A Study on Rose Cultivation and Marketing Pattern in Hosur Taluk

Dr.R.Mohan M.Com(C.A).,M.Phil.,Ph.D.,

(Department of Commerce(C.A), Governement Arts College, Dharmapuri/ Periyar University, India)

ABSTRACT: The paper reveals prospects and problems of high-tech floriculture in hosur taluk is rather scanty and much of what is available appears to be either impressionistic or confined to the traditional open field floriculture that caters to the traditional domestic market. . This article intended to provide a database on the costs, returns, profitability and export prospects as well as problems of high-tech floriculture in Karnataka, which could be of great use for professionals, academicians, policy makers and stakeholders including financial institutions. Hosur taluk ranks first in the country in the production and export of cut flowers.

KEYWORDS – *Rose Cultivation, Rose Market, Cut Flower*

I.   Introduction

Flowers are inseparable from the social fabric of human life. Flowers being adorable Creation of God befits all occasions be it at birth, marriage or death. In the past, flowers were not of much economic importance. One would grow flowers to fulfill his or her aesthetic desire. At times, flowers were offered for sale to meet the special requirements of people. With the passage of time drastic changes have come about in the life style of people leading to commercialized cultivation of flowers. Today, flower plants are no longer meant for only window garden but play an important role in the decoration of the living houses and office establishments. Floriculture is a fast emerging and highly competitive industry. With the continuous introduction of new cultivators and new crops, cultural techniques are changing and hence new products are developing. Ornamental crop culture technology is improving with the availability of equipment and there is a sea change in the trend of consumers. A new generation of growers is coming forward to employ modern technology for maximizing production and offer quality produce for consumer acceptability, thus fetching a better price.

1.1 Present Situation of Rose Cultivation

In spite of the long and close association with floriculture, the records of commercial activity in the field are very few. The information on the area under floriculture and the production generated is highly inadequate. As commercial floriculture is an activity which has assumed importance only in recent times, there are not many large farms engaged in organized floriculture. In most part of the country flower growing is carried out on small holdings, mainly as a part of the regular agriculture systems.

1.2 Research Support

Research work on floriculture is being carried out at several research institutions under the Indian Council of Agricultural Research and Council of Scientific and Industrial Research, in the horticulture/floriculture departments of State Agricultural Universities and under the All India Coordinated Floriculture Improvement Project with a network of about twenty (20) centres. The crops which have received larger attention include rose, gladiolus, chrysanthemum, orchid, jasmine, tuberose, aster, marigold etc. The thrust till recently had been on crop improvement, standardization of agro-techniques including improved propagation methods, plant protection and post harvest management. In view of the fact that most of the cut flower production is being done under open field conditions, the research efforts generally relate to open cultivation. In recent years, however, technologies for protected cultivation and tissue culture for mass propagation have also received attention. A large number of varieties suitable for cut flower use, as well as garden display have been developed. Production technology, particularly the agronomic requirements and control methods for important diseases and insect pests have also been developed. Contribution by the private sector in research activities in floriculture is negligible.

1.3 Marketing

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

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

In view of the unorganized set up, it is difficult to estimate the size of flower trade, both in terms of volume and value. A study conducted in 1989 estimated the trade to be worth Rs. 2050 million. It is in the period of the last five years or so that this business has really boomed in India, which is reflected in the number of new florist outlets in all cities and increase in the public's purchase of flowers as gifts. This would put the current trade at several times the earlier estimate. A recent study of Delhi market alone put the value of flowers traded on wholesale as Rs. 500 million.

The loose flowers (traditional crops like marigold, jasmine etc.) are usually traded by weight. The average price of different flowers in major markets varies considerably depending on the period of availability (Table 1.1).

Table 1.1 Average Market Prices for Major Flower Crops

1	Unit	Price (US$1 = Rs.40) Rs./kg or doz or each stem
Marigold	Kg.	3-60
Jasmine	Kg.	15-150
Crossandra	Kg.	20-120
Chrysanthemum	Kg.	5-25
Tuberose	Kg.	5-30
Rose	Kg.	6-60
Gladiolus	doz.	20-75
Carnation	doz.	30-75
Rose	doz.	36-75
Orchids	each stem	10-45
Liliums	each stem	10-45
Anthuriums	each stem	15-45

The net returns to the growers depend on the packaging and transportation costs. The cut flowers with stem have a limited overall market in terms of volume. The share of cut flowers has almost doubled from 30 to 60% in the last decade.

