CHAPTER-I

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Chapter-I

Introduction and Research Design

Introduction

Agriculture is the mainstay of the Indian economy and is the principle means of livelihood for over 60 per cent of the population. GDP was no more than 17.1 per cent during 2008-09 and dropped further to just around 16 per cent in 2009-10\textsuperscript{1}. Even though, India is primarily an agricultural economy, with almost two-third of its population, make out their existence from farmland. However, challenges before agriculture has been increasing such as environmental and technological changes, hike in input price and fluctuation in output price these are the fundamental problems. Therefore, there is need to apply intensive technique and diversification through horticulture production.

Agriculture production can be classifies in three fold such as production of food-grain crops, commercial/cash crops and horticulture crops. The growing importance of commercial horticulture is important segment in the national income. Horticulture includes vegetables, fruits and flower crop. Production and consumption of flowers is increasing world over including India. The development of flower cultivation brings larger income per unit area to grower than the cultivation of ordinary crops. The flower crops in the domain of horticulture have drowned attention of farmers as well as entrepreneurs. In an organized floriculture, farmers prominently gave place to the cultivation of various flowers.
1.1.0 Floriculture: The fast growing domain

Flower production, consumption and trade have been growing more folds in years. There has been tremendous growth in the demand and consumption of floriculture products in the last two decades. The total area under cultivation of different flowers was 144 thousand hectares in 2007-08\(^2\). Floriculture has finally begun to form an important component of commercial agriculture and with the increasing awareness of its potential, more and more people are getting associated with flora business.

At present study since relates to cultivation of flowers. Floriculture is major source of employment and income. There is vast scope at growing floriculture product in India, because total area under floriculture is very small. Last two decade there is increasing demand and supply of various types of flowers.

The climatic conditions of India are quite suitable for growing various types of flowers in various zones. Especially, Tamil Nadu, Karnataka, Andhra Pradesh, West Bengal, Maharashtra, Gujarat, Delhi those are the major developed states as far as concern to floriculture. India produced 870 thousand MT loose flowers and 43417.46 lakh numbers of cut flowers in year 2007-08, with area of 160 thousand hectare. Maharashtra produced of about 69.45 thousand MT of loose flower and 5728.00 lakh numbers of cut flowers in year 2007-08\(^3\).

The major flowers grown in India are marigold, aster, roses, tuberose, gladiolus, jasmine and crossandra in open field while gerbera, carnation, roses, anthurium, orchids, etc. grown under green house conditions.

Floriculture was included in the EXIM policy of India as one of the thrust area for export. In the eighth five-year plan, the ministry of commerce has identified floriculture as on extreme focus segment. The Central Government and Government of Maharashtra started granting subsidies of green house owners. The developments of national level
reflected in the horticulture sector in Maharashtra. Maharashtra state has well known for production of horticulture crops in the country. Now floriculture is on the agenda of development in horticulture sector of Maharashtra. The Government of Maharashtra took several steps to boost up this sector. The Government has launching of Horticulture Development Programmes. Under this programme, subsidies given to the producers and progressive farmers have taken to see the floriculture developments.

1.1.1 Definition of Floriculture

Floriculture is one of the branch of agriculture that known as horticulture. The term horticulture is derived from two Latin words ‘hortus’ meaning a garden, and ‘cultura’, meaning cultivation of crops within a protected enclose. This called a garden. At present, fruits, vegetables, flowers and ornamentals are growing not only within the home grounds, but also in large quantities on a commercial scale. Floriculture deals with cultivation, marketing and arranging of flowers and foliage plants.

