Chapter III

Objectives, Concepts and Methodology
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The previous chapters (one and two) provided sufficient knowledge relating to production and marketing of the flower economy. In the first chapter, the research problem was introduced and understood. The second chapter gave a detailed survey of literature, in which many conceptual and methodological issues crop up pertaining to commercial flower cultivation. This enables to identify and realise the various research gaps. This literature survey indicated that the most of the studies in India have examined the production and marketing relating to high-tech production of commercial flower crops to some extent. However literature on socio-economic conditions of flower growers, production and marketing of open field cultivation of commercial flower crops is scanty. Hence there is a need to study production, marketing, socio-economic conditions and problems of farmers in producing and marketing of flower crops in the open field cultivation at the micro level.

This chapter explains the main objectives, hypotheses and the methodology adopted in the present study. In the objectives and hypotheses part, the overall objectives and hypothesis and specific objectives and hypothesis have been given. The concept part deals with the concepts like production and marketing, costs and returns etc. The methodology includes the profile of the study area, sources of data, selection of variables, sampling, tools and techniques used for analysis and the chapters scheme have been explained.
The present study targets to analyse this issue in four parts. The first part deals with the growth of area and production in macro and micro level based on secondary data. The second part investigates the production aspect of flower crops. Here the input and output analysis is done to test the profitability of flower cultivation. Thirdly the marketing of flower products and problems of farmers in production and marketing of flower crops is also carefully examined. As the flower crops have poor marketing network and the farmers face many problems relating to the production and marketing, hence this issue has to be carefully investigated. Fourthly the socio-economic conditions of flower growers are studied as this flower economy influences the flower growers socio-economic life. Based on these issues, the present study has the following objectives.

3.1 Objectives of the Study

The broad objective of the present study is to do an economic analysis of the commercial flower cultivation in Mysore district. The specific objectives are:

1) Documenting and analysing the growth performance of commercial floriculture in Karnataka.

2) To do profitability analysis or cost-return analysis.

3) To analyse the experience of farmers with different market channels.

4) To investigate the problems faced by the farmers in production and marketing of flower crops.

5) To study the socio-economic conditions of farmers who are growing commercial flowers in the study area and
6) For suggesting suitable measures to solve the problems of commercial flower cultivation based on the outcome of the study.

3.2 Hypotheses of the Study

The important hypotheses of the present study are:

1) Area and production of commercial flower crops in Karnataka have increased over a period of time.

2) The cost structure of seasonal flower crops is different from perennial flower crops.

3.3 Concepts

3.3.1 Production

Production is an important economic activity. Production means transformation of physical inputs into output. It is the creation of utilities. According to Freser "Producing means putting utility into" (Freser, 1947, ch-12). Producers create utilities by means of changing the form of materials, by transporting goods from place of production to the place of marketing and by stocking, storing and releasing of goods for consumption whenever needed. To produce output, the inputs are required. The inputs are also called factors of production. The factors of production are classified into land, labour, capital and organisation.

The production function tells us the relationship between the physical inputs and physical output of a firm, given the state of technology and managerial abilities. It is the maximum rates of output from different combinations of factors, during a period of time. According to Stigler "the production function is name given to the relationship between
the rates of input of productive services and the rate of output of product. It is the economist's summary of technological knowledge". (Stigler, 1953, p. 106). The production function can be expressed in a mathematical equation \( P = f[a, b, c \ldots n] \). \( P \) is the rate of output of a commodity, \( a, b, c \ldots n \) are the factor services per unit of time. For ex. if a farmer produces 10 tonnes of rice per hectare with annual two crops. Here production function indicates maximum quantities of factors like land, labour, fertilizers. PPCs etc required to produce 10 tonnes of rice. In others words production function is the maximum tonnes of rice that can be produced with given quantities of factors of production.

3.3.2 Cost

**Money cost:** Generally the cost of production is assumed to be the sum total of all expenditures incurred in production. This includes wages, rent expenditure on raw materials, power, transportation and payment made for taxes.

The total money cost can be classified under two heads.

1. **Explicit Costs:** These are also called the direct cost or expenditure cost or accounting cost. This cost refers to the payments made to the factors of production not belonging to the farmers. These are contractual payments made to the owners.

