

FACTORS ADOPTED TO PENETRATE POULTRY FORMING IN NAMAKKAL DISTRICT

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ABSTRACT

With a vibrant indigenous industry compared to other developing countries, it is the world's fastest growing poultry industry and one of the fast-growing agri-business activities in India. India occupies 3rd place in the world egg production and is among the twenty top producers in the world in broilers. Indian poultry industry provides direct and indirect employment to over 4 million people, particularly in rural areas and contributes about Rs.40,000 Crore to the national GDP and also one of the fastest growing industries of the Indian economy than any other sector contributing about \$230 million to the Gross National Product. In South India, Tamil Nadu state is leading in broiler integration in the country which has Coimbatore as a major poultry pocket. In Namakkal district, while the demand for egg and chicken meat is increasingly commendably, poultry farmers here are forced to restrict their expansion processes owing to escalating land and construction costs over the last five years in Namakkal Zone. With this background, the study is undertaken to find out the reasons and motivating factors that to start the poultry farming in Namakkal district. The study based on primary and secondary data collected from 120 poultry farmers by adopting purposive sampling technique during November 2013 to January 2014. The study found that the factors which penetrated to adopt the poultry farming were climatic conditions, veterinary hospitals, and availability of raw materials, demand on eggs and cheap labour.

Keywords: Poultry, Industry, Egg, Chicken & Raw Materials

Introduction

Poultry occupies a unique position in the livestock economy of India. With a vibrant indigenous industry compared to other developing countries, it is the world's fastest growing poultry industry, and one of the fast-growing agri-business activities in India. India occupies 3rd place in the world egg production and is among the twenty top producers in the world in broilers. Indian poultry industry provides direct and indirect employment to over 4 million people, particularly in rural areas, and contributes about Rs.40, 000 Crore to the national GDP. Layers in India have registered an annual compounded growth rate of 7 percent to 8 percent for the past

three decades. There are a number of small poultry dressing plants in the country producing dressed chicken. In addition to these plants, there are five modern integrated poultry processing plants producing dressed chicken, chicken cut parts and other chicken products. These plants also manufacture egg powder and frozen egg-yolk for export.

In Namakkal district, while the demand for egg and chicken meat is increasingly commendably, poultry farmers here are forced to restrict their expansion processes owing to escalating land and construction costs over the last five years in Namakkal Zone. The Namakkal Zone comprises of nearly 699 poultry farmers who own the 4.01 lakh layer birds (egg laying birds) of which Namakkal district houses nearly 75 percent of the farmers and 81 percent of the total bird strength. But only 40 farmers – 38 in Namakkal and one each in Erode and Annur (Coimbatore) – are expanding this year despite the mounting investments. However of the nearly 30 NECC zones across India, Namakkal takes credit as one of the only two zones in the country – the only other zone is Barwala near Delhi. Farmers in the other zones have frozen their expansion processes owing to similar issues. According to a farmer would have to invest around Rs. 4.5 crore to expand his layer bird strength by one lakh birds, in addition to the investment for lands. Pointing out that the construction cost of sheds increased from Rs. 200 to Rs. 300 in nine years (2000-08) it rocketed from Rs. 300 to Rs. 450 between the years 2009-11. Since the year 2000 the Namakkal NECC zone's targeted annual expansion this year would be the second highest (by 50.82 lakh birds) compared to the average strength of the previous year. The best-ever expansion of the bird strength of this zone was in 2005-06 when the average strength increased to 307.34 lakh – that is 72.85 lakh more than the previous year's strength of 234.49 lakh. But it is said that the massive expansion was before escalation of land and construction costs. The physical performance of poultry farming in the study area shows below the table 1.

Table 1
Physical Performance of Poultry Farming in Namakkal District

S.No	Name of the Taluk	No. of Farms	No of Birds	Total No. of Eggs Produced by Day	No. of Persons Employed
1.	Namakkal	368	2,41,14,776	1,44,68,865	11,040
2.	Rasipuram	124	61,70,968	37,02,580	3,720
3.	Paramithi-Velur	54	30,21,608	18,12,964	1,620
	Thiruchengode	150	68,20,500	40,92,300	4,500
	Total	699	4,01,27,852	2,40,76,709	20,880

Source: District Poultry Development Office

The table shows that, Namakkal district cover the four Taluk namely Namakkal, Rasipuram, Paramithi-Velur and Thiruchengode and the physical performance shows, the total number of farms is 699; the total number of birds 4, 01, 27,852; total number of eggs produced by day 2, 40, 76,709 and the total number of persons employed in poultry farming is 20,880. With this background, the economics of poultry farming in Namakkal district is undertaken to study about the reasons, motivating factors and problems faced by the farmers in the study. The outcome of this study will be immense use to improve the economics performance of poultry farming in Namakkal district.

