Managerial Behaviour of Commercial Banana Growers in Thiruvananthapuram District

BY
SANGEETHA, K. G.,B.Sc.(Ag.)

DECLARATION

I here by declare that this thesis entitled "Managerial behaviour of commercial banana growers in Thiruvananthapuram district" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship or other similar title of any other University or society.
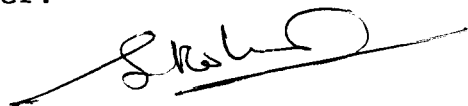
Vellayani

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SANGEETHA.K.G.

CERTIFICATE

Certified that this thesis entitled "Managerial behaviour of commercial banana growers in Thiruvananthapuram district" is a record of research work done independently by Ms.SANGEETHA,K.G. under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to her.

Dr.S.MOTHILAL NEHRU

Chairman, Advisory committee

Associate Professor

Department of Agricultural Extension

College of Agriculture

Vellayani.

Vellayani

23-1-1997.

APPROVED BY:

CHAIRMAN:

Dr. S. Mothilal Nehru,

     Associate Professor,
     Department of Agricultural Extension
     College of Agriculture,
     Vellayani.

MEMBERS:
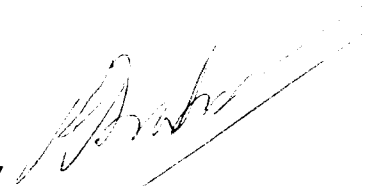
1   Dr. B. Babu,

     Professor and Head,
     Department of Agricultural Extension,
     College of Agriculture,
     Vellayani.

2   Dr. R. Prakash,

     Associate Professor,
     Department of Agricultural Extension,
     College of Agriculture,
     Vellayani.

3   Dr.(Mrs.) P. Saraswathy,

     Professor and Head,
     Department of Agricultural Statistics,
     College of Agriculture,
        Vellayani.

EXTERNAL EXAMINER

21.6.97

Dr. R. NETAJI SEETHARAMAN

ACKNOWLEDGEMENT

I am greatly pleased to place on record my heartfelt gratitude to Dr. S. Mothilal Nehru, Associate Professor, Department of Agricultural Extension and Chairman of my Advisory Committee, for his valuable guidance, constructive criticism and constant encouragement throughout the course of my Master's Degree Programme and in the preparation of this Thesis.

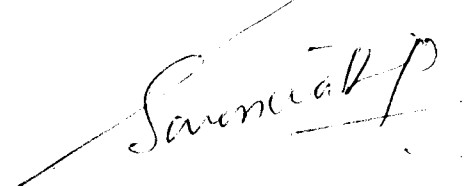I am quite indebted to the members of my Advisory Committee, Dr. B. Babu, Professor and Head of Department of Agricultural Extension, Dr. R. Prakash, Associate Professor, Department of Agricultural Extension and Dr. (Mrs.) P. Saraswathy, Professor and Head of Department of Agricultural Statistics, for their pertinent suggestions and valuable guidance at various stages of this endeavour.

I am obliged to express my deep sense of gratitude to Dr. N. Kishore Kumar, Assistant Professor, Department of Agricultural Extension, who has been good enough to give spontaneous help and shown keen interest in the progress of my Research work.

I am placing my heartiest thanks to all the Teaching Staff and other Staff members of the Department of Agricultural Extension for their co-operation and encouragement during the study period.

I acknowledge with thanks the timely help and inspiration received from Smt. Elsamma Job, Assistant Professor, Department of Agricultural Economics, Shri. Raviraman, Assistant Professor, Department of Agricultural Economics and Shri. S.M. Shahul Hameed, Associate Professor, Department of Agronomy.

I remember with gratitude the patience and co-operation of Shri. C.E. Ajith Kumar, Junior Programmer, Department of Agricultural Statistics in the Analysis of Data and Ranees Computers, Ayurveda College Junction, in getting this Thesis type written.