The value of cut flower export from India has increased twenty five fold during the last five years (Table 1.2). With more export oriented units coming into operation, exports are likely to grow further in the coming years. The major share of the

export trade is for roses, in addition to orchids, gladiolus etc. The major markets are Europe (Holland, Germany and U.K.) and Japan. The exports of roses to Japan have really picked up in the three years from Rs. 360 million in 1993-94 to Rs. 6090 million in 1995-96. As per the estimates for 1996-97, India has been the largest supplier of roses to Japan (volume wise).

Table 1.2 Exports of Floriculture Products from India (Rupees in Millions)

Item	2015	2016	2017	2018	2019
Cut Flower Fresh	3.99	10.90	9.96	29.98	100.33
Dried Flowers	64.35	74.31	109.21	195.78	364.56
Live Plants	40.15	30.56	30.52	60.43	81.48
Dried Plants	23.99	25.45	23.72	10.35	35.83
Bulbs, Tubers etc.	12.06	7.83	14.95	11.83	19.21
Total	**144.54**	**149.05**	**188.36**	**308.37**	**601.41**

1.4 INTERNATIONAL SCENARIO AND TRADE

About 305,105 ha area was under flower production in different countries of the world, of which the total area in Europe was 44,444 ha, North America 22,388 ha, Asia and Pacific 215,386 ha, the middle East and Africa 2,282 ha and central and South Africa 17,605 ha. Flowers grown under protected greenhouses in different countries around the world total 46,008 ha. India has the maximum area under ornamental crops (88,600 ha) followed by China (59,527 ha), Indonesia (34,000 ha), Japan (21,218 ha), USA (16400 ha), Brazil (10285ha), Taiwan (9.661 ha), The Netherlands (8,017 ha), Italy (7.654 ha), the United Kingdom (6,804 ha), Germany (6,621 ha) and Colombia (4,757 ha).

Globally more than 145 countries are involved in the cultivation of ornamental crops and the area under these crops is increasing steadily. The production of flower crops has increased significantly and there is a huge demand for floricultural products in the world, resulting in growing International Flower Trade. The world consumption of cut flowers and plants is increasing and there is a steady annual increase of 10 to 15 per cent in all importing countries. Due to globalization and its effect on income, there is growing per capita floriculture consumption in most of the countries. In case of developed countries, the consumption of flowers is closely linked with GNP per capita income and urban population.

1.5 Indian scenario and trade

India is bestowed with diverse agro-climatic and ecological conditions, which are favorable to grow all types of commercially important flowers generally found in different parts of the world. It also enjoys the best climate in selected pockets for floriculture during winter months. India is in an enviable position to become a leader in the world floricultural trade because of the prevailing congenial location, overall favorable climate of liberalization and globalization and also specific incentives by the government and floricultural development. Specific and authentic quantitative data are not available for existing production and area under floriculture in India. According to the horticulture production year book 2001 of national horticultural board, an area of 88,600 ha during 1999-2000 was under floriculture in India with production of 5.09 lakh MT of loose flowers and 680.6 million numbers of cut flowers. Loose flowers were grown in 73,536 ha of land. Flowers are grown under open cultivation and also under protected cultivation. In the polyhouses, mainly roses are grown for export. Other exotic flowers like carnations, rose, orchids, lilium and other bulbous flowers are now increasingly produced commercially both for export and domestic market. Floricultural exports from India during 1997-98 was Rs. 81.20 crore, Rs. 96.60 crore in 1998-99, Rs. 105.15 crore in 1999-2000 and Rs. 190.63 crore in 2000-01. In spite of this increase in India exports, its share in the international flower trade has not increased during 1995 to 2000 and has remained at around 0.35 per cent. The main importing countries of Indian floricultural products in order are The Netherlands, USA, Japan, Germany, Italy, Denmark, Egypt, Singapore, Switzerland, France, Australia, UAE, Belgium and Sri lanka. During the year 1999-2000, Indian floricultural products were exported to 75 different countries.

1.6 Significance of the Study

The existing literature on the prospects and problems of high-tech floriculture in hosur taluk is rather scanty and much of what is available appears

to be either impressionistic or confined to the traditional open field floriculture that caters to the traditional domestic market. Although there is no dearth of literature on the technical aspects, i.e., the production aspects, of high-tech floriculture, there is a yawning gap in the literature on its economic and marketing aspects especially in the context of its export prospects. Therefore, a study based on field survey of a representative sample of the existing high-tech floriculture enterprises across different regions/districts in the state would be of lot of policy significance, not only for the government but also for the institutions financing high-tech floriculture. The study is intended to provide a database on the costs, returns, profitability and export prospects as well as problems of high-tech floriculture in Karnataka, which could be of great use for professionals, academicians, policy makers and stakeholders including financial institutions. Hosur taluk ranks first in the country in the production and export of cut flowers.

