PROSPECTS AND CONSTRAINTS OF

COMMERCIAL CUTFLOWER PRODUCTION IN

THIRUVANANTHAPURAM DISTRICT

By

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THESIS

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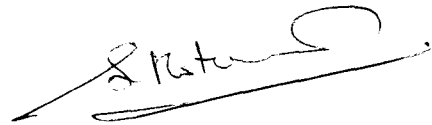
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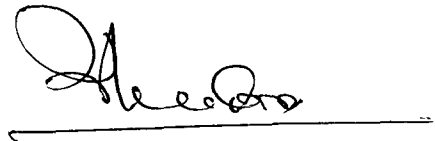College of Agriculture
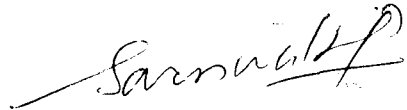Vellayani

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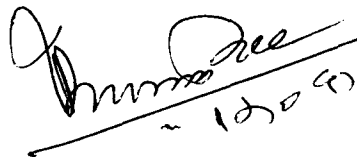
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INTRODUCTION

1. INTRODUCTION

"With many entrepreneurs having entered the floriculture business and scores of others waiting to pursue cutflower exports, India is on the threshold of a floribloom. Good sunshine, fertile soil, cheap and skilled labour provide ample opportunities for the country to step into the estimate $40 billion international floriculture market".

.... Business Line 16/2/1995.

Nowadays floriculture is very fastly emerging as a major venture in the world scenario. It has become a lucrative profession with a great potential for returns per unit area and a major component in the export programme of many countries like the Netherlands, Columbia, Israel, Brazil, Kenya, Ivorycoast , Thailand, Singapore, Korea and Srilanka. According to APEDA (Agricultural and Processed food products Export Development Authority) the world flower market is growing at an annual rate of 10-15%. The world wide consumption of floriculture products is estimated to be worth $40 billion. Table 1.1. reveals the trends in flower consumption in major regions of the world.

Table 1.1 Estimated Flower consumption in major regions of the world

Region	Year	Flower consumption in billion U.S.$
Western Europe	1991	12
	1995	15
	* 2000	18
Japan	1991	5
	1995	7
	* 2000	9
United States	1991	6
	1995	8
	*2000	11

Source: National seminar report on orchids. 1994.

* Estimates

Cutflowers contribute nearly 60 per cent of the flori trade, the rest being live and potted plants. U. S.A. is the largest flower consumption centre which has gone up by 36 percent and grows at a modest annual rate of 8-9 per cent. In Japan the growth rate will be 6-7 per cent and 4 per cent in Europe. The floral consumption in these countries alone is expected to expand to about $38 billion by AD 2000.

Holland, the largest trader for floriculture products has shown a significant increase in exports of floriculture products in 1991. They exported $3.4 billion worth of floriculture produce, about 65 per cent of the total cutflower export and 48 per cent of potted plant exports. Table 1.2. shows the floriculture trade in the world in 1989 and 1990.

Table 1. 2. Floriculture trade - a Global Scenario

Countries	Percentage Share	
	1989	1990
	Cutflowers	
The Netherlands	68	65
Columbia	10	11
Israel	6	4
Italy	7	5
Others	9	15
Total	100	100
	Potted plants	
The Netherlands	51	48
Denmark	18	16
Belgium	14	10
Others	17	26
Total	100	100

Source: National seminar report on orchids. 1994.

Table 1.3 State wise area under floriculture in India (1987)

State	Area (in ha)
Andhra Pradesh	3055
Assam	31
Delhi	85
Gujarat	405
Haryana	425
Himachal Pradesh	25
Jammu and Kashmir	40
Karnataka	7840
Maharashtra	2045
Manipur	36
Punjab	158
Rajasthan	2500
Tamil Nadu	8384
Uthar Pradesh	600
West Bengal	3150

Source: National seminar report on orchids. 1994.

The annual production of flowers is estimated to be of the value of Ra.150 crores comprising Rs.85 crores worth of modern cutflower and related items. At the retail level, according to APEDA market survey, floriculture trade turnover is around Rs.205 crores per annum of which traditional flowers and plants account for Rs.105 crores. Table 1.4 will reveal the export statusquo of floricultural products from India.

Table 1.4 Export of floricultural products from India

(Export in lakh. Rs.)

Items	1988-89	1989-90	1991-92
1. Cutflowers	22.59	4.9	39.90
2. Dried flower	69.86	25.54	643.51
3. Live plants	215.60	315.44	401.53
4. Dried plants	115.66	167.64	239.87
5. Bulbs	43.41	43.30	120.58
Total	467.12	556.82	1445.39

Source: National seminar report on orchids. 1994.

Our major buyers are U.K., U.S.A., Germany, Switzerland and France. India does not export any significant quantity of floricultural products to the far East and other West Asian countries. However India is situated centrally in comparison with major flower consumption centres in the European and South Asian countries. Another advantage is that an auction market for floricultural products is likely to be established in Singapore soon. With judicious planning and proper execution of viable projects it is possible to achieve a target of Rs.100 crores within next 3 to 15 years. Taking advantage of the favourable climatic zone in the country, GOI has identified product specific intensive floriculture zones. Table 1.5 shows the list of areas and crop grown/to be grown in different parts of the country.

cutflowers is due to their wide adaptability in floral decoration, long vase life and availability of exotic types. Internal market demand is increasing due to rapid development of urbanisation, tourism and hotel industry and due to the growing awareness of importance of flowers in life. Reports says that in Thiruvananthapuram orchids have been in cultivation from 1950 onwards while anthurium is a relatively new entrant. They are grown as a hobby but now hobbyists are slowly converting themselves to commercial growers. They are grown as an additional crop in coconut garden and also on terraces by providing necessary control of climatic conditions. Both flowers, considered as luxury blooms, are of great demand in metropolitan cities. Few agencies, both in public and private sector are working in Kerala for the development of cutflowers. In public sector Kerala State Horticultural Product Development Corporation is having schemes for the development of commercial floriculture in the State. National Horticulture Board (NHB) and NABARD are also rendering assistance for the expansion of this industry. Various cutflower societies are also functioning in the state. Thus orchids and anthuriums have drastically changed the attitude towards commercial floriculture.

OBJECTIVES OF THE STUDY

1. To delineate the components of conceptual skill and to measure the conceptual skill of the growers.

2. To study the relationship of personal, socio-situational and economic factors with the conceptual skill of growers.

3 . To study the production practices of cutflowers followed by the growers.

4. To identify the different marketing channels existing in cutflower marketing in consultation with the growers.

5. To identify the constraints related to cutflower production and marketing as perceived by growers.

SCOPE OF THE STUDY

This study is aiming to identify the production practices followed by growers which would reveal the various farmer based techniques followed in cutflower production. This could act as a feedback for further investigation by researchers and also for suggesting suitable techniques for cutflower production. The study of conceptual skill of growers would help the technocrats and planners to draw a suitable strategy in enhancing cutflower production through empowering growers. The findings of the study would be useful in suggesting the important components of conceptual skill which would act as a basis while designing suitable strategies to over come any constraints The study of marketing channel would be helpful in identifying the popular and the profitable marketing channel existing among the growers. In nutshell, the study would give an overall picture of cutflower production in Kerala particularly in Thiruvananthapuram district.

LIMITATIONS OF THE STUDY

The present research formed a part of the M.Sc. degree programme which was a single student investigation and hence it has all the limitations of time, money and other resources. These limitations has forced to restrict the selection of locale and sample size. However, careful and rigorous procedures have been adopted to carryout the research systematically.

The study of conceptual skill covered only cutflower growers and hence generalisations of the findings would be directly applicable to this group of growers. The study was based on the expressed responses of growers, which may be influenced by their individual biases and prejudices. There could be some distortion in the interpretation of the responses of growers though every care was taken to collect the information without any loss.

In spite of these, it is believed that the findings depicted and the conclusions drawn

could stand the test of more rigorous field observation.

ORGANISATION OF THE STUDY

The thesis is presented in six chapters. The first chapter is `introduction ' where in the overall picture of floriculture trade in the world, India and Kerala is presented followed by the statement of the problem, the scope and limitations of the study. The second chapter "theoretical orientation" deals with the conceptualisation of the term `conceptual skill', relationship of personal, socio-situational and economic factors with conceptual skill and the production technology of orchids and anthuriums. In addition it encompasses the concept of marketing channel and also the constraints in production and marketing. The third chapter, `methodology' covers the procedures used in the measurement of the variables involved in the study, selection of respondents, techniques of data gathering and statistical tools employed to analyse the data. In the fourth chapter, the results are presented and the results are discussed in the fifth chapter. Chapter six summarises the study.

THEORETICAL ORIENTATION

2. THEORETICAL ORIENTATION

The objective of this chapter is to develop the concept of conceptual skill and to establish the theoretical framework for the study based on ideas and concepts gathered from review of existing literature of both theoretical and empirical nature. As research studies directly pertaining to conceptual skill of farmers in general and cutflower growers in particular were rare, the review of literature on related aspects of conceptual skill was also made. The literature on production technology of cutflowers and the constraints experienced by cutflower growers in particular and farmers in general were also reviewed. The research studies on marketing channels of perishable products was also reviewed. The literature reviewed is organised and presented under different sections as shown below. At the end of each section, generalisations have been made to develop the concepts used in this study.

2.1 Concept of skill

2.2 Concept of conceptual skill

2.3 Dimensions of conceptual skill.

2.4 Relationship of personal, socio-situational and economic factors with conceptual skill.

2.5 Production technology of cutflowers with special reference to anthuriums and orchids.

2.6 Concept of marketing channel.

2.7 Constraints in production and marketing of cutflowers.

2.8 Theoretical model of the study.

2.1   CONCEPT OF SKILL

According to Webster's dictionary skill is the knowledge or the means or methods of accomplishing a task. Katz (1955) stated that skill implies ability which can be developed, not necessarily in born and which is manifested in performance, not merely in potential. The principal criterion for skilfulness is effective action under varying conditions. Munn (1967) defined skill as the proficiency in the performance of some task. Gregory (1987) referred skill as the expertise developed in the course of training and experience and consists of choosing and carrying out strategies which are efficient. Dhan et al. (1987) referred skills to actions - intellectual or physical and are reactions to ideas, things or people, which a person performs in a competent way to achieve a goal and skills are developed with experience and practice.

Different authors have tried to classify skill into various categories. As per the science of psychology skills are classified into four such as cognitive (intellectual skill/thinking), motor skills (psychomotor/physical/manipulative) reactive skills (to things, people, value etc.) and interactive skills (to achieve some goal). Katz (1955) classified skill into technical, human and conceptual. Gaudet and Carli (1957) categorised skill as follows. 1) Ability to delegate responsibility, 2) breadth of knowledge 3) ability to analyse and evaluate 4) ability to judge people 5) ability to co-operate with others 6) ability to make decisions 7) drive/motivation and 8) responsibility. Houston (1961) reported various skills as decision-making skill, communication skill, human relations skill, teaching and learning skill, conceptual skill and technical and analytical skill.

Gupta (1979) classified skill into technical, human, social and conceptual. McGrath (1989) classified skills possessed by an individual as his personal qualities, interpersonal skills, problem solving skills and communication skills. Rao (1991) classified skill as technical, managerial, behavioural and conceptual. Silfvast and Quaglieri (1994) classified skill into nine groups as

follows. Communication, interpersonal, adaptive like, negotiation, planning, conceptual, group skills, decision making and organisation skill.

From the above review we can see that conceptual skill is one of the major capability required to manage men and matter. Since our interest is related to conceptual skill, the review of literature on conceptual skill is made as follows.

2.2   CONCEPT OF CONCEPTUAL SKILL

Katz (1955) referred conceptual skill in the context of organisation . Accordingly conceptual skill involves the ability to see the enterprise as a whole, the ability to visualise the future of the organisation. It includes recognising how the various functions of organization depend on one another .

Hersey and Blanchard (1982) defined conceptual skill as the ability to understand the complexities of the overall organisation and where one's operation fits into the organisation. Badachikar (1985) referred conceptual skill as the mental ability of a farmer to perceive the various farming activities/ operations and relating items to total farm management. Krishnaraj and Dubey (1991) reported that planning, intellectual ability, decision-making ability and executive ability together constitute conceptual skill. Rao (1991) considered conceptual skill as the ability to see the enterprise as a whole. It extends to visualising the relationship of individual business to the industry, the community and the political, social and economic forces of the nation as a whole. Sushil (1993) referred conceptual skill as the ability to plan, co-ordinate and integrate activities. Silfvast and Quaglieri (1994) defined conceptual skill as the ability to understand complex abstract ideas and convert the abstract into concrete terms. In the present study conceptual skill is operationalised as a cutflower grower's ability to plan the various aspects of

cutflower production, by orienting himself towards risks and by taking appropriate decisions and supervising his farm with a view to obtain maximum profit by marketing his produce.

2.3   DIMENSIONS OF CONCEPTUAL SKILL

Conceptual skill is inevitable in the development of an individual. Regarding the components of conceptual skill, directly related studies were not available, hence literature in entrepreneurship and management were reviewed and presented as follows. Emery and Oeser (1958) stated that management ability of good grazers depends upon three important skills possessed by him. They are perceptual skills, motor skills and conceptual skills. Perceptual skills refers to recognising sick animals, correct seeds, a gap in fence etc., motor skills such as co-ordination and planning and conceptual skills encompassing all the activities on the property.

Neilson (1962) reported that a manager possesses a biography of past experience (age, education, experience, urbanisation etc.) drives and motivations and capabilities both conceptual and technical (antecedents) which produce managerial behaviour (process) and in turn produce an outcome or result. Stepanek (1962) identified intelligence, motivation, knowledge and opportunities as the pre requisites for entrepreneurial development.

Johl and Kapur (1973) reported that successful farm management or decision making process requires learning, risk bearing, mental alertness and imagination. A farmer-manager should have a keen eye to observe things, gather information, analyse the situation, make decision, take action and bear responsibility.

Newmann and Warren (1977) indicated that factors of management includeplanning, organizing, rational decision making, integration, controlling and activating. Samantha 1977) referred planning, production and marketing orientations as the components of management orientation. Osburn and Schnee berger (1978) divided management area of agricultural managers as technical, commercial, financial and accounting. Technical activities include deciding what to produce and how, using

land, determining level of mechanisation determining scale of production while commercial activities include acquiring inputs, marketing products and forecasting price of inputs and products. Financial activities include acquiring and using funds and forecasting future needs. Accounting activities include keeping production records, recording business transactions and reporting.

Duft (1979) while describing agri business management identified following factors as important components of farmers management (i) acquisition of knowledge (ii) proficient in required skills (iii) developing good plans (iv) good decision making (v) translating decisions into actions (vi) efficient use of available resources (vii) co-ordinating different activities talent in marketing and (ix) measuring the results.

Kahlon and Singh (1980) included synthesising and integrating technical information, farming resources, marketing, technical and economic risk into some kind of production and income optimum as the functions of farm management. Mishra and Sinha (1980) identified the characters of farm entrepreneurs as risk-taking willingness, influence motivation, personal achievement motivation, knowledge of technology, personal efficacy, strong responsibility, self-reliance, initiativeness, self confidence and psychological modernity. They reported the dimensions of entrepreneurial orientation as change proneness, risk bearing propensity, ambitious, long term profit perspective, self confidence and entrepreneurial role expectation.

Buckett (1981) suggested that the important managerial functions are planning and controlling of production, financial, marketing and staffing. Kay (1981) suggested that farmers need to concentrate in the management of land, labour, machines, capital and credit, risk and uncertainty. Eyre (1982) ascribed marketing, production, purchasing, finance and personnel management as functions of management. Etheredge (1982) reported the factors which make a good manager as decision-making ability, future mindedness, a sensible ordering of priorities, team work, being a generalist, crisis-handling ability, entrepreneurial quality and integrity.

According to Chatterjee (1983), characteristics of good manager are upto date knowledge, decision-making power, self reliance, self assertion, regard for others and social sensitivity and emotional stability. Desai (1983) while describing about the management in rural development emphasised policies, objectives, project identification and formulation, planning, allocation of resources, organisation, co-ordination, monitoring and implementation as the important components of management process.

Varma (1985) reported that manager's responsibilities include professionalisation which is a combination of a manager's courage of conviction, professional competence and entrepreneurial instincts for risk taking, delegation and leadership. Chari and Nandapurkar (1987) included planning, human relationship, supervision, communication, co-ordination and control as components of managerial ability of farmers.

Olsson (1988) observed that management abilities were higher in most successful swedish farmers. He identified the following components in a successful farmer-manager.

1)   Setting realistic goals ,

2)   Planning ability ,

3)   Risk taking ability ,

4)   Information gathering   potentiality,

5)   Good decision making power ,

6)   Evaluation of ideas,

7)   Possessing business   ideas.

Milligan and Stanton (1989) suggested that managers are expected to perform setting objectives, compile information, decisions in buying and selling, controlling finance and organising the use of resources. Nagaraja (1989) reported the components of management efficiency of sericulturists as knowledge on improved sericulture, acquiring skills, planning ability, rational decision making,

ability to mobilise resources, co-ordinating ability, timely adoption, efficient use of resources, competence in evaluation, and ability in rational marketing.

Turner and Taylor (1989) stated that for effective management the objectives have to be set on areas like production, financing, marketing and staffing. The complex series of inter-related activities entails objective setting, policy making, innovating, co-ordinating, planning, developing resources, organising, supervising, communicating, motivating, leading, controlling etc.

Harling and Quail (1990) reported that the elements of farm management are strategy, environment, resources, managerial preferences and organisation.

Anantharaman (1991) reported the components of managerial efficiency as planning, labour management, information management, financial management, risk management, production management and marketing management. Bisht and Sharma (1991) reported the functions of entrepreneur as planning the project, organisation, risk bearing, management and uncertainty bearing. Desai (1991) reported the entrepreneurial skills as visualisation, planning, risk taking, ability to deal with situations and elicit positive response. Krishnaraj and Dubey (1991) reported that conceptual skill involves planning ability, intellectual ability, decision taking ability and executive ability with regard to the managerial personnel of the milk producer's co-operative society.

Singh (1992) reported the characteristics of entrepreneurs as innovativeness, problem solving, managerial skill, risk taking, creativity, perseverance, decision-making, hard working, intuition, communicability, independence, insight, confidence, fore sight, competition, adaptability, frugality and enthusiasm.

Pandey (1993) reported that the entrepreneurial competencies include initiative, seeks and acts on opportunities, persistence, information seeking, concern for high quality of work, commitment to work contract, efficiency orientation, systematic planning, problem solving, self

confidence, assertiveness, persuasion, use of influenze strategies, monitoring and concern for employees welfare.

Chandran and Muraleedharan (1994) identified the dimensions underlying intreprenurial attitude and behaviour as innovativeness, risk taking and proactiveness.

Based on the above review twelve dimensions were identified that constitute conceptual skill. The dimensions of conceptual skill are given below..

1. Foresight

2. Future orientation

3. Goal setting

4. Planning

5. Risk orientation

6. Crisis handling ability

7. Intellectual ability

8. Decision taking ability

9. Executive ability.

10. Supervising ability

11. Market perception.

12. Marketing orientation

It is difficult to draw distinct demarcation lines between these factors as the aspects are inter related and overlapping with one another. Table 2.1 presents the dimension, its operational definition and authors who have reported these dimensions directly or indirectly as components of management.

Table 2.1 Operational definitions of selected dimensions

Sl.
No.   Dimension and operational definition   Author (year)
----

1.   Foresight is operationally defined as a cutflower

      grower's ability to visualise the future prospects and   Desai (1991)

      obstacles that may come across in the production and   Singh (1992)

      marketing of cutflowers.

2.   Future orientation is operationally defined as the   Etheredge (1962)

      degree to which a cutflower grower is oriented towards

      the future regarding the expansion of cutflower

      production and marketing.

3.   Goal setting is referred as the cutflower grower's   Olsson (1988), Milligan and Stanton (1989),

      ability to set specific objectives regarding the   Turner and Taylor (1989) and Desai (1991)

      various aspects of cutflower production and marketing.

4.   Planning is operationally defined as the cutflower   Tonbary (1960), Brech et al (1968), Newmann and

      grower's ability to prioritise work in advance so   Warren (1977), Duft (1979), Buckett (1981), Besai

      that efficient utilisation of resources is possible.   (1983), Chari and Nandapurkar (1987), Olsson (1988

                                                                   Nagaraja (1989), Turner and Taylor (1989), Anantha

                                                                   raman (1991), Bisht and Sharma (1991), Desai (1991

                                                                   Krishnaraj and Dubey (1991).

5.   Risk orientation is the degree to which a respondent is   Johl and Kapur (1973),

      oriented towards risk and uncertainty and the courage to   Mishra and Sinha (1980), Kay (1981), Parker (1982)

      face problems in cutflower production and marketing.   Varma (1985), Olsson (1988),

                                                                   Anantharaman (1991), Bisht and Sharma (1991), Desai

                                                                   (1991), Chandran and Muraleedharan (1994).

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Sl.
No.  Dimension and operational definition                  Author (year)
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6. Crisis handling ability is the degree to which the   Etheredge (1982), Singh (1992), Pandey (1993)
    cutflower grower is able to manage difficulties arising
    during cutflower production.

7. Intellectual ability is opeationally defined aa the   Stepanek (1962), Krishnaraj and
    degree to which the cutflower grower is able to think   Dubey (1991)
    intelligently while taking and implementing the
    decision.

8. Decision-taking ability is operationally defined as the Tonbary (1960), Johl and
    degree to which the cutflower grower justifies the   Kapur (1973), Newmann and Warren (1977), Duft (1979)
    selection of most effective means from among the   Etheredge (1982), Steel (1982), Chatterjee (1983),
    available alternatives on the bans of scientific   Olsson (1988), Nagaraja (1989), Krishnaraj and Dubey
    criteria for achieving maximum economic profit.   (1991), Singh (1992).

9. Executive ability is operationally defined as the degree Tonbary (1960), Krishnaraj and Dubey (1991)
    to which the respondent is able to execute the works
    planned, efficiently.

10. Supervising ability is operationally defined as a   Chari and Mandapurkar (1987)
    cutflower grower's ability by which he ensures proper   Turner and Taylor (1989) |
    execution of farm operations and surveillance against | Monitoring
    possible damage to plants with the ultimate objective of Pandey (1993) |
    getting higher production.

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Sl.
No.  Dimension and operational definition                Author (year)
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11. Market perception is referred as the extent of under-   Samantha (1977), Duft(1979), Kahlon and Singh (1980)

standing of a cutflower grower regarding the market   Eyre (1982), Nagaraja (1989) Anantharaman (1991)

possibilities, fluctuations in makret channels and

profits possible out of cutflower production.

12. Marketing orientation is referred as the degree to which   Samantha (1977), Duft(1979), Kahlon and Singh (1980)

a cutflower grower is oriented towards the selection of   Eyre (1982), Nagaraja (1989) Anantharaman (1991)

marketing channels, price and profits from cutflower and

marketing.

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2.4 RELATIONSHIP OF PERSONAL, SOCIO-SITUATIONAL AND ECONOMIC FACTORS WITH CONCEPTUAL SKILL OF CUTFLOWER GROWERS

In this section, relationship of various factors which influence conceptual skill of cutflower growers is presented. Since studies directly related to conceptual skill were scanty factors as related to management orientation, adoption behaviour and managerial efficiency were considered.

According to Rogers (1983), an individual's behaviour with regard to innovation diffusion may be explained by two types of variables a) the individual's personality, and b) the nature of his social system. However these two groups were further elaborated as personal factors, socio-situational and economic factors and considered for the study.

The following factors were chosen for detailed review since these factors have been reported to be significantly influencing management orientation and adoption behaviour in one way or other.

2.4.1 PERSONAL FACTORS

The personal factors which influence conceptual skill are presented as follows indicating their nature of relationship with dependent variable and the category of respondent.

2.4.1.1 Education

Beal and Sibley (1967) have pointed out that the individual's ability to read and write and the amount of formal education he possesses will affect the manner in which he gathers data and relates himself to his environment. Formal education develops mental power and character of individuals. Thus more the growers are literate and educated better will be their proneness to accept innovation in agriculture.

Table 2.2 Research studies showing relationship of education with area of study and category

of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Desai	1981	N	Economic performance	Cotton farmers
2.	Reddy	1983	P	Management orientation	Groundnut growers
3.	Sreekumar	1985	N	Management orientation	Borrowers and non borrowers of farm credit
4.	Sumathy	1984	P	Management orientation	Coffee growers
5.	Anantharaman	1991	NS	Managerial efficiency	Cassava farmers

Majority of the above studies show that education is positively associated with management. In this study also such a relationship is anticipated.

2.4.1.2 Cutflower growing experience

Experience plays a major role in achieving the aims and objectives of any enterprise.

Table 2.3 Research studies showing relationship of farming experience with area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Bute et al.	1981	P	Adoption	Cotton farmers
2.	Nidagundi	1981	NS	Adoption	Trained paddy farmer
3.	Kumbar	1983	P	Adoption	Grape growers
4.	Bora and Ray	1986	P	Management orientation	Farmers
5.	Nagaraja	1989	P	Management efficiency	Sericulturists
6.	Jaleel	1992	N	Adoption	`Kani' farmers

A positive relationship of conceptual skill with cutflower growing experience is predicted in this study also, since majority of the above studies show a positive association of attitude with their dependent variable.

