

FEASIBILITY OF FLOWER CULTIVATION AS AN ENTERPRISE FOR RURAL WOMEN

By

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2014

CERTIFICATE – I

This is to certify that this thesis entitled, “**Feasibility of Flower Cultivation as an Enterprise for Rural Women**”, submitted for the degree of **Master of Science**, in the subject of **Extension Education and Communication Management** to the CCS Haryana Agricultural University, is a bonafide research work carried out by **Anuradha (Admn. No. 2012HS1M)** under my supervision and that no part of this dissertation has been submitted for any other degree.

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

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CHAPTER-I

INTRODUCTION

To awaken the people, it is the women who should be awakened. Once she is on the move, the family moves, the nation moves. - Pandit Jawahar Lal Nehru

Flowers are inseparable from the social fabric of human life. Flowers being adorable creation of God, befits all occasions, be it at birth, marriage or death. In the past, flowers were not of much economic importance. One would grow flowers to fulfill his or her aesthetic desire. At times, flowers were offered for sale to meet the special requirements of people. With the passage of time drastic changes have come about in the life style of people leading to commercialized cultivation of flowers. Today, flower plants are no longer meant for only window garden but play an important role in the decoration of the living houses and office establishments (Thiranjani *et al.* 2005).

In olden days, flowers were not of much economic importance. While floriculture can yield handsome returns, it is also a high-input, high-risk venture. These were being grown to fulfill the aesthetic sense. With the passage of time, there has been great change in life –style of people leading to commercialization of flower growing. Today floriculture as farm enterprise has emerged one of the most lucrative business profession in many countries having much higher potential of return in comparison to most crop. The floricultural industry has a bright future as the global floriculture trade is growing at a very fast pace in the recent years. The global trade of floriculture products is estimated to be 50 billion US dollar, of which flower and plants account for more than 80 percent of the total trade. With international market growing at 15-17 percent and domestic market at 25-30 percent annually there is an unlimited scope of expanding floriculture activity (Umrao & Singh, 1997).

However, the flower production activities have been taken extensively only in few states till now. The major states being Karnataka, West Bengal, Tamil Nadu, Andhra Pradesh, Maharashtra, Uttar Pradesh, Rajasthan, Haryana and Punjab having the largest area under flower production. The demand for flowers and ornamental plants for different needs like religious, official ceremonies, parties, house decoration, weddings, funerals, etc, is on the rise. Keeping in view the increasing demand and better returns from flower than agricultural crops, Haryana state government has started taking steps to popularize commercial cultivation of flower in 1993 to earn foreign currency.

The main storage constraints are lacking of standard containers, cold room facilities and lacking of quality packing material. Export constraints includes inadequate infrastructure for production of floral crops for export, lack of appropriate planting material, absence of quality control firms and exorbitant foreign charges (Acharyya and Panda, 1996).

Flowers are high value commodities used in various ways in domestic and social activities and in industries such as essential oils, dry flowers, natural dye extraction etc. Cultivation of flowers provides opportunity to farmers to earn a better livelihood and harvest more profit per unit area. Floriculture has received considerable interest in India in recent years from the policymakers, researchers, agricultural and horticultural planners. The enhancement in per capita income and urbanization have led to increased demand for flowers. A provisional estimate of National Horticulture Board puts the area under flower crops at 2,32,740 hectare with a production of 17,29,210 MT of loose flowers and 76731.85 lakh cut flowers during 2012-13.

Floriculture is a fast emerging industry in India as it has increased 12.5 times in the area and 33 times in trade. The increase in area and trade is because of socio- economic factors such as changes in social values of people, environment, increase in population and living in the flats in the cities, standard of living, development of hotels and shopping centre and making beautiful items presented on different auspicious occasions. The major cultivation constraints are lack of human resources, lack of technical know-how, lack of infrastructural facilities, inadequate production due to poor quality and inconsistent supply of planting material and lack of an efficient post harvest handling. Non –availability of organized marketing and monitoring system, market survey, lack of sales promotion activities and insufficient cold storage facilities in the market are main marketing constraints (Sindhu and Mishra, 1997).

Government of India has identified floriculture as a sunrise industry and accorded it 100% export oriented status. Owing to steady increase in demand of flower floriculture has become one of the important Commercial trades in Agriculture. Hence commercial floriculture has emerged as hi-tech activity-taking place under controlled climatic conditions inside greenhouse. Floriculture in India, is being viewed as a high growth industry. Commercial floriculture is becoming important from the export angle. The liberalization of industrial and trade policies paved the way for development of export-oriented production of cut flowers. It has been found that commercial floriculture has higher potential per unit area than most of the field crops and is therefore a lucrative business. Indian floriculture industry has been shifting from traditional flowers to cut flowers for export purposes. The liberalized economy has given an impetus to the Indian entrepreneurs for establishing export oriented floriculture units under controlled climatic conditions (APEDA 2014).

India is the second largest producer of flowers after China. The country has exported 22,485.21 MT of floriculture products to the world for the worth of Rs. 455.90 crores in 2013-14. India's total export of floriculture was Rs. 455.90 crores in 2013-14. More than 50% of the floriculture units are based in Karnataka, Andhra Pradesh and Tamil Nadu. With the

technical collaborations from foreign companies, the Indian floriculture industry is poised to increase its share in world trade. (APEDA 2014)

Flower cultivation is popular in Haryana due to fast changing social scenario. During 2009-10, Haryana had 6,200 hectares under flower cultivation — an increase of 12 per cent over the previous year, when the state had 5,530 hectares under floriculture. The overall productivity of the country during the year 2011-12 about 232.74 thousand hectares area was under Cultivation in floriculture. Production of flowers are estimated to be 1.729 million tonnes loose flowers and 76.73 million tonnes cut flowers in 2012-13. The major flower growing region in Haryana state falls under national region since there is a ready market for flower in Delhi. Flowers are grown mainly in three district of Haryana that is Gurgaon (500ha), Sonapat (468ha) ,and Faridabad (400ha).Mainly three type of flowers are grown in the district viz. marigold, rose and gladiolus. (APEDA 2014)

Globally, more than 140 countries are involved in cultivation of floricultural crops. Among various countries Germany continues to be the highest consumer followed by Japan. India is having a better scope in the future as there is a shift in trend towards flowers and this can be gainfully exploited by country like India with high amount of diversity in indigenous flora.

Flower cultivation is one such gaining enterprise as it promotes diversification in agriculture and hence it is an alternative source of income and employment. It has been proven a successful enterprise for small and marginal farmer, farm women landless labors as this enterprise require minimum land.

But women lag behind men in terms of educational level and income earning. They face barriers in participation in developmental activities due to lack of time and failure to see the benefit of participation. Hence to create awareness and motivate women for economic activities well organized programmes on scientific flower cultivation with adequate learning facilities and active participation of women are required which would help them to acquire necessary knowledge, skill and attitudes for undertaking flower cultivation as a profitable enterprise.

Therefore, keeping in view the importance of Flower cultivation, the present study was planned with the following objectives:

Therefore, the present study has been planned with the following objectives:

1. To explore awareness of rural women about benefits of flower cultivation.
2. To organize training on flower cultivation for women group and assess its impact.
3. To assess the feasibility of flower cultivation enterprise for rural women.
4. To identify the factor associated with adoption of flower cultivation as an income generating activity.

Scope of the study

The present study is an attempt to introduce the Flower cultivation technology in rural areas, exploring the economic feasibility of establishing a small scale unit in rural areas and acceptability of flower cultivation units. Since, no study has been conducted on such aspect, therefore, this study provides some important and basic information about setting up small scale industries. The findings of the study will be of some use for policy makers engaged in the promotion of various programmes for development of rural women. This will also be of importance to the entrepreneurs willing to establish their own units. This will act as a torch bearer for them.

Limitations of the study

The present study was undertaken as a student research programme and hence it has some limitations of resources, particularly time and money. The problem become more acute when a field study is done by a female student requiring a lot of field visits. Due to this reason, the study was confined with one district with sample of 100 respondents. Also, the research study is based on the responses of the respondents; therefore, the objectivity of the study is limited to their ability and their honesty in furnishing the required information.

The chapter on review of literature presents a brief resume of work carried out in the past in the area of flower cultivation. It includes the review of literature pertaining to different objectives of the study along with its parameters. The specific studies conducted have been presented under the following sub-heads:

- 2.1 Need and importance of flower cultivation
- 2.2 Impact of training (gain in knowledge, change in attitude and skill acquisition)
- 2.3 Symbolic adoption and feasibility of flower cultivation
- 2.4 Constraints in adoption of flower cultivation
- 2.5 Acceptability of enterprise for income generation

2.1 Need and importance of flower cultivation

Rao (2000) reported that floriculture has been identified as an 'extreme focus area' for special attention of government, for thrust in export and rightly so this is an area with abundant potential which has unfortunately remained untapped till now.

Raj (2001) analyzed that export potential of cut flower was 1003.30 lakhs, dried flower was 3,645.56 lakhs and bulks of Rs.192.16 lakhs out of total floricultural products (6014.15 lakhs) from India during 1995-96. The floral crafts are sold at the rate of Rs.50-200/piece in domestic markets whereas in Europe, USA and Japan 10-15 times higher returns were earned. It is more profitable and lucrative business.

Saini (2001) reported that major varieties of gladiolus cultivated for commercial purpose are: Snow Princes, Friendship, Oscar, Yellow Stone, Rose Supreme, Mayur.

Dadlani (2002) observed that with more than 800,000 ha, India is leading country for floriculture in terms of area while our export floricultural product about Rs. 200 crores in 2000-2001. Nearly two-third of this trade is actually the dried flowers and plants. The cut flower exports from less than Rs.40 lakh worth of our export in 1991-92, the value has risen to nearly Rs.40 crores in 2000-2001. More than 90% of the exporter grow rose. Rose continues to be ranked number one in the export trade command premium price.

Parameswaran (2002) reported that flowers in the form of garland are used on auspicious occasions like marriage and temples rites. They are part of life and also used in therapy. Flowers are used as the foundation for making various kinds of medicines and as an enterprise.

Prakash (2002) It is estimated that the value of trade was around Rs. 200 crores and increased to Rs. 500 crores in 2002 which is an indicative of the growing significance of the floriculture cultivation in India.

Sharma (2002) attempted to analyze that National Bank for Agriculture and Rural Development (NABARD) promotes floricultural crops by loan to growers. Floriculture as on today is occupying a total area of 73,970.88 ha in the country. The total refinance so far been given to floriculture industry from 1992-93 to 2000-01 is to the tune of Rs. 9,556.382 lakhs during 2000-01 an amount of Rs. 1,555 lakhs has been disbursed which contributes 6.3 % of the total refinance of horticulture and plantation crops.

Singh (2002) analyzed that in Haryana area under flower cultivation was 2250 hectare while 40,500 tonnes loose flower and 760 lakh cut flowers in 1999-2000. The flowers are generally purchased for gifts, special occasions and home decorations.

Anonymous, (2005) estimated that the approximately 8,000 farmers are involved in flower cultivation and 2000 to 3000 farmers are interested in ornamental plants cultivation on commercial basis. Roughly about 1, 00,000 to 1, 20,000 people are directly and indirectly involved in floriculture industry for their livelihoods. The area coverage under commercial flower cultivation is approximately 5,000 to 6000 hectares of land while commercial nurseries have covered approximately 2,000 to 2,500 hectares of land. Presently about 40 percent of the large farmers are producing flowers commercially while 30 percent medium, 20 percent small and the rest (10 percent) marginal farmers are involved in floriculture business. To satisfy the market demand, various flowers such as, chrysanthemum, tuberose, gladiolus are imported from India and orchids, gerbera, anthurium and Thai rose from Thailand every year. The country has to spend roughly Tk.2-3 million in importing flowers and ornamental plants from abroad.

Momin, (2006) reported that the area coverage under commercial flower cultivation is approximately 10,000 hectares of land while commercial nurseries have covered approximately 2,000 to 2,500 hectares of land.

2.2 Impact of training (gain in knowledge, change in attitude and skill acquisition)

Kashyap *et al.* (2000) reported that a skill training was imparted on income generating activities to women respondents. Most of the trainees acquired sufficient level of knowledge, attitude change and skill acquisition after exposing to training.

George and Sobhadra (2002) revealed that beneficiary women had significantly higher knowledge scores than non-beneficiary women.

Karwasra and Sangwan (2003) concluded that the difference in pre-exposure and post exposure knowledge and attitude score were highly significant.

Verma (2003) found that after imparting the knowledge through various visuals/printed materials such as posters, chart, leaflets and booklet, a significant gain in knowledge was found.

Jain (2005) revealed that respondents succeeded in changing their attitude at the post exposure level. Significant change in attitude regarding all the selected messages of animal husbandry practices was observed in all the selected districts of Haryana State.

Ahuja and Mohammed (2006) found that women after getting the training in quilting and *durrie* making adopted it, for house hold purpose, domestic saving, increase in income, gain in knowledge, skill and confidence.

Akansha (2006) indicated that the respondents were having high knowledge as compared to non-participants in all the tasks related to mushroom cultivation, kitchen gardening and seed production. All the participants acquired high skills in all the trainings. Maximum impact was observed in case of seed production followed by kitchen garden and mushroom cultivation.

Khurana *et al.* (2007) revealed that the significant gain in knowledge in case of training on dairy farming, poultry farming and bee-keeping was recorded.

Riar and Gill (2007) conducted a study to evaluate the functioning of self- help groups in terms of their impact on the members and found that there was increase in number of entrepreneurial unit in different enterprises viz. bee-keeping, dairy farming, mushroom cultivation etc. These changes there was significant increase in overall income of the farmers.

Ajuz-ul-Islam (2008) reported that the majority of the beneficiaries (58.14%) was experienced high level of impact and rest 41.86 per cent fell in medium impact level among landless. No beneficiary was found having low level of impact in social forestry programme.

Deepti (2008) found that there was significant difference in knowledge gain, change in attitude, skill acquisition between two group i.e. participants and non participants.

Manju (2009) reported that the respondents succeeded in acquiring knowledge at post exposure level in all the components of mushroom production viz. food value, kinds of mushroom, compositing, spawn/filling, casing, fruits and harvesting.

Nutan (2009) observed that the overall impact of training was found to be of moderate level i.e. 62.68 per cent. The gain in knowledge was found to be of high level i.e. 72.55 per cent. The change in attitude was found to be high level i.e. 70.0 per cent.

Gita (2010) revealed that the respondents succeeded in acquiring knowledge at post exposure level in all the components of fruit plant nursery viz. uses and nutritive value, bed/soil requirement, varieties, nursery bed preparation, marketing and economic value.

Batra (2011) inferred that women succeeded in acquiring knowledge after exposure to training on food processing. The difference between pre and post exposure, mean score of knowledge and attitude was highly significant at 0.05 per cent of probability. The respondents succeeded in change their attitude at post exposure. The respondents acquired skill of medium level after exposure of training for food processing. Impact assessment of food processing was found to be moderately high (54%).

Tayal (2012) found that sufficient gain in knowledge and change in attitude was recorded for all the sub-components of vermicomposting after exposure to training which was highly significant at 0.05 per cent level of significance. Impact assessment of vermicomposting training was found to be of moderate level. Most of the respondents had acquired medium skills after exposure to training. Majority of respondents had high symbolic adoption.

Yadav (2013) revealed that the impact of training was found to be significant for gain in knowledge and change in attitude. The impact of training on rural women was found to be 63.51 per cent which is of moderate level.

2.3 Symbolic adoption and feasibility of flower cultivation as an enterprise for rural women

Gogoi *et al.* (2000) reported that the trained farmers had significantly higher level of adoption of overall recommended practices than the untrained farmers.

Sangwan (2002) reported most of rural women had low adoption feasibility level before the training, while half of the respondents had high adoption feasibility level after the training.

Minakshi (2003) reported that more than half of the respondents made up their mind to adopt the flower cultivation technology for income generation and were fully convinced about importance of floriculture and found adoption feasibility of flower cultivation technology to be quite high in Sonapat and Panipat districts of Haryana.

Nagnur *et al.* (2005) stated that vermicomposting is successful micro enterprise which not only provides good manure for one's own farm but will also supplements the income when sold in packets of 1-2 kgs for use in urban home gardens and wastes like leaf litter, crop residues and animal dropping can be efficiently utilized and raw materials are available on farm and so very little investment is required.

Sunil and Manjula (2007) stated that trained farmers had medium to high level of adoption. Technologies which required less skill, low cost and easy to adopt were fully adopted by farmers.

Kaul and Mohan (2009) reported that involving the women in the use of compost promotes awareness of waste resource recovery while composting activities can also create employment and generate income.

Arora and Sharma (2009) pointed out that the Self-Help Groups (SHGs) play a vital role in rural development in general and for women in particular. It is a viable alternative to achieve the objectives of rural development and to achieve community participation. It is an organized set up to disburse micro-credit to the women for the purpose of making them enterprising women and encouraging them to enter into entrepreneurial activities.

Manju (2009) revealed that most of the respondents had moderately high symbolic adoption and willingness to adopt mushroom production for income generation.

Akhtar *et al.* (2010) indicated that women are mostly involved in home garden management related activities for sustaining the livelihood of their communities and for preserving the agro- biodiversity in home- garden.

Gita (2010) revealed that moderately high symbolic adoption for income generation. Overall acceptability of fruit plant nursery was of moderate level.

Batra (2011) observed that half of the respondents had moderately high symbolic adoption followed by high and moderately low symbolic adoption after exposure of training.

Tayal (2012) concluded that Respondents perceived vermicomposting as triable (Mean score 4.1, rank-I), culturally compatible and observable (Mean score 3.9, rank-II) each, relatively advantageous (Mean score 3.8, rank-III) and easy to understand (Mean score 3.7, rank-IV). Simplicity/Complexity was the least perceived attributes and ranked last among five attributes selected for the study.

2.4 Constraints in adoption of flower cultivation

Misra (2001) reported that lack of finance was the major problem followed by marketing of products, shortage of power also considered the chief bottleneck for running the enterprise. Other constraints were lack of information, knowledge and limited scope of using the technology.

