CHAPTER -1

INTRODUCTION

India is predominately an agriculture based country. The agriculture sector makes a major contribution towards the national economy. The main problem in a developing country like India are; increased population, poverty, malnutrition and illiteracy. Out of these problems, poverty and malnutrition can be controlled by adapting poultry production as a means of employment. It can be started either as subsidiary or as a main business.

Poultry production in India has developed from a small subsistence enterprise to a highly specialized one requiring the application of scientific knowledge and economic principles. Poultry is the most efficient converter of low value food into high value nutritional food for human consumption. In the country side, the poultry production is also carried on as a supplementary enterprise and is a vital component of farm economy as it provides additional income and job opportunities to the weaker sections of society. Poultry farming in India, inspite of several constraints, has progressed well and egg production in the country has increased 12 fold since the fifties. The technological advance has revolutionized the role and structure of poultry industry and it has become one of the most specialized enterprises in many parts of the country.
Now a day’s poultry sector is gaining tremendous importance in India to meet the growing demand of protein of millions of people. Due to the growth of manpower in this sector, its importance among rural population has also increased. Poultry keepers are aware of quality of egg and meat and they give due importance to management aspects also.¹

Poultry production in India has made rapid progress in the last three decades both in the egg and meat production. As a result, India ranks fourth largest egg producing country of the world next to China, USA and Japan and fifth in Broiler production and due attention is given so as to satisfy protein and other nutrient requirement and thereby reducing malnutrition. It will also alleviate the poverty problem up to certain extent.²

Poultry eggs and meat provide high quality balanced proteins, vitamins and minerals poultry is also a rich source of organic manure for crops. In India, unlike pork and beef, which have religious bindings, chicken meat is widely accepted. In addition, it is comparatively cheaper than goat meat.


Poultry farming as a subsidiary occupation promotes employment to the rural population and provides a regular flows of income from egg and meat production. This enterprise generates job opportunities to thousands of skilled workers and labourers indirectly through ancillary industries such as poultry feed manufacturing units, egg and broiler units, marketing centres, pharmaceuticals, equipment manufacturing units, poultry vaccine production centres and the like. The initial requirement of land and capital for starting this enterprise on a moderate scale is not large and the enterprise can be initiated under diversified agro climatic conditions.\(^3\)

Poultry farming has gained recognition as an important subsidiary occupation promoting the economic conditions of the weaker sections in rural areas. It has undergone a radical transformation in the country during last two decades from backyard activity to commercial farming. Much sophistication has come in production, breeding, feeding, medicare and equipments. Increase in production has been mainly due to introduction of superior exotic breeds of layer and broiler types. The annual egg production in the country was around 2820 million in 1966 with a layer population of

four million and per capita consumption of four eggs. It has since grown to 15000 million with a layer of 68 million and per capita availability of 21 eggs by 1985.\(^4\)

Currently, the per capita consumption of eggs in the country is only 43 eggs and poultry meat 922 gm against a recommended consumption of 180 eggs and 10.8kg poultry meat per person per annum.\(^5\)

Poultry has an crucial place in India as the eggs and chicken meat are important and rich sources of protein, vitamins and minerals. Poultry provides rich organic manure and is an important source of income and employment to millions of farmers and other persons engaged in allied activities in the poultry industry. Chicken is the most widely accepted meat in India. Unlike beef or pork, it does not have a religious taboo. The prices of chicken meat are lower than those of mutton or goat meat. Many Indian families, especially the educated people in urban areas, have begun to accept eggs as a regular supplemental part of their vegetarian diet.


The forecast surveys indicate that as the present younger generation goes to the adulthood, the acceptability and demand for eggs and chicken meat in next 2-3 decades is likely to increase many folds very rapidly. Poultry has made tremendous strides particularly in the private sector, with the result that India is now self-sufficient with regard to requirements of high quality breeding stocks, modem poultry equipment, availability of medicines and vaccines and technically qualified skilled man power.

