FEASIBILITY STUDY ON POULTRY FARM (LAYER FARM) AT K.GANAPATHY POULTRY FARMS, NAMAKKAL, TAMILNADU

By

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BONAFIDE CERTIFICATE

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For Ganapathy Poultry Farm

Proprietor

ABSTRACT

Poultry farms, mainly chicken farms producing eggs, can be highly specialized operations. To maximize profits and plan future enterprise activities, a feasibility analysis prior to investment and proper management during the operation are required. Proper management ensures efficient production and good quality products (meat or egg). This is accomplished by controlling diseases, maintaining feed efficiency, proper handling of wastes, and proper sanitizing of the poultry house. Due to short turnover rates of poultry flocks and strong market demand, the poultry business could potentially be a profitable enterprise.

This project work was mainly initiated to conduct the feasibility study over the egg layer farming. Here the egg laying farm is divided into two types as Semi Automated Layer Farm and Fully Automated Layer Farm. The feasibility study was mainly conducted to compare the Semi Automated Layer Farming and Fully Automated Layer Farming to identify the feasible one for entering poultry farm business.

This study is mainly for the entrepreneurs to show the major difference in the above two type of layer farming and also to generate employment by encouraging people to take up egg layer farming and egg trading. Both the farms are analyzed and evaluated to find out the profitability, technical requirement, financial requirement, location to setup the farm and competitors. Analyses are made with the help of input costs and point of sales value to determine the potential profitability.

To conduct the feasibility study, all the required data are collected from the proprietors by conducting an interview with them and also making some questionnaire to them. Here also some data are collected by analyzing over the market where the poultry farm business is involved. Financial data are collected to compare the Semi Automated and Fully Automated Layer Farm which also helps in finding out the investment required, daily expenses, profit obtained and gross profit.

The feasibility study is mainly concluded with the finding of feasible layer farm for the new entrepreneur and the existing farmers among the two type of layer farming. It also suggest some development for the existing farmers without which will no affect the present market condition and production rate.

S.SANTHOSH

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INTRODUCTION

1.1 POULTRY FARMING

Poultry farming is the practice of raising domesticated birds such as chickens, turkeys and geese, as a subcategory of animal husbandry, for the purpose of farming meat or eggs for food. More than 50 billion chickens are raised annually as a source of food, for both their meat and their eggs. Chickens raised for meat are called broilers, whilst those raised for eggs are called laying hens.

Poultry egg and meat are important sources of high quality proteins, minerals and vitamins to balance the human diet. Specially developed breeds of egg type chicken are now available with traits of quick growth and high feed conversion efficiency. Depending on the farm-size, layer farming can be main source of family income or can provide income and gainful employment to farmers throughout the year. Poultry manure has high fertilizer value and can be used for increasing yield of all crops.

1.2 LAYER FARMING

Layer farming is a pricey business venture. Day-old chicks are purchased from hatcheries that specialize in hatching egg-production pullets (young hens). Pullets are reared to 20 weeks of age by egg producers or pullet growers until they are ready to begin laying eggs. The egg production cycle lasts about one year. The majority of hens come from White Leghorn strains that lay white-shelled eggs. Both pullets and hens are primarily raised in cage systems in environmentally controlled barns. Feeding, watering and egg collection are managed by semi automated method and fully automated method on almost all production sites. Several rearing systems are common. Some farms raise layer chicks on a litter floor in a shed similar to a meat chicken shed. Other pullets are either finished off or reared entirely in wire-floored cages.

1.3 DIFFERENT TYPE OF LAYER FARMING

Layer farming is mainly divided into two methods as follows.

1) Semi Automated Layer Farming

2) Fully Automated Layer Farming

1.3.1 Semi Automated Layer Farming

Semi Automated Layer Farming is one of the older and most popular method where partially automated and partially manual work is required to complete the production operation. Here feeding and watering the chicks which plays main role can be done automatically. All the other operation like collecting eggs, filling the feeder tank, maintaining poultry sheds within room temperature are done manually by human power.

1.3.2 Fully Automated Layer Farming

Fully Automated Layer Farming is one of the modernized method where all the operations are fully automated and computerized to complete the production operation. Here feeding, watering the chicks, and collecting eggs, filling the feeder tank, maintaining poultry sheds within room temperature are done automatically with the help of computer program. All the equipments are connected to the computer and they are functioned with the help of automated program.

1.4 PROBLEM IDENTIFICATION

The overall global demand for eggs is growing, more in India. With rapidly changing lifestyles, affluent culture, and a conscious need for general wellness, Indian consumers are now opting for a more protein-rich diet. The changing trends are definitely a boon for the layer sector in India.

Today India is the fourth largest egg producer in the world. The layer segment in India is all set to grow and is currently estimated at Rs.10,000 crores (INR 100 billion). According to the Ministry of Agriculture, India's egg production is estimated at 47.3 billion eggs per annum. Today, with more and more 'eggitarians' on the rise, egg

Also India's per capita egg consumption is at 41 eggs per annum. Over the last couple of years, the per capita consumption of eggs has increased at an aggregate of 4% with a majority consumption recorded in the urban areas.

Efforts to promote egg consumption are in place by layer farming community in India to achieve 180 eggs per annum in the coming years. Keeping this target in mind, the requirement for production is estimated at 18,000 crores (180 billion) eggs, while the current rate is capable of achieving only 55.6 billion eggs. This provides for a huge opportunity to tap into. With rapid urbanization, and increasing demand from the present 250 million economically strong, consumer market base (which is likely to go up to 350 million by year 2015), the future is only bright for the layer sector in India. It is estimated that, at present, Indian Poultry Industry contribution to the GDP is about Rupees 80 billion which is likely to reach Rupees 500 billion by the Year 2015.

