

PROSPECTS OF CORPORATE PRACTICES IN HI-TECH. FLORICULTURE IN HIMACHAL PRADESH

PROJECT REPORT

By

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(A-2010-30-66)

Submitted to



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PALAMPUR - 176 062 (H.P.) INDIA

in

partial fulfillment of the requirements for the degree

of

MASTER OF BUSINESS ADMINISTRATION (AGRIBUSINESS)
(SCHOOL OF AGRIBUSINESS MANAGEMENT)

2012

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*Is there anything I can say,
anything I can give
or do for you.....*

*Because all that I'm
all that I have
I owe to you.....*

Affectionately Dedicated

to my

Revered Parents

&

Brother

*Who have always sacrificed
their present*

to make my future better



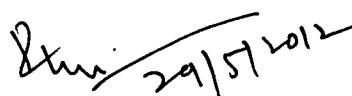
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CERTIFICATE – I

This is to certify that the Project entitled, **“Prospects of Corporate Practices in Hi- Tech. Floriculture in Himachal Pradesh”**, submitted in partial fulfillment of the requirements for the award of the degree of **Master of Business Administration** in the discipline of **Agribusiness Management** to CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, is a bonafide project work carried out by **Mohit Sharma, (A-2010-30-66)** son of Shri Pyare Lal under my supervision and that no part of this project report has been submitted for any other degree or diploma.

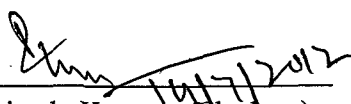
The assistance and help received during the course of this investigation have been fully acknowledged.


(**Rajesh Kumar Thakur**)
Major Advisor

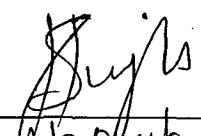
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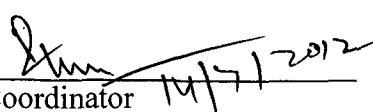
This is to certify that the project entitled, “**Prospects of Corporate Practices in Hi- Tech. Floriculture in Himachal Pradesh**”, submitted by **Mohit Sharma** (A-2010-30-66) son of Shri Pyare Lal Sharma to CSK Himachal Pradesh Krishi Vishvavidyalaya, Palampur, in partial fulfillment of the requirements for the degree of **Master of Business Administration** in the discipline of **Agribusiness Management**, has been approved by the Advisory Committee after an oral examination of the student in collaboration with an External Examiner.



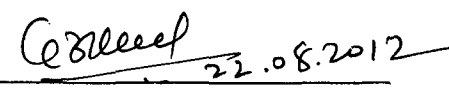
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ACKNOWLEDGEMENTS

Not for the sake of convention done but out of deep seated conviction, it gives me profound pleasure to express my heartfelt feeling for those, who helped me a lot in completing this work.

It is my privilege to express my deep sense of gratitude to my guide Dr. Rajesh Thakur, Coordinator, School of Agribusiness Management, Department of Agriculture, CSKHPKV Palampur for his valuable guidance, for creating research ability and aptitude in me.

I express my heartfelt gratitude, appreciation and venerable thanks to Minakshi Lakhnampal. I also preserve everlasting gratitude to Dr. Desh Raj, Assoc. Prof, Department of Vegetable Sciences and Floriculture for his judicious, impeccable and benevolent guidance through the course of study. I feel immense pleasure in expressing thanks to Dr. Piyush Mehta, Professor and Dr. Sita Ram Dhiman, Department of Management, U.S Parmar Horticulture University, Nouni, Solan for their unhesitant help in smooth completion of the work.

I also feel obliged to the Library staff of CSKHPKV, Palampur for providing me the necessary information.

I am grateful to my father Sh. Pyare Lal who has been a moving spirit behind all my achievements. I would also like to thank my mother Smt. Leela Sharma who has been a constant source of encouragement for me. Without the blessings and moral support of my parents, I could never have been what I am today. I am also extremely thankful to my respected elder brother Sandeep Sharma for his invaluable support, love and affection.

I can hardly overlook the co-operation, timely help, moral support, extended by my galaxy of seniors Dr. Munish Sharma, Chandershekar Prabhakar, Anil Jhakar, Susheel Dhiman, Manoj Negi, Lokender Kashyap, Swaroop Thakur, Sumit Vashist, Zintu Datta, Anil Chaudhary, Vivek Pandey, Ajay Bhardwaj, , Prakesh, Saurav, Harish, Gaurav, Ramesh, Sumit and many more who boosted me up in periods of mental stress and strain and made this place a home away from home.

No words are enough to appreciate my friends Pratibha, Jyoti (Jo-Tibha), Anshul, Gourav, Kunal, Navneet, Madan, , Mukul, Nand, Robin, Savneet, Vikrant, Pawan, Shaikat, Gopal, Simantha, Sagar, Bhanu Pratap, Prabhjot, Lalit, Ravi, Yashpal, Vishal, Deepak, Pote, Ajit, Vikram, Omkar, Sandy, Sunil and many more who have shared unfailingly the strain at every step of the study along with me. I am extremely thankful for their support, love and care.

Lastly, I m highly thankful to the beautiful town Palampur (O.L.) and Shivalik Post Graduate Hostel for giving me some unforgettable experiences and Sweet Memories which I will cherish.

Last but not least, I am grateful to the 'Almighty', the Initiator and the Ultimate, for his blessings showered upon me.

Needless to say, all omissions and errors are mine.

*Place: Palampur
Dated: 24th May, 2012*

Mohit
(Mohit Sharma)

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PREMISE

The training is generally compared to a 'window' through which the trainee can jump into experience and observe the activities of the real business world, it also becomes a 'door' that leads the trainee to become successful in the world of business.

These days' universities are giving more stress on management training, as it is the first interface of a management student with the culture of the corporate world. It also gives the first hand experience to the student by applying the knowledge acquired in class into actual practice.

Our university believes in the same and is determined to produce quality students who have a balanced knowledge of theoretical aspects and practical experience. In the same context I had to undergo summer training after 1st year, in a company, which is also an integral part of the requirement for my degree. To cover this aspect, Classic Floritech. was taken up to undergo two months training.



INTRODUCTION

1. INTRODUCTION

Himachal Pradesh is hilly state situated in the foothills of north-western Himalayas. It is situated between 30° 22' 40" to 33° 12' 20" north latitudes and 75° 45' 55" to 79° 04' 20" east longitudes. The state has wide variations with respect to topography and agro-climatic conditions which offer excellent opportunities for undertaking round the year production of wide range of crop enterprises under open and protected conditions. This offers ample opportunities to the farming communities in selecting the crop enterprises of their choices in different parts of the state, depending on their household and commercial needs. In the last a few decades the diversification of cropping systems has taken place in favour of vegetable crops and state has gained its name in the field of off-season vegetable cultivation.

Floriculture has been identified as one of the emerging and potential enterprise by the researchers and planners of the state. The climatic conditions of the state are also congenial for growing round the year flowers like carnation, rose, gerbera, marigold etc. under open and protected field conditions. The demand for flower products in the form of cut flowers, loose flowers, pot plants etc. is increasing in main markets/ cities of the country. The congenial climatic conditions of the state, increasing demands, expanding markets, remunerative price structures and lucrative farm income from floral-enterprises have attracted the attention of innovative farmers for undertaking the flower production practices at their farms. The experience of the practicing farmers and researchers indicates huge potential of flower enterprise in terms of returns and employment generation especially for the small farmers.

It is well known fact that floriculture is a labour and capital intensive enterprise, which involves huge investments and high degree of risks with respect to production and marketing of produce. The production conditions are to be maintained as per the specific requirements of the crops to maintain the quality of the produce as per market standards. Thus, the extent of use of modern or hi-tech. flower production technology is comparatively higher as compare to other field crops. In order to promote the flower

production in the state and minimize the risks of the farmers, the state government is providing financial and technical support to the farmers in the form of incentives and subsidies. Under these schemes the main emphasis is being given for the construction of protective cultivation structures i.e. polyhouses and for establishing the modern and efficient irrigation systems like drip and sprinkler. The major schemes under which such provisions are available includes *Pandit Din Dyal Prubudh Kisan Bagwan Smridhi Yojna* and Horticulture Technology Mission where the provision of subsidy ranges between 50-80 per cent of the total cost of construction of productive structures.

Various commercial companies/firms have been undertaking the flower production activities and also strengthening their linkages with the farmers of the state in order to expand or sustain their businesses. In promotion of hi-tech. farming of flower crops in the state, the role of corporate sector has become very crucial. They are providing a large number of facilities to the farmers such as supply of critical inputs, advisory services, consultancies, procurement of produce, training and Human Resource Development (HRD) in the field of production technology and marketing skills.

Thus, keeping in view the above factors the present endeavor has been planned to study the prospects of corporate practices in hi-tech. floriculture in the state with following specific objectives.

1. To study various floriculture techniques practiced at corporate level.
2. To observe corporate perception regarding Hi-Tech. Floriculture.
3. To study cost- benefit analysis of significant flowers.
4. To highlight problems and prospects of Hi-Tech Floriculture.



REVIEW
OF
LITERATURE

2. REVIEW OF LITERATURE

The foundation of a scientific enquiry is based upon the systematic investigation and validation of the facts. A thorough insight into the studies already conducted pertaining to the related topic, therefore, becomes imperative for conceptual clarity, development of sound methodology and for identifying the chronological changes and critical gaps for further improvement in the project work. Keeping the above in view, the present chapter has been arranged to briefly depict the review of the studies already conducted relating to 'commercial floriculture'.

Grabowska *et al.* (1979) evaluated eight Dutch gerbera cultivars under greenhouse cultivation. Among those Fermine, Zalmora, Veromica and Orange Nessu cultivars were found highly productive than Romco, Sylora and Goosen. The maximum number of first grade cut flowers was recorded in Cvs Veromica, OrangeNessu and Sylora. However, Veromica, Fermine, Zalmora and Nessu were found to be the most profitable cultivars to be grown for commercial purposes.

Rajeevan *et al.* (1997) analyzed the performance of bush jasmine cultivation which offered promising opportunities under small holdings. The study inferred that the small and marginal farmers could undertake its cultivation and marketing as a supplementary enterprise, in order to utilizing under employed/unemployed family labour, especially women labour. They reported bush jasmine cultivation was more feasible, because of low capital investment in the initial stages.

Chengappa *et al.* (1998) compared the net returns across flowers such as rose, chrysanthemum, aster, gladiolus, tuberose in and around Bangalore city of Karnataka, India. Their study indicated that the net returns were highest in case of rose (Rs. 79,671.56) followed by tuberose (Rs. 57,666.25) and gladiolus (Rs. 61,097.09). In terms of returns per rupee of investment it was observed that tuberose yielded the maximum

input output ratio *i.e.* 1:3.28 followed by gladiolus (1:2.98), chrysanthemum (1:2.92) and aster (1:2.04).

Tilekar *et al.* (2001) estimated the costs of production and marketing of major cut flowers grown under open and polyhouse conditions in three districts *viz.* Pune, Sangli and Nashik of Maharashtra state in India. The factors influencing prices of cut flowers were also identified and the effects of these factors in influencing the prices received by the growers were quantified. Cobb Douglas and linear production functions were fitted for estimation of production function. The season, grades, and size of area of both types of cultivation were identified as the major factors for influencing the prices of cut flowers. The share of market intermediaries was estimated at 50 per cent of net profit of producers. They suggested that both the type of cultivation holds good potential for employment and the area under cultivation needs to be increased. It was suggested to fix minimum support price for cut flowers and explore the possibilities of export.

Nagesh *et al.* (2004) had carried out an experiment in root-knot nematode (*Meloidogyne incognita*)-infested rose commercial polyhouses using dazomet as preplant soil sterilant (25 g/m²); antagonistic fungus, *Pochonia chlamydosporia* (2x10¹⁰ spores/m²); neem cake (1.0 kg/m²) and their combinations. A combination of dazomet followed by soil amendment with *P. chlamydosporia* and neem cake recorded maximum percent healthy root, flower yield and plant recovery compared to other combinations. The fungus established better in dazomet-treated and neem cake-amended beds. The next best treatment was dazomet with *P. chlamydosporia* in terms of reduced nematode populations, establishment of the fungus and flower yield per m². This approach of pretreating soil with dazomet, followed by the introduction of antagonistic fungus along with neem cake aided in restoring the soil health and antagonistic potential for long-term benefit.

Dixit *et al.* (2004) had described the types of structures providing a controlled environment for pot cultures, *viz.*, greenhouse/screenhouse, glasshouse and polyhouses. They also described the factors to be considered for establishing pot experiments which includes selection of containers, selection of soil, processing of soil, experimental design,

application of treatments, sowing/transplanting, irrigation, raising and management of experimental plants, pest and disease control, harvesting and processing of plant samples.

Vidhya (2006) presented an overview of the history of floriculture and studied the potential of cut flowers in Indian context. It was pointed out that, India travelled a long floriculture history and flower growing is an age old enterprise however, the aspects of its commercialization to meet the demands of domestic and export markets was found to be lacking. The study suggested making concerted effort on the part of the government as well as on the private entrepreneurs to develop floriculture on scientific lines. The greater emphasis needs to be laid on the development of suitable practices to ensure quality input supply and better remunerative management to create entrepreneur friendly environment.

Shirke and Kolka (2007) had reported the present status of Indian floriculture export has surpassed Rs. 250 crores as against Rs. 20 crores a decade back. The study revealed that majority of the Hi-Tech floriculturist had become entrepreneurs with more innovativeness, motivation, risk taking ability, decision making and management orientation. These attributes were significantly co-related with their personal and socio-economic profile. However, the entrepreneurs were confronted with constraints like non-availability of quality planting material, skilled and sufficient labour; and market information.