1.7 Status of floriculture in Hosur Taluk

Hosur is a leading area and production of rose flowers in the country. The area under flower crops was 20,801 ha and the production was 1.24 lakhs million tones of loose flowers during 2011-2012. A large number of flowers like jasmine, tuberose, rose, chrysanthemum, marigold, crossandra, barleria, lily, limonium, alsteoemeria, liatris, freesia, iris, lisianthus, calla, carnation, rose and anthurium are commercially cultivated in the state. Many hi-tech units with export tie-ups are there in the Karnataka state. There are several commercial tissue culture laboratories. The daily average trade of cut flower is over Rs. 2 lakh and loose flower over Rs. 5 lakh in Hosur itself.

Area under rose cultivation in Hosur Taluk is estimated at 25 ha with production of 53 lakhs cut flowers at an estimated value of Rs. 15 lakh. In recent years the area under rose and carnation is fast increasing around Hosur Taluk and Bangalore because of high profits.

As far as the productivity is concerned there is a lot of scope for increasing the productivity and profit through adoption of the latest improved production and marketing technologies. There is a need to generate information regarding production and marketing aspects, the profile of cut flower growers and the constraints in production and marketing of cut flowers.

Therefore, a study of this nature was very much required to understand and obtain suitable feedback which will be useful to cut flower growers, extension workers, scientists, administrators and planners. Hence, the study was conducted with the following objectives;

II.   Scope of the study

Cut flower (rose and carnation) cultivation is highly profitable in India compared to other countries in the world and more so in Hosur Taluk. There is bright prospect for the expansion of area under cut flowers in the coming years. Therefore, it is pertinent and appropriate to study the knowledge level, adoption level and marketing problems of these crops, since there are no scientific enquiries in these aspects. The results will be useful to all the concerned for developing strategies to increase area, productivity of crop, profit and export earnings.

III.   Objectives

1. To study the knowledge and adoption of recommended cultivation practices of rose Flowers by farmers.
2. To study the marketing pattern of rose flowers by farmers
3. To study the profile of rose flower growers
4. To find out the factors motivating the farmers to grow rose flowers
5. To identify the constraints in cultivation and marketing of rose flowers

IV.   Limitations of the study

Due to limitation of time and other reasons, the study was restricted to Hosur Taluk. Generalization of result may not be possible for different cut flower growing areas. Further, the findings of the study were based on the responses of the respondents and hence the objectivity is limited to the honesty and memory power of the respondents.

V.   Methodology

The study was conducted in the Hosur Taluk of Krishnagiri district in Tamil Nadu. This area deals about the material and methodology followed in conducting the research under the following sub headings.

5.1 Locale of the study

In Tamil Nadu state, Hosur is having maximum area under Rose cultivation and ranks first in area and production. The growers are scattered throughout the Hosur Taluk. So, the areas Berikai, Bagalur, Zeemangalam, Dasarapalli, Udanapalli, Swanipura, Eluvapalli, Karapalli, was selected purposively as locale of the study.

5.2 Selection of Respondents

In Hosur taluk, a list of one hundred farmers cultivating Rose flowers was selected for the present study.

5.3 Marketing pattern followed by the Respondents

The marketing pattern of the respondents was studied by asking them to indicate then nature of marketing, which included where, when, to whom and through which channel, they sell their produce of Rose flowers. Responses obtained from the farmers were expressed in frequencies and percentages.

5.4 Constraints faced by the Respondents

The constraints faced in cultivation and marketing of Rose flowers by the farmers of the study area were listed out during pre-test and also in consultation with the extension personnel of State Department of Horticulture. Based on the responses obtained from the Rose growers, frequency and percentages were calculated for each constraint faced by the growers.

VI.   Review of literature

Karpagam (2008) conducted a study on turmeric growers in Erode district of Tamil Nadu state and found that, majority (70.00 per cent) of respondents had medium level of knowledge about turmeric cultivation practices followed by high (20.83 per cent) and low (9.17 per cent) knowledge respectively. Kubde *et al.* (2000) in their study on knowledge and adoption of cultivation and storage protection of potato in Pune district of Maharashtra revealed that, majority of the potato growers had complete knowledge about recommended varieties (100 per cent), time of sowing (95.50 per cent), soil type required for cultivation of potato (79.00 per cent), seed rate (67.50 per cent), name of pests of potato and their control measures (54.00 per cent).

