CHAPTER – I

1.1 INTRODUCTION AND METHODOLOGY OF RESEARCH

World is beautiful only with flowers. Flowers play a pivotal role in every celebration, irrespective of the sex, race, religion, community and country. In India the attachment towards the flowers is very significant as it is a near - necessary consumption to the people. The age-old culture, paintings, art and craft, ideas, emotions, religion, philosophy and social customs exhibit their memory haunting association with flowers. In short, flowers have played an important role in the course of human civilization and social development and are inseparable from the social fabric of human life.

Flowers being adorable creation of God, befits all occasions, be it at birth, marriage or death. In the past, flowers were not of much economic importance. One would grow flowers to fulfill his or her aesthetic desire. At times, flowers were offered for sale to meet the special requirements of people. With the passage of time drastic changes have come about in the life style of people leading to commercialized cultivation of flowers. Today, flower plants are no longer meant for only window garden but play an important role in the decoration of the living houses and office establishments. The science and art of commercial floriculture has been recognized as an economic activity with the potential for generating employment and earning valuable foreign exchange(Sudhagar,2013). In several countries of the world, floricultural products are amongst the main export items of agricultural origin.
The aesthetic value of flowers and ornamental plants, their use in social events, overall satisfaction in working with them and high income generating power are attracting modern entrepreneurs to invest money in the floriculture industry. The demand for flowers and ornamental plants for different needs like religious, official ceremonies, parties, house decoration, weddings, funerals, etc, is on the rise. This demand for fresh flowers and plants is increasing world-wide over the coming years. The recent liberalization policy of the Government of India has given fillip to commercialized agriculture particularly horticultural crops. Growing of flowers is in vogue in India since long time. Nevertheless, growing of cut-flowers has emerged as an important industry mainly to cater to the needs of the demand in the overseas market. It is being viewed as a high growth industry in our economy. The Government of India has also identified floriculture as a niche area with vast potential for export. There are many incentives given by the Government for setting up of floricultural units as Export oriented units (EOUs).

1.2 Global Floral Industry:

The floral industry is one of the higher industries in many developing and underdeveloped countries. Floriculture as an industry began in the late 19th century in the United Kingdom, where flowers were grown on a large scale on the vast estates. The present day floral industry is a dynamic, global, fast-growing industry, which has achieved significant growth rates during the past few decades. In the 1950s, the global flower trade was less than US$3 billion. By 1994, it had grown to US$100 billion. In recent years, the floral industry has grown six percent annually, while the global trade volume in 2003 was US$101.84 billion.
The floral industry essentially consists of three major components: the growers, the wholesalers and the retailers whose businesses are quite intermingled. The recent trends are more towards eliminating the intermediaries, the wholesalers between the growers and the retailers, so that the flowers are made available at considerably low prices.

Traditionally, the center of flower production has been near their largest consumers: the developed world, where Japan, Western Europe and North America were both major producers and consumers. The major consumer markets being Germany (22 percent), the United States (15 percent), France (10 percent), the United Kingdom (10 percent), the Netherlands (9 percent), Japan (6 percent), Italy (5 percent), and Switzerland (5 percent).

The Netherlands remains the center of production for the European floral market, as well as a major international supplier to other continents. The flower auction at Aalsmeer is the largest flower market in the world. Since the mid-1970s, the production and distribution of cut flowers in Netherlands has burgeoned. In 1995, Dutch growers produced over 8 billion blooms and the flower auctions collectively traded more than 5.4 billion guilders (about $3.2 billion) in cut flowers and potted plants, contributing over 4 billion guilders annually to the Dutch balance of trade.

Experts believe that the production focus has moved from traditional growers to countries where the climates are better and production and labor costs are lower. This has resulted in a paradigm shift in the floral industry. The Netherlands, for instance, has already shifted attention from flower production to flower trading, though it plays an important role still in the development of floricultural genetics. The
new centers of production are typically developing countries like Colombia (second largest exporter in the world and with a market of more than 40 years old), Ecuador, Ethiopia, Kenya, and India. Other players in this global industry are Israel, South Africa, Australia, Thailand and Malaysia. New Zealand, due to its position in the Southern Hemisphere, is a common source for seasonal flowers that are typically unavailable in Europe and North America.

In Africa, Kenya is the largest exporter, supplying a large percentage of Europe's flowers, the industry there is represented by the Kenya Flower Council. In South America, Colombia is the leading flower producer and exporter accounting for 59% of all flowers imported to The United States in 2006. The United States imports 82% of its flowers. Growers in the United States state that 3 out of 4 flowers in the United States are grown outside the US with Colombia being the biggest exporter. The United States signed a free trade agreement with Colombia and that has lowered the cost of Colombian flowers in the United States. Ecuador has become, in recent years, the leading South American rose producer and is well known throughout the world for its high quality, large headed roses due to the high altitude location of its rose farms.