The annual growth rate is 8 - 10 percent in egg and 12 - 15 percent in the broiler industry. With the annual production of 33 billion eggs, India produces 530 million broilers per year. Poultry provides employment to about 1.5 million people. This is much lower as compared to the world average of 124 eggs and 5.9 kg meat. The National Committee on Human Nutrition in India has recommended per capita of 180 eggs (about one egg every two days) and 10.8 kg meat. To meet this target, it is estimated that by year 2010, the requirements will be 180 billion eggs and 9.1 billion kg poultry meat while the estimates production may only be around 46.2 billion eggs and 3.04 billion kg poultry meat. This is a tremendous scope for growth with rapid urbanization, and increasing demand from the present 250 million economically strong, consumer market base.
(which is likely to go up to 350 millions by the year 2010), there is bright future for this industry in India. It is estimated that, at present, Indian poultry industry contribution to the GDP is about Rs.80 billion which is likely to reach Rs.300 billion by the year 2005.6

1.1 STATEMENT OF THE PROBLEM

Entrepreneurship is a life moving force behind any economy. It is an accepted belief that without entrepreneurial activities, the process of industrialization is not possible. Entrepreneurs are persons who initiate, organize, manage and control the affairs of a business unit that combines the factors of production to supply of goods and services.

The poultry entrepreneurs have faced many problems over the years. This has been revealed by an intensive problem on the growth of this industry. The problems of this industry are the result of “poultry plenty” due to huge production of eggs which decreases the price of egg in the market. Other problems are that the Namakkal district poultry industries do not have well - equipped with modem facilities. It is unfortunate that proper sanitary methods have not been practiced and dead birds are not properly disposed of. The growth of bird’s population and poor hygiene, the virulence of the disease has also increased. Cost of feed is also equally depressing the production of bird and eggs. There is no modernized powder plant in this area.

With growing urbanization and increasing quality consciousness, the market for scientifically produced meat product is expected to grow rapidly. There is also a growing demand for ready to eat and semi-processed meat products as a result of changing lifestyles. These products also find a market in terms of exports to neighbouring countries, especially to the Middle East. The key constraints that the industry faces are problems related to a lack of organized facilities for rearing meat producing animals. There is also inadequate cold storage facilities in the Namakkal District of Tamil Nadu.

The huge production of eggs depress the price of egg in the market. The price of the various vaccines also increased from Rs. 1 per bird to Rs. 10 per bird. The price of other materials for putting of the cages has also gone up. The fluctuation in the price of raw materials also increases the cost of production. The Government does not providing free or subsidiary power to this industry. There is no financial assistance from the state finance institutions like Tamil Nadu Industrial Investment Corporation (TIIC). The poultry farmers are also facing problems in marketing the culled birds. An attempt has been made to analyse the economies of poultry entrepreneurship in Tamil Nadu State, India.
1.2 OBJECTIVES

The specific objectives of the study are:

(i) To analyze the performance of poultry industry in India and Tamil Nadu in terms of egg production and egg export;

(ii) To examine the status of poultry industry in Namakkal District of Tamil Nadu State;

(iii) To examine the factors determining poultry entrepreneurship in Namakkal District;

(iv) To compare the performance of poultry entrepreneurship among the various sizes of the poultry units; and

(v) To study the problems faced by the poultry entrepreneurs in the study area.

1.3 CONCEPTS

A few concepts used in this study are clearly defined in this section.

1.3.1. Entrepreneur

The term “entrepreneur” was applied to business initially by the French economist, Cantillon, in the 18th Century, to designate a dealer who purchases the means of production for combining them into marketable products. Another Frenchman, J.B.Say, explained Cantillon’s ideas and conceptualized the entrepreneur as an organizer
of a business firm, central to its distributive and production functions. Beyond stressing the entrepreneur’s importance to the business, Say did little with his entrepreneurial analysis.

According to Peter F. Drucker, “Entrepreneur is one who always searches for change, responds to it and exploits as an opportunity. Innovation is a specific tool of entrepreneurs, the means by which they exploit change as an opportunity for different business or service”.

1.3.2. Entrepreneurship

Entrepreneurship means the function of creating something new, organizing and co-ordinating and undertaking risk and handling economic uncertainty.

Higgins, “Entrepreneurship is meant the function of seeing investment and production opportunity, organizing an enterprise to undertake a new production process, raising capital, hiring labour, arranging for the supply of raw materials and selecting top managers for the day to day operation of the enterprise”.
Peter F. Drucker, “Entrepreneurship is neither science nor art, it is a practice. It has knowledge base in entrepreneurship is a mean to an end. Indeed what constitutes knowledge in practice is largely defined by the ends, that is by the practice”.

