Insights into Information Perception in Poultry Farming Systems

ABSTRACT

Indian poultry industry has found to be more structured and evolved as a dynamic organization in last two decades. Planning, organizing, directing, monitoring and controlling can profoundly be seen. Indian poultry industry contributes significantly to total livestock sectors contribution to India's GDP. India's poultry meat production is 3.4 million tons and its eggs production is sixty-five million tons and industry ranks second and third in worlds ranking in meat and eggs production respectively (FAO).The data was collected from stakeholders with the help of pretested interview schedule. The separate interview schedule was prepared for broiler farmers (100 samples), breeder farmers (10 samples) and processing cum distribution centers (20 samples). The study revealed that the majority of the poultry farmers, 63 per cent were aged between 35 to 54 years. Young generation farmers, aged between 20 to 34 years, 37 per cent, seemed lesser interested in poultry farming. In addition, women farmers were on only 3 per cent out of total sample farmers surveyed. It is indicative of the need for the promotion of poultry farming as a source of women empowerment. Almost 81 per cent farmers stated that poultry farming is their main occupation and major source of income where they have fulltime business commitment. Among the sample farmers, majority of, 52 per cent, were new entrant. The majority of farmers, 54 per cent, were rearing 5000 to 9999 birds at their farm and they were classified under medium-sized poultry farms. The average area of small farms was 2785.71 sq. ft., medium farm was 5886.89 sq. ft. and large farms was 18403 sq. ft. All the sample farmers had permanent housing (100 per cent) with pucca flooring (90 per cent). Almost 81 per cent farmers had their poultry shades in agriculture farms.

Keywords: Poultry farming, Descriptive Analysis, Information perception, Livestock production.

1. INTRODUCTION

India being an agrarian country stands one of the strong economy among world economies. Agriculture and its allied sector contribute 13.9 per cent to the GDP while 50 per cent of the population is dependent on agriculture in the Indian economy. Livestock sector is an important subsector of agriculture [1].In agriculture, the livestock sector had a lion’s share. Livestock

production and agriculture are intrinsically linked, each being dependent on the other, and both are crucial for the overall food security of the country and individual families as well. Livestock forms an important livelihood activity for most of the farmers, contributing to the health and nutrition of the household, supplementing incomes, offering employment opportunities, supporting agriculture in the form of critical inputs (manure, animal power etc.) and finally being an dependable "bank on hooves" in the times of need[2]. It acts as a supplementary and complementary enterprise (DAHD & F, Annual Report, 2013-14). Total number of workers employed in animal farming is 20.5 million as per the usual status (NSSO). Farmers of marginal, small and semi-medium operational holdings (area less than 4 ha) own about 87.7 per cent of the livestock. The importance of poultry is viewed from two major angles. First, it has potential to meet the nutritional demands of a major segment of the population, as broilers are the cheapest source of protein with high nutritional value. Secondly, poultry farming also provides an effective and successful source of subsidiary income to the rural masses[3].Generally, the costs are categorized into two groups namely the fixed cost and variable costs.

Fixed cost per timewas the sum of the costs of fixed inputs like land, buildings, machinery management etc[4].Fixed cost must be paid even though production has been stopped temporarily. Fixed cost or supplementary cost is one, which did not vary with the level of output. It included rent for buildings, interest on capital invested in machinery and salaries of the permanently employed staff[5].Fixed cost as one that did not change with the quantity of output produced[6].The interest and depreciation in working expenses, working capital and fixed capital under fixed cost items[7].Fixed cost into two i.e. fixed cost and fixed non-cash cost. Fixed cash cost included land, tax, interest, insurance premium and annually hired labour[8]. Fixed non-cash costs included depreciation on buildings, machinery, equipment's, interest on capital investment, cost of family labour and cost of management.Fixed costs as those which are incurred in hiring the fixed factor of production whose amount could not be altered in the short run[9].Investment in fixed assets constituted the value of land, building, birds, equipment's and miscellaneous expenditure[10].Interest on foxed capita, depreciation on buildings, equipment and machinery, cost of day-old chicks, permanent labour, electricity and mortality under fixed cost[11].Construction of shed construction of broiler or grower houses and cost of equipment and electrical fittings under fixed cost[12]. The interest on no recurring expenditure was also taken as fixed cost element. Depreciation on building and equipment's interest on fixed capital and value of land under fixed cost[13].Depreciation on buildings and chicks and interest on fixed capital in the fixed cost [14].Depreciation on cost