‘The floriculture industry consists in growing annual, biennial and perennial plants either under glass or outdoors, and in the disposal of the same in wholesale or retail market’. In general, business of traditional as well as non-traditional flowers and dry flower industry is called floriculture industry. It includes production, processing and marketing of all types of flowers. There are two types of production i.e. open field cultivation and green house (controlled) cultivation, while processing is concern to dry flower processing units. Marketing includes local markets, regulated internal markets and international markets. Component of marketing channels are producer, hundekari, commission agents, wholesalers, retailers and consumers. Researcher considers the economics of open field cultivation.
1.1.2 Demand/Consumption of Flowers

The use of flowers has a central place in person of the Indian cultural and religious practices. Religious worship does not take place without offering of flowers. Occasion such as marriage even welcoming someone calls for an offer of flowers. In addition, women in some parts of the country adorn themselves with flowers daily. Arrangements of expensive cut flowers are inherent part of decoration in luxury hotels and affluent homes. Flowers are increasingly gives on happy occasions and on sad occasions to cheer those affected. As per utilization, flowers grouped in three categories.

a. Traditional use

Flower is gift of nature to humanity. Naturally, flower attracts every human being. Flower is symbol of passion. Use of flowers is tradition in India. India is a multi-religious country so flowers used in each religious ceremony in temples and time of festivals. The period between Augusts to December is best season for traditional flowers i.e. marigold, rose, tuberose, aster, chrysanthemum etc.

b. Non-traditional use

Recently, urban culture attracted to non-traditional flowers i.e. gerbera, carnation, rose and other new comers. These flowers are normally offering for exchange of joy or sorrow on the form of bouquets or wreaths to express one’s feelings. Particularly, around metro cities such types of green house flower project have been set up.

c. As a raw material

Flowers also used as row material in pharmaceutical and perfumery industries. For preparation of medicine, perfumes, cosmetics, toiletries, gulkand and syrup, so many flowers used as raw material. It is called dry flower industry.
1.1.3 Supply/Production of Flowers

In India, cultivating flowers and gardening had practiced from many centuries. India is the home for a large number of ornamentals. Flowers used for garlands, now a day’s use of flowers in various functions such as birthday and wedding ceremonies, house and shops decoration. Flowers also used as a raw material in industries. Different flowers grown in different climate, India being varied type of climate. Therefore, variety of flowers has been producing.

Flowers and ornamental plants brought to satisfy emotional needs. To some individual’s emotions, often described as feelings, is a condition in another person caused by imagination. The emotional needs of human beings are just as real as their physical needs and each is affected by the other. Flower grower who can sense that read emotional needs of the costumer will do a much better job of supplying the right product.

Floriculture is a wide field and includes a great variety and diversity of business opportunities. In general, ornamental flowers are classifies variedly\(^6\).

- The production of floriculture crops
- The buying and selling of floricultural products and supplies essential for the production of floricultural products
- Processing of floricultural products
- The landscaping of public and private properties, and
- The research, teaching and extension phases of floriculture business

1.1.4 Concept of Flower

As per nature and form of use, flowers can be classifies in following terms.

a. Loose Flowers
In India, the use of flowers of all categories was very common until recently making garlands for worship and bouquets for religious function. Some kinds of flower plants are discarded after the one crop, those flowers picking up as loose flowers i.e., marigold, aster, lilies, chrysanthemum, jai-jue, bijali, gladioli, lilies, lilium, dalia, tuberose etc are called loose flowers, those packing in loose (kg) form. However, the use of these loose flowers is maximizing during festive seasons of Dashera, Diwali and Ganesh. All these flowers cultivated traditionally.

b. Cut Flowers

Some flower plants are continued in growth. The new shoots, which develop below the place where the flower stem was cut, eventually form flowers that are cut and the procedure is repeated until it is determined that would be economic advantage in replacing the plants. Those flowers picking up with some lengths i.e. gerbera, carnation, rose, orchids, tuberose etc. are cut flowers, those packing in bunch or pairs’ form, apart from them gerbera and carnation produced under green house only. The production of cut flowers depend upon region and climate, therefore, it was difficult to make them available throughout the year under open cultivation, the production of cut flowers tried in all seasons, but it failed the quality standards. Progressive farmer and entrepreneurs grows cut flowers under green house. The period between Novembers to May is the best season for export of cut flowers produced under green house.