1.3: The flora of India:

The flora of India is one of the richest in the world due to the wide range of climate, topology and habitat in the country. There are estimated to be over 16,000 species of flowering plants in India, which constitute some 6-7 percent of the total plant species in the world. India is home to more than 45,000 species of plants, including a variety of endemics. The use of plants as a source of medicines has been an integral part of life in India from the earliest times. There are more than 3000
Indian plant species officially documented as possessing great medicinal potential. India is divided into eight main floristic regions: Western Himalayas, Eastern Himalayas, Assam, Indus plain, Ganges plain, the Deccan, Malabar and the Andaman Islands.

India has a long tradition of floriculture. References to flowers and gardens are found in ancient Sanskrit classics like the Rig Veda (C 3000-2000 BC), Ramayana (C 1200-1300 BC), Mahabharata (prior to 4th Century BC), Shudraka (100 BC), Ashvagodha (C 100 AD), Kalidasa (C 400 AD) and Sarangdhara (C 1200 AD). The social and economic aspects of flower growing were, however, recognized much later. The offering and exchange of flowers on all social occasions, in places of worship and their use for adornment of hair by women and for home decoration have become an integral part of human living.

Government of India has identified floriculture as a sunrise industry and accorded it 100% export oriented status. Owing to steady increase in demand of flower floriculture has become one of the important Commercial trades in Agriculture. Hence commercial floriculture has emerged as hi-tech activity-taking place under controlled climatic conditions inside greenhouse. Floriculture in India, is being viewed as a high growth Industry. Commercial floriculture is becoming important from the export angle. The liberalization of industrial and trade policies paved the way for development of export-oriented production of cut flowers. The new seed policy had already made it feasible to import planting material of international varieties. It has been found that commercial floriculture has higher potential per unit area than most of the field crops and is therefore a lucrative business. Indian floriculture industry has
been shifting from traditional flowers to cut flowers for export purposes. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export oriented floriculture units under controlled climatic conditions.

Agricultural and Processed Food Products Export Development Authority (APEDA), is responsible for export promotion and development of floriculture in India. The Indian floriculture industry now has blossomed into a $230 million business now. While exports remain the prime motivator for cultivators, local demand is also growing by leaps and bounds, especially in cities. Modernisation and growing western cultural influences has resulted in consumers – especially the young – buying flowers on occasions like Valentine’s Day, Friendship day, Mother’s day, Father’s day and so on. There is a huge spurt in demand for flowers during religious festivities. Flower retailing is also undergoing a change.

The dry flower industry and floral oil industry are known for their widening overseas market. The export potentials of India has been ever-growing phenomenon. Floral oil and the extracts from flowers could be used for treating rheumatism, ear ache, and diseases of blood, asthma, burning sensation, nervous disorders and boils arising out of summer heats.

1.4: Varieties of Flower Products in India:

Floriculture products mainly consist of cut flowers, pot plants, cut foliage, seeds bulbs, tubers, rooted cuttings and dried flowers or leaves. The important floricultural crops in the international cut flower trade are rose, carnation, chrysanthemum, gargeta, gladiolus, gypsophila, liastris, nerine, orchids, archilea, anthuriu, tulip, and lilies. Floriculture crops like gerberas, carnation, etc. are grown in
green houses. The open field crops are chrysanthemum, roses, gaillardia, lily, marygold, aster, tuberose etc.