From the above definitions, following are the characteristics of entrepreneurship emerging.

a) Innovation
b) Risk taking
c) Decision making
d) Acceptance challenges
e) Organisation and management
f) Ensuring the success of enterprise.

The following are the reasons for increase in entrepreneurship:

a) Availability of capital is one of the reasons why individuals get ideas to start new firm/enterprises.

b) Ability to transform scientific and technical developments

c) Supportive government programmes.

d) Availability of required training and inputs

e) Collaborative relationship between business and research and their direct attempts to transfer technology to market.
f) Environment conducive to innovation and entrepreneurial activities.⁷

1.3.3 Poultry

The term ‘poultry’ is used to designate those species of birds which render man an economic service and reproduce freely under his care. It includes chickens, turkeys, ducks, geese, guineas and pheasants and refers to them whether live or dressed.

Abnormal Eggs

Not uncommon in young pullets coming into lay, but gradually adjusting itself as the bird comes into foil production. Other possible causes: excessive abnormal fat: abnormal or unusual production of the egg in the oviduct; hereditary factors; nutritional deficiencies; disease; freight; excess of protein; too forcing a diet; nervousness; undue disturbances.⁸

Avian: Pertaining to all special of birds, including domestic fowls.

Bird: Any member of the class aues of the phylum vertebrate, the body of which is more or less covered with feathers.

Broiler: A broiler or fryer is a young chicken usually upto 10 weeks of age of either sex, that is tender meated with soft pliable, smooth textured skin and flexible breastbone cartilage suitable for either broiler of frying.

Cages: A system of housing birds made of steel and welded wire netting in horizontal, stepped or vertical configurations, usually in two or three.

**Chick:** A young chicken, pheasant, or other game bird from one day to about seven or eight weeks of age, either male or female.

**Chicken:** The domestic fowl, gallus domesticus, family phasianidae, the most widely distributed and commonly kept farm animal; Birds including chicks, broilers, hens, pullets, cockerels and cocks; A warm blooded, feathered oviparous (egg - laying) vertebrate of the animal kingdom possessing a high met abolic rate.

Egg: The more or less oval reproductive body produced by females of birds, enclosed in a calcareous shell within which the young develops on fertilization. Contains the nutrients for developing embryo. The egg can also be produced without mating see fertile egg.

**Layer:** Mature female fowl which has been kept for egg - laying purpose, especially one in current egg production.
Egg Shell: The outer, thin, hard, rather brittle covering of the egg, consisting mainly of calcium carbonate. Protective to egg contents; hard and rigid, with thousands of minute tubular tunnels or pores. Consists of two layers; thin, dense and compact outer layer and the open and granular inner layer.

Egg Size: Egg size is correlated with body size, egg size increases from the time pullet starts to lay and larger during second year of production than first year eggs. The size of eggs declines during the hot summer months; average egg size of some poultry species are - swan - 1400 g; domestic turkey - 85 g; white pekin duck - 72g; muscovy duck 70g; chicken 58g; guinea towel - 50g; pigeon - 18g and Japanese quails - 1 Og.

Feeding: The practical application of nutrition, i.e., consideration of economics, management, formulation, palatability, non-nutritive additives etc.

Deep Litter System

Also known as built-up litter system of keeping poultry in a house, on the floor of which is placed litter composed of wood savings, saw dust, rice husk, etc., about 4-6 inches depth; dropping not removed, although litter is stirred periodically and fresh material added. Litter replaced after a year. The litter disposed of makes a valuable fertilizer.
Disease

Any departure from a normal stage of health.

Eggs Colour of: Our breeds of fowls are broadly divided into 2 groups; namely heavy and light, the former classification, are layer of mostly brown eggs and latter producers of white eggs. Where there is an intercross, lintered eggs result.

**Egg Shape:** Eggs laid by birds are of a characteristic oval shape which is hereditary character. The production of egg of good shape is important from the incubation and marketing standpoint. The shape of the egg is determined for the most part while it is in the isthmus. Egg shape is measured by determining shape index.

