



Backyard poultry production and consumption in scheduled caste community: an ex-post facto study in Mancherial and Guntur district of Telugu states of India

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ABSTRACT

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An Ex-post Facto study was conducted to study the farmers socio-economic profile, poultry production status and consumption pattern of poultry produce before intervention in Shankarpur village of Mancherial district in Telangana and Inturu village of district Guntur in Andhra Pradesh (A. P.) among Scheduled Caste households (SC). Total 140 households (from Shankarpur 73 and 67 from Inturu) were selected randomly for the study. Majority of the respondents were of middle age group, involved in laborer activity and illiterate having no previous poultry farming experience. About 56.7% respondents of Inturu village were keeping poultry with flock size of 6.7 birds whereas in Shankarpur village 17.8% respondents were keeping poultry with average flock size 7.6 birds. Previous experience of poultry farming in family, household income and family size were positively contributing for adopting poultry farming occupation whereas landholding factor contributed negatively. About 17% respondents were keeping their birds purely on scavenging and 20% household did not offer water to birds (drainage water intake). In the study area only 21.1% respondents were providing vaccination and deworming sometimes for one or more diseases. Majority of flocks were reported illness in rainy and summer season (45% each) and 10% in winter. In the study area total mortality in the chicken was found to be 18.1% in which 7.2% was due to predator attack and 10.8% due to diseases and other reasons. Egg intake was found to be 0.31 egg/person/day and chicken meat intake was found to be 8.63 kg/person/year in the study area.

Keywords: Backyard poultry, Egg consumption, Chicken consumption, Poultry management

INTRODUCTION

Schedule Castes (SC) is considered socio-economic deprived and disadvantaged population. The Scheduled Castes was 16.6% of the country population of based on 2011 Census, 17% in Andhra Pradesh (Govt of Andhra Pradesh, 2014) and 15.45% in Telangana (Govt of Telangana, 2014) were SC population. It needs to enhance income among the SC households by different income generating program, infrastructure creation and skill development to decrease the poverty incident among them (Govt of India, 2019). Findings from different countries indicate that small poultry enterprises with proper institutional support can help poor people to take the first step out of poverty (Jensen and Dolberg, 2003). Local chickens in villages greatly contribute to food security and rural development and helpful in covering day to day expenses, helping in women empowerment economically, and livelihood support of disadvantaged section (Desta, 2021). In India, majority of the population lives in villages where protein intake is significantly lower and it is essential to supplement animal protein specially among these people for preventing from protein deficiency and ensure them good health (Rajkumar *et al.*, 2021). ICAR-Directorate of Poultry Research is the unit of the Indian Council of

Agricultural Research (ICAR) of the Department of Agriculture Research and Education (DARE), Ministry of Agriculture and Farmers Welfare, Government of India, working for development of poultry sector in the country. The Directorate has undertaken the a programme for supporting the SC communities through poultry intervention in Guntur and Mancherial districts. Guntur district is present in the Eastern coastal plains of Andhra Pradesh. Mancherial district is located on the north banks of the Godavari river in Telangana. Both states have Telugu as major language. Both districts have fertile land and agriculture is the prime occupation of the people.

The present study brought out the baseline data of beneficiaries and poultry produce consumption status among them along with poultry production status in the study villages. Understanding the status and basic needs of the poultry beneficiaries was essential for planning suitable interventions under the programme.

MATERIALS AND METHODS

In the present study Shankarpur village of Mancherial district in Telangana and Inturu village of Guntur district in Andhra Pradesh were selected by ICAR-DPR. A total of 140 Scheduled Caste (SC) households (73 from Shankarpur and 67 from Inturu) were selected

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randomly in the study. A semi-structured interview schedule was administered for baseline data collection during December, 2021. Variables for socio-economic profile were on continuous and discrete mode based on suitability. Dependency ratio is calculated as total family member divided by the number of working family member (Muche *et al.*, 2014). Data were compiled and analyzed by using appropriate statistical tool to generate inference. Chi square test was applied to show the similarity of data distribution. To estimate the parameter of factor responsible for poultry keeping by farmers logistic regression was applied.

RESULTS AND DISCUSSION

A baseline study was conducted to find out beneficiaries' socio-economic profile, poultry production and management situation and consumption pattern of poultry produce.