Table 1.1

<table>
<thead>
<tr>
<th>State</th>
<th>Common name</th>
<th>Scientific name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>Neeli Kaluva</td>
<td>Nymphaeaceae Bluewaterlily</td>
</tr>
<tr>
<td>Arunachal Pradesh</td>
<td>Lady's slipper</td>
<td>Cypripedioideae Pinkslipper</td>
</tr>
<tr>
<td>Assam</td>
<td>Foxtail Orchids</td>
<td>Rhynchostylis gigantea</td>
</tr>
<tr>
<td>Bihar</td>
<td>Genda Calendula</td>
<td>officinalis Calendula</td>
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<tr>
<td>Gujarat</td>
<td>Tagetes erecta</td>
<td>Tagetes</td>
</tr>
<tr>
<td>Haryana</td>
<td>Lotus</td>
<td>Nelumbo nucifera</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>Common rhododendron</td>
<td>Rhododendron ponticum</td>
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<tr>
<td>Jammu and Kashmir</td>
<td>Common rhododendron</td>
<td>Rhododendron ponticum</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>Palash Butea</td>
<td>monosperma</td>
</tr>
<tr>
<td>Karnataka</td>
<td>Lotus</td>
<td>Nelumbo nucifera</td>
</tr>
<tr>
<td>Kerala</td>
<td>Golden shower tree</td>
<td>Cassia fistula Cassia</td>
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<tr>
<td>Madhya Pradesh</td>
<td>Lilium candidum</td>
<td>Lilium candidum</td>
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<td>Maharashtra</td>
<td>Jarul</td>
<td>Lagerstroemia speciosa</td>
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<td>Manipur</td>
<td>Siroi lily</td>
<td>Lilium mackliniae</td>
</tr>
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<td>Meghalaya</td>
<td>Lady's slipper</td>
<td>Cypripedioideae</td>
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<tr>
<td>Mizoram</td>
<td>Red Vanda</td>
<td>Renanthera imschootiana</td>
</tr>
<tr>
<td>Nagaland</td>
<td>Rhododendron</td>
<td>Rhododendron arboream</td>
</tr>
<tr>
<td>Odisha</td>
<td>Ashoka</td>
<td>Saraca asoca Sita</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Rohira</td>
<td>Tecomella undulata</td>
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<tr>
<td>Sikkim</td>
<td>Noble orchid</td>
<td>Cymbidium</td>
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<tr>
<td>Tamil Nadu</td>
<td>Glory lily</td>
<td>Gloriosa superba</td>
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<tr>
<td>Telangana</td>
<td>Ranawara</td>
<td>Senna auriculata</td>
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<tr>
<td>Tripura</td>
<td>Nag Kesar</td>
<td>Mesua ferrea</td>
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<td>Uttar Pradesh</td>
<td>Palash</td>
<td>Butea monosperma</td>
</tr>
<tr>
<td>Uttarakhand</td>
<td>Brahma Kamal</td>
<td>Saussurea obvallata</td>
</tr>
<tr>
<td>West Bengal</td>
<td>Night-flowering Jasmine</td>
<td>Nyctanthes arbor-tristis</td>
</tr>
</tbody>
</table>

Source: Compiled from the State Government websites
1.4 Major Cut Flower Crops in India:
Rose is the principal cut flower grown all over the country. For cut flower use, the old rose varieties like Queen Elizabeth, Super Star, Montezuma, Papa Meilland, Christian Dior, Eiffel Tower, Kiss of Fire, Golden Giant, Garde Henkel, First Prize etc. are still popular. In recent times, with production for export gaining ground in the country, the latest varieties like First Red, Grand Gala, Konfitti, Ravel, Tineke, Sacha, Prophyta, Pareo, Noblesse, Virsilia, Vivaldi etc. are also being grown commercially. Gladiolus is the next most important cut flower crop in the country. Similarly, Tuberose, another very popular cut flower crop grown in India mainly in the eastern part of the country. The other main cut flower item is orchid.

1.5 Major Loose Flower Crops in India:
Among the traditional crops grown for loose flowers, the largest area is under marigold, grown all over the country. Next to it, Jasmine flowers in view of its scent are also very popular as loose flowers and for use in garlands. The varieties are mainly improved clones of Jasminum grandiflorum, Jasminum auriculatum and Jasminum sambac. The chrysanthemum, particularly the white varieties are much in demand as loose flowers during the autumn period of October-December when other flowers like jasmine, tuberose are not available for use in garlands etc. Among other traditional flowers grown in large areas are crossandra in southern states of Tamil Nadu, Karnataka and Andhra Pradesh and aster in Maharashtra.

1.6 INDIAN FLORICULTURE PRODUCTION:
The trend of Indian horticulture area under production shows that in the past thirteen years the area under floriculture has increased from 106 Thousand Hectares to
255 Hectares whereas the area under floriculture has increased from 16592 Thousand Hectares to 24198 Thousand Hectares. Similarly the trend of Indian horticulture production further reveals that in the past thirteen years the production of flowers has increased from 535 thousand MT to 2297 thousand MT whereas the total production under horticulture has increased from 145,785 thousand MT to 277352 thousand MT. Following inferences are also made while analyzing the table length and breadth.

1. While the whole Indian horticulture area increased by 46% in the given 13 years, the floriculture area alone got increased by 141%, showing growing preference for floriculture over other forms of horticulture in India.

2. While the whole Indian horticulture production increased only by 90% in the given 13 years, the Indian loose flower production alone got increased massively by 329%, showing a nearly a fourfold increased production of flowers than that of the total horticulture.

3. Only 1.05% land under horticulture is used for floriculture in the year 2013-14. It varies from 0.43% to 1.09% only all through the years. Subsequently, the share of production of flowers in the total horticulture production also stood only as 0.37% to 0.83% over the past thirteen years.

4. Based on the data for the 13 years tabulated, the Compounded Annual Growth Rates have also been calculated. It shows that in the period between the year 2001-02 and 2013-14 a CAGR of 7.59% was attained in the area growing flowers whereas only 4.21 % CAGR was attained by the whole of Horticulture Area.