2.4.1.3 Attitude towards cutflower growing

Thurstone (1946) defined attitude as the degree of positive or negative effect associated with some psychological objects. For managing cutflower production, growers should have favourable mental attitude towards cutflower growing. As there was no study directly dealt on this variable, farmer's attitude towards scientific agricultural practices were reviewed

Table 2.4   Research studies showing relationship between attitude and area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Padmanabhan	1981	P	Adoption	Agricultural labourers(Paddy)
2.	Surendran	1982	P	Impact study	Rice, tapioca and coconut growers
3.	Anantharaman	1991	P	Managerial efficiency	Cassava farmers
4.	Alex	1994	P	Knowledge and adoption	Agricultural labourers (Paddy)

The above studies showed a positive relationship with their dependent variables. In this study also, a positive relationship between attitude and conceptual skill is postulated.

2.4.1.4 Knowledge on cutflower production

A farmer equipped with scientific information on cutflower production practices may contribute to his conceptual skill.

Table 2.5   Research studies showing relationship between knowledge and area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Kamarudeen	1981	P	Management orientation	Paddy farmers
2.	Prasad	1983	P	Achievement motivation	Small farmer
3.	Sethy et al.	1984	P	Adoption	Farmers
4.	Chari and Nandapurkar	1987	P	Managerial ability	Farmers
5.	Bora and Sagar	1989	P	Management and productivity	Farmers

All the above studies show a positive relationship with their independent variable. In this study it is postulated that there will be a positive relationship between knowledge on cutflowers and conceptual skill.

2.4.1.5 Self confidence

Self confidence refers to the individual's feeling about his ability in initiative and zeal to achieve his goal.

Table 2.6 Research studies showing the relationship between self confidence and area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Rao	1981	P	Farming performance	Farmers
2.	Rao	1985	P	Entrepreneurial behaviour	Farmers
3.	Sumathy	1987	P	Management orientation	Coffee growers
4.	Nagaraja	1989	P	Management efficiency	Sericulturists
5.	Gowde	1991	P	Crisis management	Farmers(drought situation)

The above studies show a positive relationship of self confidence with their dependent variable. In this study it is assumed that self confidence will have a positive relationship with conceptual skill.

2.4.1.6 Orientation towards competition

This is considered to be a basic motivating force which may lead farmers to attain excellence in comparison to other farmers in respective fields.

Table 2.7   Research studies showing relationship of orientation towards competition with area of study and category of respondent

Sl.No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Badachikar	1985	P	Management orientation	Bajra farmers
2.	Bora and Ray	1986	P	Management orientation	Small and marginal farmers
3.	Sumathy	1987	P	Management orientation	Coffee growers
4.	Nagaraja	1989	P	Management orientation	Sericulturists
5.	Anantharaman	1991	NS	Managerial efficiency	Cassava farmers
6.	Jaleel	1992	P	Adoption	Kani' farmers

Majority of the above studies show a positive relationship with their dependent variable. In this study it is postulated that there will be a positive relationship between orientation towards competition and conceptual skill.

2.4.1.7 Orientation towards skill development in farm workers

The labour resource on farms constitute farmer himself, his family and the permanent and hired labourers. Johl and Kapur (1973) pointed out that increasing the efficiency of hired labourers is an important consideration to the farmers and the methods which have been found useful in increasing the labour efficiency are : enlarging the size of farm business, planning labour distribution, enterprise combination, improving farm and field layout, providing training for the workers and farm work simplification.

Table 2.8   Research studies showing relationship of orientation towards skill development in farm workers with area of study and category of respondent

Sl.No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Padmanabhan	1981	P	Adoption	Labourers
2.	Sagar & Ray	1986	P	Management orientation	Small and marginal farmers

On perusal, related studies were found rare. The above 2 studies show a positive relationship with their dependendent variable adoption. Hence, in this study it is postulated that there will be a positive relationship between orientation towards skill development in farm workers and conceptual skill.

2.4.1.8 Information seeking behaviour

Information on different aspects of farm production namely prices, production methods, institutional arrangements for inputs are required by farmers all the time. He adjusts his activities on the basis of information he gathers.

Table 2.9 Research studies showing relationship of information seeking behaviour with area of study and category of respondent

Sl.No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Tyagi and Sohal	1984	NS	Adoption	Dairy farmers
2.	Prasannan	1987	P	Adoption	Contact farmers

3.	Dudhani et al.	1987	NS	Impact study (D.P.A.P.)	Demonstration farmers ,cow-pea and sesa-mum growers
4.	Kumari	1989	P	Transfer of technology	Pulse and oil-seed growers

Majority of the above studies show a positive relationship with their dependent variable. Hence such a relationship is anticipated in this study also.

2.4.2 SOCIO-SITUATIONAL FACTORS

2.4.2.1 Operational area

Operational area refers to the area which the cutflower grower possess under cutflowers which would have definite influence on decisions on various aspects of cutflower production.

Table 2.10 Research studies showing the relationship of operational area and area of study and category of respondent

Sl.No.	Author	Year	Nature of relation ship	Area of study	Respondent
1.	Sivaramakrishnan	1981	P	Adoption	Rice, cassava and coconut farmers
2.	Anantharaman et al.	1986	P	Adoption	Cassava farmers
3.	Anantharaman	1991	P	Managerial efficiency	Cassava farmers

Above studies showed a positive relationship between operational area and their dependent variable. Hence in this study same relationship is anticipated.

2.4.2.3 Extension participation

Growers gain a lot of information by participating in extension programmes organised by development agencies and input dealers which would help them in implementing profitable technologies in their farm.

Table 2.12 Research studies showing the relationship of extension participation with area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Reddy	1983	P	Management orientation	Groundnut growers
2.	Nataraju and Chennegowda	1986	P	Adoption	Dairy farmers
3.	Pandurangaiah	1987	P	Adoption	Opinion leaders(dairy)
4.	Reddy & Reddy	1988	NR	Knowledge and adoption	Paddy contact farmers
5.	Anantharaman	1991	NS	Managerial efficiency	Cassava farmers

A positive relationship between extension participation and conceptual skill is anticipated, since majority of the above studies showed a positive relationship between extension participation and their dependent variable.

2.4.2.4 Social participation

Social participation refers to the degree of involvement of growers in social organisations which may help them to have contact with fellow growers and others connected with farming.

Table 2.13   Research studies showing the nature of relationship between social participation and area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Pamadi	1980	P	Adoption	Groundnut farmers
2.	Reddy	1983	P	Management orientation	Groundnut growers
3.	Pandu rangaiah	1987	P	Adoption	Opinion leaders(dairymen)
4.	Kumari	1989	P	Transfer of technology	Oilseed and pulse growers
5.	Anantharaman	1991	NS	Managerial efficiency	Oilseed farmers

Majority of the above review revealed positive nature of relationship between social participation and their dependent variable. Hence a positive relationship is anticipated between social participation and conceptual skill in this study.

2.4.2.5 Mass media exposure

Nowadays considerable coverage in mass media is given to various aspects of cutflower growing which may ultimately influence the conceptual skill of growers.

Table 2.14   Research studies showing the relationship of mass media exposure with area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Reddy	1983	P	Management orientation	Groundnut growers
2.	Nanjaiyan	1985	NR	Decision making	Small farmers

3.	Wilson and Chaturvedi	1985	P	Adoption	Tobacco growers
4.	Lalitha	1 986	NR	Knowledge and adoption	Farm women
5.	Anantharaman	1991	NS	Managerial efficiency	Cassava farmers

The above studies showed varied nature of relationship. However in this study a positive relationship of mass media exposure with conceptual skill is anticipated.

2.4.3 ECONOMIC FACTORS

2.4.3.1 Annual income

Income plays a vital role in the execution of activities in the farm.

Table 2.15 Research studies showing relationship between annual income and area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Pamadi	1980	P	Adoption	Groundnut labourers
2.	Viju	1985	P	Adoption	Tribal farmers
3.	Baadgaonkar	1987	P	Adoption	Groundnut growers
4.	Porchezian	1991	NS	Entrepreneurial behaviour	Farmers

Majority of the above studies showed a positive relationship between their dependent variable. Hence in this study also a positive relationship between annual income and conceptual skill of cutflower growers is anticipated.

2.4.3.2 Credit orientation

Credit could play a vital role in the management of crop production. Related studies were reviewed below.

Table 2.16 Research studies showing relationship of credit orientation with area of study and category of respondent

Sl. No.	Author	Year	Nature of relationship	Area of study	Respondent
1.	Manjunatha	1980	P	Adoption	Farmers
2.	Venkateswarulu and Bhalerao	1980	P	Impact of co-operative finance	Farmers
3.	Reddy and Kumar	1982	P	Impact of 'RBI' credit	Farmers
4.	Nandakumar	1988	NS	Impact of I.T.D.P.	Yerava tribal farmers
5.	Jaleel	1992	NS	Adoption	Kani tribe farmers

Abbreviations used

P - Positive

N - Negative

NS - Non significant

NR - No relationship

Majority of the above studies showed a positive relationship with their respective dependent variable. Hence in this study it is postulated that there will be a positive relationship between credit orientation and conceptual skill of cutflower growers.

2.5. PRODUCTION TECHNOLOGY OF CUTFLOWERS WITH SPECIAL REFERENCE TO ORCHIDS AND ANTHURIUMS

According to Webster's dictionary production technology refers to the practices of any applied science to create value to the produce. As viewed by Halfacre and Barden (1979) "cutflowers" are crops grown for the purpose of selling flowers along with their stems rather than the intact plant.

Hence production technology of cutflowers is operationally defined as the activities undertaken by the growers for creating large number cutflowers with greater vase-life qualities throughout the year.

The perusal of the literature revealed the lack of proper research in developing technology for commercial production of orchid and anthurium suitable to our climate. Studies showing the general management including cultivation, application of manures and fertilizers, application of plant protection chemicals and harvesting is reviewed.

2.5.1 Orchids

Orchids are the most fascinating and beautiful of flowers, exhibiting a wide range of diversity in form, size, colour and texture of flowers. In habit, they are terrestrial,semi terrestrials, epiphytes and very rarely saprophytes. In growth, they have monopodial and sympodial habits. Monopodials have indeterminate terminal growth (E.g. Arachnis, Vanda etc.) and sympodials have determinate terminal growth (e.g. Oncidium, Dendrobiums etc.)

2.5.2 Cultivation

The cultivation practices of orchids are described under the following sub heads.

2.5.2.1 Selection of plants and planting materials

2.5.2.2 Containers and potting medium

2.5.2.3 Organic manure and chemical fertilizer application

2.5.2.4 Pest and disease management

2.5.2.5 Harvesting, post harvest handling and packaging

2.5.2.1 Selection of plants and planting material

For successful cultivation, careful selection of proper species and hybrids is necessary. Choice depends upon the climatic conditions of the place where they are to be grown. The area and choice of the grower are other important criteria for selecting orchids.

Kerala Agricultural University (1993) reported that the following species are suitable to Kerala. Aerides, cattleya, Dendrobium, Paphiopedilum, Vanda, Arachnis, Oncidium, Phalaenopsis, Renanthera etc. Varieties suitable are Anne Black, Red Ribbon, Eric mackie, Apple blossom, Noerab Alsakeff, Udomchai, Viroonchan, Dixywind, Blue Vanda, Red ball, Goldenshower, sonia, sabine, Banyat pink, Ekapol Red, Madame vipar, Jaid gold and Kasim white.

Planting materials depends upon growth habit of the orchids. In the case of monopodial orchids plants are propagated by stem cuttings, terminal cuttings with one or two healthy aerial roots are ideal. With regard to sympodial orchids, plants are propagated by separation of psuedobulbs with the basal roots. 'Keikis', the sprouts produced at the top of the psuedobulb of some sympodials, when fully grown are separated and planted. Seedlings produced by embryo culture are also used in both types.

2.5.2.2 Containers and potting medium

Abraham and Vatsala (1981) reported that for epiphytic orchids earthern pots of different sizes with plenty of holes at the bottom and sides were found to be good. Boxes made of teak wood scantling 1" x ¾" fixed alternately, leaving plenty of space in the sides and bottom are also good containers for cattleya, Dendrobiums, Vanda, Ascocendas etc. The size of the box is 4" to 9" square

and 4" high. They also (1981) proposed a potting mixture as follows. Equal parts of dried coconut husk, broken roofing tiles, coarse sand, well rotted compost of cow dung and leaves.

Randhawa and Mukopadhyay (1986) recommended compost made of broken bricks and sphagnum moss. Kerala Agricultural University (1993) suggested planting cuttings of monopodial orchids loosely on old coconut husks (30 cm x 45 cm) in long beds. After sprouting, replanted on ground over a thick bed of 15-20 cm which is loosely arranged with old coconut husk. Sympodial orchids are grown above ground level at a height of 1 to 1.5 m. They are either grown on benches above ground level or suspended from above. Slotted wooden baskets are also used.

2.5.2.3 Organic manure and chemical fertilizer application

In the case of organic manures, fresh as well as dry cow dung, sheep, chicken, pig or fish manure, dried leaves, oil cakes, bone meal are used for feeding orchid plants. Dried cow dung, dried leaves and bone meal are sometimes mixed in the medium while potting.

Bose and Bhattacharjee (1980) suggested that water extract of finely shredded fresh fish is a good manure. Application of groundnut cake is also very effective. One kg of cake in soaked in 10 gallons of water and after proper fermentation, the filtrate is used fortnightly. Organic manure in very dilute solution may be used once in a month.

Beer at the strength of one quarter per 10 gallons of water was reported to show beneficial effects. Coconut water was also found to be beneficial. (Abraham and Vatsala 1981).

Kerala Agricultural University (1993) reported that 1 kg of fresh cow dung in 5 litres of water can be poured down to monopodials in one square metre area. The supernatant solution of cow dung slurry can be applied to sympodial orchids.

Abraham and Vatsala (1981) stated that N, P and K in the ratio 20:20:20 used every week for 3 successive weeks followed by a 10:30:30 (NPK) could be used. They further suggested that

during the main growing season, the proportion of nitrogen should be increased and an NPK ratio of 30:10:10 used for 3 weeks.

Kerala Agricultural University (1993) reported that the practice of liquid fertilisation of orchids using 20:20:20 NPK mixture, 10-20 g in 1 litre of water is practised by cutflower growers.

2.5.2.4 Pest and disease management

Fungal and bacterial diseases are common in orchids. Leaf spot, leaf blight, collar rot and orchid wilt are the important diseases. Disease can be controlled by application of Captan, Dithane, Bavistin etc. at the recommended dose. Spraying should be done prior to the commencement of monsoon and at fortnightly intervals during heavy monsoon periods. Mosaic virus and ring spot virus diseases can be controlled by destroying the affected plants. (Kerala Agricultural University. 1993).

The common insects attacking orchids are thrips, aphids, spider mite ,soft scale, mealy bugs, orchid weevil ants, etc. Snails and slugs also cause serious injury to the plants. All the pests can be controlled the application of contact and systemic insecticides at appropriate concentration. (Kerala Agricultural University. 1993).

2.5.2.5 Harvesting, post-harvest handling and packaging

Proper time, stage and method of harvest determine the quality of the produce. Tyson (1950) suggested the cutting of sprays when the flowers have reached their richest hue, retaining 2 or 3 buds at the terminal end of the spray. There are no standard grades for orchid flowers and their prices are fixed according to size. Grading is mainly done on length of the flower spike, flower number and size and arrangement of flowers on the spike. Packaging should be done properly. It should be air tight, water proof, strong enough to with stand handling and small in volume. Keeping a wet cotton at the cut end of the flower stem which is wrapped with polythene helps to maintain humidity.

To improve the vase-life, immediately after arrival, the lower 0.75 cm of the peduncle is cut off, and the flower is immersed into a fresh tube of water containing preservative (Tyson, 1950).

2.5.3 Anthurium

The important cultivated species of Anthurium belonging to both flowering and foliage groups are A. andreanum, A. bakeri, A. brownii, A. scherzerianum etc. in flowering group and A. veitchii, A. crystallinum etc. in flowering group and A. veitchii, A. crystallinum, A. clarinervum etc. in foliage group.

The production technology of anthuriums are explained under the following sub-heads.

2.5.3.1 Cultivation

2.5.3.1.1   Green house

2.5.3.1.2   Selection of plants and planting materials

2.5.3.1.3   Potting and planting

2.5.3.1.4   Organic manure and chemical fertilizer application

2.5.3.1.5   Pest and disease management

2.5.3.1.6   Harvesting and post-harvest handling including storage and vase-life.

2.5.3.1 Cultivation

2.5.3.1.1 Green house

Construction of suitable green house to provide ideal growing environment including light, temperature, etc. is very essential for commercial production of anthuriums. For Kerala conditions Kerala Agricultural University (1993) reported that complete shade under a spreading tree is ideal for growth and flowering.

2.5.3.1.2 Selection of plants and planting material

The flowering group of anthurium belongs to the following species. A. andreanum, A. bakeri, A. brownii, A. ornatum, A. regale, A. regellianum, A. robustum, A. Scherzerianum.

The varieties suitable for Kerala conditions are fla white, ladyjane pink, agnihotri, miniature red, duke of edinburgh, winston delight, kalimpong red, chilli red, mauritius white/red/liver red/orange. and ordinary white, pink and red (Kerala Agricultural University. 1993). In addition, five more varieties were reported by Mercy and Dale (1994). They are johnson's pink kalimpong orange, dragon's tongue, pompon red and orange glory. Anthuriums are propagated through seeds, division, cuttings and micro propagation.

2.5.3.1.3 Potting and planting

Kerala Agricultural University (1993) proposed a potting mixture using old and chopped coconut (3 cm size)husk mixed with brick pieces and charcoal. The pots should have large holes for easy drainage. Mercy and Dale (1994) advised the following medium and planting. Pots 30 to 35 cm in diameter are filled about a quarter with broken bricks on top of which a layer of dry coconut husk pieces are arranged. Plants are placed on the husk in the centre with the roots kept high and hold in position with a mixture of crushed charcoal, broken bricks, coarse sand and leaf mould. When the plants eventually became raised high above the rims more pieces of bricks and coconut husks should be packed around the base of the stem. This will allow the young roots to penetrate into and anchor the plant.

Spacing varies from 45 to 60 cm depending upon variety (Kerala Agricultural University 1993). Spacing of 45x45 cm to maintain about 30000 plants per hectare and 45x15 cm to accommodate about 74000 plants per hectare (Mercy and Dale 1994).

2.5.3.1.3   Organic manure and chemical fertilizer application

Anthuriums need adequate amount of nutrients for their proper growth and flowering. Application of nitrogen, potassium and calcium markedly improve the yield and quality of flowers (Bhatt and Desai, 1982).

Kerala Agricultural University (1993) reported that a thick fresh cowdung slurry can be applied for the first few months at fortnightly intervals followed by irrigation once daily during summer. Complex Fertilizers (20:20:20 NPK) can be applied at the rate of 10-15 g per plant at monthly interval.

Mercy and Dale (1994) suggested the following recommendations. For plants in pots, half a spoonful (5 g) of 17:17:17 NPK mixture diluted in 500 ml of water once in two months. In addition, dry cow dung or chicken manure, about 100 to 200 g per pot, in 3 or 4 split doses in an year is also beneficial. Foliar feeding alternately with organic and inorganic nutrients daily, gives excellent results. Money (1994) recommended   50g tropbacterin (biofertilizer rich in   Azotobacter chroococcum) to 4 month old seedling.

2.5.3.1.4 Pest and disease management

The major pests of anthuriums are aphids,   scale insects, spider mites, thrips and snails and slugs. Contact and systemic insecticides can be used for the control of these pests. The important diseases are anthracnose, root rot and bacterial blight. Suitable fungicides can be used control fungal diseases. Bacterial blight can be controlled through strict sanitation and removal of affected parts.

2.5.3.1.5   Harvesting and post-harvest handling

Right stage of harvesting decides the vase-life of cutflowers. Anthurium flowers are harvested with its long stem when the spadix become 1/4th receptive which is indicated by change of colour (Kerala Agricultural University, 1993). Spadices are cut when the spathes are fully opened and the

candles show about one-third female phase maturity, mostly around 7-10 days after spathe opening (Mercy and Dale, 1994).

The flowers should be graded according to the colour, stem length and sizes of the spathes and spadices. The grades are extra large (6" or more) large (>5" and <6"), medium (<4" and <5"), small (>3" and <4") and mini (<3") (Mercy and Dale, 1994).

2.6   MARKETING CHANNEL

According to marketing dictionary (1977) market is a group of person and/or organisations identified through a common need and with resources to satisfy that need. It is also considered as a place where buyers and sellers gather to do business. As per MacMillan dictionary of marketing and advertising (1984) a channel consists of all those stages and organisations through which a product must pass between its point of production and consumption.

Thus marketing channel consists of various agencies who perform the various marketing functions in sequence as the produce moves from the producers to ultimate consumers.

Various studies have also been undertaken to identify the intermediaries involved between producer and consumer. Innumerable studies are there regarding marketing channels of agricultural produce. However, in this chapter marketing channels of products like vegetables, fruits and milk on contemplated since they are having the common feature of high perishability.

Table 2.17 Research studies showing the marketing channels of horticultural products

Sl. No.	Author	Year	Produce	Marketing channel
1.	Huger and Hiremath	1984	Vegetables	1. P—C.A.—R—C. 2. P—C.S. —R— C.
2.	Saikia	1986	Vegetables	1. P—W.S/C.A.—R—C 2. P—R—C.

				3. P—C.
				4. P—WS cum C.A.— distant W.S./R/Cntr/C
3.	Swarup and Sikka	1987	Apples	1. P—C.
				2. P—F.A.—C.A.— W.S.—R—C.
				3. P—Pri Co-op—W.S.R—C.
				4. P—P.H.C.—C.A./WS R—C.
				5. P—C.A.—W.S.—R--C.
				6. P—H.P.M.C.—W.S. R—C.
				7. P—R—C.
				8. P—P.U. - C.
4.	Naidu	1993	Milk	1. P—MPCS—C
5.	Naik and Mohanty	1993	Milk	1. P—MPCS—C
				2. P—C
6.	Singh and Singh	1993	Milk	1. P—M.V.—C
				2. P—M.V.—H—C
				3. P—H—C
				4. P—C
7.	Singh	1993	Milk	1. P—M.V.—M.S.—C
				2. P—M.V.—C
				3. P—M.S.—C
				4. P—C
8.	Kumar and Tripathi	1994	Mushroom	1. P—C
				2. P—R—C
				3. P—Big grower—R --C
				4. P—W.S.—R—C
9.	Singh and Khatkar	1994	Grapes	1. P—C. A.—R—C
				2. P—P.H.C.—C.A.—R—C
10	Wadkar and Thakare	1994	Mango	1. P—C
				2. P—W.S./C.A.—R—C
				3. P—P.H.C.—W.S.

				--C.A.—R—C
				4. P—Coop—C
11	Raha and Baten	1995	Vegetables	1. P—Fasia—R—C
				2. P—Paiker—B—R--C

Abbreviations used

C	-	Consumer
C.A.	-	Commission agent
C.S.	-	Co-operative society
C.V.	-	Cart vendor
Cntr	-	Contractor
Coop	-	Co-operative
F.A.	-	Forwarding agent
H.P.M.C.	-	Himachal Pradesh Marketing Cooperative
L.A.	-	Local agent
M.S.	-	Milk shop
M.V.	-	Milk vendor
Omfed	-	Orissa milk marketing federation
P	-	Producer
Pri Coop	-	Primary Co-operative Society
P.U.	-	Processing unit
R	-	Retailer
V.L.T.	-	Village level trader
T. cum R.	-	Trader cum retailer
W.S.	-	Wholesaler

Regarding marketing of cutflowers, it is mostly done on consignment basis. There are particular days of the week when the consignment must reach the destiny.

Pandey (1991) suggested the following steps to meet cutflower the requirement of export. They are the development of production base for export oriented cutflower in the hinterland of international airport, provision of refrigerated vans for transport of produce and cold storage arrangement at the production and export point.

However no studies have been seriously taken up to identify the marketing channels existing in cutflower trade.

2.7 CONSTRAINTS IN PRODUCTION AND MARKETING OF CUTFLOWERS

2.7.1 Concept of constraints

According to Webster's Third New International Dictionary, to constrain is to check, especially from free or easy indication or expression or to force by stricture, restriction or limitation imposed by nature, oneself or circumstances or exigencies.

Pandya and Trivedi (1988) defined constraints as "those items of difficulties or problems faced by individuals in the adoption of technology". Prakash (1989) defined constraints "as a limiting factor, which stands in the way of accomplishing potential productivity".

In the present study, constraint is defined as a restraining element which limits the purpose of attainment of satisfactory profit from the enterprise.

2.7.2 Classification of constraints

Classifying constraints into categories is useful to get a comprehensive picture of the problems and also helpful in solving them.

Waghmare and Pandit (1982) reported that the tribal farmers of Madhyapradesh experienced educational, economic, socio-cultural and practical constraints in the adoption of wheat technology.

Swaminathan (1984) classified the constraints causing yield gap II in rice in (the difference between potential farm yield and actual farm yield) into two categories. The first category includes biological, chemical and hydrological and pedological constraints. The second category of constraints are economic and social.

Category I - 'Biological' - diseases, insects, weeds, birds and rodents. 'Chemical and hydrological' - water, radiation and temperature. 'Pedological' - nutritional problem, toxicities and other soil problems.

Category II - 'Economic' - risk and profitability, credit, input availability. 'Social' - social structure, tenure and institutions, knowledge.