Singh and Srivastava (2008) had conducted a study on evaluation of eight gerbera varieties to assess growth, flowering and yield parameters under low cost polyhouse and shade net (50 per cent) conditions at Model Floriculture Centre, of the university during 2007. Low cost polyhouse planting recorded significantly better growth and yield to shade net planting. Flower stalk length, diameter of flower, stalk diameter and yield of flower per square meter were more under low cost polyhouse conditions as compared to shade net conditions. The duration of flower, days taken to first floret opening and vase life were also more under low cost polyhouse conditions as compared to shade net conditions. Among the varieties evaluated, Ruby Red, Dalma, Essance and Dune were found promising for commercial cultivation under protected conditions.

Biswas *et al.* (2009) had stated that Knowledge-based floriculture in India is economically quite attractive than agricultural crops like rice, wheat, maize, and mustard.

Floriculture occupied an area of 154 thousand hectares in 2007-08, with a production of 485 hundred thousand tonnes of flowers and export earnings of Rs.340 crores. The use of flowers in worship, beautification during festivals and marriages, seminar and symposiums is well known. Cosmetics, perfumes, fragrances and oils are also produced from flowers. Floriculture is scale neutral and capable of providing employment at various levels, namely, villages, marketplace, towns and cities. Both open and polyhouse floriculture is becoming popular in the country. Seedling raising by tissue culture, flower seed production, and cut-flower production are popular occupations. The authors were also of the view that plant nutrient use in floriculture is quite high. Interestingly, use of organic sources of plant nutrients is relatively higher in flower cultivation. The poor and marginal farmers were also growing flowers for commercial purposes. Floriculture has become an industry. It was found that floriculture is quite profitable as compared to other field crops.

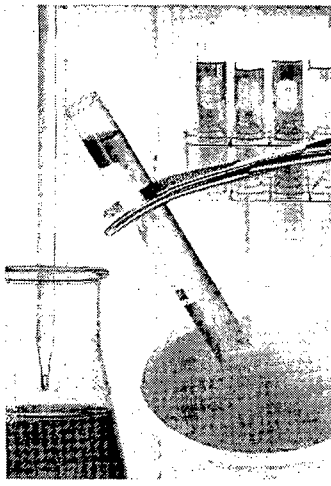
Chaudhary *et al.* (2009) had conducted an experiment during 2008 in Nauni, Himachal Pradesh to determine the effect of various Ergosterol Biosynthesis Inhibitor (EBI) fungicides available along with conventional fungicides on the management of powdery mildew caused by *Sphaerotheca pannosa* (*Podosphaera pannosa*) under naturally ventilated polyhouse conditions. They observed that losses on account of disease were reduced significantly over other measures.

Dalal *et al.* (2009) studied the performance of carnation cultivars on growth, flowering, flower yield, flower quality and vase life under semi-control polyhouse in complete randomized design at floriculture unit, department of horticulture, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola during January to August, 2005. The results indicated that, maximum growth was observed in the cultivars Domingo and Master. While, early flower bud appearance, flower yield, flower quality and vase life were observed superior in cultivars Master and Paolo.

Magar *et al.* (2010) evaluated the performance of 28 genotypes of gerbera at the Hi-tech Floriculture and Vegetable Improvement Project, College of Agriculture, Pune during 10th January, 2007 to 10th January, 2008. The observations in respect of growth and yield characters were recorded. The varieties were tested qualitatively with regards to

flower colour, flower grade and vase life in tap water. The varieties Esmara, Lomboegine, Sonata, Verginia and Pevil produced higher number of suckers indicating their capacity to give higher sucker yield. The varieties Martinque, Banesa, Esmara, Devil, Verginia, Gucci and Opium observed with large flower diameter and flower stalk length while, the varieties Solem, Pink snow, Opium and Maidemoselli produced highest stalk thickness were best suited for cut flower production. The varieties Banesa, Esmara, Opium and Grizzly had more vase life in tap water. The high yielding varieties Sonata, Esmara, Opium, Solem, Gucci, Diana, Naome, Martinque, and Maidemoselli were useful for obtaining higher returns under naturally ventilated polyhouse. During investigation Sonata, Esmara, Opium, Solem, Devil, Banesa, Verginia, Naome, Diana, Martinque and Maidemoselli were superior over the rest of the varieties under study in terms of flower quality and flower yield and can be recommended for commercial cultivation under naturally ventilated polyhouse conditions.

Sharma *et al.* (2010) studied on the effect of various wrapping materials and storage durations on post harvest life of Asiatic hybrid lily cv. 'Apeldoorn', which was carried out in the year 2007. During the study the experiment on wrapping material and duration was laid out in factorial completely randomized design (CRD), with 20 treatments replicated thrice. Wrapping of cut stems in butter paper, cellophane sheet and polyethylene sheet were found equally effective in improving the quality and extending the vase life of this cultivar. The wrapping material showed outstanding results for all parameters evaluated in the experiment. Storage of wrapped cut stem under a temperature of 4°C upto 6 days did not affect the quality and vase life of cut stems.



MATERIALS AND METHODS

3. MATERIALS AND METHODS

Science is a systematized body of knowledge. It is marked by careful, accurate classification of facts, discovery of facts and discovery of scientific laws by creative imagination and self criticism to arrive at logical conclusions. The reliability and validity of research findings depend mainly upon the methodological framework employed. Therefore, the present chapter has been planned to elaborate methodological procedure adopted and various analytical techniques employed in achieving the set objectives of the present study on “Prospects of Corporate Practices in Hi- Tech. Floriculture in Himachal Pradesh” under the following section.

3.1 Selection of the study area

3.2 Sampling design

3.3 Data collection

3.3.1 Primary Data

3.3.1.1 Primary Data collection from floriculturists

3.3.1.2 Primary Data collected from commercial companies/nurseries

3.3.2 Secondary Data

3.4 Analytical tools and techniques

3.4.1 Cost of cultivation and financial analysis of flower crops

3.4.1.1 Estimation of capital requirement

3.4.1.1.1 Working Capital

3.4.1.1.2 Fixed Capital Investment

3.4.1.1.3 Total Capital Investment

3.4.1.2 Cost of cultivation

3.4.2 Financial analysis of flower crops

3.4.2.1 Net Present Value (NPV)

3.4.2.2 Benefit-Cost Ratio (BCR) and

3.4.2.3 Internal Rate of Return (IRR)

3.1 Selection of study area

Floriculture enterprise has been adopted by the innovative farmers of Himachal Pradesh which is being practiced under open and protected cultivation conditions. The climatic conditions of Himachal Pradesh are congenial for the cultivation/production of large number of flowers like Rose, Carnation, Liliun, Gerbera etc. under protected and open field conditions. The innovative farmers which are undertaking the floriculture production activities are scattered throughout the state. Therefore keeping these factors into consideration the present study has been conducted in Himachal Pradesh.

3.2 Sampling Design

Two stage simple random sampling technique has been used for the selection of floriculturists. At the first stage the main flower growing districts of state were identified and three districts namely Sirmour, Kangra, Mandi were selected randomly for the selection of respondents. The list of floriculturists was prepared in consultation with the officers of the department of agriculture, horticulture and Institute of Himalayan Bioresource Technology (IHBT) Palampur. Finally, a sample of 40 floriculturists was selected randomly. The district wise distribution of sampled floriculturist has been given in Table 3.1. The production and marketing of flowers was also found to be undertaken by about 20 commercial floriculture companies/nurseries in the markets of Chandigarh, Mohali and Panchkula. Out of these a sample of 10 companies/nurseries was taken purposely due to the scarcity of time and convenience (Table 3.2).

Table 3.1 District wise distribution of sampled floriculturists of Himachal Pradesh

S.N.	Name of District	Number of respondents
1.	Sirmour	16
2.	Kangra	14
3.	Mandi	10
Total		40

Table 3.2 Name and addresses of the selected floriculture companies/nurseries operating in Chandigarh, Mohali and Panchkula markets

S.N.	Name	Address
1.	Alchemist Florists	Distt. Panchkula (Haryana)
2.	Alpha Floritech.	Village Kanhahabighat, Distt. Sirmour(H.P.)
3.	Beta Floriculture	Village Saron, Distt. Sirmour (H.P.)
4.	Classic Floritech.	Sector 20 Panchkula. (Haryana)
5.	Himalyan Blooms	Village Basudevpura, Distt. Panchkula. (Haryana)
6.	Markandya Floritech.	Village Moginand, Distt. Sirmour. (H.P.)
7.	Mata Amar Floritech.	Village Khiderabad, Distt. Mohali. (Punjab)
8.	Mayuri Floritech.	Village Janot, Distt. Sirmour (H.P.)
9.	Tara Farms	Village Garonda, Distt. Mohali. (Punjab)
10.	TC Herbal Shelf Life Group	Village Kauda, Distt. Narayangarh. (Haryana)

3.3 Data collection methods

For the present study both primary as well as secondary data have been collected.

3.3.1 Primary Data

The primary data were collected from the sampled floriculturists and commercial floriculture companies/nurseries as per details given below.

3.3.1.1 Primary Data collection from floriculturists

The primary data were collected on specifically designed and pretested survey schedule through personal interview method. The detailed information on following aspects was collected from the selected respondents.

- Demographic features of the floriculturists like education, occupation, perception regarding floriculture.

- Farm inventories like buildings, farm equipments, infrastructural facilities like polyhouses, nursery sheds etc. and livestock.
- Land use pattern, cropping pattern, area under flowers.
- Expenditure on seed, fertilizers, plant protection, labour etc. for different flowers.
- Problems faced by the respondents and prospects of floriculture.

3.3.1.2 Primary Data collected from commercial companies/nurseries

Primary data from commercial floriculture companies/ nurseries regarding their corporate perceptions such as business history, fund management, production practices, government policies etc. about hi-tech. Floriculture were collected.

3.3.2 Secondary Data

The information related to the area under floriculture, list of floriculturists etc. were obtained from department of horticulture, the corporate practices followed in the production technique of major flowers was obtained from the reports of Classic Agricon, Department of Vegetable Sciences and Floriculture, CSKHPKV Palampur.

3.4 Analytical Tools and Techniques

The collected data were compiled and analyzed by using the simple mathematical/statistical tools like average, percentage, total weight age score to meet out the requirements of first, second and fourth objective of study. Whereas, to work out the cost benefit analysis the financial measures were calculated as per details given below.

3.4.1 Cost of cultivation and financial analysis of flowers

3.4.1.1 Estimation of capital requirement

The estimation of various costs of cultivation was done by calculating fixed capital, working capital and total capital. The details for the estimation of capital requirements are being given below:

3.4.1.1.1 Working capital

This included the expenditures on the materials like planting material, plant protection, farm yard manure, organic and inorganic fertilizers, packing material, miscellaneous items and the expenditure on labour for accomplishing various production

operations of different flower crops. In addition to this the expenditure like electricity charges, irrigation charges and transportation charges of produce at farmer's level were also included.

3.4.1.1.2 Fixed capital investment

The fixed capital investment included the expenditure on the land preparation, construction of polyhouse including drip/sprinkler irrigation along with accessories, water storage structure like water tanks, spray pumps and equipments.

3.4.1.1.3 Total capital investment

The total capital investment for different flower crops was estimated by using the following formula:

$$\text{Total capital investment} = \text{Fixed capital investment} + \text{Working capital}$$

3.4.1.2 Cost of cultivation

Cost of cultivation of flower crops was worked out by taking into consideration the variable and fixed cost and accordingly the returns over variable and total cost have been estimated by using the following expressions,

$$\text{Total variable cost} = \text{Working capital} + \text{Interest on total working capital @ 10 \% on } \frac{1}{2} \text{ yearly basis.}$$

$$\text{Fixed cost (FC)} = \text{Depreciation on fixed assets @ 10\%} + \text{interest on fixed capital investment @ 10\%}.$$

$$\text{Total cost} = \text{Fixed cost} + \text{Variable cost}$$

$$\text{Gross Return (GR)} = \text{Total production} \times \text{Price per unit}$$

3.4.2 Financial analysis of flower crops

The financial analysis of the selected flower crops has been done by using the discounted measures like NPV, BC Ratio, IRR by considering the period of investment at 10 years and using the rate of discount at 10 per cent. The mathematical expressions of these measures are as under:

3.4.2.1 Net Present Value (NPV)

3.4.2.2 Benefit-Cost Ratio (BCR) and

3.4.2.3 Internal Rate of Return (IRR)

3.4.2.1 Net Present Value

The Net Present Value represents the discounted value of the net cash inflows of the project. In the present study, a discount factor of 10 per cent was used to discount the net cash inflows representing the opportunity cost of capital to be used in major flower crops. It has been worked out by using the following expression

$$NPV_{10\%} = \sum \frac{(B_t - C_t)}{(1 + r)^n}$$

Where: t = 0, 1, 2, 3,..., n

$B_t - C_t$ = Net cash inflows in the t^{th} year

B_t = Gross returns in t^{th} year

C_t = Total capital investment in t^{th} year

r = Discount rate (per cent)

n varies from 0-10

The project would be considered viable, if NPV is positive.

3.4.2.2 Benefit cost ratio

It is the ratio between the discounted cash inflows and discounted cash outflows and the ratio must be unity or more for an investment to be considered worthwhile. The benefit cost ratio (BCR) was worked out by using the following formula

$$B.C. \text{ ratio} = \frac{\sum_{t=0}^n B_t}{\sum_{t=0}^n C_t}$$

3.4.2.3 Internal Rate of Return

The rate at which the NPV of project is equal to zero is nothing but Internal Rate of Return (IRR). The net cash inflows were discounted to determine the present worth following the interpolation technique as mentioned under;

IRR = Lower discount rate + Difference between the two discount rate

X

Net present worth of the cash flows at the lower discount rates

Absolute difference between the two discount rates



RESULTS AND DISCUSSION

4. RESULTS AND DISCUSSION

This chapter contains the analytical results of the survey of the 40 farmers and 10 firms which are dealing with flower production in Himachal Pradesh. The results have been presented in following sections.