From all the above data, we can observe that there are many opportunities for the new entrepreneurs who are ready to make new investment in the layer poultry farming. This feasibility study will helps to find out the suitable method of farming, finding out the required investment, monthly expenses, methods of feeding the chicks and layers, stetting up the farms and development. This study also helps exiting layer poultry farmers to develop their farms which lead to increase the production and reduce the cost of production and expenses by updating the farms to available modernized methods of layer farming.

1.5 NEED FOR STUDY

A poultry farm, both broilers chickens and layers chickens requires highly specialized operations. To maximize profits and plan for future enterprise activities, a feasibility analysis prior to investment and knowledge on proper management practices are required. Proper management ensures efficient production and good quality products (meat or eggs). This is accomplished by controlling diseases, maintaining feed efficiency, proper handling of wastes, and proper sanitizing of the poultry house. Due to short turnover rates of poultry flocks and strong market demand, the poultry business could potentially be a profitable enterprise.

This project work was mainly initiated to conduct the feasibility study over the egg layer farming. The feasibility study was mainly conducted to compare the semi-automated layer farming and fully automated layer farming to identify the feasible one for entering poultry farm business. This study is mainly for the entrepreneurs to show the major difference in the above two type of layer farm and also to generate employment by encouraging people to take up egg farming and egg trading. Both the farms are analyzed and evaluated to find out the profitability, technical requirement, financial requirement, location to setup the farm, competitors, etc.

This study was conducted in the poultry farm that is located in Namakkal District, which is heart of poultry farm production in India.

1.6 OBJECTIVE OF THE PROJECT

The main objective of this study is to examine the feasibility of poultry farm operation from the farms available in Namakkal District, Tamil Nadu. It mainly involves with comparing the types of poultry farm which are Semi-Automated Layer Farming and Fully-Automated Layer farming.

Feasibility study helps the farmers to find out the different types farming which may minimize the cost and increase the productivity. This analysis helps to find out the profitable one form different poultry farm, finding out the competitors, before and after market techniques, both domestic and international customers. Also it helps the new entrepreneurs to know more about the layer farming and encouraged to setup new farms.

1.7 SCOPE OF THE PROJECT

Layer Poultry Farming industry which provides cheap source of animal protein has taken a quantum leap in the last three decades evolving from a near backyard practice to a venture of industrial promotion. Poultry is one of the fastest growing segments of the agricultural sector in India today. While the production of agricultural crops has been rising at a rate of 1.5 to 2 percent per annum, production of eggs has been rising at a rate of 8 percent per annum. India is on the world map as one of the top five egg producing countries with 55.6 billion eggs produced during 2009.

The poultry sector in India has undergone a paradigm shift in structure and operation. This transformation has involved sizable investments in breeding, hatching, rearing and processing. Farmers in India have moved from rearing non-descript birds to rearing hybrids which ensures faster growth, good life, excellent feed conversion and high profits to the rearers. High quality chicks, equipment, vaccines and medicines are available. Technically and professionally competent guidance is available to the farmers. The management practices have improved and disease and mortality incidences are reduced to a great extent. The industry has grown largely due to the initiative of private enterprise, minimal government intervention, and adequate support from the veterinary health, poultry feed, poultry equipment and poultry processing sectors.

The industry has created direct and indirect employment for 3 million people. This study also helps to generate employment by encouraging people to take up egg farming and egg trading.

1.8 DELIVERABLES

The feasibility study on layer farming is mainly focused on the analyzing the exiting egg market and finding out the future development to reduce the production cost and also to increase the productivity. At the end of this project, a new entrepreneur will be clear about the investment required and basic functionality of the layer farming. This will also help the exiting farm to increase their market share from current status to the higher one. The expected production rate of 180Billion eggs can be achieved by doing the feasibility study and by encouraging the new entrepreneurs.

Also a new entrepreneur can easily identify the difference between the two type of farms which are Semi Automated Layer Farming and Fully Automated Layer Farming, investment required for both type of farming, expenses, type of feeding, feeding cost, production rate, etc will be explain clearly.

CHAPTER 2

LITERATURE SURVEY

2.1 REVIEW OF LITERATURE

In egg-producing farms, day-old chicks are purchased from specialized hatcheries that produce egg-producing pullets. These pullets are either raised by the egg producer or a pullet grower until they are ready to start laying eggs, which is usually at 20 weeks of age (Beutler, 2007).

The egg production cycle lasts for about one year. The pullets and laying hens are raised mainly in environmentally controlled poultry houses in cage systems. To make the maintenance process easier, automated feeding, watering, and egg collection systems were developed. Feed and water are moved on rotating belts which pass by the cages. Another rotating belt collects the eggs and sends them to the sorting chamber to be tested for fertility, graded, and sorted according to size, making them ready for delivery to the market (Dr. M. Farran, personal communication, 2009).

Laying hens in egg producing farms are usually of small body frame and body weight compared to broilers. They can be classified into two groups: dual purpose chickens or egg producing chickens. Egg producing chicken breeds have been bred and raised for maximum egg production (up to 340 eggs per year) rather than high meat yield (Beutler, 2007). Dual purpose chickens are smaller in size than commercial meat breeds. They are used for meat as well as egg production, and can produce around 200 to 250 eggs per year (Dr. M. Farran, personal communication, 2009).