Kubde *et al*. (2008) in their study in Pune district of Maharashtra reported that, the potato growers had partially adopted recommended spacing (97 per cent), plant protection measures (82.0 per cent) manures (64.5 per cent) and fertilizers (55.5 per cent).

Babanna (2009) in his study on training needs of arecanut farmers in Shimoga district of Karnataka reported that, 35 per cent of the respondents belonged to medium adoption category followed by

33.4 per cent and 31.6 per cent of the respondents belonging to high and low adoption category.

Vedamurthy (2009) in his study on arecanut growers of Shimoga district reported that, majority of the arecanut growers adopted cultural practices (90.66 per cent) while 68.00 per cent of the growers adopted age of the seedlings, 73.00 per cent adopted the advocated spacing and 59.33 per cent of growers fully adopted the recommended practices of harvesting and processing. To summarize, most of the studies reported that, majority of the farmers had medium level of adoption of cultivation practices.

Shashidhara (2010) in his study on socio-economic profile of drip irrigation farmers in Shimoga and Davanagere district of Karnataka state revealed that, comparatively more number of farmers (46.67 per cent) belonged to semi medium category followed by medium (32.22 per cent) and small land holding categories (18.89 per cent). From the above studies, it could be concluded that, majority of farmers had semi medium land holding.

Shashidhara (2010) conducted a study on drip irrigation farmers in Bijapur district of Karnataka and reported that, 49.17 per cent of the farmers belonged to medium income category followed by low (26.67 per cent) and high (24.16 per cent) income category, respectively. The above studies revealed that, majority of farmers belonged to medium income category followed by low income category.

Natikar (2011) in his study on attitude and use of farm journals by the farmers found out that, majority of the respondents (65.0 per cent) had medium economic motivation. While 18.75 per cent and 16.25 per cent of the respondent's belonged to high and low level of economic motivation, respectively.

Natikar (2011) conducted a study on attitude and use of farm journal by the subscriber farmers and their profile North Karnataka and revealed that, 73.75 per cent of the subscriber farmers belonged to medium innovativeness category followed by low (15.63 per cent) and high (10.62 per cent) innovativeness categories.

Shashidhara (2011) in his study on socio-economic profile of drip irrigation farmers in Shimoga and Davanagere district of Karnataka found out that, majority of the farmers belonged to medium innovativeness category (47.50 per cent) followed

by low (31.66 per cent) and high (20.83 per cent) innovativeness category, respectively.

Dhamodaran and Vasanthakumar (2012) in their study on adoption of improved sugarcane cultivation practices revealed that, majority of the respondents (52.50 per cent) had low level of extension agency contact, followed by 47.50 per cent of the respondents had medium level of extension agency contact.

Sunilkumar (2012) revealed that, 40.83 per cent of the respondents belonged to medium extension contact category followed by 30.00 per cent and 29.16 per cent belonging to high and low categories of extension contact, in Belgaum district of Karnataka state, respectively.

Sunilkumar (2012) revealed that, nearly 23.00 per cent of respondents participated regularly in agricultural exhibition followed by 20.83 per cent in demonstrations. Majority of them never attended in activities like training (66.67 per cent), educational tour (94.17 per cent) and field visits (92.05 per cent).

VII.   Data Analysis and Discussion
TABLE 7.1 SHOWING THE EDUCATIONAL LEVEL DETAILS.

SL.NO	Particulars	No. of Respondents
1.	Illiterate	4
2.	Primary school	-
3.	Middle school	6
4.	High school	52
5.	Pre-university	26
6.	Graduation	12
	Total	**100**

Data source: Primary data

From the above table 7.1 shows that the 4% of the respondents are under illiterate category, and 6% of the respondents are under middle school category, and 52% of the respondents are in high school category, and 26% of the respondents are pre-university category, and 12% of the respondents are Graduation category.

TABLE 7.2 SHOWS THAT THE LAND HOLDING (ACRES).

SL.NO	Particulars	% of Respondents	Land holding (acres)
1.	Irrigated	-	-
2.	Rain fed	4.16 %	23
3.	Size of poly house	70.32%	388.20
4.	Waste land	25.60%	141.50
	Total	**100%**	**552.7**

Data source: Primary source

From the above table 7.2 shows that the 4.16% of the respondents having rain fed and 70.32% of the respondents having size of poly house and 25.60% of the respondents having the waste land are not utilized by the farmers.

TABLE 7.3 SHOWING NATURE OF MARKETING.

SL.NO	Particulars	No. of respondents
1.	Direct marketing	42
2.	Local retailer	54
3.	Commission agents	4
4.	Others	-
	Total	**100**

Data source: Primary data

From the above table 7.3 shows that the 42% of the respondents are involved direct marketing, 54% of the respondents are depend on local retailers and 4% of the respondents are depend commission agents.