2. **Implicit Cost:** The implicit cost or non-expenditure costs are costs of the factors owned and supplied by the farmers themselves. For ex. the farmer may own and supply his own land, capital, labour etc. Here the concept of opportunity cost is used to calculate these costs. Depreciation is an item of imputed cost because it is not a contractual payment.
**Private Cost:** Implicit cost and explicit costs, both are included in the private cost. This is entrepreneur’s cost as well. This consists of the following expenditures in the private cost.

A) Wages of labour

B) Interest on capital

C) Rent on royalties paid to the owners of land or other property used

D) Cost of raw materials

E) Replacement and repairing charges of machine

F) Depreciation of capital goods

G) Normal profits of the producer. (For details see-Meade, 1955, pp. 2-5).

Besides, private cost includes

H) Tax payments to the government and local bodies

I) Imputed wage payment to the producer for the work performed by him

J) Imputed interest payment for the capital invested by the producer himself

K) Rent of land and buildings owned by the producer himself.

**Social Cost:** Social costs are separate from that of private cost because the externalities are not included in private cost. For ex. Farmers may be using more inputs in the cultivation such as more use of chemical fertilizers, PPCs and watering, through which farmers are substantially contributing to environmental damages. Though these
costs are quite relevant from the point to view of the society, they will never be considered by the farmers as part of costs. [2] Market prices of goods may not reflect their social value and thus there may be difference between private and social costs. The governments impose taxes, subsidies and controls of various kinds, which may distort free market prices. Further, prices of factors of production may exaggerate or underestimate the opportunity cost of using those factors. In computing the social costs, the adjusted market prices for goods are called social prices, and the adjusted prices of factors of production are termed as shadow prices.

**Sunk Cost:** Sunk cost is another concept of cost. This is a fixed cost incurred during production, but which cannot be recovered. For ex. a farmer purchases equipment, which is later found to be useless. It cannot be used for an alternative purpose or sold, the opportunity cost of the equipment is zero. Now that money spent cannot be recovered and so sunk.

**The Opportunity Cost:** Another concept of cost is the opportunity cost or alternative cost or economic cost or displacement cost. This concept has great importance in economic analysis. According to Leftwich “Economists define costs of production of a particular product as the value of the foregone alternative products that resources used in its production, could have produced. The costs of resources to a firm are their values in their best alternatives” (Leftwich, 1965, pp. 126-127). The opportunity cost means next best alternative cost. The opportunity cost of anything is the alternative that is forgone. The producer takes a decision from among the available alternatives. The decision refers to the sacrifice of the next best use. For ex. a plot of land can be used for sugarcane cultivation or rice cultivation. If the land has to be used for sugarcane, then it has to be paid at least what it would earn if it were used for rice cultivation. Thus the sugarcane
cultivation has to pay the opportunity cost of that land, which is what it would get if it is
given for rice cultivation. According to Stigler “The cost of productive service X in
making A, is equal to the amount of B that X could produce plus (or minus) the non-
pecuniary returns (or costs) attached to producing B” (Stigler, 1947, p. 108). This
concept is used in benefit cost calculation.

This can be explained with another ex. the farmer while investing capital to
produce a commodity will examine the prospective yield from that investment compared
to the yield from the next best use. Suppose, if he grows sugarcane crop on his land he
gets an income of Rs. 25000 per acre. On the other hand if he finds that by the cultivation
flower crops, he gets not less than Rs. 25000 per acre, he would decide to take up the new
crop. Thus opportunity cost calculation enables the farmers to take suitable decision in
raising crops.

The cost of production of a product depends on

1. Price paid for the factors

2. Level of output

3. The time period

In the short period, costs cannot be changed as in the long period. Thus the cost is
different in the short period and in the long period.

**3.3.3 Cost Analysis in the Short Period**

In the short period, output can be increased or decreased by changing only the
amount of variable inputs such as labour, raw materials, chemicals etc. In the short run
quantities of the fixed factors such as land, capital equipment buildings etc. cannot be varied for making changes in output. Here the size of the firm cannot be changed. Hence, in the short period, Total cost can be divided into variable costs and fixed costs.