Thangamani and Balan (2004) pointed out the problems faced by women entrepreneurs were problem of finance, scarcity of raw material, family ties, low risk bearing ability and socio-economic constraints.

Chattopadhyay (2005) reported that the major problems generally encountered by women entrepreneurs in India are changes in the role, time management, lack of education and required skill, lack of exposure to the business environment, less mobility of women, low risk taking capability, lack of access to credit, lack of information to credit availability schemes, lack of marketing knowledge, Lack of collateral security and low accounting knowledge.

Joseph and Jeyagowri (2006) found that majority of women (82%) had problems in marketing their products, 72 per cent faced price fluctuation of raw material, 28 per cent reported inadequate space for carrying out trade, lack of cooperation of authorities (17%) etc.

Chauhan and Singh (2007) found that major constraints were lack of publicity of training programme, non-availability of required inputs lack of coordination with other agencies need are not assessed and lack of transport facilities for filed visit during training programmes.

Vaster *et al.* (2007) found that 70 per cent respondents had adopted simpler and low cost sugarcane cultivation practices. Further, over 60 per cent of the respondents expressed

lack of technical know-how, non-availability of inputs and high cost of inputs as reasons for non-adoption or partial adoption of recommended sugarcane cultivation practices.

Deepti (2008) reported that the heavy work load of household, health problems, lack of motivation from family and society, high cost, repayment of loans and electricity problems were the major constraints faced by the respondents in adoption of improved practices.

Shivakumara (2008) found that as many as 88% of the respondents faced lack of awareness regarding improved methods of vermicompost production. Attack by pests, birds, pigs, flatworms and red ants etc. was the problems of 85% of the respondents. While 40% of the producers stated that they faced the problem of skilled labour shortage and lack of technical assistance, around 55.5% reported difficulty in procuring earthworms.

Singh *et al.* (2009) reported that the major constraints in mushroom production technology were found to be the fluctuating price prevailing in the market, lack information about marketing (90.00%), lack of finance (84.66%), lack of transportation facilities (76.36%), inadequate knowledge about mushroom production technology (70.00%) and non-availability of spawn (69.72%).

Gita (2010) observed that personal and economic constraints were perceived as the main constraints than social, educational and physical constraints in adoption of nursery raising of fruit plants.

2.5 Acceptability of enterprise for income generation

Anita (2000) observed that the mushroom technology profitable (mean score 3.5, Ist rank), cultural compatible (mean score 3.45 IInd rank), situational compatible (mean score 3.35, IIIrd rank), simple to adopt (mean score 3.20, IVth rank), easy to try (mean score 3.15, Vth rank) before its final adoption in order of sequence. Overall feasibility mean score was 3.33 /4.00.

Sunita (2002) expressed that most of the respondents perceived feasibility of grape chutney as profitable (48.3%), cultural compatible (63.3%), simple to make (53.3%), most compatible in situational compatible (48.3%) and most triable (55%) by rural women.

Minakshi (2003) reported that more than half of the respondents made up their mind to adopt the flower cultivation technology for income generation and were fully convinced about importance of floriculture and found adoption feasibility of flower cultivation technology to be quite high in Sonapat and Panipat districts of Haryana.

Anonymous (2005) highlighted that training on different technological aspects of oyster mushroom cultivation was completed at the KVK. All of them prepared mushroom beds in backyard of their house with proper sanitation. One of the members of SHG after training within 60 days earned Rs. 1,400. In the subsequent year she purchased the spawn and polythene from the KVK and earned Rs. 5,000.

Pandey (2005) reported that 77.5 per cent beneficiaries chose dairy as it is an economic enterprise followed by availability of help from family members in carrying out the venture (76.5%) and high social recognition of dairying (71%).

Bhalera *et al.* (2006) revealed that majority working rural women's family that despite of her economical contribution there was no controlling power of working rural women financial matters.

Deepa *et al.* (2006) found self motivation as main dominating force to start an enterprise, followed by lacatite sources among which husband (56%) was the main source of encouragement. It was further revealed that out of four selected motivational care i.e. individuals economic/work and social care; economic care was ranked first as main motive for starting enterprise. To supplement family income, to save for education and marriage of children were main economic reasons for starting enterprises.

Jayachandra and Naidu (2006) concluded that the increase in income from dairying was Rs.850 (25.5%) in the case of marginal farmers and Rs.1480 (22.98%) in the case of small farmers per annum. More idle women in the families of both the categories of farmers have taken up dairying as a part time and full time employment.

Manju (2009) reveal that majority of the respondents (70%) showed that high acceptability for mushroom production. Whereas only 18 per cent respondents were having moderately high acceptability and only 8 per cent respondents accepted the mushroom production at moderately low level. Thus it can be inferred that majority of the respondents accepted to adopt mushroom production for income generation.

Gita (2010) revealed that majority of the respondents (56.6%) showed moderately high acceptability for fruit plant nursery whereas only 23.3 per cent respondents were having moderately low acceptability and only 13.3 per cent respondents accepted the fruit plant nursery at high level.

Batra (2011) revealed that majority of the respondents (54%) showed moderately high acceptability for food processing whereas only 26 per cent respondents were having moderately low acceptability and only 12 per cent respondents accepted the food processing at high level. Only few respondents (8%) were having very low acceptability of food processing for income generation.

Tayal (2012) indicated that more than half of the respondents (63.33%) had high overall acceptability for vermicomposting whereas 23.33 per cent respondents were having medium acceptability. Only 13.33 per cent respondents showed low acceptability for vermicomposting as useful enterprise for income generation.

This chapter deals with the methodological steps and techniques used in the present study. These have been presented under the following heads:

- 3.1 Locale of the study
- 3.2 Sampling procedure
- 3.3 Variables and their measurements
- 3.4 Tools and techniques of data collection
- 3.5 Data analysis

3.1 Locale of the study

The present study was conducted in Haryana state. The present research work was the part of state funded research project on “Empowerment of women through entrepreneurial activities”.

3.2 Sampling procedure

3.2.1 Selection of district

Hisar district was selected purposively from Haryana state

3.2.2 Selection of blocks

From Hisar district, a list of blocks were procured where possibility of flower cultivation was there. Out of which Hansi block was selected purposively.

3.2.3 Selection of villages

Two villages from Hansi block of Hisar district were selected randomly i.e Umra and Dhani peerawali

3.2.4 Selection of respondents

From the selected villages, a sample of 50 women from each village was drawn randomly. Thus, a total of 100 women respondents were selected randomly. Out of already selected women, a group of 20 women from each village interested to undertake training was selected. Thus a sample of 40 women from both the villages were imparted training on flower cultivation for 4 days duration each.

The study was conducted in two phases:

Phase- I

- a) Explore awareness of rural women about benefits of flower cultivation.
- b) Assessment of feasibility of flower cultivation as an enterprise for rural women.

Assessment of feasibility:

- Perceived feasibility was assessed in terms of relative advantage, cultural compatibility, simplicity-complexity, observability and trialability.

Economic viability (Potentiality)

Economic viability was assessed in terms of cost of production and cost benefit analysis.

Phase-II

a) Organize trainings and assess impact of trainings: From already selected 50 respondents a sample of 20 women interested in having training on flower cultivation from each village was drawn randomly. Thus, 40 women from both the villages were imparted training on flower cultivation. For the present study the training programme was planned and prepared in consultation with the experts of department of Horticulture COA, CCSHAU, Hisar. The programme was planned for four days duration covering introductory lectures, demonstration, participants' participation, observation and group discussion. The information on knowledge and decision to adopt before and after the exposure of training programme was recorded on structured interview schedule.

b) Impact of training was assessed in terms of knowledge gain, change in attitude and symbolic adoption.

c) Factors associated with adoption of flower cultivation as an income generating activity were identified.

3.3 Variables and their measurements

For the present study the relevant variables were selected on the basis of extensive reviews of relevant literature and consultations with expert.

The variables selected for different objectives of the study are as follows:

3.3.1 Selected variables and their measurements

A. Independent variables

Variables	Measurement
(a) Socio- personal and economic variables	
Age	Chronological age
Education	Schedule was developed
Caste	
Marital status	
Family type	
Family size	
Family education status	
Family occupation	
Annual income	
Land holding	
House type	
Material possession	
Transportation and communication means	

(b) Psychological variables

Change proneness	Self rating scale, Moulik (1965)
Risk orientation	Risk Preference Scale, Supe (1969)
Economic motivation	Scale of Singh (1991)
Intra family decision making	} Schedule was developed
Entrepreneurial decision making	

(c) Communication variables

Social participation	} Schedule was developed
Mass media exposure	
Information source utilization	

d) Situational Variable

Previous training received	Schedule was developed
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B. DEPENDENT VARIABLES

I) Awareness of flower cultivation	} Schedule was developed
II) Feasibility of flower cultivation	
III) Impact assessment of training	
- Knowledge gain	Knowledge inventory
- Change in attitude	Attitudes Statements
- Skill acquisition	} Schedule was developed
- Symbolic adoption	

3.3 Variables and their empirical measurement

A. Independent variables

(a) Socio-personal and economic variables

Age: It is one of the basic characteristic of an individual linked with his/her maturity, physical well being, productivity level and work efficiency. In this study, age was operationalized as the number of full years completed by the respondents at the time of interview. Actual age was recorded and categorized on the basis of maximum – minimum responses obtained. The age groups were categorized as under:

Age group (years)	Score
Young (≤ 20)	1
Lower middle (21-25)	2
Upper middle (26-30)	3

Education of the respondents: Beal and Sibley (1967) have pointed out that the individual's ability to read and write and the amount of formal education, he/she possess, will affect the manner in which the individual gathers data and relates himself/herself to his/her environment. Operationally education referred to the formal education acquired by the respondents.

It refers to the academic qualifications of the respondents acquired through formal schooling and training. The years of schooling of respondent was quantified by giving scores as under:

Category	Score
Illiterate	0
Can read only	1
Can read and write	2
Primary	3
Middle	4
Matriculation	5
Graduation	6
Post graduation/ vocational	7

Caste: Dahama (1976) defined “caste is a collection of families or a group of families bearing a common name, which usually denotes and is associated with a specific occupation, claiming common descent from a mythical ancestor, human or divine professing to follow the same calling and regarded by those who are competent to give an opinion as forming a single homogenous community”.

A schedule was developed for the measurement of caste. The categorization and scoring was done as follows:

Category	Score
Low (<i>Chamar, Bhangi, Doom, Jhimar, Khati, Dhobi, Badi</i>)	1
Middle (<i>Lohar, Kumhar, Darji, Nai, Baniya, Sunar, Ahir, Saini, Arora</i>)	2
High (<i>Brahmin, Bishnoi, Jat, Rajput</i>)	3

Marital status: It was operationalized as the married, unmarried status of the respondents. It was measured with the help of schedule developed for the purpose and the following scoring pattern was followed:

Category	Score
Married	2
Unmarried	1

Family type: It was operationalized as the total members in the family living together at the time of data collection. The respondents were divided into two categories by using the following score pattern:

Category	Score
Joint	1
Nuclear	2

Family size: Size of family refers to the total number of members in the family consisting of husband, wife, children and other dependents. It was measured with the help of schedule developed for purpose based on number of members. Details are as under:

Category	Score
Small (2-4 members)	1
Medium (5-7 members)	2
Large (above 7members)	3

Family educational status (FES): For the present investigation, family education was operationalized as the formal education obtained by the family members who were above five years of age. Family education score was calculated with the help of given formula:

$$FES = \frac{\text{Total education score of the family}}{\text{Total number of eligible members of the family}}$$

On the basis of maximum – minimum scores obtained, it was categorized into three groups which are as follows:

Category	Score
Low (0.71-2.31)	1
Medium (2.32-3.91)	2
High (3.92-5.50)	3

Family occupation: it refers to the respondents' main source of livelihood. It was operationalized as the specific major work which the head of the family do to earn livelihood and was measured as follows:

Category	Score
Agricultural Labourer	1
Caste occupation	2
Business	3
Farming	4
Government service	5
Private service	6

Social participation: It refers to the degree, with which the respondents more involved in formal or non- formal organization either as members or as office bearer and regularity in attending meetings. Thus, social participation is voluntary sharing in person to group and group to group relationships, beyond the immediate household. The score assigned to different categories are as follows:

Category	Score
No membership	0
Member of formal organization	1
Member of non-formal organization	2
Office Bearer	3

Annual income: It refers to the amount earned by all family members in a year from various sources viz., agriculture, dairy, agricultural labour and other sources. This was operationally measured in terms of actual family income expressed in rupees. This was categorized as follows:

Category	Score
upto Rs. 40,000	1
upto Rs. 60,000	2
above Rs. 60,000	3

Land holding: this refers to the hectares of cultivated land possessed by respondent. The categories given and scoring done was as follows:

Category	Score
Landless	0
Marginal (1 - 2 acre)	1
Small (2 - 5 acre)	2
Medium (5 -10 acre)	3
Large (above 10 acre)	4

House type: It refers to the type of house possessed by the respondent at the time of investigation. *Kuccha* house refers to made of mud and thatch, *Pucca* house refers to made of brick, cement and concrete and *Mixed* refers to made of mud or cement, brick and thatch. The weightage was assigned as:

Category	Score
<i>Kuccha</i>	1
<i>Pucca</i>	2
Mixed	3

Material possession

a. Agricultural implements

Category	Score
Desi/ wooden plough	1
Improved disk plough/block drawn tiller	2
Tractor tiller/farm machine attachment	3
Land leveller/patella	3
Pumpset	3

Hand tools	3
Sprayer/duster	3
Chalf cuffer	2
Thresher	3
Winnower	3

Domestic items: It was operationalized as the number of major domestic items possessed by the respondents' family. One score was assigned to each item and categorized in low, medium and high categories.

Category	Score
Small	1
Medium	2
Large	3

b. Transportation & Communication means:-

Category

Car/jeep
Motor cycle
Moped
Bicycle
Telephone
Television
Tape recorder

Transportation and communication means: It was operationalized as the number of transportation and communication means possessed by the respondents' family.

Category	Score
Small	1
Medium	2
Large	3

(b) Psychological variables

Change proneness: It refers to the extent to which the respondent is ready to change from the existing situation. Modified self rating scale of Moulik (1965) was used to measure the change proneness of the respondent. On the basis of total score, responses were divided into three categories as under:

Category	Score
Low (8-13)	1
Medium (14-19)	2
High (19-25)	3

Risk orientation: It refers to the degree to which an entrepreneur is oriented towards risk and uncertainty and has courage to face the problems in adoption of latest entrepreneurial technology. It was rated with the help of risk preference scale developed by Supe (1969). On the basis of total scores, responses were divided into three categories as under:

Category	Score
Low (6-10)	1
Medium (11-14)	2
High (15-18)	3

Economic motivation: It refers to the occupational success in terms of profit maximization and relative values placed by women on economic ends. This variable was measured with the help of self rating scale of Supe (1969). On the basis of total scores, responses were divided into three categories as under:

Category	Score
Low (5-8)	1
Medium (9-11)	2
High (12-15)	3

Intra family decision making: Intra family decision making pattern was operationalized as the extent of involvement of women entrepreneurs in decision making within the family. The scoring was done as under:

Category	Score
Self	1
Husband	2
Jointly	3

Entrepreneurial decision making: Entrepreneurial decision making was operationalized as the extent of involvement of women entrepreneurs in decision making related to their enterprises. Scoring was done as under:

Category	Score
Self	1
Husband	2
Jointly	3

(c) Communication variables

Mass media exposure: It has been operationalized as the degree to which a respondent was exposed to the mass media such as radio, television, newspapers, magazines, films etc. for obtaining various types of information. It was measured on four point continuum.

Daily	Weekly	Rarely	Never
4	3	2	1

The scores obtained were summed up and divided by the number of media. The categories are as follows:

Category	Score
Low (10-20)	1
Medium (21-30)	2
High (31-40)	3

Information source utilization: It was operationalized in terms of communication contacts of beneficiaries with different sources of information. This was measured on three point continuum.

Very frequently	Frequently	Rarely
3	2	1

The total score obtained by each respondent were categorized into three categories as follows:

Localite sources

Category	Score
Low (7-11)	1
Medium (12-16)	2
High (17-21)	3

Cosmopolite sources

Category	Score
Low (5-8)	1
Medium (9-12)	2
High (13-15)	3

B. Dependent variables

1. **Awareness:** awareness refers to the exact information possessed by an individual respondent about flower cultivation was worked out by applying three criterion:

- General awareness on flower cultivation
- Importance of flower cultivation
- Benefits of flower cultivation

2. **Perceived feasibility of flower cultivation:** For the present study the adoption feasibility was measured by taking into account the various parameters viz., knowledge, attitude, skill and decision. It was assessed village –wise by taking into account the various attributes of innovation like:

- Relative advantage
- Cultural compatibility
- Simplicity/ complexity

d) Observability

e) Triability

a) **Relative advantages:** This was taken as the degree to which the technology was perceived better and advantageous in terms of economic gains. The responses were obtained under the five point rating scale as:

The five point of the scale and respective scores were as below:

5	4	3	2	1
Most profitable	Profitable	Somewhat Profitable	Least profitable	Not at all profitable

b) **Cultural Compatibility:** This has been operationalized as the degree to which an innovation is consistent with needs/ situations of the receivers in relation to technology processing. The respondents were required to give their answers on a five point rating scale varying from most compatible to not at all compatible.

The five points of the scale and respective scores were as below:

5	4	3	2	1
Most Compatible	Compatible	Somewhat Compatible	Least Compatible	Not at all Compatible

c) **Simplicity / complexity:** This was operationalized as the degree to which the technology is perceived as relatively easy / difficult to understand and use. The respondents were agreed to give their answers on a five point rating scale varying from most simple to complex.

The five points of the scale and respective scores were as below:

5	4	3	2	1
Very easy	Easy	Neither easy nor difficult	Difficult	Very difficult

d) **Observability:** This was operationalized as the degree to which the results of an innovation are visible to others. The respondents were agreed to give their answers on a five point continuum scale varying from most observable to not at all observable.

