STUDY AREA
3. STUDY AREA AND LAYER FARMING ACTIVITY

3.1. Study Area

The study area of the present study is Namakkal. As far as the geographical location is concerned, Namakkal is located in Tamil Nadu at 11° and 12° of the North latitude and 77° and forty minutes and 78° and five minutes of the East longitude. The altitude of Namakkal is 300 meters above the mean sea level. In Tamil Nadu, Namakkal comes under the North- western Agro climatic zone.

Namakkal area experiences the average rainfall of 900 millimeter (Ananth, 2013). Out of this, 80 per cent of the rainfall is received from South-West monsoon and North-East monsoon respectively.

Namakkal district witnesses a semi-arid tropical climate wherein four seasons are prevailing such as

a. South-West monsoon (June to September)

b. North-East monsoon (October to December)

c. Winter season (January to February)

d. Summer season ( April to May)

3.2. Temperature level

Regarding the temperature level of Namakkal district, the maximum temperatures during summer is 38°Celsius and minimum temperature is 22 °Celsius (Kalaiselvan and Purushothaman, 2016). The lowest temperature is recorded during January to February and the maximum temperature is recorded during the month of
April and May (Table 3.1 and Fig. 3.1). The average low humidity was recorded during the months of June and July.

Table 3.1 Weather summary from January 2013 to December 2013
(Figures in Average)

<table>
<thead>
<tr>
<th>Month</th>
<th>Temperature (in Celsius)</th>
<th>Humidity (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>26</td>
<td>68</td>
</tr>
<tr>
<td>February</td>
<td>27</td>
<td>67</td>
</tr>
<tr>
<td>March</td>
<td>30</td>
<td>65</td>
</tr>
<tr>
<td>April</td>
<td>33</td>
<td>56</td>
</tr>
<tr>
<td>May</td>
<td>33</td>
<td>55</td>
</tr>
<tr>
<td>June</td>
<td>32</td>
<td>51</td>
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<tr>
<td>July</td>
<td>31</td>
<td>50</td>
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<tr>
<td>August</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>September</td>
<td>29</td>
<td>68</td>
</tr>
<tr>
<td>October</td>
<td>29</td>
<td>69</td>
</tr>
<tr>
<td>November</td>
<td>27</td>
<td>78</td>
</tr>
<tr>
<td>December</td>
<td>25</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: www.timeanddate.com

Fig. 3.1. Monthly temperature recorded in Namakkal during the study period.
3. Study area

3.3. Favourable Climatic Condition

Hot and cold weather is reported in Namakkal district. Namakkal district experience a dry weather climate from January to April and it was recorded that the average humidity is 40 per cent. The poultry business gain momentum in Namakkal district under this weather conditions (District Census Handbook Namakkal, 2011). Namakkal district is known for poultry industry especially layer industry. About 80 per cent of the layer farms in Tamil Nadu are concentrated in Namakkal district. Since Namakkal region is a dry semi-arid place, the poultry business is carried out successfully in this district (Sushila Ravindranath, 2013). This district plays a crucial role in egg production and exports a substantial amount of eggs to other countries. This is because of the fact that there is ambient climatic situation prevails in Namakkal zone. The climatic factors such as temperature, relative humidity, air composition, air speed and air movement and light influence the health of birds (Poultryhub, 2017).

The extreme hot and extreme cold temperatures affect the production of eggs. Birds in layer farms lay eggs well when there is ambient temperature prevail. The egg production is influenced below and above this ambient temperature. This ambient temperature in this zone facilitates more egg production. Poultry birds are vulnerable to changes in the climatic conditions and birds can only tolerate narrow temperature ranges (Ravichandran and Khan Mohamed, 2015).
3.4. Place of Testing

This study was carried out in the Department of Poultry Science, Veterinary College and Research Centre, Namakkal. This College is equipped with necessary research facilities with laboratories. The required sample eggs were collected from the KMS poultry farm and these eggs were laid by the same variety of birds. During the collection of sample eggs all the sample eggs were carefully examined and ensured that they all free from cracks and damages.

3.5. Functioning of Layer Farms

The functions of layer farms consist of three stages such as caring of chicks, growers and layers. Hens become eligible to lay eggs from their 16th week onwards and able to lay eggs up to 82 weeks.