of buildings and equipment's and electricity as fixed cost[15].Depreciation on buildings, depreciation on equipment's, interest on working capital and foxed capital, insurance premium and miscellaneous expenditure under fixed cost for setting up a broiler unit[16].The several earlier studies conducted in the chicken industry, with a particular emphasis on the distinctions between the more established backyard farming systems and the more modern integrated farming systems from the perspectives of productivity, economics, and management[17].Poultry business in India is expanding quickly. The Indian poultry business is currently quite profitable. This study discusses the industry's actual components and attempts to illustrate the industry's structure. There is a representation of the Indian poultry supply chain and a discussion of the current chicken farming practices. An overview of the Indian poultry business and its supply chain is provided illustratively[18].The efficiency of production and management in the process of raising chickens can be efficiently increased by digitization. A management system was created for this project in order to facilitate the collection, transfer, management, and storage of data. To improve the system's scalability and flexibility, the data was uploaded to a cloud database.The information related todifferent poultry farming systemsis studied in details in this paper[19].

2.MATERIAL AND METHODS

Proper formulation of the research design is very important for any research as it helps in systematic approach in carrying out the research.West Maharashtra is well developed in poultry farming as compared with other regions. The districts such as Mumbai, Thane, Pune, Nashik and Kolhapur are having well developed distribution network through integrated companies. Almost all the poultry farms in these (above) districts are with integrated companies and all farms are larger in size. Whereas, in Vidarbha region, districts such as Akola, Amravati, Buldana, Yeotmal and Washim are having poultry farms of independent farmers' own poultry farms. Thus, there were two regions selected for study.

Region A (IPFS) – Pune, Nashik, Nagpur, Bhandara, Gondia

Region B (TPFS) – Akola, Amravati, Buldana, Yeotmal, Wardha

From each region, 50 farms were randomly selected and contacted for data and other required information collection. The study sample farms were post-stratified, as such, there is no official information and data about total number of poultry farms in the state. The farms are divided into small, medium and large farms based on the number of poultry birds reared by the farmer. Thus, totally 100 poultry farm owners were contacted for survey. 10 breeder farm owners (parents' poultry farm) and 20 processing cum distribution centers were contacted

and information gathered. Integrated company and government officials were also contacted to get better understanding of poultry sector of the study area.

The respondents were contacted in person with comprehensive pre-tested interview schedule and the data and other required information were collected from them.

The purpose of the study was clearly and briefly explained to the sample respondents to help them to understand and so that get better response and their cooperation for data collection. Majority of the information were collected through recall and cross checked with the other fellow farmers, also adequate precaution was taken during preparation of the interview schedule as well as data collection. To minimize the recall bias crosschecks were made during the interview also had two Focus Group Discussion meeting with traditional poultry farm owners during data collection. Three interview schedules were prepared for three different types of respondents viz. poultry parent bird producers (breeder farms), broiler producer farmers and processing cum distribution center owners. The interview schedule comprised of demographic characteristic of sample respondent, details about their poultry farm, processing cum distribution center, investments made, management practices employed, returns gained and overall opinion about poultry farming system.

Important variables identified for the study are defined and their measurements are discussed below.

The gross output per farm is the aggravate value in rupees of physical output of the primary and secondary produces raised by the farmer valued at the price reported by the farmers. In the sample broiler farms, the selling price of live bird, empty gunny bags and manure are taken to compute the value of the output. For farms, which did not sell a particular unit of produce, the value of the produce was evaluated at the average price received by those who sold it. The value of the secondary produce reported by the farm was added to the value of primary produce. The incomes derived from other sources were excluded. Further, the measurement of this variable is denoted by the "value of the output" [20].

The size of the farm is measured based on the number of broilers per farm.It is the number of days engaged in farm activities of both man and woman is expressed in man-days of eight hours duration. The cost involved in the purchase of medicines, vaccines, deworming, delousing along with veterinarian's fees were taken into account. It is denoted by medicinal cost measured in rupees.All the farms were purchasing chicks form private and government hatcheries. Cost of chicks included the price paid for chicks and vaccination charges at the hatchery level (not at farm).