5. Similarly, in the same period a CAGR of 12.91% was attained in the floriculture production whereas only 6.96 % CAGR was attained by the whole of Horticulture Production. The CAGR of Share of Area among the Indian Horticulture Area stood as 4.21% and the CAGR of share of production to the Indian horticulture stood as 6.96%.
<table>
<thead>
<tr>
<th>Year</th>
<th>Flowers* Area</th>
<th>Flowers* Production (Loose)</th>
<th>Grand total of horticulture* Area</th>
<th>Grand total of horticulture* Production</th>
<th>Area share**</th>
<th>Production share**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>106</td>
<td>535</td>
<td>16592</td>
<td>145785</td>
<td>0.64%</td>
<td>0.37%</td>
</tr>
<tr>
<td>2002-03</td>
<td>70</td>
<td>735</td>
<td>16270</td>
<td>144380</td>
<td>0.43%</td>
<td>0.51%</td>
</tr>
<tr>
<td>2003-04</td>
<td>101</td>
<td>580</td>
<td>19208</td>
<td>153302</td>
<td>0.53%</td>
<td>0.38%</td>
</tr>
<tr>
<td>2004-05</td>
<td>118</td>
<td>659</td>
<td>18445</td>
<td>166939</td>
<td>0.64%</td>
<td>0.39%</td>
</tr>
<tr>
<td>2005-06</td>
<td>129</td>
<td>654</td>
<td>18707</td>
<td>182816</td>
<td>0.69%</td>
<td>0.36%</td>
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<tr>
<td>2006-07</td>
<td>144</td>
<td>880</td>
<td>19389</td>
<td>191813</td>
<td>0.74%</td>
<td>0.46%</td>
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<tr>
<td>2007-08</td>
<td>166</td>
<td>868</td>
<td>20207</td>
<td>211235</td>
<td>0.82%</td>
<td>0.41%</td>
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<tr>
<td>2008-09</td>
<td>167</td>
<td>987</td>
<td>20662</td>
<td>214716</td>
<td>0.81%</td>
<td>0.46%</td>
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<tr>
<td>2009-10</td>
<td>183</td>
<td>1021</td>
<td>20876</td>
<td>223089</td>
<td>0.88%</td>
<td>0.46%</td>
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<tr>
<td>2010-11</td>
<td>191</td>
<td>1031</td>
<td>21825</td>
<td>240531</td>
<td>0.88%</td>
<td>0.43%</td>
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<tr>
<td>2011-12</td>
<td>254</td>
<td>1652</td>
<td>23242</td>
<td>257277</td>
<td>1.09%</td>
<td>0.64%</td>
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<tr>
<td>2012-13</td>
<td>233</td>
<td>1729</td>
<td>23694</td>
<td>268847</td>
<td>0.98%</td>
<td>0.64%</td>
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<tr>
<td>2013-14</td>
<td>255</td>
<td>2297</td>
<td>24198</td>
<td>277352</td>
<td>1.05%</td>
<td>0.83%</td>
</tr>
<tr>
<td>CAGR %**</td>
<td>7.59</td>
<td>12.91</td>
<td>3.19</td>
<td>5.51</td>
<td>4.21</td>
<td>6.96</td>
</tr>
</tbody>
</table>

Source: * Extracted from Indian Horticulture Database-2014, National Horticulture Board, Ministry of Agriculture, Gurgaon, 2015 ** Researchers’ calculations

Table 1.2
Indian Floriculture Vs Horticulture in the Last Decade
(Area in ‘000 ha ; Production in ‘000 Metric Tonnes)
Figure No.-1.1

Area Share of Floriculture

Figure No.-1.2

Production Share of Floriculture
1.7 Floriculture in Indian States with special reference to Tamil Nadu:

1.7.1 State-wise Analysis on floriculture Area in 2014-15:

Of the total area of 2,48,506 Hectares under floriculture in India, Tamil Nadu State holds the first place with 55,300 Hectares. It is followed by the State of Karnataka with 30,900 Hectares and by the West Bengal with 25,320 Hectares.
Interestingly the state of Tamil Nadu which ranks in the first place, holds nearly equal amount of areas under floriculture by the second and third place holding states.

1.7.2 State-wise Analysis on Loose flower Production in 2014-15:

The 2014-15 estimates reveal that 1658.7 MT of loose flowers were produced in the country. As witnessed in the area of production, in the production of loose flowers also, the state of Tamil Nadu holds the first place with 343.65 metric tonnes. It is followed by Karnataka which produces 220 MT, Madhya Pradesh with 208 MT, Mizoram with 181.5 MT and Gujarat with 177.632 MT.