Objectives of the Study

The main objectives of the study to study the socio-economic background of the poultry farmers; to find out the reasons for selecting poultry farming and to examine the motivational factors to locate the poultry farming.

Hypothesis

- ☞ Investment is independent of the demographic profile of the poultry farmers

- ☞ Reasons for selecting the farming were family business, government encouragement, easy to start the business, necessity / compulsion, availability of raw materials and availability of human resources and demand for egg in the market.
- ☞ Motivating factors to adopt the poultry farming were climatic conditions, veterinary hospitals, and availability of raw materials, demand for eggs and cheap labour.

Literature Studies

Prabhu et al., (2005) studied the broad changes taking place in agri-food systems worldwide. The paper examined the comparative profitability of poultry production in vertically integrated contract and independent farming systems in Bangladesh. With effective management, vertically integrated CF system was a means to develop markets and to bring about the transfer of technical skill in a way of increasing productivity that was profitable for both integrators and farmers. The primary data were collected from 50 sample farms of Aftab Bahumukhi Farm Ltd (ABFL) Kishorganj, the pioneer vertically integrated farm, and 25 independent sample farms from Gajipur. Although the independent farmer was able to take advantage of the increase in the price of broilers in the market resulting in a higher price per bird as compared with the contract farmers, the latter were still better off in their net return or profit.

Maurice Landes et al., (2004) analysed poultry meat is the fastest growing component of global meet demand. India, the world's second largest developing country, is contributing to the expansion through the rapid growth of its poultry sector. In India, poultry sector growth is being driven by rising incomes, together with the emergence of vertically integrated poultry producers that have reduced consumer prices by lowering production and marketing costs. Integrated production, a market transition from live birds to chilled and frozen products, and policies that help ensure supplies of competitively priced domestic or imported corn and soybeans are keys to future poultry industry growth in India and in other developing countries.

Iqbal Uddin (1996) opined that in most of the poultry pockets in India, the marketing is still in the control of private traders. Fluctuation in the prices of poultry products is one of the main constraints for attracting investment in the sector. Market Intervention Scheme (MIS) for procurement of eggs in Andhra Pradesh, Tamil Nadu, Punjab, Haryana, Madhya Pradesh and Rajasthan by NAFED has shown encouraging results though the magnitude of operation was very small.

Headley (1964) estimated the production functions for egg laying flocks of hybrid and leghorn hens, raised at Iowa state farms. The regression analysis indicated that flock size, housing area, corn equivalent labour and protein equivalents were significantly contributing the gross returns. Hunter (1981) studied the economic aspects of egg production on Australian poultry farms. The study revealed that feed costs occupy a major share of total cost of production of eggs, followed by cost of chicks and labour.

Pandey et al. (1996a) studied the status of poultry production in India and also analysed the behaviour of production cost of poultry products in the selected areas. This study shows that Poultry had become a vital component of the farm economy as it generates additional income and employment in the rural area. The cost estimates revealed that feed alone accounts for about two-thirds of the total cost. The study concluded that availability of feed at reasonable prices would provide an incentive to the producers for more poultry production.

Pandey et al. (1996b) examined that development of poultry was adversely affected by wide fluctuations in the demand. The study showed that rise in price of eggs was comparatively

lower than the rise in prices of milk, food article and all commodities during the period of 1982-94. The production and disposal of eggs at poultry farms revealed that more than 98 percent of eggs are sold for profit. The main marketing agents were identified as wholesale dealer and contractors in the study.

Methodology

The present study based on primary data and secondary data collected from 120 poultry farmers by adopting purposive sampling since all the farmers were not mentally prepared to respond to the questionnaires. A well-structured questionnaire was prepared and was pre-tested. After incorporating the necessary changes in the pre-tested questionnaire, it was administered and required information about the framing was collected from the respondents during November 2013 to the January 2014. Besides averages, percentages and graphs, techniques like Chi-square test, discriminant analysis, Garrett's rating scale, Likert's summated scale were used.

