# CHAPTER - I

## INTRODUCTION

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INTRODUCTION

1.1 INDIAN AGRICULTURE

Agriculture is life-blood of Indian economy where agriculture is considered as primary sector. In fact, 64 percent of the labour force directly or indirectly depends on agriculture in the country. About 80 percent of the Indian rural population is depending on agricultural activities. It provides required basic ingredients for the existence of mankind and raw materials to the industries to cater the basic needs of the human race. Agriculture contributes 24 percent of GDP (Gross Domestic Product), whereas in developed countries the share of agriculture in GDP is only 2 percent. In recent years, agriculture has been undergoing a dramatic change in Indian economy. Though, the farm produce surpluses are still erratic, the country is in a position to plan for exports. A boost to farm exports indeed forms a significant component of the economic reforms initiated in India. Agriculture contributes 18 percent of the country’s total exports. Among agricultural commodities, 12 commodities are being largely exported, which includes Tea, Coffee, Jute, Tobacco, Cashew, Spices, Raw cotton and Sugar. The agricultural exports are considered necessary to sustain the tempo of development of the farm sector as a whole.

India has comparative advantage in its exports on account of lower imports. The growth of exports depends on various factors, which not only includes domestic production and consumption but also many other factors such as world economic scenario, prices of Indian exports relative to the world prices, exchange rate and inflation rate, taxes, subsidies on exports, etc. In fact, the country’s share in world
exports rose from 1.1 per cent during 1999 to around 1.3 per cent during 2003. Its share in total agricultural imports fell marginally from 0.9 per cent to 0.89 per cent during the same period. Agricultural exports increased from US $ 5.9 billion during 2001-02 to US $ 6.4 billion during 2003-04. It constitutes about 12 per cent of total merchandise exports. The growth in rice and wheat exports has been a recent development, together constituting about 20 per cent of total farm exports. The government's special efforts to encourage foodgrain exports in recent years through the granting of WTO compatible subsidies have made India one of the leading exporters of foodgrains in the international market. Import of agricultural commodities rose to US $ 2.8 billion during 2002-03 from US $ 2.3 billion during 2001-02. The share of farm imports in total merchandise imports is around 4.5 per cent. Edible oil, accounting for almost two-thirds of total farm imports, is the single-largest item of farm imports. Import of pulses is also significant and accounts for around 20 per cent of total agri-imports.

The recent Government policy and establishment of the World Trade Organization (WTO) have opened up immense opportunities for Indian exports. The EXIM (Export & Import) Policy of 1997-2002 initiated the process of India's participation as a significant player in the world trade.

1.2 INDIAN HORTICULTURE

Historically, India's crop portfolio has been dominated by food grains and a handful of cash crops. Over the past one decade, there has been a conscious and
coordinated effort to diversify the agriculture base to develop domestic markets as well as increase export potential. The strategy has been to exploit the country's diverse climate and soil conditions that enable cultivation of an array of horticultural crops such as fruits, vegetables, floricultural plants, plantation crops, spices and medicinal and aromatic plants.

Horticulture is a generic term for a diverse range of products spanning fruits, vegetables, spices, coconut, flowers, medicinal & aromatic plants, mushrooms, cashew, cocoa etc. The boom in this sector over the past decade is evident from the rise in its share in the total agricultural output, employing about 24.5 per cent of the total cultivated area. Besides providing nutritional and livelihood security and helping alleviate poverty and generate employment, this sub-sector sustains a large number of agro-industries, which generate huge additional non-farming employment opportunities.

India is endowed with a wide variety of agro-climatic conditions and enjoys an enviable position in the horticultural map of the world. Almost all types of horticultural crops can be grown in one region or the other. Horticultural crops occupy 8% of the gross cropped area of the country contributing 24.5% of the gross value of agricultural output and 54.55% of export earnings in agriculture. Today, India is the largest producer of fruits followed by Brazil with having a global share of 10 percent. The production of fruits was 47.5 million tonnes during 2003-04. Banana has the highest share at 35.6 per cent followed by Mangoes at 22.6 per cent of the
world production. The other major fruits grown are Papaya, Apple, Guava and Citrus fruits. India is the second largest producer of vegetables having share of 13.38 percent of global output and next only to China in the World. The production of vegetables substantially increased from 58.5 million tonnes during 1991-92 to 90 million tonnes during 2003-04. India leads the world chart in the production of Cauliflower, is second in production of Onions and third in production of Cabbage. At 22.2 million tonnes, Potato is the leading vegetable (in terms of tonnage) followed by Brinjal and Tomato at 7.7 million tonnes and 7.3 million tonnes respectively. Horticultural crops occupy a significant place both in internal and external trade of farm produces. It has been a key sector and contributing substantially towards the exports of agricultural and allied sectors right from the 1960s.