The five points of the scale and respective scores were as below:

5	4	3	2	1
Most Observable	Observable	Somewhat Observable	Least Observable	Not at all Observable

e) **Triability:** This has been taken as the degree to which the technology may be experimented on a limited basis. The respondents were agreed to give their answers on a five point continuum scale varying from most triable to not at all triable.

The five points of the scale and respective scores were as below:

5	4	3	2	1
Most Triable	Triable	Somewhat Triable	Least Triable	Not at all Triable

To assess the attribute wise decision of the respondents to implement the technology, mean scores were computed by adding the obtained scores for each of the attributes.

3. Economic viability (Potentiality)

Economic viability refers to the financial desirability of the project for the smooth flow of the unit/project. To analyze the economic viability of the unit/project, it is essential to study the cost of production, working cost, net profit/loss.

Cost of production

This is simply the sum of all costs of production i.e. total administrative expenses, total sales expenses. Cost of production consist of two parts:

Establishment cost/fixed cost

Recurring cost/variable cost

I. Establishment cost/fixed cost

Almost every business incurs certain costs which are fixed in nature. These costs remain constant irrespective of change in the volume of output. They may represent cost of land/rent of land and building of the unit, cost of the plant and machinery, depreciation and interest on fixed capital. Fixed capital was calculated for one year.

- (a) **Cost of land:** Cost of land refers to the cost of a specific price of land where the project would set up.
- (b) **Cost of machinery and fertilizers:** It refers to the cost of machines and fertilizers required for the production of flowers.
- (c) **Interest:** interest on term loan/fixed variable is based on the present rate of interest charged by the term lending financial institutions and commercial banks i.e. 12% per annum.

II. Variable costs

All costs which vary directly with output are referred to as variable costs. Variable cost includes cost of seeds, fertilizers, irrigation, plant protection, packing and marketing charge.

Economic Viability

For calculating benefits, it is important to find out total production, gross return, total cost, cost per kilogram, net returns, net returns per kilogram and cost benefits ratio. Following calculations have been adopted for estimating all values mentioned above.

Production

- (a) Total production (kg) = Total production of flower cultivation in kg in one year was calculated
- (b) Gross return (Rs.) = Quantity of prepared produce or total production of units \times price of production per kilogram
- (c) Total cost (Rs.) = Total fixed cost + interest on fixed cost + total variable cost + interest on variable cost.
- (d) Cost per kilogram (Rs.) = Total cost/ total production
- (e) Net return in seven months(Rs.) = Gross return – Total cost
- (f) Net return in per month(Rs.) = Net returns in one year / total production in one year.

To examine the economic feasibility of the flower cultivation, two major indicators were used viz., cost-benefit ratio and break even points. The method used to find out these are given below:

Benefits cost ratio: To examine the economic feasibility, major indicator benefit-cost is used. Benefit-cost ratio is the ratio between sum of the benefits of returns (R) and the sum of the cost (K) i.e. $B = \frac{R}{K}$. If the ratio is greater than 1 then the investment in the unit is considered to be economically viable / profitable.

4. Impact assessment

Knowledge gain: Knowledge is a body of understood information possessed by an individual.

Bloom *et al.* defined knowledge as “those behaviours and test situations which emphasize the remembering either by recognition or recall of ideas, material and phenomenon”. Therefore, knowledge was operationalized as the amount of adequate information acquired by the rural women on flower cultivation.

The gain in knowledge refers to the difference between the knowledge regarding various aspects of flower cultivation by the respondents before and after the exposure of flower cultivation. In order to obtain the knowledge scores, close ended knowledge inventory was prepared separately for all components of flower cultivation.

Attitude change: It occurs when an individual forms a favourable or unfavourable attitude towards the innovation.

Thurstone (1946) defined attitude as the degree of positive or negative effects associated with some psychological object. By psychological object she meant any symbol, phrase, idea etc. towards which people can differ with respect to positive or negative effect. In

the present study, interpretation of attitude/ persuasion was the same as suggested by Thurstone.

In order to measure the attitude of rural women towards flower cultivation, general attitude statements both positive and negative were prepared in consultation with experts and literature. The women were asked to give their reaction on each statement in three categories i.e. strongly agree, agree and disagree which were assigned the score of 3,2,1 for positive statement and 1,2,3 for negative statements. On the basis of scores obtained for change in attitude, the scores were categorized into low, medium and high.

Rural women's responses on attitude scale were obtained before and after training on flower cultivation. The difference of pre and post exposure mean score was calculated to measure the change in attitude.

- (iii) **Skill acquisition:** It refers to skill possessed by a respondent before and after imparting training for flower cultivation.
- (iv) **Symbolic adoption:** It was operationalized as the symbolic adoption, willingness and acceptability of rural women to adopt flower cultivation technology for income generation. It was measured and qualified by summing the individual score of each component (symbolic adoption, willingness and acceptability of rural women to adopt flower cultivation unit for income generation). Index was developed for the assessment of adoption and score was divided into three categories:

Category	Score
High	15-18
Medium	12-14
Low	9-11

- (V) **Impact Assessment Index:** It was worked out by taking into account two dimensions viz., knowledge acquired and change in attitude. On three point continuum, their respective frequencies were computed and presented in 3x3 tables. The cell entries depicted the scores obtained by subtracting post from pre exposure score on two dimensions.

$$IAI = \frac{f_i \times c_i}{N \times X \times Y} \times 100$$

Whereas,

- f_i = Frequency in ith cell
- c_i = Cell scores of ith cell (Product of corresponding scale values as presented in parentheses on two dimension table)
- N = Total number of respondents
- X = Highest scale value on X dimension
- Y = Highest scale value on Y dimension

3.4 Tools and techniques of data collection: An interview schedule was developed and used for primary data collection from the respondents. While developing the schedule, relevant secondary sources of information were carefully examined and the importance was given to various independent and dependent variables. It was pre-tested on twenty women in a village other than study area. After this, the schedule was modified wherever required and was finalized for final collection of data.

3.4.1 Data collection: The data was collected through pre-tested structured interview schedule. The interview was conducted personally by the investigator with the women individually and in groups.

3.4.2 Data analysis: The data thus collected was processed, tabulated and analyzed using frequency, percentage, weighted mean score, two sample mean (paired 't' test) and correlation.

i. **Frequency and percentage:** Simple comparisons were made on the basis of frequency and percentage for the assessment of profile of respondents, frequency and percentage were calculated.

ii. **Weighted mean score:** WMSs were calculated to rank various variables like perceived feasibility, knowledge, attitude and perceived constraints faced by women.

For each item, the frequencies falling under each rating were tabulated. Then the frequencies in each of the category were multiplied by the assigned scores and added. The resulting sum of each aspect was divided by the total number of respondents. In this way, the weighted mean score in each aspect were calculated.

iii. **Paired 't' test (two sample mean test):** Paired 't' test is a test of significance. This was used to measure significance of gain in knowledge, change in attitude and practice of respondents at pre and post exposure stage. Following formula was used:

$$t = \frac{\bar{d}}{S/\sqrt{n}} \text{ with } (n-1) \text{ degree of freedom}$$

Where,

\bar{d} = The mean of difference of pre and post exposure scores

n = Number of observations

S = Standard deviation of the differences computed by usual formula

$$S = \sqrt{\frac{1}{n-1} \left[\left(\sum d^2 \right) - \frac{(\sum d)^2}{n} \right]}$$

(iv) Correlation: To assess the relationship among variables.

$$r = \frac{N\sum xy - (\sum x)(\sum y)}{\sqrt{N\sum x^2 - (\sum x)^2} \sqrt{N\sum y^2 - (\sum y)^2}}$$

Where,

r = Correlation coefficient

n = Number of respondents

$\sum xy$ = Sum of product of x and y

$\sum x$ = Summation of overall dependent variables

$\sum y$ = Summation of overall independent variables

$\sum x^2$ = Sum of squared values of dependent variables

$\sum y^2$ = Sum of all squared values of independent variables

This chapter deals with the results of the present investigation in accordance with the objectives, inferred through the use of prescribed methodology and standard tools. The results have been presented under the following heads:

- 4.1 Background information of the respondents
- 4.2 Awareness of the respondents on flower cultivation
- 4.3 Perceived feasibility of flower cultivation as an enterprise
- 4.4 Impact assessment of training
- 4.5 Symbolic adoption
- 4.6 Economic viability

4.1 Background information of the respondents

In this section, the percentage distribution of the respondents according to their socio-personal, economic, psychological, communication and situational profile have been incorporated.

4.1.1 Socio-personal profile of the respondents

Age

The data reported in Table-1 indicate that 54 per cent of the respondents of Umra village belonged to upper middle age group followed by lower middle age group (38%) and younger age group (8%). Similar pattern was observed in Dhani Peera Wali village also. The data further depict that the 40 per cent of the respondents were of upper middle age group followed by lower middle age (32%) and younger age group (28%).

In case of pooled sample, less than half of the respondents (47%) belonged to upper middle age group followed by lower middle age group (35%). Only 18 per cent of the respondents were of younger age group.

Education

Level of education of the respondents was measured in terms of numbers of years of formal schooling undergone by them. The data in Table 1 indicate that 28 per cent of the respondents of the Umra village were illiterate followed by educated up to middle level (22%), matriculation level (18%), primary level (16%), can read and write (14%), can read only (2%) and not a single respondents was educated upto graduation level.

In case of Dhani Peera Wali village, 50 per cent of the respondents were illiterate followed by educated up to matriculation level (14%), primary level (12%), middle level (10%) and can read only (6%), graduate and can read and write only (4% each) respectively.

Table 1 : Socio-personal profile of the respondents

Sr. No.	Variables and category	Umra (n= 50)		Dhani Peera Wali (n=50)		Total (n=100)	
		f	%	f	%	f	%
1.	Age						
	Young (upto 19years)	04	08	14	28	18	18
	Lower middle (19-25years)	19	38	16	32	35	35
	Upper middle (above 25 years)	27	54	20	40	47	47
2.	Education						
	Illiterate	14	28.0	25	50.0	39	39.0
	Can read only	01	02.0	03	06.0	04	04.0
	Can read and write	07	14.0	02	04.0	09	09.0
	Primary	08	16.0	06	12.0	14	14.0
	Middle	11	22.0	05	10.0	16	16.0
	Matriculation	09	18.0	07	14.0	16	16.0
	Graduate	-	-	02	04.0	02	02.0
3.	Caste						
	Lower	01	02.0	25	50.0	26	26.0
	Middle	03	06.0	24	48.0	27	27.0
	Upper	46	92.0	01	02.0	47	47.0
4.	Marital status						
	Married	40	80.0	44	88.0	84	84.0
	Unmarried	10	20.0	06	12.0	16	16.0
5.	Family Type						
	Nuclear	42	84.0	40	80.0	82	82.0
	Jointly	08	16.0	10	20.0	18	18.0
6.	Family size						
	Small (2-4 members)	32	64.0	19	38.0	51	51.0
	Medium (5-7 member)	17	34.0	29	58.0	46	46.0
	Large (above 7)	01	02.0	02	04.0	03	03.0
7.	Family education status						
	Low	15	30.0	12	24.0	27	27.0
	Medium	26	52.0	27	54.0	53	53.0
	High	09	18.0	11	22.0	20	20.0
8.	Family Occupation						
	Agricultural Labourer	36	72.0	31	62.0	67	67.0
	Farming	04	08.0	02	04.0	06	06.0
	Business	02	04.0	04	08.0	06	06.0
	Government service /Private Service	08	16.0	13	26.0	21	21.0
9.	Social participation						
	No membership	40	80.0	44	88.0	84	84.0
	Member of a formal organization	10	20.0	06	12.0	16	16.0
10.	House type						
	Kaccha	02	04.0	06	12.0	08	08.0
	Pucca	19	38.0	24	48.0	43	43.0
	Mixed	29	58.0	20	40.0	49	49.0
11.	Material possession						
a)	Major Domestic Item						
	Low	30	60	14	28	44	44
	Medium	16	32	22	44	38	38
	High	4	8	14	28	18	18
b)	Transportation and Communication Means						
	Low	18	36	8	16	26	26
	Medium	18	36	18	36	36	36
	High	14	28	24	48	38	38

In case of pooled sample, 39 per cent respondents were illiterate followed by respondents educated up to matriculation, middle level (16%) each and primary level (14%) respectively. Only 9 per cent respondents were those who can read and write only, 4 percent can read only and 2 per cent respondents were educated upto graduation level.

Caste

In case of Umra village, majority of the respondents (92%) belonged to upper caste followed by middle caste and lower caste (6% and 2%) respectively. In Dhani Peera Wali village, half of the respondents (50%) belonged to lower caste followed by middle caste (48%) and lower caste (2%). Whereas in pooled sample, 47 per cent of the respondents were of upper caste followed by middle caste (27%) and lower caste (26%) respectively.

Marital status

The data related to marital status of the respondents presented in Table-1 reveal that in both the villages Umra and Dhani Peera Wali village, majority of the respondents were married (80% and 88%) respectively. In Umra village only 20% and in Dhani Peera Wali village 12% respondents were unmarried. The same trend was observed in pooled sample also.

Family size

The data regarding family size indicate that in pooled sample, about half of the respondents (51%) had small sized families and medium sized families (46%) followed by large sized families (3%). In Umra village, more than half of the respondents (64%) were having small sized families and medium sized families (34%) which were followed by large sized families (2%). In case of Dhani Peera Wali village, 58 per cent of the respondents were having medium sized families and small sized families (38%) followed by large sized families (4%).

Family type

The Table-1 clearly shows that more than half of the respondents (84%) had nuclear family while 16 per cent respondents were having joint families in Umra village. Whereas, in Dhani Peera Wali village, 80 per cent respondents were having nuclear families followed by joint families (20%). In case of pooled sample, 82 per cent respondents belonged to nuclear families and 18 per cent respondents had joint families.

Family education status

The data regarding family education of the respondents in Table-1 indicate that in pooled sample more than half of the respondents (53%) were having medium family education status followed by low and high family education status (27% and 20%) respectively. Similar trend was observed in Umra village and Dhani Peera Wali villages separately also.

Family occupation

It is clear from the Table-1 that seventy two per cent respondents in Umra village was working as agricultural labourers followed by government/private service (16%), farming (8%) and business (4%). In Dhani Peera Wali village, 62 per cent respondents were working as agricultural labourer followed by government/private service (26%), business (8%) and farming (8%). more than half of the respondents (67%) were having agricultural labourers as their main occupation followed by, government/ private service (21%), farming and business (6%) each in pooled sample.

Social participation

The Table-1 indicates that the social participation of the respondents was negligible in village Umra (80%), Dhani Peera Wali (88%) as well as in pooled sample (84%). Only 20, 12 and 16 per cent respondents were member of a formal organization in village Umra, Dhani Peera Wali and in pooled sample respectively.

House type

In Umra village more than half of the respondents (58%) had mixed type of house followed by *pucca* house (38%). Only 4 per cent of the respondents had *kuccha* house in Umra village. In case of village Dhani Peera Wali, less than half of the respondents (48%) had *pucca* house followed by mixed type of house (40%) & *kuccha* house (12%) respectively. In pooled sample, 49 per cent of the respondents had mixed type of house followed by *pucca* house (43%). Only 8 per cent of the respondents had *kuccha* house.

Material possession

Table 1 brings to the light that majority of the respondents (60%) had low material possession followed by medium and high (32%, 8%) respectively in Umra village. In Dhani Perra wali village 44 per cent respondents had medium material possession followed by low and high (28%) each. In case of pooled sample (44%) respondents had low material possession followed by medium and high material possession (38%, 18%) respectively.

Transportation and communication means

Data presented in Table 1 depict that more than one third of the respondents (36%) each had low & medium transportation & communication means in village Umra which was followed by high (28%). In village Dhani Peera Wali 48 per cent of the respondents had high transformation & communication means which was followed by medium (36%) & low (16%) respectively. The same trend was observed in pooled sample too.

4.1.2 Economic, psychologically and communication profile of the respondents

In this sub section, percentage distribution of the respondents according to their economic, psychologically and communication characteristics has been incorporated in Table-2.

Annual income: Table-2 clearly depicts that 40 per cent of the respondents had annual income above Rs.60, 000 which was followed by upto Rs.60,000 (38%) and upto Rs.40,000 (22%) respectively in Umra village. In case of Dhani Peera Wali village 46 per cent respondents had income above Rs. 60,000 followed by upto Rs.60,000 (34%) and upto Rs.40,000 (20%) respectively.

In pooled sample, 43 per cent of the respondents were having annual income above Rs.60,000 followed by upto Rs.60,000 (36%) and upto Rs.40,000 (21%) and respectively.

Land holding: The data presented in Table-2 clearly indicate 08 per cent of the respondents were land less followed by marginal (04%), small land holding (16%) whereas 22 per cent respondents were having medium land. Only 50 per cent respondents were having large land respectively in Umra village. In case of pooled sample similar trend was observed. In Dhani Peera Wali village 26 per cent of the respondents were land less followed by marginal land holding (32%) and small land holding (30%) whereas 15 per cent respondents were having medium land. Only 27% per cent respondents were having large land respectively.

Change proneness

Change proneness refers to favourable attitude towards new idea and intentions to adopt when such ideas are practical and feasible. Data regarding psychological characteristics are presented in Table-2. It shows clearly that majority of the respondents (84%) were having high change proneness followed by medium and low change proneness (12% and 4%) respectively in village Umra. In village Dhani Peera Wali, majority of the respondents (76%) had high change proneness which was followed by medium (20%) and low change proneness (4%). The same trend was observed in pooled sample.

Risk orientation

It is further clear from the Table-2 that in Umra village, respondents had high, (84%) followed by medium (14%) and low risk orientation (2%) respectively. In case of Dhani Peera Wali village, more than half of the respondents (66%) were having high risk orientation followed by medium and low risk orientation (32% and 2%) respectively. Similar trend was observed in pooled sample.

Economic motivation

Data related to economic motivation in Table-2 depict that in pooled sample, majority of the respondents (80%) had high economic motivation followed by medium (18%) and low economic motivation (2%). The same trend was observed in village Dhani Peera Wali and Umra villages also.