**Total Cost:** According to Samuelson “Total cost represents lowest aggregate dollar expense needed to produce each level of output Q. TC rises as Q rises” by definition TC=FC+VC. (Samuelson P.A 1970, p. 443)

**Variable Costs:** According to Samuelson “variable cost represents all items of TC except for FC-as, for example, raw materials, wages, fuel etc” (Samuelson P.A 1970, p. 443). Variable costs are those costs, which are incurred on the employment of variable factors of production. These vary with the level of output, increasing when the output increases and decreasing when the output decreases. These costs include payments such as wages of labour, cost of raw materials etc. The variable costs will shrink to zero if operations are suspended because there is no materials need be purchased. These are also called as prime costs or direct costs.

**Fixed Cost:** In the short period there are certain factors of production which remain fixed whatever the level of output that is they do not change with changes in output even if the firm closes down for sometime in the short run, these costs have to be borne by it. As defined by Samuelson “Fixed cost represents the total dollar expense that goes on even when a zero output is produced. It is often called overhead cost and usually includes contractual commitments for rental, maintenance, depreciation, overhead salaries and wages etc. It is a sunk cost that is quite unaffected by any variation in Q”. (Samuelson P.A 1970, p. 443). Thus fixed costs are those, which are incurred in hiring the fixed factors of production whose amount cannot be altered in the short period.
Thus in the short period total cost is the sum of total fixed costs and total variable costs. TC = TFC + TVC.

1. **Average Fixed Cost:** Average fixed costs are obtained by dividing total fixed costs by the number of units of output produced. Therefore AFC = TFC/x. Suppose for a firm the total fixed cost is Rs. 2000 when output is 100 units, average fixed cost will be Rs. 2000/200 = Rs. 20 and when output is 200 units AFC will be 2000/200 =Rs 10. As output increases average fixed cost decrease because total fixed cost is a constant quantity.

2. **Average Variable Cost:** AVC is the total variable cost divided by the number of units of output produced. Therefore AVC = TVC/q. As output increases average variable cost increases because it is a variable quantity.

3. **Average Cost:** It is the total cost divided by number of units produced. AC = TC/x = TVC + TFC/x = TVC /x + TFC/x

Now total costs include both fixed costs and variable costs. However the distinction between fixed costs and variable costs is one of degree and not of kind. If a worker is a temporary worker, then his services can be terminated when output falls. Here wage will be a variable cost, suppose the worker is a permanent hand, then his wage will be a fixed cost.

Besides, the distinction between fixed cost and variable costs is a period's distinction. A fixed cost in the short period becomes a variable cost in the long period. For ex more land can be purchased in the long period. Thus expenditure on land becomes a variable cost.
Marginal Cost: MC as defined by Samuelson “Marginal cost at any production level Q is the extra cost of producing one extra unit more (or less) or MC is defined as the increment of total cost that comes from producing an increment of one unit of Q”. (Samuelson, 1970, PP-429 and 444). Thus, Marginal cost is the cost of a producing the last unit or it is an addition to the total cost caused by producing one more unit of output. In other words marginal cost is the addition to the total cost of producing n units instead of n-1 units. Here n is any given number. In symbols: MCn = TCn – TCn-1

Suppose the production of 5 units of a product involves the total cost of Rs. 206. If the increase in production to 6 units raises the total cost to Rs. 236. Then the marginal cost of the sixth unit of output is Rs. 30/= (236-206= 30). The firm is in equilibrium when it is earning maximum profits. It earns maximum profits when MR =MC

3.3.4 Revenue Analysis

The money received from selling the product forms the revenue or income of the sellers. So revenue is defined as sales receipts. Revenue can be classified into 3 types (1) TR (2) AR (3) MR.

Total Revenue: The whole income received by the seller from selling a given amount of the product over a period of time is the total revenue. If a seller sells 15 units of a product and obtains Rs.150 from this sale, then this total revenue is Rs.150. TR=PxQ.

Average Revenue: Average revenue is revenue earned per unit of output, it can be obtained by dividing the total revenue by the number of units sold. Thus AR = Total revenue/total output sold. The AR will be equal to Rs.150/15=Rs.10. This Rs. 10 is the revenue earned per unit of output.
**Marginal Revenue:** It is the net revenue earned by selling an additional unit of the product. In other words, marginal revenue is the addition made to total revenue by selling one more unit of the commodity. In algebraic expression, MR is the addition made to total revenue by selling \( n \) units of a product instead of \( n-1 \). Where \( n \) is any given number.