Results and Discussions

Socio-Economic Profile of the Poultry Farmers

Among the agriculture allied industries poultry industry is the fastest growing sector of India's Agriculture. To get the full impact of its rapid escalation, it would be interesting to trace the evolution of poultry development in India. More than 50 billion chickens are reared annually as a source of food for both their meat and their eggs. The rest majority of the poultry are raised using intensive farming techniques. According to the world water institute, 74 percent of the world's poultry meat and 68 percent of eggs are produced this way. In 2000 there were 50.4 million tons of eggs produced in the world (executive guide to world poultry trends, 2001) and an estimated 53.4 million tons of table eggs were produced doing 2002. In 2009, an estimated 62.1 million metric tons of eggs were produced worldwide from a total laying flock of approximately 6.4 billion hens. Hence an attempt was made in this section to explore the socio-economic profile of the poultry farmers so as to identify important parameters crucial for improving their farming system.

A total of 120 farmers were surveyed, the study showed that the majority farmers were young and they are likely to adopt modern techniques factor. The findings is in agreed with sane et al., (2007) that majority of farmers were within the age group of between 36 years to above 46 years are still in this active age and more adoptive to new techniques. Information about educational qualification of selected poultry farmers were analysed and found that all (100 percent) the farmers were educated. This support the result of Oladipo and Adekunle (2010) that individuals with educational attainment are usually being the faster adopters of are usually being the faster adopters of to modern technologies. The study found that the poultry farming is a part time job and most of the farmers do not depend on the business and agriculture as the sole mean of their livelihood. This may be due to the fact that farmers usually want to add to their farm income and majority of them were good earners from poultry farming. The farmers will spend less on food, education and other living expenses on the dependents. These expenses may account for high savings and they can spend for farming. The finding back up the result of Igodan et.al (1988) that more educated farmers tends to have smaller families and Arther (2006) observed that small family size enjoy better economic and social lives which have greater influence on better understanding of environmental conditions. The findings support Oluwatayo et.al (2008) that farmers with were experience would be more efficient, better knowledge of climatic conditions and market situation and then expected to run a more efficient and profitable experience. The study found that nearly 48 percent of the farmers have visited the farms 11-15 times in a month and 4 percent of the farmers visited their farms 16 times and above in a year. The findings of the study shows that extension

contact which is channel through which agricultural innovations and information are passed to farmers for improvement in their standard of living, production and productivity of the farms.

Chi-Square Analysis

In order to investigate the relationship between investment and demographic profile of the poultry farmers, Pearson's chi-square test was done. The null hypothesis framed was;

Ho: Investment is the independent of the demographic profile of the poultry farmers

Ha: Investment is the not independent of demographic profile of the poultry farmers

The calculated chi-square values are shown in table 2.

Table 2
Relationship between Investment and Demographic Profile

Variable	Chi-Square	Degrees of Freedom	Significance	Inferences
Age	6.408	2	.041	Reject Ho
Experience	1.733	4	.785	Accept Ho
Education	2.584	3	0.46	Accept Ho
Monthly Income	12.424	3	.008	Reject Ho
Occupation	4.164	4	.384	Accept Ho
Household Size	1.994	2	0.369	Accept Ho

Source: Estimation based on field survey

The study found no significant association between the investment and experience, education, occupation and household size of the poultry farming. However, age and monthly income were found to have significant association with the level of investment. This implies that the level of investment depended on age and monthly income of the poultry farmers. As income and maturity level of the farmers increases the level of investment also increases.

Reasons for Selecting Poultry Farming

Factor analysis was used in the present study to identify the underlying pattern of relationship between various reasons for selecting the poultry farming and whether these reasons can be grouped in terms of a composite variable. To determine the appropriateness of applying factor analysis, the KMO and Bartlett's test measures were computed and the results are presented in table 3.

Table 3
KMO and Bartlett's Test Measures

Test Measure	Poultry Farming
Kaiser – Meyer - Oklin and Measure of Sampling Adequacy	.768
Bartlett's Test of Sphericity Approx. Chi- Square	327.417
Degrees of Freedom	55
Significance	.000

Source: Field Survey

KMO statistics for poultry farmers were .768 signifying higher than acceptable adequacy of sampling. The Bartlett's test of Sphericity was also found to be significant at one percent level providing evidence of the presence of relationship between variables to apply factor analysis.

The communalities for each variable were computed to determine the amount of variance accounted by the variables to be included in the factor rotations and the results.

All the variables had values greater than 0.50 signifying substantial portion of the variance accounted by the factors. The table presents the Eigen values their relative explaining powers and factor loadings for 11 linear components identified within the date set. The Eigen value greater than one alone was considered for inclusion in the analysis.

The results indicates that for the sample data, Eigen value of the first three factors alone was greater than one indicating that these factors alone were appropriate for inclusion in the analysis. For poultry farming three factors together accounted for nearly 56 percent of the variations in the factors.