1.3 INDIAN FLORICULTURE

Flowers have been an integral part of the Indian culture since times immemorial. Various types of flowers, particularly the herbaceous annuals, biennials and perennials and bulbous flowers, grown in our country, have been introduced from abroad. These exotic flowers have come from Europe, America, Africa, China, Japan and other countries. Most of the exotic flowers were introduced during the Mughal and British periods. How these exotic flowers were introduced in India has not been properly recorded.

The huge demand for flowers in recent times has manifested into a growing market, which has attained the status of an industry. The global trade of cut flowers
alone is estimated around US $ 8 billion. It is dominated by Europe, Japan and USA, but the rising high cost of production in developed countries had paved way for an emerging trend, i.e. to out-source flowers from developing countries, where the cost of production is comparatively low.

The domestic floriculture industry has been witnessing an unprecedented growth during the past years and has also been getting increased acceptability in world markets, currently estimated at US $ 50 billion. The floriculture industry has been growing at an annual rate of 17 per cent, which has also seen a number of corporate houses entering the fray from the last five to years. Higher standards of living and the growing desire to live in an environment-friendly atmosphere have led to a boom in the domestic market as well.

Floriculture industry has been established very past in the country. Its development on commercial scale had only started in the recent decade. India is having advantages of bountiful natural resources, salubrious agro-climate, vast land resources, the availability of abundant labour and emerging infrastructure in the country, which facilitate for growing almost all varieties of flowers under the country’s environment. The technology explosion in the country helps the flower growers switch over to modern floriculture from traditional floriculture for exports. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export-oriented floriculture units under controlled climatic conditions.
In the country, Karnataka, Tamilnadu, Maharstra, Andrapradesh, Haryana and Rajasthan States have emerged as major floriculture centers in recent times. Currently, 170 export-oriented units have been approved in this sector. Of them, 70 units are operational. But, many of them are under operation at less than 50 percent of their capacity. Several of these units had been set up with international collaborative assistance including Dutch companies and Equipment suppliers, besides marketing assistance agreements for auctioning the products. However, there is a great demand for Indian flowers in the overseas market. In this regard, the government has taken necessary steps to introduce the various schemes under institutional finance for facilitating the flower growers by ensuring timely finance at a cheaper rate to satisfy the demand of the overseas buyers in securing enough foreign exchange.

1.4 AGRICULTURE IN KARNATAKA

Karnataka is one of the (sixth) largest states in the country where the economy of the state largely depends on agriculture. During the post independent era, Karnataka has been one of the states, which has laid emphasis on bringing more and more area under agriculture and has also succeeded in achieving increased productivity per unit area through transfer of technical know how.

Karnataka is predominantly an agricultural state, where the agricultural sector contributes 25.3 per cent of the total Gross State Domestic Product (GSDP) and 69 per cent of the work force depends on agriculture in the state. Nearly, 32 per cent of
the state income comes from agriculture. Out of total geographical area of the state, nearly 10.7 million hectares (56.02 percent) has been cropped. The area sown more than once accounted to 1.6 million hectares. Nearly one fourth (24%) of the gross cropped area has been irrigated. In other words, Karnataka is (75%) a rain fed state where the climate is suitable for cultivation of different types of agricultural crops round the year. As such, if the state has to prosper and progress economically, it is possible only through developing agriculture sector.