1.2.0 Statement of the Problem

In the view of Indian farmer, transformation of traditional agriculture to modern agriculture is not only one problem but also proper marketing of agricultural produce is key problem? Somehow, progressive farmer capable to increase productivity but lack of marketing knowledge and its importance, they get losses.
With regard to farm income, much of the research has conducted with respect to green house floriculture recently. The available empirical evidence is limited with respect to field cultivation of flowers. The key problems are who has cultivated the flower crop with more returns? What is its economics in different farm groups? Which flower crops are more affordable? Therefore, a researcher restricts the study and investigates only field cultivation of flowers with comparative perspective.

1.3.0 Objectives of the Study

According to above-mentioned key questions, present study carried out with the following objectives.

1. To study the development of floriculture.
2. To estimate per hectare cost and returns of selected flower crops under field cultivation.
3. To estimate benefit-cost ratio of selected flowers.
4. To examine the input-output relation of selected flowers.
5. To check the relationship between farm size and efficiency of selected flower crops.

1.4.0 Hypotheses of the Study

The following hypotheses tested in the course of study.

1. *Flower cultivation is labour intensive farming and dependency of family labour is high.*
2. *Share of family labour decreases as size of farms increases.*
3. *Crop productivity per unit of land declines with an increase in farm size.*
4. *Larger the size of the farm, higher the returns.*
5. *Benefit cost ratio of flower cultivation is higher.*

1.5.0 Research Design
For this study, five flowers namely aster, marigold rose, chrysanthemum, and tuberose were taking into consideration of maximum coverage of area under such flowers according to 2007/08 data in Pune district (See photographs 1 to 5).

Photograph 1- Aster as a cut flower

Photograph 2- Marigold as a loose flower
Photograph 3- Rose as a cut flower

Photograph 4- Chrysanthemum as a loose flower
As per this criterion, Khed, Purandar, Haveli and Dound tahsils were selected for, aster, marigold, rose, chrysanthemum and tuberose, respectively. Then, from each tahsil, two or three circles selected, from each selected circles, one or two flower-growing villages covering a larger area under the flowers selected as samples. The flower growers from each selected village were choosing randomly.

1.5.1 Selection of Sample Area

Maharashtra is one of the leading flower producers in the country. The state has varying soil and agro-climatic condition, which offer tremendous scope for commercial floriculture. Apart from state, Nasik, Nagpur, Sangli, Nanded, Satara, Akola, Pune, Thane and Ahmednagar districts found popular for open field cultivation of flowers. The Pune district selected purposively for study of floriculture. According to multistage random sampling method, following are the stages of selection of sample.
1.5.2 Tahsils as a first stage

There are thirteen tahsils in the district. According to secondary data, seven tahsils found popular and occupied above 200 ha area under various types of flowers in the district namely Dound (1665 ha), Purandar (1266 ha), Haveli (382 ha), Khed (434 ha), Junner (1380 ha), Baramati (402), Ambegaon (336 ha). Of which four tahsil such as Khed for aster (198 ha), Purandar for marigold (1154 ha) Haveli for rose (198 ha), Dound for chrysanthemum and tuberose (300ha&600 ha) were taking into consideration as a criteria of maximum coverage of area under respective flowers. As per 2007-08 data, said tahsil occupied flower cultivation which shown in table1.1.