Table 4
Rotated Component Matrix

Reasons	Component		
	1	2	3
Family Business	.665		
Government Encouragement	.854		
Easy to Start the Business	.799		
Necessity / Compulsion	.646		
Small in Size		.717	
Availability of Raw Materials			.795
Demand for the Egg in Market			.800
Availability of Human Resources		.631	
Eigen Value	3.500	1.376	1.284
Percentage of Variance	31.815	12.512	11.670
Cumulative Percentage	31.815	44.327	55.996

Extraction method: principal component analysis

Rotation method: variance with Kaiser Normalization

For poultry farming factor 1 has significant loadings for four dimensions namely "Family Business", "Government Encouragement", "Easy to Start the Business", and "Necessity/Compulsion". These four dimensions together explained nearly 32 percent of the variance. Factors 2 have significant loadings for dimensions namely "Small in Size" and "Availability of Human Resources". These two dimensions together explained nearly 13 percent of the variance. Factor 3 had significant loadings for two dimensions namely "Availability of Raw Materials" and "Demand for Egg in the Market". There two dimensions together explained nearly 12 percent of the variance. From the above dimensions it can be inferred that the main reasons cited by the poultry farmers were "Family Business", "Government Encouragement", and "Easy to Start the Business", "Necessity/Compulsion", "Availability of Raw Materials" and "Availability of Human Resources" and "Demand for Egg in the Market".

Motivational Factors to Locate the Poultry Farming

Factors analysis was used to identify the underlying pattern of relationship between the various dimensions of motivational factors to locate the poultry farming and whether there factors can be grouped in terms of a composite variable Cronbach's alpha test conducted for the constructs for a groups was found to be .605 (Nunnally, 1978) indicating good reliability of all items. To determine the appropriateness of applying factor analysis, the KMO and Bartlett's test measures were computed and the results are presented in the table 5.

Table 5
KMO and Bartlett's Test Measures

Test Measure	Poultry Farming
Kaiser-Meyer-Oklin and Measure of Sampling Adequacy	.709
Bartlett's Test of Sphericity Approx. chi -Square	105.888
Degrees of Freedom	36
Significance	.000

Source: Estimation based on Field Survey

KMO statistics for poultry farmers were .709 signifying higher than acceptable adequacy of sampling. The Bartlett's test of Sphericity was also found to be significant at one percent level providing evidence of the presence of relationship between variables to apply factor analysis.

The communalities for each variable were assessed to determine the amount of variance accounted by the variable to be included in the factor rotations and the results revealed that the communalities for all variables were above the prescribed level 0.5.

The present table Eigen values, there relative explanting powers and factor loadings for a linear component identified within the data set.

Table 6
Rotated Component Matrix

Motivational Factors	Components		
	1	2	3
Availability of Raw Materials		.685	
Climatic Conditions	.760		
Veterinary Hospital	.625		
Demand on Eggs		.706	
Cheap Labour			.817
Eigen Values	2.373	1.202	1.087
Percentage Variance	26.365	13.356	12.073
Cumulative Percentage	26.365	39.721	51.794

Extraction method: principal component analysis

Rotation method: variance with Kaiser Normalization

The Eigen value of the first 3 factors alone was greater than one indicating that these factors together accounted for nearly 52 percent of the variations in the motivational factors to locate the poultry farming.

In poultry farming factor 1 had significant loadings on two dimensions namely “climatic conditions” and “veterinary hospitals”. Factors 1 were very powerful explaining 26 percent of variance. Factor 2 had significant loadings on two dimensions namely “availability of raw materials” and “demands on eggs” and explains only 13 percent of the variance. Factors 3 had significant loadings on only one dimensions namely “cheap labour” and explains only 12 percent of the variance. To sum up, the factors which motivated to adopt the poultry farming were climatic conditions, veterinary hospitals, and availability of raw materials, demand on eggs and cheap labour.

Conclusion

To conclude that the main reasons to take up poultry farming cited by the poultry farmers were family business, government encouragement, easy to start the business, necessity / compulsion, availability of raw materials, availability of human resources and demand for egg in the market. The study also was found that the factors which penetrated to adopt the poultry farming were climatic conditions, veterinary hospitals and availability of raw materials, demand on eggs and cheap labour. The study recommends the following

- ☞ The majority of the poultry farmers prefer the poultry business as their family business but they were not having adequate experience. Hence, it is suggested that they may be given adequate information, education, communication and orientation training programmes.
- ☞ The government, Non-Governmental Organizations (NGOs) and Non Profit Organizations (NPOs) should ensure that extension messages are well disseminated to farmers to improve their productivity.

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