- 4.1 Demographic features of the respondents
- 4.2 Floriculture techniques practiced at corporate level
- 4.3 Cost- benefits analysis of significant flowers
- 4.4 Problems and prospects of Hi-Tech Floriculture
- 4.5 Corporate perception regarding Hi-Tech. Floriculture

4.1 Demographic features of the respondents

The study of the demographic features of respondents like educational status, occupation, livestock inventory, land holding, farm infrastructural facilities and equipments etc. are very important for taking the management decisions. An overview of these characteristics of respondents has been studied and is discussed in the following sections.

4.1.1 Educational status

Educational status plays a significant role in the adoption of agricultural innovations and recommended farm technologies. Management of the farm and marketing of farm produce are the crucial factors which determines profitability of the farm business. The farm related decisions are influenced by educational level of the farmers. It can be seen from Table 4.1 that around 40 per cent of the respondents were educated up to 12th standard. About 35 and 15 per cent of respondents were educated up to graduation and post-graduation, respectively. However, the percentage of the respondents who were educated up to metric was estimated 10 per cent of the total respondents. This clearly indicates that the educational level of the respondents is quite good which might be one of the factors for the adoption of profitable enterprise like floriculture by the respondents.

Table 4.1 Educational status of sampled respondents of the study area

S.N.	Educational Status	Number of Respondents	Percentage
1.	Upto metric	4	10
2.	12 th	16	40
3.	Graduate	14	35
4.	Post Graduate	6	15
	Total	40	100

4.5.1 Occupational status

The occupational structure of the respondents had been studied and is presented in Table 4.2. It can be seen from the table that the floriculture was the main occupation of the majority of the respondents as about 70 and 30 per cent of the respondents had adopted it as their main and subsidiary occupation, respectively. The table further portrays that business was the next important occupation followed by agriculture and horticulture. The major subsidiary occupations adopted by the sampled floriculturist were floriculture, business and horticulture as reported by 30, 10 and 5 per cent of the sampled respondents, respectively.

Table 4.2 Occupational status of sampled respondents of the study area

S.N.	Occupational status	No. of Respondents	Percentage
A.	Main occupational status		
1.	Floriculture	28	70
2.	Govt. Job	2	5
3.	Business	6	15
4.	Agriculture	2	5
5.	Horticulture	2	5
B.	Subsidiary Occupational Status		
1.	Floriculture	12	30
2.	Business	4	10
3.	Horticulture	2	5
	Total	58	100

4.5.2 Land Inventory

Land is the basic requirement for the farming around which economy of farmer revolves. The size of holding that a farm household owns shows the basic strength of the farming family. The allocation of the available land for different crop enterprises shows how efficiently it is used by the farmers to meet their family consumption as well as market needs for earning income. The land inventory of the sampled households has been presented in Table 4.3. It can be seen from the table that average size of the holding was 0.66 hectares.

The available land was allocated for agricultural crops, flowers, buildings, ghasnies for fodder production. The cultivated land was estimated at about 0.5 hectares which accounted for 76 per cent of the total size of holding. The allocation of land for the production of flower and other crops was found to be 38 and 62 per cent of total cultivated area, respectively. The area allocated for building, ghasnies etc. was about 23 per cent of the total size of holding.

The table further indicates that on an average 0.28 hectares area was having assured irrigation facility which accounted 55 per cent percent of the total cultivated area. The major proportion of the irrigated land was allocated for the flower production, however 0.09 hectares of irrigated land had also been allocated to crops other than flowers like cereals, vegetables etc. by the sampled households.

Table 4.3 Land inventory and Land utilization of the sampled respondents of the study area

S.N.	Particulars	Area (ha)		Total
		Irrigated	Un-Irrigated	
1.	Owned Land	0.28	0.41	0.69
2.	Leased-in	-	-	-
3.	Leased-out	-	0.04	0.04
4.	Total Land	0.28 (42)	0.38 (58)	0.66 (100)
5.	Cultivated land	0.28 (55)	0.22 (45)	0.50 (76)
6.	Area under other crops	0.09	0.23	0.31 (62)
7.	Area under Floriculture	0.19	-	0.19 (38)
8.	Land put to other uses	-	0.15	0.15 (23)

Note: - Figures in parenthesis indicate percentages to total area.

4.1.4 Livestock Inventory

Livestock rearing is a traditional practice and form an integral part of the farming systems and holds the distinct complementarities with crop production. The crop by-products are used as fodder for livestock that in turn supply precious farmyard manures (FYM) to crops. The respondents of the study area were found to rear cows, buffaloes, sheep and goats (Table 4.4). The average size of livestock unit managed by the sampled households was estimated at 1.8 units in which the cows constituted about 50 per cent of the total animals at the farm.

Average milk production of cows was estimated at 5 liters/day. The availability of milk and FYM on an average farmer was estimated at 6.3 liters/day and 25.9 quintal per year, respectively.

Table 4.4 Livestock inventory and Livestock products of the sampled respondents of the study area

S.N.	Particulars	Average stock (unit)	Milk production/day (Liters)	Farm Yard Manure (FYM)/year (Quintals)
1.	Improved Cow	0.90	5.05	18.25
2.	Buffalos	0.30	1.15	7.25
3.	Young Stock	0.45	-	0.35
4.	Sheep and Goat	0.15	0.1	0.05
Total		1.80	6.3	25.90

4.1.5 Cropping pattern

Cropping pattern indicates the percentage distribution of total cropped area under different crops at a particular period of time which shows the relative importance of the crops. Table 4.5 shows that wheat and maize were the main crops being grown by the respondents and accounted for 35 and 27 per cent of the total cropped area, respectively. The area under pulses, oilseeds and vegetables accounted for 2, 3 and 3 per cent of total cropped area, respectively. The cropping intensity was found to 162 per cent which indicates that the farmers were taking less than two crops in one year.

Table 4.5 Cropping pattern of the sampled respondents of the study area

S.N.	Name of crops	Area (ha)	Percentage of area
1.	Maize	0.221	27.27
2.	Paddy	0.038	4.68
3.	Wheat	0.281	34.68
4.	Mash	0.011	1.35
5.	Gram	0.01	1.23
6.	Toria	0.012	1.48
7.	Sarson	0.009	1.11
8.	Berseen	0.008	0.98
9.	Vegetables	0.021	2.59
10.	Area under Flower crops	0.190	23.48
11.	Others	0.009	1.11
	Total Cropped area	0.81	
	Net area sown	0.50	
	Cropping intensity	162.05	

4.1.6 Area under major flowers

The major flowers grown by the sampled farmers of the study area and their acreage had been studied and presented in Table 4.6. It can be observed from the table that the net area under flower production was estimated 0.19 hectares. Gerbera, Lilium, Carnation, Chrysanthemum, Rose, Gladiolus and Bird of paradise were grown by the farmers on commercial basis. Among the different flowers Gerbera accounted for highest area i.e. 44 per cent of the total area under flowers. Lilium and Carnation was also the major flower crops accounting for 25 per cent and 21 per cent of the total area under flowers, respectively. Gladiolus and Bird of paradise were least grown flower crops both constitute only 4 per cent of the total area under flowers.

Table 4.6 Area under commercial flowers grown by the respondents of the study area

S.N.	Name of crops	Area (ha)	Percentage of area
1.	Carnation	0.039	20.63
2.	Gerbera	0.063	33.37
3.	Gladiolus	0.002	1.05
4.	Lilium	0.047	24.96
5.	Chrysanthemum	0.014	7.35
6.	Rose	0.006	3.41
7.	Bird of paradise	0.002	1.05
8.	Pot plants	0.015	8.14
Total area		0.190	100

4.1.7 Inventory of buildings

The inventory of buildings available with farmer indicates the pattern of investment for social status in the society. Table 4.7 indicates that on average farmers were having 1.2 and 0.5 number of residential houses and cattle sheds, respectively. The average value of buildings was estimated at Rs. 3, 81,500 in which the value of residential houses accounted 94 per cent of the total value of buildings.

Table 4.7 Inventory and value of the buildings of the sampled respondents of the study area

S.N.	Particulars	Average unit	Average value (Rs.)	Percentage
1.	Residential	1.15	358750	94.04
2.	Cattle shed	0.45	22750	5.96
Total		1.6	381500	100

4.1.8 Farm equipments and implements

Every respondent of the study area had basic farm implements, equipments and infrastructural facilities which are essential to carry out floricultural activities. The major equipment and machinery available with the farmers included electric motor with water pump, mist/fogging unit, spray pump, supporting nets etc. (Table 4.8), whereas infrastructural facilities included polyhouses, nursery sheds, water tank and grading/packing room. Such facilities indicate the extent of use of modern agricultural technologies for the production of flower crops. During the survey it was observed that the flower production was generally carried in polyhouses and net houses to get higher production and to maintain quality of produce. The table indicated that on an average 1.5 and 0.9 numbers of polyhouses and nursery sheds, respectively were maintained by the sampled farmers. Flower crops require irrigation at regular interval for proper growth of crop and to maintain quality of produce. Sampled farmers had constructed water tanks with the modern irrigation facilities. On an average 0.7 number of water tanks were available with the sampled floriculturists.

Post-harvest operations like grading, packing, storing etc. are very important in floriculture. To fulfill this purpose separate rooms are required. This facility was found lacking with the majority of selected farmers as the availability of such rooms was very low however, electric motor with water pump, mist/fogging unit, spray pumps and supporting nets for different flower production operations like irrigation, insect pest and disease management, plant protection etc. were generally available.

Total value for entire farm infrastructural equipments and implements was estimated about 39 lakh. Among all the farm infrastructural equipments polyhouses alone constitute more than 68 per cent of the total value of equipments.

Table 4.8 Inventory of farm equipments, implements and infrastructures on the sampled farms

S.N.	Particulars	Number	Value (Rs.)	Percentage
1.	Polyhouses	1.55	265650	68.01
2.	Nursery shed	0.85	28850	7.39
3.	Water tank	0.7	29400	7.53
4.	Grading/packing room	0.15	3200	0.82
5.	Electric motor with water pump	1.05	6365	1.63
6.	Mist/fogging unit	1.2	24912	6.38
7.	Spray pump	1.85	9550	2.44
8.	Chaff cutter	4.4	2088	0.53
9.	Trays/Baskets	25.9	1778	0.46
10.	Supporting net	1.25	18825	4.82
Total		38.9	390617	100

4.6 Floriculture techniques practiced at corporate level

The history of growing flowers in India is quite old. Traditionally the flower production was restricted to the individual interests or for meeting ceremonial and religious needs. In current scenario, flower production is viewed as a source of employment and income generation. Thus, adoption of flower production technology is influenced by the advances in science and the requirement of the market with respect to the type and quality of produce. The production technology from corporate (business) point of view and adopted by the floriculturists, type of floricultural enterprises and major flowers grown by the sampled respondents have been studied and discussed as under.

4.2.1 Type of floricultural enterprises

During the survey of the sampled floriculturist, it was found that pot plants, cut flowers and loose flower production were the different type of floricultural enterprises which are undertaken in protected and open field conditions by the sampled floriculturists. The respondents were in the business of cut flowers, loose flowers and pot plants in order to cater the demands of expanding markets. It can be seen from the Table

4.9 that majority of the respondents i.e. about 90 per cent were dealing with the production of cut flowers while 10 per cent of the respondents were into the business of pot plants.

Table 4.9 **Distribution of sampled respondents according to the type of floricultural enterprises**

S.N.	Particulars	Number	Percentage
1.	Flower Production	36	90
2.	Pot Plants	4	10
	Total	40	100

4.2.2 Major Flower Crops grown by the respondents

Nowadays farmers are getting involved in the production and marketing of different flower crops which are into the demand. Various flower crops which are into demand are rose, carnation, gerbera, liliun etc. Major flower crops grown by the respondents of the study area are presented in Table 4.10. The table revealed that about 40 per cent of respondents were growing carnation followed by liliun (25 per cent). Other cut flowers like gerbera, rose and chrysanthemum were grown by 15, 10 and 15 per cent respondents, respectively whereas about 10 per cent of respondents were into the business of pot plants.

Table 4.10 **Distribution of the respondents according to the major flower crops grown**

S.N.	Particulars	Number	Percentage
1.	Carnation	16	40
2.	Gerbera	6	15
3.	Gladiolus	2	5
4.	Lilium	10	25
5.	Chrysanthemum	6	15
6.	Rose	4	10
7.	Bird of Paradise	2	5
8.	Pot plants	4	10

4.2.3 Flower production technologies

Flower production has been undertaken by the innovative farmers as a source of self employment and income generation activities. These crops add aesthetic value in the life style and way of living of individuals in the society. When the basic needs of the individuals got fulfilled then, they go for aesthetic value.

Although production practices of the flowers are almost similar to those of other field crops yet there are variations in extent of use of production and management practices. The packages of practices of flower crops have been modified by the researchers to improve the production and quality of produce, especially for the commercial purposes depending upon the preferences of the customers. With the techniques like genetic engineering, various new improved varieties of flower crops have been developed with better quality traits and production potentials. This clearly indicates that the use of advanced practices/operations/technology is more common in flowers as compared to the other field crops. Various flower production practices adopted by the floriculturists from corporate/commercial point of view are presented in Table 4.11 and are discussed as under.

4.2.3.1 Bed preparation

For the planting of flower crops like rose, carnation, liliun, gerbera etc. raised beds are required. The table revealed that the practice of preparation of raised beds for the production of flower crops was adopted by 95 per cent of the respondents.

4.2.3.2 Propagation mode

Seeds, terminal stem cutting, micro propagation, bulbs, corms etc. are the recommended modes of propagation in flower crops. The use of particular mode of propagation depends upon the type of flower crops grown. It was found that the most common mode of propagation adopted by the sampled farmers was terminal stem cutting followed by seeds and bulbs/corms. It was reported by the majority of the sampled respondents (60 per cent) that terminal stem cutting is the most preferred mode of propagation on account of its low cost and easy technique. There are some crops which cannot be propagated through vegetative mode, so seed was used as the mode of

propagation in such cases. About 35 per cent of the farmers were using seeds as a mode of propagation. The table further indicates that about 25 per cent of the respondents were using bulbs/corms in case of liliun and gladiolus.