Sagar and Ray (1984) classified the factors affecting the farmer's productivity of crops into agro-economic, socio-psychological and extension variables.

Panghal et al. (1994) classified constraints into four pertaining to inputs, to production, to marketing and technical guidance.

In the present study, constraints are classified as production constraints, technological constraints and marketing constraints.

Production constraints refers to the restraining factors which limit the production of cutflower and includes factors like non availability of new varieties, high cost of planting materials etc.

Technological constraints implies to the restraining factors which limit the adoption of production practices and includes lack of systematic research, absence of practical training etc.

Marketing constraints refers to the restraining factors which limit the growers to obtain profit by the sale of cutflowers and it includes unorganised marketing channel, competition among growers etc.

2.7.3 Constraints in agricultural production

Innumerable studies have been undertaken regarding the constraints in agricultural production. In the ensuing pages, however, constraints experienced by growers in horticulture is contemplated (Table 2.17).

Table 2.18 Research studies showing constraints in horticultural production

Sl.	Author	Year	Crop	Constraints
1.	Krishnan	1980	Apple	Lack of storage, high percentage of losses due to spoilage, inadequate marketing facilities and finance.
2.	Seshachar	1980	Chilli	Lack of knowledge regarding spacing application of farm yard manure, fertilizers and use of plant protection chemicals.
3.	Gokulraj	1981	Tomato	Fluctuating market price, inadequate funds, no technical guidance, lack of knowledge regarding improved practice
4.	Kumbar	1983	Grapes	Lack of knowledge, lack of finance, lack of irrigation facilities
5.	Chadha	1984	Grapes	Flower and flower bud drop, cluster tip wilting, pink berry formation, poor bud burst, premature defoliation, poor cane maturity and dead arm and trunk splitting.

Recently constraints that affect cutflower production and marketing were also reported. The studies are as follows (Table 2.19).

Table 2.19   Research studies showing constraints in cutflower production

Sl.No. Author	(Year)	Constraints
1. Hew	(1989)	Shortage of good quality planting materials, lack of production and post-harvest handling technology, lack of market innovation and insufficient Government support.
2. Rao	(1990)	Limited availability of good quality seeds including F1 seeds or bulbs, prohibitive import cost, no incentives to use modern technology like green house facilities, use of sophisticated research facilities such as tissue culture and improved farming technology.
3. Agriculture and Industry Survey	(1991-92)	No precise estimate of the area under floriculture. No finance facilities with soft lending norms, lack of adoption of modern greenhouse technology, no quick air cargo handling facilities.
4. Pandey	(1991)	Green house technology at low price, delay in quarantine and inspection of imported seed and planting material, non availability of the quality planting materials of desired export varieties, lack of infra structural facilities like cold rooms, AC trucks and cold room facilities at air port, heavy air freight, no guarantee for cargo space by Air India, tedious phytosanitary

and CITES Certification (Convention in International Trade in Endangered species). No direct air service to important flower centres like Amsterdam, Copenhagen etc. inordinate delay in consignments, lack of financial help and incentives to encourage floriculture projects.

4. Pandey   (1994)   Lack of technical information, non- availability of good quality planting materials, expensive affair of plant quarantine, lack of infra structural facilities like modern green house technology and cold room for cooling of cutflowers, AC trucks for transport, packaging material, sorting and grading machines , seed drying, seed cleaning and seed processing machines etc., inadequate funding, higher air-freight, high incidence of pests and disease, lack of basic data.

5. Singh   (1994)   Poor infrastructure, lack of appropriate planting materials, production technology, basic inputs like standard containers/growing media and quality packing materials and no proven post harvest handling technology to increase vase life. No critical market and pricing information, negligible sales promotion activities, no stream lined quality control mechanisms and co-ordination between Government agencies, marketing channel. High rate of investment and low rate of return.

6. Uppal   (1994)   Poor infrastructure and poor production technology for growing floriculture crops for export.

Ornamental plants in soil based container medium are not allowed for import in European and Middle east markets, sphagnum peat moss has to be imported at very high cost. Limited experience in floriculture export, absence of market surveys and pricing information, lack of sales promotion activities, non availability of training facilities on production and post production technology, lack of streamlined quality control mechanisms and poor co-ordination between agencies involved in the import/export of floricultural products, exorbitant freight charges and no priority in handling of perishable floriculture products. Unorganised domestic market and no established marketing channels. High interest rates and low rate of return.

7. Thekkayam and Nair(1995)   Dearth and high cost of planting material, import restrictions and quarantine procedures discourage small growers from importing varieties.

8. Sindhu   (1995)   Capital intensive industry, industry requires technologically advanced infrastructure to ensure quality product, lack or insufficient quality of good quality plant material, lack of technical expertise, absence of cold chain from production site to airport, poor packing of cutflowers and other products, inadequate incentives to the farmers, financial support and unorganised marketing channel and their monitoring, insufficient cold storage at airport, low priority in air cargo.

Fig. 1   THEORETICAL MODEL OF STUDY

PERSONAL FACTORS		C O N C E P T U A L S K I L L	DIMENSIONS
Education,Cutflowergrowing experience, Attitude towards cutflower growing Knowledge on cutflowers, Selfconfidence,Orientation towards competition ,Orientation towards skill development in farm workers, Information seeking behaviour			1.PLANNING
			2.RISK ORIENTATION
SOCIO-SITUATIONAL FACTORS			3.DECISION TAKING ABILITY
Operational area, Infrastructural facilities, Extension participation, Social participation,Mass media exposure			4.SUPERVISION
ECONOMIC FACTORS			5.MARKET PERCEPTION
Annual income,Credit orientation			

2.8 THEORETICAL MODEL OF THE STUDY

The theoretical model of the study is diagrammatically represented in Fig. 1. The model consists of two segments. The factor influencing conceptual skill is considered as one segment and this is further grouped into three set of factors such as personal factors, socio-situational factors and economic factors. The second segment consists of conceptual skill dimensions. The conceptual skill dimensions partitioned into five subsume the conceptual skill for the study based on the theoretical orientation.

METHODOLOGY

3. METHODOLOGY

The general typology and description of the methods and procedures employed in the present study are explained in this chapter. These are presented under the following heads.

3.1 Location of the study

3.2 Selection of sample

3.3 Selection of variables for the study

3.4 Operationalisation and measurement of variables

3.5. Selection of production technology of cutflowers

3.6 Selection of marketing channels

3.7 Selection of constraints

3.8 Data collection procedure

3.9 Statistical tools used in the study

3.10 Hypothesis framed for the study

3.1 LOCATION OF THE STUDY

The study was undertaken in Thiruvananthapuram, the capital district of Kerala. Thiruvananthapuram is identified by National Horticultural Board as one of the product specific floriculture zone for orchids and anthuriums. A network of production and marketing of cutflowers is already existing in Thiruvananthapuram. Voluntary agencies like Kerala cutflower producer's society, Kerala agri-horticultural society, anthurium grower's society, Kerala orchid society and AVT-Vanitha orchid clubs are actively involved in cutflower production and marketing. Majority of members in these societies are having their cutflower production in and around Thiruvananthapuram district. To a limited extent consumption of cutflowers, particularly by institutional buyers is existing here. Another highlight is the existence of International airport so that easy and quick conveyance of cutflowers is

Fig.2 **MAP SHOWING THE LOCATION OF STUDY**

N
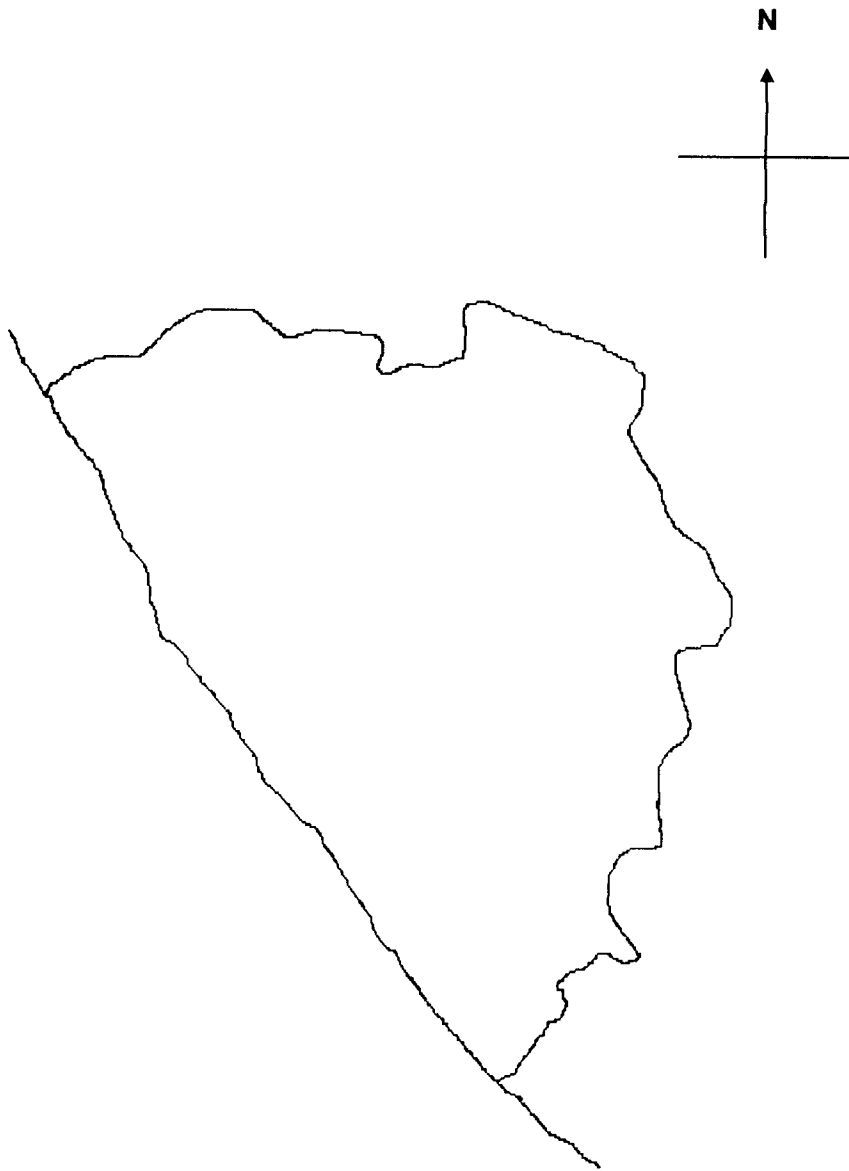
THIRUVANANTHAPURAM DISTRICT

possible. Finally, the researcher is familiar with the situation and socio-cultural status of the growers of the district, so that the collection of data could be accomplished without much difficulty.

3.2 SELECTION OF SAMPLE

The growers of orchids and anthuriums, who have membership in the flower societies functioning in Thiruvananthapuram district were selected as respondents.

Stratified random sampling technique with proportionate sampling procedure was adopted for the selection of respondents. Each of the floricultural society functioning in Thiruvananthapuram was considered as each stratum. The flower societies identified were Kerala cutflower producer's society, Kerala agri-horticultural society, anthurium grower's society, Kerala orchid society and AVT-Vanitha orchid club. Through proportionate sampling procedure, the number of members to be selected from each strata was calculated (appendix I). Then random numbers were assigned to the members in each society and required number of respondents were selected. Altogether 100 members were selected as respondents. Utmost care has been taken to avoid duplication of members in the various societies.

3.3 SELECTION OF VARIABLES FOR THE STUDY

3.3.1 Dependent variable

The objectives of the study necessitated conceptual skill of cutflower growers as the dependent variable for the study.

Conceptual skill is constituted of a number of dimensions as contemplated in the theoretical orientation chapter. For selection of dimensions for the study the following procedure was adopted.

Based on review of literature a list of 12 dimensions that could possibly establish a relationship with conceptual skill was prepared. The list of variables was sent to 50 judges comprising of scientists of Tamil Nadu and Kerala Agricultural Universities with social science background. The judges were asked to examine the list for its sufficiency of the dimensions for the study and to include additional dimensions, if they found necessary (Appendix II). They were requested to evaluate the

dimensions critically and indicate the importance of each dimension on a five point continuum ranging from `most important', `more important', `important', `less important', and `least important' with the weightages of 5, 4, 3, 2 and 1, respectively. Out of the 50 judges 38 responded.

The dimensions were selected based on two criteria, dimension's mean relevancy score and co-efficient of variation. Mean relevancy score was found by summing up the weightages obtained for a variable and dividing it by the number of judges responded. Like wise coefficient of variation was arrived at by the standard formula of dividing standard deviation of a dimension by its mean score and multiplying by 100. Then, the average mean score and average coefficient of variation were worked out by dividing with the number of dimensions. The dimensions with their mean relevancy score and coefficient of variations are presented in Appendix III.

The dimensions having mean relevancy score more than average mean relevancy score and co-efficient of variation less than the average coefficient of variation were selected for the study. The former one indicated dimension's higher degree of relevancy and the latter revealed the higher degree of agreement among the judges on the relevancy of the dimensions. Finally, 5 dimensions such as planning, risk orientation, decision making ability, supervision and market perception were selected.

3.3.2 Independent variables

The independent variables in the study refers to the personal, socio-situational and economic factors of growers. Based on the review of literature and discussion with experts, variables which had relationship with the dependent variable were identified. These variables were again subjected to relevancy rating by judges to select the most relevant ones as perceived by judges. A list of 44 variables was sent to 50 judges comprising scientists of Tamil Nadu and Kerala Agricultural Universities with social science background. The procedure adopted for the selection of dimensions of conceptual skill was followed for selecting the individual variables also Appendix III. The variables with their mean relevancy score and coefficient of variation are presented in Appendix IV.

Finally, 15 independent variables : eight personal factors, namely, education,

cutflower growing experience, attitude towards cutflower growing, knowledge on cutflowers, self-confidence, orientation towards competition, orientation towards skill development in farm workers, information seeking behaviour, five socio-situational factors namely, operational area, infrastructural facilities, extension participation, social-participation, mass media exposure and two economic factors, namely annual income and credit orientation were selected.

Operationalisation and measurement of variables

3.4.1 Dependent variable - Conceptual skill

In the present study, the dependent variable conceptual skill consisted of 5 dimensions, namely, planning, risk orientation, decision-taking ability, supervision and market perception. Each of these dimensions was measured using already existing measurement tools. The dimensions and the measurement tools used, their continuum and score range is presented in the table 3.1. Details are given in Appendix V.

Table 3.1 Dimensions, measurement tool, continuum and score range for measuring conceptual skill

Sl. No	Dimension	Measurement tool	Continuum	Score range
1.	Planning	Scale developed by Anantharaman (1991) with slight modifications	5 point Always, frequently ,sometimes, rarely, never	0 - 32
2.	Risk orientation	Scale developed by Supe (1969) with slight modifications	5 point strongly agree, agree, undecided, disagree, strongly disagree	6 - 30
3.	Decison making ability	Schedule developed by Sobhana (1989) with alterations	3 point, Always, sometimes, very rarely	0 - 12
4.	Supervision	Scale developed by Sagar and Ray (1987) used after editing and	4 point most often, often, sometimes, never	3 - 9

years, a cut-flower grower had involved in growing activities of floriculture, especially the cutflowers.

Chandrasekharan (1981) assigned scores to farming experience as follows:

Sl.No.	Year of experience	Score
1.	Upto 5 years	1
2.	Upto 10 years	2
3	Above 10 years	3

For the present study, farming experience of the cutflower grower expressed in completed years was taken as such, for the measurement of this variable.

3.4.2.3 Attitude towards cutflower growing

In this study, attitude of cutflower growers towards cutflower growing was measured using the attitude scale constructed for the purpose. The items for the attitude scale are called statements. Based on the review of literature and discussions with experts 50 statements regarding different aspects of cutflower growing were collected so as to make the respondents reflect their attitude through their responses. These statements were edited by eliminating those which failed to meet the standards by compairing to the criteria for selection of attitude statements as given by Edwards (1957). Thus 21 statements were finally retained after screening.

The method of Equal Appearing Intervals as described by Thurstone and Chave (1929) was used to determine the scale values of the attitude statements. For this 21 statements were sent to a group of judges comprising experts of various Departments of Agricultural College, Vellayani and State Department of Agriculture. They were asked to rate each statement on a seven point continuum

ranging from "Most favourable" through "neutral" to "most unfavourable". The judges were asked to make sure that they do not express their opinion but their estimation of degree of favourableness or unfavourableness expressed by each statement only. Tabulations were then made indicating the number of judges who placed each item in each category. From these data, cumulative proportions were computed. The median values in terms of scale units with reference to the Ogives give the scale value for the individual items.

The scale value of each was computed using the formula

$$S = \frac{1 + (0.50 - p\,b) \times i}{p\,w}$$

where S = Median or scale value of the statement

l = Lower limit of interval in which the median falls.

p b = the proportion below which the median falls

p w = the proportion within the interval in which the median falls

i = the width of the interval and assumed to be equal to 1.0.

A statistical criterion of ambiguity according to Edwards and Kenney (1949) is the distance between the points on the scale marking of the 25th and 75th percentiles. The distance under quartile range is called the "Q" value. "Q" values were worked out for the 21 statements and finally 5 statements with low "Q" values were retained to form the final scale for measuring attitude of cutflower growers towards cutflower production. A low "Q" value indicated that there is good agreement among judges while a high "Q" value indicated lack of agreement. The statements with the lowest "Q" value is believed to be the least ambiguous. Thus 6 statements were finally selected to measure the attitude of cutflower growers towards cutflower growing.

Reliability of scale

A scale is said to be reliable when it produce results with high degree of consistency

when administered to the same respondents. In this study reliability of the scale was determined by test retest method. The scale was administered twice to 25 cutflower growers who were the non sample respondents at an interval of 15 days. The co-efficient of correlation (r) between the two scores was found to be 0.81 highly significant. Hence it was concluded that scale was reliable.

Validity of the scale

A scale is valid when it actually measures what it claims to measure (Goode and Hatt, 1952). The scale was examined for the content validity by determining how well the contents of the scale represented the subject-matter under study. As all the possible items covering the universe of content were selected from literature and discussion with experts, the scale satisfied the content validity. Further the high critical ratio revealed that the attitude statements had high discriminatory values confirming validity of the scale.

The attitude scale thus developed was incorporated in the interview schedule and administered to 100 respondents of the study area and their responses were collected on a five point continuum ranging from "strongly agree" to "strongly disagree". Scores were given as 5, 4, 3, 2 and 1 for strongly agree, agree, undecided, disagree and strongly disagree responses respectively for positive statements. The scoring pattern was reversed for the negative statements. The favourable and unfavourable attitude statements were set at a random order and respondents were asked to respond according to their degree of agreement or disagreement to each statement. Attitude scores of all the statements were added together. Attitude scale is as follows.

Sl.No.	Statement	SA	A	UD	DA	SDA

----

1.   Cutflower production is a profitable enterprise

2.   Today's need is to promote agril. enterprise through

cutflower production .

3.   Cutflower production has the status of a business.

4.   Handsome return won't attract people to this as a
     profession.

5.   I feel much pride in doing cutflower growing.

6.   Cutflower production is not a creative enterprise.

3.4.2.4 Knowledge on cutflower production

Here Knowledge refers to the extent of information on cutflower production possessed by the grower which helps him in making the enterprise successful. It was measured with a standard knowledge test developed for the study.

A standardized knowledge test defined by Noll (1957) is the one that has been carefully constructed by experts in the light of acceptable objectives or purposes and procedures for administering, scoring and interpreting.

The procedure adopted for developing a standard knowledge test is described in the ensuing pages.

3.4.2.4.1 Item collection

Forty items on different activities with regard to cutflower production were collected from the package of practices of Kerala Agricultural University (1993) and in consultation with experts. From the pool of items, initial selection of items was done on the basis of following criteria a) it should promote thinking capability of cutflower grower; b) it should differentiate well informed grower from poorly informed; c) it should have some difficulty value; d) it should be relevant and more practical oriented than theoretical. Based on these criteria, from the pool of items, 25 items were initially selected for the knowledge test.

3.4.2.4.2 Item analysis

Item analysis yields information like indices of item difficulty, item discrimination and item validity. The selected 25 items were administered to 25 cutflower growers from the non-sample respondents. For correct answer, a score of 'one' was given and for incorrect answers 'zero' was given.

After arriving at the total score secured by the growers, they were arranged in descending order of their scores from highest to lowest. Following the recommendations of Garrett (1966) and Guilford (1971), 27 per cent of the respondents with highest scores and lowest scores were considered for calculating item difficulty and item discrimination and these groups were referred to as upper and lower groups.

3.4.2.4.3 Difficulty index

The difficulty value of an item refers to the proportion or percentage of individuals who answer the item correctly (Garrett, 1966; Guilford, 1971). Various methods have been suggested to arrive at difficulty index of items. The formula used for this study is as recommended by SIngh (1986) which taken into account the extreme groups only, thus saving labour and time. The formula used was;

$$P = \frac{RU+RL}{NU+NL}$$

where P = Index of difficulty

RU = Number of individuals answering correctly in upper group

RL = Number of individuals answering correctly in lower group

NU = Number of individuals in upper group

NL = Number of individuals in lower group

3.4.2.4.4 Discrimination Index

The index of discrimination is the ability of the item on the basis of which the discrimination is made between superiors and inferiors (Blood and Budd, 1972). Among various

methods of determining of discrimination index, a simple and quick method called Net index of discrimination suggested by Marshall and Hales (1972) was followed. This is an unbiased index of absolute difference in number of discrimination made between upper and lower groups and it is proportional to the net discrimination made by the item between the two groups. The formula used was

$$Y = \frac{RU-RL}{NU}$$

where Y = Net discrimination index

RU = Number of individuals giving correct answers in upper group

RL = Number of individuals giving a wrong answers in lower group

NU = Number of individuals in a group

The calculated values of difficulty index and discrimination index for all the 25 items are given in Appendix VII.

3.4.2.4.5 Final selection of items

Difficulty index and discrimination index were the criteria considered for selection of items for the scale. Pillai (1983) considered difficulty index of 65 to 76 percentage and discrimination index above 0.35. For this study, items with difficulty index between 0.40 and 0.60 and discrimination index above 0.50 were selected. This procedure yielded 7 test items for the final scale. The items were modified in the interview schedule so as to obtain more accurate answer.

3.4.2.4.6 Method of scoring

Each respondent was given a score of `1' for correct answer and `0' for incorrect answer for each item. The total score of each respondent was calculated by adding the number of items answered correctly by him. Knowledge test is as follows.

1. For planting arachnis grower `A' selected terminal cuttings, grower `B' selected middle cuttings and grower `C' selected basal cuttings. Whose selection is the most appropriate?

a) Grower A b) Grower B c) Grower C

2. Before planting deflasked orchid seedlings, grower `P'   dipped seedlings in dithane M-45 solution (dithane M-45 5g/1   litre of water).  Grower `Q' dipped them in dithane M-45,   5g/2 1 of water while grower `R' dipped them 1 g/1 1 of   water. Who has done it rationally?

a) Grower P b) Grower Q   c) Grower R

3. Grower `K' opines that only monopodial orchids (eg. arachnis) require support, while grower `L' says that only sympodials (eg. dendrobium) requires support. Third grower `M' opines that both monopodials and sympodials require support. To whom will you agree?

a) First grower   b) Second grower   c) Third grower

4. A grower opines that cockroach is a pest of orchid. Do you   agree with him?

a) Yes   b) Undecided   c) No

5. In an anthurium farm grower A practise liming at the rate of   5g/sq.m. while grower B applies 50 g/sq.m. and grower C   applies 75g/Sq.m. Who is more r̶a̶t̶i̶o̶n̶a̶l̶ in your opinion?

a) Grower A   b) Grower B   c) Grower C

6. Anthurium plants are severely affected by anthracnose .Grower A sprayed dithane M 45,grower B sprayed malathion and grower C sprayed 2,4-D.Who is rational in your opinion ?

a) Grower A b) Grower B c) Grower C

7. The foliage of anthurium plants are showing severe crinkling. First grower sprayed dithane M-45, second grower sprayed bavistin and third grower sprayed kelthane. Who is rational in your opinion?

a) First grower   b) Second grower   c) Third grower

3.4.2.4.7 Reliability

Reliability of the test was found by the split half method. In this method, the selected 8 items were split into two equal halves of odd and even numbered items and administered to 30 cutflower growers who formed the non-sample respondents.

one to show me.

6. I get discouraged easily.

7. Life is a strain for me in much of time.

8. I find myself worrying about something or other.

3.4.2.6 Orientation towards competition

It refers to the degree to which a farmer is oriented to place himself in a competitive situation in relation to other farmers for projecting his excellence in farming. This was measured by orientation towards competition scale developed by Singh (1981) with minor modifications. Each statement was provided with four-point response categories namely, strongly agree, agree, disagree and strongly disagree with weights of 4, 3, 2 and 1 respectively for positive statements and 1, 2, 3 and 4 for negative statements. The farmer's response to each statement was collected and the summation of the weightages gave the score for orientation towards competition of the farmer. The following procedure was adopted for the study.

Sl.No.	Statements	SA	A	DA	SDA

----

1. The key points of success in farming should not be divulged to other
    farmers.

2. A better yield in comparison to the neighbours brings more
    prestige.

3. It is of no use to keep information on what other growers are doing.

4. Competitions should be organised for all important flower crops.

5. It is not good for a person to become too ambitious in life.

3.4.2.7 Orientation towards skill development in farm workers

It refers to the extent to which the cutflower grower is trying to develop the ability in farm workers by giving information to practice technology in the field.