2.2 APPROVALS AND CONSTRUCTION OF POULTRY FARMS

Prior to the construction of a poultry farm, initial approvals from the appropriate planning department must be obtained. These approvals usually take into consideration

views, noise, odor, and wastes. When constructing a poultry farm, future plans should be taken into consideration. For example, after the operation starts, waste material will be generated. Construction planning should include plans for an isolated area to dispose the waste material without causing any health or environmental risks, including risks to water resources, until some specialized company for compost production collects the wastes (Wood et al., 1998).

Due to the type of business and growth potential, poultry farms should be constructed in a manner that allows for future expansion. This should include plans for expansion of feed storage areas, drainage, and effluent (Wood et al., 1998).

2.3 FACILITIES ON A POULTRY FARM

Facilities on poultry farms are related to the purpose of the farm. In general, all poultry farms share common facilities and equipment such as feeders and drinkers. However, depending on the purpose of the farm, some facilities vary. For instance, some meat production farms include slaughter house facilities. The purpose of having these slaughtering facilities on a broiler farm is to minimize cost and increase profits through vertical integration. Egg production farms are equipped with nest boxes if the breeders are raised on the floor, or, if raised in cages, automated belt systems are installed for collection of eggs. Hatcheries are equipped with incubators that maintain the eggs for 18 days and hatchers that keep the eggs for 3 days, both maintained at the right temperature and humidity required for hatching (Wood et al., 1998).

2.4 WASTE HANDLING

Wastes are produced in all types of poultry operations. After poultry houses are cleaned and sanitized, the wastes should be removed for composting or proper disposal to avoid contaminating the environment (Wood et al., 1998).

Poultry litter can also be considered to be a by-product with economic potential. At the end of a production cycle in a broiler or egg-production operation, litter is removed mechanically from the poultry house, and can be used as fertilizers for crop production. Litter can also be removed and sold to commercial processors for composting operations or nursery preparations. It can also be composted on the farm in

CHAPTER 3

METHODOLOGY

The proper formulation of the research design is very important which helps in systematic and structured approach in carrying out the research. In this chapter, the selection of the study area, categories of customer, method of data collection and the analytical tools used to draw meaningful inferences regarding various facets outlined on the objectives are presented.

3.1 TYPE OF PROJECT

To determine the feasibility of layer poultry production, this study used a farm located in Namakkal District, TamilNadu, which is the heart of poultry production in India. This project is a kind of collecting the basic requirement that are need for starting the poultry farm which are investment, farm setup, monthly expenses, methods of feeding the chicks and layers, future development of exiting farms for greater increased production and less productivity cost.

To do a feasibility study for a poultry farm, the purpose of the farm should be clear because this affects equipment required, water requirement, and the type of waste management system that will be used. When estimating costs for establishing and running the business, the poultry producer should consider potential extremes in costs. Here the comparison was made mainly between the Semi Automated Layer Farming and Fully Automated Layer Farming.

3.2 TARGET RESPONDENTS

First of all, before entering the poultry farms, one should know well about the basic requirement which helps to make clear about the project. Here all the required data are collected from the proprietor of a poultry farm by conducting an interview with them

and also making some questionnaire to them. Here also some data are collected by analyzing over the market where the poultry farm business is involved.

Some statistical methods are used to compare both the Semi-Automated Layer farm and Fully-Automated Layer farms. Also some financial methods are used to find out the investment requirement and also to find out the location to setup the farm. Apart from the tools, some statistics was done to find out the customers and competitors to give the final description.

3.3 LIMITATIONS

- Fluctuation in price of egg and feed results in using standard data and average price.
- The proprietor cannot expose all the exact details of business and income earned by them and they can give only the standard data which are common for all the type of farming.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 LAYER FARMING SEQUENCE

The Layer Farm Sequence starts when female chicks are raised into pullets for commercial egg production and a standard procedure is followed. Several rearing systems are common. Some farms raise layer chicks on a litter floor in a shed similar to a meat chicken shed. Other pullets are either finished off or reared entirely in wire-floored cages.

4.1.1 Brooding (Day-Old to 6 Weeks)

When a hen sits still for a prolonged period without eating or drinking normally, she is said to be broody. This is a normal process during which the hen stops producing eggs in order to incubate a nest full of eggs. When the eggs hatch the hen then cares for the chicks by keeping them warm and finding feed and water for them. Modern strains of chicken have been selected not to go broody so that more eggs are laid.

When rearing chicks commercially we aim to do the same thing as the hen. The stage of life when chicks need some additional heat is called the brooding stage. It lasts up to six weeks, depending on the temperature of the environment until the chicks can control their body temperature themselves. From day-old they usually receive chick starter feed which aims to ensure they have plenty of protein (19%) and energy for body growth.

4.1.2 Growing (6 to 20 Weeks)

Once chicks can control their body temperature they still need to be protected from the extremes of climate. At this stage they receive pullet grower feed which is less expensive and contains only 15% to 17% protein and 7% less energy than the starter

Beak trimming and some vaccinations are done during the grower stage to prepare the birds for their adult life as laying hens. Any sever check to growth at this time can affect their ability to lay well. Remember also that excessive feeding at this time can be harmful, again leading to poor production.

