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1.1 INTRODUCTION

Agro-industries play a pivotal role in the economic development of a predominantly agricultural country, like India. Agricultural sector contributes a sizable portion of the national income of our country. Agricultural and allied activities provide employment opportunities, directly or indirectly, to about three parts of the Indian population. Agricultural sector is the source of raw materials for different industries like cotton textiles, jute, sugar, cashew, coir, rubber etc\(^1\). Further, agricultural and allied activities enable the country to earn foreign exchange, to a considerable extent, through export of different items.

Poultry industry is one of the agro-industries in the world. The poultry industry in India is the most rapidly growing segment of the agricultural sector. The industry is concerned with the production of eggs (layer industries) and meat (broiler industry)\(^2\). The poultry constitutes an important item of livestock/animal-husbandry sector of India. The industry provides employment throughout the year on an even basis\(^3\). The ability to adapt to various areas with varied agro-climatic conditions, low investment and short gestation period are the most attractive features of the poultry industry. The development of the industry, through the application of modern science and technology, has a

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significant contribution in improving the socio-economic conditions of rural masses\textsuperscript{4}.

In India, poultry industry has made tremendous progress during the last three decades, which evolved from backyard ventures to a full fledged commercial agro-industrial business. Now, India is the third largest producer of eggs and eighth largest producer of broilers in the world. The industry contributes Rs. 7,500 crores to the Gross National Product of the country\textsuperscript{5}. Likewise, the industry employ 2.5 million people, mostly in the rural areas.

In India, the growth of poultry industry has been quite uneven, from state to state. Moreover, there is wide variation in the production and consumption pattern of various states. The four states of Andrapradesh, Maharastra, Punjab and Tamilnadu jointly account for more than 50 percent of the total output of eggs and broilers in the country. But, in the case of broiler production, the states of Tamilnadu, Andhrapradesh, Karnataka, Kerala and Western region of Maharastra account for more than 60 percent of the total production in the country. Currently, in India, most of the broiler farming units are operating under the system of market integration. However, layer industry in the country has been functioning under unorganized sector\textsuperscript{6}.

In the state of Tamilnadu, the poultry industry has witnessed significant growth in the period after 1970. The technical and infrastructure facilities and ideal agro-climatic conditions are the major factors for this. One of the features of development of poultry in Tamilnadu is the over-concentration of the industry in certain areas and big dominance of big private entrepreneurs, including market integrators. The Namakkal zone is the second largest poultry zone and the Egg Basket of South India. But in the case of broiler production, Palladam area of Coimbatore district is the major poultry pocket of Tamilnadu. The government agency in the poultry sector viz., Tamilnadu Poultry Development Corporation, Tamilnadu Veterinary Colleges and Research Institute and Department of Animal Husbandry undertake various activities for the development of the industry in the state.\(^7\)

1.2 POULTRY

The term ‘Poultry’, though now exclusively used with reference to chicken breeding, is really a word that encompasses a wide number of avian species such as duck, turkey, geese and guinea-fowl, domesticated for economic purposes. The word ‘fowl’ is used to refer to domestic chickens both hens and cocks.

Young Student Encyclopaedia defines ‘poultry’ “as Birds raised for their meat and eggs are called poultry; chickens, ducks, turkeys, geese, guinea-\(^7\)

fowl, pheasants and pigeons can all be poultry birds”. The Central Avain Research Institute, Izatnagar defined poultry operations as (i) Purely breeding programmes like broilers, layers, (ii) Grandparent operations for broilers and layers, (iii) Hatcheries Commercial (iv) Commercial farms producing eggs and broilers and (v) Poultry operation also consists of breeding, hatching and producing eggs and chicks of other avian species like turkey, quails, ducks, guinea-fowls etc”. The most common method of classifying fowls is that one which is based on origin. On the basis of origin, birds are classified into four main classes: American, Asiatic, English and Indian.8

1.2.1 American Breeds

The American breeds have developed a number of breeds of poultry birds. All poultry breeds in the class have yellow skin, clean shanks, free from feather, and except lamona carobs, lay brown-shelled eggs. Its breeds may be of four types viz; Wyandotte, Plymouth Rock New Hampshire and Rhode Island Red.

1.2.2 Asiatic Breeds

The birds that have made valuable contributions to the developments of American breeds are Asiatic breeds viz., Brahma, Cochin and Langshan. These three breeds are recognized as standard breeds. The poultry birds belonging to this type are of a different type. They have a large body, which is good for

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meat, feathered shanks with heavy bones. All breeds have yellow skin and red ear lobes and they usually lay brown – shelled eggs.