TABLE 7.4 SHOWING THE PRODUCTION PROBLEMS

SL.NO	Particulars	No of respondents
1.	Problem of pests	8
2.	Problem of diseases	10
3.	High cost of fertilizers	16
4.	High cost of plant protection chemicals	8
5.	Limited &irregularity of power supply	28
6.	High investment in establishing a polyhouse	20
7.	All the above	10
	Total	**100**

Data source: Primary source

From the above table 7.4 shows that the 8% of the respondents are affected the problem of pests, 10% of the respondents are affected problem of diseases, 16% of the respondents are affected with high cost of fertilizers, 8% of the respondents are affected with high cost of plant protection chemicals, 28% of the respondents have only limited & irregularity of power supply, 20% of the respondents are highly invested in a polyhouse and 10% of the respondents faced all the above problems.

TABLE 7.5 SHOWING THE MARKETING PROBLEMS

SL.NO	Particulars	No of respondents
1.	Poor transportation facilities	4
2.	Low price for the flowers	28
3.	Fluctuations in the price	40
4.	Exploitation by the middleman	24
5.	Lack of exclusive markets for flowers	-
6.	Lack of storage facilities	2
7.	All the above	2
	Total	**100**

Data source: Primary source

From the above table 4.10.1 shows that the 4% of the respondents are affected poor transportation facilities, 28% of the respondents are faced by low price for the flowers, 40% of the respondents problem faced by fluctuations in the prices, 2% of the respondents exploitation by the middle man, 24% of the respondents are problem faced by the lack of storage facilities and 2% of the respondents are faced all the problems.

7.6 SWOT Analysis for Hi-tech Floriculture
SWOT analysis for the Indian hi-tech floriculture in Tamil Nadu is attempted below. It must be mentioned here that this analysis is not designed to determine whether an enterprise or industry is "good" or "bad." It is just a tool used to map the different forces acting on the industry at a given moment.

Strengths:
➢ Varied Agro Climate conditions: For the production of flowers climatic conditions are very important. The temperature profile, humidity and abundant sunlight play a very vital role in deciding the quality and quantity of the flowers. The three major hi-tech floriculture Block in Hosur namely dasarpalli, Talli and Madikeri do have salubrious climate for the purpose.

➢ Many flower-growing areas of the west have extreme winters with sub-zero temperatures and hardly any sunlight. This results in the seasonality of the flowers and the growth of the flowers throughout the year is not possible. For instance, Europe, the major consumer of cut flowers, confronts adverse cold conditions during the season of peak demand for flowers during December-March. On the contrary, India has varied climate and soil conditions, which are conducive to the production of cut flowers. In south India winters are not severe and there is abundant sunlight. Therefore production of flowers throughout the year is possible. This is the major strength and competitive advantage for India in general and Hosur District in particular.

➢ **Availability of labour at low costs:** Floriculture industry is basically a labour-intensive

industry since the plants require 24 hours-a-day care and attention and the protected green houses system needs people to manage the production process at different stages. There is no dearth of unskilled labour in India especially in the rural areas.

➢ **Well established infrastructural facilities:** For the success of floriculture industry, availability of infrastructural facilities such as steel, aluminum, irrigation system, fertilizers, pesticides, testing labs, air-conditioning and refrigeration equipment are very important. Unlike countries like Zimbabwe and Costa Rica, India has all the above infrastructure facilities and inputs which can help effect a major saving in the project cost.

Weaknesses

➢ **Poor airfreight capacity:** Currently there is a shortage of air freight capacity especially during the peak period leading to a backlog at the airports. This could be a serious disadvantage for a perishable product like cut flowers. The Government of Karnataka has addressed the problem by upgrading the airport and now the flights to Europe have increased. In the near future, the possibility of floriculturists chartering flights to deliver their cargo expeditiously does not seem too remote.

➢ **Exorbitant Air freight cost:** Air freight rates for transporting flowers from India are very high. The concessional freight rate of Rs.42/- per Kg. is applicable to plants and seeds, but not to cut flowers and therefore the general rate of Rs. 75/- per Kg, is applicable to flowers. APEDA's announcement of Rs.10/ - per Kg., freight subsidy showed some silver line in the otherwise cloudy air cargo atmosphere. But almost every sample hi-tech floriculture unit surveyed in the present study has serious complaints to narrate against APEDA's procedures in this regard. The solution lies in creating volumes and frequency so that better rates can be negotiated with the cargo carriers. This seems quite possible as quite a few floriculture units are coming up in India and the volumes and frequencies are bound to increase resulting in lower freight rates.