4.2.3.3 Field preparation

Before the sowing/transplanting field need to be properly prepared by ploughing/digging to ensure proper growth and development of the plant. It is clear from the table that 95 per cent of the respondents had prepared raised field beds in order to avoid stagnation of water near the plant.

4.2.3.4 Selection of soil type

Type of soil is also considered most important factor for flower production. The wide range of flower crops can be successfully grown on sandy loam, loamy and sandy type of soil. It was found that the farmers were used to get their soil tested for important parameters like pH, nutrient status and percentage of sand, silt and clay. About 50 per cent of the sampled farmers were growing flower crops in sandy loam type of soils, while 30 per cent of the farmers were using loamy soils for flower production. Only 20 per cent of the respondents were growing their flower crops on sandy soils.

4.2.3.5 Treatment of planting material

Before plantation, farmers treated the planting materials like seeds, cuttings, bulbs, corms etc. with the help of suitable chemicals. As discussed above, floriculturists were treating the soils at the time of field preparation to avoid soil borne, insect-pest and diseases etc. However, it is well known that some of the diseases are also seed borne. In order to avoid the seed borne diseases about 95 per cent of the farmers were found to do the treatment of the planting material before sowing/planting. The major chemicals used for the seed treatment were Bavisidin, Thiran, Captan.

4.2.3.6 Irrigation

Water is the life of plants. Flower being the delicate plants require frequent and adequate irrigation. There are different methods of irrigation and application of particular method depends upon the availability of water, frequency of irrigation and type of crop grown. Flood irrigation is the most common and traditional method of irrigation and is

used where there is no scarcity of water. Drip/sprinkler/foggers are the modern and efficient method of irrigation. It was found that on an average 65 per cent of the sampled respondents were irrigating their crops through drip irrigation method while 20 per cent of the sampled respondents were using sprinkler mode of irrigation. Only 5 per cent of the sampled respondents were using traditional mode of irrigation i.e. flow irrigation.

4.2.3.7 Pinching/Pruning/disbudding

The practices like pinching, pruning and disbudding are performed to cut or remove the unwanted leaves and other plant parts. These are performed in flower crops in order to improve quality and size of flowers. The proportion of sampled floriculturists performing pinching, disbudding and pruning was estimated at 75, 65 and 3 per cent, respectively. The percentage of farmers performing pinching was comparatively higher as compared to other practices because it is a regular and requisite practice in some flower crops like carnation, chrysanthemum etc. which were grown by most of the farmers.

4.2.3.8 Supporting nets

Supporting nets are useful to provide support for herbaceous stems like flower crops such as carnation, liliun, chrysanthemum etc. It also helps in maintaining shape of plant. In the study area it was found that about 75 per cent of the sampled farmers were using plant protection net to provide support to their plants.

4.2.3.9 Insect-Pest and Disease Management

The flowers are susceptible to large number of insect-pest and diseases which causes considerable losses to crops in terms of production and reduction in quality of produce. The major diseases of flower crops like rose, carnation, gerbera, liliun etc. are mites, collar rot, powdery mildew, bacterial wilt, leaf spot and viral diseases. For the control of such diseases, wide range of insecticides and pesticides are recommended. For the systematic management of insect and pest diseases, spray schedules have been developed and were available with sampled farmers. It can be observed from the table that the majority of the farmers i.e. 95 per cent were following the spray schedule for insect-pest and disease management, whereas 5 per cent of respondents were not following proper spray schedule, they were using the chemicals like Melethion, Chloropyroforce, Emiada Chlorophyte and Intrapade as per need.

4.2.3.10 Weed Management

It was reported by the majority of the respondents that weed management is not a serious problem especially under polyhouse conditions. They were of the view that they are rarely using the herbicides to control the weeds. It was mainly due to the fact that the area of polyhouse is comparatively small, therefore, all the respondents were managing the weeds manually.

4.2.3.11 Plant Nutrients

The flower crops are comparatively of longer duration and continuous cultivation of these crops on a given piece of land reduces the availability of major as well as minor plant nutrients. The availability of these nutrients in adequate quantity is a crucial factor for the commercial flower production. The major plant nutrients like Nitrogen (N), Phosphorus (P) and Potassium (K) are required to supplement in soil through the application of organic and inorganic fertilizers. The major fertilizer brands containing major plant nutrients are Calcium Ammonium Nitrate (CAN), Urea, SSP (Single Super Phosphate), DSP (Di Super Phosphate), Muriate of Potash (MOP), IFFCO mixtures (12:32:16, 19:19:19, 13:0:45, 13:0:50 etc.) are readily available in the market. About 95 per cent of the farmers were providing plant nutrients to the flower crops as per recommendations (Table 4.11).

4.2.3.11.1 Organic and Inorganic fertilizers

It was observed that the flower growers were supplementing the plant nutrients through chemical fertilizers and farmyard manure for the crop. These nutrients are supplemented in the soil as per the requirement of crop through the application of different organic and inorganic fertilizers available in the market. For the supply of major nutrients some of the companies have also come up with the liquid fertilizers which are useful for the soil as well as for foliar applications through which they are readily and instantly used by the plants. In the commercial cultivation of flowers the use of liquid fertilizers is becoming common practice due to their application through irrigation and fogging. In the study area it was found that about 85 per cent of respondents were doing fertigation as per the schedule of the crops.

Table 4.11 Extent of adoption of flower production technology by the sampled respondents

S.N.	Production Practices	Number	Percentage
1.	Bed preparation	38	95
2.	Propagation mode		
(a)	Seeds (Rose, Gerbera)	14	35
(b)	Terminal stem Cuttings (Carnation, Chrysanthemum)	24	60
(c)	Bulbs/corms (Lilium, Gladiolus)	10	25
3.	Field Preparation		
(a)	Raised Bed	38	95
4.	Selection of soil type		
(a)	Sandy loam	20	50
(b)	Sandy	8	20
(c)	Loamy	12	30
5.	Treatment of planting material	38	95
6.	Irrigation		
(a)	Drip	26	65
(b)	Sprinkler	8	20
(c)	Flow Irrigation	2	5
(d)	Drip and sprinkler	4	10
7.	Pinching	30	75
8.	Pruning	14	35
9.	Disbudding	26	65
10.	Supporting nets (for plant protection)	30	75
12.	Insect pest and disease management	38	95
11.	Weed management		
(a)	Chemical weed management	-	-
(b)	Manual weed management	40	100
13.	Plant nutrients		
(a)	Organic and Inorganic fertilizers	38	95
(b)	Fertigation	34	85
(c)	FYM/ Vermi-compost		
(i)	FYM	12	30
(ii)	Compost	16	40
(ii)	FYM and Compost	12	30
14.	Post harvest management	26	65

4.2.3.11.2 Farmyard Manure (FYM)/ Vermi-compost

The application of FYM (farmyard manure) improves the physical property, biological property and water holding capacity of soil which is essential for the growth of plants. The floriculturists were enquired about the use of FYM/vermi-compost in flower production. It was reported by the majority of respondents that they were using the organic manure as per the recommendations. The total requirement of organic manure was met from either FYM or compost or application of both (FYM and compost) by 30, 40 and 30 per cent of respondents, respectively. This indicates that the extent of use of vermi-composting technology had become popular for the production of flowers among the sampled floriculturists of the study area.

4.2.3.12 Post-Harvest Management

The Post-harvest management of flowers refers to preparing produce for the market in the form, required by the ultimate consumer. This includes grading, packaging, storage, transportation and marketing. The table clearly shows that about 65 per cent of the respondents were doing post-harvest management practices and remaining 35 per cent of the farmers were forwarding their produce to the traders or dealers immediately after harvesting for various operations like packing, grading etc.

4.3 Cost benefit analysis of significant flowers

Cost-Benefit Analysis (CBA) estimates and totals up the equivalent money value of the benefits and costs to the community of projects to establish whether they are worthwhile. As floriculture is a high profitable enterprise, capital investment made in this enterprise for a single time can spread the returns over the years. Cost benefit analysis of various flower crops have been studied and is discussed under following sections.

4.3.1 Cost benefit analysis for carnation

Carnation is becoming a leading cut flower crop in Himachal Pradesh. It is gaining popularity due to beautiful cut flower production and rooted plant business. There is large scope of its cultivation. It is cultivated in polyhouses/polytunnel in order to get quality flowers throughout the year.

The average cost of cultivation of carnation is presented in Table 4.12. The table showed that total cost of materials for production of carnation was estimated to be Rs. 5.39 lakh for 1000 sqm area. Working capital for carnation has been worked out and it was found Rs. 3.47 lakh. Analysis of various components of the working capital showed that seed was the major component which accounted for 36 per cent and human labour constituted about 17 per cent of total cost. Other material inputs used were fertilizers, manures and plant protection material. The cost of chemical fertilizers and plant protection material were found around 3 per cent each of total cost. The value of other components like soil treatment, post harvest management etc. was observed to be very low and both accounted for about 3 per cent of total cost. The average production of the carnation was estimated about 2.7 lakh stick/1000 sqm area annually. Average price for carnation estimated about 4-6 rupee per stick.

Gross return has also been worked out and it can be seen from the table that gross return in carnation was about Rs. 11 lakh. Net returns over total cost of production were estimated at Rs. 6.2 lakh while net returns over variable cost were about Rs. 7.9 lakh.

4.3.2 Cost benefit analysis for gerbera

Gerbera is one of the important flower crops grown under polyhouse in India. It is being used as cut flower in decorations and beautification. It has been emerged as an important commercial flower crop under protected cultivation.

Table 4.13 showed that total cost of materials for production of gerbera was Rs. 5.7 lakh/1000 sqm area per annum. Analysis of various components of the cost structure showed that seed was the major component and accounted for 34 per cent of the total cost of cultivation. Human labor was other important component and it constituted about 23 per cent of total cost. The cost of chemical fertilizers was about 3 per cent of total cost, whereas the value of farmyard manure (FYM), plant protection, soil treatment was collectively around 4 per cent. The average total production of gerbera was estimated about 3 lakh sticks/1000 sqm area while price range per flower was 3-5 rupee.

Gross return has also been worked out and it can be seen from the table that gross return in gerbera was about Rs. 11 lakh and the return over variable cost and return over total cost of production were estimated at Rs. 7, 21, 189 and 5, 54, respectively.

Table 4.12 Cost of cultivation for the production of Carnation

S.N.	Particulars	Expenditure (Rs)		Percentage
1	Area (m ²)	981.25	1000	
2	Seed	192222.22	195945.18	36.32
3	FYM/Compost	6011.11	6127.53	1.14
4	Fertilizers	13760	14026.50	2.6
5	Plant protection	13764.44	14031.03	2.6
6	Soil treatment	10888.88	11099.78	2.06
7	Human labour	90222.22	91969.64	17.05
8	Other Charges (electricity charges etc.)	6000	6116.20	1.13
9	Post harvest management	7388.88	7531.99	1.4
10	Total Working Capital	340257.77	346847.88	64.29
11	Interest on Working Capital	17012.89	17342.39	3.21
12	Total Variable Cost	357270.66	364190.27	67.5
13	Cost of poly house	825000	840764.33	
14	Farm Machinery and equipments	35834	35834	
15	Total Fixed Investment	860834	876598.33	
16	Depreciation on Fixed Asset	86083.4	87659.83	16.25
17	Interest on Fixed Investment	86083.4	87659.83	16.25
18	Total Fixed Cost	172166.8	175319.66	32.5
19	Total Cost	529437.46	539509.93	100
Production and Gross Returns				
1	Total Production	267777.77	272894.55	
2	Price per unit	4.25	4.25	
3	Gross Return	1138055.55	1159801.84	
Net Returns				
1	Returns over Variable Cost	780784.88	795611.56	
2	Returns over Total Cost	608618.08	620291.90	

Table 4.13 Cost of cultivation for Gerbera production

S.N.	Particulars	Expenditure (Rs.)		Percentage
1	Area (m ²)	933.33	1000	
2	Seed	182418.66	195448.57	34.11
3	FYM/Compost	11416.66	12232.14	2.13
4	Fertilizers	16666.66	17857.14	3.12
5	Plant protection	7166.66	7678.57	1.34
6	Soil treatment	6083.33	6517.86	1.14
7	Human labour	123333.33	132142.86	23.06
8	Other charges	8500	9107.14	1.59
9	Post harvest management	5166.66	5535.71	0.97
10	Total Working Capital	360752	386520	67.46
11	Interest on Working Capital	18037.6	19326	3.37
12	Total Variable Cost	378789.6	405846	70.83
13	Cost of poly house	746666.66	800000	
14	Farm Machinery and equipments	35645	35645	
15	Total Fixed Investment	782311.66	835645	
16	Depreciation on Fixed Asset	78231.17	83564.5	14.58
17	Interest on Fixed Investment	78231.17	83564.5	14.58
18	Total Fixed Cost	156462.34	167129	29.17
19	Total Cost	535251.94	572975	100
Production and Gross Returns				
1	Total Production	280506.66	300542.85	
2	Price per unit	3.75	3.75	
3	Gross Return	1051900	1127035.71	
Net Returns				
1	Returns over Variable Cost	673110.4	721189.71	
2	Returns over Total Cost	516648.06	554060.71	

4.3.3 Cost of cultivation for Lilium

Lilium is also one of the important cut flowers grown widely in various parts of the state. Its two main cultivars i.e. Asiatic and Oriental are being grown successfully by the farmers of the state.

The average cost of cultivation of lilium in Himachal Pradesh has been worked out and is presented in Table 4.14. The table showed that total cost of materials for production of lilium was estimated to be about Rs. 7 lakh for 1000 sqm area. Analysis of various components of the cost structure showed that seed was the major component and accounted for 52 per cent of the total cost of cultivation. The value of human labour was constituted about 12 per cent of total cost. The value of other components like soil treatment, plant protection, post harvest management etc. was observed to be very low and every component accounted for less than 1 per cent of total cost. The average total production of the lilium was estimated 35966 bunch/1000 sqm area while the price ranges was 32-40 rupee per bunch.