Words are scarce to express my loving thanks to my dear friends, Anitha. R., Beena Thomas, Nimmy Thomas, Sherin Muller and Sindhu.S., for their everlasting support, motivation, help, love and affection showered on me throughout the period of this study.

for their love, encouragement co-operation and support rendered to me at each and every moment which contributed a lot in the completion of this venture.

My thanks are also due to many others who have been helpful to me sometime or the other during the period of my study.

SANGEETHA. K.G.

Vellayani

23 -1-1997.

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CHAPTER I

INTRODUCTION

"It is a common aphorism today that farming is not simply a way of life, but just as much a business requiring careful planning, organization and control".

<div align="right">Barnad and Nix 1986</div>

Agriculture plays a vital role in the economic development of our nation. Despite several efforts, crop productivity in India continues to be one of the lowest in the world compared to many countries. da Costa (1995) has shown that the food grain production in India may not be enough to feed the ever increasing population. The growth rate for food production in 1994-95 was hardly 1.59 per cent and at the same the population growth rate was 2.1 per cent.

Maskey (1995) opined that increasing pressure on land caused by the unabated population growth and the related degradation of natural resources in the less developed countries have made the establishment and maintenance of more productive yet sustainable agricultural systems ever more necessary. Farmers have to integrate different factors of production on a rational basis for

getting a reasonable amount of living. Singh (1993) pointed out that farmer's choice depends on a wide range of parameters: suitable crop, right variety, quality of inputs, timeliness and precision in their application in appropriate dosage, and the different farm practices. The cultural practices would include timely planting, thinning, weeding, scientific crop rotation, inter-culture, and soil, land and water management. All these operations have to be on schedule and synchronised.

Supe and Singh (1968) had of opinion that the change agents must help the farmers in making rational selection of resources for attaining maximum profits. At the same time the quality of selection made by the farmers depends upon their rational behaviour. According to Anantharaman (1991) the tremendous gap between knowledge production and knowledge utilisation to be viewed not only in the background of lapse in extension machinery and profitability attribute of the technologies, but also in the inabilities of the farmers to derive profits from the use of technology.

From the above, it is clear that there is a lacking of one vital input on the part of farmers. Singh (1993) reported that given the same level of inputs and technology, efficient

management can make two to three fold differences in the yield and he indicated that management is acknowledged as the most critical input in agricultural development.

Traditionally it is believed that management is applicable to business sector alone. Gupta and Gupta (1992) stated that management is not only relevant to the business concern but it has universal applicability. It is now realised that management has a significant role in agriculture also. According to Johl and Kapur (1989), through the process of mechanization, automation, commercialization and modernization, farming has gone beyond its frame work of merely providing the necessities of life to the farm family. Now the farmer produces not only to meet his family subsistence needs, but at the same time he endeavours to produce maximum surplus to be sold in the market to buy some non-farm products for fuller satisfaction of life. This has made agricultural production market oriented and has introduced a business content in the farming profession. Proper planning, decision making and co-ordination are essential for becoming a successful farmer.

As these facts are remaining there, the applications of management in the field of agriculture has not gained enough

recognition so far. Pathak (1992) pointed out that management, though widely used in economic studies, has not been efficiently used in extension researches and since every farmer differs considerably with respect to his socio-economic background and personal characteristics, it is important to understand how these factors affect his managerial behaviour. Farmers have to make decisions on buying seeds, fertilizer, equipment etc. from least cost source, in least cost way and sell the farm produce in a manner to get maximum profit.

Since the cultivation and marketing of each crop differ significantly, separate management strategies should be developed for each crop. Considering the practical difficulty of studying the managerial behaviour of growers of all crops, a single crop namely, banana has been taken here.

In the 1994 annual report of IITA, it was given that "from an economic and environmental point of view, plantains and bananas are vital part of sustainable cropping systems. Planted on high land slopes or river deltas, they help to prevent soil erosion and provide mulch. They are also the most economical sources of dietary energy, in terms of cost per area cultivated or weight harvested. For most farmers they provide an important income source, akin to a bank account when the need for cash arises".