When 10 units are sold at price of Rs. 15, the total revenue is \( 10 \times 15 = \text{Rs. 150} \). When 11 units are sold at price of Rs. 14, the total revenue is \( 11 \times 14 = \text{Rs. 154} \). Marginal revenue = \( 154-150 = \text{Rs. 4} \).

It is clear from above that marginal revenue can either be found directly by calculating the difference between total revenue before and after selling the additional unit or it can be obtained by subtracting the loss in revenue on previous units due to the fall in price from the price at which the additional unit is sold.

### 3.3.5 Market

Production and marketing are very basic economic activities. After production of a commodity, marketing is very essential. Marketing system consists of producers, agents and consumers. Here it is appropriate to quote the definition of Cournot a French economist “Economists understand by the term market not any particular place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the price of the same goods tends to equality easily and quickly”. (Marshall, 1959, p. 270). “The term market refers not a place but to a commodity or commodities and buyers and sellers who are in direct competition one another”. (Converse and Others, p. 1). These two definitions indicate that market may be a regular place or any media through which buying and selling of a commodity takes place.
“Marketing consists of the performance of business activities that direct the flow of goods and services from producer or supplier to the consumers or end users”.

(Committee on Definitions of the American Marketing Association, 1960, p. 15) This definition indicates the process of buying and selling of goods and services in the market. In other words it implies the functioning of the market.

**Element of Time in Price Theory**

It is essential to discuss the element of time in price determination, as the commodity, which we investigate, is perishable in nature. Marshall was the first economist who took time into consideration in the determination of price. For eg: when the demand rises the supply also rises depending on the time period. Cost conditions vary depending on time periods (Marshall, 1959, p. 285).


1. **The Market Period:** This is usually a few hours to a day or a few days. The most important feature is that supply remains constant. In this period supply cannot be increased or decreased in response to demand changes. Thus a temporary equilibrium will be established. Here we can take a commodity, which is perishable. Ex. fish, or vegetables or fruits or flowers etc. Here both demand and supply determine the price but demand is more important than supply. The cost of production (supply) does not play a crucial part in the determination of price.

2. **The Short Period Equilibrium:** This period is a few months. In this period the supply can be partly adjusted to demand. The supply can be increased by overworking the fixed factors and increasing the variable factors. When demand rises, the price will rise in the
market period. However as supply rises in the short period, the short period normal price will fall. This short period normal price is lower than the market price.

3. The Long Period Equilibrium: This refers to a few years. The supply of the commodity can be fully adjusted to demand. There is no distinction between the fixed and variable costs. The size of the firm and industry can change, new firms can enter the industry and old firms can leave the industry. The industry may be subjected to increasing, diminishing or constant costs. But the short period normal price is higher than the long period normal price.

When the industry is subjected to decreasing costs and constant costs, the long period normal price is lower than the short period’s normal price and market period normal price.

3.4 Methodology

To enquire into the above-mentioned objectives and to test the hypotheses, the following methodology has been adopted in this study. This has been discussed under various sub headings as follows.

3.4.1 Selection of the Study Area

Mysore district of Karnataka State has been selected for the study area. This is one of the progressive district with excellent potential for open field floriculture development. The area under flower crops in this district constitutes around 6 percent area of Karnataka State. If the entire Karnataka state reserves only 1.35 percent of area for flower crops to area under horticulture crops, Mysore district has devoted 2.36 percent of area to flower crops of its area under horticultural crops (GOK, 2001).
Fig. 3.1 Mysore District

Selected Taluks: Hunsur, T.N. Pur & Nanjangud
Study Area: Mysore District
The total area on which the floricultural crops are grown is estimated at 1266 ha with an annual production of 2025 tons in the Mysore district. The floriculture crops grown in the district are rose, jasmine, chrysanthemum, tuberose, aster, crossandra, marigold and champak (GOK, 2001).

Though a variety of flower crops are grown in Mysore district, the dominant flower crops based on area are tuberose, crossandra, jasmine and marigold. Each of these flower crops are grown in more than 100 ha in the district. Mysore district alone has 30.6 percent of the total area under tuberose in Karnataka. Similarly 9.21 percent of crossandra, 3.26 percent of jasmine and 2.14 percent of marigold area under respective flower crops in Karnataka is concentrated in Mysore district (GOK, 2001). Besides the study area is closer to Mysore wholesale and retail markets. Hence this district has been chosen for the study. (Fig 3.1).