Scale developed by Sagar and Ray (1986) was adopted for measuring this variable. The scale was modified by editing the statements. It contained six statements on a four point continuum ranging from `most often, often, sometimes and never'. The scoring was 3, 2, 1 and 0 and the score ranges from 0 to 18. The scoring procedure was as follows.

Sl.No.	Statements	MO	O	ST	N

---

1. How often do you discuss the latest farm technology with your farm workers?

2. How often do you show the farm workers the use of latest farm technology in the field?

3. How often do the workers seek clarification on the technology by asking questions?

4. How often do you supervise the application of latest farm technology by the farm workers.

5. How often do you pay more wages to the skilled farm workers?

6. How often do you prefer skilled farm workers for employment in farm?

Information seeking behaviour

It refers to the extent of activities to which the cutflower grower makes use of the various information sources for getting advice for cutflower growing. Gaikwad (1957) has developed the scale

for measuring this variable. In the present study the scale was utilised with slight modifications. Scale was rated over a 3 point continuum ranging from `always', `sometimes' and `never'. The score ranges from 0 to 36. The following procedure was adopted for the study.

Sl.No.	Source	Always	Sometimes	Never

1.	Dy. Director/Principal Agricultural Officer			
2.	Agricultural Officer			
3.	Agricultural Assistant			
4.	Agricultural Scientist			
5.	Fertilizer agents			
6.	Relatives			
7.	Newspaper			
8.	Radio			
9.	Television			
10.	Agricultural publications			
11.	Fellow growers			
12.	Others (Specify)			

The score on each item is added together to get the final score.

3.4.3 Socio-situational factors

These are the factors prevalent in the social system of individual   and   his   environment, which influences grower respondent's behaviour.

3.4.3.1 Operational area

It refers to the area under cutflower crops maintained by the grower respondent. It was

measured in cents.

3.4.3.2 Infrastructural facilities

This refers to the perception of farmers about the availability and adequacy of infrastructural facilities which provide support to cutflower production. This was measured by procedure developed by Kumari (1989) with slight modification. The quantification procedure had five facility items namely planting materials, manures and fertilizers, plant protection chemicals, credit and labour. The factors considered for measuring infrastructural facilities were timeliness and adequacy in availability as perceived by growers. Positive answers for each of the factors of the facility items were given a score of `1' and negative answers `0'. The scores were then added up to get total score of individual's perception about infrastructural facilities. The score ranges from 0-10. The scoring procedure was as follows.

Sl.No.	Facilities	Available timely		Available in adequate quantity	
		Yes	No	Yes	No

1.	Planting materials				
2.	Manures and fertilizers				
3.	Plant protection chemical				
4.	Credit				
5.	Labour				

3.4.3.3. Extension participation

It refers to the degree of participation in various extension activities conducted by development agencies in the grower respondents locality. This was measured using the procedure suggested by Bhaskaran (1979) with slight modification. The respondent's participation in each of the

activities was recorded on a three point continuum and the scores given were : whenever conducted 2, sometimes 1, Never 0. Summing up the scores obtained by the grower in all the activities, the respondent's extension participation score was obtained. The score ranges from 0-16. Maximum 16 is also possible . The scoring procedure was as follows.

Activities	Whenever conducted	Sometimes	Never
a. Meetings			
b. Seminar			
c. Exhibition			
d. Film shows			
e. Farmer's days			
f. Demonstrations			
g. Field days			
h. Any other			

The score on each item is added together to get the final score.

3.4.3.4 Social participation

Social participation is considered as the degree of involvement of respondent in various agricultural development organisation either as a member or office bearer, considering his regularity of attendance in the meetings of these organisations. Scale developed by Trivedi (1963) was used for measuring this variable Scores of 3, 2 and 1 were assigned for attending the meetings regularly, occasionally and never. To obtain the final score of a respondent, the scores secured as a

member or office bearer were summed up for all the social organisation in which participation was reported. The score ranges from 1 to 15. The scoring procedure was as follows.

Sl. No.	Particulars	Attendance.		
		Regularly	Occasionally	Never
1.	Membership in one organization			
2.	Membership in more than one organization			
3.	Office bearer in the organisation			
4.	Office bearer in more than one organisation			
5.	Distinctive features (M. P., M.L.A. etc.)			

3.4.3.5 Mass media exposure

It refers to the degree to which mass media information sources were used by the grower respondent. The measurement procedure followed by Syamala (1988) was used to quantify this variable. The following scoring procedure was adopted for the study.

Medium	Frequency	(Score)
a. Radio	Never	0
	Rarely	1
	Once a fortnight	2
	Once a week	3

	2-6 days a week	4
	daily	5
b. Newspaper	Never read	0
	Rarely	1
	Once a fortnight	2
	Once a week	3
	2-6 days a week	4
	daily	5
c. Magazines	Never read	0
	Rarely	1
	Once a fortnight	2
	Once a week	3
	2-6 days a week	4
	daily	5
d. Leaflets & bulletins	Never	0
	Occasionally	1
	Frequently	2
	Most frequently	3
e. Films (related to floriculture)	Never	0
	Occasionally	1
	frequently	2
	most frequently	3

f. Field days/ agril	More than 6	0
functions.	4 to 6	1
(attended during	1 to 3	2
last year)	None	3

The scores on each item are added to get the final score. The score range is 0 - 24.

3.4.5 Economic factors

3.4.5.1 Annual income

This refers to the income generated per year by the various activities of the grower in the farm and other than farm. In the present study, income obtained per year as such is considered for measurement.

3.4.5.2 Credit orientation

Credit institutions play a crucial role in availing capital for managing crop enterprise. Cutflower grower's degree of orientation to avail credit may influence their style of managing the crop. This was measured using the scale developed by Beal and Sibley (1967). The score range varied from 0 - 15. The procedure was as follows.

Sl.No. Items	Response	Score

| 1. Do you think a grower like you should borrow for | No | 0 |

cutflower growing?	Yes	1
2. In your opinion how difficult is to secure credit for cut flower growing?	Very difficult	1
	Difficult	2
	Easy	3
	Very easy	4
3. How a grower is treated when he goes to secure credit?	Very badly	1
	Badly	2
	Fairly	3
	Very fairly	4
4. There is nothing wrong in taking credit from institutional sources for investing in cutflower production.	Strongly agree	1
	Agree	2
	Disagree	3
	Strongly disagree	4
5. Have you used credit for cutflower growing?	No	1
	Yes	2

3.5 Selection of production technology of cutflowers

After consultation with experts in horticulture the following practices were selected for studying the production practices of cutflowers - orchids and anthurium. The selection of practices was specifically intended for identifying the practices followed by growers for cutflower production. The practices selected were as follows.

1. Varieties

2. Spacing followed

3. Potting mixture

4. Manures and fertilizers

5. Plant protection measures

6. Harvesting and handling of `cut'flowers

3.5.1 Varieties

It is decided to identify varieties of anthurium and orchids grown by the cutflower growers which in turn help for rating the preference of varieties among them.

3.5.2 Spacing

Both monopodial orchids and anthuriums can be ground planted. The spacing followed in ground planting has to be identified so that the confirmity with adhoc recommendations can be compared.

Data on spacing while planting sympodial orchids on hanging pots or terrace benches are also has to found out which will help in the comparison of practice with the adhoc recommendations of Kerala Agricultural University.

3.5.3 Potting mixture

This is included in the study so that we can make out the various types of potting mixtures prepared by the growers, for anthuriums and orchids.

3.5.4 Manures and Fertilizers

It is said that orchids need less care while anthuriums are very sensitive plants. The inclusion of this factor will help to delineate the manuring and fertilizing practices followed by cutflower growers. The dosage, method and interval of application were considered.

3.5.5 Plant protection measures

Pests and diseases are major problems in cutflower production. The valuable flowers

were seriously damaged by pest and disease attack. Hence this practice was also included in the study. Name of the pest and disease, respective control measures practised etc. were considered.

3.5.6 Harvesting and handling of cutflowers

Proper harvesting and post harvest handling are important in increasing the vase life of cutflowers. The stage of infloroscence, time of harvest, packing etc. are important in this aspect. So this factor is also included in the study with a view to identify the practices followed by growers.

3.6 Selection of marketing channel

After consultation with non sample respondents the following marketing channels were identified.

The following 6 marketing channels were identified through the pilot study. The quantity of flowers marketed is quantified as upto 25 per cent, 26 - 50 per cent, 51 - 75 per cent and more than 75 per cent.

The scoring pattern was as follows.

Sl. No.	Marketing channel	Quantum of flowers marketed			
		Upto 25%	26-50%	51-75%	> 75%
1	Producer -- Consumer				
2.	Producer -- florishop -- Consumer				
3.	Producer -- Collection centre -- Consumer				
4.	Producer -- collection centre -- florishop -- Consumer				
5.	Producer --- Commission agent -- florishop -- Consumer				
6.	Producer --- Collection centre --- commission agent --- florishop --- consumer				

The frequency of respondents utilising each channel and each quantum category was worked out to find out the major marketing channels used by the growers.

3.7 Selection of constraints

Based on review of literature and discussion with cutflower growers 34 constraints were identified. These constraints were then grouped under three categories - production, technological and marketing constraints. Thus there were 15 production constraints, 7 technological constraints and 12 marketing constraints. List of these constraints were administered to 25 non sample respondents. They were asked to rank each of the constraints according to the relative importance or severity felt by them. The frequency of rank obtained by each constraint was worked out. Constraints which obtained higher frequency of first ranks were selected for the study. Thus in the final selection, production constraints included 9 items, technological constraints 5 items and marketing constraints 8 items were selected (Appendix VIII).

In the study, the respondents were asked to rank the items by making an overall comparison with regard to the intensity of the constraints. A scores of 1, 2, 3, 4, 5, 6, 7, 8, 9 were given to I, II, III, IV, V, VI, VII, VIII, and IX ranks respectively for production constraints. Similarly scores of 1 to 5 were given to I to V ranks respectively for technological constraints and scores of 1 to 8 were given to I to VIII ranks respectively for marketing constraints. The frequencies of the respondents ranking each constraint in each ranks were found out and multiplied with the corresponding score values to obtain the total score value. The constraint with lower score value was considered as the most serious one followed by other in the order of increasing score value.

3.8 Data collection procedure

An interview schedule including all aspects mentioned above was prepared in English. Data collection was done during July-August. All the 100 respondents were directly interviewed by the researcher. The respondents were contacted in their respective houses. The questions were put

in a conversational manner and responses were transcribed in the schedule itself. In case of responses which were not clear re-checking was done.

3.9 Statistical tools used for the study

The data collected from the respondents were, scored, tabulated and analysed using suitable statistical methods.

3.9.1 Mean

The mean of the conceptual skill score and the its dimension's score for the total sample was used us a cut-off point to group the farmers into low and high groups with respect to overall conceptual skill and the components. Mean scores arrived at for the sub-samples namely, various cutflower societies such as low and high group were used to make comparisons.

3.9.2 Simple percentage

After grouping the growers who have secured equal or more than mean score as high group and lower than mean score as low groups, simple percentage was worked out to find out percentage distribution of the growers under high and low groups with regard to conceptual skill and the components with respect to total sample as well as for the sub-samples of cutflower societies. Percentage analysis was done to make simple comparison wherever necessary.

3.9.3 Kruskal-Wallis one way analysis of variance

Kruskal-Wallis test was employed for the comparison of the 5 groups of respondents with regard to the variable under study. The test criterion for K sample test is given by

$$H = \frac{12}{n(n+1)} \; nj \, Rj^2 - 3(n+1)$$

where n j - no of cases in the j th group

j = 1,2 ... k

$n = {}^{k}n \; j_{j=1}$

Rj - Sum of the ranks for the jth group and H is distributed on ^{2} with K-1

degrees of freedom of the ni's are not too small. (Steel and Torri. 1980).

3.9.4 The simple correlation analysis

The simple correlation co-efficient was computed to find out the degree of relationship of conceptual skill with the independent variables.

3.10 Hypotheses framed for the study

Hypotheses were framed as follows for the study

H_1 There would be no significant difference among the various groups in their conceptual skill.

H_2 There would be no significant difference among the various groups in their conceptual skill dimensions.

H_3 There would be no significant relationship between conceptual skill of cutflower growers and independent variables.

RESULTS

4. RESULTS

Keeping the objectives of the study in view, the results are presented under the following heads.

4.1 Conceptual skill of the cutflower growers.

4.2 Relationship between personal, socio-situational and economic factors of the cutflower growers and their conceptual skill.

4.3 Production technology of anthuriums and orchids followed by the respondents.

4.4 Marketing channels utilised by the cutflower growers

4.5 Constraints in cutflower production as perceived by the cutflower growers.

4.1 Conceptual skill of the cutflower growers

4.1.1 Contribution of components towards conceptual skill

The percentage contribution of 5 components viz., planning, risk-orientation, decision-taking ability, supervision and market perception towards conceptual skill is presented in table 4.1. Planning (13.76 per cent) and market perception (13.96 per cent) almost equally contributes to conceptual skill. Higher contribution is provided by decision taking ability (28.88 per cent). Risk orientation and supervision share 20.56 per cent and 22.84 per cent respectively towards conceptual skill.

Table 4.1 Percentage contribution of components towards conceptual skill

Sl.No.	Components	Percentage
1.	Planning	13.76
2.	Risk orientation	20.56
3.	Decision taking ability	28.88
4.	Supervision	22.84
5.	Market perception	13.96

4.1.2   **Distribution of cutflower growers under low and high groups with respect to conceptual skill**

The percentage distribution of the cutflower growers under low and high group with respect to conceptual skill and its components for the total sample and cutflower society categories are furnished in the pages that follow.

4.1.2.1   **Distribution of the cutflower growers (total sample) based on th eir conceptual skill and its components.**

The percentage of cut flower growers under low and high group for conceptual skill and the dimensions of conceptual skill with the respective mean scores are presented in table (4.2). It could be observed from the table that more than half of the growers (58 per cent) belonged to low group of conceptual skill and the rest belonged to high group. When the components were viewed individually it could be observed that little more than half of the growers belonged to low group for the component decision taking ability (56 per cent) and `market perception' (55 per cent). Majority of the growers were found to be in the low group for the component planning (76 percent). A reverse pattern of distribution with majority of the farmers under high group was found in the case of `risk orientation' (58 per cent) and supervision (83 per cent).

Table 4.2 Distribution of the cutflower growers based on conceptual skill and dimensions

Sl.No.	Conceptual skill and it's dimensions	Group n = 100		Mean score
		Low %	High %	
I.	Conceptual skill	58	42	251.50
II.	Dimensions			
1.	Planning	76	24	34.62
2.	Risk orientation	42	58	51.70
3	Decision taking ability	56	44	72.63
4.	Supervision	17	83	57.45
5.	Market perception	55	45	35.10

4.1.2.2 Distribution and comparison of growers based on conceptual skill

The distribution of growers in various societies based on conceptual skill could be observed from Table 4.3. Growers in Group I (63 per cent), Group IV (54 per cent) and Group V (57) are belonging to high group with respect to conceptual skill and a reverse pattern of low nature is observed in the case of growers belonging to Group II (57 per cent) and Group IV (54 per cent). The significance of difference in conceptual skill was tested by analysis of variance (Table 4.4). The mean scores of conceptual skill showed not much difference among the various groups and the analysis of variance also revealed that the difference was not significant. Thus the respondents belonging to all the various groups were similar in their conceptual skill. Hence, the hypothesis that there would be an d no significant difference among the conceptual skill of growers of the various groups was accepted.

Table 4.3 Distribution and comparison of growers of the various   groups based on conceptual skill

| Sl.No. | Categories | Group   n = 100 | | Mean score 111 |
		Low %	High %	
1.	Group I	37	63	2.44
2.	Group II	57	43	241.33
3.	Group III	50	49	256.68
4.	Group IV	46	54	240.76
5.	Group V	43	57	274.73

Table 4.4 Table showing the mean score of conceptual skill and   its components

| Sl.No. | Particulars | Mean Score | | | | | F   (4,95) |
		Group I	Group II	Group III	Group IV	Group V	
1.	Conceptual skill	244.00	241 .33	256.68	240.76	274.73	1.66
2.	Planning	33. 00	34.00	33.74	30. 00	42.36	2.79*
3.	Risk orientation	50. 80	47.50	50.95	52. 24	57.02	1.30
4.	Decision- taking ability	69. 40	68.50	77.26	66. 48	81.49	11.76**
5.	Supervision	47. 60	63.50	58.84	57. 59	59.73	0.72
6.	Market perception	43. 20	27.83	35.89	34. 45	34.12	0.48

** Significant at 1% level   * Significant at 5% level

4.1.2.3 Distribution and comparison of growers based on planning

Based on planning, the growers in various groups were grouped into low and high groups. Table (4. 5) shows the percentage distribution and it could be inferred that invariably all the growers in the various groups belong to high group, viz. Group I (754 per cent), Group III (69 per cent) and Group V (68 per cent). The rest of the growers in the societies belongs to low group: Group I (25 per cent), Group IV (48 per cent), Group II (43 per cent), Group III (31 per cent) and Group V (32 per cent). When compared Group IV and Group II are relatively equal in their ability to plan while Group III and Group V are relatively similar in their planning ability. Group I (75 percent) shows a higher ability than other four societies in this dimension. Planning mean scores disclosed slight variations among the societies. From the table F values in 4.4 it could be inferred that respondents belonging to Group IV was significantly low in planning in comparison with respondents belonging to Group V. Respondents belonging to the other three societies viz., Group I, Group II and Group III were on par in their planning ability. Hence, this led to the rejection of the hypothesis that there would be no significant difference in planning among the cut flower growers of the various groups.

Table 4.5 Distribution and comparison of growers of the various groups based on planning

Sl No.	Categories.	Group		Mean score
		Low %	High %	
1.	Group I	25	75	33.00
2.	Group II	43	57	34.00
3.	Group III	31	69	33.74
4.	Group IV	48	52	30.00
5.	Group V	32	68	42.37

4.1.2.4 Distribution and comparison of growers based on risk orientation

The distribution pattern, presented in Table 4.6 revealed that invariably majority of the growers of all the various groups belonged to high group viz., 69 per cent, 63 per cent, 69 per cent, 63 per cent and 68 per cent of growers of Group I, Group II, Group III, Group IV and Group V respectively. The percentage of growers belonged to low group as 31 per cent, 37 per cent, 31 per cent, 37 per cent and 32 per cent of growers of Group I, Group II, Group III, Group IV and Group V respectively. The risk orientation mean scores are comparitively similar among the various groups, the analysis of variance also revealed that the difference was not significant. Thus it could be inferred that the respondents belonging to all the various groups are similar in their risk orientation. Hence, the hypothesis that there would be no significant difference among the growers of the five cut flower societies was accepted.

Table 4.6 Distribution and comparison of growers of the various groups based on risk-orientation-

| Sl. No | Categories | Group | | Mean score |
		Low (%)	High (%)	
1.	Group I	31	69	50.80
2.	Group II	37	63	47.50
3.	Group III	31	69	33.74
4.	Group IV	37	63	30.00
5.	Group V	32	68	42.37

4.1.2.5 Distribution and comparison of growers based on decision taking ability

The distribution pattern shown in Table 4.7 revealed that except growers of Group I (21.61 per cent), majority of growers of other four groups belonged to high group viz., 70 per cent of growers of Group II, 58 per cent of growers of Group III, 86 per cent of growers of Group IV and 62 per cent of growers of Group V. The growers of Group I, Group II, Group III, Group IV and Group V

are distributed in the low group as 78 per cent,30 per cent, 41 per cent, 14 per cent and 38 percent respectively. High mean scores on decision taking ability revealed the significant importance of the dimension. F-value computed indicated significant difference among the various groups. The results of Anova in Table 4.4 indicated that the respondents belonging to Group I, Group II and Group V were on par in their decision taking ability. The respondents of these three groups were significantly different in comparison with respondents of Group V. The respondents belonging to Group III and Group V were on par in their decision taking ability. Hence the hypothesis that there would be no significant difference among the growers of the various groups was rejected.

Table 4.7 Distribution and comparison of growers of the various groups based on decision taking ability

Sl No Categories.	Group		Mean score
	Low (%)	High (%)	
1. Group I	78	22	69.40
2. Group II	30	70	68.50
3. Group III	41	59	77.26
4. Group IV	14	86	66.48
5. Group V	38	62	81.48

4.1.2.6 Distribution and comparison of growers of the various societies based on supervision

Table 4.8 revealed that, invariably majority of the growers of all the various groups belonged to high group, viz. 60 per cent, 64 per cent, 66 per cent, 54 per cent and 60 per cent of cut flower growers of Group I, Group II, Group III, Group IV, Group V respectively. The rest of growers belonged to low group. F-value computed indicated no significant difference among the respondents of the various groups. From Table 4.4 it could be observed that the growers in the various groups were

on par in their supervising ability. Hence, the hypothesis that there would be no significant difference in supervision among the growers of the various groups was accepted.

Table 4.8 Distribution and comparison of growers of the five societies based on supervision

| Sl. No. | Categories | Group | | Mean score |
		Low (%)	High (%)	
1.	Group I	40	60	47.60
2.	Group II	36	64	63.50
3.	Group III	34	66	58.84
4.	Group IV	46	54	57.59
5.	Group V	40	60	59.73

4.1.2.7 Distribution and comparison of growers of the various groups based on market perception

It could be inferred from the table 4.9 that majority of the growers of Group I (69 per cent), Group II (55 per cent), Group III (59 per cent) and Group V (53 per cent) belonged to high except Group IV (46 per cent). Rest of the grower's belonged to the low group viz., Group I, II, III and V as 31, 45, 41 and 47 per cent respectively while 54 per cent of the growers of Group IV belong to the high group. Analysis of variance revealed no significant difference among the cut flower growers of the various groups. Thus, the respondents belonging to all the groups similar in their market perception which was low. Hence the hypothesis that there would be no significant difference in market perception among the cut flower growers of the various groups was accepted.

Table 4.9 Distribution and comparison of growers of the various groups based on market perception

Sl No	Categories	Group		Mean score
		Low (%)	High (%)	
1.	Group I	31	69	43.20
2.	Group II	45	55	34.45
3.	Group III	41	59	27.83
4.	Group IV	54	46	35.89
5.	Group V	47	53	34.12

4.2 RELATIONSHIP OF PERSONAL, SOCIO-SITUATIONAL AND ECONOMIC FACTORS WITH CONCEPTUAL SKILL

Data from table 4.10 to 4.14 revealed the following results.

4.2.1. PERSONAL FACTORS

4.2.1.1 Education

Education showed positive and nonsignificant relationship with conceptual skill in the case of respondents of Group II. Rest of the groups viz., Group I, Group III, Group IV and Group V showed negative nonsignificant relationship between this variable and conceptual skill. Hence the null hypothesis was accepted.

4.2.1.2 Cutflower growing experience

This variable showed positive and non significant relationship with conceptual skill among the respondents of Group I and Group II. Respondents of Group III, Group IV and Group V showed positive and significant relationship at 1 per cent level of significance between cutflower growing experience and conceptual skill. Hence the null hypothesis was rejected.

4.2.1.3 Attitude towards cutflower growing

This variable showed positive nonsignificant relationship with conceptual skill of cutflower growers of Group I and IV while rest of the respondents in Group II, III and V showed positive and significant correlation with conceptual skill. The relationship was significant at 5 per cent for Group III and significant at 1 per cent for Group II and V. Hence the null hypothesis was rejected.

4.2.1.4 Knowledge on cutflowers

Knowledge on cutflowers had positive and significant relationship with conceptual skill at 1 per cent level of significance among the respondents of Group II, Group III and Group V. Nonsignificant relationship, negative and positive exists between this variable and conceptual skill in the case of respondents Group I and Group IV respectively. Hence the null hypothesis was rejected.

4.2.1.5 Self confidence

Self confidence showed positive, nonsignificant relationship with conceptual skill in the case of respondents of Group I, Group II, Group III and Group IV. Respondents of Group V showed positive and significant relationship between this variable and conceptual skill at 5 per cent level of significance. Hence the null hypothesis was rejected.

4.2.1.6 Orientation towards competition

Orientation towards competition showed positive and non significant relationship with conceptual skill of cutflower growers of all the five groups, viz., Group I, Group II, Group III, Group IV and Group V. Hence the null hypothesis was accepted.

4.2.1.7 Orientation towards skill development in farm workers

Respondents of Group I showed positive, nonsignificant relationship while respondents of Group II showed negative, non significant relationship between this variable and conceptual skill. This variable showed positive and significant relationship with conceptual skill of the respondents of Group III, Group IV and Group V at 1 per cent level of significance. Hence the null hypothesis was rejected.