Interest on working capital was charged at the rate of 12.5 per cent per annum which was the ongoing interest rate charged by primary agricultural credit societies for short-term loans. It was worked out for actual duration of the particular batch of broilers.The cost of repair charges for buildings, equipment's, water charges, cost due to death of birds and shed sanitation were treated as miscellaneous costs.The depreciation was charged on the value of buildings as 2 per cent per annum and on equipment's as 10 per cent per annum. The interest on fixed capital was charged @ 12 per cent per annum. The stock of poultry birds is an asset, but it was not considered as fixed capital as the size of the flock undergoes a rapid change. Interest on investment on poultry birds was charged @12 per cent per annum. The term working capital included investment on feed, labour, medicines and miscellaneous costs. The interest on working capital was charged @12 per cent per annum [21].Cost of Production per broiler was worked out by dividing the total cost, which is the sum of the fixed cost and variable cost of the farm for one cycle, by the respective number of broilers in that farm [22].Returns from broilers included the amount received by selling either live or dressed broilers in every cycle. Other receipts included income by the sale of manure and gunny bags. Gross income was computed as the sum of the value of main product (sale of birds) and by-product like manure and gunny bags.Net returns per broiler was obtained by deducting the total costs from total return. Costs and returns approach was used for accessing vertically integrated contact poultry farming system. Various costs incurred and returns obtained during farm operations will be calculated [23]. Fixed Cost is the expenditure, which is incurred whether or not the production is carried out. It includes poultry house, permanent labour, etc. Variable costs are those costs, which are incurred on variable factors of production and can be altered in the short run. It includes chick cost, feed cost, labour cost, veterinary cost, and miscellaneous costs. The sum of fixed cost (FC) plus variable costs (VC) is total cost (TC)

$$TC = FC + VC$$

On the revenue side gross returns, net returns, rate of return was determined and analyzed for study. Net return is defined as difference between total revenue (TR) and total cost (TC) i.e. TR - TC. Net returns were determined by subtracting total cost of production from total income per flock realized by the poultry farmer.

$$Net\ Return = TR - TC$$

Ratios of the value of output to input are calculated by dividing as values of output by total costs.

$$Input - output\ ratio = \frac{Value\ of\ Output}{Total\ Cost}$$

Percentage mortality (MR) is calculated according to the model of Faye and Perechon [24], where

$MR = ND/AF \times 100$

ND = the total number of dead or missing chickens during the observation period, being the sum of deaths due to disease and losses due to predators, bad weather or unknown causes;

AF = average flock size = 1 / 2 x (flock size on day 1 + flock size on day 60).

The collected data was analysed with reference to the objectives set for the study. The analytical techniques used Descriptive analysis. Averages and percentages were estimated to understand the characteristics of sample respondents such as age, educational status, size of farm operations, number of poultry birds, production and marketing costs and return in poultry farming.

3.RESULT AND DISCUSSION

To fulfil the objectives of the study, the data collected from the sample farmers was tabulated and analysed using suitable analytical tools and the results of analysis are presented in the following sections.

The general details of sample poultry farms comprised of size of farms based on number of birds per farm and area of farm, landholding pattern, details of housing, feed management, and health management practices.

3.1 Size of Poultry Farm based on Number of Birds per Farm

The poultry farms are classified into three categories *viz.*, small farm (capacity 1000 to 5000 birds), medium farm (5000 to 9999 birds) and large farm (10000 and more birds). The details on distribution of poultry farms according to size (number of birds per farm) are presented in the Table 1.

From the Table 1 it could be noted that in Supply Chain I, 100 per cent of large farms were having more than 10,000 birds. In Supply Chain II, majority of farms (47.27 per cent) were medium sized with a capacity of 5,000 to 9,999 birds followed by 38 per cent of farms were small sized poultry farms with birds capacity ranging between 1000 and 4999 at the same time as remaining 14.5 per cent farms were large sized with number of birds 10000 and above. In Supply Chains III and IV too majority farms (63.3 per cent and

90 per cent respectively) were of medium size with a capacity of 5000 to 9999 birds. Out of total surveyed farms, 54 per cent were medium farms followed by 24 per cent were small farms and 22 per cent were large farms respectively.