Intra family decision making

Table-2 reveals that in the families less than half of the respondents (48%) decisions were taken up jointly followed by decisions taken by husband (43%) and self (9%) in pooled sample. Whereas in Umra village, 48 per cent of the respondents took decision by husband and followed by jointly and self (40% and 12%) respectively. Whereas in village Dhani Peera Wali, more than half of respondents the families (56%) took decisions jointly which was followed by husband (38%), and self (6%) respectively.

Entrepreneurial decision making

Regarding entrepreneurial decisions half of the respondents (50%) took decision by husband followed by jointly and self (36% and 14%) respectively in village Umra. In case of village Dhani Peera Wali, 54 per cent respondents took entrepreneurial decisions jointly followed by husband and self (42% and 4%) respectively. Whereas in pooled sample, 46 per cent respondents took decision by husband which was followed by decisions taken by jointly and self (45% and 9%) respectively.

Table 2: Economic, psychological and communication profile of the respondents selected for the training

Sr. No.	Variables and category	Umra (n= 50)		Dhani Peera Wali (n=50)		Total (n=100)	
		f	%	f	%	f	%
1.	Annual income						
	upto Rs. 40,000	11	22.0	10	20.0	21	21.0
	upto 60,000	19	38.0	17	34.0	36	36.0
	Above 60,000	20	40.0	23	46.0	43	43.0
2.	Land holding						
	Landless	04	08.0	13	26.0	17	17.0
	Marginal (upto 2 acre)	02	04.0	16	32.0	18	18.0
	Small (2-5 acre)	08	16.0	15	30.0	23	23.0
	Medium (5-10 acre)	11	22.0	04	08.0	15	15.0
	Large (above10 acre)	25	50.0	02	04.0	27	27.0
3.	Change proneness						
	Low (1-9)	02	04.0	02	04.0	04	04.0
	Medium (10-18)	06	12.0	10	20.0	16	16.0
	High (19-27)	42	84.0	38	76.0	80	80.0
4.	Risk orientation						
	Low (6-10)	01	02.0	01	02.0	02	02.0
	Medium (11-14)	07	14.0	16	32.0	23	23.0
	High (15-18)	42	84.0	33	66.0	75	75.0
5.	Economic motivation						
	Low (5-8)	01	02.0	02	04.0	03	03.0
	Medium (9-11)	09	18.0	08	16.0	17	17.0
	High (12-15)	40	80.0	40	80.0	80	80.0
6.	Intra family decision making						
	Self	06	12.0	03	06.0	09	09.0
	Husband	24	48.0	19	38.0	43	43.0
	Jointly	20	40.0	28	56.0	48	48.0
7.	Entrepreneurial decision making						
	Self	07	14.0	02	04.0	09	09.0
	Husband	25	50.0	21	42.0	46	46.0
	Jointly	18	36.0	27	54.0	45	45.0
8.	Communication variable						
	Mass media exposure						
	Low	13	26.0	11	22.0	24	24.0
	Medium	24	48.0	27	54.0	51	51.0
	High	13	26.0	12	24.0	25	25.0
9.	Information source utilization						
a.	Localite sources						
	Low	38	76.0	27	54.0	65	65.0
	Medium	06	12.0	17	34.0	23	23.0
	High	06	12.0	06	12.0	12	12.0
b.	Cosmopolite sources						
	Low	39	78.0	40	80.0	79	79.0
	Medium	09	18.0	07	14.0	16	16.0
	High	02	04.0	03	06.0	05	05.0
10.	Previous training received						
	Low	11	22.0	9	18.0	20.0	20.0
	Medium	27	54.0	27	54.0	54.0	54.0
	High	12	24.0	14	28.0	26.0	26.0

Information source utilization

a) Mass media exposure

The data presented in Table- 2 points to the fact that less than half of respondents (48%) had medium mass media exposure followed by high and low mass media exposure (26% each) respectively in village Umra. fifty four per cent of the respondents had medium mass media exposure followed by high (24%) and low mass media exposure (22%) in village Dhani Peera Wali. Similar trend was observed in pooled sample.

b) Localite sources

It was observed in Table-2 that majority of the respondents (76%) had utilized low localite sources of information followed by medium and high (12% each) respectively in Umra village. In Dhani Peera Wali village, 54 per cent of the respondents had utilized low localite source of information which was followed by medium and high localite sources of information (34% and 12%) respectively. The same trend was observed in pooled sample.

c) Cosmopolite sources

Table- 2 clearly indicates that in pooled sample, more than three forth of the respondents (79%) were having low cosmopolite sources of information utilization which was followed by medium and high cosmopolite sources (16% and 5%) respectively. In Umra village, majority of the respondents (78%) had utilized low cosmopolite sources. Which was formed by only medium (18%) and high (4%) cosmopolite sources of information respectively. Whereas, in Dhani Peera Wali village, 80 per cent of the respondents had utilized low cosmopolite sources followed by medium and high (14% and 6%) respectively.

Previous training received

The Table- 2 clearly depicts that half (54%) of the respondent had received medium previous training received followed by high (24%) and low (22%) in village Umra. In village Dhani Peera Wali, 54 per cent of the respondents had received previous training followed by high (28%) and low (18%). The same trend was observed in pooled sample too.

4.2 Awareness of respondents for flower cultivation

The Table-3 indicates the fact that at pre-exposure stage awareness was very low for all the aspects viz, whether they have heard about floriculture, general awareness about cultivation, importance of flower cultivation, name the flower which is used as medicine, different uses of flower, awareness about the different type of flowers grown in Haryana, awareness about the kinds of marigold grown in Haryana, name of intensive varieties of marigold and of rose. But it has increased after exposing them to expert lecture & group discussion significantly.

Table 3: Awareness of respondents for flower cultivation**(n=100)**

Sr. No.	Statements	Pre-exposure %	Post-exposure %
1.	Whether they have heard about floriculture	45.0	98.0
2.	General awareness about cultivation		
	It has bright future	26.0	76.0
	To provide more income than traditional crop	16.0	45.0
	Employment to unemployed youth.	18.0	56.0
	Additional income to family.	24.0	69.0
3.	Importance of flower cultivation		
	Easy to produce	13.0	82.0
	Quick production	20.0	67.0
	More income in less time	18.0	69.0
	Export oriented crop	29.0	73.0
	Low production crop.	11.0	61.0
	More demand in and outside india	28.0	78.0
	Local market is there.	33.0	75.0
	Flower fetch a good market price	27.0	94.0
	Best suited climate for flower cultivation in Haryana.	31.0	69.0
4.	Name the flower which is used as medicine		
	Marigold	23.0	89.0
	Gladiolus	09.0	73.0
	Tuberose	08.0	76.0
	Rose	43.0	94.0
5.	Different uses of flower		
	Decoration purpose	42.0	93.0
	Religious purpose	33.0	96.0
	Medicinal value	41.0	92.0
	<i>Guldaste or as boquet</i>	27.0	82.0
	Garland	13.0	72.0
6.	Awareness about the different type of flowers grown in Haryana		
	Marigold	36.0	90.0
	Gladiolus	21.0	71.0
	Tuberose	19.0	69.0
	Rose	39.0	94.0
7.	Awareness about the kinds of marigold grown in Haryana		
	African marigold	13.0	87.0
	French marigold	15.0	84.0
8.	Name the intensive varieties of marigold		
	<i>Pusa Naurangi</i>	07.0	62.0
	<i>Pusa Basanti</i>	09.0	64.0
9.	Name the intensive varieties of rose		
	Hybrid T	09.0	73.0
	Hybrid perpetual	12.0	75.0

*Multiple responses

Socio-personal profile of the respondents selected for the training

After creating awareness among all the selected 100 respondents from Umra village and Dhani Peera Wali village, a sample of 40 respondents i.e. 20 from each village interested in flower cultivation training were selected. For the selected 40 women respondents, the profile was further analyzed in order to make comparison and to work out the relationship of independent and dependent variables.

The data in Table-4 point out that (37.50%) of the respondents belonged to upper middle age group followed by younger age group (35%) and lower middle age group (27.50 %) respectively. About one forth of the respondents (27.50%) respondents were educated up to middle followed by primary (25%), illiterate (22.50%) and educates upto matriculate (20%). Only 5 per cent respondents were educated up to graduation level.

Table 4 : Socio-personal profile of the respondents selected for the training

n=40

Sr. No.	Variables	Frequency	Percentage
1.	Age		
	Young	14	35.00
	Lower middle	11	27.50
	Upper middle	15	37.50
2.	Education		
	Illiterate	09	22.50
	Primary	10	25.00
	Middle	11	27.50
	Matriculation	08	20.00
	Graduate	02	05.00
3.	Marital status		
	Married	36	90.00
	Unmarried	04	10.00
4.	Family type		
	Nuclear	29	72.50
	Joint	11	27.50
5.	Family size		
	Small	22	55.00
	Large	18	45.00
6.	Family occupation		
	Labourer	18	45.00
	Farming	16	40.00
	Private service/govt.	05	12.50
	Business	01	02.50
7.	Caste		
	Lower	02	05.00
	Middle	16	40.00
	Upper	22	55.00

Majority of the respondents (90%) were married and followed by unmarried (10%). About two-third of the respondents (72.50%) were having nuclear families followed by joint families (27.50%). More than half of the respondents (55%) were having small sized families followed by large sized families (45%). forty five per cent respondents had agricultural labourer as their main family occupation followed by farming (40%), private job and business (12.50% and 2.50%) respectively. More than half of the respondents (55%) were of upper caste followed by medium and lower caste (40% and 5%) respectively as shown in Table-4.

Economic and psychological profile of the respondents selected for the training

The data in Table-5 point out that thirty per cent of the respondents had large land holding followed by medium and marginal (22.50% each), small and landless (12.50% each). Less than half of the respondents (42.50%) had annual income above Rs. 60,000 followed by upto Rs. 60,000 (37.50%) and up to Rs. 40,000 (20%) respectively.

Table 5 : Economic and psychological profile of the respondents selected for the training
n=40

Sr. No.	Variables	Frequency	Percentage
1.	Land holding		
	Landless	05	12.50
	Marginal(upto2 acre)	09	22.50
	Small(2-5 acre)	05	12.50
	Medium(5-10 acre)	09	22.50
	Large(above10 acre)	12	30.00
2.	Annual income		
	Up to 40,000	08	20.00
	Up to 60,000	15	37.50
	Above 60,000	17	42.50
3.	Change proneness		
	Low	05	12.50
	Medium	22	55.00
	High	13	32.50
4.	Risk orientation		
	Low	11	27.50
	Medium	14	35.00
	High	15	37.50
5.	Economic motivation		
	Low	05	12.50
	Medium	20	50.00
	High	15	37.50

The Table-5 further reveals that the 37.50% of the respondents had high risk orientation followed by medium (35.00%) and low risk orientation (27.50%). Half of the respondents (50.00%) had medium economic motivation followed by high (37.50%) and low economic motivation (12.50%) respectively.

4.3 Perceived feasibility of flower cultivation

Data presented in Table-6 revealed that maximum number of the respondents of Dhani Peer Wali village perceived this technology as culturally compatible (mean score 2.85, 1st rank) followed by triability (mean score 2.75, 2nd rank), observability and simplicity/complexity (mean score 2.70 each 3rd rank) and relative advantage (mean score 2.65, 4th rank) in order of sequence. Overall feasibility was found to be 2.73 (54.60%).

A perusal of data in Table -6 indicated that most of the respondents of Umra village perceived this technology as relatively advantageous with highest mean score 2.90, ranked 1st followed by simplicity/complexity (mean score 2.85, 2nd rank), cultural compatibility (mean score 2.80, 3rd rank), observability (mean score 2.70, 4th rank) and triability (mean score 2.65, 5th rank) on small scale before final decision to adopt it. The overall feasibility mean score was 2.78 (55.60%).

Table 6: Perceived feasibility of flower cultivation

Sr. No.	Attributes	Dhani Peera Wali (n=20)			Umra (n=20)			Total (n=40)		
		f	WMS	Rank	f	WMS	Rank	F	WMS	Rank
1.	Relative advantage		2.65	IV		2.90	I		2.77	II
	Most profitable	15			18			33		
	Somewhat profitable	3			2			5		
	Least profitable	2			-			2		
2.	Cultural compatibility		2.85	I		2.80	III		2.82	I
	Most compatible	17			17			34		
	Somewhat compatible	3			2			5		
	Least compatible	-			1			1		
3.	Simplicity/Complexity		2.70	III		2.85	II		2.77	II
	Very simple	14			17			31		
	Neither simple nor complex	6			3			9		
	Complex	-			-			-		
4.	Observability		2.70	III		2.70	IV		2.70	III
	Most observable	15			14			29		
	Somewhat observable	4			6			10		
	Least observable	1			-			1		
5.	Triability		2.75	II		2.65	V		2.70	III
	Most triable	15			13			28		
	Somewhat triable	5			7			12		
	Least triable	-			-			-		

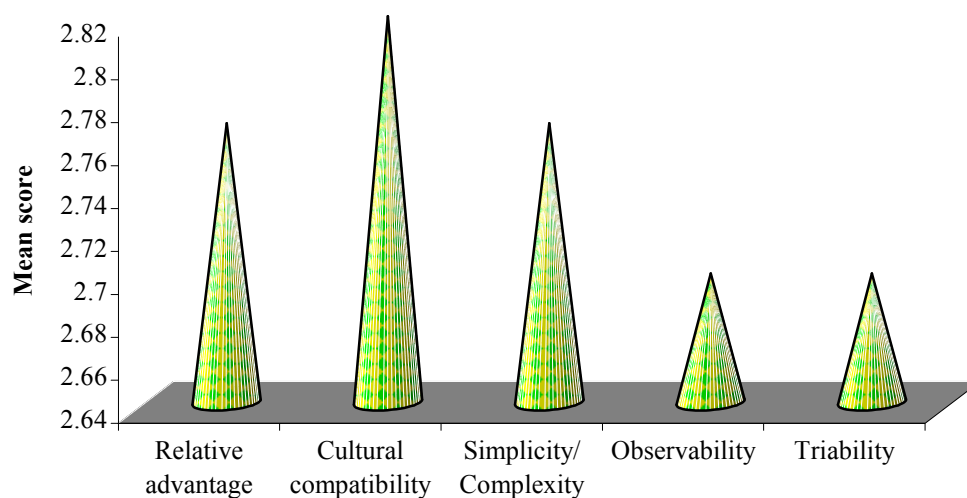


Fig. 1 : Perceived feasibility of flower cultivation

Whereas in pooled sample, data indicated that most of the respondents perceived this technology as cultural compatibility with highest mean score 2.82, ranked 1st followed by relative advantage and simplicity/complexity of the technology (mean score 2.77, 2nd rank) and observability and triability (mean score 2.70, 3rd rank) on small scale before final decision to adopt it. The overall feasibility mean score was 2.75 (55.00%).

4.4 Impact assessment of training

Training was imparted on flower cultivation and the impact was assessed on the basis of pre and post knowledge of the respondents about flower cultivation, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precautions.

The gain in knowledge refers to the difference between the knowledge regarding various aspects of flower cultivation possessed by the respondents before and after the exposure of training. In order to obtain the knowledge scores, close ended knowledge inventory was prepared separately for all components of flower cultivation. The knowledge gain was calculated by the difference in pre and post knowledge gain scores of the respondents.

In order to measure the attitude of rural women towards flower cultivation, general attitude statements both positive and negative were prepared in consultation with experts and literature. The women were asked to give their reaction on each statement in five categories i.e. strongly agree, agree neutral, disagree and strongly disagree which were assigned the score of 5,4,3, 2 and 1 for positive and 1, 2, 3,4 and 5 for negative statements. On the basis of obtained scores about change in attitude, were categorized into low, medium and high. Rural women's response on attitude scale was obtained before and after training. The difference between pre and post exposure mean score was calculated to measure the change in attitude.



Training exposure on flowers cultivation



Training exposure on flowers cultivation

Skill acquisition was measured as the skill possessed by a respondent before and after imparting training on flower cultivation. Symbolic adoption was seen as the mental readiness to adopt, willingness and acceptability of rural women to adopt flower cultivation for income generation.

Gain in knowledge of women respondents on flower cultivation in Umra village

Pre-exposure and post exposure mean scores and 't' test was computed for all the component on flower cultivation which are presented in Table-.7

Sufficient gain in knowledge regarding flower cultivation was recorded for sub-components viz, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precaution and limitation in Umra village. It may, therefore be concluded that women succeeded in acquiring knowledge after exposure to training on flower cultivation. It was statistically significant at 0.05% level of significance.