Table 4.10 Relationship of personal, socio-situational and economic factors with conceptual skill

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I. PERSONAL FACTORS ..	Correlation coefficient	n = 5

1.	Education X 1	-0.2490
2.	Cutflower growing experience X 2	0.6098
3.	Attitude towards cutflower growing X 3	0.3930
4.	Knowledge on cutflowers X 4	-0.7472
5.	Self confidence X5	0.1144
6.	Orientation towards competition X6	0.2303
7.	Orientation towards skill development in farm workers X7	0.5344
8.	Information seeking behaviour X8	-0.0068

II. SOCIO-SITUATIONAL FACTORS

1.	Operational area X 9	0.5909
2.	Infrastructural facilities X 10	0.0508
3.	Extension participation X 11	-0.7241
4.	Social participation X 12	0.5185
5.	Mass media exposure X 13	0.1270

III. ECONOMIC FACTORS

1.	Annual income X 14	-0.7904
2.	Credit Orientation X 15	-0.0762

** Significant at 1% level of probability * Significant at 5% level of probability

Fig. CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES
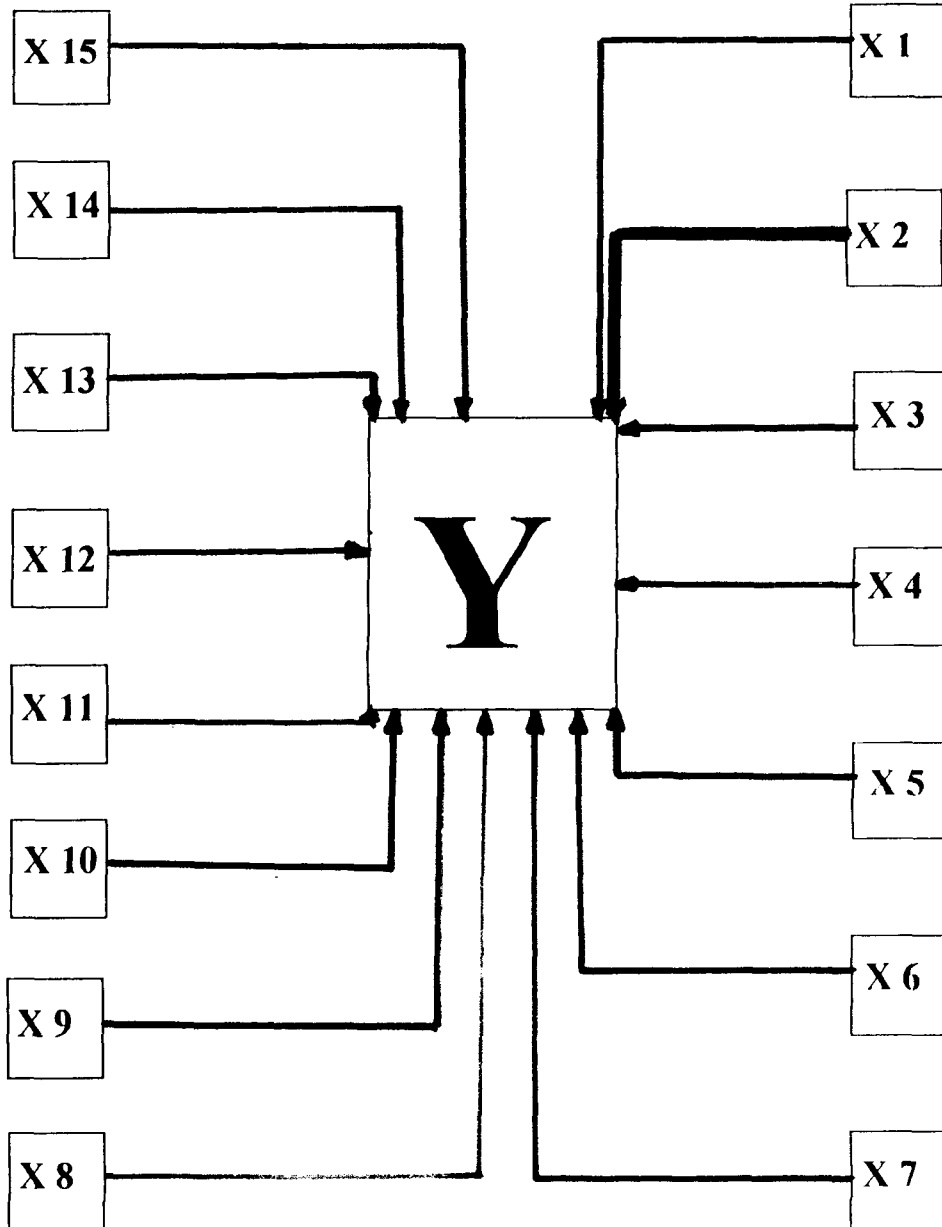
Positive and non Significant ——————— Group **n = 5**
Positive and Significant at   1% level
Positive and Significant at   5% level
Negative and non Significant   ━━━━━
Negative and Significant at   5% level

Table 4.11   Relationship of personal, socio-situational and   economic factors with conceptual skill

I. PERSONAL FACTORS	Correlation coefficient	n = 6
1. Education X1	0.2427	
2. Cutflower growing experience X2	0.7524	
3. Attitude towards cutflower growing X3	0.9182**	
4. Knowledge on cutflowers X4	0.9945**	
5. Self confidence X5	0.5356	
6. Orientation towards competition X6	0.2865	
7. Orientation towards skill development in farm workers X7	-0.6470	
8. Information seeking behaviour X8	0.6792	
II. SOCIO-SITUATIONAL FACTORS		
1. Operational area X9	-0.1282	
2. Infrastructural facilities X10	0.5867	
3. Extension participation X11	0.4498	
4. Social participation X12	0.4172	
5. Mass media exposure X13	-0.8932*	
III. ECONOMIC FACTORS		
1. Annual income X14	0.2423	
2. Credit Orientation X15	0.8445	

** Significant at 1% level of probability * Significant at 5% level of probability

Fig. CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

Positive and non Significant ——— Group n = 6
Positive and Significant at 1% level ━━━
Positive and Significant at 5% level ━━━
Negative and non Significant
Negative and Significant at 5% level
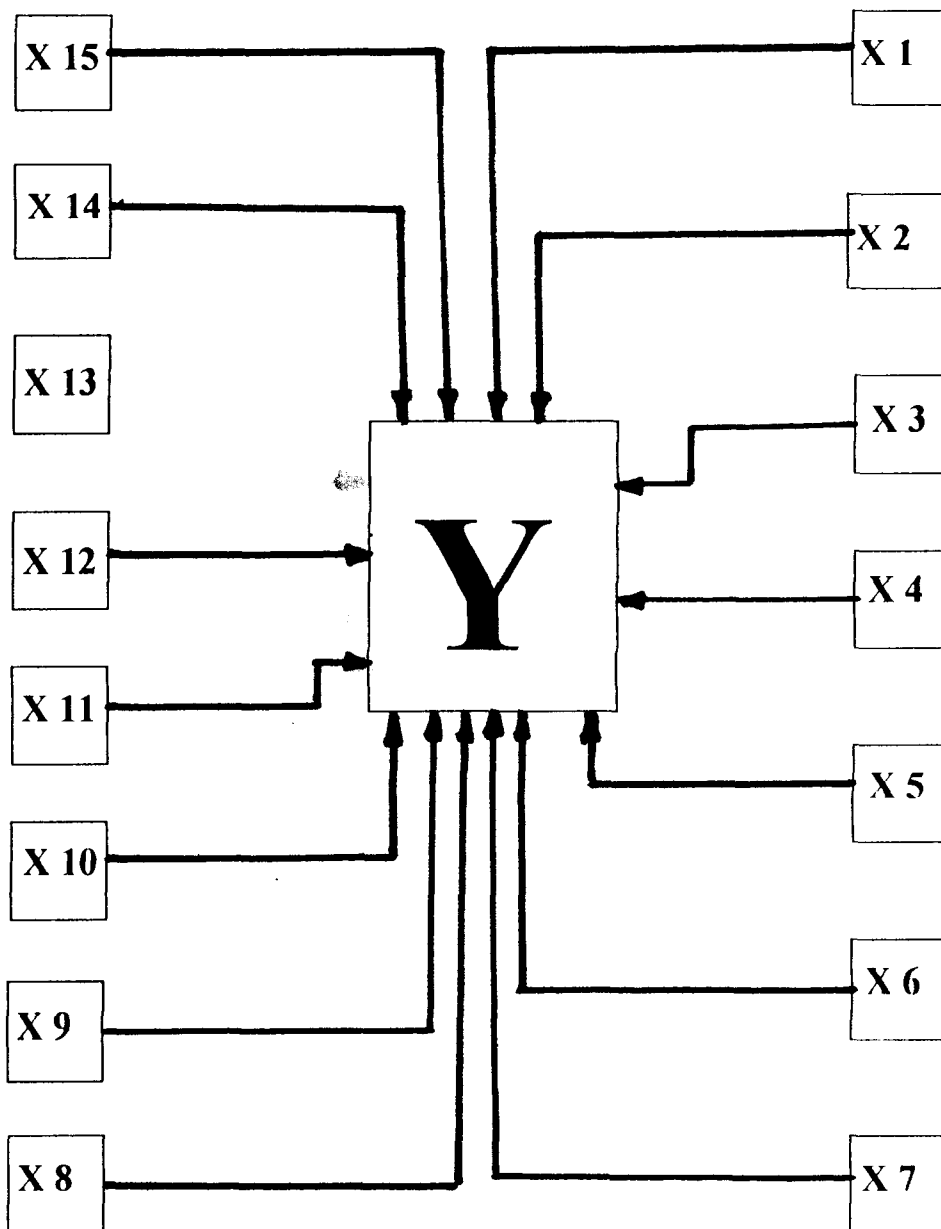
Table 4.12   Relationship of personal, socio-situational and   economic factors with conceptual skill

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I. PERSONAL FACTORS   Correlation coefficient   n = 19

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1. Education X1	-0.4237
2. Cutflower growing experience X2	0.7160**
3. Attitude towards cutflower growing X3	0.5035*
4. Knowledge on cutflowers X4	0.5591**
5. Self confidence X5	0.0841
6. Orientation towards competition X6	0.2845
7. Orientation towards skill development in farm workers X7	0.8838**
8. Information seeking behaviour X8	0.5803**

II. SOCIO-SITUATIONAL FACTORS

1. Operational area X9	0.2321
2. Infrastructural facilities X10	0.2447
3. Extension participation X11	0.0540
4. Social participation X12	0.2662
5. Mass media exposure X13	0.3823

III. ECONOMIC FACTORS

1. Annual income X14	-0.0346
2. Credit Orientation X25	0.4263

** Significant at 1% level of probability * Significant at 5% level of probability

Fig.   **CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES**

Table 4.13   Relationship of personal, socio-situational and   economic factors with conceptual skill

----

I. PERSONAL FACTORS	Correlation coefficient n = 29
1. Education X1	-0.0632
2. Cutflower growing experience X2	0.4879**
3. Attitude towards cutflower growing X3	0.2581
4. Knowledge on cutflowers X4	0.1155
5. Self confidence X5	0.0615
6. Orientation towards competition X6	0.1664
7. Orientation towards skill development in farm workers X7	0.5196**
8. Information seeking behaviour X8	-0.0701
II. SOCIO-SITUATIONAL FACTORS	
1. Operational area X9	0.0556
2. Infrastructural facilities X10	0.2273
3. Extension participation X11	-0.0647
4. Social participation X12	0.0646
5. Mass media exposure X13	-0.1196
III. ECONOMIC FACTORS	
1. Annual income X14	0.4378
2. Credit orientation X15	0.0498

** Significant at 1% level of probability * Significant at 5% level of probability

Fig. CORRELATION BETWEEN DEPENDENT AND INDEPENDENT VARIABLES

| X 15 | | X 1 |

| X 14 | | X 2 |

| X 13 | | X 3 |

| X 12 | **Y** | X 4 |

| X 11 | | X 5 |

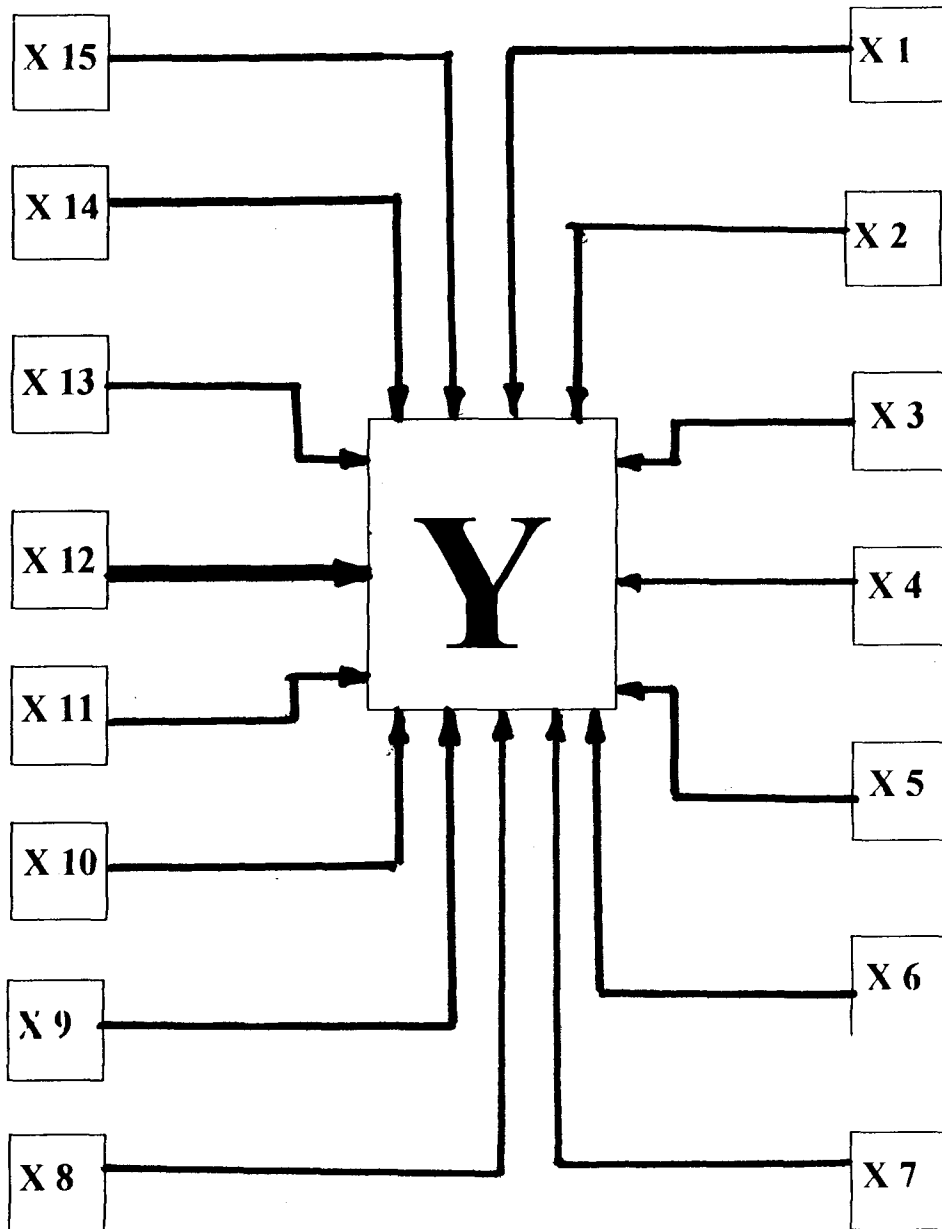| X 10 | | X 6 |

| X 9 |

| X 8 | | X 7 |

Positive and non Significant
Positive and Significant at 1% level
Positive and Significant at 5% level
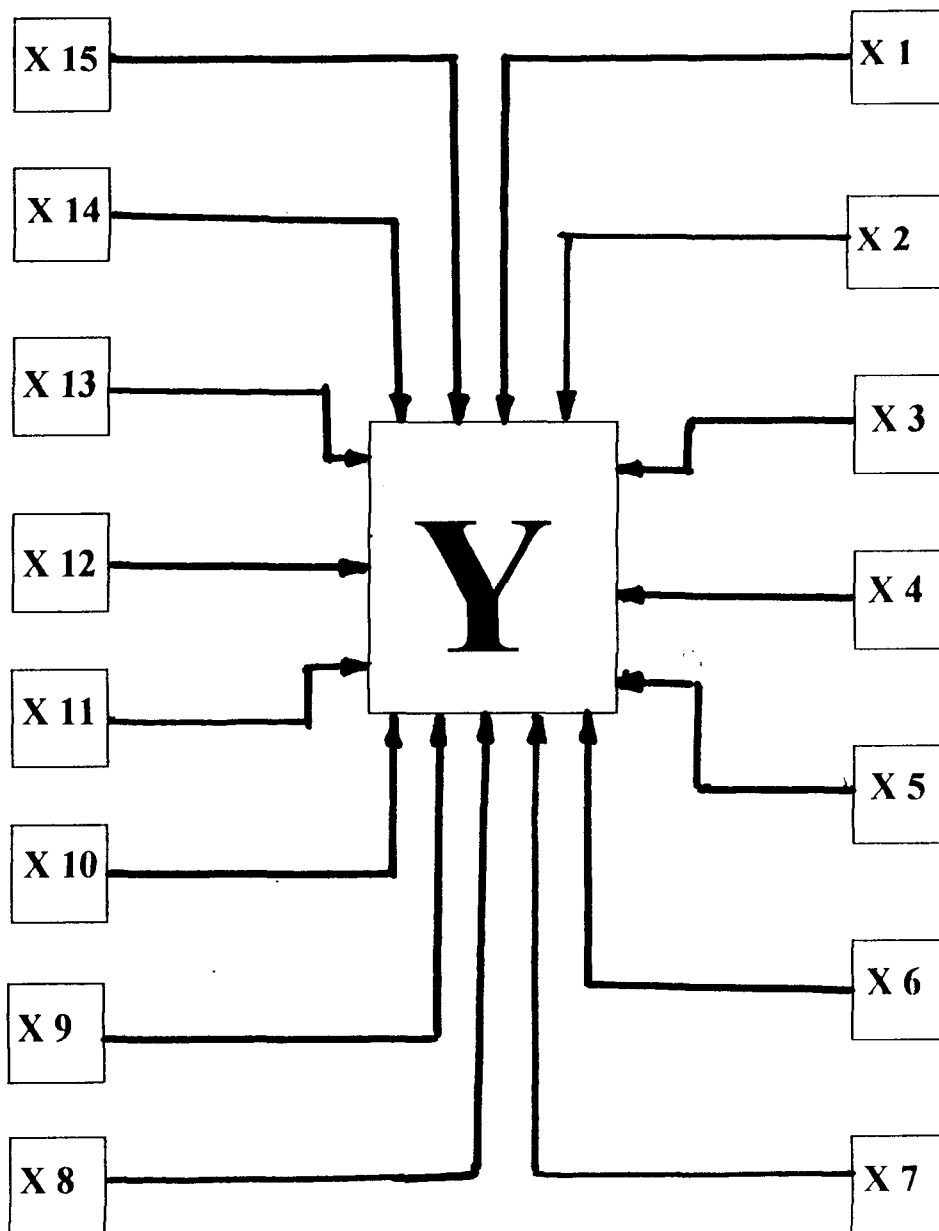Negative and non Significant
Negative and Significant at 5% level

Group n = 29

Table 4.14 Relationship of personal, socio-situational and economic factors with conceptual skill

----

I. PERSONAL FACTORS	Correlation coefficient	n = 41

----

1. Education X1	-0.0146	
2. Cutflower growing experience X2	0.5949**	
3. Attitude towards cutflower growing X3	0.3871*	
4. Knowledge on cutflowers X4	0.4785**	
5. Self confidence X5	0.3057*	
6. Orientation towards competition X6	0.1672	
7. Orientation towards skill development in farm workers X7	0.5590**	
8. Information seeking behaviour X8	0.4807**	

II. SOCIO-SITUATIONAL FACTORS

1. Operational area X9	0.5998**
2. Infrastructural facilities X10	0.0869
3. Extension participation X11	-0.0432
4. Social participation X12	-0.0761
5. Mass media exposure X13	-0.2870

III. ECONOMIC FACTORS

1. Annual income X14	0.0955
2. Credit Orientation X15	0.0434

** Significant at 1% level of probability *. Significant at 5% level of probability

Fig.   CORRELATION BETWEEN DEPENDENT
AND INDEPENDENT VARIABLES

4.2.1.8 Information seeking behaviour

Negative, nonsignificant relationship exists among respondents of Group I and Group IV while positive, nonsignificant relationship exists between this variable and conceptual skill of respondents of Group II. Information seeking behaviour showed positive and significant relationship with conceptual skill of cut flower growers of Group III and Group V at 1 per cent level of significance. Hence the null hypothesis was rejected

4.2.2 SOCIO-SITUATIONAL FACTORS

4.2.2.1 Operational area

Non significant relationship,, positive in the case of respondents of Group I, Group III and Group IV and negative in the case of respondents of Group II exists between operational area and conceptual skill. Operational area showed positive and significant relationship with conceptual skill of respondents of Group V at 1 per cent level of significance. Hence the null hypothesis was rejected.

4.2.2.2 Infrastructural facilities

Infrastructural facilities showed positive, nonsignificant relationship with conceptual skill of cutflower growers of all the groups, viz., Group I, Group II, Group III, Group IV and Group V. Hence the null hypothesis was accepted.

4.2.2.3 Extension participation

Extension participation showed positive, nonsignificant relationship with conceptual skill of respondents of Group II, and Group III. Rest of the respondents of the three groups viz. Group I, IV and V showed negative, non significant relationship between this variable and conceptual skill. Hence the null hypothesis was accepted.

4.2.2.4 Social participation

A nonsignificant relationship exists between this variable and conceptual skill of respondents of all the five groups. The relationship was positive in the case of respondents of Group I, Group II, Group III and Group IV while negative in the case of respondents of Group V. Hence the null

hypothesis was accepted.

4.2.2.5 Mass media exposure

Respondents of Group I and Group III showed positive, nonsignificant relationship and the respondents of Group IV and Group V showed negative nonsignificant relationship between this variable and conceptual skill. A negatively significant relationship at 1 per cent level of significance exists between mass media exposure and conceptual skill of respondents of Group II. Hence the null hypothesis was rejected.

4.2.3 ECONOMIC FACTORS

4.2.3.1 Annual income

Annual income showed negative non significant relationship with conceptual skill of respondents of Group I and   Group III while rest of the respondents in Group II, Group IV and Group V showed positive, nonsignificant relationship between this variable and conceptual skill. Hence the null hypothesis was accepted.

4.2.3.2 Credit orientation

Credit orientation showed negative, non significant relationship with conceptual skill of respondents of Group I and positive,   nonsignificant relationship with   rest of the respondents of Group II, Group III, Group IV and Group V. Hence the null hypothesis was accepted.

4.3 PRODUCTION PRACTICES FOLLOWED BY CUTFLOWER GROWERS

Since there are no standardised practices to follow, cut flower growers carry out production practices following knowledge gained through practical experiences of their own and information from their friends. They also follow information obtained through periodicals on an experimental basis and continued the same if found beneficial. The production practices followed by the respondents were envisaged in the following pages.

4.3.1 ANTHURIUMS

4.3.1.1 Varieties

Invariably all the members are having varietal collection. The farmers did not prefer to produce flowers of 2 or 3 varieties in bulk since the market demand of flowers is fluctuating. However large scale cultivators have different varieties in wider areas. Small scale growers were having great numbers of ordinary varieties. However the popular varieties among the growers include Agnihotri, Liver red, Chilli red, Duke of Edinburgh, Lady Jane, Fla white, Lima white, Kalimpong red, Mauritius orange, Honey moon red etc.

4.3.1.2 Planting

76% of the growers follow pot planting and 14% practices both pot and ground planting. The spacing followed in ground planting is 45 cm feet between rows and plants.

4.3.1.3 Potting medium

A nutritious medium which permits easy circulation of air is preferred for planting orchids. Various types of potting media are used by the growers (Table 4.15).

Table 4.15 Various types of potting media and percentage of growers using them.

Sl.No	Potting media	Percentage of growers
1.	Coarse sand, husk, charcoal and brick pieces	17%
2.	Coconut husk, brick and tile pieces	10%
3.	Coarse sand, charcoal, brick pieces and leaf mould	11%
4.	Coarse sand, coconut husk, charcoal brick pieces and leaf mould	9%
5.	Coarse sand, coconut husk, charcoal and cow dung	6%
6.	Coarse sand, charcoal, bricks and tile pieces	12%
7.	Sawdust, charcoal, brick and file pieces, coconut husk and leaf mould	35%

It could be inferred from the table that majority of the growers (35 per cent) use a potting medium of sawdust, charcoal pieces, bricks and file pieces, coconut husk and leaf mould. 17 per cent of cutflower growers are using coarse sand, husk, charcoal and brick pieces, 12 per cent of growers are using coconut husk, brick and tile pieces. 12, 11, 10, 9 and 6 per cent of growers utilised potting media of `coarse sand, charcoal, bricks and tile pieces', `coarse sand, charcoal, brick pieces and leaf mould', `coconut husk, brick and tile pieces'. `coarse sand, coconut husk, charcoal, brick pieces and leaf mould' and `coarse sand, coconut husk, charcoal and cow dung' respectively.

22 per cent of the growers additionally practised the addition of bone meal (2 teaspoon/pot before planting) to the potting media.

4.3.1.4 Crop management

Since the management practices followed by the growers in anthuriums and orchids are same in the case of nutritional application, plant protection measures and harvesting, they are described after briefing the varieties and planting of orchids.

4.3.2 Orchids

4.3.2.1 Varieties

Monopodial and sympodial species and varieties of orchids are available for planting. Growers are preferring varietal collection. However hybrids of Dendrobium species are having a great demand among the growers for production.

4.3.2.2 Planting

Monopodial orchids are planted in pots or in trenches filled with `coconut husk alone' or `coconut husk and charcoal pieces' and `coconut husk, charcoal and brick pieces'. Table 4.16 depicts the type of planting media practised by the growers for growing monopodial orchids.