1.2.3 English Breeds

The English breeds are mostly utility breeds noted for their fleshing properties. The types of English breed are Sussex Cornish, Orpington, Australorp, Red cap and Coorking With the exception of Cornish, all the breeds have white skin and red ear lobes. They lay brown – shelled eggs and all the birds are classed as broody.

1.2.4 Indian Poultry Breeds

The ancestral home of the modern breeds of poultry birds is south and central India, the Himalayan Terai, Assam and Burma. The Indian birds have several local breeds and specific mention may be made of Tenis Naked Neck, Punjab brown, Lolab, Chagus karaknath, Tilri, Kashmir, Feberella, Busra, Tellicherry and Danki, However, there are mainly three pure indigenous breeds in India namely Chittagong, the Assel and the Busra. A large number of fowls of various shapes, sizes, and colours are found all over India. They vary in appearance according to their locality. The common hen, known as Deshi, is the best mother for hatching. The breeds, ‘Aseel’ is an excellent table – bird and possess good parental qualities. Birds of chagus breeds are very like continental fowls. They are good table-birds and also are good layers.
Although a number of poultry breeds are available in India, the cobb 100 breed owned by Venkateshwara Hatcheries (VH) currently accounts for 60-70 per cent of all broilers in India. At present all broilers supplied by VH are the cobb 100, a relatively older breed based on breeding stock imported from the United States and benefiting from a long period of adaptation to Indian climatic and disease conditions. A cobb 500 line, based on more recently imported breeding stock, is reported to be under development, as is a cob 400 line, based on a cross, between the cobb 500 and the acclimatized cobb 100. Other breeds present in India include Ross (U.K), Hybro (Netherlands), Hubbard (U.S.A.), Avian (U.S.A.) and Anak (Israel). Although Indian firms are importing breeding stock and technology from foreign breeders, there is currently no FDI in broiler breeding in India.9

1.3 POULTRY FARMING

Rearing of poultry (chicken, ducks, etc.) either for their meat or for their eggs is called poultry farming. The rearing birds can be categorized into two types depending on the way or method they are reared. When the poultry find its own food and require no proper care and no proper time scheduling of food, the poultry is called as free-ranging poultry. Though this type of rearing up seems to have a lot of advantages, but it has a number of disadvantages attached to it like exposure to predators, more susceptible to diseases no fixed place of incubation, laying of eggs in unexpected places etc. It is also called

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‘Backyard System’. When the poultry is confined in a particular area, is well fed with proper balanced and timely diet the poultry is called as Intensive system, but it has a number of advantages attached to it like protection from predators, better control of disease, more efficient collection of eggs, easier access to poultry etc. Intensive system may be of two types viz., deep litter system and cage system. In deep litter system, birds are allowed to move on the floor of the house, on the other hand, under cage system, birds are in individual enclosures, made up of approximately 2mm thick iron rods. These enclosures are made in such a way that birds can be kept inside easily and they can be fed and water adjusted outside the enclosures. On commercial point of view, the poultry farm can be divided into two types viz., Breeding farms and Layer farms10.

1.3.1 Breeding Farm (Production of Day-Old-Chicks)

Breeding farm is meant for the only purpose of hatching and raising poultry for sale to other farms. Breeding farms are also called hatcheries. The poultry breeding chain starts with “pure line” flocks that are multiplied into “grandparents” and then “parents”, which are the source of eggs for the Day Old Chicks (DOC) used in broiler enterprises. Smaller enterprises may simply purchase DOC from a hatchery, while larger enterprises can reduce DOC costs by integrating maintenance of parent and grandparent flocks into their operation11.