Table 7: Gain in knowledge of women respondents on flower cultivation in Umra village (n=20)

Sr. No.	Components	Pre-Exposure (Mean Score)	Post-Exposure (Mean Score)	Gain in Knowledge (Mean Score)	t value
1.	Field preparation	1.05	2.80	1.75	17.61*
2.	Sowing /planting	1.20	4.95	3.75	17.86*
3.	Transplantation	1.04	2.76	1.76	12.83*
4.	Fertilizer application	1.36	2.96	1.60	12.50*
5.	Plant protection	1.25	2.50	1.25	7.80*
6.	Harvesting	1.05	1.90	0.85	9.01*
7.	Packing and Marketing	1.32	1.80	0.68	7.39*
8.	Loaning facilities	1.05	2.00	0.95	19.00*
9.	Precaution and limitation	1.40	2.96	1.56	13.44*

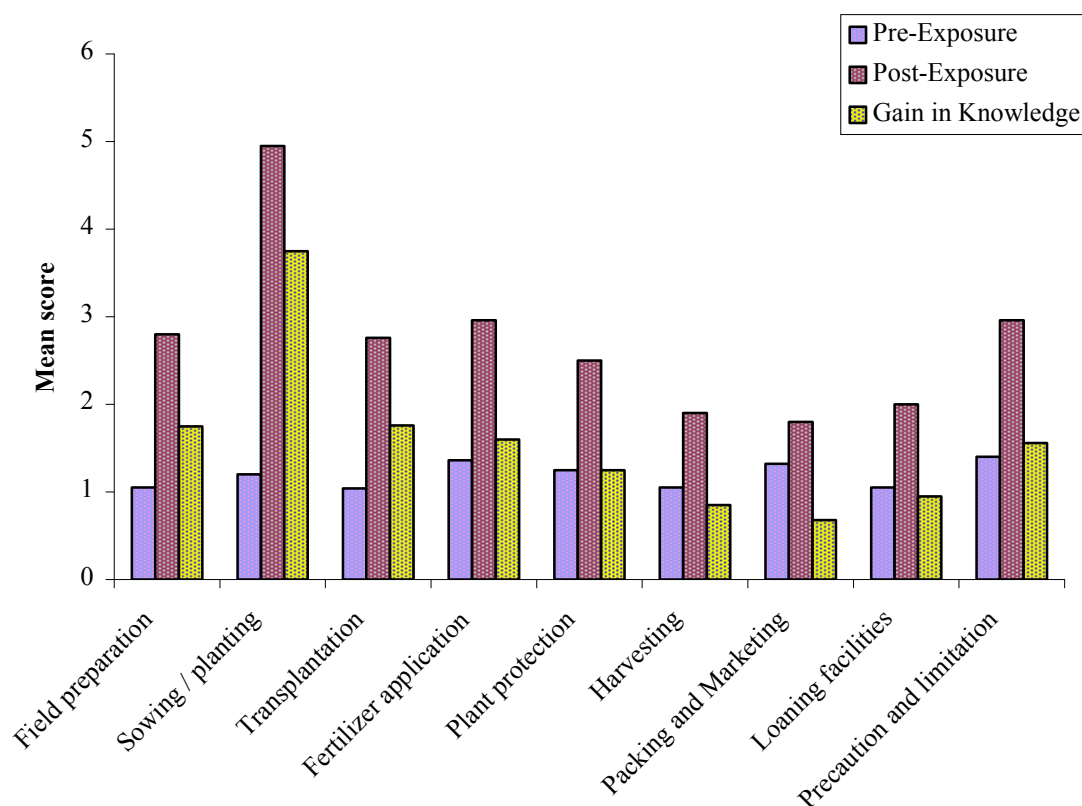


Fig. 2 : Gain in knowledge of women respondents on flower cultivation in Umra village

Gain in knowledge of women respondents on flower cultivation in Dhani Peera Wali village

Pre-exposure and post exposure mean scores and 't' test was computed for all the component on flower cultivation which are presented in Table-.8

Sufficient gain in knowledge regarding flower cultivation was recorded for sub-components viz, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precaution and limitation in Dhani Peera Wali village. It may, therefore be concluded that women succeeded in acquiring knowledge after exposure to training on flower cultivation. It was statistically significant at 0.0 5% level of significance.

Table 8: Gain in knowledge of women respondents on flower cultivation in Dhani Peera Wali village

(n=20)

Sr. No.	Components	Pre-Exposure (Mean Score)	Post-Exposure (Mean Score)	Gain in Knowledge (Mean Score)	t value
1.	Field preparation	1.10	2.45	1.35	10.28*
2.	Sowing /planting	1.28	1.84	0.56	6.60*
3.	Transplantation	1.12	1.88	0.76	8.83*
4.	Fertilizer application	1.35	4.75	3.40	22.34*
5.	Plant protection	1.40	3.90	2.50	14.69*
6.	Harvesting	1.08	1.92	0.84	11.35*
7.	Packing and Marketing	1.40	3.90	2.50	14.69*
8.	Loaning facilities	1.18	1.88	0.70	13.46*
9.	Precaution and limitation	1.44	2.96	1.52	10.00*

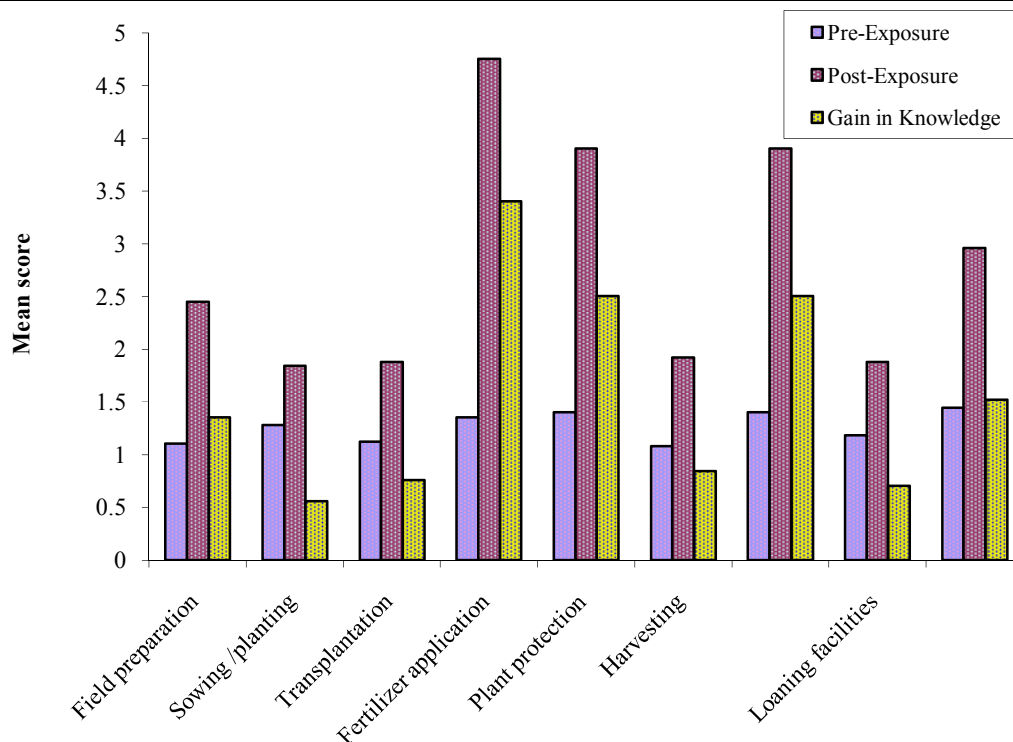


Fig. 3 : Gain in knowledge of women respondents on flower cultivation in Dhani Peera Wali village

Gain in knowledge of women respondents on flower cultivation in pooled sample

Pre-exposure and post exposure mean scores and 't' test was computed for all the component on flower cultivation which are presented in Table-9

Sufficient gain in knowledge regarding flower cultivation was recorded for sub-components viz, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precaution and limitation in pooled sample. It may, therefore be concluded that women succeeded in acquiring knowledge after exposure to training on flower cultivation. It was statistically significant at 0.05 level of significance.

Table 9 : Gain in knowledge of women respondents on flower cultivation in pooled sample

(n=40%)					
Sr. No.	Components	Pre-Exposure (Mean Score)	Post-Exposure (Mean Score)	Gain in Knowledge (Mean Score)	t value
1.	Field preparation	2.15	5.25	3.10	49.97*
2.	Sowing /planting	2.48	6.79	4.31	16.53*
3.	Transplantation	2.16	4.64	2.48	29.61*
4.	Fertilizer application	2.71	7.71	5.00	16.78*
5.	Plant protection	2.65	6.40	3.75	14.49*
6.	Harvesting	2.13	3.82	1.69	12.99*
7.	Packing and Marketing	2.72	5.7	2.98	49.46*
8.	Loaning facilities	2.23	3.88	1.65	11.98*
9.	Precaution and limitation	2.84	5.92	3.08	18.26*

*Significant at 0.05 level of significance

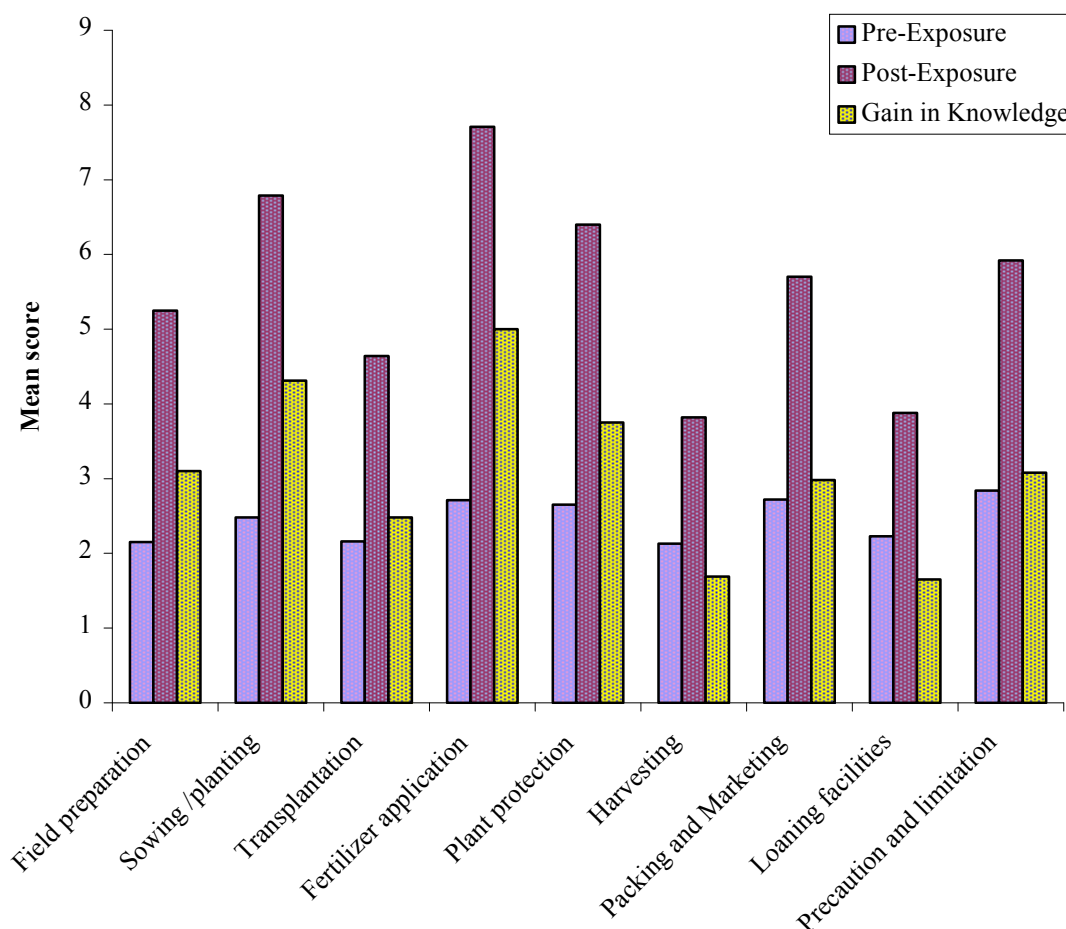


Fig. 4 : Gain in knowledge of women respondents on flower cultivation in pooled sample

Change in attitude of rural women for flower cultivation

Change in attitude of rural women regarding flower cultivation in village Dhani Peera Wali, Umra and pooled sample were assessed through pre- and post exposure mean score and 't' test. Pre-exposure and post-exposure mean score and 't' test were computed for all the sub-component of flower cultivation viz, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precautions. and have been presented in Table-10 and Fig.-10. It is evident from the table that respondents succeeded in changing their attitude at post-exposure level in both the villages and pooled sample, significantly high after exposing them to training on flower cultivation

It can be concluded that respondents had changed their attitude significantly when exposed to training on flower cultivation.

Table 10: Change in attitude of rural women for flower cultivation

Sr. No.	Name of village	Pre-exposure (Mean Score)	Post-exposure (Mean Score)	Change in Attitude (Mean Score)	't' value
1.	Dhani Peera Wali (n=20)	35.40	43.20	7.80	41.45*
2.	Umra (n=20)	36.50	43.90	7.40	26.62*
	Total (n=40)	35.95	43.55	7.60	67.40*

*Significant at 0.05 level of significance

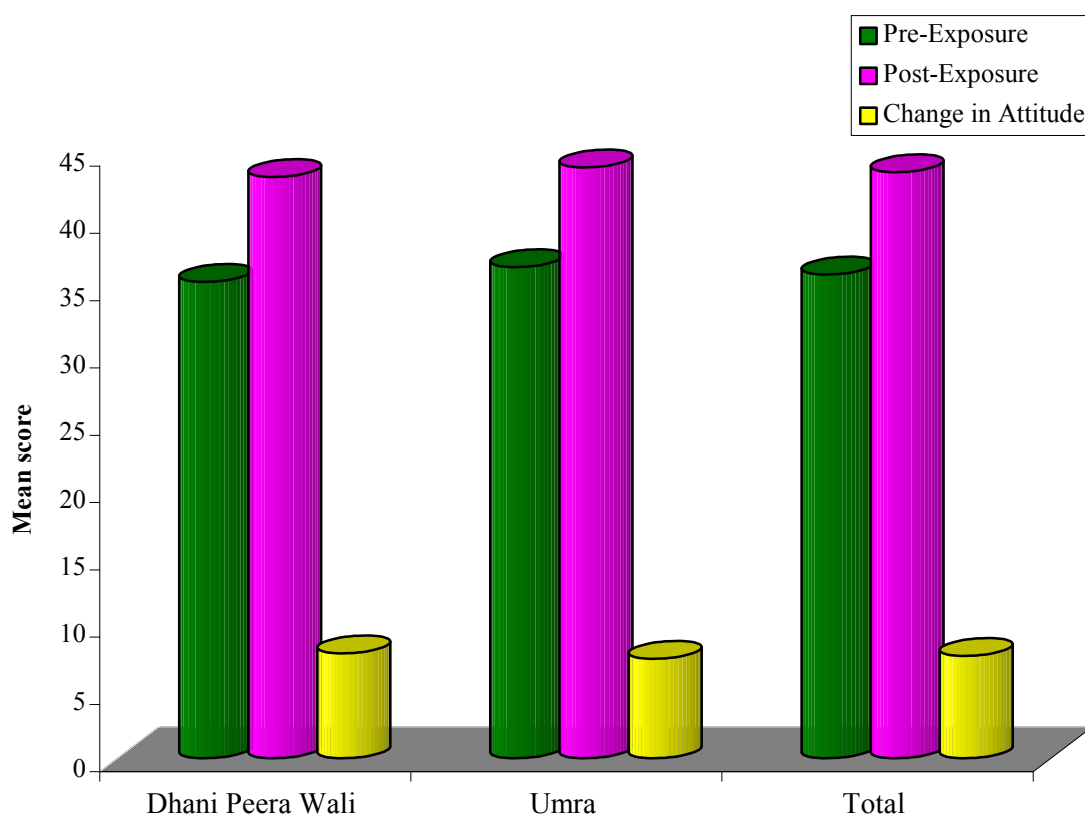


Fig. 5 : Change in attitude of rural women for flower cultivation

Skill acquisition on flower cultivation by rural women

Skill acquisition of rural women regarding flower cultivation in village Umra, Dhani Peera Wali and pooled sample was assessed through of skill acquisition for flower cultivation was calculated in frequency and percentages and have been presented in Table 11 and Fig-11.

Pre- and post exposure skill acquisition of respondents for flower cultivation was calculated in frequency, percentage and have been presented in Table -11.

Table -11 clearly points out that most of respondents (70%) were low skilled and only 20 per cent respondents were medium skilled at pre-exposure level in village Umra. After exposing them to training on flower cultivation (40%) acquired skills at medium level, followed by high skill acquisition ((35%) and low skill acquisition (25%) among respondents respectively in village Umra.

In case of village Dhani Peera Wali majority of the respondent (60%) were low skilled and only 35 per cent respondents were medium skilled at pre-exposure level. After exposure to training on flower cultivation 45 per cent respondents acquired medium skill acquisitions followed by higher skill acquisition (35%) and low level skill acquisition (25%) respectively.

Regarding pooled sample, most of the respondents (65%) were low skilled and followed by medium skilled (22.50%) at pre-exposure stage. Only 12.50 per cent respondents who acquired high skill at pre-exposure stage. After exposure to training on flower cultivation 42.50 per cent of respondents acquired skill of medium level followed by respondents of high skill acquisition (32.50%) and low level 25.00 per cent respectively. Thus, it can be inferred that women acquired skill significantly high when exposed them to training.

Table 11 : Skill acquisition of rural women for flower cultivation

Sr. No.	Categories	Pre-Exposure		Post-Exposure	
		F	%	f	%
1.	Umra village (n=20)				
	Low	14	70.00	05	25.00
	Medium	04	20.00	08	40.00
	High	02	10.00	07	35.00
2.	Dhani Peera Wali village (n=20)				
	Low	12	60.00	05	25.00
	Medium	05	25.00	09	45.00
	High	03	15.00	06	30.00
	Total (n=40)				
	Low	26	65.00	10	25.00
	Medium	09	22.50	17	42.50
	High	05	12.50	13	32.50

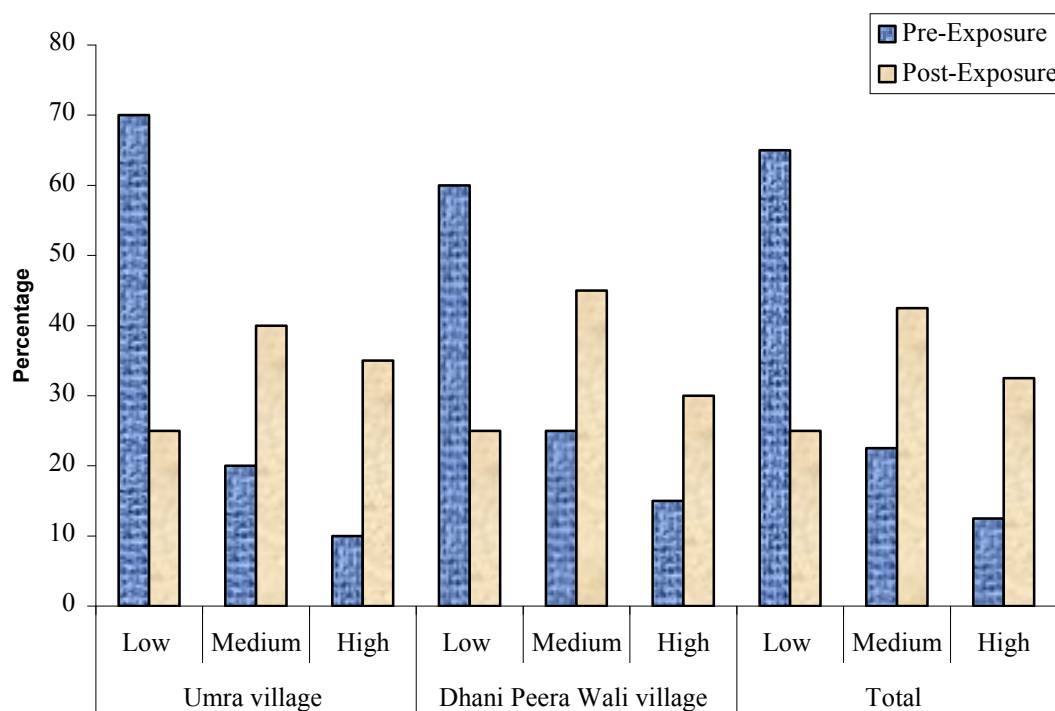


Fig. 6 : Skill acquisition of rural women for flower cultivation

Impact assessment index of respondents for flower cultivation

Impact assessment index of flower cultivation training is given in Table-12. It clearly indicates that the calculated impact was found to be 51.39 per cent. Thus, it may be inferred that women respondents after exposure to training acquired knowledge and changed their attitude to the extent which was less than 66 per cent but of moderate level.