1.5 HORTICULTURE IN KARNATAKA

Horticulture is a significant and upcoming sector in Karnataka. Horticulture has proved to be the best diversification option for agricultural land use, because of assured and the remunerative returns to the farmers. The diverse agro-climatic conditions prevailing in the state are quite congenial for growing different horticulture crops, successfully, almost throughout the year. The usefulness of horticulture has been specially felt in scanty rainfall and drought prone areas of the state, as several perennial horticultural crops provide an effective drought proofing against the odds of the nature and assure the farmers satisfactory returns even during the years of deficit rainfall. This is the reason why horticulture crops are fast replacing agriculture crops in dry tracts of the state. Another important benefit that the farmers can avail is related to value addition of several horticulture produce, which offers very good scope for meeting the needs of different strata of consumers. With the onset of protected cultivation and consequent high quality produce, the horizons of export have greatly been expanded, offering unlimited scope to hi-tech
farmers in the state. Of late, in response to the increasing awareness for nutritional
security, consumption of protective foods such as fruits and vegetables has greatly
increased and this has helped to hike the production process. The aesthetic needs of
the people are also warranting for expanding the demands for flowers and their
products, resulting in an incredible boost for floriculture, be traditional or hi-tech.
With all these developments that are taking place, the horticulture in the state has
opened new vistas of hopes and bright future for the farmers of the state.

Karnataka is the pioneer state in the country for the development of
horticulture. Horticulture development is the base for almost all food processing
industries, income generation and foreign exchange earnings. The diverse agro-
ecological conditions prevailing in the state facilitates growth of large varieties of
horticultural crops covering fruits, vegetables, flowers, spices, plantations, roots and
tuberous crops, aromatic crops, medicinal crops, oil palm etc. There has been a
significant development in horticulture sector since the last two to three decades.
There is a clear shift from agriculture to horticulture sector which is mainly attributed
to the fact that horticulture crops are perennial in nature and are less labour oriented
and highly remunerative. Karnataka state at the national level stands first in
floriculture, second in spice and plantation crops, third in Coconut and fifth in fruits
and vegetables. Of the total cultivated area of 108 lakh ha. in Karnataka horticulture
crops are grown in an area of 15.30 lakh ha. with an annual production of 118 lakh
tons annually. Karnataka is endowed with congenial agro-climatic conditions
prevalent in six different agro-climatic zones such as the southern dry zone, hilly
zone, coastal zone, central transition region, northern dry zone and eastern dry zone and this has made it possible to grow different varieties of horticulture crops. Karnataka is the first state to set up a separate department of horticulture in India for the overall development of horticulture in the state. The major horticultural crops that are grown in the state are:

a. **Fruit crops**: Mango, Banana, Guava, Sapota, Grapes, Jack, Papaya, Citrus, Pineapple, Fig, Annonaceous fruits, Avocado, Beer, Rose apple

b. **Vegetable crops**: Potato, Tomato, Brinjal, Cole crops, Peas, Beans, Okra, Radish, Beetroot, Carrot, Tapioca, Sweet potato, leafy vegetables, capsicum, gourds and cucurbits
c. **Plantation and Spice crops**: Coffee, Arecanut, Coconut, Cashewnut, Beetlevine, Cocoa, Pepper, Cardamom, Ginger, Turmeric etc. Vanilla is also being grown in the transitional belt.
d. **Flower crops**: Traditional flower crops such as Chrysanthemum, Jasmine, Crossandra, Rose, Tuberose, Aster, Marigold, Champaka, Roses, Gerbera, Carnation, Heliconia etc.
e. **MP crops**: Medicinal plants like Sarpagandha, Ashwagandha, Ghritakumari, Ayapana, Anantamul, Antamul, Chirata and Aromatic plants like Lemon grass and Citronella.

At the end of nineties, substantial infrastructure support, setting up of 12 lakh tonnes of cold storage facilities, rehabilitation of 8 lakh tonnes of existing cold
storage capacity in the state and an integrated development of horticulture on mission mode was attempted for all round development of the state. It is not out of the place to mention the contribution that Karnataka has made in the sectoral development of horticulture needs to be emulated by other states in the country. It has been proved beyond the doubt that horticulture is perhaps the best main diversification of state’s agriculture.

1.6 FLORICULTURE IN KARNATAKA

Floriculture is the sub-sector of horticulture. It isn’t just viable, but if has an immense potential for generating remunerative self-employment among marginal, small and big farmers and has gained significance from the point of foreign exchange earnings. Besides earning the much foreign exchange, it is getting due attraction in these days.