1.3.2 Layer Farms (Production of eggs)

Producers begin to photo stimulates and manipulates the diet to chicks around 18 weeks of age in order to support egg production. Minor nutrients have also been manipulated such that calcium levels in the diet are approximately five to seven times greater than phosphorus levels. When a flock (group of hens) first enters egg production, the rate of egg lay will be around 10 to 20 percent. This means 10 to 20 percent of the hens are laying eggs at 18 to 22 weeks of age. The flock quickly reaches peak egg production (90 plus percent) when around 30 to 32 weeks of age. Post peak egg production (after 30 to 32 weeks of age) continually decreases to approximately fifty percent around 60 to 70 weeks of age. At this point, an economic decision must be made by the producer; fifty percent. Production is near the “break even” point for egg producers (eg., feed cost – market price of eggs). When the flock reaches 50 percent production, producers commonly decide to molt the flock in order to achieve a higher level of egg production. As a rule of thumb, it takes approximately 10 weeks from the beginning of a molting program to be back at 50 percent production following the molt. Post – molt egg production will increase such that peak egg production reaches about 80 percent. Peak production, following a molt, is short – lived and the flock generally returns to 50 percent production by 100 to 110 weeks of age. Many producers (one-third to one-half) will induce a second molt, this is the same process that occurred at 60 to 70 weeks of age. The second molt is commonly dictated by the current
egg prices and the availability of replacement pullets. As previously stated, once a flock’s egg production falls below fifty percent, an economic decision is made whether to molt the birds or subject the hens to a spent – hen processing facility. The majority of hens are between 100 and 130 weeks of age when they reach the end of their egg production cycle. The time span between 100 and 130 week of age can be accounted for by management decisions. Thus hens may be molted a second time and then sent to a spent hen facility (120 to 130 weeks of age) or sent directly to a spent-hen facility following the first molt (100 to 110) weeks of age). After the flock vacates the layer house, the house is stripped of all organic matter and sanitized before another flock enters the house.  

1.4 POULTRY INDUSTRY

1.4.1 Indian Poultry and its future prospects

The analysts estimates that the poultry sector in India has been growing at a much faster rate, along with other industries such as Business Process Outsourcing and securities market. Over the past decade, the poultry industry in India has contributed approximately 229 million, to the Gross National Product (GNP).  

In the last four decades, poultry farming in India has transformed from a mere tool of supplementary income and nutritious food for the family to a

major commercial activity. The growth of the industry with steady production of 1800 million kg of poultry meat, 40 billion eggs per year and employment generation of about 3 million people indicate the future prospects for the industry. Changing food habits, rising income of the middle class, Indian presence or private players, rising market demand of the Indian poultry produce in the export market are some of the contributing factors to the growth of the industry. The integration of development in contemporary technology such as electronics, material science, bio-technology etc. offers vast scope for rapid improvement and progress and opening of the global markets\(^\text{14}\).

### 1.5 MEDICAL USES

Chicken eggs are used to produce source of molecules to treat snakebite and duck embryos are used in manufacturing anti-rabies vaccine. Diet eggs or designer eggs are going to boost special eggs for vitamin E substitution, omega fatty acids and antioxidant requirements. Poultry eggs and meat have got sensorial, curative, nutritive and therapeutic potential. Poultry is labour-intensive and has a potential to create 25,000 more jobs on the consumption of one more egg per capita and similarly 25,000 additional jobs on the consumption of 100 gm more chicken meat\(^\text{15}\).

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\(^{15}\) Lal Krishna (1996) “Poultry Disease Management” Indian Farming 46.6:196-100.
1.6 RECENT POSITIVE DEVELOPMENT OF POULTRY INDUSTRY

The poultry production and consumption in the domestic market is stated to be growing. In India, poultry industry has been a major contributor to the food processing sector in the country. From backyard activity to major commercial operation, the poultry sector has undergone a paradigm growth.

Indian poultry industry has been growing at an annual varying rate of 8-15 per cent and this growth in the past few decades has made India one of the leading egg producing countries. At present the industry is estimated at over Rs. 30,000 crores and is expected to grow over Rs. 60,000 crores by 2010\textsuperscript{16}.

1.7 POULTRY PRODUCTS

The major outputs of the poultry industry are egg, meat and byproducts. Poultry industry produces more protein in the form of egg and meat compared with other animals. Egg is a highly nutritious and palatable food. It is an excellent source of animal protein, containing all the essential amino acids. Consumption of an egg a day will contribute to approximately one – tenth of the recommended daily amount of protein, fat, iron phosphorus and vitamin A in an adult’s diet. The edible portions of egg are albumen which contains 88 percent water, 10.5 percent protein, 1 percent carbohydrate, half of which is glucose and 0.5 percent minerals. Yolk contains 49 percent water, 32.5 percent fat, 16 percent protein, 1 percent carbohydrate and 1 percent minerals. The high

nutrient density of egg, low caloric content and easy digestibility make it an ideal food for the people of all age groups. Egg-shells are used as mineral source in animal feeds. Feather can be used in pillows, cushions and mattresses\textsuperscript{17}.