Table 12 : Impact Assessment Index of respondents for flower cultivation

Knowledge \ Attitude	High (3)	Medium (2)	Low (1)	Total
High (3)	5(3x3)= 45	4(2x3)= 24	2(1x3)= 6	11
Medium (2)	10(3x2)= 60	5(2x2)= 20	5(1x2)= 10	20
Low (1)	4(3x1)= 12	3(2x1)= 6	2(1x1)= 2	9
Total	19	12	9	40

$$\begin{aligned}
 IAI &= \frac{\sum f_i \times c_i}{N \times X \times Y} \times 100 \\
 &= \frac{45 + 24 + 6 + 60 + 20 + 10 + 12 + 6 + 2}{40 \times 3 \times 3} \times 100
 \end{aligned}$$

$$IAI = 51.39\% \text{ (Moderate)}$$

Symbolic adoption of women respondents flower cultivation

Index was developed for the measurement of symbolic adoption of flower cultivation for income generation. Data presented in Table-13 and Fig-13 show that 47.50 per cent respondents had moderately high symbolic adoption followed by high (30.00%), moderately low (15.00%) and very low symbolic adoption (7.50%) respectively in pooled sample.

Forty per cent respondents of Umra village had moderately high symbolic adoption which was followed by high (30%), moderately low (15%) and low symbolic adoption (10%) respectively. In Dhani Peera Wali village, 55 per cent respondents were having moderately high symbolic adoption followed by high (25%), moderately low (15%) and very low symbolic adoption (5%) respectively.

Table 13: Symbolic adoption of women respondents flower cultivation

Categories and scores	Umra (n=20)		Dhani Peera Wali (n=20)		Total (n=40)	
	f	%	F	%	f	%
High (7-9)	07	35.0	05	25.0	12	30.00
Moderately high (5-6)	08	40.0	11	55.0	19	47.50
Moderately low (3-4)	03	15.0	03	15.0	06	15.00
Very low (0-2)	02	10.0.0	01	05.0	03	7.50

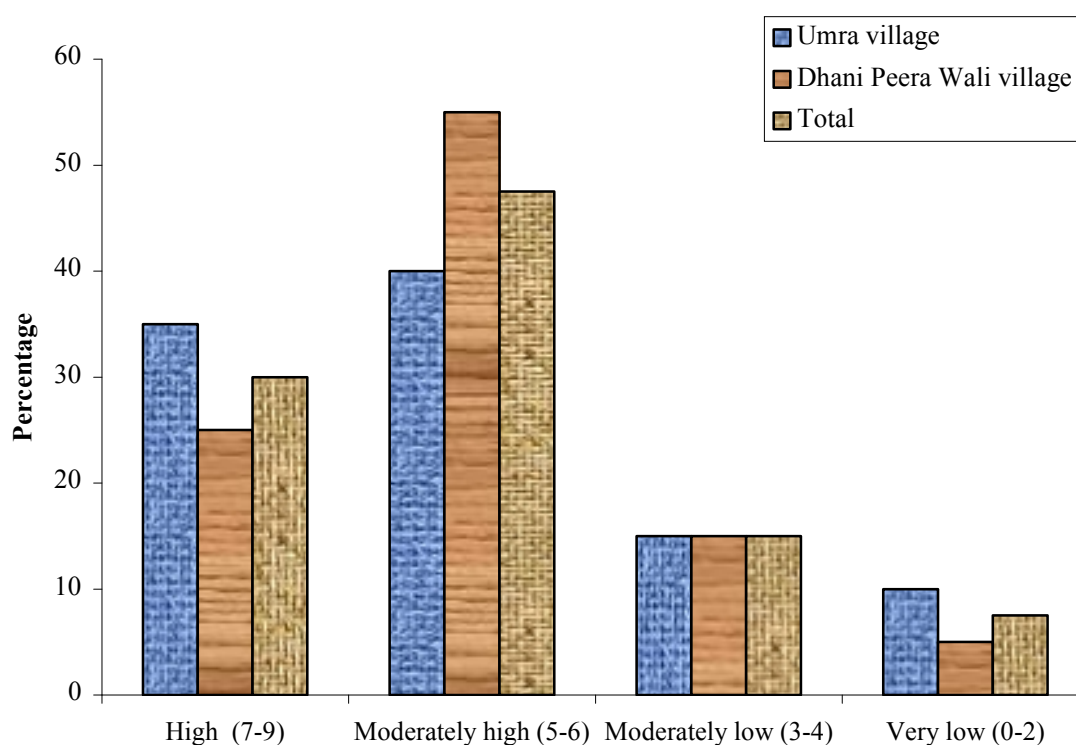


Fig. 7 : Symbolic adoption of women respondents flower cultivation

Willingness of respondents for adoption of flower cultivation

Data presented in Table-14 reveal that 40 per cent respondents of Umra village can adopt flower cultivation technology with somewhat difficulty followed by can be adopted with great difficulty (25%), can adopt without difficulty (20%) and cannot be adopted (15%). Whereas in Dhani Peera Wali village, half of the respondents (50%) were willing to adopt flower cultivation with somewhat difficulty which was followed by can be adopted without difficulty (25%), can be adopted with great difficulty (15%) and cannot be adopted (10%).

In case of pooled sample, majority of the respondents (45.00%) can adopt flower cultivation technology with somewhat difficulty followed by without difficulty (22.50%), with great difficulty (20%) and cannot adopt at all (12.50%) as shown in Table-14.& fig-14.

Table 14: Willingness of respondents for adoption of flower cultivation

Categories	Score	Umra (n=20)		Dhani Peera Wali (n=20)		Total (n=40)	
		f	%	F	%	F	%
Can be adopted without difficulty	4	04	20.00	05	25.00	09	22.50
Can be adopted with somewhat difficulty	3	08	40.00	10	50.00	18	45.00
Can be adopted with great difficulty	2	05	25.00	03	15.00	08	20.00
Cannot be adopted	1	03	15.00	02	10.00	05	12.50

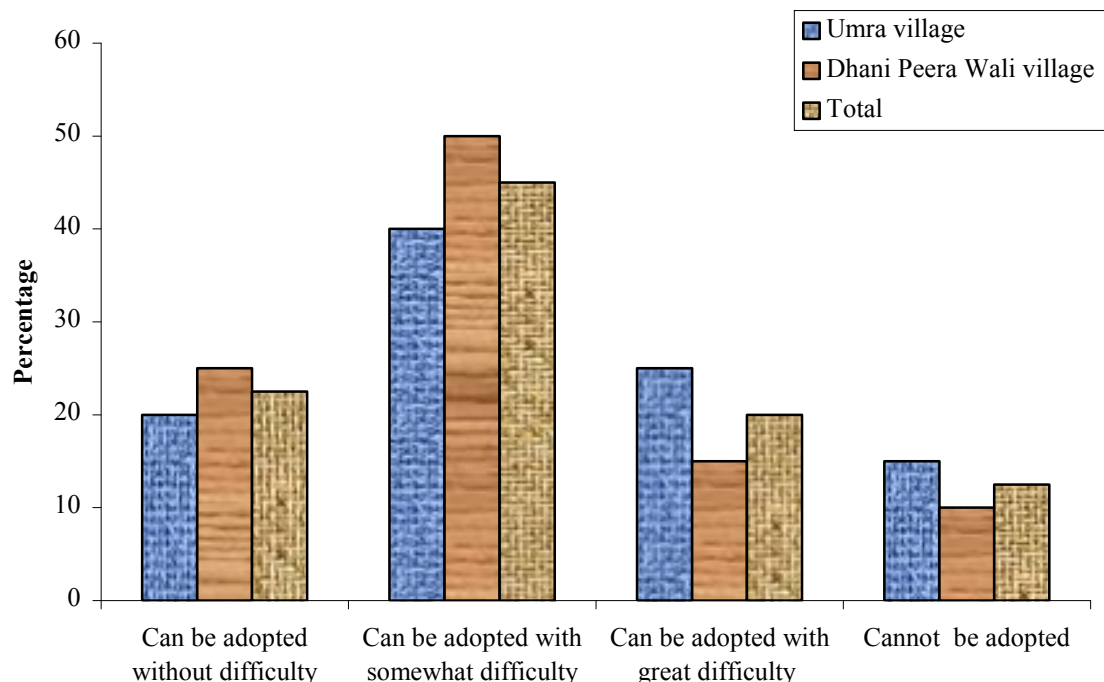


Fig. 8: Willingness of respondents for adoption of flower cultivation

Overall acceptability of flower cultivation by respondents

The overall acceptability of flower cultivation by respondents were measured and quantified by summing individual score of the respondent's symbolic adoption and their willingness to adopt it for income generation.

The data in Table- 15 and Fig.-15 reveal that majority of the respondents (52.50%) had moderately high acceptability for flower cultivation, whereas 32.50 per cent respondents were having high acceptability and 10 per cent respondents had moderately low and only 5.00 per cent respondents were having very low acceptability for flower cultivation.

Table 15 : Overall acceptability of flower cultivation by respondents

Categories	Score	Total	
		F	%
High	(11-13)	13	32.50
Moderately high	(8-9)	21	52.50
Moderately low	(5-6)	04	10.00
Very low	(1-3)	20	5.00

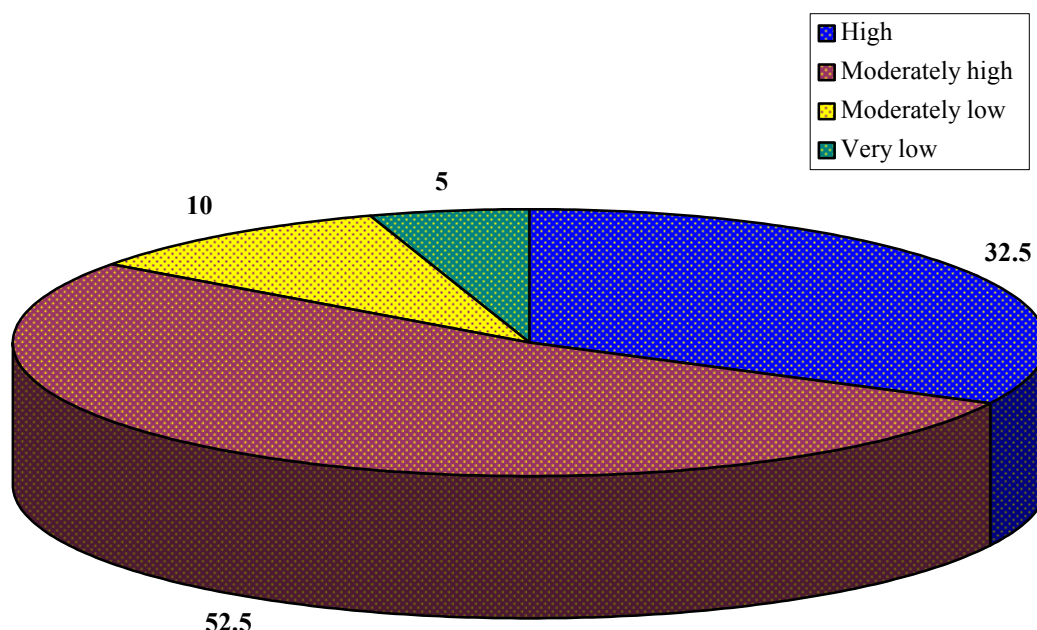


Fig. 9 : Overall acceptability of flower cultivation by respondents

Relationship of socio-personal, economic and psychological variables with gain in knowledge and change in attitude of rural women on flower cultivation

In order to find out the relationship between socio-personal, economic and psychological variables with gain in knowledge and change in attitude of rural women on flower cultivation, Pearson's product correlation coefficient was applied which is depicted in Table-16.

The results presented in Table-16 indicate that age (0.05), Education (0.08), occupation (0.02), family size (0.09), risk orientation (0.10), economic motivation (0.22) and change proneness (0.06) were found to be positively but non-significantly correlated with the gain in knowledge whereas caste (-0.25) and income (-0.02) of respondents were found to be negatively and non-significantly correlated with the gain in knowledge of flower cultivation. Results further showed that education (0.23), caste (0.13), occupation (0.10), family size (0.03), income (0.13), risk orientation (0.12), and change proneness (0.05), were found to be positively but non-significantly correlated with the change in attitude whereas age (-0.25) and economic motivation (-0.11) were negatively and non-significantly correlated with the change in attitude of respondents on flower cultivation.

Table 16: Relationship of socio-personal, economic and psychological variables with gain in knowledge and change in attitude of rural women for flower cultivation

(n= 40)

Sr. no.	Variables	Knowledge 'r' value	Attitude 'r' value
1.	Age	0.05	-0.25
2.	Education	0.08	0.23
3.	Caste	-0.25	0.13
4.	Occupation	0.02	0.10
5.	Family size	0.09	0.03
6.	Income	-0.02	0.13
7.	Risk orientation	0.10	0.12
8.	Economic motivation	0.22	-0.11
9.	Change proneness	0.06	0.05

*Significant at 0.05 level of significance

4.6 Economic Viability

Cost of production is of paramount importance to determine the net income of the industry. The analysis of cost of production also enable the entrepreneur to decide the size of the plant and volume of business on a continuous basis.

This is simply the sum of all costs of production i.e. total administrative expenses, total sales expenses. Cost of production consist of two parts:

Establishment cost/fixed cost

Recurring cost/variable cost

I. Establishment cost/fixed cost

Almost every business incurs certain costs which are fixed in nature. These costs remain constant irrespective of change in the volume of output. They may represent cost of land/rent of land and building of the unit, cost of the plant and machinery, depreciation and interest on fixed capital. Fixed capital was calculated for one year.

- (d) **Cost of land:** Cost of land refers to the cost of a specific price of land where the project would set up.
- (e) **Cost of machinery and fertilizers:** It refers to the cost of machines and fertilizers required for the production of flowers.
- (f) **Interest:** interest on term loan/fixed variable is based on the present rate of interest charged by the term lending financial institutions and commercial banks i.e. 12% per annum.

II. Variable costs

All costs which vary directly with output are referred to as variable costs. Variable cost includes cost of seeds, fertilizers, irrigation, plant protection, packing and marketing charge.

Cost and return from flower cultivation rose production at small scale.

Harvesting/picking of Rs. 8,000 amounted for 10.15 per cent of total cost of rose cultivation followed by cost of hoeing/weeding Rs. 4000 ((5.07%). Total operation cost of rose cultivation was Rs. 16550/- accounted for 21.00 per cent of total cost of rose cultivation (Table-1).

It was further revealed from Table -1 that from raw material cost (Rs. 18648) seeds/seedling accounted for 23.67 per cent of total cost Rs. 78,778 per acre of rose cultivation. Raw Material cost accounts for 23.67 per cent of total cost of cultivation/acre.

From fixed cost of Rs. 43580 (55.32 of total cost of cultivation of rose/acre) rental value of land was Rs. 15,000 accounts for maximum cost i.e. 19.04 per cent followed by transportation of Rs. 12580 (15.96%). Gross return came out to be Rs. 1,68,750 per acre while total cost of cultivation of rose on one acre was Rs. 78,778. Thus, net return of Rs. 89,972 obtained income/person as Rs. 8997.20. Labour charges of family members were highest in rose cultivation i.e. Rs. 19360.00 in the first season of cultivation.

Conclusively, the results exhibited that in rose cultivation maximum cost was of rental value of land and labour charges. It is prelinear crop benefits will be obtained for 3-4 years after first investment. Returns over years cannot be calculated due to limitation of research period and this return is a lower limit of the crop.

The cost benefit ratio was calculated and it was 1:2.14. It was finding that flower cultivation at small scale was a profitable enterprise.

Table 17: Cost and returns of rose cultivation

Year 2013-14 Rs./acre				
Sr. No.	Particulars	Quantity	Value	Total cost (%)
I.	Establishment cost			
1.	Pre-paratory tillage + leveling	1	1000.00	1.26
2.	Pre-sowing irrigation	1	400.00	0.50
3.	Sowing	1	2500.00	3.17
4.	Ridging	1	250.00	0.31
5.	Sowing	1	2500.00	3.17
	FYM		-	
6.	Fertilizer application	2	400.00	0.50
7.	Hoeing/weeding	3	4000.00	5.07
8.	Harvesting/picking	-	8000.00	10.15
9.	Packing	-	-	-
	Sub Total		16550.00	21.00
II.	Material cost			
1.	Seed for seedling		9000.00	11.42
2.	Fertilizer nutrients			
	(a) N	16.5 kg	300.00	0.38
	(b) P	24.5 kg	687.00	0.87
	(c) K	23.5 kg	397.00	0.50
	(d) Zn	16.0 kg	350.00	0.44
3.	Plant protection		1500.00	1.90
4.	Irrigation	10	3850.00	4.88
5.	Interest @ 12%	6 months	2664.00	3.38
	Sub total		18648.00	23.67
	Total working cost (I+II)		35198.00	44.67
III	Fixed cost			
1.	Risk factor		8000.00	10.15
2.	Management charges		8000.00	10.15
3.	Transportation		12580.00	15.96
4.	Rental value of land	6 months	15000.00	19.04
	Sub total		43580.00	55.32
	Total Cost (I+II+III)		78778.00	
	Production			
	Gross return	7500 kg@ 22.50	168750.00	
	Return/income over variable cost		104972.00	
	Net income		89972.00	
	Income/kg		11.99	
	Income/person		8997.20	
	Cost benefit ratio	1:2.14	Gross return in one year/Total cost	

Average labour charges = Rs. 279/-

Total labour charge = Rs. 19360.00

The results exhibited that in rose cultivation maximum cost was of rental value of land and labour charges. It is prelinear crop benefits will be obtained for 3-4 years after first investment. Returns over years cannot be calculated due to limitation of research period and this return is a lower limit of the crop. Flower cultivation found to be economically viable and profitable on commercial scale.