Restriction to feed supply to birds during growing stops them from growing at a fast rate and results in both feed savings and increased egg production when the birds mature. Careful weekly weighing of the birds is essential to restrict body weight and work out how even the flock is. Breeding companies recommend what weight birds should be at each age.

Moving:

Pullets are usually moved into their laying quarters, at 16-18 weeks of age, before they reach sexual maturity. This ensures that they are settled in before egg production begins. Handling birds at any time must be done with care to avoid injury. As pullets mature into laying hens they are fed a layer ration designed to enable them to perform best.

4.1.3 Adult Layer (20 to/up to 72 Weeks)

Adult hens are the real workers of the industry. For best performance they need to be fed carefully and kept in a house at 21-28°C. This means that hen houses are designed to keep as near as possible to this temperature year round. The hens are checked regularly to monitor their health and medicines may be administered as needed.

The quality of feed provided to hens may be varied for the level of production. Hens can need more nutrients just before and during their peak production than at other times. This is called phase feeding. It can be economical to adjust rations for such high demand periods.

Feeding is done automatically in both Semi Automated and Fully Automated Layer Farming. Only difference is, filling up the feeder tank is manual in Semi Automated Layer Farming and in the fully automated layer farming, feeder tank can be filled with the help of conveyor which is connected with the grinding mill.

The actual feed consumption may be influenced by several factors as follows:

- Body weight of the bird.
- Rate of egg production.
- Season and weather condition.
- Health and physical condition of the bird.
- Feed quality such as protein contents, caloric value of feed etc.

Generally the feed intake increases with an increase in egg production.

4.1.4 Egg Collecting and Grading

Mechanical collection of eggs is common in fully automated layer farms and it is collected manually in the semi automated layer farms. It takes about 26 hours for each egg to develop and so each hen lays eggs a little later each day. This is not an exact thing and most eggs are laid in the morning.

Eggs should be collected regularly and transferred from the hen house to an egg room where they are graded or checked for weight and for damaged shells. A sample of eggs is often broken open to check internal quality. Eggs are packed into cartons for 12 eggs or trays of 30 eggs for sale. Prices vary with egg size, so eggs must be separated on the basis of egg weight.

Separation of different size of egg is done automatically by a machine called an egg grader in Fully Automated Layer Farming and done manually in Semi Automated Layer Farming.

4.1.5 Marketing

Eggs are stored in a cool room at about 13°C and transported in an insulated truck. Unfortunately, many shops selling eggs do not store them under ideal conditions. In the home and shop situation it is best to store them at normal refrigerator temperature (4 - 6°C). Marketing involves a range of prices, depending on the different sizes of egg, different brands, or other differences which attract particular buyers.

4.2 FARM MANAGEMENT

4.2.1 Housing

The poultry house should be well ventilated, reasonably warm in winter and cool in summer in the Semi Automated Layer Farming with the help of green environment and water sprayer over the shed and the temperature is maintained to the required level with the help of centralized Air Conditioner in Fully Automated Layer Farming. The poultry house should be cheap, durable, comfortable and safe. Each bird should be provided a floor space of about 1.5 Sq. Ft.

4.2.2 Feeders

It is essential to provide adequate feeder space. Ideally, two pan type feeders are sufficient for 50 birds. Therefore, for 20,000 birds, 800 feeders are enough.

4.2.3 Lighting

Light affects growth and reproduction of poultry birds by different physiological actions. The duration of the light period should not be decreased during laying period. Adequate lighting boosts up egg production by 5 to 10 percent. Lighting encourages the birds to eat more feed, more of which will lead to better growth and more eggs production. Irregular lighting results in drop in egg production.

4.2.4 Drinkers

Proper dinking space should be provided to birds. It is necessary to provide extra water during summer and extremely hot weather. Generally, one large drinker is sufficient for 50 birds.

4.2.5 Vaccination

Vaccination can be applied to chicks through injections. The medicine can also be mixed in the water and also through eye. Vaccination is provided to the birds once in

the rearing period and once in the laying period. Average vaccination cost per bird usually varies between Rs.2 to Rs.4.

4.2.6 Manpower Requirements

In Semi Automated Layer Farming, one person can handle 7500 birds easily. Three persons are sufficient to look after the 20,000 birds.

Same in the Fully Automated Layer Farming, one person is enough to manage the 20,000 birds, since it was fully automated. Manual power is required only to inspect the operation, collection of eggs and proper functioning of equipments.

4.3 BASIC REQUIREMENT

The basic requirements that are needed to start the layer farm are land, labor, shelter, chicks and feeds. These are common for both Semi Automated Layer Farming and Fully Automated Layer Farming. Atleast there should be 20,000 numbers of layers which is required to make a profitable egg laying farm business.

4.4 DATA COLLECTION

Data on initial investment required in both Semi Automated Layer Farming and Fully Automated Layer Farming, size of land requirement to setup farm, stages if growth of chicks, requirement for the proper growth of chicks and layers cost of feeding for both chicks and layers, daily expenses, marketing egg, and transportation cost were obtained from the proprietor of the poultry farm. Price of egg was obtained from the local market, through checking the historical data of the market places in Namakkal which is given by National Egg Co-ordination Committee.

Historical data showed seasonal changes in the prices. This seasonal rise in prices is just before the high seasons in the summer holiday and Christmas and New Year's holiday.

Also there is seasonal variation in the feed rate and feeding cost. During summer, feeding rate is increased and the cost of feeding is high. In another hand,

affects the chart preparation for expense and production. So average cost of feeding and average feeding rate is taken into account as shown in the upcoming table and charts.