Table- 1.1 Sample tahsils along with area under flowers (Ha)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the tahsil</th>
<th>Aster</th>
<th>Chrysanthemum</th>
<th>Marigold</th>
<th>Rose</th>
<th>Tuberose</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khed</td>
<td>198*</td>
<td>06 (1)</td>
<td>220 (6)</td>
<td>04 (1.4)</td>
<td>06 (0.7)</td>
<td>-</td>
<td>434</td>
</tr>
<tr>
<td>2</td>
<td>Purandar</td>
<td>-</td>
<td>90 (11)</td>
<td>1154* (31)</td>
<td>12 (4)</td>
<td>-</td>
<td>10 (9)</td>
<td>1266</td>
</tr>
<tr>
<td>3</td>
<td>Haveli</td>
<td>110 (12)</td>
<td>40 (5)</td>
<td>380 (10)</td>
<td>110* (38)</td>
<td>22 (2.5)</td>
<td>30 (27)</td>
<td>68</td>
</tr>
<tr>
<td>4</td>
<td>Dound</td>
<td>-</td>
<td>300* (38)</td>
<td>700 (19)</td>
<td>40 (14)</td>
<td>600* (69)</td>
<td>25 (23)</td>
<td>1665</td>
</tr>
<tr>
<td>5</td>
<td>Other tahsil</td>
<td>592 (66)</td>
<td>355 (45)</td>
<td>1283 (34)</td>
<td>123 (41.6)</td>
<td>247 (27)</td>
<td>45 (41)</td>
<td>3269</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>900 (100)</td>
<td>791 (100)</td>
<td>3737 (100)</td>
<td>289 (100)</td>
<td>875 (100)</td>
<td>6702</td>
</tr>
</tbody>
</table>

(Figures in the bracket indicate percentage to respective total)
(* indicate sample flowers) Source- Agriculture office, Pune district, Pune 5

1.5.3 Circles/Villages as a second stage

The circles/villages selected according to covering a larger area under the flowers. From 4 tahsil, 11 circles and 16 villages (three villages same for two flowers) were selected such as 2 circle and 4 villages for aster crop, 3 circle and 5 villages for marigold
crop, 3 circle and 3 villages for rose crop, 2 circle and 3 villages for chrysanthemum, 3 circle and 4 villages for tuberose which shows in Table 1.2.

**Table- 1.2 Villages along with area under flowers (Ha)**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of Tahsil</th>
<th>Name of Circle</th>
<th>Name of Village</th>
<th>Area/ Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khed (Aster)</td>
<td>Bhose</td>
<td>Bhose</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bhose</td>
<td>Rase</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pimpalgaon</td>
<td>Vadgaon- Ghenand</td>
<td>11.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pimpalgaon</td>
<td>Koyali</td>
<td>5.0</td>
</tr>
<tr>
<td>2</td>
<td>Purandar (Marigold)</td>
<td>Shivari</td>
<td>Shivari</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shivari</td>
<td>Valunjgaon</td>
<td>7.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dive</td>
<td>Zendewadi</td>
<td>7.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malshiras</td>
<td>Malshiras</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Malshiras</td>
<td>Pondhe</td>
<td>11.4</td>
</tr>
<tr>
<td>3</td>
<td>Haveli (Rose)</td>
<td>Hadapsar</td>
<td>Phurasungi</td>
<td>15.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Uruli-kachan</td>
<td>Sortapwadi</td>
<td>12.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theur</td>
<td>Kunjeerwadi</td>
<td>9.4</td>
</tr>
<tr>
<td>4</td>
<td>Dound (Chrysanthemum)</td>
<td>Yavat</td>
<td>Yavat-centre</td>
<td>57.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yavat</td>
<td>Yavat-station</td>
<td>15.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kedgaon</td>
<td>Wakhari</td>
<td>20.4</td>
</tr>
<tr>
<td>5</td>
<td>Dound (Tuberose)</td>
<td>Yavat</td>
<td>Yavat-centre</td>
<td>49.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yavat</td>
<td>Yavat-station</td>
<td>12.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kedgaon</td>
<td>Wakhari</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Varwand</td>
<td>Varwand</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Source- Talathi and circle offices of respective villages

### 1.5.4 Sample flower growers as a third and ultimate stage

At the first round of survey, researcher visited sample villages, list of flower growers growing aster, marigold, rose, chrysanthemum and tuberose obtained from the revenue records. Then the flower growers growing selected flower enlisted as per land holding. Then from the list, enough size of each flower growers selected randomly and grouped as small, medium and large size, which defines as below.