Flowers symbolize of love, beauty, purity, passion and tranquility. It plays a significant role in keeping the mind in good spirit. It is rich in recreational as well as aesthetic values. The art and science of growing flowers is not new to this land of traditions, values and religious gaiety. The cultivation of flowers in the state has been vogue for a long time (since the Vedas and Puranas) and has been part of our civilization. Flowers are grown in the form of loose and cut flowers, for extracting essential oils, perfumes, making gulkan, etc. Flowers befit to all situations so it could be used for both happy and sad occasions, be it at birth, marriage or death. Hence, flowers are inseparable from the social fabric of human life. Flowers are associated
with mankind since time immemorial. The importance of such a delicate creation of nature has always been appreciated. In the early days, there was no much importance of flowers one would grow just for fulfilling his/her aesthetic desires. With the passage of time, due to change in the life style of people, flower growing has attained the economic importance and people have started growing flowers on economic basis. In fact, today floriculture has emerged most lucrative profession in the country as well as in the state, having higher potential returns than other horticultural crops. In recent time, there is a lot of demand for flowers across the world. The liberalization and globalization of Indian agriculture during 1994-1995 has paved the way for enterprising farmers switch over to commercial floriculture from traditional floriculture.

The floriculture trade in the state is considered the flowers grown in both in open field condition and also high quality blooms from state of the art greenhouses located in and around Bangalore. The loose flowers such as Jasmine, Crossandra, Marigold, Tuberose, Aster and Roses are traditionally grown in open field conditions. Though, there is a continuity of chain, this sector is not so organized as that of the trade of cut flowers, which progresses through a well-defined marketing system. The revenue generated from floriculture sector in Karnataka completely depends on traditional flowers, which are added to the existing product range without reducing the overall consumption of loose flowers. In fact, the increasing demand for cut flowers is of complimentary nature rather than competitive nature, thereby promoting the overall growth of the floriculture industry.
Karnataka is leader in floriculture, accounting for 50 percent of India's total flower production. The state has the highest area under modern cut flowers (150 hectares) and 32 flower export oriented units. In Karnataka, Bangalore climate is ideal for growing flowers because it has an ideal climatic range of around 29° C in day and 18° C in night temperatures, which is best suited for cut flowers cultivation especially for cut rose but, other locations need artificial cooling in summer and artificial heating in winter and therefore, have a high cost of production. Bangalore is second largest market after Calcutta, not only because of large consumption but also reshipment to various other destinations spread across the country. The demand for flowers is almost throughout the year in the state, which peaks up during major Hindu festivals like Ganesh festival, Dashera, Diwali, Sankranti, Shivaratri and Ugadi. Besides Hindu festivals, the demand for flowers also finds during Christian and Islamic festivals. The average price realized peaks up with the coincidence of festivals.

During 1995, Bangalore market was not very big for modern cut flowers and there was no organized market for cut flowers. Realizing the need for an organized market for cut flowers the South Indian Floriculture Association (SIFA), Karnataka Flower Grower's Marketing and Processing Co-operative Society (KFGMPCS) with the help of Karnataka Agro Industries Corporation as well as Karnataka State Government has started an organized digital flower auction center at KAIC premises, Bangalore, 15th October 1995. This was the first electronic digital auction center for
cut flowers established in Southeast Asia. Bangalore contributes 60 percent of India’s floriculture trade. It is also known as floriculture capital of India.

1.7 SIGNIFICANCE OF THE RESEARCH STUDY

Karnataka is a progressive state having great potential for the development of horticulture in general and floriculture in particular. The state is bestowed with salubrious agro-climate, abundant water, enormous bio-diversity fertile soils and cheap labours that are highly suitable for growing varieties of flowers round the year. The wide range of flower cultivation helps in keeping healthy and friendly eco-system. Floriculture is base for employment, income generation and potential foreign exchange earnings in the state. In fact, the progress of the state could also be judged by floricultural wealth.

In Karnataka, floriculture occupies a significant place in both internal and external trade of horticultural produces. Promotion of horticulture in the state not only stimulates the growth in area and production of fruits and vegetables but also flowers. As far as modern floriculture is concerned, there is a lack of awareness among the growers about its potentiality and demand in major flower markets in the world.