**Stage-I: Caring Chicks:** The chicks are brought to the layer farm on the same day they were born. Therefore, they are called as “day-old chicks”. They are being brought up in a specialized shed called “chick house”. The chick house is fully covered with green colour net on all sides of the house in order to maintain an optimum temperature in the house. This cover protects the chicks from entry of waste and dust materials from the outside. A normal size of cage can accommodate 28 chicks. The accommodation of number of chicks in a chick-house is depending upon the farm size and capacity.

These chicks are brought up to eight weeks right from their arrival into the farms. Sufficient care is paid on the physical growth of chicks. On 10th day chicks’ nose are cut by the workers in order to train the chicks to take sufficient and right
quantities of feed and water. More attention is paid on chicks’ health condition and regular monitoring of health status of chicks is done. The layer owners keep a vigil on climatic and weather changes in and around the chick-house and taking necessary clinical assistance from nearby veterinary research centers and doctors accordingly. Thus, the chicks are reared up to eight weeks and thereafter they are transferred to grower place.

**Stage II: Grower:** On successful completion of the first stage, the chicks are transferred to “grower”. A normal size cage accommodates eight hens. Like that of first stage, many protective measures should be adopted in the grower. As soon as the chicks are accommodated into the grower, their health status is periodically monitored. The environmental set up in the grower is different from the first stage. Now birds are exposed to sunlight directly and other external contacts. Necessary medicines are injected into the birds’ body in order to avoid and prevent diseases. These birds are maintained in grower up to 15 weeks.

**Stage III: Layer:** The matured hens are transferred to layer during their 17th week. A total of three or four hens can be accommodated in normal cage. Now the hens are ready to lay eggs in layer shed. The layer shed is designed in accordance with the fulfillment of all needs of the hens such as taking food, water and drainage system. Usually hens started to lay eggs at their 19th week, however, these eggs are seemed to be misshaped and very tender in all aspects. All hens become to lay eggs uniformly at 20th week. From this week, the collected eggs are sold commercially. The hens are able to lay eggs up to 72 week and some hens lay eggs up to 82 weeks.
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**Feeding:** Feed intake is very important factor which chiefly influence the egg productivity. An average of 110gm feed is given to every bird per day. This is divided into three parts and hens are provided feed in the morning, afternoon and evening. Some poultry farms divide 110 gm of feed into equal quantities such as 55gm each and birds are given feed in the morning and evening respectively. There is a long vessel-like tube is attached in front of hens so that they are able to take their foods easily.

The feed intake by hens slightly differs from season to season. During summer season hens take their feed which is relatively low as compared to winter season. The hens take more amount of feed and less amount of water during winter. Hens are tired during the summer season; therefore the egg productivity would be low. In order to keep good health among the birds in all seasons, necessary medicines are mixed with poultry feed and then this mixture is given to hens as per doctor’s advice.

In the case of supplying of water, water is supplied round the day to birds. A special open tube is connected and water is kept 24 hours. Hens take their water from this open tube whenever they feel to take water. A proper drainage system is also provided and all the waste materials are collected and removed safely.

Sometimes medicines are mixed with drinking water. Usually medicines are given along with feed. In order to avoid seasonal diseases and infections, the prescribed medicines are given through drinking water.

**Health care activities:** Hens during grower may expose to “wing rot” disease especially from 12th week to 13th week. In order to maintain the lighting and warm
effect, all the electric bulbs are switched on between 6 pm to 9 pm and 3 am to 6 am every day (Venkateshwara Hatcheries, 2017).

- The health status of the hens is chiefly influenced by feed intake. Frequent supply of feed to the hens improves the health status of hens and feed can be provided three times per day.
- No any restriction on quality of feed during the stage of laying.
- Frequent testing of feed is done for ensuring the feed is free from dust, insects and other unwanted substances.
- All the electric appliances including bulbs are cleaned and monitored every week. The artificial light is not reduced beyond a certain limit.
- De-warming is performed once in a month and not during the peak stage of egg productivity.
- Measures are taken to control insects and rats and cleaning of farm is periodically monitored.
- Of the total cost, cost of feed occupies 90 per cent. Therefore care is taken on quality of feed and wastage of feed should be reduced.
- All the hens are brought under vaccination. Special attentions are given in this regard.
- During vaccination, over doses and under doses are avoided, otherwise serious negative effects would be faced by the farmers.
- Mixing medicines with water is also done and at the same water should be free from mixing of any other substances.
Spraying disinfectant: Infection is a matter of great concern in every layer farms. Infectious diseases and their impact chiefly influence hens’ egg productivity. The incoming and outgoing vehicles in the farms are properly sprayed with disinfectant. Besides, workers and visitors with illness are avoided.