3.4.2 Profile of the Study Area

The Mysore district is located at the southern border of Karnataka State. It is situated between 11 degree 60 minutes to 20 degree 17 minutes North latitude and 75 degree 19 minutes to 77 degree 77 minutes East longitude. It is surrounded by Chamarajanagar to east and south, Mandya and Hassan to North and Coorg and Kerala to the West. The geographical area of the district is 6269 Sq km, and consists of seven taluks. They are H.D. Kote, Hunsur, K.R.Nagar, Mysore, Nanjangud, Periyapatna and T.Narasipur. The population of the district (1991 census) is 22.82 lakhs. Of them the rural population comprises about 64.21 percent (1465084).
Climate, Rainfall and Soil Types

There are three important seasons found in this district. They are rainy, winter and summer seasons. The Southwest monsoon spreads over from June to September, winter from December to February and summer spreads over March to May. The district enjoys a temperate weather. The district gets an average annual rainfall of 782 m.m. But, it got 962.1 mm during 2000. The soil of the district comprises of red mixed black soil. Hence most of the region is more fertile and is suitable to agricultural activities.

Irrigation

During 1999-2000 the net cultivated area was 3.89 lakh ha, the area sown more than once, is 0.96 lakh ha, the gross cropped area is 4.86 lakh ha. Out of 3.89 lakh ha of cultivated area 1.14 lakh ha has been brought under irrigation facilities in the district. At present the irrigated land in the district is 23.44 percent of the gross cropped area. Canals, wells and tanks are the main sources of irrigation accounting for 81.10 percent, 11.55 percent and 7.35 percent respectively. (GOK. 2002).

Land Utilisation Pattern

The land utilisation pattern of the district shows that out of the 6.76 lakh ha of geographical area, forest accounts for 9.29 percent. The area not available for cultivation accounts for about 16.66 percent, which includes barren and uncultivable land. Cultivable wasteland constitutes 3.17 percent of the total land area. The net area shown is 3.89 lakh ha. The area sown more than once are 0.97 lakh ha. The gross cropped area is 4.86 lakh ha.
Cropping Pattern

The cropping pattern of Mysore district shows that food grain crops occupies a major portion of all cultivated area. Out of the total cultivated area of 4.86 lakh ha in the district, 3.07 lakh ha accounted for food crops. This is 66.52 percent of the gross cropped area. Non-food crops consist of 1.55 lakh ha which is 33.48 percent. Cereals are grown in 2.16 lakh ha and pulses are grown in 0.91 lakh ha. Horticultural crops are also grown in the district in the 53672 ha of land. Among the taluks of Mysore district T.Narasipur, Mysore and Hunsur have the largest area under Tuberose, crossandra, jasmine and marigold flower crops.

3.4.3 Selection of Major Flower Crops

Mysore district has the suitable agro climatic factors for the cultivation of different flower crops. This area is having both seasonal as well as perennial flower crops in open field conditions. This helps to compare the cost and revenue structures of seasonal and perennial flower crops. Though varieties of flower crops are grown in Mysore district, the present study considers only three major flower crops for the analysis purpose. However the selection of major flower crops is based on dominant flower crops practiced in the district. They are tuberose, jasmine and marigold. To understand and compare the cost and revenue pattern of seasonal and perennial flower crops, one short-term crop marigold, one medium term crop tuberose and one long term crop Jasmine (kakada) crops have been selected for the collection of primary data.

Out of the 1266 ha under flower crops in the district, tuberose in 476 ha, jasmine in 140 ha and marigold in 110 ha are cultivated. Thus these three flower crops are grown
in the area of 726 ha, which is 57.34 percent of the area under flower crops in the district. Out of 1634 tons of flower crops production, 476 tons of tuberose, 140 tons of jasmine and 550 tons of marigolds are grown in the district. These three flower crops constitute 71.35 percent (1166 tons) of the total production of flower crops during 1999-2000 (Dept. of Horticulture, Mysore).

3.4.4 Sources of Data

Both primary and secondary data are used from various sources, to study different objectives. As Mysore district has devoted sufficient amount of land for flower cultivation, the district has been selected for the study. Within Mysore district three taluks have been chosen for the collection of primary data, namely T.Narasipur, Nanjangud and Hunsur based on larger area and production under flower cultivation in the taluks.