➢ **Airport infrastructure:** Air cargo handling capacity and cold storage facilities for perishables are almost non-existent at the international airports. The government is already taking steps to create cold storage facilities at the airports located near the floriculture zones. Wall-in-cold storage facilities are already operational at Mumbai, Delhi and Bangalore.

Opportunities

There is a vast sustainable opportunity in floriculture because of the following factors:

➢ A growing world market for flowers in which demand exceeds the supply, and the world demand is estimated to grow anywhere between 15 and 25 percent per annum. Demand rising at this pace cannot be completely met by the present major players in the years to come. India can and must grab on such an opportunity. With production in traditionally strong markets (the Netherlands and the US) have reached threshold levels, developing countries like Columbia, Israel, South Africa and Kenya have emerged as the new production centres. Most flowers are grown under protected conditions in covered structures like green houses and poly/glass houses in European and other countries. Due to intense cold, high energy cost, production in these countries is limited during winter months. Thus they have to depend largely on imports to meet their domestic demand as most of the festivals fall during this period when the demand of flowers is at its peak. Against this background India which currently has less than 1 percent share of the world market, has a strong chance of entering the market and creating a strong position for itself.

➢ Most major flower producing countries at present are industrialised countries and are small in area. The land available for cultivation is shrinking in favour of industrialization and infrastructure development. The soaring real estate prices induce farmers to sell their land. The acquisition cost of land is therefore very high and this makes it unattractive to set up floriculture units in these countries. With ample agricultural land at its disposal and driven by the need to diversify its agriculture into more remunerative commercial crops, India has a great opportunity bank upon floriculture.

➢ One of the ways to overcome the problem of unstable export market for the Indian flower growers is to diversify production and not to depend on cut rose production alone. The Indian growers need to explore other high-value product alternatives, such as propagating materials of speciality crops for exporting purposes. This could be achieved through licensing and contractual agreements with foreign collaborators. Having appropriate intellectual property regimes in place will be necessary to help Indian growers in such

ventures. Since Indiadoes not have appropriate intellectual property protection mechanisms for plant materials, foreign breeders are often reluctant to sell new varieties to Indian growers for fear of illegal proliferation through asexual propagation.

Threats

➢   Although there is vast scope for the floriculture industry, steps are necessary to develop the industry to meet the quality requirement of the international flower auction houses. It requires adoption of modern technology and protected environment, which are very costly. India must establish its presence in the market before other countries and capitalize on this opportunity. Some African countries like Ethiopia and Kenya have gone rather aggressive in pushing through hi-tech floriculture at all costs, and they appear to have met with a great success as well. So it is necessary that India watch out these imminent threats and take timely measures to thwart the consequences of such threats.

➢   The days of seemingly cheap labour are not likely to continue in future. Several floriculture units operating in urban fringe areas, especially in the Hosur region, have already started feeling the heat of frequent labour shortage and high attrition rate in view of the wide range of more lucrative urban fringe jobs available now. Even in Madikeri and Talli regions the cut flower growers have reported increasing labour problems particularly in wake of the extensive implementation of the National Rural Employment Guarantee Scheme.

High Cost of Finance:

➢   Floriculture is essentially a capital-intensive industry. With inflation persisting, financial institutions have hardened the rates of interest. As it is, the cost of capital is much higher in India than in the developed countries. So, high interest cost is a disadvantage which threatens to eat into the profits of floriculture units.

Steps to strengthen Hi-tech Floriculture

The hi-tech floriculture industry in Hosur, as also elsewhere ,appears to have overcome the initial hick-ups and is about to takeoff. However, its growth calls for concerted efforts to seize the opportunities and tackle the constraints mentioned in the foregoing sections. The critical aspects which need attention are discussed below.

VIII.   Summary of Findings, Suggestions and Conclusion

New technology in agriculture has widened the horizons of productivity contours of various crops. Now-a-days there is a shift towards commercialization of agriculture and farmers are giving importance to commercial crops rather than other food crops. Floriculture is one such commercial field, which yields more income to the farmers.

Rose and carnation are important commercial cut flower crops grown in Karnataka particularly around big towns and cities. The area is increasing every year in view of high profit, good market and favorable agro climatic condition congenial for the crop. Large number of traditional farmers have switched over to cultivation of these cut flowers.