Table 1. Distribution of poultry farms according to size (number of birds/farm)

(Number of farmers)

S. No.	Size of Farm (based on number birds)	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Overall
1	Small Poultry Farmers - 1000 – 4999	0 (0.00)	21 (38.18)	3 (10.00)	0 (0.00)	24 (24.00)
2	Medium Poultry Farmers -5000 – 9999	0 (0.00)	26 (47.27)	19 (63.33)	9 (90.00)	54 (54.00)
3	Large Poultry Farmers 10000 & above	5 (100.00)	8 (14.55)	8 (26.67)	1 (10.00)	22 (22.00)
	Total	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)

Figures in parentheses indicate per cent to total.

3.2 Size of Poultry Farms based on Area

The area of small, medium and large poultry farms is given in Table 2.

Table 2. Distribution of poultry farms according to size

S. No.	Size of Farm (based on number birds)	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Average
1	Small Poultry Farms - 1000 – 4999	Area in square feet (sq. ft.)				
		0.00	3171.43	2400.00	0.00	2785.71
2	Medium Poultry Farms - 5000 – 9999	0.00	6011.54	5815.79	5833.33	5886.89
3	Large Poultry Farms - 10000 & above	13600.00	15825.00	14187.50	30000.00	18403.13

It could be inferred from the above table that in Supply Chain II and III, small poultry farms had average size of 3171 and 2400 square feet (sq. ft.) respectively.

In Supply Chain II, III and IV, medium sized poultry farms had average area of 6011.5, 5815.7 and 5833 sq. ft. respectively. The average area of large poultry farms in Supply Chain I was 13,600 sq. ft., in Supply Chain II, 15825 sq. ft., in Supply Chain III, 14187.5 sq. ft. and in Supply Chain IV, 30000 sq. ft. Irrespective of different supply chains, average farm area for small farms were 2785.7 sq. ft., for medium farms 5886.8 sq. ft. and for large farms

18403 sq. ft. These were the normal measurements of the different categories of farms practiced among the sample farms.

3.3 Landholding Pattern of Sample Poultry Farmers

Landholding pattern of marginal, small and large farmers is represented below in Table 3.

Table 3. Landholding pattern of sample poultry farmers

(Number of farmers)

S. No.	Land holding	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Overall
1	Marginal Farmer (0.5-2.47 acres)	0 (0.00)	10 (18.18)	1 (3.33)	1 (10.00)	12 (12.00)
2	Small Farmer (2.47-4.94 acres)	0 (0.00)	21 (38.18)	13 (43.33)	2 (20.00)	36 (36.00)
3	Large Farmer (4.94 acres and above)	5 (100.00)	24 (43.64)	16 (53.34)	7 (70.00)	52 (52.00)
	Total	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)

Figures in parentheses indicate per cent to total.

It could be concluded from the Table 3 that in Supply Chain I, all farmers were large farmers and having land area of 4.94 acres and above. In Supply Chain II, majority of the farmers (43.64 per cent) were large farmers followed by 38.18 per cent of them were small farmers having land area of 2.47 to 4.94 acres and 18 per cent marginal farmers were having land area of less than 2.47 acres respectively. In the same way in Supply Chain III and IV, about 53.3 and 70 per cent of the farmers were large farmers with a land holding of more than 4.94 acres and above. Finally, overall 52 per cent of farmers belonged to large farmers' category by having land area of 4.94 acres and above.

3.4 Details of Housing in Sample Poultry Farmers

Study on housing for poultry farms gives information about management practices employed by the farmers. Applied similar type of parameter to study about the performance of poultry farming [25].

Table 4.Details of housing in sample poultry farms

(Number of farms)

S. No.	Particulars in Housing	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Total
1	**Type of housing**					
i.	Permanent	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)
2	**Housing material**					
i.	Locally available materials	0 (0.00)	7 (12.73)	0 (0.00)	2 (20.00)	9 (0.00)
ii.	Outside	0 (0.00)	19 (34.55)	0 (0.00)	0 (0.00)	19 (19.00)
iii.	Local and Outside (Both)	5 (100.00)	29 (52.73)	30 (100.00)	8 (80.00)	72 (72.00)
3	**Location of poultry house**					
i.	With the Agricultural farm	0 (0.00)	41 (74.55)	30 (100.00)	10 (100.00)	81 (81.00)
ii.	Outside the Agricultural farm	5 (100.00)	14 (25.45)	0 (0.00)	0 (0.00)	19 (19.00)
4	**Type of floor**					
i.	Pucca	5 (100.00)	47 (85.45)	28 (93.33)	10 (100.00)	90 (90.00)
ii.	Wooden/Bamboo	0 (0.00)	1 (1.82)	0 (0.00)	0 (0.00)	1 (1.00)
iii.	Kutcha	0 (0.00)	7 (12.73)	2 (6.67)	0 (0.00)	9 (9.00)

Figures in parentheses indicate per cent to total.