The area under flower crops in the district indicates that out of 1266 ha, 518 ha in T.Narasipur, 69 ha in Nanjangud and 221 ha in Hunsur taluks, are under flower crops respectively. Thus 63.82 percent of area under flower crops in the district are covered.

Out of 1634 tons of flower production in the district 553 tons in T.Narasipur, 67 tons in Nanjangud and 477 tons in Hunsur taluks have been produced respectively during 1999-2000. This is almost 1097 tons or 67.13 percent of the total production of flower crops in the district.

The farmers are chosen randomly in these three taluks. For each flower crop 50 samples are collected, tuberose samples from T.Narasipur, jasmine from Hunsur and marigold samples are collected from Nanjangud taluks respectively. This is because the
area and production of each flower crop is highest in these respective taluks of the district.

Out of 476 ha of land devoted to tuberose cultivation in the district, T.Narasipur alone has 450 ha of tuberose. Hunsur grows jasmine in the area of 55 ha out of 140 ha reserved for jasmine cultivation in the entire district (Dept. of Horticulture, Mysore). Hence these two taluks have been selected for the present study in the district. Marigold is a short-term crop, and the area under this flower crop in the different taluks fluctuates. However, it has been selected because it helps to compare the cost revenue pattern of different flower crops.

50 respondents for each flower crops have been selected. While collecting samples due weightage has been given to size of the land holding as well as their social groups, based on availability of respondent farmers. As flower growers are spread all over the taluks, villages were not taken as sample units. From taluk straitaway households were selected in consultation with the officials of Horticulture Dept. of Mysore district. The farmers were selected based on the number of farmers available in the taluks since the concerned departments of Govt. have not made survey of flower growers. Besides floriculture has been a neglected and is now a profitable new emerging sector, data is not available to justify the sample size.

The secondary data relating to area and production of different flower crops have been obtained from the reports of Directorate of Horticulture, Govt. of Karnataka for the period from 1978-79 to 2002-03 to assess the performance of floriculture sector in Karnataka. Besides, the secondary data has been collected from various literature published at national and international levels. Data from books, Journals, Magazines,
Govt. Documents, Reports of various committees, working groups and others is utilised. Materials made available at the NHB, Indian Institute of Horticulture Research (IIHR), library of Lalbagh, Bangalore, Dept. of Horticulture, University of Agriculture Sciences, Bureau of Economics and Statistics of Govt. of Karnataka etc have also been collected and analysed.

3.4.5 Sample Design

Data were collected from three taluks of Mysore District. These taluks were selected based on dominant flower crop area. From each taluk 50 samples representing 25 small and 25 large farmers and different socio-economic groups growing flower crops were chosen. Thus in each taluk 50 flower cultivators totalling 150 respondents were selected for this study.

Fig. 3.2 SAMPLE FRAME

```
Mysore District
  └── T.Narasipur Taluk
      ├── Tuberose
      └── 50 Households
  └── Hunsur Taluk
      ├── Jasmine (Kakada)
      └── 50 Households
  └── Nanjangud Taluk
      └── Marigold
          └── 50 Households

SELECTION OF SAMPLES FROM EACH TALUK

Small Farmer (25) Large Farmers (25)
```
Social classes: Among the different social classes growing flower crops 12 upper caste farmers, 61 from middle castes and 77 from lower caste flower growers have been taken, which together make 150 respondents. These were selected based on the availability of farmers belonging to these different social classes. The samples for each taluk based on social classes are as follows.

Fig. 3.3 Sample Frame for different Social Classes

Mysore District

<table>
<thead>
<tr>
<th>Hunsur Taluk</th>
<th>T.Narasipur Taluk</th>
<th>Nanjangud taluk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper castes =0</td>
<td>Upper castes =12</td>
<td>Upper castes =0</td>
</tr>
<tr>
<td>Middle castes =33</td>
<td>Middle castes =3</td>
<td>Middle caste =25</td>
</tr>
<tr>
<td>Lower castes =17</td>
<td>Lower castes =35</td>
<td>Lower caste =25</td>
</tr>
<tr>
<td>Pooled =50</td>
<td>Pooled =50</td>
<td>Pooled =50</td>
</tr>
</tbody>
</table>

3.4.6 Collection of Data

The survey schedule is used to collect required data from sample flower growers. To gather information a personal interview was conducted with a pre-tested structured schedule. The purpose of the study was clearly explained prior to the interview to the respondents to get co-operation and reliable data. The data collected was for one entire agriculture year - 2003-2004. The general information was collected on farmers include respondents age, educational level, family size and composition, asset possession, size of the holding, source of the irrigation etc. The details relating to cropping pattern, cost and
returns of production and marketing of flower crops and the data on socio-economic status of flower growers were obtained. The opinion about the flower crops cultivation and the problems faced by the growers were recorded.