4.4.1 Size of Land

In this feasibility study, the required size of land was already owned by the proprietor or the farmers which are used for agriculture purpose. For setting up 20,000 numbers of layers, we need 1.5 Sq. Ft. of space per layers, 1 Sq. Ft. of space per grower and 0.75 Sq. Ft. of space per chicks.

Land provided for chicks can be used only for six weeks of growth and it was shifted to grower level shed which will stay long till twenty weeks. At the end of 20 week, the entire hen starts the production and it was shifted to layer shed. Here only one batch of production is taken into account for this feasibility study. In future, several batches of chicks are grown in the chicks shed and layers shed were increased to grow more amounts of layers at one time.

TYPE	SIZE	TOTAL SIZE
Layers	20,000 X 1.5 Sq. Ft.	30,000 Sq. Ft.
Grower	20,000 X 1 Sq. Ft.	20,000 Sq. Ft.
Chicks	20,000 X 0.75 Sq. Ft.	15,000 Sq. Ft.
TOTAL SIZE		65,000 Sq. Ft.

Table 4.1 Size of Land

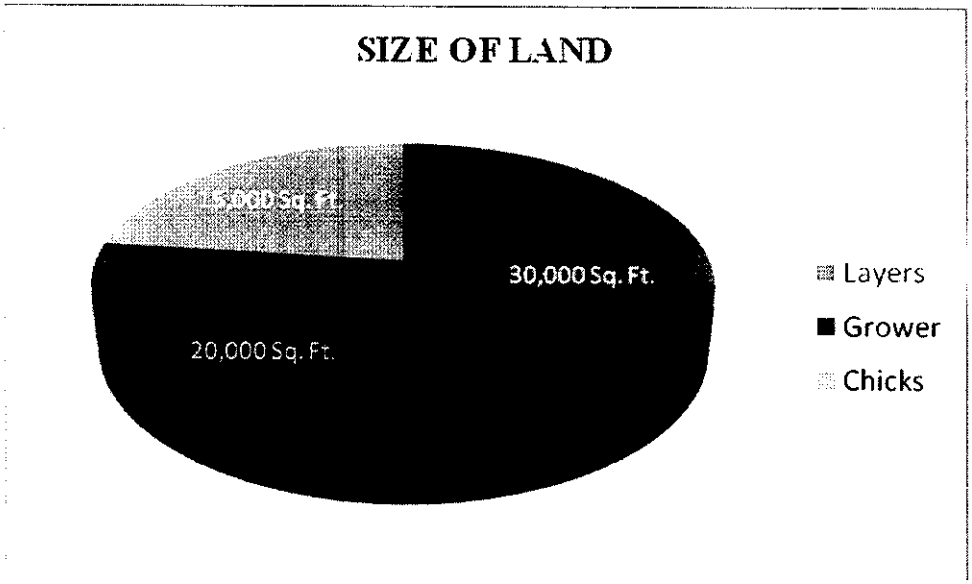

Figure 4.1 Size of Land

4.4.2 Investment Requirement

Here the initial investment required was given only for farm setup and land should be owned by the entrepreneur. Following table shows the major investment requirement difference between the Semi Automated Layer Farming and Fully Automated Layer Farming. The major capital requirements are for Machinery & Equipments, Cost of buying day old chicks, cost of installation of shelter for both chicks and layers both in Semi Automated and Fully Automated Layer Farming.

Particular	Semi-Automatic Farming		Fully-Automated Farming	
		Amount in Rs.		Amount in Rs.
Machinery & Equipments		65,000		1,00,000
Cost of Chick	Rs.20 per chick X 20,000	4,00,000	Rs.20 per chick X 20,000	4,00,000
Cost of Shed (For Chick)	Rs.125 per chick X 20,000	25,00,000	Rs.150 per chick X 20,000	30,00,000
Cost of Shed (For Layers)	Rs.175 per chick X 20,000	35,00,000	Rs.225 per chick X 20,000	45,00,000
	TOTAL	64,65,000	**TOTAL**	80,00,000

Table 4.2 Investment Requirement

4.4.3 Cost of Feeding

One kilogram of feeds will cost Rs.17.50. A chick consumes 0.0125 Kg of feeds per day in semi automated farm and 0.012 Kg of feeds per day in fully automated farm. Also a layer consumes 0.020 Kg of feeds per day in semi automated farm and 0.019 Kg of feeds per day in fully automated farm. There is seasonal variation in the cost of feeding. Both the layers and chicks consume different amount of feeds in summer and winter season. Also the feeding rate may vary between Semi Automated and Fully Automated Layer Farming. Because in Fully Automated Farming, birds live under the centralized Air Conditioned system which consume less feed while comparing with Semi Automated Layer Farming.

