected Districts	Selected Tehsils	Selected Villages	Selected Respondents	Total
Udaipur	Jhadol	Dharti Devi	15	30
		Upali Bassi	15	
	Kherwada	Budra	15	30
Dungarpur	Dovda	Balicha	15	30
		Dolver	15	
	Dungarpur	Kahari	15	30
		Majola	15	
		Chela Kherwada	15	
Bhilwara	Mandal	Bhagwanpura	15	30
		Bhimlyawas	15	
	Bhilwara	Pondras	15	30
Chittorgarh	Bhadesar	Kodukota	15	30
		Navapura	15	
	Chittorgarh	Kanoj	15	30
		Panchli	15	
		Natwat Maharaj	15	
				240

Table 3. Distribution of respondents according to their age.

S. No.	Age group	NON-TSP(n ₁ =120)		TSP(n ₂ =120)		Over all(n=240)	
		f	%	f	%	f	%
1.	Young age (<30 years)	14	11.67	22	18.33	36	15.00
2.	Middle age (30 to 50 years)	92	76.67	80	66.67	172	71.67
3.	Old age (>50 years)	14	11.66	18	15.00	32	13.33
Total	120	100	120	100	240	100	

f= frequency, %= percentage, n=Total number of respondents

30.83% of respondents from the Non-TSP area had a secondary level of education, followed by senior secondary, illiterate, and primary level of education with 24.17%, 19.17 percent, and 18.33%, respectively. Less poultry farmers (5.0% and 2.5%) in the Non-TSP area were in the graduate and postgraduate education groups. The percentage of respondents from the TSP area with illiterate education were 27.50% among poultry farmers, followed by 25.83%, 22.50%, and 19.17% at the primary, secondary, and senior secondary levels, respectively. A smaller number of farmers found into graduate and post graduate education group with 3.33 per cent and 1.67 per cent respondents in TSP area. The majority of farmers (85.00%) in both examined locations are older than 30 years old, which may reason for the results. From the aforementioned facts, it can be inferred that the poultry farmers may reside on their farms and that their financial situation may prevent them from pursuing higher education, which may explain why the aforementioned findings were attained. Similar findings were reported by Abegunrin and Eniola (2019), who found that in Oyo State, Nigeria, the majority (30.9%) of chicken farmers are secondary-educated. According to Uddin *et al.* (2021) the majority of households (56.67%) were found to have low family educational status, followed by medium (40.83%) and high (2.50%). However, Budharam *et al.* (2021) concluded

that in case of adult 92.86 per cent males and 37.50 per cent females were literate, whereas 7.14% male and 62.50% female adult were illiterate backyard poultry rearers in tribble area of Rajasthan.

Size of family

In terms of family size, Table 5 shows that 62.08% of the 240 poultry farmers belonged to a small size family (<5 members), whereas 37.92% of the poultry farmers belonged to a large size family (>5 members). Out of 120 respondents from the Non-TSP area, 58.33% belonged to a small family size and only 41.67% belonged to a large family size. While in the TSP region, 34.17% of respondents were from large families and 65.83% of respondents were from small families. Similar findings were reported by Choudhary (2017), who discovered that the majority of poultry families in the Rajouri District of Jammu and Kashmir belong to small family groups. Contrary to these findings, Deka *et al.* (2013) and Abogenin and Eniola (2019) indicated that the majority of poultry owners were part of large family groups (More than 5 members).

Size of land holding

Analyzing the data in Table 6 indicates that out of 240 respondents, 49.17% of poultry framers were small farmers (holding 1 to 2 ha land), whereas 39.17% of all respondents were marginal farmers

Table 4. Distribution of respondents according their education.

S. No.	Farmer's Education	NON-TSP(n ₁ =120)		TSP(n ₂ =120)		Over all(n=240)	
		f	%	f	%	f	%
1.	Illiterate	23	19.17	33	27.50	56	23.33
2.	Primary	22	18.33	31	25.83	53	22.08
3.	Secondary	37	30.83	27	22.50	64	26.67
4.	Senior secondary	29	24.17	23	19.17	52	21.27
5.	Graduate	6	5.00	4	3.33	10	4.17
6.	Post Graduate	3	2.50	2	1.67	5	2.08
	Total	120	100	120	100	240	100

f= frequency, %= per cent, n= total number of respondents

Table 5. Distribution of respondents according to their size of family.