3.4.7 Tools for Analysis

To study an economic analysis of commercial flower cultivation in Mysore district tabular analysis was adopted. Time series data was used to analyse the performance of floriculture development in India, Karnataka and in the sample region. Simple statistical computations like percentage, ratio and growth rate analysis were used. The data analysis was done through computer programming.

3.4.8 Measurements and Specifications

Many methodological difficulties were encountered while differentiating land size class and in calculating land rent and depreciation. It could be observed that farmers of this region were familiar with acres as the measurement of the land area rather than hectares. Hence the present study used acre as a technical unit for which costs and returns of commercial flowers were estimated.

Classification of Land Holdings: Respondent farmers have been classified into small and large farmers based on their landholdings and availability of flower growers. As flower cultivation is dominated by small and marginal farmers those who have below 2.5 acres are classified as small farmers and above 2.5 acres have been grouped in large farmers for jasmine and marigold flower crops. As still more number of marginal and small farmers were available in the sample region for tuberose flower crop and it is raised in wet land only, below 1.5 acres is considered as small farmers and above 1.5 acres large farmers.
Social classification: The caste system is prevailing in India as a social system. It is the soul of Indian social order. In this system, the people have been divided into many separate castes. Hence the flower growers have been grouped under the broad three Castes based on the availability of different community farmers in the sample region.

1. **Lower Caste:** Scheduled Castes and Nayak communities come under this category.

2. **Middle Caste:** Backward Castes like Gowda, Shetty and Idiga communities have been grouped in this category.

3. **Upper Caste:** Lingayat Caste comes under this group.

**Total Cost:** This is the cost of producing flower crops including variable and fixed cost.

**Variable Cost:** This is the cost of variable inputs used in the production. This included costs of planting material, F.Y.M., fertiliser, P.P.Cs, sprayer rent, land tax, wages to human and bullock labour.

**Planting Material:** The actual price paid by the farmers was considered.

**Farm Yard Manure:** The prevailing price for per cartload of manure in the sample area was accounted.

**Fertilisers and PPCs:** Actual price paid by cultivators in sample region is included

**Sprayer Rent:** Price paid by farmers towards spraying of P.P.Cs per hour is calculated.

**Land Tax:** Land tax was priced at the rate levied by the Govt. in the sample region.

**Human Labour:** Labour was computed in terms of mandays. It was actual wages paid to the hired labourer. The labour cost was imputed to the family labour as the hired labour.
As child labour is used in plucking of flowers in the early morning hours, which has been converted into days women labour.

**Bullock Labour:** The price paid by farmers for the service of bullocks per day is taken into consideration.

**Fixed Costs:** These costs included the rental values of land, depreciation of farm machinery and implements and land revenue. The computations of different items of fixed cost components are as follows.

**Rental Value of Land:** The value of land was estimated at the prevailing market rate in the study area. As the sample did not contain any cultivator who had taken land on lease and no reliable information was available on rental value of land, eight percent of the market value of land was taken as rental value for jasmine and tuberose crops as they are annual crops. But for marigold only four percent is worked out, as this crop is six months crop for fixed cost.

**Depreciation:** Depreciation on farm implements, machinery and irrigation structure was calculated on the current cost of the assets. It is worked out at ten percent and obtained value is divided by number of acres the same implements and machinery are used for the operation of other agricultural crops. Hence the depreciation is computed based on the number of acres for which the same implements are used.

**Irrigation Charges:** Irrigation charges on open and bore wells were worked out. While calculating fixed cost for wells the total investment on wells is divided by life span of well is considered.

**Returns:** Two types of returns are used.
**Gross Return:** Total value of produce obtained by producer is referred to as the gross return.

**Net Return:** It is obtained by subtracting the total cost from gross return.

**Resource position of the sample farmers:** The assets value of sample farmers has been calculated by obtaining resource position of sample farmers and prevailing marker prices of different assets in the sample region. The assets such as land value, Livestock value, value of implements and machinery and the value of wells have been calculated.