1.7.3 State-wise Analysis on Cut flower Production in 2014-15:

The 2014-15 estimates reveal that 484.17 MT of cut flowers were produced in the country. Contrast to the area and loose flower production analysed above, West Bengal stands first in producing cut flowers with 148.17 MT. It is followed by Karnataka which produces only 70.7 MT which is not even half of the production of cut floors by West Bengal. In the third and fourth places, found the two northern states Odisha and Jharkhand, producing cut flowers of 57.16 MT and 52.81 Mt respectively in the year 2014-15. Tamil Nadu with the meagre cut flower production of 12.87 MT, holds 9th place among the 35 states and Union Territories of India.

1.7.4 State-wise Analysis on Loose and Cut flower Production in 2014-15:

Considering the production of both loose and cut flowers as a whole, 2142.89 MT was produced in the year 2014-15 alone. The state of Tamil Nadu with a production of 290.78 MT ranks first in the floriculture in India. Another southern state, Karnataka occupies the second place with the production of 216.18 MT. It is
followed by the states West Bengal, Madhya Pradesh, Mizoram, Gujarat and Andhra Pradesh producing 208 MT, 183.37 MT, 177.63 MT, 134.44 respectively.

1.7.5 State-wise Percentage Analysis on floriculture area in 2014-15:

A Percentage wise analysis is also made for all the individual states’ floriculture area and production of the floriculture with those of the total horticulture for the year 2014-15 based on the final estimates of the NHB. It states that Tamil Nadu stands in the first place with the share of the 3.97% of the horticulture plantation area being the floriculture one in the year 2014-15 also. It is followed by the adjacent Tamil speaking Puducherry (1.87%). Other states that are having more share of floriculture area than the national average of 1.06% are Chhattisgarh (1.65%), Karnataka (1.55%), Daman & Diu (1.51%), West Bengal (1.41%), Haryana (1.37%), Madhya Pradesh (1.35%), Andhra Pradesh (1.19%), Gujarat (1.14%) and Telengana (1.10%).

1.7.6 State-wise Percentage Analysis on Loose flower production in 2014-15:

The Percentage wise analysis made for all the individual states’ loose flower production in comparison with the total horticulture production for the year 2014-15 based on the final estimates of the NHB. It states that the national average share of loose flower production to the horticulture production is only 0.59% in 2014-15. Mizoram stands in the first place with the share of the 20.58% horticulture production being the loose flower production which is followed by another North East State Sikkim whose loose flower production is 7.86% of the total horticulture production of the state in the year 2014-15. Other states and UTs having more than the national average ratio of loose flower production to the total horticulture production are
Puducherry (1.87%), Tamil Nadu (1.80%), Himachal Pradesh (1.13%), Karnataka (1.08%), Haryana (1.02%), Madhya Pradesh (0.96%), Gujarat (0.82%), Andhra Pradesh (0.67%) and Chhattisgarh (0.62%).

1.7.7 State-wise Percentage Analysis on Cut flower production in 2014-15:
A similar analysis of the ratio between the cut flower production and the total horticulture production of all the states based on the final estimates of 2014-15 states that nearly 0.17% of the total horticulture production being the production of cut flower. The state Jharkhand stands in the first place in the ratio of the cut flower production and the total horticulture production with the ratio of 1.00%, followed by Sikkim with the ratio of 0.92%. It is also to be noted that Sikkim is also in the second place when the loose flower production to total horticulture production is considered. Other states that follow the national average ratio are Uttarakhand (0.75%), West Bengal (0.49%), Himachal Pradesh (0.48%), Odisha (0.47%), Assam (0.46%), Kerala (0.41%), Karnataka (0.35%), Arunachal Pradesh (0.34%), Meghalaya (0.25%), Mizoram (0.21%) and Andhra Pradesh (0.18%).

1.7.8 State-wise Percentage Analysis on Loose and Cut flower production in 2014-15:
The ratio between the total loose and cut flower production to horticulture production reveals that only 1% of the horticulture production comes from the floriculture in the year 2014-15. The state Mizoram is in the first place with the ratio of 21% which is followed by its North Eastern state Sikkim with 9%. Other states that are having the more floriculture production to horticulture production ratio in the year 2014-15 are Tamilnadu (2%), Puducherry (2%), Himachal Pradesh (2%), Karnataka (1%),
Jharkhand(1%), Haryana(1%), Madhya Pradesh(1%), Uttarakhand (1%), Andhra Pradesh(1%), Gujarat(1%) and Assam(1%).

1.8 Common size statement Analysis on floriculture area in 2014-15:

The ratio between the state floriculture parameters with those of the country is also calculated in the form of a common size statement for the year 2014-15 based on the final estimate figure of NHB. It states that Tamil Nadu is in the first place in the floriculture area, as 22.14% of the total floriculture area is situated in Tamil Nadu only. It is followed by the adjacent state Karnataka which is having 12.43% national floriculture area and the West Bengal having 10.19%. Nearly 45% of the Indian floriculture area is situated only in these three states only.