1.8 HISTORICAL BACKGROUND OF THE INDUSTRY

The history of poultry industry in India is 5000 years old. There is no clear evidence regarding the time when the first chicken was captured and domesticated\textsuperscript{18}. An early written record is found in a Chinese Encyclopedia compiled from ancient document, and it reveals the fact that “fowls are creatures of the west”. The archaeological surveys indicate that fowls were domesticated in China as early as 1400 B.C\textsuperscript{19}.

In India, reference to the existence of poultry farming is traced in Arthshastra of Kautilya during the Mauryan Empire in 300 B.C. The seals and toys bearing the picture of fowls were excavated from Mohanjadaro, indicating that people of the Indus valley were known for domestication. Till the beginning of 19\textsuperscript{th} century, the fowls were maintained mainly for game of cock fighting and sacrificing to worship god and goddess. It was in the early 19\textsuperscript{th} century the chickens were raised for their fancy appearance, attractive body

\textsuperscript{17} Sharma, Nagendra and Rao V.K (1996) Poultry By-products and their utilization.”Indian Farming 46.6:15-18.


\textsuperscript{19} Bansil P.C.(1996) “Importance of Traditional or Free-range Poultry Farming”.Indian Farming 46.6:9-14.
forms, plumage colour and comb type. Least attention was paid to their growth and egg production potential\textsuperscript{20}. During this period, the commercial poultry production was practically non-existent and poultry farming was limited to low productive domesticated fowls maintained under backyard system.

The real beginning of the commercial hatchery industry in modern times came in 1802 when Joseph D. Wilson made the first long, distance shipment of baby chicks, sending them to Chicago. In the late 1890s there was a great development of poultry and egg, packing plants in the mid-western United States. The operator of these plants began storing eggs in refrigerated warehouses. In 1924, Prof. James G. Halpin and co-workers at the University of Wisconsin announced the part vitamin D plays in the poultry ration. This knowledge brought about a rapid development in the commercial feed industry. The 1940s saw the greatly expanded use of mechanical and labour-saving equipment in both the production and marketing fields. Multistorised poultry houses, radiant heat, caged hens great strides in poultry disease control and prevention are just a few of the many other developments in specialized poultry practices in the mid 20\textsuperscript{th} century. The credit of the pioneering action of commercial poultry farming in India should be given to a few Christian Missionary Organizations and to some British people who brought some superior exotic breeds in the beginning of the 20\textsuperscript{th} century for establishing their own poultry farm by crossing and improving the indigenous stock. The major

\textsuperscript{20} Naidu.P.M.N.(1964) “Poultry Keeping in India”[NewDelhi].
step towards scientific poultry management in the country was the establishment of the poultry research division at the India Veterinary Research Institute (IVRI) named as imperial Veterinary Research Institute in March 1939. The farm was stocked with birds of exotic breeds and crossed types to improve egg production. In 1942, the IVRI developed an effective vaccine against Ranikhat disease. Because of these developments, a number of model poultry farms were established in the forties by different state government for demonstration, training and multiplication of improved poultry stock. During the Second World War, the demand of the army for egg’s and table birds increased to double the usual number. To meet this demand, the military authorities setup a number of poultry farms with exotic stock. The cumulative effect of these different activities was of a greater appreciation by the central and state government regarding the possible advantages of poultry development. The demonstration and extension work carried out by different poultry farms created interest among farmers of localized rural areas in rearing poultry of superior quality as their subsidiary occupation for economic benefit. The production of broiler on a commercial scale commenced in the early sixties with the introduction of hybrid strains from poultry breeding farms in the United States, England and Europe\textsuperscript{21}.

Sixties proved to be the turning point in the history of poultry production in the country. The concept of backyard poultry keeping shifted to

poultry farming as a commercial enterprise. The Delhi based Rani Shaver poultry breeding farm hatched the first commercial chick in November 1962. Commercial production of balanced compounded feed, modern veterinary medicines and vaccines, the indigenous production of equipment for hatching and incubation, feed miring and commercial housing were also started at the same time. Introduction of Intensive Poultry Development Project (IPDP) deep litter system of management, import of high quality stock, mass preventive vaccine against common avian disease, income tax exemption for the poultry sector were major contributing factors of this development. Under the IPDP, all the required inputs and services such as good quality birds and equipment, training of farmers, effective disease-control measures and improved management know–now were made available to help farmers to start poultry units and provide facilities to market their outputs with an assured and a reasonable profit. As a sequence of the concerted drive, poultry production started increasing and gaining momentum. Scientific poultry breeding programmes were launched during this period in the central poultry farm as the first step towards attaining self sufficiency in the production and supply of high quality chicks. The training programme for the farmers was extended. Financial assistance for supply of poultry house materials and rearing equipment at concessional rates and subsidy for purchase of incubators were extended. To process a large number of broiler chickens quickly, several

dressing plants of different capacities were established at various places. As the country made significant progress in poultry farming in the eighties, the emphasis was generally laid on promoting poultry production, mainly, through the weaker section of the people and bringing about qualitative improvement in the services required for poultry farming. Additional efforts were made in streamlining the infrastructure already developed.