Socio-economic profile

In the study area majority of the respondents belonged to middle age group (68.57%) followed by young (18.57%) and older (12.86%) as depicted in Table 1. Majority of the respondents were female (58.9%) in Shakarpur whereas male was major in Inturu (79.1%). In Inturu only 31.34% respondents were illiterate whereas it was 61.64% in Shankarpur. Overall, respondents of Inturu were more educated than those of Shankarpur. Most of the households engaged in labourer work followed by agriculture and others activities. About 75% households of the selected villages have dependency ratio of more than one which indicates earning member in the family is lesser than those dependent on them. As dependency ratio increases, it creates pressure on earning member and household resources (Muche *et al.*, 2014). In Inturu, most of the respondents were (74.6%) landless

Table 1: Socio-economic variables and their distribution in both the study villages

Variables		Shankarpur (n=73)		Inturu (n=67)		Total (N=140)		χ^2 Value
		No.	Percent	No.	Percent	No.	Percent	
Age	Young (≤ 35 years)	16	21.92	10	14.93	26	18.57	7.73**(df:2)
	Middle (35-55 years)	53	72.60	43	64.18	96	68.57	
	Older (≥ 55 years)	4	5.48	14	20.90	18	12.86	
Gender	Female	43	58.90	14	20.90	57	40.71	20.9**(df:1)
	Male	30	41.10	53	79.10	83	59.29	
Education	Illiterate	45	61.64	21	31.34	66	47.14	21.7**(df:4)
	Primary	15	20.55	9	13.43	24	17.14	
	Secondary	4	5.48	9	13.43	13	9.29	
	Matriculation	4	5.48	12	17.91	16	11.43	
	Intermediate and above	5	6.85	16	23.88	21	15.00	
Occupation	Labourers	37	50.68	50	74.63	87	62.14	10.9**(df:2)
	Agriculture	32	43.84	12	17.91	44	31.43	
	Self-employed & Service	4	5.48	5	7.46	9	6.43	
Experience in poultry farming (Exp)	No exp	34	46.58	30	44.78	64	45.71	2.27(df:3)
	Low exp (1-5 years)	23	31.51	17	25.37	40	28.57	
	Moderate exp (6-10 years)	7	9.59	12	17.91	19	13.57	
	High exp (>10 years)	9	12.33	8	11.94	17	12.14	
Family size	Small (≤ 4 members)	63	86.30	55	82.09	118	84.29	0.46(df:1)
	Big (≥ 5 members)	10	13.70	12	17.91	22	15.71	
Dependency ratio		1	12	16.44	16	23.88	28	20.00 1.4
1-2		43	58.90	34	50.75	77	55.00	
2 and above		18	24.66	17	25.37	35	25.00	
Land holding	Land less	16	21.92	50	74.63	66	47.14	38.9**(df:1)
	Marginals	57	78.08	17	25.37	74	52.86	
	Yes	8	10.96	1	1.49	9	6.43	
Keeping poultry	No	60	82.19	29	43.28	89	63.57	22.8**(df:1)
	Yes	13	17.81	38	56.72	51	36.43	
Household monthly income (000)	Low (≤ 7.1)	44	60.27	48	71.64	92	65.71	NS
	Middle (7.1-11.5)	20	27.40	8	11.94	28	20.00	
	High (≥ 11.5)	9	12.33	11	16.42	20	14.29	

df: degree of freedom, * $p \leq 0.05$, ** $p \leq 0.01$, NS: Not significant

whereas about 78% households of Shankarpur had marginal size land holding. Majority of the beneficiaries in both the villages have no experience in poultry farming followed by lower expertise of 1-5 years. Due to this, all the beneficiaries were given on farm training before inputs distribution. Small family size was prevalent in both the villages. Similarly, 56.7% households of Inturu were rearing poultry but in case of Shankarpur it was only 17.8%. The flock size was 6.7 and 7.6 in Shankarpur and Inturu, respectively. Average monthly household income was found Rs. 6,730 and Rs. 7,100 and monthly income from poultry was Rs. 1,430 and Rs. 1,040, respectively in Shankarpur and Inturu, respectively. Rajyalakshmi *et al.* (2023) reported from Andhra Pradesh that majority of the backyard poultry farmers were middle aged followed by old age farmers. Most of the farmers (42.2%) had secondary level education and about half of the (52.22%) farmers had less than one lakh of annual income and majority of them were small and marginal land holders. Poultry contributes significantly in rural households in many parts of world especially in food

security. Brancaert *et al.* (2000) reported that poultry production of rural households makes 70% of the total production in most of the low-income food-deficit countries.