Gross return has also been worked out and it can be seen from the table that gross return in lilium was about Rs. 12 lakh/1000 sqm area. The return over variable cost and return over total cost were estimated at Rs. 7, 16, 643 and 5, 38, 933, respectively.

4.3.4 Cost benefit analysis for Chrysanthemum

Chrysanthemum is a short day plant. It is an important cut flower due to its wide colour range and varying forms. Both standard and spay type of Chrysanthemum are being grown in Himachal Pradesh.

The average cost of cultivation of chrysanthemum in Himachal Pradesh has been worked out and presented in Table 4.15. The table showed that total cost of materials for production of chrysanthemum was estimated to be about Rs. 4.22 lakh for 1000 sqm area. Analysis of various components of the cost structure showed that seed component is an important component and accounted for major proportion i.e. 32 per cent of the total cost of cultivation. The value of human labor constituted about 14 per cent of total cost. Other material inputs used were fertilizers, manures and plant protection material. The cost of chemical fertilizers and the value of FYM/compost accounted for 4 and 2 per cent of the

Table 4.14 Cost of cultivation for Lilium production

S.N.	Particulars	Expenditure (Rs)		Percentage
1	Area (m ²)	1200	1000	
2	Seed	472349.2	393624.33	53.48
3	FYM/Compost	9380	7816.66	1.06
4	Fertilizers	23670	19725	2.68
5	Plant protection	8644	7203.33	0.98
6	Soil treatment	5030	4191.66	0.57
7	Human labour	106000	88333.33	12
8	Other charges	6000	5000	0.68
9	Post harvest management	7070	5891.66	0.8
10	Total Working Capital	638143.2	531786	72.25
11	Interest on Working Capital	31907.16	26589.3	3.61
12	Total Variable Cost	670050.36	558375.3	75.86
13	Cost of poly house	1020000	850000	
14	Farm Machinery and equipments	38550	38550	
15	Total Fixed Investment	1058550	888550	
16	Depreciation on Fixed Asset	105855	88855	12.07
17	Interest on Fixed Investment	105855	88855	12.07
18	Total Fixed Cost	211710	177710	24.14
19	Total Cost	881760.36	736085.3	100
Production and Gross Returns				
1	Total Production	43160	35966.66	
2	Price per unit	35.45	35.45	
3	Gross Return	1530022	1275018.33	
Net Returns				
1	Returns over variable cost	859971.64	716643.03	
2	Returns over Total cost	648261.64	538933.03	

Table 4.15 Cost of cultivation for Chrysanthemum production

S.N.	Particulars	Expenditure (Rs)		Percentage
1	Area (m ²)	933	1000	
2	Seed	125000	133976.42	31.72
3	FYM/Compost	8000	8574.49	2.03
4	Fertilizers	13950	14951.77	3.54
5	Plant protection	8766.66	9396.21	2.22
6	Soil treatment	4116.66	4412.29	1.04
7	Human labour	55666.66	59664.17	14.13
8	Other charges	5000	5359.06	1.27
9	Post harvest management	6333.33	6788.14	1.61
10	Total Working Capital	226833.33	243122.54	57.56
11	Interest on Working Capital	11341.67	12156.13	2.88
12	Total Variable Cost	238175	255278.67	60.44
13	Cost of poly house	746400	800000	
14	Farm Machinery and equipments	35550	35550	
15	Total Fixed Investment	781950	835550	
16	Depreciation on Fixed Asset	78195	83555	19.78
17	Interest on Fixed Investment	78195	83555	19.78
18	Total Fixed Cost	156390	167110	39.56
19	Total Cost	394565	422388.67	100
Production and Gross Returns				
1	Total Production	53466.66	57306.18	
2	Price per unit	15.85	15.85	
3	Gross Return	847446.66	908302.96	
Net Returns				
1	Returns over Variable Cost	609271.66	653024.29	
2	Returns over Total Cost	452881.66	485914.29	





A view of different flower crops under protected conditions

total cost, respectively, whereas the value of plant protection accounted for 2 per cent of the total cost. The value of other component like post harvest management and other expenses like electricity charges, water charges etc. were observed to be very low and accounted for almost 1 per cent of total cost. The average total production of the chrysanthemum was estimated about 57306 bunches/1000 sqm area.

Gross return has also been worked out and it can be seen from the table that gross return in Chrysanthemum was about Rs. 9.08 lakh. The return over variable cost and return over total cost of production were estimated at Rs. 6, 53, 024 and 4, 85, 914, respectively.

4.3.5 Cost benefit analysis for Rose

Rose is one of the leading long stemmed cut flower in India. The climate of Himachal Pradesh is quite congenial for its cultivation. Its different types having beautiful flowers of exquisite shape, different sizes, colours and delightful fragrance have made it an important cut flower for its varied use.

The average cost of cultivation of rose is presented in Table 4.16. The table showed that total cost of materials for production of rose was estimated to be about Rs. 4.5 lakh for 1000 sqm area. Analysis of various components showed that seed was the major component and accounted for 32 per cent of the total cost while other major component i.e. human labour was constituted about 16 per cent of total cost. The material inputs used were fertilizers, manures and plant protection material. The value of fertilizers and plant protection measures accounted for 3 per cent and 2 per cent of total cost, respectively. From the analysis it was observed that the use of fertilizer was more than recommended dose. The value of other post management related operations was accounted for 3 per cent of the total cost. In the study area the average total production of the rose was estimated about 1.7 lakh sticks/1000 sqm area in one year while price range was 5- 8 rupee per stick.

Gross return has also been worked out and it can be seen from the table that gross return in Rose was about Rs. 11 lakh. The return over variable cost and return over total cost were estimated at 8, 91, 270 and 7, 24, 100, respectively.

Table 4.16 Cost of cultivation for the production of Rose

S.N.	Particulars	Expenditure (Rs.)		Percentage
1	Area (m ²)	650	1000	
2	Seed	93600	144000	32.28
3	FYM/Compost	2725	4192.30	0.94
4	Fertilizers	8750	13461.54	3.02
5	Plant protection	4600	7076.92	1.59
6	Soil treatment	4250	6538.46	1.47
7	Human labour	45000	69230.77	15.52
8	Other charges	4500	6923.07	1.55
9	Post harvest management	9250	14230.77	3.19
10	Total Working Capital	172675	265653.9	59.55
11	Interest on Working Capital	8633.75	13282.69	2.98
12	Total Variable Cost	181308.8	278936.5	62.53
13	Cost of poly house	520000	800000	
14	Farm Machinery and equipments	35850	35850	
15	Total Fixed Investment	555850	835850	
16	Depreciation on Fixed Asset	55585	83585	18.74
17	Interest on Fixed Investment	55585	83585	18.74
18	Total Fixed Cost	111170	167170	37.47
19	Total Cost	292478.8	446106.5	100
Production and Gross Returns				
1	Total Production	111041.5	170833.1	
2	Price per unit	6.85	6.85	
3	Gross Return	760634.3	1170207	
Net Returns				
1	Returns over Variable Cost	579325.5	891270	
2	Returns over total Cost	468155.5	724100	

4.3.6 Financial feasibility in significant flowers

To evaluate the feasibility of investment in selected flowers, the criteria such as net present value, benefit cost ratio and internal rate of return were employed and the results are presented in Table 4.17.

4.3.6.1 Net Present Value (NPV)

Net present worth of an investment is the difference between the present value of series of inflows (returns) and outflows (costs) over the economic life period of different flower crops. It was observed that NPV was positive in all the flower enterprises. It ranges between Rs. 30 – 44 lakhs for different flower crops and was observed to be highest in liliun (44 lakh) followed by carnation (40 lakh).

4.3.6.2 Benefit Cost Ratio (BCR)

BC Ratio of selected flower crops i.e. carnation, gerbera, liliun, chrysanthemum and rose was calculated and it was found maximum in case of rose (2.89). It indicates that rose is more profitable enterprise than other flower crops.

4.3.6.3 Internal Rate of Return (IRR)

This criterion measures the rate of return that can be realized by reinvestment of the returns in flower crops. Hence, the IRR indicates an important basis of investment and scores over other criterion of evaluation, which does not consider the reinvestment opportunities. IRR was highest in rose (106 %) followed by carnation (93%).

Table 4.17 Financial feasibility of significant flower crops

S.N.	Name of Crop	Financial indicators		
		NPV at 10%	BC Ratio at 10%	IRR at 10%
1.	Carantion	4041287.98	2.37	92.543
2.	Gerbera	3033595.59	2.01	79.15
3.	Lilium	4421659.14	1.89	84.06
4.	Chrysanthemum	3031450.24	2.39	79.13
5.	Rose	3056905.22	2.89	105.7

4.3.7 Sensitivity Analysis

In sensitivity analysis working capital was increased by 15 per cent and it was estimated under two situations.

1. Gross returns were reduced by 10 and 15 per cent.
2. Cost was increased by 10 and 15 per cent of working capital.

Sensitivity analysis indicated that in every situation benefit cost ratio was more than unity and value of IRR was more than 60 per cent (Table 4.18) which showed that investment in each flower crop is feasible.

4.4 Problems and prospects of Hi-Tech Floriculture

Various innovative farmers are adopting hi- tech. floriculture practices as commercial activity and they are also getting higher returns from their produce. Besides getting the higher outcomes, farmers are also facing some production and marketing related problems. Various problems faced by the respondents of the study area and their view regarding future prospects of floriculture on different aspects were studied and are discussed in present section.

4.4.1 Production problems

Floriculture is a risky venture with respect to huge initial capital investment and uncertainty of the production. Thus, the floriculturists were confronted with number of problems related with production of flowers. The major production problems faced by the sampled floriculturists are presented in Table 4.19 and are discussed as under.

Planting material

It can be observed from the table that non-availability of the quality planting material i.e. seeds/cuttings/bulbs/corms etc. was the major problem faced by 50 per cent of the sampled floriculturists. It was prompted out by the florists that due to non-availability of desired planting material the potential yields and quality of produce were adversely affected. Due to the non-availability of planting material in time the sowing or planting of crop was delayed which resulted in poor quality and low price of produce in the market.

Table 4.18 Sensitivity analysis of significant flowers

S.N.	Name of Crop	Financial indicators								
		NPV at 10%			BC Ratio at 10%			IRR at 10%		
		5 %	10 %	15 %	5 %	10 %	15 %	5 %	10 %	15 %
1.	Carnation									
i)	Increase in Cost	3936751.14	3832214.30	3727677.5	2.29	2.21	2.14	90.55	88.56	86.57
ii)	Decrease in Returns	3691645.04	3342002.10	2992359.2	2.25	2.13	2.01	85.89	79.22	72.53
2	Gerbera									
i)	Increase in Cost	2922762.34	2811929.10	2701095.9	1.94	1.87	1.81	76.81	74.48	72.14
ii)	Decrease in Returns	2731966.98	2430338.37	2128709.8	1.91	1.81	1.71	72.80	66.42	60.00
3	Lilium									
i)	Increase in Cost	4225603.45	4029547.76	3833492.1	1.8	1.7	1.6	81.02	77.98	74.93
ii)	Decrease in Returns	3951592.99	3481526.85	3011460.7	1.8	1.7	1.6	76.76	69.44	62.07
4	Chrysanthemum									
i)	Increase in Cost	2961760.64	2892071.01	2822381.4	2.32	2.25	2.18	77.66	76.20	74.73
ii)	Decrease in Returns	2771090.62	2510730.98	2250371.3	2.27	2.15	2.03	73.65	68.15	62.62
5	Rose									
i)	Increase in Cost	3003854.56	2950803.90	2897753.3	2.8	2.71	2.63	104.1	102.5	101.0
ii)	Decrease in Returns	2823216.80	2589528.38	2355840	2.75	2.6	2.46	98.83	91.95	85.06

Table 4.19 Problems related to production of flowers faced by sampled respondents

S.N.	Particulars	Response	
		Number	Percentage
1.	Non availability of seeds/planting material of improved	20	50
2.	Costly inputs	14	35
3.	Low quality inputs	6	15
4.	Lack of technical know-how and training	14	35
6.	Proper design of greenhouse structure	2	5

Technical know how

Lack of technical know how was also one of the major problems experienced by the floriculturists, as the flower crop is a capital intensive and highly technical enterprise. The varieties of the flower crops and production technology were changing very rapidly and the knowledge is not upgraded with the same pace. The facilities for the training in the field of floriculture were lacking in the vicinity. It can be seen from the table that about 35 per cent of the respondents were having the problem of lack of training and technical know how in the field of flower production.

Costly inputs

Inputs like fertilizers, pesticides etc. are very important for the quality produce and yield of the crop. The problems related to the high costs of plant protection inputs were reported by about 35 per cent of the sampled respondents of the study area.

Low quality inputs

Besides considering the cost factor of inputs, the quality of inputs was also reported to be the one of the important factor which affects production. So, it is necessary for the farmer to get quality inputs. In the study area it was observed that about 15 per cent of the sampled farmers felt that they were not getting good quality inputs which were ultimately resulting in low yield of the produce.

Technical specification of polyhouses

In addition to all these problems mentioned above, farmers have also faced other problems related to proper design of polyhouses. The protected cultivation of flower crops is done under polyhouses/greenhouses. So, the proper design of polyhouses is very important depending on the climatic conditions and types of crops grown. But very less number of sampled respondents in the study area was having such type of problem. It was observed that about 5 per cent of the sampled farmers were facing problem related to the proper structure of polyhouses. It can be attributed to the fact that keeping in view the high cost of polyhouses the farmers might have consulted the experts before construction of the same.

4.4.2 Post harvest management

The problems of post-harvest management are more important than that of production. The problems related to post-harvest includes preparing the produce for the market like grading, packaging, transportation and selection of markets. The problems of post-harvest management mainly arise on account of perishable nature of produce. The problems related to postharvest management of flowers have been analyzed and are presented in Table 4.20.