The history of poultry farming in India reveals the fact that poultry husbandry is an old art. The story of the evolution and development of the poultry industry shows that poultry husbandry is comparatively a new science as it is only within, the present century, that special attention has been given to raising poultry as a commercial venture.  

1.9 POULTRY PRODUCTION

The term ‘poultry’ includes fowls, ducks, turkeys, geese, quails, swans, ostriches and guinea-fowls domesticated for economic purposes. Fowls constitute 99 percent of the total poultry reared in Tamilnadu. The development of poultry industry is significant in the state. The state occupies 2nd position in the egg production of our country. Poultry farming in the state has transformed in to a big vibrant industry from a mere backyard enterprise over the past three decades. Now this sector is a dynamic industry having a vast scope for exports and employment generation.

23 James, Christopher K (1991) “Some operation of the chicken in a farm”.
This process was speeded up with the help of poultry extension centres, which acted as demonstration farms and extension centres, providing training to farmers to take up poultry farming. Moreover, the formation of Tamilnadu Poultry Development Corporation, government support for establishing poultry units, widespread immunization against ranikhet disease and easy availability of quality feeds, contributed to the development of poultry rating as an industry. Poultry rearing has now become a commercial activity in many places in the districts of Salem, Namakkal, Erode and Coimbatore. In fact the poultry farming has developed into a big industry.

Birds are on free range and feed on corns, insects, waste grains, white ants etc. and they convert the farm and kitchen waste into egg and meat. These birds are very susceptible to the highly fatal ranikhet disease. To protect the poultry from this disease, the department is providing vaccination against this disease on specified days at the veterinary institutions and sub-centre every week and also in the camps conducted under “Kalnadai – Padukappu Thittam”.

It is appropriate to make a brief mention about poultry production in India, since it is acclaimed as a success story of rapid growth without government’s financial support. Annual growth rate of poultry production is higher than any other agriculture commodity. It is 10 percent growth for eggs.

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and 15 percent growth for broilers. Annual production is reported to be 33000 million eggs, which ranks third largest in world\textsuperscript{27}. For a developing country this is a laudable achievement.

The total poultry population of India is estimated to be 700 million, of which about 10 to 15 percent are indigenous or native birds, which accounted for 50 percent of poultry population about 25 years ago. Around 1970 the native birds contributed almost 50 percent of the total egg production. However, the picture varies considerably between regions and states of the country. Large commercial poultry farms are concentrated in 5 to 6 states in the country viz., Andrapradesh, Maharastra, Tamilnadu, Haryana, Punjab and Delhi. There are many states where native fowl still accounts for 30 to 40 percent of the egg production of poultry population.

Poultry production in India has increased rapidly in the last two decades, but this growth should be delineated from development. When examined against some of the important development issues, the growth in poultry seems to have many negative characters. An attempt is made to highlight some of these aspects.

India’s poultry sector has growth steadily over the past several years. Broiler production was forecast to increase by 16 percent, to 2.2 million tonnes in 2006, which was 1.9 million tonnes in 2005. A trend towards forward

\textsuperscript{27} FAO Year Book. Poultry Scenario in world and Agriculture organization of the United Nation 2010.
integration in poultry operations has spread to the north, after mostly being in the south. A preference for birds with higher dressing yields and price stabilization measure intimated by the industry are also factors supporting growth in production.

The government of India does not classify poultry farming as an industrial or agricultural enterprise, leaving the option of classification to individual states with agriculture status, where farmers could qualify for loans at low interest rates, benefits with respect to sales, taxes, land and labour laws, and other government assistance. Agriculture income is generally tax-free, only a few states have given poultry farms the status of agriculture.\textsuperscript{28}

India’s 17\textsuperscript{th} livestock census was released in early 2005 with October 15, 2003 as the reference date. The total poultry population in India was 489 million from 337 million in 1997. Andrapradesh ranked first with 102.3 million followed by Tamilnadu with 86.6 million, Uttaranchal West with 60.7 million and Maharastra with 38.0 million.\textsuperscript{29}

1.10 SIGNIFICANCE OF THE STUDY

The present study assumes greater significance because the development of poultry is the basic strategy for eradicating the rural poverty and to bring the rural poor above the poverty line. In the Tenth Five Year plan (2002-2007), the

\textsuperscript{28} Economics of Poultry Keeping:- study of the relationship of fixed and working capitals with egg Production. Animal husbandry department.