- **I** Small Farmer: Below 2.00 Ha
- **II** Medium Farmer: 2.01 to 4.00 Ha
- **III** Large Farmer: Above 4.00 Ha
Survey conducted with villages and flower growers as the primary units of investigation during 2009-10. Total 214 flower growers selected as sample. Details regarding sample flower growers given as below.

**Table 1.3 (a) Tahsil-wise distribution of sample flower grower by size class (%)**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of Tahsil</th>
<th>Name of the flower</th>
<th>No. of sample Villages</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khed</td>
<td>Aster</td>
<td>4</td>
<td>20(49)</td>
<td>13(32)</td>
<td>8(19)</td>
<td>41(100)</td>
</tr>
<tr>
<td>2</td>
<td>Purandar</td>
<td>Marigold</td>
<td>5</td>
<td>18(44)</td>
<td>13(32)</td>
<td>10(24)</td>
<td>41(100)</td>
</tr>
<tr>
<td>3</td>
<td>Haveli</td>
<td>Rose</td>
<td>3</td>
<td>12(42)</td>
<td>10(35)</td>
<td>7(24)</td>
<td>29(100)</td>
</tr>
<tr>
<td>4</td>
<td>Dound-A</td>
<td>Chrysanthemum</td>
<td>4</td>
<td>24(47)</td>
<td>16(31)</td>
<td>11(22)</td>
<td>51(100)</td>
</tr>
<tr>
<td>5</td>
<td>Dound-B</td>
<td>Tuberose</td>
<td>3</td>
<td>23(44)</td>
<td>17(33)</td>
<td>12(23)</td>
<td>52(100)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>19</td>
<td>96(45)</td>
<td>70(32)</td>
<td>48(23)</td>
<td>214(100)</td>
</tr>
</tbody>
</table>

(Figures in the bracket indicate percentage to respective total)
Source- Talathi and circle offices of respective villages

**Table 1.3(b) Tahsil-wise distribution of sample flower grower by size class (numbers)**

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Name of Tahsil</th>
<th>Name of the flower</th>
<th>No. of sample Villages</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Khed</td>
<td>Aster</td>
<td>4</td>
<td>20(70)</td>
<td>13(36)</td>
<td>8(23)</td>
<td>41(129)</td>
</tr>
<tr>
<td>2</td>
<td>Purandar</td>
<td>Marigold</td>
<td>5</td>
<td>18(98)</td>
<td>13(45)</td>
<td>10(27)</td>
<td>41(170)</td>
</tr>
<tr>
<td>3</td>
<td>Haveli</td>
<td>Rose</td>
<td>3</td>
<td>12(32)</td>
<td>10(20)</td>
<td>7(16)</td>
<td>29(68)</td>
</tr>
<tr>
<td>4</td>
<td>Dound-A</td>
<td>Chrysanthemum</td>
<td>4</td>
<td>23(75)</td>
<td>17(51)</td>
<td>11(14)</td>
<td>51(140)</td>
</tr>
<tr>
<td>5</td>
<td>Dound-B</td>
<td>Tuberose</td>
<td>3</td>
<td>23(98)</td>
<td>17(69)</td>
<td>12(45)</td>
<td>52(212)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>19</td>
<td>96(373)</td>
<td>70(221)</td>
<td>48(125)</td>
<td>214(719)</td>
</tr>
</tbody>
</table>

(Figures in the bracket indicate respective total)
Source- Talathi and circle offices of respective villages

1.6.0 **Data Collection**

The major thrust area of the present research was to study the field cultivation of selected flowers. Objectives fixed to cover the cost and returns of selected flowers by using the standard cost concept used in farm management study. An attempt made in this study to estimate the cost and returns of selected flower in field cultivation. For this, the
basic data material obtained and analyzing the labour and material utilization, total cost, gross return, net profit, etc. Following are the sources of data.