**Sources of Income:** The income earned by sample farmers in a year from major sources has been calculated based on the information received from the flower respondents. The sources such as income from flower crops, income from other crops, and income from livestock have been computed.

**Items of Expenditure:** The expenditure made by sample farmers in a year on different socio-economic items has been calculated. The important expenditure items include health, education, entertainment and religious festivals.

### 3.4.9 Scope of the Study

Firstly, this study discusses an economic analysis of commercial flower cultivation in Mysore district of the Karnataka State. This study covers at micro level, households as primary units, the district as intermediate level and entire state as macro level. The study is based on both primary and secondary data.

Secondly, the study would discuss a brief account of the concept of production, costs, returns and marketing connected with commercial flower crops and their relevance
to the problem taken up. A brief review of the empirical findings of various studies undertaken was also presented.

Thirdly, this study would help to understand the various issues relating to costs and returns required for raising the commercial flower crops. This study provides information pertaining to marketing linkages of commercial flower crops. Fourthly, the study will identify the problems faced by the farmers in production and marketing of flower crops. Fifthly, the study examines the socio-economic conditions of sample farmers in the study area.

Finally after discussing the various issues of commercial flower crops, the findings of the study may be useful to design appropriate policy suggestion and measures to improve the production and marketing for the benefits of the producers, and for promoting floriculture in Karnataka.

3.4.10 CHAPTERISATION

The entire study has been presented in eight chapters. First chapter highlights the introduction of the research problems and need for the present study. Here horticulture is examined in general and commercial flower crops in particular. The second chapter relates to the review of previous studies, connected with the present investigation. The third chapter contains the objectives and hypotheses. It also incorporates a description of the study area for its geographical and socio-economic background and detailed methodology including the nature and sources of data, the tools and techniques of analysis and concepts are given in this chapter.
In the fourth chapter the regional spread of commercial flower crops is studied. Here the performance of commercial flower crops in terms of area and production over a period of time is presented.

The fifth chapter deals with the cost and returns of the flower economy. In the sixth chapter marketing propensity of flower crops and problems in production and marketing of flower growers have been analysed. The seventh chapter studies the socio-economic conditions of farmers in the sample region. The last chapter contains a summary of findings, conclusions and recommendations with policy implications.

3.4.11 Limitations of the Study

Like any other doctoral work the present study has also some limitations. Firstly, Time Series data on flower crops is lacking. The secondary data relating to area and production of flower crops for all India level is available only after 1990's to till 2001 and for Karnataka after 1978-79 to 2000-01. Secondly, the primary data has been collected only in three taluks in Mysore district. Even though the study was done on a scientific basis, this may not represent the whole of Karnataka State. Thirdly, the data for only three flower crops have been collected. This may not exhibit all the characteristics of all the flower crops.

Fourthly, due to resource and time constraints, comparisons between the flower crops with other crops have not been analyzed. However, comparative analysis for a few selected flower crops has been done. Fifthly, the Marketing cost could not be separately computed as farmers were selling only small portion of the produce to CA non tie-up, who charge commission for marketing.
Sixthly, the data collected and inferences drawn thereon are subject to certain limitations. Because, there is recall bias, as the farmers do not maintain any records on cost of cultivation and marketing expenses. Many problems were faced in the collection of primary data as respondents had to be recall the information relating to production input costs and output returns. Hence there may be some bias.

And finally, there are limitations in comparing cost-return of flower crops because of geographical variations among taluks, change in behaviours of flower growers and there are differences in other factors like market accessibility, infrastructure availability etc. Agro-climatic factors like soil conditions not only affect yield but also influence cost and return of the crops. The geographical features not only controls yield but also fragrance, colour etc. influence the price factor.

The flower crops differ in nature. Marigold is a six-month crop, tuberose is a two years crop and jasmine is a perennial flower crop with more than ten years of life span. These flower crops differ in gestation and flowering period. There were hurdles in calculating output of flower crops because jasmine is grown in both dry land as well as in wet land, tuberose is cultivated in only wet land and marigold is raised in only dry land in the sample area. This irrigation facility affects yield, gestation and flowering period of the flower crops. However, an attempt has been made to compare the cost-returns of these flower crops.

References


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