Banana is one of the most important commercial tropical fruit crops in India. It occupies 9.75 percent of the total area and 24 percent of the total production of fruit crops in the country. In Kerala the productivity of the crop is increasing for the last ten years and it play a key role in the State's economy. In 1992-93 the area of banana and plantains (in '000 ha) was 67.97 and average yield (in kg ha^{-1}) was 7653 which has been raised to 72.15 and 7951 respectively in 1993-94 (Farm guide, 1996).

Banana fruit known as the poor man's apple is an item of food from the lowest hut to the royal palace. Banana flour is rich in carbohydrates and minerals and is more easily digested than any other cereal starch. Practically there is no part of banana plant which is of no use to man. The rhizome of the suckers cooked alone or with tapioca, is a food of the poor people. The flower and flower stalk are also edible and make good side dishes for rice. Fibre extracted from leaf sheaths after harvest of the bunches is a very good substitute for coir and other ropes. The edible matter of banana obtained from unit area of land is many times more than the average yield of rice or any other food crop. Banana has high potentiality for export and there by gaining foreign exchange also.

In this background, the present study was undertaken to analyse the managerial behaviour of commercial banana growers with the following objectives.

Objectives of the study

1. To study the socio-economic profile of commercial banana growers.

2. To study the managerial behaviour of commercial banana growers.

3. To study the extent of adoption of recommended cultivation practices by the commercial banana growers.

4. To identify the indigenous farming practices adopted by the commercial banana growers.

5. To identify the major marketing channels of banana.

6. To reveal the constraints in banana cultivation as perceived by the commercial banana growers.

7. To develop an extension strategy for enhancing commercial scientific banana cultivation.

Need for the study

Banana is one of the important commercial crops in Kerala State. The expansion and efficiency of production of this unique

crop is of paramount importance to produce more valuable food for the people, to provide more employment to the under employed section of people ensuring them a better return, to improve our economy through export and also to sustain the ecological balance of nature. By proper management, a farmer can expect a reasonable amount of profit from his farm. A research investigation in to the managerial behaviour, extent of adoption of recommended practices of banana and constraints in banana cultivation will enable to formulate a suitable strategy for enhancing banana cultivation and production. The socio-economic profile of commercial banana growers can be utilised for effective transfer of technology.

Agricultural management has grown in complexity with advancement in technology and increase in the pace of development. But research investigations oriented towards the measurement and production of managerial behaviour have been very few. So more attention is to given in this regard.

Scope of the study

The study is aimed to reveal the managerial behaviour which is an important input in farm management, and its relationship with socio-psychological and situational factors of commercial banana growers. It will help to develop an extension strategy for

enhancing commercial scientific banana cultivation which will be of great use to the extension personnels and farming community, particularly banana growers. So the present study is highly significant and expected to have some contribution in improving the economic status of farmers.

Limitations of the study

Since the study forms a part of the M.Sc. (Ag.) programme, it has all the limitations of time, money and other resources. Also the study was confined to one selected district only and, to that extent the generalisations of the study is likely to be effected. The study was based on the expressed responses of the farmers, which may not be free from their individual biases and prejudices. There could be some distortion in the interpretation of the responses of the farmers though every care was taken to collect the information without any loss.

Presentation of the report

The remaining chapters of this report are presented as follows.

In Chapter II, theoretical orientation, review of literature and hypotheses are furnished. The methodology followed for the

study is depicted in Chapter III. The results of the study along with their discussion are given in Chapter IV. Chapter V comprises the summary of the entire study emphasising salient findings.

The references, appendices and the abstract of the thesis are given at the end.

THEORETICAL ORIENTATION

CHAPTER II

THEORETICAL ORIENTATION

An attempt is made here to review the pertinent literature covering the research studies related to the field of investigation. The theoretical perspective adopted for this study, its linkage with relevant findings of other researches, and the hypotheses formulated on its basis form the content of this chapter which is presented under the following subheadings:

2.1   Concept of management

2.2   Concept of commercial banana grower

2.3   Dependent variables of the study

2.4   Independent variables and their relationship with dependent variables

2.5   Indigenous farming practices

2.6   Marketing channels

2.7   Economics of banana cultivation

2.8   Constraint analysis

2.9   Hypothesis developed for the study.

2.10 Conceptual model for the study.

2.1 Concept of management

Management has been defined in different ways:

In the encyclopaedia of social sciences, management is treated as the process by which the execution of a given purpose is put into operation and supervised.