\textsuperscript{29} Department on Livestock censes. Various issues, Chennai. Department of Animal hubandry.
Planning Commission of India has framed a Poverty Alleviation Programme of which 50 per cent is meant for livestock associated with poultry in rural areas.\footnote{SANDEEP SARAN, 2005, “Indian Poultry Industry”. Current Scenario and Future Prospects :A Review. \textit{Indian Journal of Animal Sciences}, 75(8), August 2007, pp. 992-998.}

The industry has been identified as a tool to fight the three evils of modern society viz., malnutrition, unemployment and supplementary income. The main thrust of the development of the poultry industry is to provide employment opportunities with high participation of women cheap and easily accessible source of proteins and to generate supplementary income for the betterment and improvement of the weaker sections of people in the rural areas. Further, the National Commission of Agriculture has suggested poultry programmes on a massive scale, which can generate employment and improve the income of the rural poor through production of eggs.

Even though, India has made rapid strides in the poultry production during the last decades, the annual per-capita consumption of eggs is only 35 eggs as against the recommended consumption of 180 eggs by the World Health Organisation. About 75 to 80 per cent of the eggs produced in the country are consumed by just 25 per cent of the population in urban areas. In rural areas, the annual per-capita consumption is only 15 eggs\footnote{Mehta, R. (2008) “WHO, Liberalization, and Poultry Industry: The Case of India” in the 1st SAARC Poultry Conference, organized by World’s Poultry Science Association and Dr B.VRao Institute of Poultry Management and Technology, Pune, 24-26, September 2008.}.
1.11 SCOPE OF THE STUDY

The Poultry industry is a major agro-industry in Salem district. It plays a vital role in developing the district’s economy. Eggs provide basic nutrient to the human beings, next to mother’s feed. The present study deals with the production of eggs and working of its units. This study does not go into the broiler units. There is a very few broiler farms in the study area. Some companies with less living space offer a few chicks to households. They provide food and medication facility for the proper nourishment of these chicks. These chicks are collected back by the company after a period of three months.

This study has been undertaken with respect to poultry industry. It reviews the socio-economic conditions of the poultry entrepreneurs, structural characteristics of the poultry farms and poultry production practices, followed by factors motivating to start poultry farming in the Salem district of TamilNadu. The study also analyses the egg production, cost and profitability of layer farms.

1.12 STATEMENT OF THE PROBLEM

The district of Salem, the entrepreneurial base in the poultry sector, was much stronger after the Nammakkal district. Moreover, especially after 1990s many more new entrepreneurs entered in the sector and were forced to adopt new and innovative methods of production, increase the price value for their survival and earn a fair return. Now these entrepreneurs in Salem are engaged
in large-scale production of poultry products and marketing the products at competitive price. Further, they are exporting the poultry products in bulk quantities to neighbouring states especially to Kerala and Karnataka and also export to various countries. In this context, an in-depth study on the various aspects of the workings of poultry industry in Salem becomes relevant and useful. Hence the present study has been undertaken.

1.13 OBJECTIVES OF THE STUDY

The following are the specific objectives of the present study:-

1. To study and understand the profile of the study area and characteristics of the sample respondents.

2. To evaluate the poultry production practices.

3. To analyse egg production practices and factors motivating to start poultry farming.

4. To analyse the trend, growth and magnitude of variability of egg production.

5. To analyse the cost and returns of egg production.

6. To study the temporal variations in the price of eggs.

7. To present recommendations based on the findings of the study.
1.14. OPERATIONAL DEFINITION

1.14.1 Poultry

The term ‘poultry’ includes fowl, duck, turkey, geese and guinea-fowl domesticated for economic purpose. The word ‘fowl’ is used to refer to poultry in general and is used to refer to domestic chicken both hens and cocks. Poultry farm for the purpose of this study refers to egg producing poultry units.

1.14.2 Layer Birds/Farm/Unit

In layer farms, the birds are reared for the purpose of egg production.

1.14.3 Broiler Farm/Broiler Unit

In broiler farm, birds are reared for the purpose of meat production. Broiler birds are young chickens having 1.5 to 2.0 kilo grams weight with tender meat, soft, smooth textured and flexible breast. In broiler farms, farmers procure one-day-old chicks (broiler) rear then up to the age of six weeks and finally dispose in the market.