Perceived constraints faced by the respondents in flower cultivation technology

The perceived constraints of the respondents for flower cultivation was computed by frequency, mean score and rank have been presented in Table and Fig. It is clear from table that marketing constraint was ranked I followed by technological constraint ranked II and economic constraints ranked III. In case of marketing constraints, majority of the respondents (82.50%) perceived quick deterioration of the quality of flowers followed by lack of regular market facilities(55%), problem of packing and transportation (25%) and difficulty in getting good price for flowers (25%) as main constraints.

Table 18: Perceived constraints by the respondents in flower cultivation technology

n=40						
Sr. No.	Constraints	Umra (n=20)	Dhani Peera Wali (n=20)	Total (n=40)	Mean score	Rank
1.	Input constraints				0.97	IV
	Non-availability of seeds/saplings	7(35.00)	9(45.00)	16(40.00)		
	Poor quality of seeds/saplings	5(25.00)	6(30.00)	11(27.50)		
	Lack of finance to purchase the inputs	4(20.00)	8(40.00)	12(30.00)		
2.	Technological constraints				1.30	II
	Translocation involved complex procedure	6(30.00)	7(35.00)	13(32.50)		
	Difficult post harvest management of flowers	10(50.00)	13(65.00)	23(57.50)		
	Lack of complete knowledge about different stages of flower production	9(45.00)	7(35.00)	16(40.00)		
3.	Marketing constraints					
	Lack of regular market facilities	13(65.00)	9(45.00)	22(55.00)	1.87	I
	Problems of packing and transportation	6(30.00)	4(20.00)	10(25.00)		
	Quick deterioration of the quality of flowers	15(75.00)	18(90.00)	33(82.50)		
	Difficulty in getting good prices of flowers	5(25.00)	5(25.00)	10(25.00)		
4.	Economic constraints				1.00	III
	Lack of financial assistance	4(20.00)	6(30.00)	10(25.00)		
	Unassured income from this project	2(10.00)	2(10.00)	4(10.00)		
	Government help in the form of credit and subsidy	5(25.00)	5(25.00)	10(25.00)		
	Not able to follow complicated procedure for obtaining loan from financial institution	7(35.00)	9(45.00)	16(40.00)		
5.	Physical constraints				0.10	V
	- Body ache due to excessive work	2(10.00)	2(10.00)	4(10.00)		

Figures in parentheses indicate percentages

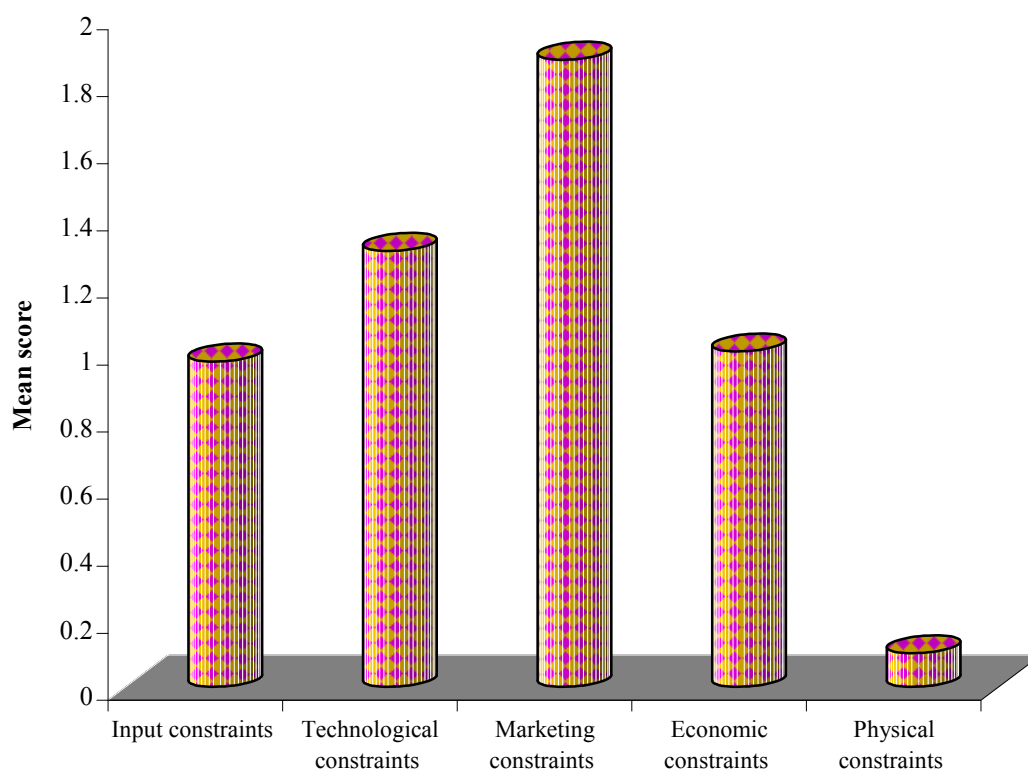


Fig. 10 : Perceived constraints by the respondents in flower cultivation technology

Regarding technological constraints 57.50 per cent respondents faced difficulty in post harvest management of flowers followed by lack of complete knowledge about different stages of flower production (40.%) and translocation involved complex procedure reported by respondents (32.50%).

Whereas regarding economic constraints, 40 per cent of the respondents were not able to follow complicated procedure for obtaining loan from financial institutions followed by government help in the form of credit and subsidy (25%), lack of financial assistance (25%) and un-assured income from this project (10%) were main constraints.

In case of input constraints, 40 per cent of the respondents reported non availability of seed/ sampling which was followed by lack of finance to purchase input and poor quality of seed/ sampling (30%) respectively.

Regarding Physical constraints only 10 per cent of the respondents reported by body ache due to excessive work as constraints.

Flower cultivation is one such gaining enterprise as it promotes diversification in agriculture and hence it is an alternative source of income and employment. It has been proven a successful enterprise for small and marginal farmer, farm women landless laborers as this enterprise require minimum land.

Findings of the socio-personal profile of the respondents revealed that most of the respondents belonged to upper middle age group, were illiterate, married, having small sized nuclear families, had agricultural laborer as their main occupation, belonged to upper caste, had negligible social participation and had mixed type of houses. Similar findings were supported by Batra (2011). More than half of the respondents had medium family education status which indicates that parents are now educating their children as they are now aware about importance of education. Most of the respondents had above annual income and large land holding. Findings of Deepti (2008) and Gita (2010) are in line with the findings of present study.

Majority of the respondents had high change proneness, high risk orientation and high economic motivation. Intra-family decisions were taken by jointly whereas entrepreneurial decisions were taken husband in the family. Further, it was observed that majority of the respondents had medium mass media exposure. Similar results were also obtained Yadav (2013). Most of the respondents had low utilization of information sources.

The general awareness of the respondents regarding benefits and importance of flower cultivation was very low at pre-exposure stage viz, field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities, precaution and limitation however at post-exposure stage, the awareness of the respondents on these aspects was significantly high. These findings are in accordance with the findings of Batra (2011) and Monika (2009).

Results further showed that maximum number of respondents perceived flower cultivation technology as cultural compatibility (mean score 2.82, rank 1st) followed by relative advantage and simplicity (mean score 2.77 each, rank 2nd) and observability and triability (mean score 2.70 each, rank 3rd). The respondents decided mentally to adopt flower cultivation at small level as it is easy and convenient to manage at small scale and it could be an effective input for income generation. Most of the respondents perceived it cultural compatibility and profitable with low investment and low labour cost. Sangwan (2002) and Batra (2011) also support the findings.

Impact assessment with respect to knowledge revealed that at post exposure level, sufficient gain in knowledge regarding flower cultivation was recorded for sub-components viz., field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities and precaution and limitation. The difference between pre-exposure and post-exposure mean scores of knowledge was highly significant at 0.05 per cent level of significance. It may therefore be concluded that women succeeded in acquiring knowledge after exposure to training on flower cultivation. Findings of Dhingra (2000) and Kharatmol (2006) are also in conformity with the present findings. They found that before exposure to training, the level of knowledge regarding vermicomposting among respondents was almost nil but after undergoing the training, respondents gained sufficient knowledge.

Change in attitude was observed in both the villages after exposing them to training on flower cultivation. At pre-exposure level, respondents had unfavourable attitude for flower cultivation but after exposing them to training respondents had favourable to most favourable attitude for flower cultivation for income generation. This reflects the effectiveness of the training. Similar results were also arrived at by Sah (2001), Navankar *et al.* (2002) and Sain (2003).

Anita (2000) reported that majority of the respondents had low knowledge in most of the messages and favourable attitude at pre-exposure stage. But at post-exposure stage, majority gained medium to high knowledge and low change in attitude. Reddy (2002) stressed that women if given proper training and technical back up can prove to be very active.

It was observed that change in attitude was recorded in Umra and Dhani Peera Wali village as well as in pooled sample after exposing them to training for flower cultivation. It can be concluded that respondents had changed their attitude significantly after exposure to training. Similar results were also arrived of Manju (2009), Deepti (2008), Nutan (2009), Gita (2010), Monika (2014).

Results of the present study further revealed that overall impact of training in terms of gain in knowledge and change in attitude were of moderate high. Similar result well also arrived of Manju (2009), deepti (2008), Nutan (2009), Gita (2010) and Monika (2014).

Findings of the present study showed that respondents succeeded in acquiring skills with respect to all the aspects of flower cultivation. This reflects interactive and effective learning situation by providing step by step procedure along with lecture in a friendly environment in simple language for better comprehension. Findings of the present study are in conformity with those of Akansha (2006). Shivakumara (2008) also reported that 80 per cent of the respondents acquired vermicompost production skills by undergoing the training.

Results further revealed that most of the respondents had moderately high symbolic adoption and willingness to adopt flower cultivation as an enterprise with somewhat difficulty. The overall acceptability of flower cultivation fall in moderately high category. Findings of Jondhale *et al.* (2000) also coincide with the findings of present study. Sain (2003) also concluded that most of the respondents had moderately high symbolic adoption, willingness to adopt flower cultivation for home consumption somewhat difficulty and reluctant to adopt for income generation and had moderately high overall acceptability.

Findings of the study further showed that most of the respondents perceived marketing constrains at 1st rank followed by technological, economic, input and physical. The findings of Bhagel *et al.* (2005), Kharatmol (2006) and Ahmed (2008), Batra (2011) also support the findings of present study.

Results regarding relationship of knowledge and attitude with independent variables showed that age, education, family size, economic motivation, risk orientation and change proneness were found to be positively but non-significantly whereas caste and family income were negatively and non-significantly correlated with the gain in knowledge. Thus, it can be concluded that no relationship between dependent and independent variables could be established.

It can be inferred that flower cultivation as an enterprise has great potentiality for rural women to start at small land level. Though the awareness and the knowledge was very low among the respondents before imparting the training, but training resulted created awareness and changed their knowledge and attitude towards the technology and also motivated them to mentally adopt the technology for income generation at small scale.

Conclusively, it may be stated that the obtained benefit-cost ratio shows that the investment in the selected units is considered to be economically viable. Benefit cost ratio was higher in flower cultivation *rose* followed by *marigold*. The same can be adopt by respondents for starting their enterprises at small scale. The same can be adopted by respondents for starting their enterprises at small scale.

Flower cultivation is one such gaining enterprise as it promotes diversification in agriculture and hence it is an alternative source of income and employment. It has been proven a successful enterprise for small and marginal farmer, farm women landless labors as this enterprise require minimum land.

But women lag behind men in terms of educational level and income earning. They face barriers in participation in developmental activities due to lack of time and failure to see the benefit of participation. Hence to create awareness and motivate women for economic activities well organized programmes on scientific flower cultivation with adequate learning facilities and active participation of women are required which would help them to acquire necessary knowledge, skill and attitudes for undertaking flower cultivation as a profitable enterprise.

Therefore, the present study has been planned with the following objectives:

1. To explore awareness of rural women about benefits of flower cultivation.
2. To organize training on flower cultivation for women group and assess its impact.
3. To assess the feasibility of flower cultivation enterprise for rural women.
4. To identify the factor associated with adoption of flower cultivation as an income generating activity.

Methodology

The locale of the study was Hisar district of Haryana state. From Hisar district, one block Hansi-I was selected randomly. From the selected block two villages namely Umra and Dhani Peera Wali were selected randomly. From each selected village, 50 women were selected randomly, thus making a total sample of 100 women. Out of total sample, 40 women i.e. 20 from each village who were interested in receiving the training on flower cultivation were selected randomly.

As per requirements of the study, socio-personal, economic, psychological and communication variables namely age, education of respondents, caste, family education status, marital status, house type, family size and type, annual income, land holding, change proneness, economic motivation, risk orientation, mass media exposure and information source utilization were selected as independent variables. Impact of training and feasibility were selected as dependent variables. Impact of training was assessed in terms of gain in knowledge, change in attitude, skill acquisition and symbolic adoption. A well structured interview schedule was constructed for data collection on the basis of objectives, independent and dependent variables of the study. The collected data was quantified and interpreted by

using suitable statistical tools such as frequency, percentage, weighted mean score, rank, paired 't' test and correlation.

Main findings

Profile of the respondents-

- Less than half of the respondents (47%) were of upper middle age group, illiterate (39%), married (84%) belonged to upper caste (47%) having medium family education status (53%), small sized nuclear families (82%). More than half of the respondents (67%) had agricultural labourer as their family occupation and annual income upto Rs. 60,000 (43%) and had mixed type of house (49%). Majority of them (84%) had negligible social participation and large land holding (27%).
- Majority of respondents (80%) were falling in high category of change proneness, high risk orientation (75%) and high economic motivation (80%). Majority of the intra family decisions (46%) were taken by jointly whereas less than half of the respondents husband alone (46%) took entrepreneurial decisions mass media exposure.
- Most of the respondents (65%) were having low localite sources of information utilization and low cosmopolite sources of information utilization (79%).

Awareness on flower cultivation

- The general awareness of most of the respondents (45%) regarding flower cultivation was of moderate level and specific awareness regarding importance and benefits of flower cultivation was of low level at pre-exposure stage, however at post-exposure stage, most of the respondents were aware on all aspects of flower cultivation.

Perceived feasibility

- Respondents perceived flower cultivation technology as cultural compatibility (mean score 2.82, rank 1st) followed by relative advantage and simplicity (mean score 2.77 each, rank 2nd) and observability and triability (mean score 2.70 each, rank 3rd).

Impact of training

- Sufficient gain in knowledge regarding flower cultivation was recorded for sub-components viz., field preparation, sowing/planting, transplantation, fertilizer application, plant protection, harvesting, packing and marketing, loaning facilities and precaution and limitation. The difference between pre-exposure and post-exposure mean scores of knowledge was highly significant at 0.05 per cent level of significance. Thus, it be concluded that women succeeded in acquiring knowledge after exposure to training on flower cultivation.

- The difference between pre-exposure and post-exposure mean scores of attitude were highly significant at 0.05 per cent level of significance.
- Most of the respondents (42.50%) had acquired skills after exposure to training.
- Most of the respondents (47.50%) had moderately high symbolic adoption and were willing to adopt flower cultivation as an economic activity with somewhat difficulty (45.00%). Majority of the respondents (52.50%) had moderately high overall acceptability of flower cultivation.
- Most of the respondents perceived marketing constraints at rank 1st, marketing constraints at second rank followed by technological and economic constraints, input and physical constraints at third fourth and fifth rank respectively.

Correlation between independent and dependent variables

- Regarding the association of gain in knowledge and change in attitude with independent variables, it was found that it was not significant at 0.05 per cent level of significance.

Conclusions

- Most of the respondents were of upper middle age group, illiterate and educated up to matric level, married, having nuclear family, had agricultural labourer and belonged to upper caste having annual income upto 60,000 with large land holding.
- More than half of the respondents had high change proneness, high risk orientation and high economic motivation. Intra family decisions were taken by jointly while entrepreneurial decisions were taken by husband only. Majority of the respondents had medium mass media exposure, low localite and cosmopolite sources of information utilization.
- Respondents were more aware at post exposure level and succeeded in acquiring knowledge about every aspect of flower cultivation.
- Most of the respondents perceived flower cultivation technology as cultural compatible.
- Skill acquisition was of medium level after exposure & training. The overall impact of training programme in terms of gain in knowledge and change in attitude was of moderate level.
- Symbolic adoption was of moderately high level. Half of the respondents could adopt the technology with somewhat difficulty.
- Marketing constraints were perceived as major constraint followed by technological, economic, input and physical constraints among respondents.
- Relationship between independent and dependent variables was found non-significant at 5 per cent level of significance.

- The obtained benefit-cost ratio shows that the investment in the selected units is considered to be economically viable / profitable.