Cold storage facilities are very essential for the flowers to maintain freshness, quality, texture and life-span. It can be observed from the table that non-availability of cold storage facilities was reported to be the major problem, faced by 65 per cent of the sampled respondents. It was due to the fact that flowers are delicate and required to be stored under optimum temperature to adjust the delay in transportation of produce. It was also reported by the 60 per cent of sampled respondents that cost of cold storage in the market was quite high.

Harvesting/plucking/picking time is also one of the important factors in flower production. The stage of harvesting needs to be decided on the basis of distance or the time period during which produce will be in transport. Longer the distance/time of transportation, the time of harvesting will be early. About 30 per cent of sampled floriculturists were of the view that they do not have expertise on the proper stage of harvest of the produce.

The price of product is fixed on the basis of quality of produce for which grading of produce is essential. It was reported by the sampled respondents that lack of grading facilities was also a major problem in the study area. Beside this, respondents were also of the view that grading is costly and time consuming. About 30 per cent of the sampled respondents of the study area were facing problems related to grading facilities.

The problem of appropriate and costly packing material was also reported by 20 per cent of the sampled farmers. The respondents felt that, flower produce being more delicate and bulky, which required careful packing for which good quality material is not available. They were of the view that government should take necessary steps in this direction.

Table 4.20 Problems related to post harvest management faced by sampled respondents

S.N.	Particulars	Response	
		Number	Percentage
1.	Lack of knowledge about appropriate stage of harvesting	12	30
2.	Non-availability of grading facilities	12	30
3.	Packing material is costly /not available in time	8	20
4.	Cold storage facilities are not available in the local area	26	65
5.	Cold storage is costly	24	60

4.4.3 Marketing problems

Farmers sold their flowers in the local or distant market depending upon the demand and price of the produce. The market prices found to fluctuate widely depending upon demand and supply in the market. It was very important for the farmers to have appropriate and updated market information from various sources about the price of the produce to be sold in market. Beside these factors, farmers were also facing other

marketing problems like, lack of regulated market (30 per cent), distant market (65), high transportation cost (60 per cent) etc. (Table 4.21). The problems of delayed payment and malpractices in the market by the traders were also reported by 30 and 25 per cent of the respondents, respectively.

Table 4.21 Problems related to marketing faced by the sampled respondents

S.N.	Particulars	Response	
		Number	Percentage
1.	Prevalence of low prices in local and distant market	12	30
2.	Lack of regulated markets	12	30
3.	Flower markets are at distant place	26	65
4.	High transportation cost to distant market	24	60
5.	Lack of adequate market information	12	30
6.	Lack of link roads	8	20
7.	Delayed payment by traders	12	30
8.	Malpractices by traders	10	25

4.4.4 Prospects regarding hi- tech floriculture

Floriculture has gained a great deal of commercialization on account of increasing demand in main cities in recent past. The enterprise is also becoming popular among the farming communities due to the availabilities of flower production technologies as well as through the incentives of the government. Varieties of flowers in the form of loose flowers, cut flowers, pot and other ornamental plants can be grown under polyhouses and open conditions of the state. The views of the sampled floriculturists regarding the future prospects of floriculture on different aspects were taken and have been compiled in Table

4.22. The majority of the sampled respondents i.e. 65 per cent felt that the government is providing large number of incentives for the promotion of the enterprise. It was also indicated by 60 per cent of the sampled respondents that, floriculture was a profitable activity when compared with other farm enterprises. About 50 per cent of the sampled respondents were of the view that the demand of the flowers in the market is showing an increasing trend due to the improvement in income level of the people. Similarly, about 55 per cent of sampled respondents indicated that the private sector is coming forward to meet the growing demand of the farmers with respect to critical inputs and infra-structure related to construction of polyhouses.

The discussion revealed that the floriculture enterprise has bright future prospects and will be instrumental in improving the socio-economic status of the farming community.

Table 4.22 Opinions of the sampled respondents regarding future prospects of floriculture

S.N.	Prospects	Response	
		Number	Percentage
1.	Input availability is being improved through the private enterprise	22	55
2.	Development of new varieties by research institutes	18	45
3.	High Productivity	20	50
4.	Demand of floriculture enterprise is increasing	18	45
5.	Improvement in income level of people	22	55
6.	Flowers are relatively profitable	24	60
7.	Increasing price trend of floriculture enterprises	16	40
8.	Government policies and incentives	26	65

4.5 Corporate perception regarding hi-tech. Floriculture

The literal meaning of word 'corporate' is referred to a business or company or commercial or group. Similarly the word 'perception' refers to insight or view or opinion or observation about any aspect. Therefore, the meaning of corporate perception may differ from individual to individual and the type of activity in which an individual is dealing with.

In floriculture industry the main focus is on the use of hi- tech. production techniques and commercial activity of the enterprise. There has been a phenomenal increase in the export of flowers during the last few decades. Export has increased from Rs. 20 crores to Rs. 250 crores during 1997-2006 (Shrike and Kolka, 2007).

The growth of floriculture sector in the country is a resultant of corporate perceptions of floriculturists, traders and companies associated with the various floriculture activities like cultivation/production and marketing of flowering and foliage plants, cut flowers and greens produced both under controlled and open conditions.

In the present section the perception of floriculturists and companies associated with flower production and marketing activities has been analyzed and is discussed as under.

4.5.1 Farmers Perception

Before adoption of any crop enterprise farmer generally keep one factor in the view i.e. maximum outcomes. As floriculture is a profitable enterprise, so farmers are getting involved in this activity due to increase in demand of flowers and higher returns. The opinion of farmers regarding hi- tech. floriculture activity, motivational factors and issues for the adoption of floriculture activity has been discussed as under.

4.5.1.1 Source wise motivation

Floriculture enterprise is a risky and capital intensive venture which requires proper guidance and motivation. The sampled households were enquired about source of motivation for the adoption of floriculture enterprises on the farm. The distribution of the respondents according to source of motivation has been presented in Table 4.23. The table indicated that the main source of motivation for the adoption of floriculture

enterprise was officers of agriculture and horticulture department followed by friends of the sampled respondents. The main reason for the motivation by agricultural / horticultural department officers may attribute to the fact that, the schemes of polyhouse/net-house construction, establishment of drip/sprinkler irrigation etc. were available with the department on subsidy. Percentage of respondents motivated by government, friends and corporate was 40, 35 and 25 per cent, respectively. About 15 per cent respondents were also motivated for the adoption of this enterprise by their relatives.

Table 4.23 Source wise motivation of respondents for flower production

S.N.	Particulars	Number	Percentage
1.	Friends	14	35
2.	Relatives	6	15
3.	Corporate	10	25
4.	Agri./Hort. Dept.	16	40
5.	Others	6	15

4.5.1.2 Key issues for the adoption of floriculture enterprise

In general the farmers select the crop enterprise keeping in view crop production requirements like soil, input, climatic requirements, management, households needs etc. But in case of commercial farming the factors like consumer preferences, availability and demand of market and marketing infrastructure become more important. As floricultural activity is highly profitable i.e. higher returns, so it is a very good source of self employment. All these factors can be useful to farmers to adopt floricultural enterprises. The key issues considered by the farmers while opting for floriculture enterprise has been indicated in Table 4.24. The table shows that about 70 per cent of the farmers considered it as a very good source of self employment. Also due to increase in market demand,

about 45 per cent of farmers had adopted this business however, 35 per cent of farmers have opted it due to availability of incentives and subsidy of the government for the adoption of enterprise.

Table 4.24 Key issues for the adoption of floriculture enterprises

S.N.	Particulars	Number	Percentage
1.	Higher returns	20	50
2.	Increase in market demand	18	45
3.	Govt. policies and incentives	14	35
4.	Low income from other activities	4	10
5.	Self employment	28	70
6.	Self interest	6	15

4.5.2 Companies perception

It is normally considered that the perception of suppliers and users, both are integral in managing the marketing and production strategies of the company. Thus, a corporate perception for the hi-tech agricultural practices for horticulture has been taken to determine the usage degree and also the inclination over the current status usage. Table 4.25 clearly indicates that Markandya Floritech closely followed by Classic Floritech. holds the positive perception regarding the maximum and innovative usage on varied floriculture based activities. However, Alchemist and TC Herbal group perceives a negative perception over the adoption of hi-tech agriculture usage in its current cropping of floriculture.

As far as the perception over different elements pertained to hi-tech agricultural practices in respect to floriculture is concerned, most of the companies mainly stated that establishment of new flower crops and judicious fund management is the key areas, where hi-tech agriculture may have been tend to be adopted by the firms, whereas, government policies and other miscellaneous constraints pose least effect on the appropriate adoption of hi-tech agricultural practices on the flower crops.

Table 4.25 Opinion of the selected floriculture companies regarding hi-tech. practices

S.N.	Name of the firm	Corporate perception parameters										
		Business history	Resons for Establishing business	Product profile	Supply of input sources	production practices	Fund management	Labour availability	Institutional networking policies	Govt. constraints	TWS Rank	
1	Alpha floritech	3	3	2	2	2	3	2	2	1	22 III	
2	Beta Floritech	3	2	2	2	3	2	2	2	1	20 V	
3	Alchemist	1	2	1	1	1	2	1	1	2	14 VII	
4	Mayuri Floritech.	2	3	2	2	3	2	2	2	1	21 IV	
5	Markandya Floritech.	2	3	3	3	2	3	3	3	2	26 I	
6	Classic Floritech	3	3	3	2	2	3	3	3	1	24 II	
7	Tara Farms	1	2	2	3	3	2	2	3	2	21 IV	
8	TC Herbal Group	1	2	1	1	2	3	3	2	1	2	18 VI
9	M. Amar Floritech.	2	2	3	2	3	2	2	2	2	22 III	
10	Himalyan Blooms	3	3	3	2	2	3	3	3	1	1	24 II
TWS*		21	25	22	20	23	25	23	23	15	15	
Rank		IV	I	III	V	II	I	II	II	VI	VI	

Assignment of opinion on the differential scale (Highly Inclined (H))- 3 score; Moderately Inclined (M)- 2 score; Least Inclined (L)- 1 score)



SUMMARY AND CONCLUSIONS

5. SUMMARY AND CONCLUSIONS

Himachal Pradesh is endowed with the varied type of agro-climatic conditions which are suitable for the commercial flower production enterprises. A large number of schemes and incentives have been launched by the government for the promotion of floricultural activities in the state. With growing demand for the flowers, the innovative farmers of the state have adopted floriculture as the source of income and employment. Keeping these factors into consideration the present investigation was on “Prospects of Corporate Practices in Hi-Tech. Floriculture in Himachal Pradesh” to study flower production technologies, corporate perception, cost-benefit analysis and problem and prospects associated with the enterprise to meet out the requirement of objectives. A sample of 40 floriculturists was drawn from three randomly selected districts of the state. In addition to the farmers, 10 companies/ nurseries were also selected randomly. The data so collected were compiled, analyzed and tabulated and results have been presented by working out average percentages, financial estimates like NPV, IRR and BCR. The summary of results and conclusions drawn are given as under.

Education is one of the main factors for the adoption of innovative farm technologies and enterprises. The educational status of the respondents was quite good as their literacy rate was found 100 per cent. It is interesting to note that about 35 per cent of the respondents were educated upto graduation. The higher level of education might be one of the factors for the adoption of flower enterprises. Floriculture has been adopted as the main and subsidiary occupation by 70 and 30 per cent of the respondents, respectively.

On an average the respondents were having 1.2 and 0.5 number of residential houses and cattle sheds, respectively. In term of the total value of buildings, the value of residential houses was found highest i.e. 94 per cent. In addition to this farmers were having basic farm equipments, machinery and infra-structural facilities like electric motor with water pump, mist/fogging unit, spray pump, polyhouses and nursery sheds for supporting floricultural activity. The value of polyhouses constitutes more than 68 per cent of the total value of equipments and infrastructural facilities.

Livestock is an integral part of farm households. The average livestock unit maintained by sampled households was 1.8 units. Among different categories, cows constituted about 50 per cent of the total animals at the farm. The availability of milk and farmyard manure (FYM) on an average farmer was estimated at about 6 liters/day and 26 quintals per year, respectively.

Land is the basic requirement for the farming. The average size of holdings was 0.66 hectares, out of which 42 per cent of land was irrigated while remaining 58 per cent of land was rainfed. Share of cultivated land was found to be 76 per cent of the total size of holding. The area under the production of flower crops was found 0.19 hectares which was 37 per cent of the cultivated land. Sampled farmers were dealing with different flower enterprises and it was found that the major proportions of farmers (90 per cent) were dealing with the production of cut flowers. Major flower crops grown by the sampled respondents were carnation, rose, gerbera, liliun, chrysanthemum etc. Among these flower crops gerbera accounted for highest area (44 per cent).

As flower production is hi-tech. activity, most farmers grow flowers under the protected conditions as per recommendations. Preparation of raised seed beds is recommended practice of flower production. It was noted that the practices and preparation of raised bed for the production of flower crops was adopted by 95 per cent of the sampled respondents. Seeds, terminal stem cuttings and bulbs/corms were identified as major propagation methods for the production of flower crops. The proportion of sampled farmers using terminal stem cutting as propagation mode accounted 60 per cent whereas about 35 per cent of the sampled farmers were using seeds as a mode of propagation. Soil was also identified as one of the major parameter for the production of particular flower crop. It was found that sandy loam soil was most suitable soil for the production of flower crops. About 50 per cent of the sampled respondents were growing their crop on sandy loam soil while 30 per cent of the sampled households were found to use loamy soil type for the production of flower crops.