1.6.1 Secondary Data

The secondary data consist of published and unpublished source as follows.

A. Published Source

i) Government Reports- Annual Reports of Agriculture Ministry, Government of India; Economic Survey of India and Maharashtra, Season and Crop Report of Maharashtra, Socio-Economic Abstract of Pune District, etc.

ii) Books and Journals- Mainly focused on agriculture as well as horticulture.

iii) Web Sites-PDF files of APMC Pune., NHB Pune, and NHM Pune.

B. Unpublished Source

Data and information compiled from following unpublished sources

i) Government records

ii) Theses and Dissertations

1.6.2 Requirement of Primary Data

Primary data are those, which collected afresh, and the first time; thus, these data considered original. The different methods used for collecting the primary data i.e. questionnaires, interviews and observations. The researcher used the following methods to collect primary data.

A. Questionnaire

Questionnaire prepared according to objectives of research and information collected from educated member of sample farm family. The survey method used for the collection of data. For survey, a well-prepared schedule including of all necessary components is used.
The sample growers interviewed personally using questionnaire. The data collected on certain socio-economic characters of farmers. The details pertaining to flower cultivation viz, the method of cultivation, time of operations, input use and yield has compiled. Further, the data on the marketing components, prices of inputs and packaging, transportation, method of sale of produce, etc collected from them.

**Preparation of Schedule** - The schedule was therefore, specially prepared for the collection of data. The schedule included the following components.

a) Socio-economic information of selected flower growers

b) Details about their land holding

c) Cropping record

d) Cultivation record

i) Quantity and expenses on material used viz. planting materials, manures, fertilizers, plant protection etc

ii) Labour utilization and wages

iii) Inventory

iv) Production and marketing cost of selected flowers

**B. Observation**

For additional information about flowers, researcher visited and observed as below.

1. Researcher visited the farm sight of sample farmer.

2. Attended flower auction practices at APMC Gultakadi, Pune.

3. Attended flower exhibition organized at Pune.

4. Visited flower plant nurseries around Pune.
C. Interview

Personal interviews of progressive farmer, nursery holder, fertilizer and flower traders were took and got information pertaining to cultivation, seedling and plants varieties, fertilizers, plant protection chemical and its prices.

1.7.0 Analysis of Data

Simple tabular analysis carried out to work out the labour utilization, cost of cultivation and cost of production. The data was compiled, tabulate and analyzed to accomplish the objectives of the study.

1.7.1 Estimation of Cost of Cultivation

The estimation of cost of cultivation included following cost concept.

a) Cost ‘A’

Cost A includes all variables cost. Therefore, all variable items of expenses were included while calculating it. Cost A calculated per hectare for each selected flower under study. This cost includes the expenditure on following items.

i. Hired human labour including male and female

ii. Bullock labour

iii. Machine labour

iv. Value of planting material

v. Value of manures

vi. Value of fertilizer

vii. Value of plant protection

viii. Irrigation charges

ix. Land revenue and cesses

x. Depreciation on implements
xi. Repairs and hiring of implements

xii. Interest on working capitals

b) Cost ‘B’

Cost B estimated as under-

Cost B = Cost A + Rental value of land + Interest on fixed capital

c) Cost ‘C’

Cost C calculated as under-

Cost C = Cost B + imputed value of family labour.

**Cost of production**

The cost of production estimate as under-

Cost of cultivation + Management cost + Marketing cost

Production per hectare:

Production per hectare in numbers/kg of selected flower under each land holding groups considered.

**1.7.2 Production Function Analysis**

Functional analysis serve as a reliable tool for examine the input output relation.

In the present study, Cobb-Douglas production function was fitted with following form.

Cobb-Douglas Production Functions

\[
Y = ax_1^{b_1} x_2^{b_2} x_3^{b_3} x_4^{b_4} x_5^{b_5} x_6^{b_6} e
\]

Where Y represents output, in numbers/kg

‘a’ as a constant and ‘bi’ s the elasticity’s of the production with respect to the inputs.

e=Error term.