Hamann (1966) defined management as the function of getting things done through people and directing the efforts of individuals towards a common objective. According to Kahlon and Acharya (1967) management is the process of decision making and implementation of the decision taken. Webster (1971) in the third international dictionary mentioned management as the judicious use of means to accomplish an end. Drillon (1977) referred management as a process, an activity or a system for getting things done through other people.

According to Bukett (1981) management is a skill which utilizes a wide range of abilities. The success of management is very much determined by the quality of judgement in relation to the decisions that are to be taken. Haynes (1981) opined that management is essentially a decision making process and to manage well, a manager has to take right decisions at right time.

Johannsen and Page (1983) stated that management is effective use and co-ordination of resources such as capital, plant, materials and labour to achieve defined objectives with maximum efficiency. Terry and Franklin (1984) concluded that management is a distinct process consisting of activities of planning, organising, actuating, controlling performed to determine and accomplish stated objectives with the use of human beings and other resources.

Koontz et al. (1986) conceptualised management as the design of environment in which people working together in groups can accomplish objectives. Massie (1987) regarded management as the process by which a co-operative group directs action towards common goal. Management, according to Chari and Nandapurkar (1987) is the effective use of people, money, equipment, materials and methods. Aggarwala (1989) stated that management is the process or act of directing operation of an organisation or segment of it, to realise the established aims.

Johnson (1990) explained the term 'management' as:

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        ┌─────────────────────────┐
        │      MANAGEMENT         │
        └─────────────────────────┘
                    │
                  means
        ┌─────────────────────────┐
        │   SETTING OBJECTIVES    │
        └─────────────────────────┘
                    │
                  and
        ┌─────────────────────────┐
        │    DECISION MAKING      │          ┐
        └─────────────────────────┘          │
                    │                         │
                 for the                      │
        ┌───────────────┴───────────┐         │    Functions
   ┌──────────────┐      ┌──────────────┐     │
   │  PLANNING    │      │   CONTROL    │     ┘
   └──────────────┘      └──────────────┘
                              │
  ┌───────────┬──────────────┬──────────────┐   ┐
finance    personnel     producing    marketing  │  Area
(money)    (men)                                  ┘
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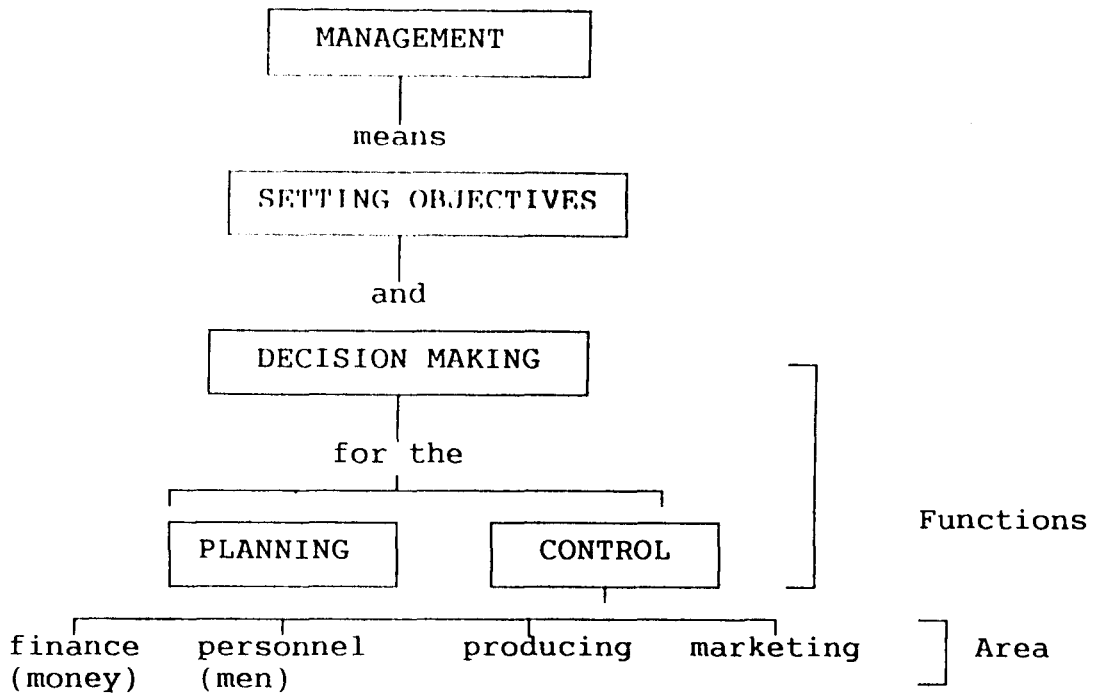
Gupta and Gupta (1992) said that management aims to perfection.