Poultry production and management

There are many factors responsible for the poultry farming like socio-economic status, local situation and other support systems. In the present study, previous experience of poultry farming in family, household income and family size were positively contributing for adopting poultry farming occupation whereas landholding factor contributed negatively in the area of study as depicted in Table 2. Generally, farmers having more land holding prefers large animal farming. Samantaray *et al.* (2020) reported that adoption of scientific backyard practices had negative correlation with age and educational level and holding of land were having significantly positive correlation. In the study area, 36.4% of respondents were keeping poultry with following flock composition: 35.2% hen, 24.1% cocks and 40.7% chicks as presented in Table 3.

Table 2: Parameter estimates of logistic regression model for factors responsible for poultry keeping

Variables	B	SE	Wald	Sig.	Exp(B)
Constant	-2.6	0.99	6.867	0.00	0.074
Prior experience of poultry keeping in family	1.149	0.231	24.701	0.008	0.329
Land holding	-1.110	0.416	7.113	0.008	0.329
Family size	0.717	0.235	9.294	0.002	2.047
Household monthly income	0.105	0.053	3.887	0.049	
Dependency	-0.268	0.259	1.071	0.301	0.765
Chi-square (Omnibus Model)	49.72**				
Chi-square (Hosmer and Lemeshow)	6.38 ^{NS}				
-2log likelihood ratio	133.914				
R ² (Nagelkerke)	0.409				

**p<0.01, NS: Not significant

Table 3: Flock composition and chicken productivity in villages

Attributes	Response	
Flock composition (local birds) (%)	Hen	35.2
	Cocks	24.1
	Chicks	40.7
Off take rate (%)	Total	22.2
	Male	68.8
	Female	31.2
Average age of laying start (Week)	24.4 (18-32)	
Annual egg production/ bird (No.)	65.4 (35-100)	
Hatchability (%)	83.6 (60-100)	

All birds were local type in the study area. Rajkumar *et al.* (2021) reported that local non-descript birds under

traditional production system had low genetic makeup and poor production. Respondents used to sale 22.2% of birds annually (68.8% male and 31.2% female of total birds sold). The poultry start laying egg at the age of 20-32 weeks (the average of 24.4 week) and annual production of egg was recorded in the range of 35-100 per bird (average 65.4 eggs) whereas hatchability of eggs under natural incubation varied from 60-100% (average about 83.6%). Table 4 depicts that about 95% households used night shelter for protecting the birds from predators and extreme climatic condition specially in night. In the study villages all the households used to clean and wash the shelter on regular basis. Proper housing is an important factor for bird's productivity and welfare (Shah and Cetingul, 2021). About 17% households were keeping their poultry on scavenging, about 41.4% respondents were giving to birds occasional feed supplementation

Table 4: Poultry management situation in villages

Management	Response	Value	Management	Response	Value
<u>General Management</u>			<u>Feeding Management</u>		
Having night shelter	Yes	4.7	Feed sources	Only Scavenging	17.2
	No	95.3		Scavenging and occasional supplementation	41.4
Cleaning of shelter	Yes	100		Scavenging and regular supplementation	41.4
	No	0			
<u>Health Management</u>					
Vaccination and Deworming	Yes	21.1	Amount of feed supplement	gram/bird	10-50
	No	78.9	Common feed supplement	Only Kitchen waste	23.5
Age group of maximum morbidity	Adult	50		Grains	76.5
	Chicks	50	Time to offering feed	Morning	47.9
Veterinary service source	Government	47.4		Afternoon	8.7
	Dispensary			Evening	21.7
Seasons in which maximum morbidity	Summer	45	Sources of water	More than 1 time	21.7
	Winter	10		Providing household water	80
	Rainy	45		Not providing water (depends on drainage water)	20
Mortality (%)	Total	18.1%			
	Due to predators	7.2% (40% of total)			
	Due to diseases and other causes	10.8% (60% of total)			