**Grower:** Young fowl of either sex in the age group of about 8 - 18 weeks.

Cull: An unprofitable hen or pullet as an egg-producer; any weakly individual whatever the age; a profit - eating bird.

**Avian Influenza:** This virus infection causes a wide range of disease symptoms with depression, decreased production, respiratory symptoms and varying mortality rate. Severity of the disease depends on the strain of virus. No vaccine and no treatment.
Breed: The breeds of poultry in a class are recognized on the basis of body size and body shape, e.g., leghorn.

Clean Eggs: A shell that is free from foreign material and from stains or discolorations that are readily visible. An egg may be considered clean if it has only very small specks or stains, if such specks or stains are not of sufficient number or intensity to detract from the generally clean appearance of the egg. Eggs that shown considered clean unless otherwise soiled.

**Starter:** Chick of either sex in the age group of 0 to 8 weeks of age.

**Vaccination:** Protective inculcation of a bird with a vaccine or bacteria for increasing resistance or immunity against a disease.

**Yolk:** The yolk consists of the latebra, germinal disc, concentric rings of yolk material and the vitelline membrane which surrounds and contains the yolk. The yolk constitutes approximately 31 per cent of the total weight of the egg. The yolk contains practically all of the known vitamins except vitamin C.

**Albumen:** Egg white is not a homogenous mass. There are at least 4 layers of albumen and total egg white is 58 per cent of egg weight. Immediately under the inner shell membrane, there is a layer of ‘thin albumen’ which constitutes about 21 per cent of total egg white. This
layer is followed by a firm or thick layer of albumen. It is a major layer and constitutes about 55 percent of total egg white. There is another layer of thin albumen below the thick albumen referred as “inner thin albumen” which is about 75 per cent of total egg white.

**Sound Egg:** A sound egg is one whose shell is unbroken.

**Vaccine:** A suspension of attenuated or killed micro organisms (bacteria, virus or rickettsiae) administered for the prevention, amelioration (improvement), or treatment of infectious diseases into the body of a healthy bird and induce production of antibodies.

**Vegetarian Eggs:** Sterile eggs are called vegetarian eggs, which never develop into chicks.

**Virus:** Specific ultra-micro scopical organism causing disease, e.g., fowl pest, fowl pox, laryngo - trachitis. It passes through filters and cannot be seen.

**Poultry Meat:** Nutritive value poultry meat may contain 56 - 71 per cent moisture, 18 - 22 per cent protein, 4 - 10 per cent fat and 2-3 per cent ash carbohydrate content is less than one percent.
1.4 METHODOLOGY - DESIGN OF THE STUDY

The present study is based on primary as well as secondary data. The primary data has been collected from sample units with the help of interview schedule, administrated to the poultry sector enterprises to elicit first hand information. The study period was from 1995-96 to 2004-2005.

Primary data were also collected from the sample poultry farms in Namakkal district of Tamil Nadu. Namakkal district is purposively selected as the study area which is concentrated with the poultry farms. During the year 2004 - 05, there were 821 poultry farms in Namakkal district. The study covers 30 percent of the poultry farms. Sample farms are 240. The stratified random sampling method was used in selecting sample respondents.

A total 240 poultry entrepreneurs were selected in 4 taluks of Namakkal district and from 4 category of poultry farms such as farms having < 25,000 birds, 25,000 - 50,000 birds, 50,000 - 1,00,000 birds, 1,00,000 and above birds.

A total of 240 poultry entrepreneurs were interviewed by the pre-tested interview schedule. The primary data were collected from eight blocks in the study district. They are : 1. Namakkal Block 2. Mohanur Block, 3. Puthuchatram Block 4. Paramathivelur Block 5. Elachipalayam Block, 6. Mallasamuthram Block, 7. Rasipuram Block and 8. Vennandhur Block.
The secondary data were collected from the records and the published reports of the District Industries Centre (DIC), Indian Bank (Lead Bank) and Economics and Statistics Office, National Egg Co-Ordination Committee (NECC) Namakkal Veterinary Research Institute, Ministry of Agriculture, New Delhi Ministry of Industry, New Delhi.