From the review it can be concluded that management is the process of making decision so that the avaiable human and material resources are properly utilised by careful planning and controlling in order to achieve the desired objectives.

2.1.1 Concept of management in relation to farming

Several authors had been realised the realtionship of managemnt with farming and some of the views are reproduced here to emphasize this concept.

Forster (1953) viewed farm management as the ways and means of organising land, labour and capital and application of technical knowledge and skill in order that the farm may be made to yield the maximum net returns.

According to Drillon (1971) agribusiness management is the sum total of all operations involved in the manufacture and distribution of farm supplies, production activities on the farm and the storage, processing and distribution of farm commodities. Castle et al. (1972) opined that farm management is concerned with the decisions which affect the profitability of farm business. Samantha (1977) defined management orientation as the degree to which a farmer is oriented towards scientific farm management comprising planning production and marketing functions of his farm.

Osburn and Schneeberger (1978) viewed management as those activities of farmers relating to the organisations and operation of a farm for the attainment of specific ends. Bora (1986) defined management as the process by which the farmer is able to enhance return from the farm on a sustained basis for the attainment of family goals.

Anantharaman (1991) indicated that efficient management on the part of farmers is necessary to survive and succeed in present day world of competition. Singh (1993) pointed out that efficiency in agricultural management implies a symbiotic relationship between administration of the support system and adoption of improved technology and farm management practices by the producer.

2.1.2   Concept of farmer as manager.

Several researchers regarded farmer as manager.
Heady and Jensen (1962) stated that every farmer is a manager, because he has to make decisions regarding the organisation and management of farm in the immediate future.

Buckett (1981) said that on many farms the owner of the business or the person who carries the ultimate risk, provides most of the management skills either as tenant of his own land or some one else's. Barnard and Nix (1986) stated that in farming, farm is the firm and farmer is the manager and entrepreneur. Chari and Nandapurkar (1987) were of the opinion that farmers as the manager of agricultural enterprise are expected to maximise the profits.

Anantharaman (1991) has indicated that manager is a person who executes, organise, and takes responsibility of management functions and he considered all the farmers as managers. Farmers can be considered as managers who had to perform managerial functions in order to derive maximum profit from the farm.

2.1.3   Importance of management in agriculture.

The importance of management in agriculture has been supported by several researchers.

Kahlon and Acharya (1967)indicated that higher management input had a significant effect on farm income. Chowdhary et al. (1968) concluded that management had decisive influence in determining the level of income. According to Singh and Singh (1975) managerial ability of farmer was a significant factor in the field of credit planning and need to be assessed on scientific lines to make a sound case for borrowing from the bank.

Shanmugappa (1978) reported that there was significant relationship between managerial ability of aracanut growers with the adoption of recommended practices. The studies conducted by Rannorey (1979), Thimmappa (1981) and Reddy (1983) also revealed

that management orientation had significant influence on adoption behaviour of farmers.