S. No.	Size of Family	NON-TSP(n ₁ =120)		TSP(n ₂ =120)		Over all(n=240)	
		f	%	f	%	f	%
1.	Small size family (<5 members)	70	58.33	79	65.83	149	62.08
2.	Large size family (>5 members)	50	41.67	41	34.17	91	37.92
	Total	120	100	120	100	240	100

f= frequency, %= per cent, n= total number of respondents

Table 6. Distribution of respondents according to their size of land holding.

S. No.	Size of land holding	NON-TSP(n ₁ =120)		TSP(n ₂ =120)		Over all(n=240)	
		f	%	f	%	f	%
1.	Marginal Farmers (<1 ha)	43	35.83	51	42.50	94	39.17
2.	Small Farmers (1 to 2 ha)	62	51.67	56	46.66	118	49.17
3.	Semi medium (2 to 4 ha)	12	10.00	11	9.17	23	9.58
4.	Medium Farmers (4 to 10 ha)	3	2.50	2	1.67	5	2.08
5.	Large Farmers (>10 ha)	0	0.00	0	0.00	00	00
	Total	120	100	120	100	240	100

f= frequency, %= per cent, n= total number of respondents

Table 7. Distribution of respondents according to their poultry rearing experience.

S. No.	Experience in poultry rearing	NON-TSP(n ₁ =120)		TSP(n ₂ =120)		Over all(n=240)	
		f	%	f	%	f	%
1.	Low (0-5 years)	45	37.50	40	33.33	85	35.41
2.	Medium (6-10 years)	51	42.50	49	40.83	100	41.67
3.	High (Above 10 year)	24	20.00	31	25.84	55	22.92
	Total	120	100	120	100	240	100

f= frequency, %= per cent, n= total number of respondents

(holding less than 1 ha land). The remaining 9.58% and 2.08% of respondents have semi-medium or medium land holdings. There were no respondents in the study area held more than 10 ha of land (Large Farmers). Further evaluation of the data in Table 6 demonstrates that small farmers made up 51.67% of respondents from Non-TSP areas and 46.66% of respondents from TSP areas (1 to 2 ha land). Whereas the category of marginal farmers was assigned to 35.83% of respondents in non-TSP areas and 42.50% of respondents in TSP areas (less than 1 ha land). Similar findings were found by Bharti *et al.* (2020), who found that in Bihar state, 49% of respondents owned small amounts of land, followed by 27% and 24% of landless people and owners of backyard poultry, respectively. In similar manner, Thakur *et al.* (2013), Choudhary (2017) and Rahman (2017) observed low land occupancy before the current research.

Poultry rearing experience

In the present study, majority of the poultry owners (41%) had been medium level experience of rearing poultry for more than 6-10 years, followed by 35.41% and 22.92% with low level 0-5 years and high level more than 10 years of poultry farming experience, respectively (Table 7). Further analysis of the data reveals that only 20.00% of farmers in Non-TSP areas and 25.84% in TSP areas were classified as having high levels of poultry farming experience.

Whereas, 42.50 percent of Non-TSP area respondents and 40.83 percent of TSP area respondents were classified as having a medium level of expertise. Low level of poultry farming experience was stated by 37.50% of Non-TSP area respondents and 33.333% of TSP area respondents. Similar type of experience in poultry rearing was also reported by Mandal *et al.* (2006), Deka *et al.* (2013), Pathak and Nath (2013), Choudhary (2017), Rahman (2017) and Kavithaa *et al.* (2020).

Conclusion

In order to overcome from the present study, the majority of poultry keepers' poultry framers were small family size, small land older, medium experience of poultry rearing. Farmers reared non-descript chicken and there is need for introduction of hybrid variety suitable for backyard / free range farming, development of mother unit of hybrid variety in block level to supply grown up chicks for the farmer round the year. There is also need of research in skill upgradation of poultry farmers for a significant improvement in sustainable organic poultry production of the down trodden tribal and non-tribal community of southern region of Rajasthan.

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