TYPE	Semi-Automated Farming			Fully-Automated Farming		
		Amount in Rs. per day	Amount in Rs.		Amount in Rs. per day	Amount in Rs.
Chick	Rs.17.50 X 0.0125Kg X 20,000	4,375	(For 20weeks) 6,12,500	Rs.17.50 X 0.012Kg X 20,000	4,200	(For 20weeks) 6,12,500
Layer	Rs.17.50 X 0.020Kg X 20,000	7,000	(For 52weeks) 25,48,000	Rs.17.50 X 0.019Kg X 20,000	6,650	(For 52weeks) 24,20,600

Table 4.3 Cost of Feeding

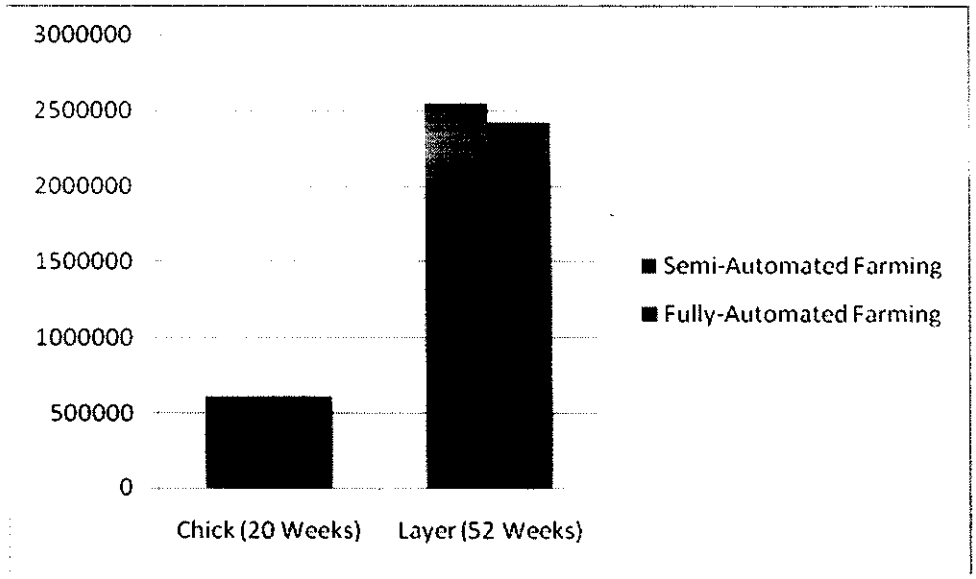

Figure 4.2 Cost of Feeding

As see above, the cost is feeding in Semi Automated Layer Farming is higher while comparing with the Fully Automated Layer Farming. Since there is seasonal change in climate, the consumption of feeds may vary. Also the chicks and layers are grown in constant temperature all around the lifetime in Fully Automated Layer Farming, they will consume only less amount of feeds over the lifetime. But those chicks and layers in Semi Automated Layer Farming grow under various temperature conditions in their lifetime and consume different amount of feed during the seasonal change also high amount while comparing with other type of farm.

4.4.4 Expenses Per Annum

Here the expense that was occurred per annum was shown in the following table. Also the following table shows the major expense difference between the Semi Automated Layer Farming and Fully Automated Layer Farming. The major expense which include Cost of feeding, electric charge, labour salary, Maintenance charge, transportation cost for marketing egg as shown in the following table. Except cost of feeding, all other expenses will cost Rs.0.35 per layer per day in semi automated farming and Rs.0.40 in fully automated farming.

	Semi-Automated Farming	Fully-Automated Farming
	Amount in Rs	Amount in Rs

Cost of Feeding	31,60,500	30,33,100
Electric charge, Labour Expense, Maintenance	20,44,000	29,20,000
Transportation	7,50,000	7,50,000
TOTAL	59,54,500	67,03,100

Table 4.4 Expense per Annum

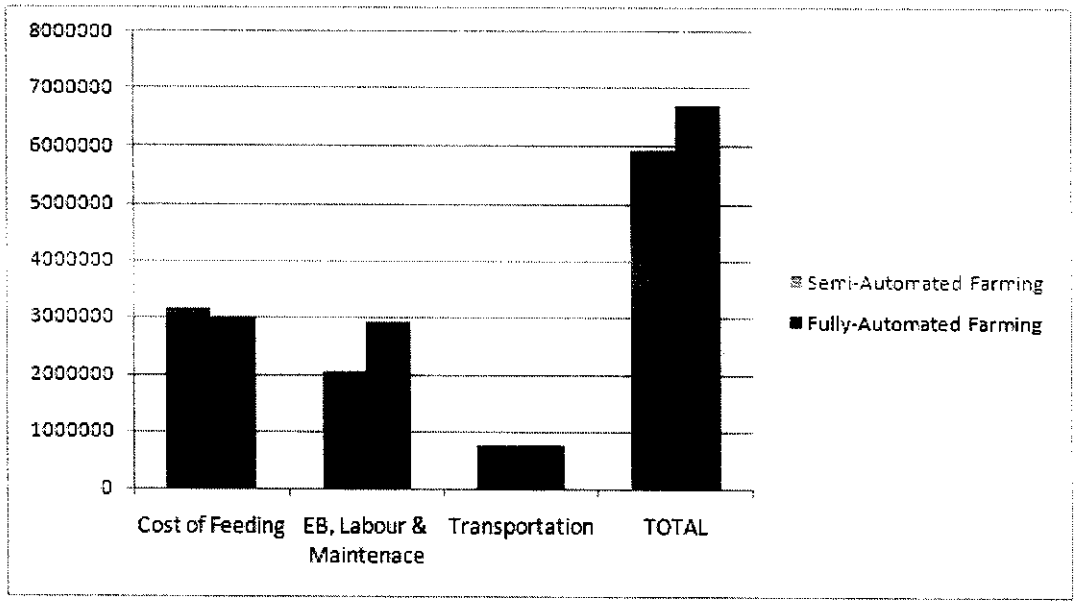

Figure 4.3 Expenses per Annum

4.4.5 Income per Annum

As seen above, expense is higher in the fully automated farming while comparing with the semi automated farming. But here in income, there is only 95% of production rate in semi automated farming and 98% of production is possible in fully automated farming. Therefore income is based on the following number of egg production.

