CHAPTER - III
OBJECTIVES AND METHODOLOGY.
OBJECTIVES AND METHODOLOGY

Tamil Nadu, Namakkal Zone is the leading egg production centre. There is a concentration of poultry farms in Namakkal Zone and every household is engaged either directly or indirectly in poultry production or trade. The poultry belt in the Namakkal region now boasts of a layer population of 18 million producing about 10 million eggs per day. This represents one of the highest densities of poultry in a given area in the world. In Namakkal Taluk alone, there are 3600 farms engaged in the production of poultry products worth about Rs.1 crore per day. Of the 3600 farms, about 20 per cent are big farms. These farms are marketing their eggs in both local and national markets. Against this background, the present study has been carved out with a sharp focus on production and marketing of eggs in Namakkal Taluk Tamil Nadu.

Objectives

The present study has been taken up with the following specific objectives.

(i) To study the growth and development of poultry industry with special reference to the layer in Namakkal Taluk;

(ii) To analyse the cost, revenue and production of eggs;

(iii) To assess the operational efficiency of poultry farms;

(iv) To probe the existing marketing channel and marketing of eggs;
(v) To identify the constraints and problems faced by poultry farmers and

(vi) To offer suggestions for improving the performance of poultry farms.

Hypotheses

Keeping the objectives of the study in view, the following hypotheses have been formulated, the validity of which have been tested.

1. When the size of poultry farms increases does the average cost of production of egg decline?

2. Does the average production of egg increase as the size of the farm increases?

3. Does the average cost of production of eggs increase as the total production of eggs increases?

Methodology

This is an analytical as well as an empirical study based on both primary and secondary data. Sampling design has been used for the selection of poultry farms operating in the blocks of Namakkal Taluk, Namakkal District, Tamil Nadu state.

Selection of Blocks and Poultry Farms

Namakkal Taluk, the venue of the present study consists of 6 blocks. They are: (i) Namakkal, (ii) Mohanur, (iii) Erampatti, (iv) Puduchatram, (v) Sendamangalam and (vi) Kolli Hills. Of these, poultry is concentrated in the first five blocks except Kolli Hills where poultry is not feasible in view of its climatic conditions. Therefore, the first five blocks of the taluk have been selected purposively for the study.
A list of poultry farmers in the selected 5 blocks (who have registered their forms in Namakkal Egg Co-ordination Committee) was obtained. The list consisted of 3600 poultry farmers. Out of these, 360 poultry farmers were chosen by applying simple random technique, and the size of sampling works out to 10 percent of the universe. However, the sample poultry farms are located in 101 villages of 5 blocks in Namakkal Taluk (see Appendix II). The block-wise selection and distribution of sample poultry farms are presented in Table 3.1.

**SELECTION AND DISTRIBUTION OF SAMPLE POULTRY FARMS**

**BLOCK-WISE**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the Block</th>
<th>Total No. of Registered Poultry farms with NECC</th>
<th>No. of Poultry farms selected</th>
<th>Sample Size (per cent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Namakkal</td>
<td>1280</td>
<td>128</td>
<td>10</td>
</tr>
<tr>
<td>2.</td>
<td>Mohanur</td>
<td>1020</td>
<td>102</td>
<td>10</td>
</tr>
<tr>
<td>3.</td>
<td>Erumpatti</td>
<td>80</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>4.</td>
<td>Puduchatram</td>
<td>1060</td>
<td>106</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Sendamangalam</td>
<td>160</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>3600</strong></td>
<td><strong>360</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>
To study the objectives of the present research work, data have been collected from both the primary and secondary sources.

Data regarding the growth and development of poultry industry at different locations, (All India, State, District), marketing and consumption of poultry products and different aspects of poultry industry have been collected from the following secondary source Poultry Year Book (1994) Ministry of Agriculture and Animal Husbandry (Centre and State Governments), Veterinary College and Research Institute, Namakkai and the National Egg Co-ordination Committee.

For collection of primary information and data from the sample poultry farms, an interview schedule was prepared, pre-tested and administered directly with the owners of the sample poultry farms by the researcher of the study. The interview schedule consisted of questions related to the profile of farms and farmers, investments in poultry farms, their size, cost of production, returns, marketing of eggs, gains and constraints in poultry farming and other relevant information.