Inspite of all its advantages, cultivation has not spread over to all parts of Karnataka. Hardly any research pertaining to these crops has been done and it was felt that the findings with respect to the level of knowledge and adoption regarding the recommended cultivation practices and constraints faced by the farmers would focus light on those area where the cultivators were found to be lacking. This will also enable the Horticulture Department in planning appropriate strategies to rejuvenate cut flowers cultivation. Keeping this in view, the present study was designed with the following specific objectives.

•   To study the knowledge and adoption of recommended cultivation practices of rose flowers by farmers.

•   To study the marketing pattern of rose flowers by farmers

•   To study the profile of rose flower growers

•   To find out the factors motivating the farmers to grow rose flowers

•   To identify the constraints in cultivation and marketing of rose flowers

The present study was conducted during the year 2012-2013 in Hosur Taluk. 100 rose cultivators were selected for the study, which constituted the total sample of 100 rose flower growers. The Krishnagiri district was purposively selected as it ranks first in area and production of cut flowers in Hosur taluk.

The data was collected by using structured interview schedule developed for the study. The data was analyzed by using frequency and percentage.

The major findings of the study are as follows

• Forty per cent of rose growers possessed high level of knowledge about recommended cultivation practices

• Forty per cent of rose growers belonged to medium adoption category.

• Cent per cent of rose growers had knowledge about soil sterilization practice, digging of trench, use of suitable soil, type of bed preparation, use of planting material, spacing between row and plants, raking of soil, removal of old leaves, leaves to be retained, removal of suckers, pest and diseases and harvesting of flowers and treatment of flowers

• Cent per cent of carnation growers had knowledge about soil sterilization practice, digging of trench, use of suitable soil, type of bed preparation, use of planting material, spacing between row and plants, pinching, disbudding, use of support system pest and diseases and harvesting of flowers and treatment of flowers.

• Cent per cent of rose growers adopted recommended practices such as soil sterilization practice, digging of trench, use of suitable soil, type of bed preparation, use of planting material, spacing between row and plants, raking of soil, removal of old leaves, leaves to be retained, removal of suckers and harvesting of flower and treatment of flowers.

• Sixty three per cent of rose growers adopted recommended varieties

• Cent per cent of carnation growers adopted recommended practices such as soil sterilization practice, digging of trench, use of suitable soil, type of bed preparation, use of planting material, spacing between row and plants, pinching, disbudding, use of support system and harvesting of flower and treatment of flowers.

• With respect to FYM application, chemical fertilizer dosage, application of micro and macro nutrients, control measures recommended for pests and diseases and use of preservatives, considerable percentage of farmers were having less knowledge and low adoption of these practices.

• Majority of the respondents (82.81%) belonged to middle age group

• With respect to educational status of the respondents 52% of them were educated up to High School.

• In case of annual income 36% of the respondents belonged to 1000 income category (1 to 10 lakhs)

• Cent per cent of the respondents owned radio and television of which 46.87 per cent had regular television viewing behaviour.

• More number of respondents belonged to high risk orientation category (42.18%) and medium economic motivation category (43.75 %) and high innovativeness category (45.31%).

• Fifty Two per cent of the respondents sold their flowers to local retailers while, Four per cent sold through commission agents.

• Majority 80% of the respondents graded their flowers

• Majority of respondents expressed production problems like limited and irregularity and high investment 20% of power supply (28%).

• Majority expressed the marketing problems like exploitation by the middleman (24%), fluctuation in price (40%) and low price for flowers (28%).

• Cent per cent of the respondents expressed that high profit is the motivational factor to take up cut flower cultivation.

Suggestions

Implications and Recommendations

In the light of findings of the study and researchers own observations while personally interviewing respondents, following implications are made for effective cut flower cultivation, to the concerned policy makers and cut flowers growers.

Regarding the important cultivation practices of cut flowers, such as FYM application, chemical fertilizer dosage, application of micro and macro nutrients, control measures recommended for pests and diseases and use of preservatives, comparatively farmers were having less knowledge and low adoption of these practices. The information about these practices should be provided from a credible source like the scientists working on cut flower cultivation or the subject matter specialists, who are more knowledgeable about the crop through powerful extension methods like training, field days and conducted tours.

Cut flowers are high value crops and demand more precise information about cultivation practices. So, arrangement should be made to provide printed materials to supplement the information, since most of the cut flower growers are educated and are going to make use of the information to a great extent. This necessitates the need for organizing intensive educational activities such as training, demonstrations, seminars, field days and field visits to successful farms to provide information on technologies not practiced/partially practiced by them.

The demand for good planting material is on the increase. Hence, the production of quality planting material and supply at a reasonable price assumes greater importance.

The absence of organized market emerged as the most important bottleneck in cut flower production. Establishment of an exclusive flower market with required infrastructure to handle the exchange of cut flowers is thus essential. State Government should provide the necessary support in this direction.