Total Egg Production in Semi-Automated Farming = 20,000 X 365 = 73,00,000

95% of Production = 73,00,000 X 95% = 69,35,000 Eggs

Total Egg Production in Fully-Automated Farming = 20,000 X 365 = 73,00,000

98% of Production = 73,00,000 X 98% = 71,54,000 Eggs.

Income per annum includes the selling cost of egg, selling of old hen (Spent Hen) after 72 weeks of life were the production stops, Manure waste that is obtained from hen. Incomes from Spent hen and manure waste are miscellaneous incomes which are earned at the end of lifetime of a batch of 20,000 layers. Here the income was higher in Fully Automated Farming while comparing with Semi Automated Farming.

Income is calculated with the help of following collected data.

- Rate of an egg as on June 2011 was Rs.2.58 in Namakkal District.
- Transportation of eggs to the customers will cost Rs.0.20 per egg.
- There are miscellaneous income which is based on selling the old hens and manure waste. Spent hen will cost Rs.35 per kilogram and the same hen will carry an average weight of 1.35 kilogram. Manure waste will cost Rs.7 per hen at the end of 72 weeks of growth.

	Semi-Automated Farming	Fully-Automated Farming
	Amount in Rs.	Amount in Rs.
Selling of Egg @ Rs.2.58 per Egg	1,78,92,300	1,84,57,320
Spent Hen	9,45,000	9,45,000
Manure Waste	1,40,000	1,40,000

TOTAL	1,89,77,300	1,95,42,320

Table 4.5 Income per Annum

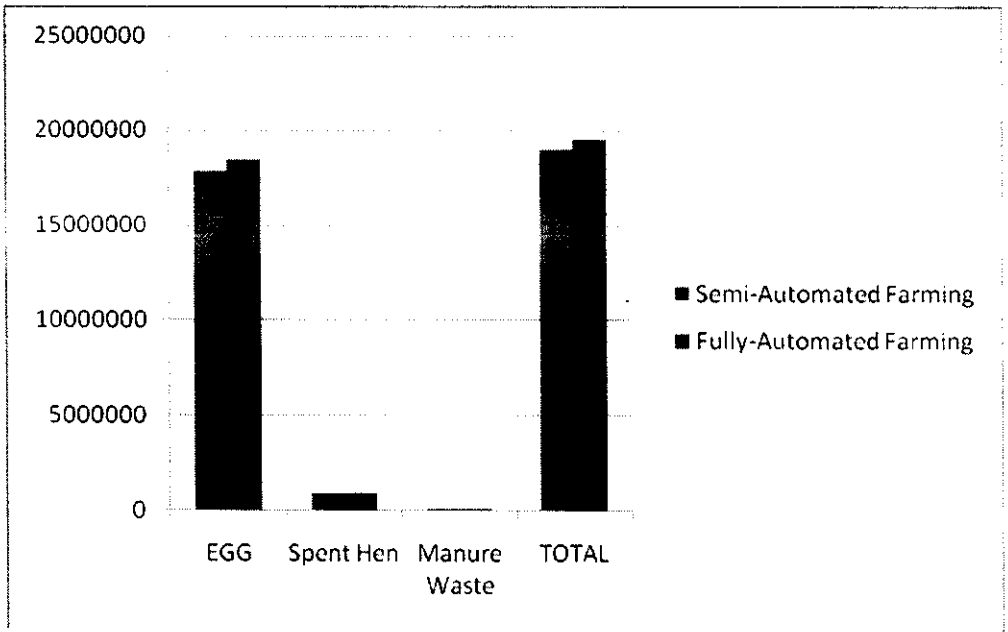

Figure 4.4 Incomes per Annum

4.4.6 Gross Profit

Gross profit per annum was calculated with the help of income per annum and expenses per annum that was calculated as above. Following table shows the gross profit difference between the Semi Automated Layer Farming and Fully Automated Layer Farming.

	Semi-Automated Farming	Fully-Automated Farming
	Amount in Rs.	Amount in Rs.
Income Per Annum	1,89,77,300	1,95,42,320
Expenses Per Annum	59,54,500	67,03,100
GROSS PROFIT	1,30,22,800	1,28,39,220