Data Analysis

The collected data have been processed, classified and arranged in the form of tables. Simple averages, percentages, and compound growth rate have been applied for analyzing the growth, development of poultry industry at different locations, production and cost of production of eggs, financial performance and working results of the poultry farms. Simple Linear Regression technique has been applied to analyse the relationship between; (a) The size of
the poultry farms and the average cost of production of egg, (b) The average production of egg and the size of the farm and (c) the average cost production of egg and the total production of eggs.

In order to assess the operational efficiency of the poultry farms, the sample poultry farms have been grouped on the basis of the number of birds in one cycle egg production (under six categories namely A,B,C,J3,E and F). The size-wise classified sample poultry farms in 5 blocks are shown in Table 3.2 given below.

**TABLE 3.2**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Block</th>
<th>Size of the Poultry farms and Number</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>N</td>
<td>9</td>
<td>61</td>
</tr>
<tr>
<td>2.</td>
<td>M</td>
<td>4</td>
<td>56</td>
</tr>
<tr>
<td>3.</td>
<td>E</td>
<td>--</td>
<td>7</td>
</tr>
<tr>
<td>4.</td>
<td>P</td>
<td>14</td>
<td>50</td>
</tr>
<tr>
<td>5.</td>
<td>S</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>30</td>
<td>184</td>
</tr>
</tbody>
</table>

(Figures in parenthesis are percentages to row total)

N-Namakkal, M-Mohanur, E-Erumpatti, P-Puduchatram and S-Sendamangalam
Further, a set of 4 indicators has been identified and applied for finding out the operational efficiency of poultry farms (on the basis of the overall average performance of the farm). The operational efficiency indicators are:

1. Feed cost per unit of output (egg):

   This indicator reflects the ability of the farm/farmer in minimising the feed cost as against the output, and the efficiency at which maximum eggs could be produced with minimum cost on feed is shown by this indicator, and it is computed as follows:

   \[
   \text{Feed Cost per unit of output} = \frac{\text{egg production (in Rs)}}{\text{Total Production of eggs in one cycle egg production (in.No)}}
   \]

2. Production of egg per Bird:

   The productivity performance of farms in terms of bird is shown by this indicator, and it is calculated as follows:

   \[
   \text{Total production of eggs} \div \text{Number of Birds}
   \]

3. Percentage of feed cost to total cost of production egg:

   This indicator reveals the efficiency of the farm in minimising its operating cost on feed so that the farm is able to cover at least the feed cost in the determined price for egg. The computation of ratio for this indicator is as follows:
Feed Cost
Percentage of feed cost to total cost = \( \frac{\text{Feed Cost}}{\text{Total Cost}} \times 100 \)

4. Mortality rate of birds

This is an important indicator which reflects the ability of the poultry farmers in minimizing the death rate of birds in their farms. The rate of mortality is worked out as follows;

Mortality Rate (in percentage)

\( \frac{\text{Total Number of Dead Birds one cycle egg Production}}{\text{Total Number of Chicles purchased for one in cycle egg production}} \times 100 \)

Period of the study

The secondary data and information regarding the poultry industry in general and layer in particular at different locations namely World, Nation, State, District is confined to the last one decade. However, the primary data from the surveyed poultry farms is confined to one cycle period of egg production namely 72 weeks. The researcher has undertaken the field survey in different locations of the sample block during the 6 months period from October 1997 to March 1998.

Conceptualisation

A proper definition and clear cut explanation of the concepts used in this study would help for the understanding of the discussions on. The concepts to be clarified are:-

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Aeialt Disease - A disease is called acute when it appears rapidly,

Bird - Any member of the class Aves of the phylum veterbratia, the body of which is more or less covered with feathers.

Brooder-liosis - A house used for rearing clucks from the time when they are one day old, with arrangement for artificial heating and light.

Cages - A system of housing birds made of steel and welded wire netting in horizontal, stepped or vertical configurations, usually in two or three tiers. For housing layers in cages, a minimum of 450 sq.cm (72-75 sq.in) of cage loor space per bird should be provided.

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

Cold Store - An insulated room maintained at -18'C or below used for long term storage of frozen products like meat, poultry, egg, etc.

Culling - The elimination of unproductive or otherwise undesirable birds which judged from their physical characteristics, are found to lack the qualities for which they were reared, whether it be for egg production, table purposes or for show, It is an important and continual operation for profitable poultry farming. Culling should commence with the selection of hatching eggs and continue throughout the bird's life.