In order to maintain the quality of produce the proper nutrition and plant protection measures were considered as important for flower production. As far as the plant nutrients are concerned the major plant nutrients were supplemented through

organic and inorganic sources. In the commercial cultivation of flowers the use of liquid fertilizers has become common practice. About 95 per cent of the sampled households were using recommended dose of fertilizers whereas 85 per cent of respondents were doing fertigation as per schedule of the crops. Farm yard manure (FYM) was considered as one of the important factor in maintaining plant health and nutrition to soil. About 30 and 40 per cent of sampled respondents were applying FYM and compost, respectively while 30 per cent of the sampled respondents were using the applications of both (FYM and compost). In order to avoid seed borne diseases it becomes essential to treat the planting material. In the study area sampled farmers were found to treat the planting materials like seeds, cuttings, bulbs, corms etc. with the help of chemicals such as Bavistidin, Thiran and Captan.

Assured and adequate water supply is necessary for the desired crop produce. Sampled farmers were found to use drip (65 per cent) and sprinkler (20 per cent) modes of irrigation whereas only 5 per cent of the sampled households were found to use traditional mode of irrigation i.e. flow irrigation. Sampled respondents were also involved in different flower production techniques like pinching, pruning, disbudding etc. to improve flower quality and size. The proportion of sampled floriculturists performing pinching was found to be highest (75 per cent) followed by disbudding (65 per cent) and pruning (35 per cent). In order to enhance productivity, protection of flower crops from the attack of insects or other diseases become crucial. It was observed that recommended spray schedules for the protection of different flower crops were followed by the sampled respondents (95 per cent) of the study area. About 75 per cent of the sampled farmers were providing support to flower crops with supporting nets. During the study it was found that about 65 per cent of the sampled respondents were preparing and carrying their produce directly to market whereas 35 per cent of the sampled respondents were forwarded their produce to the traders for various operations like packing, grading.

Variable cost for important flower crops like carnation, gerbera, liliun, chrysanthemum and rose was estimated. It ranges between 2- 5 lakh/1,000 m² area. It was found highest in liliun followed by gerbera, carnation, rose and chrysanthemum. Seed and human labour were the major constituents among different cost of working capital.

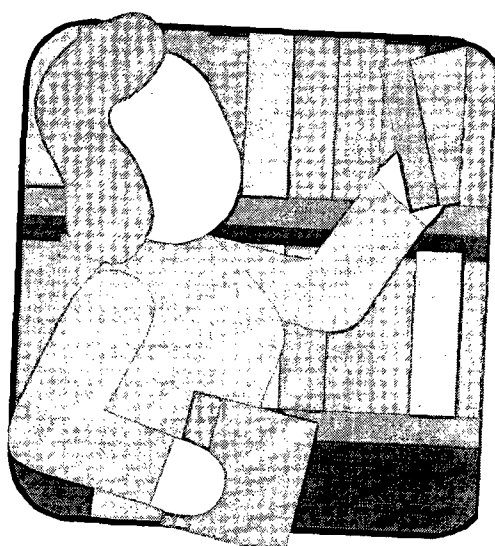
Fixed investment was made for construction of polyhouses, irrigation structure and it was estimated about 8 lakh/1,000 m² area. Similarly, gross returns were also calculated and these were found highest in liliun.

The cost benefit analysis, Net Present Value (NPV), Internal Rate of Return (IRR) are important financial investment feasibility indicators and these were estimated for different flower crops. Net Present Value (NPV) of different flower crops was positive and ranges between 30-44 lakhs. Benefit cost ratio was estimated to be 2.37, 2.01, 1.89, 2.39 and 2.89 for carnation, gerbera, lilium, chrysanthemum and rose, respectively. IRR of all flowers was found to be encouraging and it was quite high i.e. more than 70 per cent in case of every flower crop which indicated the higher rate of return from flowers. Sensitivity analysis of different flower crops indicated that benefit cost ratio was more than unity and value of IRR was found to be more than 70 per cent which proves that investment in flower crops is financially feasible.

Floriculture is risky venture with respect to huge initial capital investment and uncertainty of the production. Sampled floriculturists were facing various production problems, it was found that non-availability of the quality planting material i.e. seeds/cuttings/bulbs/corms etc. was the major problem faced by 50 per cent of the sampled floriculturists. Sampled respondents (35 per cent) were also facing the problem of lack of training and technical know how. It was found that technical specification of polyhouses was not any major problem. In addition to problems related to production, sampled respondents were also facing problems related to post-harvest management of flowers. It was observed that in the nearby areas non-availability of cold storage facilities was reported to be the major problem which was being faced by the 65 per cent of the sampled respondents. It was also reported by the 60 per cent sampled respondents that the cost of cold storage in the market is quite high. Farmers were also facing marketing problems like lack of organized market (30 per cent), unavailability of local market (65 per cent) and high transportation cost (60 per cent). In addition to this, sampled farmers (20 per cent) from rural areas were suffering the problems to carry their produce to distant markets, due to lack of network of link roads.

It was revealed that floriculture enterprise has bright future prospects and it would be helpful in improving the socio-economic status of the farming community. The view of the sampled floriculturists regarding the future prospects of floriculture was taken and majority of the respondents (65 per cent) felt that the government is providing large number of incentives for the promotion of the enterprise. The opinion of the sampled farmers about the adoption of floricultural activity and motivational factors were also studied. It was observed that the main source of motivation for the adoption of floriculture enterprise was officers of agriculture and horticulture department (40 per cent) followed by friends (35 per cent) of the sampled respondents. The key issues considered by the sampled farmers while opting for floriculture enterprise were good source of self employment (70 per cent) and increase in market demand (45 per cent).

Perception of the companies over different elements pertained to hi-tech. floriculture practices was observed and it was found that the main focus of companies was on establishment of new flower crops and fund raising while government policies and other miscellaneous constraints like supply of inputs, production practices etc. pose least effect on the appropriate adoption of hi-tech. floriculture practices.

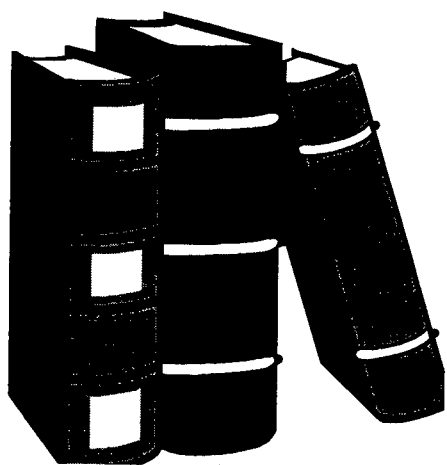


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APPENDICES

Appendix

Table1: Financial analysis for carnation

Year	Initial Investment (Rs)	Working Capital (Rs)	Total investment (Rs)	Gross Returns (Rs)	Net Returns (Rs)	PV of cost at 10% discount	PV of cost at 15% discount	PV of Returns at 10% of Discount	PV of Returns at 15% of Discount	NPV at 10% of Discount	NPV at 15% of Discount	IRR
0	860834		860834		-860834	860834	860834	0	0	-860834	-860834	-860834
1		340257.7778	340257.7778	1138055.6	797797.7778	309325.3	295876.3	1034596	989613.5266	725270.7071	693737.198	414343.5873
2		340257.7778	340257.7778	1138055.6	797797.7778	281204.8	257283.8	940541.8	860533.5014	659337.0064	603249.737	215193.1393
3		340257.7778	340257.7778	1138055.6	797797.7778	255640.7	223725	855038	748290.0012	599397.2786	524564.989	111762.529
4		340257.7778	340257.7778	1138055.6	797797.7778	232400.6	194543.5	777307.3	650686.9576	544906.6169	456143.469	58044.89368
5		340257.7778	340257.7778	1138055.6	797797.7778	211273.3	169168.3	706643	565814.7457	495369.6517	396646.495	30146.14748
6		340257.7778	340257.7778	1138055.6	797797.7778	192066.6	147102.8	642402.7	492012.8223	450336.047	344909.995	15656.67797
7		340257.7778	340257.7778	1138055.6	797797.7778	174606	127915.5	584002.4	427837.2368	409396.4064	299921.735	8131.439188
8		340257.7778	340257.7778	1138055.6	797797.7778	158732.8	111230.9	530911.3	372032.3798	372178.5512	260801.509	4223.137462
9		340257.7778	340257.7778	1138055.6	797797.7778	144302.5	96722.5	482646.7	323506.4173	338344.1375	226783.921	2193.325144
10		340257.7778	340257.7778	1138055.6	797797.7778	131184.1	84106.52	438769.7	281309.9281	307585.5795	197203.409	1139.123514
Total		3402577.778	4263411.778	11380556	7117143.778	2951571	2568509	6992859	5711637.517	4041287.982	3143128.46	1.35976E-08

BC Ratio at 10% discount rate= 2.37

BC Ratio at 15% discount rate= 2.22

IRR = 92.5%

Table2: Financial analysis for gerbera

Year	Initial Investment (Rs)	Working Capital (Rs)	Total investment (Rs)	Gross Returns (Rs)	Net Returns (Rs)	PV of cost at 10% discount	PV of cost at 15% discount	PV of Returns at 10% of Discount	PV of Returns at 15% of Discount	NPV at 10% of Discount	NPV at 15% of Discount	IRR
0	782311.6667		782311.6667		-782311.667	782311.7	782311.7	0	0	-782311.6667	-782311.67	-782311.667
1		360752	360752	981773.33	621021.3333	327956.4	313697.4	892521.2	853715.942	564564.8485	540018.551	346648.8045
2		360752	360752	981773.33	621021.3333	298142.1	272780.3	811382.9	742361.6887	513240.7713	469581.348	193496.4022
3		360752	360752	981773.33	621021.3333	271038.3	237200.3	737620.8	645531.9032	466582.5194	408331.607	108008.0392
4		360752	360752	981773.33	621021.3333	246398.5	206261.1	670564.4	561332.0898	424165.9267	355070.963	60289.16505
5		360752	360752	981773.33	621021.3333	223998.6	179357.5	609604	488114.8607	385605.3879	308757.359	33652.89704
6		360752	360752	981773.33	621021.3333	203635.1	155963	554185.5	424447.7049	350550.3527	268484.66	18784.75972
7		360752	360752	981773.33	621021.3333	185122.8	135620	503805	369084.9608	318682.1388	233464.922	10485.49245
8		360752	360752	981773.33	621021.3333	168293.5	117930.5	458004.5	320943.4442	289711.0353	203012.975	5852.912335
9		360752	360752	981773.33	621021.3333	152994.1	102348.2	416367.7	279081.2558	263373.6684	176533.022	3267.04568
10		360752	360752	981773.33	621021.3333	139085.5	89172.38	378516.1	242679.3529	239430.6077	153506.976	1823.636997
Total		3607520	4389831.667	9817733.3	5427901.667	2998977	2592842	6032572	4927293.203	3033595.59	2334450.72	-2.511472

BC Ratio at 10% discount rate= 2.01

BC Ratio at 15% discount rate= 1.9

IRR = 79.15%

Table 3: Financial analysis for lilium

Year	Initial Investment (Rs)	Working Capital (Rs)	Total investment (Rs)	Gross Returns (Rs)	Net Returns (Rs)	PV of cost at 10% discount	PV of cost at 15% discount	PV of Returns at 10% of Discount	PV of Returns at 15% of Discount	NPV at 10% of Discount	NPV at 15% of Discount	IRR
0	1058550		1058550		-1058550	1058550	1058550	0	0	-1058550	-1058550	-1058550
1		638143.2	638143.2	1530022	891878.8	580130.2	554907.1	1390929	1330453.913	810798.9091	775546.783	484558.7308
2		638143.2	638143.2	1530022	891878.8	527391.1	482527.9	1264481	1156916.446	737089.9174	674388.507	263261.2903
3		638143.2	638143.2	1530022	891878.8	479446.4	419589.5	1149528	1006014.301	670081.7431	586424.788	143030.1479
4		638143.2	638143.2	1530022	891878.8	435860.4	364860.4	1045026	874795.0443	609165.221	509934.599	77708.43633
5		638143.2	638143.2	1530022	891878.8	396236.7	317270	950023.3	760691.3429	553786.5645	443421.39	42219.07874
6		638143.2	638143.2	1530022	891878.8	360215.2	275886.9	863657.5	661470.733	503442.3314	385583.817	22937.67182
7		638143.2	638143.2	1530022	891878.8	327468.4	239901.7	785143.2	575191.9417	457674.8467	335290.276	12462.06227
8		638143.2	638143.2	1530022	891878.8	297698.5	208610.1	713766.6	500166.9058	416068.0425	291556.762	6770.652108
9		638143.2	638143.2	1530022	891878.8	270635	181400.1	648878.7	434927.7442	378243.675	253527.619	3678.502721
10		638143.2	638143.2	1530022	891878.8	246031.8	157739.2	589889.7	378198.0384	343857.8863	220458.799	1998.534565
Total		6381432	7439982	15300220	7860238	4979664	4261243	9401323	7678826.41	4421659.137	3417583.34	75.10758341

BC Ratio at 10% discount rate= 1.89

BC Ratio at 15% discount rate= 1.8

IRR = 84.06%

Table 4: Financial analysis for chrysanthemum

Year	Initial Investment (Rs)	Working Capital (Rs)	Total investment (Rs)	Gross Returns (Rs)	Net Returns (Rs)	PV of cost at 10% discount	PV of cost at 15% discount	PV of Returns at 10% of Discount	PV of Returns at 15% of Discount	NPV at 10% of Discount	NPV at 15% of Discount	IRR
0	781950		781950		-781950	781950	781950	0	0	-781950	-781950	-781950
1		226833.3333	226833.3333	847446.67	620613.3333	206212.1	197246.4	770406.1	736910.1449	564193.9394	539663.768	346459.7406
2		226833.3333	226833.3333	847446.67	620613.3333	187465.6	171518.6	700369.1	640791.4304	512903.5813	469272.842	193412.4606
3		226833.3333	226833.3333	847446.67	620613.3333	170423.2	149146.6	636699.2	557209.9395	466275.983	408063.341	107973.2376
4		226833.3333	226833.3333	847446.67	620613.3333	154930.2	129692.7	578817.5	484530.3821	423887.2572	354837.688	60276.46828
5		226833.3333	226833.3333	847446.67	620613.3333	140845.7	112776.3	526197.7	421330.7671	385352.052	308554.511	33649.56639
6		226833.3333	226833.3333	847446.67	620613.3333	128041.5	98066.31	478361.6	366374.5801	350320.0473	268308.27	18784.99771
7		226833.3333	226833.3333	847446.67	620613.3333	116401.4	85275.05	434874.1	318586.5914	318472.7703	233311.539	10486.79602
8		226833.3333	226833.3333	847446.67	620613.3333	105819.4	74152.22	395340.1	277031.8186	289520.7003	202879.6	5854.29354
9		226833.3333	226833.3333	847446.67	620613.3333	96199.48	64480.19	359400.1	240897.2335	263200.6366	176417.043	3268.18151
10		226833.3333	226833.3333	847446.67	620613.3333	87454.07	56069.73	326727.4	209475.8553	239273.306	153406.124	1824.474689
Total		2268333.333	3050283.333	8474466.7	5424183.333	2175743	1920374	5207193	4253138.743	3031450.273	2332764.73	40.21691431