along with scavenging and similar proportion of households used to give regular feed supplementation along with scavenging. The quantity of feed given as supplement ranged from 10-50g for each bird every day. About 23.5% households used to give kitchen waste only whereas 76.5% households used to offer grains with waste of kitchen as poultry feed supplement. In the study villages, 47.9% households offered feed specially in the morning time whereas only 8.7% respondents offered feed in afternoon. About 21.7% households offered in evening time and 21.7% of households offered feed to birds all the times. Kumar *et al.* (2023) reported that backyard birds were reared in Adilabad district in Telangana on scavenging and occasional regular grain/kitchen waste supplementation by tribal farmers. Majority of the respondents (80%) used similar drinking water for their family and for the birds whereas birds of 20% households used to take drainage water. In the villages, 21.1% households were using vaccination and deworming for some diseases and government dispensary for veterinary aids and services to 47.4% respondents. Majority of flocks were reported illness in rainy and summer season (45% each) and 10% in winter. In the study area total mortality in the chicken was found to be 18.1% in which 7.2% was due to predator attack and 10.8% due to diseases and other reasons. Sankhyan *et al.* (2013) reported that mortality was higher in local and improved birds and it ranged from 17.2 to 51.9% in

different seasons. Poultry diseases are considered the major factor in lowering poultry productivity and farmers income. More productive birds were helpful in upliftment of socio-economic condition of farmers (Kumar *et al.*, 2022). Rajkumar and Rama Rao (2015) reported that health management (vaccination, veterinary services) and predator attack were the important constraints in backyard poultry in India. Kannaki *et al.* (2021) also reported that vaccination and biosecurity are important for poultry housing and management. By following good managerial practices disease incidence can be checked.

Poultry produce intake

Chicken meat and eggs are equally consumed in all sections of the society and these are rich in protein, minerals and vitamins. As per Indian Council of Medical Research recommendation one person should take 180 eggs per year i.e, about 0.5 egg per day and 10.8 kg chicken meat per year (Kumar *et al.*, 2021). In the study area, the egg intake was found to be 0.31 and 0.32egg/person/day and 82.2% and 64.2% families did not fulfill the recommended egg intake of about half an egg/day/person in Shankarpur and Inturu, respectively (Table 5 and 6). Egg intake per week in both the villages are almost similar. Chicken consumption was reported 9.16 and 8.03 kg/person/year and 47.9% and 26.9% households which did not fulfil the recommended chicken meat consumption of 10.8kg/year/person in Shankarpur and Inturu,

Table 5: Intake of eggs in the study villages

Village	Egg/Person/day	Number and percent of household and person		
		Not consuming	Takes ≤ 0.5 egg/day/person	Takes > 0.5 egg/day
Shankarapur	0.31	6 (8.2)	60 (82.2)	7 (9.6)
Inturu	0.32	10 (14.9)	43 (64.2)	14 (20.9)
Total	0.31	16 (11.4)	103 (73.6)	21 (15)
p-value	0.8	0.05		

Table 6: Intake of chicken in the study villages

State	Kg/Person/year	No consumption	Takes ≤ 10.8 kg/year/person	Takes > 10.8 kg/year/person
Shankarapur	9.16	6 (8.2)	35 (47.9)	32 (43.9)
Inturu	8.03	19 (28.3%)	18 (26.9)	30 (44.8)
Total	8.63	25 (17.9)	53 (37.9)	62 (44.2)
p-value	0.3	12.0**		

respectively. Chicken consumption was found significantly higher in Inturu than that of Shankarapur village. In Andhra Pradesh there was nearly 4.2% to the total egg production that comes from rural backyard production (Govt of Andhra Pradesh, 2021). Efforts are required to increase the contribution of backyard poultry by taking appropriate measures.

CONCLUSION

From the present study it can be concluded that poultry production activity in the study area needs constant support to get optimum productivity to meet out animal protein requirement for the family and regular source of income to support livelihood. Farmers should be continuously promoted to adopt improved variety of rural/backyard poultry that can contribute to nutritional and food security, income generation, employment creation, gender equity and sustainable livelihood option. There should be organizational support for regular improved quality bird supply, health management, financial support and establishment of linkage between farmers and other stakeholders.

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