It could be noted from the Table 4 that almost all the surveyed farmers had permanent housing, which indicated owners' long-term commitment towards poultry farming. Temporary housing could be also an option for many poultry farmers but in the study area, no farmers had temporary housing type. The housing material used by majority of farmers (72 per cent) was locally available as well as procured from outside. Around 19 per cent of farmers in the Supply Chain II, used housing materials that were not locally available. These farmers were procuring almost all material from outside the villages. Certain materials like

iron mesh (net), ceiling sheets, etc. might not be available easily at all places. Use of locally available raw materials for housing construction would decrease the cost of construction of farms.

Almost 81 per cent of poultry farmers had their farms in their own agricultural field. Poultry farms in agricultural field ensure better health for birds with clean air, water and free from contaminations. Among the sampled farmers, no one had backyard poultry farm, poultry farming was done in proper area, which were identified as per the expert's suggestions. Ninety per cent of farmers had pucca floor while only 9 per cent farmers had kutcha floor. Pucca floor indicated that better management practice and long term poultry farm planning for sustained earnings. Whereas kutcha floor indicated that poor practices and temporary type of poultry farm for short time period (might be developed in leased land or others land). Results indicated that majority of poultry farmers were interested in long term plan of poultry farming rather than the short term.

3.5 Details of Feeding Management by Sample Poultry Farmers

According to Kumaresan, *et al*., (2008) feeding management is an important factor in determining the better management practices. The details on feeding management by sample poultry farms are presented in the Table 5.

In could be inferred from the Table 5 that almost 100 per cent of farmers in all the supply chains were strictly providing readymade food to poultry birds. No farmer offered homemade food to birds and not allowed birds for scavenging outside the housing. This indicated that the farmers were very cautious about feeding practices of poultry birds. They were aware that the quality of food consumed by birds would give safety to birds through which farmers also get better returns without causality of birds. Thus, there was no compromise made in feed quality. Although in various regions, at many farms, homemade food is given to poultry birds or food mixing is done at farm level but there remains a question of scientific and nutritionally balanced food, which might have been comprised.

Table 5. Feeding management practices by sample poultry farms

(Number of farms)

S. No.	**Particulars**	**Supply Chain I**	**Supply Chain II**	**Supply Chain III**	**Supply Chain IV**	**Total**
1	**Feed offered**					
i.	Ready made	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)

2	**Frequency per day**					
i.	Once	0 (0.00)	4 (7.27)	6 (20.00)	1 (10.00)	11 (11.00)
ii.	Twice	5 (100.00)	46 (83.64)	22 (73.33)	9 (90.00)	82 (82.00)
iii.	Three times	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
iv.	*Ad libitum*	0 (0.00)	5 (9.09)	2 (6.67)	0 (0.00)	7 (7.00)
3	**Feeding and watering equipments**					
i.	Improved	5 (100.00)	48 (87.27)	25 (83.33)	10 (100.00)	88 (88.0)
ii.	Locally made & Improved	0 (0.00)	7 (12.73)	5 (16.67)	0 (0.00)	12 (12.00)
4	**Water source**					
i.	Well	0 (0.00)	12 (21.82)	3 (10.00)	0 (0.00)	15 (15.00)
ii.	Bore well	5 (100.00)	43 (78.18)	27 (90.00)	10 (100.00)	85 (85.00)

Figures in parentheses indicate per cent to total.

The farmers who rear birds in very small number and as a back yard practice generally practice scavenging. There is always a risk involved in feed consumed by such birds. Now days very few farmers are involved in such practices, but in this study no farmer reported such type of practice.

Frequency of feed given to birds is important since it helps in proper weight gain. Majority of (82 per cent) farmers were feeding birds twice a day, 11 per cent farmers were feeding once a day and 7 per cent were feeding *ad libitum* (feeding several times a day). Feeding *ad libitum* is not considered as good practice. Few farmers were under assumption that if they feed more to birds then there would be more weight gain by the birds. However, it is not the case; this practice would only increase the cost of feeding and thereby reducing the profit of the farmer. Convenience in feeding and watering through right sized, shaped feeding and watering equipments is of utmost importance for birds. Any bird should not be left deprived of feed or

water. More than 88 per cent of farmers used improved feeding and watering equipments for birds. There was low availability of locally made equipments.