BC Ratio at 10% discount rate=2.39

BC Ratio at 15% discount rate= 2.21

IRR = 79.13%

Table 5: Financial analysis for rose

Year	Initial Investment (Rs)	Working Capital (Rs)	Total investment (Rs)	Gross Returns (Rs)	Net Returns (Rs)	PV of cost at 10% discount	PV of cost at 15% discount	PV of Returns at 10% of Discount	PV of Returns at 15% of Discount	NPV at 10% of Discount	NPV at 15% of Discount	IRR
0	555850		555850		-555850	555850	555850	0	0	-555850	-555850	-555850
1		172675	172675	760634.28	587959.275	156977.3	150152.2	691485.7	661421.1087	534508.4318	511268.935	285833.386
2		172675	172675	760634.28	587959.275	142706.6	130567.1	628623.4	575148.7902	485916.7562	444581.682	138956.4346
3		172675	172675	760634.28	587959.275	129733.3	113536.6	571475.8	500129.3828	441742.5056	386592.767	67552.958
4		172675	172675	760634.28	587959.275	117939.3	98727.49	519523.4	434895.1154	401584.096	336167.624	32840.52407
5		172675	172675	760634.28	587959.275	107217.6	85849.99	472294	378169.6656	365076.4509	292319.673	15965.25234
6		172675	172675	760634.28	587959.275	97470.54	74652.17	429358.2	328843.1875	331887.6827	254191.02	7761.425543
7		172675	172675	760634.28	587959.275	88609.58	64914.93	390325.7	285950.5978	301716.0752	221035.669	3773.177221
8		172675	172675	760634.28	587959.275	80554.16	56447.76	354841.5	248652.6937	274287.3411	192204.93	1834.310754
9		172675	172675	760634.28	587959.275	73231.06	49085.01	322583.2	216219.7337	249352.1282	167134.722	891.7407651
10		172675	172675	760634.28	587959.275	66573.69	42682.62	293257.4	188017.1597	226683.7529	145334.541	433.5151994
Total		1726750	2282600	7606342.8	5323742.75	1616863	1422466	4673768	3817447.435	3056905.221	2394981.56	-7.27549608

BC Ratio at 10% discount rate= 2.89

BC Ratio at 15% discount rate= 2.68

IRR = 105.7%

Appendix ii

School of Agribusiness Management
College of Agriculture, CSK HPKV Palampur-176062

**Survey Schedule for the farmer to collect the primary
data for project work**

Project Title: Prospects of Corporate Practices in Hi-Tech. Floriculture in Himachal Pradesh.

Objectives:-

- To study various floriculture techniques practiced at corporate level.
- To observe corporate perception regarding Hi-Tech. Floriculture.
- To study cost benefit analysis of significant flowers.
- To highlight problems and prospects of Hi-Tech Floriculture.

Name of student: _____ Date of Survey: _____

Signature of Student: _____ Signature of Advisor: _____

Background of the Floriculturist:-

Name _____ S/o _____

Village: _____ P.O: _____

Tehsil: _____ District: _____

Phone No. : _____ (R) Mobile _____

Main Occupation: _____ Subsidiary Occupation: _____

Type of Family Nuclear/Joint _____

Educational and Occupation pattern of the family:

S.N.	Relation to the farmer	Sex (M/F)	Age (years)	Education (SG/PG/M/S/D)
1.				
2.				
3.				
4.				
5.				
6.				

Note: M-male, F-female, Sr-service, Fr-Farming, L-Labour, SG-School Going, P-primary, M-Middle,

Mt-metric, S-Secondary (10+2), G-graduation, PG-post graduation and technical education.

Land Inventory :

Sr. No	Particulars	Area (kanals)			Source of Irrigation	Land revenue	Remarks
		IR	UR	Total			
1.	Owned land						
2.	Leased in						
3.	Leased out						
4.	Total Holding (1+2-3)						
	Cultivated land (Kanals)						

Note : IR; Irrigated UR; Un irrigated.

Livestock Inventory :-

Sr. No	Particulars		Number	Present value (Rs)	Production			Remarks
					Milk (lt)	FYM (q)	Other	
1.	Cow							
2.	Buffaloes							
3.	Bullocks							
4.	Young Stock							
5.	Sheep							
6.	Goat							
7..	Any other (Specify)							

Inventory of Buildings and farm infra-structural facilities

S.N.	Particular	No.	Area (Sq m)	Year of const./purchase	Type (K/P)	Present value (Rs)	Remarks
1.	Residential						
2.	Cattle Shed						
3.	Nursery Shed						
4.	Polyhouse						
5.	Water Tank						
6.	Pump house						
7.	Sprinkler/Drip irrigation						
8.	Any other (Specify)						

Farm equipments and implements:-

Sr. No.	Particulars	Numbers	Year of purchased/const.	Value (Rs)		Remarks
				when purchased	Present	
1.	Electric motor with water pump					
2.	Mist/Fogging unit					
3.	Spray pump					
4.	Chaff cutter					
5.	Pruning Scissor					
6.	Secateurs					
7.	Trays/Basket					
8.	Nets					
9.	Any other (specify)					

Do you grow crops other than the floriculture crops? Y/N

If yes give the following details:

S.N.	Enterprise	Area under crop (Kanal/Bigha)	Production (q)	Remarks
1.	Maize			
2.	Rice			
3.	Wheat			
4.	Pulses			
5.	Vegetables			
6.	Fruits			
7.	Dairy			
8.	Misc. enterprises			

Flower Production Activities

When did you start the Floriculture activities? (Year) _____

Who motivated you to start Floricultural activities?

- a) Friends
- B) Relatives
- c) Corporate
- d) Ari/Hort.
Depts.
- Others

What were the main factors/reasons for the adoption of flowers in the farming system ?

S.N.	Particulars	Response	Remarks
1.	Higher returns		
2.	Increase in the market demand for flowers in local and distant market		
3.	Govt. Policies and incentives		
4.	low income from other activities		
5.	source of self employment		
6.	Motivation from private enterprises		
7.	Any other (specify)		

Expenditure incurred in case of pot Plants

S.N.	Particulars	A.			B.			C.			D.		
1.	Cost of Earthen pots (including transportation & colouring of pots)												
(i)	Cost of plants/Seed												
(ii)	Seed/Plant treatment												
2.	Cost of soil and preparation of mixture for pot filling												
3.	Manures												
4.	Fertilizers												
5.	Human Labour												
6.	Post Harvest Management												
7.	Miscellaneous costs												
8.	Total Cost												
9.	Total Production												
10.	Price per unit												

Opinions of growers about production and marketing of Flower crops in protected conditions

Opinions/problems	Respo nse	Specify the problem	Suggestions
	Yes/ No		
Relating to production			
Non availability of seeds/planting material of improved varieties			
Inadequate and timely supply of inputs			
Lack of technical know-how and training			
Inadequate help from service provider			
Proper design of greenhouse structure			
Lack of technical support from extension agencies			
Improper Irrigation facilities			
power supply failure			
Inadequate subsidy			

Relating to Post Harvest Management			
Lack of knowledge about appropriate stage of harvesting			
Non-availability of grading facilities			
Packing material is costly Packing material is not available in time			
Cold storage facilities are not available in the local area			
Cold storage is costly			
Non-availability of refrigerated transportation van facilities			
Relating to market			
Prevalence of low prices in local market			
Lack of organised marketing			
Flower markets are at distant place			
High transportation cost to distant market			
Prevalence of malpractices in the market			
Lack of adequate market information			
Relating to traders			
Good market competition			
Delayed payment by traders			
Lack of proper auctions in distant market			
Improper grading /standardisation			
Malpractices by the traders			
Relating to transportation & Communication			
Perishable nature of flower crops			
Lack of link roads in producing area			
Inadequate transportation facilities			
Low Internet connectivity			
Any other (specify)			

Prospects regarding hi-tech. Floriculture

S.N.	Particulars	Remarks
1.	With respect to growth of the enterprise	
a.	Input availability is being improved.	
(i)	Through the private enterprise	
(ii)	Development of new varieties by research institutes	
b.	High Productivity	
c.	Demand of floriculture enterprise in local and distant market is increasing	
d.	New techniques of production are being generated	
e.	Increasing price trend of floriculture enterprises	
f.	Per unit cost of production will decrease with the increase in scale of production	
2.	Improvement in income level of people	
3.	Policies & incentives by the Govt.	
4.	Marketing system	
a.	Emphasis on road connectivity by the govt.	
b.	Flowers are relatively profitable	
c.	Export potential exists	
4.	Any other (specify)	

Appendix iii

School of Agribusiness Management
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Survey Schedule for firms to collect the primary data for project work

Project Title: Prospects of Corporate Practices in Hi-Tech. Floriculture in Himachal Pradesh.

Objectives:-

- To study various floriculture techniques practiced at corporate level.
- To observe corporate perception regarding Hi-Tech. Floriculture.
- To study cost benefit analysis of significant flowers.
- To highlight problems and prospects of Hi-Tech Floriculture.

Name of student: _____

Date of Survey: _____

Signature of Student: _____

Signature of Advisor: _____

Corporate perception regarding hi-tech. floriculture

Name of the company _____

Address _____

Year of starting _____

Q1. What used to be your business before entry into this business?

Q2. Why did you choose floricultural enterprises?

Q3. What are the main floriculture enterprises you deal with?

- (i) Cut Flowers (ii) Pot plants (iii) Nursery plants (iv) Any other

S.N.	Name of enterprise	Sale	Price range		Average price
			Higher	Lower	
1.	Nursery plants (no.)				
i.					
ii.					
iii.					
iv.					
2.	Pot plants (no.)				
i.					
ii.					
iii.					
iv.					
3.	Cut Flowers (no.)				
i.					
ii.					
iii.					
iv.					
4.	Flower seed				
I					
Ii					
5.	Flower bulb				
I					
ii					

Q4. What are the major sources of floriculture products :--

Name of enterprise	Self production		Purchase from other sources/nurseries		Adopted farmers	
	Q	P	Q	P	Q	P
Nursery plants						
Pot plants						
Cut Flowers						

(Q- quantity, P- price)

Q5. What are the major sources of planting material?

(a)Self produce (b) Research institutes (c) Nursery/progressive growers (d) Import (e) other

Sources	Quality of planting material			
	Fair	Good	Very Good	Excellent
Self produce				
Research institutes				
Nursery/progressive growers				
Import				
Other				

Q8. Are you able to meet out the annual demand of flowers of planting material from your production unit?

Y/N.

If no, are you planning to expand your production unit?

Q9. What are the major hi-tech. practices that are used/practicing in major floriculture enterprises.

S.N.	Name of enterprises	Hi-Tech.practices
1.	Nursery Plants	
a.		
b.		
c.		
2.	Pot plants	
a.		
b.		
c.		
3.	Flower crops	
a.		
b.		
c.		

Q10. Are you procuring the material from the market for further sale? Y/N.

If yes, mention the sources.

Q11. Do you practice contract farming in floriculture production. Y/N.

If yes, what are the conditions?

- (a) Related to time.
- (b) Quality/Grade
- (c) Any other.

Q12. Are you providing technical support to the adopted farmers under contract farming? Y/N

If yes, what type of help is provided?

- (a) Technical know how (b) Consultancy (c) Input provision (d)
- Planting material (e) Financial support (f) Post harvest management (g)
- Marketing facility

Q13. Hi-tech. floriculture is capital intensive. How you manage the financial health to your company/unit?

- (a) Own resources (b) Loan from banks (c) Any other

Q13. Hi-tech. floriculture is labour intensive. How you manage the labour unit to your company/unit?

- (a) Family labour (b) Hired from outside (c) Any other

Q14. Mention the input lending institution you deal with?

- (a) Input suppliers
- (b) Planting material

Q15. What are your opinions regarding ongoing govt. policies and incentives for hi-tech. floriculture?

Q16. What are the major problems you are facing in hi-tech. floriculture?

(a) Related to production.

- Non availability of seeds/planting material of improved varieties
- Inadequate and timely supply of inputs
- Improper design of greenhouse structure
- Related to finance
- Lack of technical support from extension agencies
- Improper Irrigation facilities
- power supply failure

(b) Related to marketing.

- Flower markets are at distant place
- Prevalence of low prices in local market
- Lack of adequate market information
- High transportation cost to distant market

❖ **Suggestions for addressing above mentioned problems?**

Brief Biodata of the Student

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Education Qualifications

QUALIFICATION	BOARD/UNIVERSITY	PERCENTAGE	DURATION
B.Sc.(Hons.) in Biotechnology	H.P University, Shimla	71.66%	2007-2010
10+2(Medical)	H.P Board, Dharmshala	72.60%	2006-2007
Matriculation	H.P Board, Dharmshala	85.58%	2004-2005

Personal Trait

Father's Name

Sh. Pyare Lal

Mother's Name

Smt. Leela Sharma

Date of birth

19th January, 1990

Nationality

Indian

Gender

Male

Marital Status

Single

Languages

Hindi, English