1.8.1 Common size statement Analysis on loose Flower Production in 2014-15:

The common size statement regarding the loose flower production in 2014-15 reveals that Tamil Nadu remains in the first place in the loose flower production in the country with 20.72%. It is followed by Karnataka (13.26%), Madhya Pradesh (12.54%), Mizoram (10.94%) and Gujarat (10.71%). These five states collectively contribute 68.17% of the country’s loose flower production.

1.8.2 Common size statement Analysis on Cut flower Production in 2014-15:

The common size statement regarding the cut flower production in 2014-15 reveals that West Bengal is in the first place in the cut flower production in the country with 30.57%. It is followed by Karnataka (14.62%), Odisha (11.81%) and Jharkhand (10.91%). These four states are collectively responsible for the country’s 68% of the total cut flower production in the year 2014-15.
1.8.3 Common size statement Analysis on Loose and Cut flower Production in 2014-15:
The common size statement regarding the total loose as well as cut flower production in 2014-15 reveals that Tamil Nadu remains in the first place in the total flower production in the country with 16.64%. It is followed by Karnataka (13.57%), West Bengal (10.09%) and Madhya Pradesh (9.71%). These four states are collectively responsible for the country’s half of the total loose and cut flower production in the year 2014-15.

Thus, as far as the final estimates of the year 2014-15 is concerned, Tamil Nadu, the state under the study, holds
1. the first place in the floriculture area to the horticulture plantation area ratio,
2. the fourth place in the loose flower production to the horticulture production ratio,
3. the third place in the total flower production to the total horticulture production. (The state is not even in the national average ratio mark in the case of cut flower production to horticulture production ratio as 96.26% of its total floriculture production is only in the form of the loose flower production.)
4. the first place in the flower cultivation area (having more than one-fifth of the country’s floriculture area),
5. the first place in the loose flower production, (contributing one-fifth of the country’s loose flower production)
6. the first place in the total flower production (contributing one-sixth of the country’s total flower production) in the year 2014-15 also.

Dindigul, Krishnagiri, Dharmapuri, Salem, Vellore, Madurai, Tiruvannamalai, Tirunelveli and Erode are the major flowers growing districts in the State of Tamil Nadu.
## Table No.1.3
FLOWER PRODUCTION IN INDIA IN 2014-15 - STATE WISE ANALYSIS

<table>
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Figure No.-1.5

SHARE OF KEY STATES IN THE AREA UNDER FLORICUTURE IN INDIA IN 2014-15

TAMILNADU 22%
TAMILNADU 22%
KARNATAKA 12%
KARNATAKA 12%
WEST BENGAL 10%
WEST BENGAL 10%
GUJARAT 8%
GUJARAT 8%
MADHYA PRADESH 7%
MADHYA PRADESH 7%
OTHERS 41%
OTHERS 41%

Figure No.-1.6

SHARE OF KEY STATES IN THE LOOSE FLOWER PRODUCTION IN INDIA IN 2014-15

TAMILNADU 21%
TAMILNADU 21%
KARNATAKA 13%
KARNATAKA 13%
MADHYA PRADESH 12%
MADHYA PRADESH 12%
GUJARAT 11%
GUJARAT 11%
MIZORAM 11%
MIZORAM 11%
OTHERS 32%
OTHERS 32%
**Figure No.-1.7**

**SHARE OF KEY STATES IN THE CUT FLOWER PRODUCTION IN INDIA IN 2014-15**

- WEST BENGAL: 30%
- KARNATAKA: 15%
- ODISHA: 12%
- JHARKHAND: 11%
- OTHERS: 32%

**Figure No.-1.8**

**SHARE OF KEY STATES IN THE TOTAL FLOWER PRODUCTION IN INDIA IN 2014-15**

- TAMILNADU: 17%
- KARNATAKA: 13%
- WEST BENGAL: 10%
- MADHYA PRADESH: 10%
- OTHERS: 50%
1.9 Flower Marketing:

Marketing of flowers in India is much unorganised at present. In most metropolitan cities, with large market potential, flowers are brought to wholesale markets, which mostly operate in open yards. A few large flower merchants generally buy most of the produce and distribute them to local retail outlets after significant mark up. The retail florist shops also usually operate in the open on-road sides, with different flowers arranged in large buckets. In the metros, however, there are some good florist show rooms, where flowers are kept in controlled temperature conditions, with considerable attention to value added service. The Government is now investing in setting up of auction platforms, as well as organized florist shops with better storage facilities to prolong shelf life.