For poultry farming, water availability is very crucial input also very much important. Almost 85 per cent of farmers had bore wells in their farms making them carefree about water non-availability and water quality problems. About 15 per cent of farmers were using wells. There was no farmer using pond water, canal water, stream water or piped water from corporations or municipality or panchayat.

3.6 Details of Health Management and Marketing practices by Sample Poultry Farmers

According to Kumaresan, *et al*., (2008) health management and marketing practices are also an important factors in determining the better management practices. The details of health management and marketing practices followed by sample farmers are illustrated in Table 6.

It could be seen from the Table. 6 that all the poultry farmers (100 per cent) were following appropriate health management practice through vaccinating their birds. None of them had negligence over vaccination, indicating their awareness about importance of vaccination for maintaining birds' health and thereby gain more profit. Almost all (96 per cent) farmers were getting their sick birds treated with proper treatment from veterinary doctors. In addition, they were not using any local treatment or traditional medicines, which might be harmful to the life of bird. Only four per cent farmers were not caring enough for the birds' health and were not treating sick birds. Majority of farmers (88 per cent) were doing postmortem of dead birds to understand the actual cause of death of bird. However, 12 per cent farmers were not doing postmortem of birds. The farmers not doing postmortem of birds were mostly from the Supply Chain II and very few from Supply Chain III.

Proper disposal of dead birds and waste is very important factor concerned with hygiene of farm, farmer, his family as well as people related to poultry farm. From the Table 6 it could be seen that overall 72 per cent of farmer used to bury the dead birds (100 per cent farmers from Supply Chain I and IV, about 64 and 73 per cent from Supply Chain II and III respectively). Overall 28 per cent farmers used to throw away dead birds in the open lands and road sides, majority of farmers among them were from Supply Chain II and a few were from Supply Chain III. There was no incidence of eating dead birds by farmers. The ideal practice of disposing birds is incinerating them but purchasing incinerator adds high cost to farmer. Another good practice considered is burying birds deep in pits so that there will not be any chance of contamination. It was observed that most of the farmers were aware about this hygienic practice. Throwing away the dead bird is poor practice, which may lead to spread of infectious and contagious diseases.

Poultry waste is rich source of nitrogen and very good manure for crop cultivation. All the farmers were aware about it and they were using poultry waste in their agricultural farms as a substitute to Farm Yard Manure (FYM). Several farmers had reported that significant yield increase in all crops in their fields after use of poultry waste as FYM.

Table 6. Details of Health Management and Marketing practices by poultry farmers

(Number of farmers)

S. No.	Practices	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Total
1	**Vaccination**					
i.	Yes	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)
2	**Treatment of sick birds**					
i.	Yes	5 (100.00)	51 (92.73)	30 (100.00)	10 (100.00)	96 (96.00)
a.	Local treatment	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
b.	Other treatment	5 (100.00)	51 (92.73)	30 (100.00)	10 (100.00)	96 (96.00)
ii.	No	0 (0.00)	4 (7.27)	0 (0.00)	0 (0.00)	4 (4.00)
3	**Postmortem of dead birds**					
i.	Yes	5 (100.00)	45 (81.82)	28 (93.33)	10 (100.00)	88 (88.00)
ii.	No	0 (0.00)	10 (18.18)	2 (6.67)	0 (0.00)	12 (12.00)
4	**Disposal of dead birds**					
i.	Buried	5 (100.00)	35 (63.64)	22 (73.33)	10 (100.00)	72 (72.00)
ii.	Thrown away	0 (0.00)	20 (36.36)	8 (26.67)	0 (0.00)	28 (28.00)
5	**Disposal of waste**					
i.	FYM	5 (100.00)	55 (100.00)	30 (100.00)	10 (100.00)	100 (100.00)

S. No.	Practices	Supply Chain I	Supply Chain II	Supply Chain III	Supply Chain IV	Total
6	**Marketing of birds**					
i.	Local market	0 (0.00)	0 (0.00)	0 (0.00)	2 (20.00)	2 (2.00)
ii.	Other nearby market	0 (0.00)	0 (0.00)	8 (26.67)	3 (30.00)	11 (11.00)
iii.	Other	5 (100.00)	55 (100.00)	22 (73.33)	5 (50.00)	87 (87.00)
7	**Fair price for birds**					
i.	No	5 (100.00)	51 (92.73)	27 (90.00)	10 (100.00)	93 (93.00)
ii.	Yes	0 (0.00)	4 (7.27)	3 (10.00)	0 (0.00)	7 (7.00)

Figures in parentheses indicate per cent to total.