Table 4.6 Gross Profit

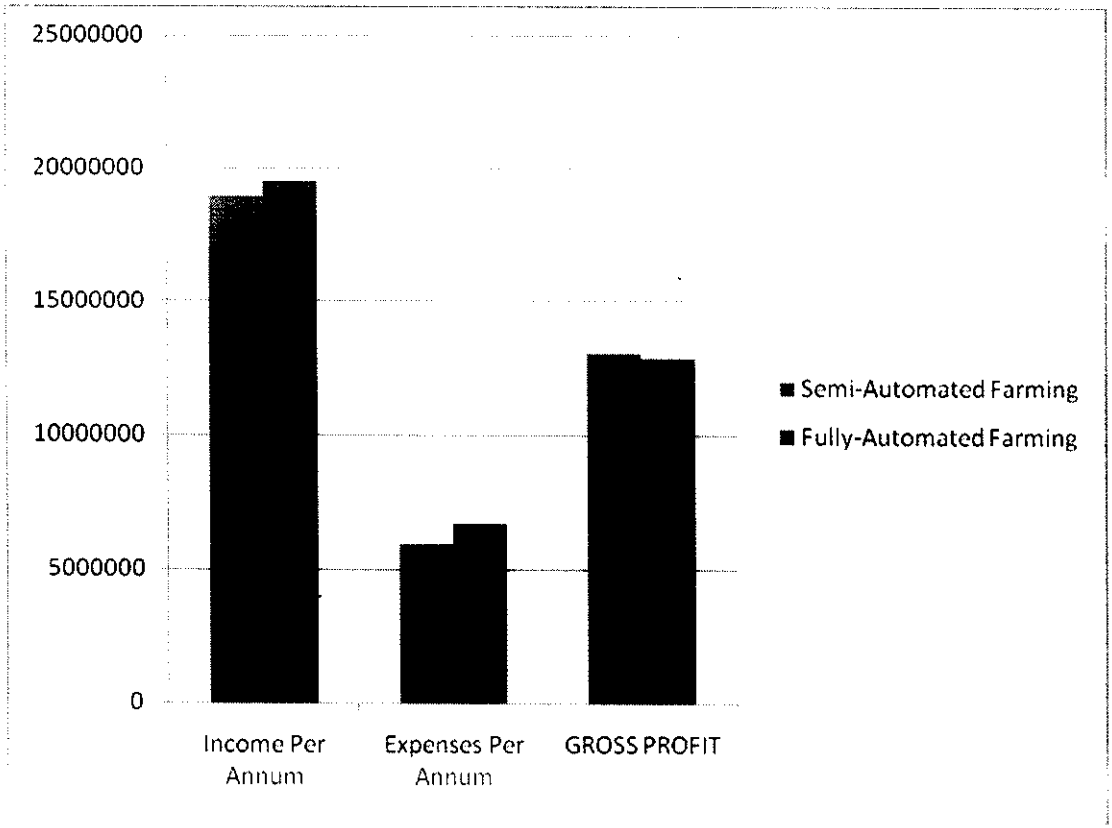

Figure 4.5 Gross Profit

Above table and bar chart shows that both the income and expense are higher in fully automated layer farming while comparing with semi automated layer farming. Since expense also higher, profit earned by fully automated layer farming is less while comparing with semi automated layer farming.

4.5 LIMITATIONS

4.5.1 Semi Automated Layer Farming

- Lack of workers may results in feeding problem and production & maintenance loss.
- There is need to pay more wages and to provide bonus and allowances to the worker to make them satisfied.

- Environmental condition and diseases affect the health condition and production rate.
- Seasonal change in demand for egg will affect the sales rate of egg.

4.5.2 Fully Automated Layer Farming

- A small fault in the computerized system may result in change in temperature over the shed and results in death of layers.
- Profit is very less while comparing with the initial investment.
- Here also the Seasonal change in demand for egg will affect the sales rate of egg.

4.6 DELIVERABLES

All the above data explain briefly about the investment requirement, annual income and expenses details, requirement of feeding and cost of feeding, difference between Semi Automated Layer Farming and Fully Automated Layer Farming.

From all the above data, we can get clear that Semi Automated Layer Farming has more advantage and profit while comparing with Fully Automated Layer Farming. Difference in cost of feeding, capital required for installation of shelters and equipments, cost of buying day old chick are shown clearly with the help of bar charts and the feasibility study to find out the suitable farm was identified for the entrepreneurs.

CHAPTER 5

CONCLUSIONS

5.1 SUGGESTIONS & RECOMMENDATIONS

Since the initial investment for Fully Automated Layer Farming is higher while comparing with Semi Automated Layer Farming, and also the income is less, semi automated farm cannot be updated to fully automated farm. But there can some changes which cannot affect the production cost and also the income.

Semi Automated Layer Farm can be built with conveyor belt to collect the eggs where at present, it was collected manually. Even there is power failure; man power can be used for egg collection. Also filling of feeder tank can be done by providing conveyor belt directed from the grinding mill to the feeder tank.

5.2 CONCLUSION

This study shows that the layer farming business by using Semi Automated Layer Farming is more profitable while comparing with Fully Automated Layer Farming assuming average prices of feed and price of egg within reasonable levels, while all other costs are fixed. If the cost of feed is high, the cost of egg could be above the average, compensating for the high cost of operation. In this study, the initial cost of investment can be taken back within few year of earning and even when there is rise in chick cost and feed cost, the poultry farm would still break even with the help of higher sales price of egg.

A poultry farm investment focusing on egg production is a relatively profitable business to run. The fluctuating price tends to compensate for each other for positive net profit. However, if a worst case scenario of low price of egg and high prices of feed and chicks occurs, good management practices would be critical to maintain profitability.

APPENDIX

Questionnaire:

1) What are the basic requirements that are need to start the layer farm?
2) What is the minimum number of egg laying hens required for making profitable business?
3) What is the size land that is required to setup for minimum number of layers?
4) What are the different methods used to setup the farm which are followed in the market?
5) What are the major different between Semi-Automatic farming and Fully Automated farming?
6) How much investment is required to install the basic farm setup and buying chicks?
7) Where the chicks are obtained for egg laying farm?
8) What are the three stages of growth of the layers?
9) What are the requirement for the growth of chicks and layers?
10) What are the feeding costs per day?
11) What are the daily expenses for the growth of chicks and layers and also the labor expenses?
12) How the egg was marketed?
13) What is the rate of egg?
14) What is the transporting cost of egg?

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