In addition to the above, relevant information had also been collected from the institutions, namely, Department of Economics and Statistics, Chennai, Tamil Nadu. Tamil Nadu Veterinary and Animal Sciences University, Chennai, National Institute of Rural Development (NIRD), Hyderabad, Madras Institute of Development Studies (MIDS) Chennai, Annamalai University library, Madurai Kamaraj University library, Namakkal Veterinary Research Institute College library, Gandhigram Rural University Library and Tamil Nadu Agriculture College, Madurai, Poultry Association Centre, Namakkal.

Both the primary and secondary data collected are meaningfully analysed by using appropriate statistical tools such as percentages, Multiple Linear Regression Analysis, Break Even Analysis, Trend Analysis etc.
Multiple Linear Regression – Three variables

Multiple Linear Regression is calculated for production, investment and employment, exports and domestic sales.

The two variable models are often inadequate in practice. The simplest possible multiple regression model is three variable regression, with one dependent variable and two explanatory variable. The three variable regression models is given by

\[ Y = A + Bx_1 + Cx_2 + U \]

Where \( Y \) = the dependent variable
\( X_1 \) = the first independent variable
\( X_2 \) = the second independent variable
ABC is the parameters to be estimated
\( U \) = random error term

Here it is assumed that \( x_1 \) and \( x_2 \) are independent. B and C are called partial regression coefficients. B measure the change in the mean value of \( Y \) per unit change in \( x_1 \) holding \( x_2 \) constant and \( C \) measures the changes in the mean value of \( y \) per unit change in \( x_1 \) holding \( x_2 \) constant.

For the estimation of parameters we use the method of least squares according to which we minimise.

\[ \sum U_i^2 = (\sum i Y_i - A - Bx_{1i} - Cx_{2i})^2 \]

For this we have to save the following three normal equations.
\[ \sum Y_i X_{ji} = AA + B \sum X_{ji} + C \sum X_{2i} \]

\[ \sum Y_i X_{ji} = A \sum X_{li} + B \sum X_{li}^2 + C \sum X_{li} X_2 \]

\[ \sum Y_i X_{ji} = A \sum X_{2i} + B \sum X_{li} X_2 + C \sum X_{2i}^2 \]

Setting these three equations we get the formula for getting the estimates of A, B and C as follows.

\[
B = \frac{(\sum Y_i X_{l2}) (\sum X_{2i}^2) - (\sum Y_i X_{2i})(\sum X_{ji} X_{2i})}{(\sum X_{li}^2)(\sum X_{2j}^2) - (\sum X_{li} X_{2j})^2}
\]

\[
C = \frac{(\sum Y_i X_{2i}) (\sum X_{li}^2) - (\sum Y_i X_{li})(\sum Y_i X_{2i})(\sum X_{ij} X_{2i})^2}{(\sum X_{(i)}^2)(\sum X_{12}) - (\sum X_{li} X_{2i})^2}
\]

Where \( Y_i = (Y_i - \bar{Y}) \)

\( X_{li} = (X_{li} - X_1) \) and

\( X_{2i} = (X_{2i} - X_2) \) and

\( A = \bar{Y} - B X_1 - C X_2 \)

Here \( \bar{Y}, \bar{X}_1 \) and \( \bar{X}_2 \) are the means of a \( YX_1 \) and \( X_2 \) respectively.

The coefficient of determination \( R^2 \) can be obtained by the formula.

\[
R^2 = \frac{B \sum Y_i X_{li} + C \sum Y_i X_{2i}}{\sum Y_i^2}
\]

An important property of \( R^2 \) is that it increases with the increase in number of \( X \) variables. Therefore to compare two \( R^2 \)s we must take into account the number of \( X \) variables present in the model. This can be done by the adjusted coefficient at determination denoted by \( R^2 \) which is calculated by the formula.
\[
R^2 = \frac{1-(1-R^2)}{N-\text{km}} \cdot \frac{N-1}{N-km}
\]

Where \( n \) is the sample size and \( K \) is the number of parameters estimated in the model.

**Break Even Analysis**

The break even point and break even chart are two methods of Break Even Analysis. In a narrow sense, it is concerned with break even point and in a broad sense, it includes break even chart also. Break even analysis is also known as cost – volume – profit analysis. It is one of the tools of financial analysis, where by, the impact on profit of the changes in volume, price, cost, and mix can be estimated with reasonable accuracy. Break even point is equilibrium point or balancing point of no-profit and no-loss. This is the point at which loss ceases and profit begins. This is a point where income is exactly equal to expenditure.