The farmers who did not have own agricultural land used to sell the poultry waste at good prices to fellow farmers. In addition, they experienced good demand for poultry waste from organic manure manufacturing companies as well. No poultry farm was integrated with fish farming which is one of the recommendation of ICAR (Indian Council of Agricultural Research) under Integrated Farming System approach.

Birds after gaining desired weight were marketed for getting remuneration. Most (87 per cent) farmers indicated that their birds were picked up either by the company or by the individual traders at farm gate. Thereby most farmers were unaware about what happens to their produce after leaving poultry farm, whether it is sold in local market or market outside. Farmers from Supply Chain IV were independent and thus they were selling their produce by themselves in local market or other nearby markets. Only Seven per cent farmers were of opinion that they got fair price for their poultry bird, while

93 per cent farmers were unhappy with the prevailing prices for poultry birds.

4. CONCLUSION

Poultry industry in India is continuously gaining momentum. Government and private sector involved in poultry industry had played a vital role in its growth and development. Telangana, Andhra Pradesh, Tamil Nadu and Maharashtra are the states that have significant

contribution. However, the growth phenomenon is not seen throughout all the regions. Few areas were highly developing while few areas were still untapped. The study was undertaken to understand why those few areas are still untapped, what are the problems faced by the farming community in those untapped areas and what are the lacunas prevailing in system. To get better understanding of the study, the sample farmers were classified into different supply chains based on their mode of working and business stages performed.

In Supply Chain I, all business stages are integrated, managed by single company.

In Supply Chain II, company was in contract with farmer for rearing birds. It was providing all input to the poultry farmer and after rearing was taking back the grown birds and giving remuneration or rearing charges to the farmers. In Supply Chain III, company had contract with farmers for providing input to them but grown birds were purchased by another company and traders who in turn was paying to first company and first company was then making payments to contract farmers. In Supply Chain IV, farmers were independently working. They were not in contract with anyone.

The study revealed that the majority of the poultry farmers, 63 per cent were aged between 35 to 54 years. Young generation farmers, aged between 20 to 34 years, 37 per cent, seemed lesser interested in poultry farming. In addition, women farmers were on only

3 per cent out of total sample farmers surveyed. It is indicative of need of promotion of poultry farming as a source of women empowerment. Interesting fact noticed was all the sample farmers were literate (100 per cent literacy). Over 85 per cent farmers had

completed education over matriculation and among them 26 per cent were degree holders. Almost 81 per cent farmers stated that poultry farming is their main occupation and major source of income where they have fulltime business commitment.

Among the sample farmers, majority of, 52 per cent, were new entrant who had experience of only 1 to 2 years, 27 per cent farmers had experience of 3 to 5 years while only 21 had experience above 6 years. More experienced farmers implement better management practices and there by gains more income.

Overall, 43 per cent farmers had families with 1 to 4 family members, 53 per cent farmers had families with 5 to 9 members and remaining had more than 10 members in their family. However, among them only 30 per cent farmers' family members were contributing with them in poultry farming activity.

Majority of farmers, 54 per cent, were rearing 5000 to 9999 birds at their farm they were classified into medium sized poultry farms. Small sized farms with 1000 to 4999 birds were 24 per cent while 22 per cent were large farms where number of birds reared were 10000 and

above. The average area of small farms was 2785.71 sq. ft., medium farm was 5886.89 sq. ft. and large farms was 18403 sq. ft. when compared with different supply chains, among large farms, farms in Supply Chain IV had more than double the area of farm pointing out their long term commitment and expansion plan. Almost 52 per cent farmers had 5 acres and above land of their own which was used for various crop cultivation.

All the sample farmers had permanent housing (100 per cent) with pucca flooring (90 per cent) for which required material was procured from local as well as outside the village. Some of the necessary housing material was not available at all villages, which farmers used to buy from nearby towns or cities. Most of the (81 per cent) farmers had their poultry shades in agriculture farms.

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