The packaging and transportation of flowers from the production canters to the wholesale markets at present is very unscientific. The flowers, depending on the kind, are packed in old gunny bags, bamboo baskets, simple cartons or just wrapped in old newspapers and transported to markets by road, rail or by air. The mode of transportation depends on the distance to the markets and the volume. Mostly, flowers are harvested in the evening time and transported to nearby cities by overnight trains or buses. In recent years, the government has provided some assistance for buying refrigerated carriage vans. A large number of export oriented units have built up excellent facilities of pre-cooling chambers, cold stores and reefer vans and their produce coming for domestic market sales are thus of very good quality and have longer vase life and command higher price. (http://www.fao.org/docrep/005/ac452e/ac452e04.htm). The Government programmes for floriculture development include
creating common facilities of cool chain in large production areas to be shared on cooperative basis. Formation of growers’ cooperatives/ associations are also being encouraged now.

1.10 Channels of Marketing:
In the global floral trade, some flowers are sent packed flat in boxes. This enables large amounts of flowers to be packed in small spaces like aircraft holds. Other flowers cannot survive for long periods out of water such as orchids, gerberas (gerber daisies) and water lilies. These are either sent with their own sealed water container (called picks) on each stem end - for more expensive or tropical flowers - or are transported in buckets of water (This method of transport in water is often referred to as "Procona"). The latter method extends the life of flowers and reduces labor time as flowers are ready for sale, but obviously also reduces the amount of flowers that can be transported as they are much heavier than dry-packed flowers and hence air transportation charges are higher.

Flowers take a number of routes to the consumer, depending on where they are grown and how they are to be sold. Some growers cut and pack flowers at their nurseries, sending them directly out to the consumer by mail order. Some flowers are sent to packing companies, who grade the flowers and arrange them in bunches for sale to supermarkets or to deliver by mail order. Some flowers are graded and sleeved by the growers and sold at wholesale flower markets; the wholesalers then sell them on to florists who condition and arrange the flowers for the consumer. Some of the widely witnessed channels of Distribution in the Indian flower industry are:
Channel I - Producer – Commission agent - Retailer – Consumer (in Major market)  
Channel II - Producer- Retailer – Consumer  
Channel III - Producer - Consumer (Local market)  

1.11 Statement of the Problem:  
The marketing of flowers is complex, sophisticated and more critical than production. As the timely supply of planting material at the very outset and remunerative sale of the output in the right form, place and time are so crucial that these may affect the entire process of floriculture business (Thakur.D.R, 2015). In general, marketing of flowers is not well developed and well organized. The structure and composition of traders and commission agents in the flower markets differ considerably. So, how the market is structured and functioning in Tiruvarur District is analysed in the present ‘Economic Study of Flower Market in Tiruvarur District’

1.12 Research Gap:  
The domestic market of flowers is consistent as it is the source of livelihood for the millions of Indians who are mainly engaged in the market as small retailers. Among them majority are the women ones and the main consumers are also women. The economic life of the retailers who spread the fragrance to the society has so far been unnoticed and under-documented. While there are many studies on the production side of the flowers, the crucial distribution side is given no importance among the researchers. So to plug this gap, the present study is made analyzing the flower market and marketing.

1.13 Significance of the Study:  
The floriculture industry has contributed sizably to the growth of employment opportunities in rural areas. Hence it would be quite appropriate to find out with a
high degree of accuracy the employment potentials of the floriculture industry. As Tiruvarur is a pilgrimage hub, the floriculture industry has been responsible for the economic and social well-being of people in this region. Therefore an economic study of the flower market in Tiruvarur is found to be quite indispensable.

1.14 Objectives of the Study:
The major objective of the present study is to analyse the composition of the flower market in Tiruvarur District. Following are the specific objectives of the study.

1. To document the performance of floriculture industry in India as well as in Tamil Nadu in the globalized environment.
2. To trace the channels of distribution in the flower marketing in Tiruvarur District.
3. To study the socio-economic conditions of the retailers in the flower market in Tiruvarur District.
4. To bring out the constraints faced by the flower merchants in Tiruvarur District.
5. To suggest policy measures to overcome the problems of flower merchants in Tiruvarur District.

1.15 Hypotheses:
Following are the important hypotheses framed and are tested in the Analysis chapter.

1. There is no significant relationship between the socio-economic variables and the form of marketing.
2. There is no significant relationship between the income level and the form of marketing, education level, experience in the field, etc.
3. There is no significant relationship between the Experience in flower marketing and the form of marketing, nature of products sold.

Almost for all the variables the relationship with the form of marketing is tested.

1.16 Area of the study:

Tiruvarur District is the area taken for the present study. It is one of the 32 districts in the Tamil Nadu state of India. According to 2011 census, Tiruvarur District had a population of 1,264,277 with a sex-ratio of 1,017 females for every 1,000 males, much above the national average of 929. Scheduled Castes and Tribes accounted for 34.32% of the population. Obviously, the participation of the women and the scheduled caste people is more in the unorganized flower market in the district.