Table 4.16 Type of media and percentage of grower using it (Monopodial orchids)

Sl.No.	Type of media	Percentage of growers
1.	Coconut husk alone	66
2.	Coconut husk and charcoal	25
3.	Coconut husk, charcoal pieces and brick/tile pieces	10

It could be inferred from the table 4.16 that 66 per cent of the growers plant monopodial orchids in coconut husk pieces, 24 per cent in coconut husk pieces and charcoal pieces and 10 per cent in coconut husk pieces, charcoal pieces and bricks/tile pieces. Large scale cultivators plant monopodial orchids in trenches while small scale growers in pots and in trenches.

Hybrids of Dendrobium species are very widely grown for commercial scale. The plants are grown in pots on benches or in hangers . Table 4.17 depicts the type of potting media.

Table 4.17 Type of media and percentage of growers using the same (Sympodial orchids)

Sl.No.	Type of media	Percentage of growers
1.	Charcoal pieces alone	58
2.	Charcoal and tile pieces	18
3.	Charcoal and coconut husk	13
4.	Charcoal, tile pieces and coconut husk	11

Regarding the potting of sympodial orchid 58 per cent uses charcoal pieces alone as potting media, charcoal and tile pieces by 18 per cent, charcoal and coconut husk pieces by 13 per cent

and charcoal, tile pieces and coconut husk by 11 per cent.

4.3.3 CROP MANAGEMENT PRACTICES OF ANTHURIUM AND ORCHID

Crop management considered in this study includes application of organic manures and fertilizer and pp chemicals. Harvesting is also considered. Respondents of all societies have production of both orchids and anthuriums. They follow same manurial and ppc application to orchids and anthurium. Hence crop management of both crops were considered combinedly.

4.3.3.1 Organic manure application

Various types of organic manure preparation is utilised by the cut flower growers for manuring orchids. Table 4.18 depicts the type of manure, interval of application, percentage of growers using it.

Table 4.18 Type of manures and percentage of growers using them

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Sl. No.	Type of manure	Percentage of growers
1.	No organic manure	2
*2.	Cow dung	3
*3.	Cow dung and poultry manure	4
4.	Groundnut (fermented solution)	23
5.	Groundnut and neem cake (fermented solution)	61
6.	Groundnut, neemcake and cow dung	5
7.	Solution prepared by composting glyricidia leaves	2

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* Fresh cowdung slurry is prepared and supernatant solution is used for spraying anthuriums while dried cow dung is used for orchids.

Cow dung and poultry manure is applied as such. Diluted solution of groundnut and neemcake are used after fermentation, from over night soaking to 4 days soaking.

From the table 4.18 it could be inferred that majority of the growers uses groundnut and neem cake (61 per cent), 23 per cent uses groundnut alone. 5 per cent is using groundnut, neemcake and cow dung. 4 per cent is using cow dung and poultry manure. 3 per cent uses cow dung alone and 2 per cent uses solution prepared by fermenting glyricidia leaves. 2 per cent was not using any organic manure.

4.3.3.2 Application of chemical fertilizers

Majority of the growers followed application of chemical fertilizers. Table 4.19 depicts the nature and type of fertilizer application.

Table 4.19 Type of fertilizers and percentage of growers using them

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Sl.No.	Fertilizer	Percentage of growers
1.	No fertilizer	2
2.	17:17:17 Complex + Potash	2
3.	19:19:19 Complex	3
4.	17:17:17 Complex	93

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*Rate 2 g per litre of water

It could be inferred from the table 4.19 that 93 per cent of the growers apply 17:17:17 complex while 3 per cent was 19:19:19 complex. A mixture of 17:17:17 complex and potash is used by 2 per cent of the growers. 2 per cent of the growers have not practised chemical fertilizer application.

Table 4.20 Interval of application of organic manure and fertilizer and percentage of growers following the practice

Sl.No.	Interval of application	Percentage of growers
1.	Occasionally	3
2.	Once in a week	14
3.	Once in 10 days	31
4	Once in two weeks	35
5.	Once in a month	15
6.	No application	2

With regard to interval of application of organic manures and fertilizers it could be inferred that 35 per cent of the growers apply manures and fertilizers once in two weeks, 31 per cent once in 10 days, 15 per cent once in a month, 14 per cent once in a week and 3 per cent occasionally. 2 per cent is not using any fertilizers.

In addition 20 per cent of the growers use greencare foliar spray once in a month and 22 per cent are using sterameal once in a month in addition to organic manure and chemical fertilizer application. Majority of the growers, ie. about 51 per cent applied manures and fertilizers alternatively. 47 per cent applied manures and fertilizers togetherly.

4.3.3.3 Plant protection

Pests and diseases are not a serious problems in orchids and anthuriums. Even though the growers are invariably following plant protection measures. Table 4.21 depicts the name of chemicals and interval of application to orchids and anthuriums.
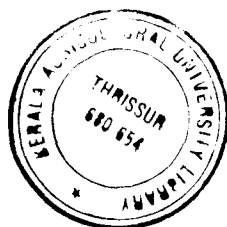
Table 4.21 The chemicals, interval of application and percentage of growers using it

Sl.No.	Name of chemical	Interval of application	Percentage of growers
1.	Dithane M-45 (2 g/litre)	Once in a week	66
		Fortnightly	28
		Once in a month	20
		Occasionally	6
2.	Malathion (2 ml/litre)	Once in a week	66
		Fortnightly	28
		Once in a month	20
		Occasionally	6

Usually the interval of application is reduced during rainy seasons due to the high incidence of pests and diseases. It could be inferred that pp chemicals were applied `once in a week' by 66 per cent of the growers, 28 per cent `once in a fortnight', 20 per cent `once in a month' and 6 per cent `occasionally'.

4.3.3.4 Harvesting

Majority of the small scale growers harvest flowers only if there is demand. Large scale growers cut the flowers according to specification for marketing, according to availability and consignment. Flowers are harvested in the early morning or late evening.

4.4 MARKETING CHANNELS UTILISED BY THE CUT FLOWER GROWERS

After discussion with various cut flower growers six marketing channel were identified. The quantum of flower marketed by the respondent was categorised into four groups (upto 25 per cent, 26 to 50 per cent and 51-75 per cent and more than 75 per cent). The frequenzy of members utilising each

channel and each quantum category was then worked out to arrive at the final score to find out the efficient channel of marketing.

Table 4.22 Percentage distribution of growers utilising various marketing channels and quantum of flower marketed by the cutflower growers

Channel No.	Name of the channel	Quantum of flower marketed			
		Upto 25	26-50	51-75	> 75
I.	Producer --- Consumer	47			5
II.	Producer --- Florishop				4
III.	Producer --- Collection Centre --- Consumer			23	18
IV.	Producer --- Collection Centre --- florishop --- Consumer			22	23
V.	Producer --- Commission agent --- Florishops --- Consumer				2
VI.	Producer --- Collection centre --- Commission --- agent --- florishop --- consumer			2	1

With regard to the data in table 4.22 it could be inferred that 47 per cent of the cutflower growers marketed their produce by combined utilisation of I channel with III, IV and VI channel. Upto 25 per cent of cut flowers are marketed by this group through the I channel of `producer - consumer'. 50-75 per cent of cutflowers are marketed through `producer - consumer' (23 per cent), `producer - collection centre - florishop - consumer' (18 per cent) and `producer - collection centre - commission agent - florishop - consumer' (2 per cent). 53 per cent of the cutflower growers market more thn 75 per cent of their produce utilising all the 6 channels from I to VI. The percentage of cutflower growers using these channels are 5 per cent, 4 per cent, 18 per cent, 23 per cent, 2 per cent and 1 per cent through channels from I to VI respectively.

4.5 CONSTRAINTS PERCEIVED BY THE CUTFLOWER GROWERS

Constraints perceived by the cutflower growers were categorised into production, technological and marketing.

4.5.1 PRODUCTION CONSTRAINTS

With regard to the data in table 4.23 it could be observed that `high price of planting materials' was ranked first with a score of 243. `Less availability of new varieties' `less availability of quality planting materials and `difficulty in availing institutional credit' were given 2nd, 3rd and 4th rank with scores 381, 398 and 432 respectively. `Only out dated varieties are available for growing', `lack of large scale multiplication centres', `high incidence of pests and diseases', `difficulty in identification of pests and diseases' and `high cost of plant protection chemicals' were ranked 5 to 9 with scores 544, 604, 647, 666 and 674 respectively.

Table 4.23 Production constraints perceived by growers

Sl.No.	Items	Score	Rank
1.	Less availability of quality planting materials	398	III
2.	High price of planting materials	243	I
3.	Only outdated varieties are available for growing	544	V
4.	High incidence of pest and diseases	647	VII
5.	High cost of plant protection chemicals	674	IX
6.	Difficulty in identification of pest and diseases	666	VIII
7.	Difficulty in availing institutional credit	432	IV
8.	Less availability of new varieties	381	II
9.	Lack of large scale multiplication centres	604	VI

4.5.2 TECHNOLOGICAL CONSTRAINTS

A glance at table 4.24 revealed that the major technological constraint is `no standardised practices to follow' followed by `lack of research for developing new varieties' and `high initial investment on infrastructure' with 264, 274 and 276 respectively. 4th and 5th rank were given to `lack of technical expertise' and `absence of practical training with scores 302 and 316 respectively.

Table 4.24 Technological constraints perceived by growers

Sl.No.	Items	Score	Rank
1.	Absence of practical training	316	V
2.	High initial investment on infrastructure	276	III
3.	No standardised practices to follow	264	I
4.	Lack of research for developing new varieties	274	II
5.	Lack of technical expertise	302	IV

4.5.3 MARKETING CONSTRAINTS

Data in table 4.25 revealed that the severe constraint is `inability of small growers to find market' closely followed by `unorganised marketing channel' with scores of 256 and 261 respectively. `Unhealthy competition among growers' and `lack of co- ordination among florists' were ranked 3rd and 4th with scores 317 and 352 respectively. `Existence of institutional buyers only', `Insufficient cold storage facilities from production centres to consumer points', `marketing of planting materials through false publicity' and high price of flowers' were 4 to 8 with scores 563, 603, 615 and 661.

Table 4.25 Marketing constraints perceived by growers

Sl.No.	Items	Score	Rank
1.	Lack of co-ordination among florist	352	IV
2.	Unhealthy competition among growers	317	III
3.	High price of flowers	661	VIII
4.	Marketing of planting materials through false publicity	615	VII
5.	Unorganised marketing channel	261	II
6.	Inability of small growers to find market	256	I
7.	Existence of institutional buyers only	563	IV
8.	Insufficient cold storage facility from production centres to consumer points	603	V

DISCUSSION

5 . DISCUSSION

The results obtained in this study are discussed and interpreted in this chapter under the following sections.

5.1   Conceptual skill of cutflower growers.

5.2   Relationship of the conceptual skill and personal, socio situational and economic factors.

5.3   Production technology of cutflowers (Orchids and Anthurium), practised by growers.

5.4.   Marketing channels utilised by cut flower growers.

5.5   Constraints perceived by cutflower growers.

5.1   CONCEPTUAL SKILL OF CUTFLOWER GROWERS

5.1.1. Relative contribution of dimensions towards conceptual skill

The results of table 4.1 to 4.9 were discussed below.

The results revealed that, regarding conceptual skill, majority of the growers belong to the low group. This might be due to the lack of business eye for attaining profit from cutflowers. Majority of the growers remains as hobbyists while a few farmers were interested in cutflower production on a commercial basis.

Majority of the growers belonged to the low groups in the dimensions namely planning, decision-taking ability and market perception. The above reason could substantiate this finding also.

With regard to distribution of growers in various dimensions, majority of the growers belonged to the high groups in the dimensions namely risk orientation and supervision. Even when the growers were having hobby of collection of orchid and anthuriums they were paying high prices for the planting materials and shade nets. These might have forced them to have a favourable mind towards risk orientation and supervision.

Regarding the contribution of dimensions towards conceptual skill, decision making ability contributed the highest share of 28.88 per cent. Decision-taking has a crucial role in managing any enterprise. The result is in confirmity with the findings of Olsson (1989) and Singh (1972).

The second share towards conceptual skill was given by supervision (22.84 per cent). Supervision of various operations in the farm lead to better efficiency and there by better profit. The result has derived support from similar studies of Chatterjee (1983), Chari and Nandapurkar (1987) and Turner and Taylor (1989).

Risk orientation has contributed around 21 per cent towards conceptual skill. Risk taking behaviour manifests a healthy mind which in turn will induce the decision-taking on various aspects of crop enterprise. The finding is in concurrence with Kahlon and Singh (1980), Kay (1981) and Varma (1985).

Market perception contributed about 13.96 per cent towards conceptual skill. An awareness regarding the marketability of the produce, its demand and supply, price fluctuations etc. mainly contributes to the proper functioning of any enterprise. The finding is in concurrence with Samantha (1977), Buckett (1981) and Anantharaman (1991).

Planning contributed about 13.76 per cent towards conceptual skill. Planning helps to `plan the work' which leads to `work the plan' for attaining better results. The finding derived support from the studies of Newmann and Warren (1977) and Nagaraja (1989).

5.1.2. Comparison of dimensions of conceptual skill

The results from table 4.1 to 4.9 were discussed below

5.1.2.1 Planning

The results revealed that majority of the growers irrespective of all the five groups belonged to high group and there was no significant difference among the five groups in their planning ability. However the mean score was very low. This might be due to the general trend in the growth of cutflower production in the district. Majority of the growers were having small areas under cutflower

production which requires only less planning efforts. More over the growers remain as hobbysts instead of commercialising the farm.

5.1.2.2 Risk orientation

Regarding risk orientation, the growers showed nonsignificant difference among the five groups. Majority of the growers belonged to the high group. This might be due to the common nature of problems propping up during cutflower production. The growers are more or less equally oriented towards hurdling the risks and were successful. Moreover the operational area is small which permits only few risks, which the growers usually handle easily.

5.1.2.3 Decision-taking ability

The result revealed that a significant difference exist among the members of Group I and Group IV while rest of the members of Group II, Group III and Group V in decision making ability with Group IV. Majority of the growers of Group II, Group III, Group IV and Group V belonged to high group. The significant difference might be due to the difference in area of operation. Majority of the growers in Group IV has a higher area and have higher experience in this field while respondents in Group I are small growers with less experience.

5.1.2.4 Supervision

Majority of the growers of all the groups belonged to the high group. There was no significant difference among the growers of the five groups. This might be due to the general behaviour followed in care and maintenance of plant by the growers. The highly priced plants are cherished by all the growers.

5.1.2.5 Market perception

Majority of the growers belonged to the high groups except Group IV. However there was no significant difference among the market perception of the respondents of the groups. This might be due to the nature of marketing of cutflowers in the district. Majority of the growers themselves find market to their produce, however sometimes at low price. Collection centres also render help in the

sale of cutflowers.

5.2 RELATIONSHIP OF CONCEPTUAL SKILL AND PERSONAL, SOCIO- SITUATIONAL AND ECONOMIC FACTORS

Results presented in table 4.10 to 4.14 are discussed below.

5.2.1 Personal factors

5.2.1.1 Education

With regard to education, there was no significant relationship with conceptual skill of the five groups of cut flower growers. Success of farm enterprise depends on acquisition of certain basic skills in decision taking, market perception etc. which were not taught in a formal education system. The growers acquire these skills through experience and practice. This could be the reason for the non significant relationship between education and conceptual skill. The findings derived support from the studies of Desai (1981) and Anantharaman (1991).

5.2.1.2 Cutflower growing experience

Cutflower growing experience of the cut flower growers in group III, IV and V were found to have positive and significant relationship with their conceptual skill. This might be due to the fact that practice makes man perfect. Experience is a worldly wisdom which help human beings to study from faults and to adjust the activities to get valid/authentic results. This finding was supported by Bora and Ray (1986), Nagaraja (1989) etc.

5.2.1.3 Attitude towards cutflower growing

With regard to attitude towards cutflower growing showed a positive and significant relationship with conceptual skill of the growers of group II, III and V. Attitude plays a crucial role in determining the behaviour of human beings. The results of preponderant `KAP' (Knowledge, Attitude and Practice) studies on diffusion of agricultural innovations (Rogers, 1983) and the myriad experiments on cognitive, affective and cognitive components in explaining man's behaviour could be drawn to establish the cause-effect relationship between attitude and behaviour. The finding though not similar is

in confirmity with Anantharaman (1991) and Alex (1994).

5.2.1.4 Knowledge on cutflowers

Knowledge on cutflowers was found to have a positive and significant relationship with the conceptual skill of three groups of respondents except group I and IV.

Knowledge is an inevitable prerequisite input for productive management of any crop enterprise. The factual information might have motivated the cutflower growers for the execution of action in various functional areas of production and marketing. The finding derived support from the studies. Chari and Nandapurkar (1987) and Bora and Sagar (1989).

5.2.1.5 Self confidence

A glance at the table 4.10 to 4.14 showed that the relationship with conceptual skill was positive and significant for group V only. It might be the fact that the growers were having a feeling of consciousness of reliance on oneself or one's circumstances, which would be reflected in their abilities of decision making, supervision, execution etc. Their self confidence also help them to face any hurdles which might arise on their path of functioning. This finding derived supported by the study of Rao (1981) and Sumathy (1987).

5.2.1.6 Orientation towards competition

There exists a nonsignificant relationship between orientation towards competition and conceptual skill of growers of all the five groups. Farmers with high competition orientation usually desire extrinsic concomitants for their symbolic value namely, prestige, power and self esteem for demonstrating their success rather than four their material value. On the contrary, a material value of good profit is important for growers which may not always satisfy symbolic values. Hence growers who really aim at making better profit may not fall into the trap of mere attainment of symbolic values. This might be the reason for the nonsignificant relationship between this variable and conceptual skill. The results were in concurrence with the studies of Anantharaman (1991).

5.2.1. 7 Orientation towards skill development in farm workers

A bird's eye view on the table 4.10 to 4.14 revealed that this variable showed a positive and significant relation with conceptual skill of the growers of group III, IV and V, and non significant relationship with growers of I and II, positive and negative respectively. The efficient use of labour is a basic issue with farm management. Labour efficiency plays a vital skills in production are induced and developed in farm workers they will take more interest in farm operation which in turn will increase the production. This might be the reason for observing such a relationship of this variable with conceptual kill. This finding was in concurrence with the findings of Padmanabhan (1981) and Sagar and Ray (1986).

5.2.1.8 Information seeking behaviour

Information seeking behaviour showed a positive and significant relationship with conceptual skill for group III and V. This might be due to the fact that the information. Obtained from various sources could be utilised for the adjustment of activities of the growers. The information concerning production techniques, marketing aspects, credits etc. will help him to take appropriate decision. The finding was in confirmity with that of Tyagi and Sohal (1984) and Dudhani *et al.* (1987).

5.2.2 Socio-situational factors

5.2.2.1 Operational area

This variable showed positive and negative non-significant relationship between operational area and conceptual skill of cutflower growers of the groups. The non significant relationship might be due to the negligible area they possess under cutflower production. Majority of the growers have not commercialised their farm and are more interested in varietal collection. This is probably the first study conducted in the case of cutflower growers hence the study could not derive support from any of the research findings.

5.2.2.2 Infrastructural facilities

A bird's eye view on the table 4.10 to 14 revealed that this variable showed a non significant relationship with the conceptual skill of cutflower growers of the five groups. A strong network of infra structural facilities in terms of agencies for the supply of planting materials, Fertilizers, plant protection equipments and chemicals, available in the district is, however, not provide guarantee to the use of these infrastructural facilities by them because these facilities have little relevance to the growers. The finding secured support from the studies of Al-Mogal (1985) and Anantharaman (1991).

5.2.2.3 Extension participation

The variable showed nonsignificant both positive and negative relationship, on the conceptual skill of the cutflower growers of the five groups. An analysis on the current content of various extension programmes would reveal that they mainly concentrate on dissemination of information regarding production technologies and there is a dearth of management content in the extension programme at present. This may probably be the reason for the non-significant relationship of this variable on conceptual skill. This finding is in concurrence with Baadgoankar (1983), Reddy and Reddy (1988) and Anantharaman (1991).

5.2.2.4 Social participation

It is quite surprising in this study that social participation to have nonsignificant contribution to the conceptual skill of cutflower growers, the respondents being the members of cutflower groups. Various social organisations with which the farmers associate themselves might not have acted as a suitable platform for the exchange of ideas on management of cutflower enterprise. Rather, they serve the purpose of discussing prospects and problems of cutflower production than production aspects. Probably this might be the reason for the nonsignificant relationship of this variable on the conceptual skill of cutflower growers. The finding secured support from the studies of Anantharaman (1991).

5.2.2.5 Mass media exposure

Mass media exposure showed a non significant relationship both positive and negative on the conceptual skill of cutflower growers of the 4 groups except group II. Group II showed a significant negative relationship between mass media exposure and conceptual skill of cutflower growers. The significant negative relationship might be due the little relevance given to the information disseminated through mass media. Rather they might find the information usually disseminated restricted to production technology alone and not on management aspects. The finding received support from the studies of Anantharaman (1991).

5.2.3 Economic factors

5.2.3.1. Annual income

This variable showed a non significant relationship with conceptual skill of the cutflower growers of all the groups. Actually the growers belonged to a high income group. The nonsignificant relationship might be due to the fact that the growers contribute only a small share on cutflower growing. Moreover the high price of quality planting materials restrict them from expanding the farm. The finding though not similar is in confirmity with Porchezian (1991).

5.2.3.2 Credit orientation

A nonsignificant relationship, both positive and negative was found between credit orientation and conceptual skill of cutflower growers. The non significant relationship might be due to the procedural difficulties in availing loan from credit institutions. This finding secured support from the studies of Nandakumar (1988) and Jaleel (1992).

5.3 Production practices followed by cutflower growers

5.3.1. Anthuriums

5.3.1.1 Varieties

Growers were having varietal collections. Most of the varieties are the recommended ones suitable to Kerala's climate. Kerala Agricultural University (1993).

5.3.1.2 Planting

Spacing followed in ground planting is 45 cm, between rows and plants. The finding is in concurrence with the recommendation of Mercy and Dale (1994).

From the data in table 4.15 it could be inferred that majority of the anthurium growers are using potting media of sawdust, charcoal, brick and tile pieces, coconut husk and leafmould. The recommendations by Kerala Agricultural University (1993) and Mercy and Dale (1994) showed that the potting media should be porous providing maximum aeration and anchorage to the plant with sufficient conservation of moisture. Thus all the respondents are using suitable materials as potting media. The experience in field situation and information attained through friends, periodicals etc. might have enabled the growers for the selection of such a potting media and the benevolent results might have induced the growers to follow the potting media of sawdust, charcoal, brick and tile pieces, coconut husk and leaf mould.

Ground planting of anthuriums followed a spacing 45 cm between rows and plants.

5.3.1.3 Organic manure application

Regarding the organic manure application, diluted solution of fermented groundnut and neem cake is applied to anthuriums. Majority of the growers apply manures once in a fortnight. The growers strongly believe that the application of organic manure application helps in the proper and healthy growth and early flowering of anthuriums.

5.3.1.4 Chemical fertiliser application

Majority of the growers apply 17:17:17 complex fertiliser to plants. Interval of application is once in a fortnight. The growers believe that 17:17:17 complex has benevolent results on the growth and flowering of plants.

Actually the growers have no standardised practices recommended by research institutes to follow and the growers carryout the crop practices of fellow farmers.

5.3.2 Orchids

5.3.2.1 Varieties

Growers were having both monopodial and sympodial orchids. Dendrobium species (Sympodial) is the popular variety since the market demand is high for these flowers.

Regarding the data in table 4.17 it could be inferred that majority of the growers are planting monopodial orchids in dried coconut husks alone and this result is in concurrence with the adhoc recommendation of Kerala Agricultural University. Majority of the growers planted sympodial orchids in charcoal pieces alone and the result though not similar is in confirmity with adhoc recommendations of Kerala Agricultural University (1993).

5.3.2.2 Application of organic manure

A glance at table 4.18 revealed that majority of the growers are using groundnut and neemcake fermented solution for manuring both type of orchids and anthuriums. The results though not similar is in confirmity with the view of Bose and Bhattacharjee (1980) in the case of orchids.

5.3.2.3 Application of chemical fertilisers

The results revealed that the growers are indiscriminately applying chemical fertilisers to orchids and anthuriums.

The data in table 4.19 revealed that majority of the growers apply 17:17:17 complex to the plants. The results though not similar could be considered in concurrence with that of adhoc recommendation of Kerala Agricultural University (1993).

Regarding interval of application, majority of the growers applied fertilisers once in two weeks to anthuriums and orchids. No studies supported this result.

In a nut shell, the results focus the indiscriminate use of chemical fertilisers and plant protection chemicals. The indiscriminate use of fertilisers and plant protection chemicals is mainly due to the lack of standardised practices formulated by the research institute for orchids and anthuriums to be followed by the growers. Even though research studies are going on, the results has not been

disseminated to the growers. Moreover the growers are unaware of the correct practices in the case of pest and disease management.

5.4 Marketing channels utilised by cutflower growers

From the table 4.20 it could be inferred that majority of the cutflower growers market their produce using all the six channels. The results revealed that the most important channel utilised by the cutflower growers are channel IV and channel III, 'producer--collection centre—flori shop--consumer' and 'producer--collection centre--consumer' respectively. The reason might be the fact that the major floricultural societies in the study area was functioning as collection centres for the collection and sale of flowers. Few individual growers also have collection centres of their own and they collect flowers from fellow farmers. These collection centres supply flowers either directly to consumers or through flori shops to consumers.