The absence of refrigerated infrastructure for transportation and sale of flowers affected the quality of flowers resulting in realizing lower returns by the producers. The provision of cold chain facilities thus assumes great importance. The needed infrastructure for these purposes could be established by forming a viable growers association which in turn could mobilize the needed resources from national Horticulture Board and state Government. Promotion of scientific grading, packing and storage by developing the adequate infrastructural facilities is essential for a sustained growth of the cut flower industry.

IX.   Conclusion

India has a long floriculture history and flower growing is an age old enterprise. What it has lacked is its commercialization. The growing demands of flowers in the domestic as well as the export market will require a concerted effort on the part of the government as well as the private entrepreneurs to develop floriculture on scientific lines. Paying attention to the input needs, better resource management and making various policies entrepreneur friendly would lead to a balanced growth of the industry.

Bibliography

[1]. ANASTASI, A., 1961, Psychological Testing. The McMillan Co., New York.

[2]. ANGADI, S. C., 1999, a study on knowledge, adoption and marketing pattern of pomogranate growers in Bagalkot district in Karnataka State. M.Sc. (Agri.) Thesis, University of Agricultural Sciences, Dharwad.

[3]. ANONYMOUS, 2001, Horticultural Crop Statistics of Karnataka State: At a Glance. Directorate of Horticulture, Lalbagh, Bangalore, pp. 28.

[4]. ANONYMOUS, 2005, Industry Market Size and Shares, Economics Intelligence Service Centre for Monitoring. Indian Economy Pvt. Ltd., pp. 44.

[5]. BABANNA, T., 2001, Information source consultancy and training needs of farmers in arecanut cultivation under Tungabhadra command area in Shimoga district. M.Sc.(Agri.) Thesis, University of Agricultural Sciences, Bangalore.

[6]. BALASUBRAMANI, N., 1997, Knowledge and adoption behavior of rubber growers in Belthangadi taluk of Dakshina Kannada district. M.Sc.(Agri.) Thesis, University of Agricultural Sciences, Bangalore.

[7]. BYRAREDDY, H. N., 1971, a study of differential characteristics of adopters and non adopters of fertilizers to rainfed ragi in Bangalore North taluk. M. Sc. (Agri.) Thesis, University of Agricultural Sciences, Bangalore.

[8]. CHANDREGOWDA, K. N., 1997, A study on extent of adoption of improved cultivation practices of Chrysanthemum. M. Sc. (Agri.) Thesis, University of Agricultural Sciences, Bangalore.

[9]. CHNDRAN, B., 1997, A study on knowledge and adoption of farmers cultivating tapico in Ernakulum district of Kerala state. M. Sc. (Agri.) Thesis, University of Agricultural Sciences, Dharwad.

[10]. DHAMODARAN, T. AND VASANTHAKUMAR, J., 2001, Relationship between selected characteristics of registered sugarcane growers and their extent of adoption of improved sugarcane cultivation practices. Journal of Extension Education, 12(2): 3138 – 3143.

[11]. GAYATRIDEVI, S. P., 2000, Impact of selected rural development programme in Ananthapur District, Andhra Pradesh. Ph.D. Thesis, University of Agricultural Sciences, Bangalore.

[12]. HIREMATH, N. S., 2000, Participation of rural youth in farm and nonfarm activities in Dharwad taluk. M. Sc. (Agri) Thesis, University of Agricultural Sciences, Dharwad.

[13]. KARPAGAM, C., 2000, A study on knowledge and adoption behavior of turmeric growers in Erode district of Tamil Nadu state. M.Sc (Agri) Thesis, University of Agricultural Sciences, Dharwad.

[14]. KRISHNAMURTHY, B., NARAYAN, M. L., LAXMINARAYAN, M. T. AND MANJUNATH, B. N., 1998, Characteristics of adopters and non-adopters of weedicides in paddy. Journal of Extension Education, 9 (2): 2039-2040.

[15]. KUBDE, V. R., BHOPLE, S. R. AND TEKALE, V. S., 2000, Knowledge and adoption of cultivation and storage practices of potato. Maharashtra Journal of Extension Education, XIX: 293 – 298.

[16]. KUMAR, H. S., 1998, A study on knowledge, adoption and economic performance of banana Growers. M.Sc.

(Agri.) Thesis, University of Agricultural Sciences, Bangalore.

[17]. LOKHANDE, W. D. AND WANGLIKAR, S. D., 1995, Constraints in adoption of selected grape technologies. Maharashtra Journal of Extension Education, 10: 138-142.