Suggestions

- Findings of the present study revealed that the respondents who were interested in training on flower cultivation attained a high level of knowledge, skill and attitude. Therefore, training content should be thoroughly blended with need based areas and more practical exposure should be given to women respondents on flower cultivation to increase the utility of the training.
- Continuous planned efforts and follow up action should be organized for reinforcement of learnt behavior. Whereas women may be encouraged more and more for adoption of flower cultivation as an enterprise.
- Most of the respondents perceived lack of marketing facilities for sale of flower cultivation so it is suggested to establish such cooperative units/societies for exchange of goods from one village to another etc.
- Respondents should be educated and encouraged in order to grow the flowers in their own fields for getting more price of the product.
- Rural women should be provided more extension services so that they have access to the relevant information regarding preparation of flower cultivation.
- Most of the families were not aware about the provision of bank loan for starting various income generating activities, it is therefore, suggested to organize special lecture, exhibition, Loan mela village by government extension agencies and NGOs.
- Monitoring and evaluation of training may be done at the interval of 1-2 weeks so that periodic feedback can be used for further strengthening the training in village and able to guide more and more women entrepreneurs & start their small enterprises.

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ANNEXURE-1

Feasibility of flower cultivation as an enterprise for rural women Interview schedule

Name of the respondent:
Village:
District:

Socio-personal and economic variables:

1. **Age**
2. **Education**
 Illiterate
 Can read only
 Can read and write
 Primary
 Middle
 Matriculation
 Graduation
 Postgraduate/ vocational
3. **Marital status**
 Married
 Unmarried
4. **Family Educational Status**

S. No	Relation with respondent	Age	Illiterate	Can read only	Can read and write	Primary	Middle	Matriculation	Graduate	Postgraduate/ Vocational
			0	1	2	3	4	5	6	7

5. **Family Size**
 Small (2-4 members)
 Medium (4-6 members)
 Large (More than 6 members)
6. **Family Type**
 Nuclear
 Joint
7. **Family Occupation**

Agricultural Labour	1
Caste occupation	2
Farming	3
Business	4
Government service	5
Private Service	6

8. Annual Income

Income Source	No. of earning members	Annual Income
Agriculture		
Livestock		
Labour		
Service		
Business		
Saving Investment		
Property		
Any other		

9. Caste

Lower (*Chamar, Bhangi, Jhimar, Khati, Dhobi, Doom, Badi*)

Middle (*Lohar, Kumhar, Darji, Nai, Baniya, Sunar, Ahir, Saini, Arora*)

Upper (*Brahmin, Bishnoi, Jat, Rajput*)

10. Social Participation

No Membership

Member of a formal organization

Member of a non-formal organization

Office Bearer

11. Land Holding

Landless (no land)

Marginal (1-2 acre)

Small (2-5 acre)

Medium (5-10 acre)

Large (above 10 acre)

12. Situational variable

Whether they have Previous training received

13. House Type

Kaccha

Pucca

Mixed

14. Material Possession

a) Domestic Item

a. Agricultural implements

Desi/ wooden plough

Improved disk plough/block drawn tiller

Tractor tiller/farm machine attachment

Land leveller/patella

Pumpset

Hand tools

Sprayer/duster

Chalf cuffer

Thresher

Winnower

Any other

15. Transportation & communication means:-

Car/jeep

Motor cycle

Moped

Bicycle

Telephone

Television

Tape recorder

Any other

II. Psychological variables

Change proneness

SR.NO	STATEMENTS	SA	A	DA
1.	I try to keep myself up-to-date with information on flower cultivation technologies but that does not mean that i try out all the new methods at my farm/fields.			
2.	I feel restless till i try out a improved new technologies, i have heard about it.			
3.	They talk of many improved technologies these days but who knows these are better then the old technology.			
4.	From time to time, i have heard of, several improved technology of flower cultivation i have tried out most of these as in last few years.			
5.	I usually wait to see what results my neighbours obtained before, i try out the improved technology of flower cultivation.			
6.	Somehow, i believe that the traditional ways of doing things are best.			
7.	I am cautions about trying new improved technology of flower cultivation.			
8.	If new technology of flower cultivation are successful, i would surely adopt these.			

Risk orientation

SR.NO	STATEMENTS	SA	A	DA
1.	A farm women should rather take more of a chance in making a big profit than to be content with a smaller but risky profit.			
2.	A farm women who is willing to take greater risk than the average women usually do better financially.			
3.	It is for a farm women to take risks when she knows her chance of success is fairly high.			
4.	Trying an entirely new technology in farming by a women which involves risk but it is worth.			
5.	A farmer should adopt grow large number of flower cultivation to avoid greater risks involved in those adopting one or two technologies.			
6.	It is better for a farmer both to try new technology/crop.			

Economic motivation

SR.NO	STATEMENTS	SA	A	DA
1.	A farm women should work towards improved farm practices/larger yield & economic profits.			
2.	A most successful farm women is the one who makes the profits.			
3.	A farm women should try new ideas which may earn more money.			
4.	A farm women should adopt profitable technology to increase economic profits in comparison to adopting new technology.			
5.	It is difficult for the women to make good start unless they are provided them with economic assistance.			

Intra family decision making

Who takes decision in the family ?

Self
Husband
Jointly

Entrepreneurial decision making

Who takes decision in adopting pearl millet products as an enterprise?

Self
Husband
Jointly

III. Communication variables

1. Mass Media Exposure

	Mass Media	Daily	Weekly	Rarely	Never
a)	Radio				
b)	TV viewing				
c)	Films				
d)	News papers				
e)	Magazines				
f)	Books				
g)	Newsletter				
h)	Leaflets/pamphlets/handouts				
j)	Slides				
k)	Video cassettes				

2. Information Source Utilization

	Localite Sources	Very Frequently	Frequently	Rarely
a)	Family members			
b)	Relatives			
c)	Neighbours			
d)	<i>Surpanch</i>			
e)	Progressive entrepreneurs			
f)	<i>Mahila Mandal</i>			
g)	Friends			

3. Cosmopolite Sources

a)	Seminar/meetings			
b)	Group meeting			
c)	Training			
d)	Personal visits			
e)	Correspondence			
f)	Extension contact			

IV. Situational variable

- 1) Whether they have received training received

ANNEXURE-II

Specific Information

Awareness regarding flower cultivation

Pre-exposure		Statements	Post-exposure	
Yes	No		Yes	No
		1) Do you know what is floriculture?		
		2) Do you know why it is essential to start flower cultivation project?		
		It has bright future To provide more income than traditional crop. Employment to unemployed youth. Additional income to family.		
		3) Do you know the importance of flower cultivation?		
		a) Easy to produce b) Quick production c) More income in less time d) Export oriented crop. e) Low production crop. f) More demand in and outside India. g) Local market is there. h) Flower fetch a good market price. i) Best suited climate for flower cultivation in Haryana.		
		4) Please name the flower which is used as medicine?		
		a) Marigold b) Gladiols c) Tuberose d) Rose		
		5) Mention the different uses of flower?		
		a) Decoration purpose b) Religious purpose c) Medicinal value d) Guldaste or as boquet e) Garland		
		II) Flowers/ flower varieties		
		6) Do you know which are different types of flower grown in Haryana?		
		a) Marigold b) Gladiols c) Tuberose d) Rose		
		7) Do you know the kinds of marigold grown in Haryana?		
		a) African marigold b) French marigold		
		8) Name the intensive varieties of marigold		
		a) Pusa Naurangi b) Pusa Basanti		
		1) Name the intensive varieties of rose		
		a) Hybrid T b) Hybrid perpetual		

ANNEXURE-III

Perceived feasibility of flower cultivation:-

A. Please give your opinion as to what extent flower cultivation is easy or difficult to implemented and use.

- I. Very easy to understand & use
- II. Easy to understand & use
- III. Neither easy nor difficult to understand and use
- IV. Difficult to understand & use
- V. Very difficult to understand & use

B. In your opinion, how much profitable is the production of flower?

- I. Most profitable
- II. Profitable
- III. Somewhat profitable
- IV. Least profitable
- V. Not at all profitable

C. To which extent do you feel the floriculture as being situationally consistent with agro-climate condition?

- I. Most suitable
- II. Moderately suitable
- III. Suitable
- IV. Least suitable
- V. Not at all suitable

D. To which extent do you feel the flower cultivation to be observable.

- I. Most observable
- II. Observable
- III. Somewhat observable
- IV. Least observable
- V. Not at all observable

E. To which extent do you feel the the production of flower to be triable.

- I. Most triable
- II. Triable
- III. Somewhat triable
- IV. Least triable
- V. Not at all triable

ANNEXURE-IV

IMPACT ASSESSMENT

Knowledge regarding of flower cultivation

Pre-exposure	Statements	Post-exposure
	I) Field Preparation	
	1) Do you know what type of soil is suitable for flower cultivation?	
	a) Sandy loamy soil with well drained quality	
	2) What ph of soil required for floriculture	
	b) 6-7	
	II) Sowing / planting	
	1) At what time marigold can be grown?	
	a) April.	
	b) Oct. Nov.	
	2) What is planting time of rose?	
	a) Sep. – Oct.	
	III) Transplantation	
	1) In married transplantation is done by which method	
	a) Seeds	
	b) Root cutting	
	2) In rose, how transplantation is done?	
	a) Roots	
	b) Stem cutting	
	IV) Sowing/ planting method	
	1) Do you know the planting distance of marigold?	
	a) -10x20 cm.	
	2) Do you know the planting distance of rose?	
	b) -60x30 cm.	
	V) Fertilizer application	
	1) Marigold	
	a) 75Kg. N ₂ in a split -200kg phosphorus and potassium each per hectare?	
	b) 150kg N ₂ in split. -200kg phosphorous and potassium each per hectare?	
	c) 300 Kg N ₂ in 2 split. 200kg phosphorous and potassium each per hectare	
	VI) Plant protection	
	1) Do you know normally which flower does not have any diseases?	
	a) Marigold	
	b) Tuberose	
	c) Gladiouls	
	d) Chrysanthemum	
	VII) Harvesting	
	1) Do you know when pruning of rose is done?	
	a) First and second week of October	
	b) In march	
	2) Do you know how hervesting of flowers in done?	
	a) With a sharp edged <i>Darati</i> .	
	b) With a sharp edged Scissor	
	c) With a sharp edged Knife.	
	3) You know when harvesting of flower is done?	
	a) It is done in the noon.	
	b) It is done in the evening.	
	c) It is done early in the evening.	

		VIII) Packing and marketing		
		1) After harvesting how flower are packed and marketed.		
		a) Flower stem is dipped in water immediately after harvesting.		
		b) If they have to keep for long time then kept their temp. Below 10°C and at the shortest time send in market.		
		2) Do you know why flowers require quick selling?		
		a) Because it is highly perishable .		
		3) Do you know how can improve the keeping quality of flowers in long distance marketing?		
		a) By refrigeration.		
		4) Marigold		
		a) 80- 120 quintals		
		b) Rs. 50,000-1,00,000 bulb		
		5) Rose		
		a) 45-70 qtl		
		b) 30,000-70,000/acre/year		
		IX) loaning facilities		
		1) Do you know from where you can get loan for starting floriculture project ?		
		a) DRDA		
		b) Nationalised banks		
		c) Cooperative banks		
		2) Do you know floriculture have insurance?		
		a) Oriental insurance offers comprehensive floriculture insurance.		
		b) Any other insurance company.		
		c) What things are covered under this scheme?		
		a) Import of mother plants/saplings		
		b) Poly house and its structure		
		c) Damage to pump set.		
		d) Loss/ damage of plants.		
		XI) Precaution and limitation		
		1) Do you know what precaution one has to take while doing flower cultivation?		
		a) Soil in which water logging is there should not be selected for flower cultivation?		
		b) For weed control use atrazine 3kg/hectare.		
		c) Flowers should be harvested early in the morning and stem should be dipped in water.		
		d) In order to have more flower and of good quality remove one two leaf from to stem h the top and pinch the top branches plants.		
		2) Do you know the limitation of flower cultivation?		
		a) It need to be sold on the same day otherwise quality gets deteriorated.		
		b) Market problem is these.		

Attitude statement of respondents for flower cultivation.

Pre –exposure			Statements	Post- exposure		
A	UD	D		A	UD	D
			Flower cultivation project is helpful in improving the economic status of family.			
			Training on floriculture for the purpose of income generation is very beneficial for women.			
			Flower cultivation project is very boring and uselessness.			
			Economic programmes like flower cultivation are the need of hour.			
			One can start his own entrepreneur after receiving the training about floriculture.			

			The adoption of flower cultivation technology is very costly beyond the means of average farm women.			
			The floriculture is less profitable in relation to the cost incurred.			
			Flower cultivation is very technical practice and is not suitable for average farm women.			
			Income generating project like floriculture is important for national development.			
			Flowers have poor market value because of its perishable nature.			
			Floriculture has more problems than benefits.			
			Women who take up floriculture project for raising income are looked down by society.			

Implemented statement

Would you like to go for implement the technology on trial basis?

- 1) Adopters:-
 - a) Adopted immediately after training
 - b) Adopted after 2-3 visits
(Implemented immediately after training)
- 2) Interested adopters
(Interested but could not get required)
- 3) Non adopters

Skill acquisition on flower cultivation

Pre-exposure			Statements	Post-exposure		
H	M	L		H	M	L
			1) What pH of soil required for floriculture			
			- 6-7			
			- Sowing / planting			
			2) Do you know the planting distance of marigold?			
			- 10x20 cm.			
			3) Do you know the planting distance of rose?			
			- 60x30 cm.			
			4) Do you know how can improve the keeping quality of flowers in long distance marketing?			
			- By refrigeration.			
			5) Do you know from where you can get loan for starting floriculture project?			
			- DRDA			
			- Nationalised banks			
			- Cooperative banks			
			6) Do you know floriculture have insurance?			
			- Oriental insurance offers comprehensive floriculture insurance.			
			- Any other insurance company.			
			7) Do you know what precaution one has to take while doing flower cultivation?			
			- Soil in which water logging is there should not be selected for flower cultivation?			
			- For weed control use atrazine 3kg/hectare.			
			- Flowers should be harvested early in the morning and stem should be dipped in water.			
			- In order to have more flower and of good quality remove one two leaf from the top and pinch the top branches plants.			

Constraints of the respondents for the adoption of flower cultivation

1) Input constraints

- Non availability of seeds/ saplings.
- Poor quality of seeds /saplings
- low percentage of germination of seeds
- lack of finance to purchase the inputs.
- Environments not favourable for germination of seeds.

2) Technological constraints:

- Low of technical know how.
- Duration of training is not sufficient.
- Sufficient technical expert are not available.
- Translocation involved complex procedure
- Identification of good saplings/seeds is difficult
- Improper spraying of insecticides
- Difficult post harvest management of flowers.

3) Marketing constraints:-

- Lack of regular market facilities.
- Problems of packing and transportation.
- Difficult to dispose flowers within 2-3 days.
- Quick deterioration of the quality of flowers.
- Difficulty in getting good price of flower.

4) Economic Constraints:-

- Lack of financial assistance.
- Unprofitable proposition due to limited income
- Unassured income from this project.
- Low price of farm produce.

5) Physical constraints:-

- Body ache due to excessive work
- Harmful effect of insecticides, fungicides and weedicides.

Confirmation statement

Adoption of technology

I) Would you like to go for next crop?

- a) Adopted immediately after completion of first crop.
- b) Adopted after seeing one crop flowers of other group.
- c) Adopted after one visit.
- d) Not at all adopted.

ANNEXURE- IV

A) Symbolic Adoption

Sr. No.	Statement	Yes (2)	No (1)
	<p>Having received know how flower cultivation , I can adopt it without hesitation</p> <p>The preparation of flower products even through is time consuming but even then it is to practice it at home</p> <p>Preparation of flower products can be easily accepted in the village</p> <p>As flower products are perishable flower processing can easily eradicate this problems</p> <p>The preparation of flower products is so easy that I can conveniently do it without any problem</p> <p>I feel more confidence in accepting preparation of flower products due to know how received the demonstration</p> <p>As I am fully convinced about the importance of preparation of flower products no one can stop me to accept it</p>		

B) Having known about preparation of pearl millet products, do you think that it can be adopted by you?

- a) Without difficulty
- b) With somewhat difficulty
- c) Cannot be adopted

ABSTRACT

Title of thesis	:	Feasibility of Flower Cultivation as an Enterprise for Rural Women
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Admission No.	:	2012 HS 01M
Title of degree	:	Masters of Science in Extension Education & Communication Management
Name and address of Major Advisor	:	Dr. (Mrs.) Shashi Kanta Varma Professor Deptt. of EE&CM COHS, CCSHAU, Hisar-125004
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Key words: Feasibility, Symbolic adoption, Impact assessment

For assessing the feasibility of flower cultivation for rural women, one block namely Hansi-I of Hisar district of Haryana state was selected randomly. Out of the selected block, two villages namely Umra and Dhani Peera Wali were selected randomly. A sample of 100 rural women i.e. 50 from each village was drawn and 40 women i.e. 20 from each selected village were selected who were interested in having training on flower cultivation. Various socio-personal, economic, psychological and communication variables constituted the independent variables and knowledge, attitude, skill and symbolic adoption constituted the dependent variables for the study. Data were collected with the help of pre-tested structured interview schedule. The inferences were drawn on the basis of frequency, percentages, paired 't' test, weighted mean score, impact assessment index and correlation.

The findings of the study revealed that less than half of the respondents belonged to upper middle age group, were illiterate, married, having nuclear family, had agriculture labourer as their main occupation and belonged to upper middle caste having annual income Above 60,000 and having Large land holding with negligible social participation, owning mixed type of houses. Most of the respondents had high change proneness, high economic motivation and high risk orientation. Intra family decisions were taken mostly by husband alone while entrepreneurial decisions were taken jointly by most of the respondents. Majority of the respondents had medium mass media exposure, low localite service and were having low cosmopolite services.

Awareness of rural women regarding flower cultivation was very low at pre-exposure stage but awareness was very high at post-exposure stage. Sufficient gain in knowledge and change in attitude was recorded for all the sub-components of flower cultivation after exposure to training which was highly significant at 0.05 per cent level of significance. Impact assessment of flower cultivation training was found to be of moderate level. Most of the respondents had acquired medium skills after exposure to training. Majority of respondents had moderately high symbolic adoption and were willing to adopt flower cultivation with somewhat difficulty and had moderately high overall acceptability. Most of the respondents perceived marketing and technological constraints at 1st and 2nd rank. No significant relationship of independent variables with dependent variables was recorded.

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