The state is emerging with infant infrastructure, poor planting materials, lack of post harvest technologies and organized markets, absence of market information, weak database and more importantly consistent government policy towards floriculture. Having this lacuna, no more comprehensive study has been undertaken
to highlight the issues behind the infant development of sunrise sector in the state. In view of the above imperatives, an attempt has been made to study the “Economic and Marketing Aspects of Floriculture Industry” in lighting the policy measures, which would be obviously useful while implementing the policy towards floriculture sector in the state.

1.8 OBJECTIVES OF THE RESEARCH STUDY

1. To analyze the trend in area and production of commercial flowers in Karnataka.

2. To estimate the costs & returns for selected flowers in floriculture industry.

3. To document the infrastructure facilities available for floriculture development in the state.

4. To study the post harvest technology and marketing of flowers in the state.

5. To study the price behaviour of cut roses at KAIC auction centre.

6. To analyze the degree & direction of floricultural exports from India.

7. To document the responses of the flower growers under open field as well as greenhouse conditions.

8. To suggest the policy measures to improve the floriculture sector in Karnataka.

1.9 HYPOTHESIS

1. The area under flowers in Karnataka is being accelerated.

2. The cultivation of flowers is viable and quite profitable in Karnataka.

3. The infrastructure for floriculture development in the state is highly skewed.

3. The Indian floricultural exports haven't showed elegant progress in the overseas markets.
1.10 METHODOLOGY

The study is based on both primary and secondary data. The primary data is collected from the growers, traders, storage operators, processors and also from other stake holders by administering the well structured questionnaire. The secondary data is collected from various sources such as horticulture department, statistical department, floriculture department, APEDA, KAIC, NHB and government publications. The data collected is analyzed by using the appropriate statistical tools. The detail of the methodology is discussed in second chapter.

1.11 SCOPE AND LIMITATIONS OF THE STUDY

The research study has been confined to Karnataka State particularly Bangalore Urban and Rural Districts and exclusively for Rose, Chrysanthemum and Marigold grown under open condition and cut rose grown under protected condition. The estimation of costs and returns, and marketing of flowers are indeed based on first hand information given by sample respondents in the study area. The secondary information incorporated in the research report has relied on availability of published data from the related departments in the state. The inferences drawn in the thesis obviously based on observations and experience of the researcher in the study area owing to lack of reliable data and inelegant co-operation from the floriculturists in the state.
1.12 ORGANIZATION OF THE RESEARCH REPORT

The research report is segmented into ten elegant chapters. The opening chapter deals with introduction of agriculture, horticulture and floriculture in India and Karnataka State. The same chapter is enriched with significance of the research study, objectives of the research study, hypothesis and limitations of the research study. It further encompasses organization of the research report. The second chapter provides an insight into background information of the study area, selection of the flowers, sampling method, database and application of analytical tools and techniques for the study. The third chapter highlights the articles reviewed on various aspects of flower industry from available published books, journals, magazines, research papers, seminar papers and also from various news dailies. The fourth and foremost important chapter of the thesis focuses on the growth of area, production and productivity of commercial flowers particularly selected flowers for the research study over the period of time. Whereas, fifth chapter estimates the costs and returns of the flowers selected for the study. The series of sixth chapter documents the available infrastructure for the development of sunrise sector in the state such as Market Facilitation Centre at Amsterdam in Netherlands, Setting up of wholesale market cum auction centre, assistance for replacement of planting material, Model Floriculture Centre in the State, Assistance for the Construction of Greenhouse and Shade Net, Commercial Tissue Culture Laboratory, Model Floriculture Village, Assistance to Grower's Association, Marketing Schemes, Cargo Centre at Bangalore Airport, Agri Export Zone for Floriculture in Karnataka, Rehabilitation of Floriculture Units, Karnataka Agro Industries Corporation (KAIC) Auction Centre, APEDA, NHB,
NABARD, SIFA, KFPCS, Floriculture Board’s initiatives for the Development of Sunrise sector in Karnataka.

The seventh chapter highlights the post harvest technology and marketing of open field as well as greenhouse flowers in the study area. The eighth chapter traces out price trends, seasonal variation and price prediction of cut roses sold at KAIC flower auction centre in Bangalore and analyze the degree and directions of flower exports from India. The ninth chapter brings to light the responses of open field as well as greenhouse flower growers. Last but not least, the chapter tenth deals with summary, policy implications and conclusion of the research study. Apart from this, the research report is sustained by ample bibliography, structured questionnaire for various sample respondents and also with annexure.