It refers to the point where total cost is equal to total revenue. It is a point of no profit and no loss. This is also a minimum point of production where total costs are recovered. If sales go up beyond the break even point, organisation makes a profit. If sales comedown, a loss is incurred. The formula for,
Fixed Cost

Break Even Sales  = ---------------------------
                        Profit/Volume Ratio

The technique of break even analysis can be made easy with the help of graph or mathematical formula. Graphical representation of break even point (or cost volume – profit) is known as break even chart. It shows the profitability or otherwise of an undertaking at various levels of activity and indicates the points at which neither profit nor loss is made.

Contribution is the difference between sales and variable cost and it contributes towards fixed costs and profit. It helps in sales and pricing policies and measuring the profitability of different proposals.

In other words

\[
C = \text{Sales} - \text{Variable Cost} \quad \text{(or)}
\]

\[
C = \text{Fixed Cost} + \text{Profit}
\]

Margin of Safety is the excess of sales over the break even sales. It can be expressed in absolute sales amount (or) in percentage. It indicates the extent to which the sales can be reduced without incurring loss. A large margin of safety indicates the soundness of the business. The formula for the margin of safety is
Present sales – Break Even sales (or)

Profit

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Profit / Volume ratio

Marginal cost

It is the cost of producing extra unit of output. It is the amount by which total cost increases when one extra unit is produced or the amount of cost, which can be avoided by producing one unit less. In other words marginal cost means, “the amount at any given volume of output by which aggregate costs are changed, if the volume of output is increased or decreased by one unit

Profit/Volume Ratio

The Profit Volume Ratio is usually called Profit Volume Ratio. It is one of the most useful ratios for studying the profitability of business. The ratio of contribution to sales is the Profit Volume Ratio. It may be expressed in per cent. Therefore, every organisation tries to improve the Profit Volume ratio of each product by reducing the variable cost per unit or by increasing the selling price per unit. The concept of profit volume ratio helps in determining break even point, profit at any volume of sales, sales volume required to earn a desired amount of profit etc., the formula for Profit Volume Ratio is

\[
\text{Contribution} \div \text{Sales} \times 100
\]
Trend analysis

The comparative and common-size statements suffer from a major limitation that is absence of a basic standard to indicate whether the production of an item is normal or abnormal. Trend analysis overcomes this limitation. This method is also an important and useful technique of financial statement analysis. The calculation of trend ratio involves the ascertainment of arithmetical relationship with each item of several years to the score item of base year. Thus, one particular year out of many years is taken as base. The value of one particular item out of several items shown in the financial statements are converted into ratio or percentage taking of that item in base year as equal to 100.

1.5 SCOPE OF THE STUDY

A study on production and marketing of eggs will help the poultry farmer to take appropriate investment decisions and also to have reliable estimates in respect of the cost of production and maintenance of birds. So this study will help the poultry farm entrepreneur/ farmers to take up their decisions legarding the investment on this enterprise. The results thus obtained from the study would be useful in making suggestions to the farmers and to overcome the limitations in the production and marketing of eggs. It would also help the planners and policy makers in formulating policies to fix up
remunerative price for eggs and also to evolve suitable marketing system for eggs. Hence it would be a multi dimensional scope with the development of socio-economic conditions of the respective areas.

1.6 LIMITATIONS OF THE STUDY

The study has certain limitations in the sense that the cost of egg production may very due to the agro-climatic, conditions of a study area. Since the cost of production mainly depends on cost of feed, the cost items vary from place to place and also from time to time. The period of egg production cycle also varies among the farms. Since some of the farmers were not maintaining accounts of daily transactions, the data collection by interview schedule method had its obvious recall bias, which had been managed by suitable cross checks and enquiry with great caution. Hence the results of this study have to be generalized with care.

1.7 CHAPTERIZATION

The first chapter deals with the introduction consisting of statement of the problem, objectives, methodology. The second chapter presents the review of literature. The third chapter explains the profile of the study area. The fourth chapter analyses the growth and development of poultry industry. The economics of poultry entrepreneurship is analysed in the fifth chapter. The sixth chapter gives the summary, findings and conclusion of the study.