5.5 CONSTRAINTS PERCEIVED BY THE CUTFLOWR GROWERS REGARDING PRODUCTION, TECHNOLOGY AND MARKETING

5.1.1 Production constraints

The results revealed that in cutflower production the major constraints perceived by the cutflower growers are high price of planting materials, low availability of new varieties, less availability of quality planting materials, low availability of new varieties, less availability of quality planting materials and difficulty in availing institutional credit. It is clearly evident that the major constraint is related with planting materials.

Planting materials even though available in the nurseries and farms, due to their high demand sellers usually quote higher prices even to the outdated varieties.

Large growers usually export quality planting materials, including new hybrid varieties, which they multiply and grow in their farms alone. Supply of planting materials from these farms are low while the price charged is very high. Thus a dearth of quality planting materials of new varieties is severely experienced by cutflower growers, particularly small growers.

This finding is in conformity with Pandey (1991), Singh (1994). This finding though not similar is in confirmity with Hew (1989).

Difficulty in availing institutional credit is another major problem faced by growers. Banks are reluctant to give loans since they suspect the feasibility of the project. Even if the credit institutions are ready to lend loans they suffocate growers with numerous office procedures and the growers normally refuse to avail the loan opportunity. This finding is in line with the findings. Agriculture and Industry Survey (1991-92), Pandey (1994), Sindhu (1995).

The other production constraints in the order of importance were 'only outdated varieties are available for growing', 'lack of large scale multiplication centres', 'high incidence of pests and diseases', 'difficulty in identification of pests and diseases' and 'high cost of plant protection chemicals'. However, these were assigned only lower scores by the growers.

5.5.2 Technological constraints

The major technological constraints experienced by the growers are 'no standardised practices to follow', 'lack of research for developing new varieties and 'high initial investment on infrastructure.

The non-availability of scientifically recommended crop practices force the growers to experiment on whatever information they get on cutflower production practices. Hence the growers are not able to accrue better profit from their plants.

'Lack of research for developing new varieties' was experienced as the second major technological constraint. This might be due to the fact that the cutflower varieties grown here are not export oriented, quality plants. The flowers have internal market, for cutflowers, researchers should give an immediate attention for developing new varieties. The finding though not similar is in confirmity with Uppal (1994).

'High initial investment on infrastructure' was another problem perceived by the growers. Eventhough the climate in Thiruvananthapuram is conducive for the growth of orchids and anthurium,

many growers practice practice gardening and for this they require specially made shade nets, concrete benches, terraces, wooden basket etc. which require a high investment initially. This might have been the reason for the respondents to report this as an important constraint. The finding though not similar is in confirmity with Rao (1990) and Pandey (1994).

The other technological constraints perceived by the growers are 'lack of technical expertise' and 'absence of practical training. These were given lower ranks by the respondents.

5.3.3 Marketing constraints

The major constraint perceived by the respondents in relation to marketing was 'inability of small growers to find market'. Majority of the small growers experienced this as a major constraint as their produce was taken by the collection centre and florishops as and when they require only. When the growers were having flowers for sale collection centres and flori shops were reluctant to collect since they were having sufficient collection for their daily/weekly consignment, thus depriving the growers fare price. The collection centres/flori shops are reluctant to get the flowers since the market demand and supply was fluctuating.

'Unorganised marketing channel' was another problem expressed by the growers. The growers are unable to find market by themselves. They sell their produce to whoever need flowers. They are unable to have an agreement with any of the collection centre/florishop for marketing their flowers even the price varies with collection centres and florishops. Because of this existing situations the respondents could have given this one of the problems. This findings is in confirmity with Uppal (1994).

'Unhealthy competition among growers' was yet another constraint. As a part of sale of flowers, the growers will sell the produce at a low price than the market price so as to get his produce disposed. This causes a disinterest in other growers and they again reduce the price. This lack of co-operation among the farmers could have led to this as a major problem.

'Lack of co-ordination among florists' was experienced as a major constraint by the respondents. The growers refuse to have a consensus with other growers so that they could sell their

produce at a reasonable fixed price to the collection centre/florishop. Actually florishops and collection centres fix the price of the flowers and some times deprives the growers a reasonable price. The growers sell their produce at lower rates than the fixed price so that their flowers are sold out at the earliest. This lack of co-ordination deprives fair price to themselves.

The other marketing constraints perceived by the growers were `existence of institutional buyers only', `insufficient cold storage facilities from production centres to consumer points', `marketing of planting materials through false publicity' and `high price of flowers'. However, these were assigned only lower ranks by the respondents.

Fig . 8   EMPIRICAL MODEL OF SYUDY

CONCEPTUAL SKILL OF CUTFLOWER GROWERS

- **GR 1** — (blank)
- **GR 2** — Attitude towards cut flower growing ,knowledge on cut flowers,massmedia exposure
- **GR 3** — Cutflower growing experience ,Attitude towards cutflower growing, knowledge on cutflowers, orientation towards skill development in farm workers, information seeking behaviour
- **GR 4** — Cutflower growing experience, Orientation towards skill development in farm workers
- **GR 5** — Cutflower growing experience , Attitude towards cutflower growing, knowledge on cutflowers, Selfconfidence, orientation towards skill development in farm workers, information seeking behaviour, Operational area

SUMMARY

6. SUMMARY

Floriculture is gaining momentum in the export scenario as well as in the internal market. National Horticultural Board has identified Thiruvananthapuram as the product specific zone for intensive floriculture for orchids and anthuriums. The land and climate are conducive for the growth of orchids and anthuriums. Few individual growers and few societies are handling the monopoly of this trade. Many of the growers are obtaining big profit from sale of cutflowers. However a study regarding the skill and efficiency of cutflower growers and their personal, socio-situational and economic factors has not been conducted earlier. The marketing channels existing between the producers and consumers has not been studied yet. The constraints limiting their performance has also not yet been studied. Information on these aspects is necessary for the technocrats to create suitable strategies and programmes to boost up cutflower production. Considering the above factors the present study was undertaken with the following objectives.

6.1 Objectives

6.1.1 To delineate the components of conceptual skill and to measure the conceptual skill of growers.

6.1.2 To study the relationship of personal, socio-situational and economic factors with the conceptual skill of growers.

6.1.3 To study the production practices of cutflowers followed by the growers.

6.1.4 To identify the different marketing channels existing in cutflower marketing in consultation with the growers.

6.1.5 To identify the constraints related to cutflower production and marketing as perceived by growers.

6.2 Methodology

The study was undertaken in Thiruvananthapuram district considering the cutflower societies functioning in the district. Five societies were selected which included Kerala Orchid Society, Anthurium Growers Society, AVT Vanitha Orchid Club, Kerala Agri Horticultural Society and Kerala Cutflower Producers Society. Stratified random technique with proportionate sampling procedure was adopted for the selection of respondents. Respondents were randomly selected avoiding duplication. Finally 100 growers were selected.

The dependent variable for the study was conceptual skill of cutflower growers. Based on review of literature and opinion of judges five factors were identified as the dimensions of conceptual skill. The dimensions were planning, risk orientation, decision taking ability, supervision and market perception. Each of these dimensions were measured with the help of available scales after making suitable modifications. Score on each dimension was converted to standard score by the method of percentage analysis and added together to get the final score of conceptual skill. 15 independent variables (personal, socio situational and economic factors of cutflower growers) viz. education, cutflower growing experience, attitude towards cutflower growing, knowledge on cutflowers, self confidence, orientation towards competition, orientation towards skill development in farm workers, information seeking behaviour, operational area, infrastructural facilities, extension participation, social participation, mass media exposure, annual income and credit orientation were selected based on judges relevancy rating to find out the influence of these variables on conceptual skill of cutflower growers. Attitude towards cutflower growing and knowledge on cutflowers were measured by developing scales and the rest of the independent variables were measured with the help of available scales. The data was collected using a pre tested and structured interview schedule during July-August. The statistical tools used were mean, percentage, Kruskal-Wallis one way analysis of variance and simple correlation analysis. The salient findings of the study were as follows.

6.3 Findings

6.3.1 The dimension-wise contribution towards conceptual skill of cutflower growers on the whole revealed that higher contribution is provided by decision -taking ability followed by supervision and risk orientation.

6.3.2 The analysis of the overall conceptual skill of the cutflower growers indicated that minority of the cutflower growers had high in conceptual skill.

6.3.3 The dimension-wise analysis with respect to the cutflower growers on the whole revealed that majority of them fall under the category of high group in the dimensions of risk orientation and supervision. Majority of them fall under the low group in the dimensions of planning, decision-taking ability and market perception.

6.3.4 The Kruskal-Wallis one way analysis of variance indicated that there was high significant difference among growers of various groups in their decision-taking ability and planning.

6.3.5. The distribution and comparison wise analysis of various groups based on planning revealed that all the groups belonged to high group.

6.3.6 The distribution and comparison wise analysis of various groups based on risk orientation revealed that all the groups belonged to high group.

6.3.7 The distribution and comparison wise analysis of various groups based on decision taking ability revealed that majority of the groups belonged to the high group except group I.

6.3.8 The distribution and comparison wise analysis of various groups based on supervision revealed that all the groups belonged to high group.

6.3.9 The distribution and comparison wise analysis of various groups based on market perception revealed that all the groups belonged to high group except group IV.

6.3.10 The correlation analysis between conceptual skill and independent variables revealed that none of the variables correlated with conceptual skill of cutflower growers of group I.

6.3.11 The correlation analysis between conceptual skill and independent variables revealed that

attitude towards cutflower growing and knowledge on cutflowers were positively and significantly correlated and mass media exposure was negatively and significantly correlated with conceptual skill in the case of respondents of group II.

6.3.12 The correlation analysis between conceptual skill and independent variables revealed that cutflower growing experience, attitude towards cutflower growing, knowledge on cutflowers, orientation towards skill development in farm workers and information seeking behaviour were significantly correlated with conceptual skill in the case of respondents of group III.

6.3.13 The correlation analysis between conceptual skill and independent variables revealed that cutflower growing experience and orientation towards skill development in farm workers were correlated significantly in the case of respondents of group IV.

6.3.14 The correlation analysis between conceptual skill and independent variables revealed that cutflower growing experience, attitude towards cutflower growing, knowledge on cutflowers, self confidence, orientation towards skill development in farm workers and information seeking behaviour and operational area were correlated significantly in the case of group V.

6.3.15 An analysis of production practices revealed the indiscriminate use of fertilizers and plant protection chemicals to orchids and anthuriums.

6.3.16 The study on marketing channels brought to light the important marketing channels existing in cutflower trade in Thiruvananthapuram as `producer -- collection centre -- florishop -- consumer' and `producer -- collection centre -- consumer'.

6.3.17 The study on production constraints revealed that the severe constraints are `high price of planting materials' followed by `less availability of new varieties'.

6.3.18 The study on technological constraints revealed that the serious constraint is `lack of standardised practices to follow' and `lack of research for developing new varieties'.

6.3.19 The study on marketing constraint revealed that the severe constraint is the `inability of small growers to find market' followed by `unorganised marketing channel'.

6.4   Implication of the study

6.4.1   The identification of production practices followed by the   cutflower growers can be used as base material for developing package of practice recommendations for the cutflower crops.

6.4.2   The study focused on the importance of `conceptual skill' in   the success of a crop enterprise.

6.4.3. The dimensions delineated in the study can be used   as   the   basis   for   the formulation of strategies for the enrichment of   conceptual skill of farmers.

6.4.4   The study has brought out the non significant relationship of socio-situational, except mass media exposure and economic factors   with conceptual skill.

6.4.5   The study has brought out the significant relationship of   personal factors with conceptual skill.

6.4.6   The result of study on the marketing channel brought out some   noteworthy findings that majority of the growers are using   combination of marketing channels for the sale of cutflowers.

6.4.7   The study throws light on the production, technological and   marketing constraints perceived by the growers. Technocrats has   to give necessary importance to these results so that they   can formulate suitable strategies for developing cutflower trade in   the country.

6.5   Suggested lines of future research

6.5.1   The present study has been undertaken only with regard to cutflower growers of Thiruvananthapuram district. It is suggested   that similar studies may be conducted in other districts where   cutflower growing is taking momentum.

6.5.2   The scope of the present investigation was restricted to cutflower growers alone. Similar studies may be initiated for the cultivators of crops like paddy, banana, coconut, vegetables and   tapioca since they play a vital role in the agricultural economy   of our country.

6.5.3   It is also necessary to develop suitable measuring devices   exclusively for conceptual skill and for the individual dimensions such as planning, risk-orientation, decision-taking   ability, supervision and market perception to gain in depth knowledge on   these dimensions.

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APPENDICES

APPENDIX I

Cut flower societies with their number of life membership and number of members selected for sampling (Stratified proportional sampling technique)

Sl. No.	Name of society	No of life members	Sample members
1.	Kerala cut flower Producer's society	154	41
2.	Kerala Agri-horticultural society	110	9
3.	AVT - Vanitha Orchid Club	70	19
4.	Anthurium grower's association	22	6
5.	Kerala Orchid Society	18	5
	Total	374	100

APPENDIX II

KERALA AGRICULTURAL UNIVERSITY

COLLEGE OF AGRICULUTURE

Dr. S. Mothilal Nehru

Associate Professor

Department of Agrl. Extension

Vellayani, dated 21-6-1995

Sir/Madam,

    Kumari Sindhu. S., one of the MSc. (Ag) students of this department, is undertaking a research study titled "Prospects and constraints of commercial cutflower production in Thiruvananthapuram district" as a part of her research work. In view of your professional experience and expertise, you have been identified as a judge for rating the relevancy of a list of dimensions of conceptual skill furnished in the schedule attached. I therefore request you to kindly spare a portion of your valuable time for this purpose. You are free to add any new variable/dimension relevant to this study.

    Thanking you,

    Yours sincerely,

S. MOTHILAL NEHRU

Encl: 1. Schedule

   2. Self addressed envelope

   To ---------------

   --------------------- .

Title of the thesis   :   Prospects and constraints of commercial cutflower production in Thiruvananthapuram district.

One of the objectives of the study is to delineate the dimensions of conceptual skill of cutflower growers.

Here I am enclosing a list of dimensions of conceptual skill for relevancy rating in a five point continuum from most important to least important. The operational definitions of the dimensions are also given.

OPERATIONAL DEFINITIONS

CONCEPTUAL SKILL

Conceptual skill is operationally defined as a cutflower grower's ability to visualise, plan and integrate various activities in cutflower production and marketing.

DIMENSIONS OF CONCEPTUAL SKILL

1. Foresight is referred as a cutflower grower's ability to visualise the future prospects and obstacles that may come in the production and marketing of cutflowers.

2. Future orientation is operationally defined as the degree to which a cutflower grower is oriented towards the future regarding the expansion of cutflower production and marketing.

3. Goal setting is referred as the cutflower grower's ability to set specific objectives regarding the various aspects of cutflower production and marketing.

4. Planning is operationally defined as the cutflower grower's ability to prioritise work in advance so that efficient utilisation of resources is possible.

5. Risk orientation is the degree to which a respondent is oriented towards risk and uncertainty and the courage to face problems in cutflower production and marketing.

6. Crisis handling ability is the degree to which the cutflower grower is able to manage difficulties arising during cutflower production and marketing.

7. Intellectual ability is the degree to which the respondent is able to think intelligently while taking and implementing the decision.

8. Decision taking ability is the degree to which the cutflower grower justifies the selection of most effective means from among the available alternatives on the basis of scientific criteria for achieving maximum economic profit.

9. Executive ability is the degree to which the respondent is able to execute the works planned efficiently.

10. Supervising ability is operationally defined as a cutflower grower's ability by which he ensures proper execution of farm operation and surveillance against possible damage to plants with the

ultimate objective of getting higher production.

11. Market perception refers to the extent of understanding of a cutflower grower regarding the market possibilities, fluctuations in market channels and profits possible out of cutflower production.

12. Marketing orientation may be referred as the degree to which a cutflower grower is oriented towards the selection of marketing channels, price and profit from cutflower production and marketing.

DIMENSIONS OF CONCEPTUAL SKILL

Dimensions	Least important	Less important	Important	More important	Most important
1. Foresight					
2. Future orientation					
3. Goal setting					
4. Planning					
5. Risk orientation					
6. Crisis handling ability					
7. Intellectual ability					
8. Decision taking ability					
9. Executive ability					
10. Supervising ability					
11. Market perception					
12. Market orientation					

Another objective of the work is to study the effect of various factors on conceptual skill of cutflowers growers. The variables are given under three sections such as personality factors, socio situational factors and economic factors. For clarity, operational definitions for the variables are also included in the schedule. Kindly rate the variables in the given 5 point continuum form most important to least important.

FACTORS INFLUENZING CONCEPTUAL SKILL

1. Education is operationalised as the number of years of formal education acquired by a cutflower grower.

2. Farming experience is the number of years since the respondent has been involved in farming.

3. Cutflower growing experience is the number of years since the respondent has been involved in cutflower production.

4. Empathy is the ability of the respondent to know and understand other's feelings as they feel.

5. Attitude towards status is operationally defined as the degree of status of a cutflower grower holds in various activities of socio-economic life as perceived by him.

6. Attitude towards status is operationally defined as the degree of status of a cutflower grower about cutflower production practices and his readiness to react in one way or another to specific factors related to it.

7 Knowledge on cutflowers is the information possessed by a cutflower grower regarding cutflowers and their scientific production.

8. Scientific orientation refers to the degree to which a cutflower grower is oriented to the use of scientific methods in decision-making in floriculture.

9. Proactiveness is the capacity of the respondent to come forward on his own to take up some activities.

10 Innovation proneness refers to the inclination of a cutflower grower to develop interest in and desire to seek change in the existing practices related to cutflower production and to adopt such changes as and when practical and feasible.

11. Communication skill is operationally defined as the capability of the respondent to communicate effectively among the people.

12. Managerial resilience is operationalised as the ability of the respondent to regain strength or to come back when knocked down by obstacles.

13. Time management is referred as the respondent's ability to prioritise work and to allocate time sensibly for each and every work.

14. Interpersonal relationships refers to the cutflower grower's human relations with other people

(suppliers and customers).

15. Overall modernity refers to the attitude of the respondent towards modern ways of living in different spheres of life with respect to education, social, economic and cultural conditions.

16. Creative thinking may be operationally defined as the cutflower grower's thinking characterised by the ability to give up unnecessary assumptions and to generate original ideas.

17. Self concept refers to how an individual evaluates himself, either positive or negative.

18. Self confidence refers to the feeling of an individual about his ability, initiative and zeal to achieve his goal.

19. Self reliance refers to the belief of an individual in his own abilities and potentialities to make changes in life.

20. Orientation towards competition is defined as the degree to which a respondent is oriented to place himself in a competitive situation in relation to other individuals for projecting his excellence in his business.

21. Level of aspiration refers to the standard by which one sets goals and evaluates one's own accomplishment.

22. Economic motivation refers to the drive for occupational excellence in terms of profit making and the relative value placed on economic ends by a cutflower grower.

23. Orientation towards skill development in farm workers is the degree to which a cutflower grower is oriented towards development of technical and managerial skills among farm workers.

24. Change proneness refers to the behaviour pattern of an individual who has interest in and desire to seek change in his operations whenever practical and feasible.

25. Value orientation is defined as the degree to which a respondent is oriented towards the observance of certain norms, standards, criteria for selection whenever a contingent situation to make a choice arises.

26. Deferred gratification refers to the postponement of immediate benefits of short range rewards in order to secure more long range goals and the resulting satisfaction.

27. Information seeking behaviour refers to the extent to which a cutflower grower seeks information regarding cutflower production from different communication sources.

II SOCIO AND SITUATIONAL FACTORS

1. Operational area refers to the area under cutflower production in cents.

2. Occupational status is defined as the position of a cutflower grower which provides a source of income and in which he spends major part of his time and attention.

3. Socio-economic status is the position or status of the respondent and his family in the society.

4. Infrastructural facilities refers to the perception of cutflower grower about the availability and adequacy of infrastructural facilities which provides support to cutflower production.

5. Labour availability refers to the availability of hired labour for various cutflower cultivation operations.

6. Leisure time availability is the extent of free time available to a cutflower grower which can be utilised for income generating activities like cutflower production.

7. Extension orientation refers to the extent of contact of a cutflower grower with different extension agencies and his participation in various extension activities.

8. Social participation may be referred as the degree of involvement of a cutflower grower in informal organisation.

9. Mass media exposure refers to the extent to which a cutflower grower is exposed to different mass media communications such as radio, T.V., print media etc.

10. Cosmopoliteness is defined as the degree to which a cutflower grower is oriented to his or her immediate outside social system.

11. Official orientation is the degree to which the cutflower grower is inclined towards the change agency with respect to trustworthiness, qualifications, performance etc.

12. Information source utilisation is defined in terms of the frequency of obtaining information from different sources like mass media, personal cosmopolite and personal localite sources.

III ECONOMIC FACTORS

1. Annual income is operationalised as the income obtained by the respondent through the major and subsidiary occupation in an year.

2. Farm income refers to the annual income obtained by the respondent through cutflower marketing.

3. Off farm income refers to the annual income obtained through respondent from occupation other than floriculture.

4. Thrift orientation refers to the behaviour of an individual to keep a part of his income for future or unforeseen expenditure.

5. Credit orientation refers to the favourable and positive attitude of cutflower grower towards obtaining credit from institution and other sources.

6. Credit utilisation may be operationalised as a measure of the utilisation of credit facilities available to a cutflower grower.

FACTORS INFLUENZING CONCEPTUAL SKILL

	Least important	Less important	More Important	Most important	important

----

I. PERSONAL FACTORS

1. Education

2. Farming experience

3. Cutflower growing
   experience

4. Empathy

5. Attitude towards status

6. Attitude towards
   cutflower growing

7. Knowledge on cutflowers

8. Scientific orientation

9. Proactiveness

10. Innovation proneness

11. Communication skill

12. Managerial resilience

13. Time management

14. Inter personal relationships

15. Overall modernity

16. Creative thinking

17. Self concept

18. Self confidence

19. Self reliance

20. Orientation towards   competition

21. Level of aspiration

22. Economic motivation

23. Orientation towards development
    of skill in farm workers

24. Change proneness

25. Value orientation

26. Deferred gratification

27. Information seeking behaviour

II. SOCIO-SITUATIONAL FACTORS

1. Operational area

2. Occupational status

3. Socio-economic status

4. Infrastructural facilities

5. Labour availability

6. Leisure time availability

7. Extension orientation

8. Social participation

9. Mass media exposure

10. Cosmopoliteness

11. Official orientation

12. Information source utilisation

III. ECONOMIC FACTORS

1. Annual income

2. Farm income

3. Off farm income

4. Thrift orientation

5. Credit orientation

6. Credit utilisation

APPENDIX III

DIMENSIONS WITH THEIR MEAN RELEVANCY SCORE AND CO-EFFICIENT OF VARIATION

Sl. No. Dimensions	Mean relevancy score	Co-efficient of variation
1. Fore sight	3.16	30.31
2. Future orientation	2.92	37.98
3. Goal setting	2.97	32.29
*4. Planning	4.50	12.22
*5. Risk orientation	3.75	25.44
6. Crisis handling ability	2.18	37.75
7. Intellectual ability	3.05	29.08
*8. Decision-taking ability	4.58	13.84
9. Executive ability	3.37	32.23
*10. Supervising ability	3.66	22.49
*11. Market perception	3.84	22.76
12. Marketing orientation	3.56	29.89

INDEPENDENT VARIABLES WITH THEIR MEAN RELEVANCY SCORE AND CO-EFFICIENT OF VARIATION

Sl. No	Variables	Mean relevancy score	Co-efficient of variation
I. Personal factors			
*1.	Education	3.92	19.75
2.	Farming experience	3.37	36.81
*3.	Cutflower growing experience	4.21	20.50
4.	Empathy	2.42	43.06
5.	Attitude towards status	2.68	47.09
*6.	Attitude towards cutflower growing	4.26	17.61
*7.	Knowledge on cutflowers	4.29	15.97
8.	Scientific orientation	3.21	33.60
9.	Proactiveness	2.21	47.06
10.	Innovation proneness	3.16	33.67
11.	Communication skill	2.89	37.89
12.	Managerial resilience	3.28	34.15
13.	Time management	3.05	36.03
14.	Interpersonal relations	3.26	55.71
15.	Overall modernity	3.24	35.00
16.	Creative thinking	2.92	37.98
17.	Self concept	3.29	34.10
*18.	Self confidence	3.87	26.61
19.	Self reliance	3.21	35.85
*20.	Orientation towards competition	3.97	20.43
21.	Level of aspiration	3.06	33.99
22.	Economic motivation	3.16	34.90
*23.	Orientation towards skill		

development in farm workers	3.83	26.63
24. Change proneness	3.18	40.72
25. Value orientation	2.79	41.25
26. Deferred gratification	2.97	40.51
*27. Information seeking behaviour	3.97	17.81

II. Socio-situational factors

*1 . Operational area	4.08	22.76
2 . Occupational status	2.92	36.34
3. Socio-economic status	2.95	38.89
*4. Infrastructural facilities	3.58	20.90
5. Labour availability	2.87	37.94
6. Leisure time availability	3.01	39.42
*7. Extension participation	3.44	19.85
*8. Social participation	3.61	16.54
*9. Mass media exposure	4.25	18.88
10. Cosmopoliteness	2.75	41.21
11. Official orientation	2.96	39.85
12. Information source utilisation	3.40	42.35

III. Economic factors

*1 . Annual income	4.64	19.25
2 . Farm income	3.91	38.25
3 . Off farm income4	3.23	32.46
4 . Thrift orientation	2.85	19.98
*5 . Credit orientation	4.26	21.25
6 . Credit utilisation	3.45	23.36

APPENDIX V

Measurement procedures utilised for measuring the dimensions of conceptual skill.