Cycle - (1) An interval of time during which egg production continues without a pause. The number of eggs laid without a skip.(2) A sequence of events which is exactly repeated.
Day-old Chicks - "As hatched" means imsexed; "sexed" means the sexing of the day-old chicks when hatched by the Japanese method of examination of vent, "sex linked*" represents the sexing of newly hatched chicks by differentiation in down colours as the result of specific sex-linked matings of parent stock.

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

Diagnosis - The aim of distinguishing and determining disease with the help of case history, symptoms and laboratory techniques.

Disease - Any departure from a normal stage of health.

Disposal Pit - The Disposal Pit is an effective and convenient means to dispose the dead birds, that is within the means of all poultry farmers. The location of the pit should be selected with care. The pit should be kept at a reasonable distance (150 feet) from the poultry houses and the well that provides drinking water.

Egg - The more or less oval unproductive 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.
Fast food - (1) General term for limited menu of instant foods that lend themselves to production-line techniques; suppliers tend to specialise in products such as hamburgers, pizzas, chicken or sandwiches. (2) Specializing in foods prepared and served quickly; a fast food restaurant.

Fat - A bird is said to be "Fit" when it is in excellent condition for any specific purpose, eg. laying, breeding, show or laying test.

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

Matdhirag - The act of a young cluck breaking out of an egg, aided by its egg tooth and muscles on the back of the neck. A hen will normally sit on her eggs and incubate them to the point of hatching.

Hatchery - A building equipped with incubator used for hatching chicks. The hatchery should be located where there are enough good flock to supply hatching eggs and where there is an good demand chicks, and it must be readily accessible to the chick buyers.

Layer:- Mature female fowl which has been kept for egg-laying purpose, especially one in current egg production.

Laying Period - The period during which poultry are in lay, normally about 50 weeks duration, and usually commencing at 20-22 weeks of age for egg producing strains, and 24-26 weeks for broiler strains. Most of egg producing fowls are slaughtered after the first laying period as fewer eggs are laid in the second period.
Mortality Rate - The percentage of individuals dying relative to the total individuals alive at the beginning of a given time period.

NAFED - National Agricultural Co-operative marketing Federation of India. It deals with egg marketing so as to private reasonable remuneration to the poultry farmers, economic price to the consumer and employment to the weaker sections of the society.

Price Spread - It is the difference between prices at different marketing system.

Poultry - The term "Poultry" is used to designate those species of birds which render man an economic service and reproduce freely under this care. It includes chickens, turkey, ducks, geese, guineas and pheasants, and refers to them whether live or dressed.

Small Eggs - Causes: Inherited factors; laying at too early an age; protein deficiency; restricted diet, over fat condition; high pen temperature.

Smashed Eggs - Classified as 'loss'. When damage to the shell and membrane of an egg permit the content to flow out of the shell, the egg is classified as 'loss'.

Sterile - Free from living micro-organisms. Also not capable of producing young.

Vaccination - Protective inoculation of a bird with a vaccine or bacteria for increasing the resistance or immunity against a disease.
Limitations and Scope

The present research exercise is confined to poultry layer and that too in Namakkal Taluk covering a sample of 360 registered poultry units of Namakkal Poultry Zone of Tamil Nadu State. The present study has focused its attention on the production and marketing of eggs and the issues connected with these operations at farm and fanners' level. However, the present attempt is an indepth study which comes out with an economic analysis of poultry farms and their operational efficiency. The gains and constraints in poultry farming and the future of poultry small enterprises have also been dealt with deeply at the micro level. The major findings on the realities of the poultry farms at grass roots level and the suggestions and policy framework given would helpful to the poultry farming entrepreneurs, policy makers and the Government for devising strategies and approaches for the sustained growth and development of this agro-based industry which could alleviate the twin problems of poverty and unemployment in rural India.

Chapter isatBOW

The outcome of the study has been presented in SEVEN chapters. The FIRST chapter provides an overview of Growth and Development of poultry industry in general and poultry layer in particular. The SECOND chapter presents the review of literature. The THIRD chapter with the Objectives and Methodology followed and the Fourth chapter picturises the poultry industry in Namakkal Taluk. Production analysis of eggs and Operational efficiency of poultry farms have been dealt in the FIFTH chapter. The SIXTH chapter dwells upon marketing analysis of eggs and the gains and pains in poultry fanning. The summary and conclusions are presented in the LAST chapter.