1.17 Methodology:

1.17.1 Sources of Data:

Relevant and required data for the present study have been collected from primary and secondary sources. The secondary data were collected from both published and unpublished sources. They were obtained from census books, journals, reports, and official records. Primary data was obtained from the field survey among the select flower merchants.

1.17.2 Sampling Size and Method:

Tiruvarur district is made up of seven Taluks: Kudavasal, Mannargudi, Nannilam, Needamangalam, Thiruthuraipoondi, Tiruvarur, and Valangaiman. Flower merchants were taken from each division as samples. As per the census 2011, Tiruvarur district had a total of 327,219 households and there were a total of
540,168 workers. But there is no accurate data available regarding the number of flower merchants or workers related to the floriculture industry. So, considering the homogenic nature and geographic extent of the study area, the sample size was limited to 300. From each of the six taluks, excluding Thiruvarur Taluk, 40 samples were selected and 60 samples were selected from the Thiruvarur Taluk of Thiruvarur District alone. A simple random sampling method was adopted in the study.

1.17.3 Tools for Data Collection:

Since the majority of the flower retailers were illiterate, it was decided to elicit the requisite information through interview method, for this purpose, a well-planned structured interview schedule in their mother tongue, Tamil, was prepared and used.

1.17.4 Pilot Study:

The interview schedule prepared was administered to a sample of thirty women labourers in Tiruvarur Town. This pre-test helped researcher to revise and finalise the schedule.

1.17.5 Period of study:

The field investigation and data collection for this study were carried out during the one financial year period 2014 - 2015.

1.17.6 Data Analysis:

For analysing the data, frequency distribution, percentage and simple average were used. The data have been presented in tables, figures and charts for analysis and discussion. The analysis was mainly qualitative and descriptive in nature. So, non-parametric tests like Chi-Square are used with the help of statistical add-ons like QI
Macros. Inferences were made on the basis of problems identified from data obtained through interview schedule.

1.18 Limitations:

The secondary data available about the floriculture industry are quite inadequate for research purposes. The study is confined to select flower merchants in Tiruvarur District only. The results may be generalised for the whole of Delta Districts of Tamil Nadu. But the socio-economic conditions cannot be generalized to the entire State. There could have been some recall bias while answering a few questions.

1.19 Concepts

1. Floriculture: Floriculture means flower farming or cultivation of flowers and ornamental plants for floral industry. The Indian floriculture industry comprises the flower trade, nursery plants, potted plants, bulb and seed production, micro propagation material and extraction of essential oils from flowers.

2. Dry Flower: Dry flowers are naturals, dried and preserved using scientific methods.

3. Traditional Flower or Loose Flower: Traditional flowers are those cultivated under open field cultivation. These include jasmine, Tuberose, Crossandra, Marigold, Bachelors Button, Nerium, Rose, Merjoram, Cocks Comb.

4. Modern Flower or Cut flower: Modern Flowers are cut flowers are cultivated under protected Green House, Poly House cultivation that is used with long stem. These include Rose, Gladiolus, Carnation, Lilies, Orchids, Anthurium, Gerbera and the like.
5. Middle Man: Middle Man is the trader who handles flowers between producer and consumer.

6. Value Addition: Value addition means increasing the value of flowers by employing techniques like colouring in white flowers, flower dehydration, flower processing, flower arrangements and the like.

7. Cold Storage and Dry Storage: Flowers can be stored either wet storage or cold storage and dry storage. In cold storage is commonly practiced to hold flowers for a short duration. In cold storage, flowers are stored at 2-4°C in water or in a preservative solution. In dry storage, flowers are stored in partially permeable plastic bags to prevent the loss of moisture and to allow limited gaseous exchange during storage. Dry storage can be helpful to hold the flowers for a longer duration.

8. Mobile Vendors: Mobile Flower Vendors include those vendors carrying loose floors and daily-use-semi-garlands in baskets, hung on their shoulders, bicycle, tricycle, and motorcycles.

9. Semi-Mobile vendors:Semi-Mobile Flower vendors include those selling loose floors and daily-use-semi-garlands in carts, which may be stationary or moved from one site to another.

10. Stationary vendors: Stationary Flower vendors may sell their flowers from permanent structures at certain points in the city or even in front of shops.
1.20 Organisation of the report:

The research report is going to be presented in six chapters as follows.

1. The introductory chapter discusses the floriculture in the world scenario, in India and in Tamil Nadu, need for and significance of the study and the methodology.

2. The second chapter studies the important flowers traded in Tamil Nadu particularly in Thiruvarur District.

3. The third chapter is dedicated for an analytical review of the related studies pertaining to the flower industry.

4. The fourth chapter details about the profile of the study area-Thiruvarur District.

5. The analysis and interpretation of primary data obtained in the flower market is presented in detail in the chapter five.

6. The sixth and final chapter briefs the major findings, suggestions, social implications, scope for further research and conclusion.