I PLANNING

Sl.No. Statements	A	F	S	R	N
	4	3	2	1	0

1. Setting on objective of profit target from orchids and anthurium.

2. Preparing calendar of various operations of cutflower production well in advance.

3. Working out operation-wise expenditure per annum.

4. Estimating the labour requirements for the cutflower production.

5. Estimating the financial requirements for cut flower production.

6. Calculating the finance in possession for cutflower production.

7. Calculating the finance in possession to be acquired for cutflower production.

8. Planning for alternate means of marketing.

A-Always F-Frequently S-Sometimes R-Rarely N-Never

II. RISK ORIENTATION

Sl.No. Statement	SA	A	UD	DA	SDA
	4	3	2	1	0

1. A grower should grow a large number of plants to avoid greater risks involved in growing one or two plants.

2. A grower should rather take more of chance in making a big profit than to be content with a smaller, but less risky profit.

3. A grower who is willing to take greater risk than the average grower usually does it better financially.

4. It is good for a grower to take risks when he knows his chance of success are high.

5. It is better for a grower not to try farming unless most farmers have used it with success.

6. Trying an entirely new method for a grower involves greater risk, but it is worthy.

SA- Strongly Agree   A- Agree   UD- Undecided   DA- Disagree   SDA- Strongly Disagree

III. DECISION TAKING ABILITY

Sl.No. Items	Always	Some times	Very rarely

1. Are you quick in making decisions regarding cutflower production?
2. Do you consider all possible alternatives arriving a decision related to your cutflower production
3. Do you consult with family members before arriving at decisions related to cutflower growing
4. Do you find it difficult to make decisions related to your cutflower growing whenever it happens to be
5. Are you good in making timely decisions?
6. Do you give priority to your own feelings and emotions than your thoughts while arriving at a decision?

Always -2 ,Sometimes- 1, Rarely - 0

IV SUPERVISING ABILITY

Sl.No. Statements	MO	O	S	N
	3	2	1	0

1. While planting orchids and anthuriums how often do you check whether the medium has been properly prepared?
2. How often do you supervise the application of manures and fertilizers?
3. How often do you supervise the irrigation of your plants?
4. How often do you keep watch for insect attack in your plants?

5. How often do you keep watch for disease attack in your plants?

6. How often do you keep watch for attack of slugs and snails?

7. How often do you supervise spraying operations in your crop?

V MARKET PERCEPTION

Sl.No. Statement	Response	
1. Do you think a grower will be able to sell the cutflower if he increases the production by adopting latest technology?	Yes	1
	No	2
2. Do you think that cutflowers produced according to latest technology will fetch good prices compared to these raised under traditional practices?	Low	1
	Same	2
	High	3
3. How difficult it will be to dispose the cutflowers produced?	VD	1
	D	2
	E	3
	VE	4

VD - Very difficult , D -Difficult, E- Easy ,VE -Very easy

APPENDIX VI

Statement on attitude of cutflower growers towards cutflower growing with critical value (Q value)

Sl.No. Statement	Q value
*1. Cutflower production is a profitable enterprise	1.19
2. Cutflower production is not meant for poor	4.89
3. Cutflower production can be considered as the last resort of profession	5.04
*4. Today's need is to promote agricultural enterprise through cutflower production	1.98
5. Cutflower growing is an occupation	3.72
6. Cutflower growing is a leisure time activity	5.07
7. Today's need is to promote industry than cutflower production	4.09
8. It is too difficult to understand crop practice in cutflower growing	5.41
9. Cutflower growers should feel proud of managing cutflower production	3.95
*10. I feel much pride in doing cutflower growing	1.83
11. There is nothing new in cutflower production	4.52
12. Time spent on cutflower growing is not worth the profit obtained	2.78
*13. Hand some return won't attract people to this as a profession	1.74
14. To be a modern farmer, one should take up cutflower growing	4.15
15. Cutflower growing is a hobby of alight people	4.09
*16. Cutflower production is not a creative enterprise	2.08
*17. Cutflower production has the status of a business	2.16
18. Top priority should be given by the Government for the development of cutflower production	3.94
19. Cutflower growing provides satisfaction	5.34
20. Cutflower production helps to attain a good living	5.07
21. Cutflower growing hinders participation in social activities	5.61

APPENDIX VII

Items on knowledge test of cutflower growers with their difficulty index and discrimination index

Sl. No . Item.	Difficulty index	Discrimination index
*1. Grower `A' used terminal cuttings of orchids for planting and grower `B' selected basal cuttings for planting? Who is more wise in your opinion? a) Grower A b) Grower B	0.5	0.6
2. A cutflower grower selected vanda John Club for cultivation under shade nets. In your opinion his selection of variety a) Appropriate b) Not appropriate	0.7	0.5
*3. Given below are two statements i) Only monopodials require support ii) Only sympodials require support a) i is correct b) both 1 & ii are correct	0.4	0.8
*4. Grower `A' dipped deflasked orchid seedlings in dithane M-45 solution (lg/1litre of water) and grower `B' dipped the same in dithane M-45 5g/1l. Who has done it rationally? a) Grower A b) Grower B	0.6	0.8
5. Grower A used dried cowdung slurry for dipping the cuttings before planting and grower B used fresh cow dung solution for the same? In your opinion who is efficient a) Grower A b) Grower B	0.7	-0.2
6. Grower `P' immersed wooden boxes in water for few weeks before planting while grower Q straight away used boxes for planting. Whose action is appropriate. a) Grower P b) Grower Q	0.7	0.2
7. Cutflower grower `A' gives fresh cowdung slurry for both sympodials and monopodials. While grower `B' gives	0.2	2.0

cowdung slurry to monopodials and supernatant liquid of slurry to sympodials. Whose action is rational?

a) Grower A b) Grower B

8. Cutflower grower A applied cowdung to the monopodials at a rate of 5 kg for every 5 sq.m. and grower B applies cowdung at a rate of 1 kg for every 5 sq.m. Who is rational in your opinion?   0.3   0.8

a) Grower A   b) Grower B

9. A grower decides to apply oil cake at a   rate of 1 kg for every 1 sq.m. whether his decision is   0.8   0.4

a) Appropriate b) Not appropriate

10. A grower opines that orchids are slow   growing so slow release fertilizers are good for them. Do you agree with his remark?   0.2   0.4

a)   Yes   b) No

11. The ohio WP solution fertilizer for epiphytic orchid is applied with equal quantity of water by grower A while   grower B added double quantity of water. Whose practice is rational according to you   0.1   0.2

a) Grower A   b) Grower B

12. One grower opines that the ohio WP solution fertilizer must be neutral in nature while application. Do you agree with him.   0.2   0.4

a) Yes   b) No

13. Grower A applies tropbacterin to 2 week old seedlings of anthurium and grower B applies tropbacterin to 4 month old seedling. Who is rational according to you?   0.0   0.0

a) Grower A b) Grower B

14. A cutflower grower applies 50 g tropbacterin per anthurium pot. Do you think his practice is correct   0.6   -0.2

a) Yes   b) No

15. A grower opines that even though anthurium is a shade loving plant, at very low light intensities, there will be low flowering. Do you agree with him?   0.7   0.2

a) Yes   b) No

16. Grower A shifted sprouted seeds of anthurium to a sand medium for further growth while grower B shifted anthurium seeds to a medium of sand, soil and leaf mould in the ratio 2:1:1. In your opinion whose practice is correct.
    a) Grower A   b) Grower B

17. To control sap sucking insects, a cutflower grower sprays malathion 2 ml/l of water. Whether this rate is sufficient to control the pests.
    a) Yes b) No

18. Cutflower growers A and B spray fungicides as a prophylactic measure, prior to the commencement of monsoons. During heavy monsoons Grower A repeats spraying once in every 3 days and grower `B' repeats spraying once in every fortnight. Whose practice is rational.
    a) Grower A b) Grower B

*19. Cutflower grower A opines that cockroach is a pest of orchid. Do you agree with him
    a) Yes b) No

*20. In an anthurium farm, a grower is practising liming at the rate of 50 g/sq.m. per year. His action is
    a) Appropriate b) Not appropriate

*21. A cutflower grower sprayed dithane M-45 0.3% on orchids as soon as he saw wrinkling of leaves. Whether this practice is right?
    a) Yes   b) No

22. Root decay in orchids is due to
    a) lack of aeration   b) High/increased organic matter application
    i) a is correct ii) both a and b are correct

*23. Anthurium plants in a farm are severely affected by anthracnose. Grower `A' sprayed dithane M-45 and grower `B' sprays after destruction of diseased plant parts. Whose practice is right
    a) Grower A b) Grower B

24. To freshly planted arachnis orchids, grower A sprays

Item	Col1	Col2
16	0.0	0.2
17	0.8	0.2
18	0.1	0.2
18 (rational)	0.1	-0.2
19	0.5	0.6
20	0.6	0.8
21	0.6	0.7
22	0.4	0.8
23	0.8	0.0
24	0.4	0.0

supernatant liquid of cowdung slurry. Prepared in the proportion of 1 kg fresh cowdung: 1 1 of water while grower B sprays supernatant liquid of cowdung slurry prepared in the proportion of 0.5 kg of dried old cowdung in 1 1 of water. Whose practice is appropriate

a) Grower A   b) Grower B

25. When compared to other organic manures, poultry manure increases   0.3   0.6
the incidence of root decay. This is the opinion of a   grower.

Do you agree with him.

a) Grower A b) Grower B

APPENDIX VIII

Items of constraints experienced by cutflower growers in production, technological and marketing aspects of cutflowers

Sl.No.	Constraints	Rank

I. PRODUCTION CONSTRAINTS

1. Non availability of quality planting materials
2. High price of planting materials
3. Only out dated varieties are available for growing
4. High incidence of pests and diseases
5. High cost of plant protection chemicals
6. Difficulty in identification of pests and diseases
7. Difficulty in availing institutional credit
8. Non availability of new varieties
9. Lack of large scale multiplicaton centres.

II. TECHNOLOGICAL CONSTRAINTS

1. Absence of practical training
2. High initial investment on infrastructure
3. No standardised practices to follow
4. Lack of research for developing new varieties
5. Lack of technical expertise

III. MARKETING CONSTRAINTS

1. Lack of co-ordination among florists
2. Unhealthy competition among growers
3. High price of flowers
4. Marketing of planting materials through false publicity
5. Unorganised marketing channel
6. Inability of small growers to find market
7. Existence of institutional buyers only
8. Insufficient cold storage facilities form production centres to consumer points

   Others specify

KERALA AGRICULTURAL UNIVERSITY

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PROSPECTS AND CONSTRAINTS OF COMMERCIAL CUTFLOWER PRODUCTION IN

THIRUVANANTHAPURAM DISTRICT

1. Name of the respondent :

2. Address :

3. Occupation :

A. PERSONAL FACTORS:

1. Educational Qualification :

2. Cutflower growing experience (years) :

3. Attitude towards cutflower production :

      Please indicate your response to the following statements in the appropriate column. (SA-Strongly agree, A- agree, UD - Undecided, DA - Disagree, SDA-Strongly disagree)

Sl.No.	Statement	SA A UD DA SDA
1.	Cutflower production is a profitable enterprise	
2.	Today's need is to promote agril. enterprise through cutflower production	
3.	Cutflower production has the status of a business	
4.	Handsome return won't attract people to this as a profession	
5.	I feel much pride in doing cutflower growing	
6.	Cutflower production is not a creative enterprise.	

4. Knowledge on cutflowers

      Given below are some of the practices followed by cutflower growers. Please tick your choice

1. For planting arachnis grower `A' selected terminal cuttings, grower `B' selected middle cuttings and grower `C' selected basal cuttings. Whose selection is the most appropriate?

      a) Grower A b) Grower B c) Grower C

2. Before planting deflasked orchid seedlings, grower `P' dipped seedlings in dithane M-45 solution (dithane M-45 5g/1 litre of water). Grower `Q' dipped them in dithane M-45, 5g/2 1 of water while grower `R' dipped them 1 g/1 1 of water. Who has done it rationally?

      a) Grower K b) Grower L c) Grower M

3. Grower `K' opines that only monopodial orchids (e.g. arachnis) require support, while grower `L' says that only sympodials (e.g. dendrobium) requires support. Third grower `M' opines that both monopodials and sympodials require support. To whom will you agree?

    a) First grower   b) Second grower   c) Third grower

4. A grower opines that cockroach is a pest of orchid. Do you agree with him?

    a) Yes   b) Undecided   c) No

5. In an anthurium farm grower A practise liming at the rate of 5g/sq.m. while grower B applies 50 g/sq.m. and grower C applies 75g /Sq.m. Who is more rational in your opinion?

    a) Grower A   b) Second grower   c) Third grower

6. The foliage of anthurium plants are showing severe crinkling. First grower sprayed dithane M-45, second grower sprayed bavistin and third grower sprayed kelthane. Who is rational in your opinion?

    a) First grower   b) Second grower   c) Third grower

7. The foliage of anthurium plants are showing severe crinkling. First grower sprayed dithane M-45, second grower sprayed bavistin and third grower sprayed kelthane. Who is rational in your opinion?

    a) Grower A   b) Grower B   c) Grower C

5. <u>Self confidence</u>   Please indicate your response (by giving a tick mark) to the following statements (SA-Strongly agree, A-agree, UD-Undecided, DA-Disagree, SDA-Strongly disagree)

Sl.No.	Statements	SA	A	UD	DA	SDA
1.	I feel no obstacle can stop me from achieving my final goal.					
2.	I am generally confident of my own ability.					
3.	I am bothered by inferiority feelings.					
4.	I do not have initiative					
5.	I usually work out things for myself rather than get some one to show me.					
6.	I get discouraged easily.					
7.	Life is a strain for me in much of time.					
8.	I find myself worrying about something or other.					

6. ORIENTATION TOWARDS COMPETITION

    To what extent, do you agree with the following statements. Please indicate your response by giving a tick mark in the appropriate column.(SA-Strongly Agree, A-Agree, DA-Disagree,

SDA-Strongly Disagree)

Sl.No.	Statements	SA	A	DA	SDA
1.	The key points of success in farming should not be divulged to other farmers.				
2.	A better yield in comparison to the neighbours brings more prestige.				
3.	It is of no use to keep information on what other growers are doing.				
4.	Competitions should be organised for all important flower crops.				
5.	It is not good for a person to become too ambitious in life.				

7. ORIENTATION TOWARDS SKILL DEVELOPMENT IN FARM WORKERS

You might be getting information on latest technology from different sources. To what extent do you share these information with your farm workers so that they are applied in your farm. Please tick ( ) in the appropriate column.

(MO - Most often, O - Often, ST - Sometime, N - Never)

Sl.No.	Statements	MO	O	ST	N
1.	How often do you discuss the latest farm technology with your farm workers?				
2.	How often do you show the farm workers the use of latest farm technology in the field?				
3.	How often do the workers seek clarification on the technology by asking questions?				
4.	How often do you supervise the application of latest farm technology by the farm workers?				
5.	How often do you pay more wages to the skilled farm workers?				
6.	How often do you prefer skilled farm workers for employment in farm?				

8. INFORMATION SEEKING BEHAVIOUR

To what extent do you make use of following information sources regarding advice for cutflower growing. Please tick ( ) in appropriate column.

Sl.No.	Source	Always	Sometimes	Never
1.	Dy. Director/Principal Agricultural Officer			

2. Agricultural Officer

3. Agricultural Assistant

4. Agricultural Scientist

5. Fertilizer agents

6. Relatives

7. Newspaper

8. Radio

9. Television

10. Agricultural publications

11. Fellow growers

12. Others (Specify)

9. SOCIO-SITUATIONAL FACTORS

1. Operational area in cents

2. Infrastructural facilities

Please give your response based on your perception with regard to following facilities.

Sl.No. Facilities	Available timely		Available in adequate quantity	
	Yes	No	Yes	No
1. Planting materials				
2. Manures& Fertilizers				
3. Plant protection chemicals				
4. Credit				
5. Labour				

3. Extension participation . Please indicate frequency of participation in extension activities in your locality by giving a tick mark.

	Activities	Whenever conducted	Sometimes	Never
a.	Meetings			
b.	Seminar			
c.	Exhibition			
d.	Film shows			
e.	Farmer's days			

f.   Demonstrations

g.   Field days

h.   Any other

4. <u>Social participation</u>   Please indicate frequency of participation in organization

Sl.No.	Particulars	Attendance		
		Regularly	Occasionally	Never
1.	Membership in one organisation			
2.	Membership in more than one organization			
3.	Office bearer in one organisation			
4.	Office bearer in more than one organisation			
5.	Distinctive features (M.P., M.L.A., etc.)			

5. <u>Mass media exposure</u>   Please indicate the frequency of utilisation of mass media

Medium	Frequency (Please tick ( ) your answer
a. Radio	Never Rarely Once a fortnight Once a week 2-6 days a week daily.
b. Newspaper	Never read Rarely Once a fortnight Once a week 2-6 days a week daily.
c. Magazines	Never read Rarely Once a fortnight

		Once a week
		2-6 days a week
		daily.
d.	Leaflets & bulletins	Never
		Occasionally
		Frequently
e.	Films (related to floriculture)	Never
		Occasionally
		frequently
		most frequently
f.	Field days/agril. functions	More than 6
(attended during last year)		4 to 6
		1 to 3
		None

C. ECONOMIC FACTORS

1. <u>Annual income</u>   :
2. <u>Credit orientation</u> (Please tick ( ) your choice)

Sl. No.	Items	Response
1.	Do you think a grower like you should borrow for cutflower growing?	Yes/ No
2.	In your opinion how difficult is to secure credit for cutflower growing?	Very difficult
		difficult
		Easy
		Very easy
3.	How a grower is treated when he goes to secure credit?	Very badly
		Badly
		Fairly
		Very fairly
4.	There is nothing among in taking credit from institutional sources for investing in cutflower production.	Strongly agree
		Agree

Disagree

Strongly disagree

5. Have you used credit for cutflower growing?   Yes / No

PART III

PRACTICES FOLLOWED

1. Name the important varieties you are having

    1. Anthurium   2. Orchids

2. a) Are you following ground planting/pot planting in anthuriums (Please tick your choice)

    b) If ground planting is followed, please give the spacing practised.

3. Please mention the details of medium used for anthuriums

Ingredients	Quantity

4. You are planting orchids (Please specify as monopodials and sympodials)

       a) in pots   b) on ground   c) both

5. Please mention the details of medium used for planting orchids

MONOPODIALS eg. Arachnis		SYMPODIALS Eg. Sonia	
Ingredients	Amount	Ingredients	Amount

6. Please help in preparing the following tables.

    6.1 Organic manure application

Manure/Manurial mixture	Application

(Specify the ingredients)	Method	Rate	Interval
a. Anthuriums			
b. Orchids			
b.1 Monopodials (eg. arachnis)			
b.2 Sympodials (eg. Sonia)			

6.2 Chemical fertilizer application

Name of fertilizers	Application		
	Method	Rate	Interval
a. Anthuriums			
b. Orchids			
Monopodial			
Sympodials			

6.3 Plant protection measures

6.3.1 Against pests

Name of the pest	Name of chemical	Application		
		Method	Dose	Interval

6.3.2. Against diseases

Name of the disease	Name of chemical

6.4 Harvesting and handling of cutflowers.

Stage	Time	Handling details	cutflower
a. Anthurium			
b. Orchids			
b1. Monopodials			

b2.   Sympodials

PART IV

MARKETING CHANNEL

Please indicate how your flowers are marketed

Channel No. Name of the channel	Quantum of flower marketed
	Upto 25 26-50 51-75 > 75

   I.   Producer --- Consumer

   II.   Producer --- Florishop

   III.   Producer --- Collection Centre --- Consumer

   IV.   Producer --- Collection Centre --- florishop --- Consumer

   V.   Producer --- Commission agent --- Florishops --- Consumer

   VI.   Producer --- Collection centre --- Commission ---   agent ---

        florishop --- consumer

PART V

CONSTRAINTS

Given below are some of the constraints related to production, technology and marketing of cut flower. Please rank according to the relative importance you feel. (Please give ranks from 1 to 9)

I. Production constraints

Sl.No.	Items	Rank
1.	Less availability of quality planting materials	
2.	High price of planting materials	
3.	Only outdated varieties are available for growing	
4.	High incidence of pest and diseases	
5.	High cost of plant protection chemicals	
6.	Difficulty in identification of pest and diseases	
7.	Difficulty in availing institutional credit	
8.	Less availability of new varieties	
9.	Lack of large scale multiplication centres	

II. Technological constraints (Please rank from 1 to 5)

SL. No.	Items	Rank
1.	Absence of practical training	
2.	High initial investment on infrastructure	
3.	No standardised practices to follow	
4.	Lack of research for developing new varieties	
5.	Lack of technical expertise	

III. Marketing constraints

Sl.No.	Items	Rank
1.	Lack of co-ordination among florist	
2.	Unhealthy competition among growers	
3.	High price of flowers	
4.	Marketing of planting materials through false publicity	
5.	Unorganised marketing channel	
6.	Inability of small growers to find market	
7.	Existence of institutional buyers only	
8.	Insufficient cold storage facility from production centres to consumer points	

Others. Specify

PROSPECTS AND CONSTRAINTS OF

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THIRUVANANTHAPURAM DISTRICT

By

SINDHU. S.

ABSTRACT OF THE THESIS

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VELLAYANI, THIRUVANANTHAPURAM

1997

ABSTRACT

The present study under the title "Prospects and constraints of cutflower production in Thiruvananthapuram district" was undertaken with the following objectives.

1. To delineate the components of conceptual skill and to measure the conceptual skill of growers.

2. To study the relationship of personal, socio-situational and economic factors with the conceptual skill of growers.

3. To study the production practices of cutflowers followed by the growers.

4. To identify the different marketing channels existing in cutflower marketing in consultation with the growers.

5. To identify the constraints related to cutflower production and marketing as perceived by growers.

The study was conducted among the respondents of five cutflower societies functioning in Thiruvananthapuram district. A sample of 100 growers were selected from the societies by adopting stratified random sampling technique with proportionate sampling procedure. Data was collected with the help of well structured, pre tested interview schedule and suitable statistical tests were employed in the analysis of data.

In the study conceptual skill has been considered as dependent variable. The factors such as planning, risk-orientation, decision-taking ability, supervision and market perception were the major dimensions of conceptual skill. The selected personal, socio-situational and economic factors of cutflower growers were taken as independent variables which included education, cutflower growing experience, attitude towards cutflower growing, knowledge on cut flowers, self confidence, orientation towards competition, orientation towards skill development in farm workers, information seeking behaviour (personal), operational area, infra structural facilities, extension participation, social participation, mass media exposure (socio-situational), annual income and

credit orientation (economic).

Relationship of the personal, socio-situational and economic factors with the conceptual skill showed that in the case of Group I, none of the variables correlated with conceptual skill. In the case of Group II attitude towards cutflower growing, knowledge on cutflowers were positively and significantly correlated while mass media exposure was negatively and significantly correlated with conceptual skill. In the case of Group III, variables like cutflower growing experience, attitude towards cutflower growing, knowledge on cut flowers, orientation towards skill development and information seeking behaviour were correlated positively and significantly with conceptual skill. In the case of Group V a positive and significant relationship exists between conceptual skill and cutflower growing experience and orientation towards skill development in farm workers. In the case of Gr. V, a positive and significant relationship exists between conceptual skill and variables like cutflower growing experience, attitude towards cutflower growing, knowledge on cutflowers, self confidence, orientation towards skill development in farm workers, information seeking behaviour and operational area. None of the socio-situational factors related significantly with conceptual skill of the respondents of Group I, Group II, Group III and Group IV except for mass media exposure which was negatively and significantly correlated with conceptual skill of respondents of Group II. None of the economic factors correlated with conceptual skill of the respondents of Group I, Group II, Group III, Group IV and Group V.

Regarding the production practices followed by anthurium growers, majority of growers have ordinary varieties. Majority of the growers follow pot planting using potting media containing sawdust, charcoal, brick and tile pieces, coconut husk and leaf-mould. Orchid growers have the collection of both monopodial and sympodial orchids and majority of the growers plant monopodial orchids in coconut husk alone and sympodial orchids in charcoal pieces alone. Regarding organic manure application, majority of the growers use diluted solution of fermented groundnut and neemcake in both the case of anthuriums and orchids. Majority of the growers apply 17:17:17 complex fertilizer solutions to both anthuriums and orchids. Majority of the growers apply

organic manure and fertilisers once in a   fortnight.   Majority of the growers apply fungicides   and pesticides once in a week regularly.   Thus an indiscriminate   use of fertilisers and plant protection chemicals was noticed in the study. Majority of the growers harvest flowers whenever there is demand. Flowers are cut during early mornings and late evenings.

In   the   study   various   marketing   channel   ha   been identified. in   which the most important marketing channel of cutflowers identified   was `producer - collection centre -   florishop - consumer'.

Various   production,   technological   and   marketing constraints has been identified in the study.   The   important constraints perceived by the growers were `high price of planting   materials' (production), `no standardised practices to follow' (technological) and `inability of small growers to find market (marketing).

\17\2\9\7