The variables considered in the present study are as follows.

X1 = Area under flower cultivation (ha/farm/ crop duration)
X2 = Human labour (days/farm/crop duration)
X3 = Manure (MT/farm/crop duration)
X4 = Fertilizer (kg/farm/crop duration)
X5 = Insecticides & Pesticide (liter/farm/crop duration)
X6 = Irrigation (round/farm/crop duration)

1.8.0 Significance and Limitations of the Study

The economic studies in the concerned area have been scarce. This attempt has been made of cost of cultivation/production of flowers in such area. The study focused mainly on flower growers who cultivate flowers under open field. Therefore, the study will be help in suggesting important thrust areas in production of selected flowers of different size group of farms. The findings and suggestion of this study will be very useful to educated farmer, researcher, and Government for the policy making to development of floriculture. The present study conducted in a limited area i.e. Pune district. The finding of the research can be therefore applicable in such area where similar type of condition exists in respect of agro climatic conditions and other infrastructural facilities available. The primary data considered of agriculture year 2009-10 for field cultivation of flowers.

1.9.0 Chapter Scheme

Present study organizes in nine chapters, which can be justifying the title of research topic as below.

Chapter I: Introduction and Research Design

This chapter consists in two parts, first part discusses on the importance, uses, and concept of floriculture, second part deals with research methodology, statement of the problems, objectives of the study, hypotheses, sources of data, significance of the study and limitations.
Chapter II: Review of Literature

In this chapter, an attempt has been made to review literature, which related to floriculture. The review process has the purpose to obtain background information of flower cultivation, cost and revenue. Therefore, various books, journals, magazines, study groups, theses, and dissertations have been reviewed. A brief review of past studies will enable us to understand the various aspects of floriculture.

Chapter III: Theoretical Framework and Conceptual Foundation

This chapter deals with the theoretical framework and conceptual foundation. Many economic theories about economic analysis have developed in the past, those theories emphasize one or other particular aspect of farm management study is considered. This chapter discusses the theories, concepts and methods of statistical analysis. Theoretical framework is the base of analytical view. While conceptual clarification is important for justification of results.

Chapter IV: Floriculture Status of India

This chapter deals with world and Indian history of gardening, floricultural developments- global and national scenario, state wise distribution, export of floriculture, Government incentives and scheme, role of supporting agencies in the development of floriculture and agricultural foreign trade policy. This study enables to understand floriculture development.

Chapter V: Agro-Economy of Maharashtra and Floriculture

The chapter fifth highlights the, agro-economy of Maharashtra- agro-climatic features, geographical features, land use pattern, N.H.M. and Maharashtra, subsidies, area expansion programme, area and production, district wise development, state incentives and scheme, and production have considered.
Chapter VI: Profile of the Study Area: Pune District

Agro-economic profile of Pune district includes historical, geographical, demographic features as well as information given pertaining to cropping pattern, tahsil wise development of floriculture, marketing and other facilities and covers socio-economic indicators of sample farms includes family size, educational status, land use and cropping pattern have analyzed.

Chapter VII: Cost and Return Structure of Selected Flowers

This chapter based on primary data, which covers all the aspect of cost of cultivation and production of selected flowers. The detail of cost and returns of field cultivation i.e. item wise labour utilization, input use, item wise cost of cultivation and marketing of selected flowers analyzed with internal factors.

Chapter VIII: Benefit Cost, Production Function and Comparative Analysis

This chapter consist benefit cost analysis, production function analysis and results compared with relative criterion i.e. compares the requirement of human labour and other inputs, cost of marketing, per hectare cost and returns in terms of crop duration.

Chapter IX: Findings and Conclusions

Eventually, the study ends with the outcome of the research includes findings and conclusion. Theoretical implications and testing of hypotheses have validated. At the end of chapter, some valuable suggestions are given.
References