1.14.4 Poultry items

‘Poultry items’ refers to the eggs and poultry meat.

1.14.5 Poultry Farmer

‘Poultry farmer’ refers to the proprietor of the poultry industrial unit.
1.14.6 Poultry Units

Poultry units mean the farming units rearing chicken for the production of egg/broiler meat.

1.14.7 Day-Old-Chicks

Day-old-chicks refers to the chicks hatched by the hatcheries having an age of one day and are supplied to the farmers.

1.14.8 Own Farming Units

When a poultry unit is fully owned and managed by the farmer/proprietor it is considered as own farming unit. Here, the farmer has the right to produce and market the products in accordance to his decision. Under this concept the farmer is the proprietor, investor and profit maker or risk-bearer of the business.

1.14.9 Contract Farming Units

When a poultry unit is operated by the farmer as per the contract/agreement with market integrators (independent agency/ hatcheries/ feed agents) it is considered as contract farming unit.

1.14.10 Market Integration/Market Integrator

Under this concept, the farming operation is carried out on the basis of a contract between farmer/grower and a contracting firm. The contracting firm is known as market integrator. Here, the market integrator provides all inputs like
chick, feed, veterinary services and supervisor to the farming unit. The farmer has to provide the facilities of land, housing, equipments, fuel and power, labour and daily management of birds. Under this system, the market integrator undertakes the right to market the products produced by the farmer. As a return the contracting firm will make payment in the form of commission to the farmer/grower on the basis of food convertibility ratio or fixed amount per bird and incentive on the basis of quality and weight of bird produced.

1.14.11 Poultry By-Products

If refers to the product, which has small significant value, obtained from farm or processing plant that may not be used as human food such as poultry manure and waste from dressing plant. It may be from production phase and dressing plant.

1.14.12 Deep Litter System

The poultry birds kept in houses to which litter (bedding) is added continually in an intensive method called the deep litter system.

1.14.13 Layer Farm/Layer Unit

In layer farms, the birds are reared for the purpose of egg production.

1.14.14 Backyard System

It is a system of practice adopted by the household sector in the rural areas for rearing birds on small-scale basis. This is a traditional method of
rearing birds in which the birds find their own food and require no proper care and no proper time scheduling of food.

1.14.15 **Small Scale Farm**

A poultry farm is considered as a small-scale one when it has the capacity to rear birds only up to 25,000 numbers.

1.14.16 **Medium Scale Farm (MSF)**

A medium-scale farm is a unit having the capacity to rear birds between 25,000 to 75,000 numbers.

1.14.17 **Large Scale Farm (LSF)**

A large-scale farm means a farm with the capacity to rear birds above 75,000 numbers.

**1.15 CONSTRUCTION OF TOOLS**

The interview schedule used in this study has been structured by the researcher.

With a view to identifying the variables for the study, the researcher had an in-depth review of the previous studies relating to the topic of the present study. The researcher had a trial interview with five officers working in the office of the Department of Agriculture, Salem.
Based on the information collected from these sources the first draft of the interview schedule was prepared. The drafted schedule was handed over to a few faculty members, researchers and the educated farmers for their critical comments. In the light of their comments, the interview schedule was revised and the second draft was prepared. The second draft of the interview schedule was administered to the farmers who were included in the trial interview and a selected number of farmers from the nine taluks of Salem District.

1.16 METHODOLOGY

The present study is an empirical research based on the survey method. Data have been collected from both primary and secondary sources.

1.16.1 Primary Data

The primary data required for the study have been collected from the poultry industrial units functioning in the district of Salem. The poultry industrial units are engaged in production of eggs. In the district of Salem, the layer farming units are in majority when compared with broilers units.

1.16.2 Secondary Data

Secondary data were collected from the following published sources.

1. Various publication of the foreign agricultural service commodity and marketing programmes, Dairy, livestock and poultry division (Department of Agriculture, USA).
2. Annual reports of the Department of Animal Husbandry and Dairying (New Delhi), Tamilnadu Poultry Development Corporation Ltd., Chennai.


5. Study reports and other publications of the State Plan Board (Chennai), Planning Commission (New Delhi), Department of Economics & Statistical (Chennai), Evaluation & Applied Research Department (Chennai), Veterinary College & Research Institute (Namakkal and Salem).

6. Books and periodicals dealing with the subject.

7. Dissertations in the related field.

1.17 SAMPLING DESIGN

In Tamil Nadu, Salem district ranks second in egg production. Hence, this district was chosen for the purpose of the study.

A field survey has been conducted covering 61 sample poultry units of the nine Taluks of the district. The proportionate random sampling method has been used. Twenty five percent of poultry industries is taken for the study. Among 61 layer farms, 13 layer farms are small poultry farms, 40 farms are medium poultry farms and 8 farms are large poultry farms.
### Table 1.1
Distribution of Sample Farms

<table>
<thead>
<tr>
<th>Taluks</th>
<th>Block</th>
<th>Total Farm Units</th>
<th>Sample Selected Units</th>
<th>Total Sample selected</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Units</td>
<td>Small</td>
<td>Medium</td>
</tr>
<tr>
<td>Attur</td>
<td>Attur, Peddanaicken palayam, Thalaivasal.</td>
<td>52</td>
<td>8</td>
<td>36</td>
</tr>
<tr>
<td>Edapaddi</td>
<td>Edappadi, Konganapuram.</td>
<td>32</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Gangavalli</td>
<td>Gangavalli, Mecheri, Nagavalli, Kolathur.</td>
<td>36</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Mettur</td>
<td>Panamarathupatty.</td>
<td>16</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Omalur</td>
<td>Omalur, Tharamangalam, Kadayampatti.</td>
<td>32</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Salem</td>
<td>Salem, Veerapandy.</td>
<td>24</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>Sangakiri</td>
<td>Sankari, Magudanchuadi</td>
<td>40</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Valapady</td>
<td>Valapady, Ayothipattinam.</td>
<td>12</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Yercaud</td>
<td>Yercaud</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>244</strong></td>
<td><strong>160</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

**Source:** Record of District Industries Centre
1.18 TOOLS OF ANALYSIS

1. To study the trend in egg production, simple regression equation has been used.

2. In order to find out the growth rate in quantum of egg production, Compound Growth Rate has been calculated using semi-log or exponential function.

3. To analyse the magnitude of variability in egg production, Co-efficient of Variation has been used.

4. To find out the factors motivating to start poultry farm, factor analysis is used.

5. The Cobb-Douglas Type Production function has been used to analyse the determinants of egg production.

6. To evaluate the resource-use efficiency in egg production, the Marginal Value Productivity of each of the input variables was equated with that of the acquisition cost.

7. Garrett’s Ranking Technique has been made use of to analyse the important problems faced by the poultry farm owners in marketing their product.

8. To analyse the socio-economic conditions of the sample respondents, simple percentage analysis is used.

9. One-way Analysis of Variance has been applied to analyse the significant difference among the three groups of respondents regarding their perception, on the various factors.
1.19 PERIOD OF STUDY

Primary data were collected from 61 poultry farms. The study is conducted for a period of 10 years (2001 to 2010). The secondary data relating to market price of egg production were collected for a period of 20 years from 1990-2010.

1.20 LIMITATIONS OF THE STUDY

The study is confined to Salem district only. The researcher has depended on the information and data supplied by the poultry farmers who are not regularly keeping proper records about cost of manure, medicines and the actual price received for their produce. Hence, the study suffers from respondents recall bias. These had been minimized by suitable interaction with the farmers as well as cross checks then and there with the animal husbandry department field staff, during the survey. Moreover, as the study is based on the opinions of the sample respondents, the results of the study cannot be generalized and should be used with caution.

1.21 CHAPTER SCHEME

The present study is presented in seven chapters.

The first chapter entitled “Introduction and Design of the study” introduces the topic and traces the development of poultry industry. It also includes significance of the study, Statement of the problem, Scope of the study, Objectives, Operational definition, Methodology, Sampling design,
The second chapter entitled “Review of Literature” presents the findings of the previous studies related to poultry industry.

The third chapter entitled “Profile of the study area and characteristics of the sample respondents” describes the socio economic condition of the sample respondents.

The fourth chapter entitled “Egg production – An analytical overview” deals with the growth rate, magnitude of variability and trend values in production, the production of eggs in the major countries in the world in India, in States and in Tamilnadu.

The fifth chapter entitled “Egg production practices and factors motivating to start poultry farming” deals with the various production practices used in poultry industry and analyses the factors influencing the farmers to start poultry farm in the study area.

The sixth chapter entitled “Cost and returns analysis” analyses the cost of production, profitability, and price analysis of eggs.

The seventh chapter entitled “Summary and findings and suggestions” presents the relevance of the study, the findings and puts forth some useful suggestions.