As opined by Ray and Bora (1987) agricultural technologies are in general quick maturing, high yielding and profitable, provided that they are properly managed. Chari and Nadapurkar (1987) stated that the progress, prosperity and success of agricultural enterprise mainly depend on the managerial role played by the farmers.

Kandker (1988) mentioned that the goal of good management is to maximise returns. Olsson (1988) said that farmer who is able to combine fulfilment of his own goals with the fulfilment of basic economic goals can be considered successful. Johnson (1990) indicated that good management will always obtain a better return than poor management using the same quantities of land, capital and labour.

Anantharaman (1991) in his study on managerial efficiency of cassava farmers, convincingly pointed out that management is an essential input in making farm enterprise profitable. Singh (1993) stated that given the same level of inputs and technology, efficient management can make two to three fold differences in the yield.

2.2 Concept of commercial banana grower

Webster's dictionary (1971) has defined the term 'commercial' as 'to put on a business especially so as to make profit'.

Tindall (1968) considered a commercial grower as one who grows his crops for financial reward and if his marketing is organised on a sound basis, he should be able to make a satisfactory profit.

Bony (1991) operationalised the commercial vegetable grower as one who has taken up cultivation of vegetables mainly for the purpose of market to make profit.

In the present study, the commercial banana grower is operationalised as one who cultivates banana in at least 25 cents, mainly for the purpose of marketing.

2.3 Dependent variables of the study

The objectives of the study necessiated managerial behaviour of the commercial banana growers and their extent of adoption of recommended cultivation practices as the dependent variables of the study.

2.3.1 Managerial behaviour.

Anantharaman (1991) related managerial efficiency with the managerial functions in terms of components such as planning, labour management, information management, financial management, risk management, production management and marketing management

Pathak (1992) while conducting a study on the determinants of management behaviour of farmers, had been conceptualised the management behaviour as the behavioural manifestation of an individual towards six functional dimensions such as, managerial skill, production orientation, planning orientation, market orientation, farm supervision, and decision making.

In the light of above two studies, in the present study, managerial behaviour has been taken as the functional manifestation of an individual towards eight dimensions of management viz. planning, information management, decision-making, financial management, labour management, risk management, farm supervision and marketing management.

2.3.1.1 Planning

According to Kahlon and Singh (1980) farm planning entails what is to be done, what are the resource requirement and how to accomplish the objectives. Kay (1981) defined farm planning as

making decisions and choices and a plan represents particular way of combining or organising resources like land, labour and capital.

Johl and Kapur (1989) stated that planning is the deliberate and conscious effort on the part of the farmer to think about the farm programmes in advance and adjust them according to new knowledge on technical development, changes in physical and economic situations, price structure etc.

2.3.1.2 Information management

Supe and Singh (1968) opined that the success of agricultural development programmes depends on the farmers' ability to understand and adopt newly developed technologies. For that farmers have to collect all possible information about the innovations and relate them to their situation and select best alternatives in order to maximise agricultural production.

Kaulon and Sharma (1969) revealed that for the information on product price, farmers mostly depend upon personal visit to markets, their past experience and the informations available from Panchayats. George and Singh (1970) found that most important source of market information to the farmers was the neighbours and secondly the personal visit. Giriandhar (1977)

reported that neighbours are the most important source of information followed by progressive farmers, gramsevak and radio.

Harsh et al. (1981) pointed out that the farmers require varied types of information to make decisions according to type of farm, location and resources available to the operator.

Meenakshi (1983) reported that personal attempt and market media were the most important sources of market information to the farmers. Mass media such as radio, newspapers etc. were the least used source of information.

Singh and Kumar (1983) stated that a majority of farmers required information on components like inputs, markets, credit and subsidies. Olsson (1988) opined that the farm manager seeks, receives, classifies and adjusts his activity on the basis of a lot of information concerning the developments in environment, market signals and new knowledge regarding production techniques.

Saikia (1994) said that the technological developments brought about in crop production have been still out of reach of the small and marginal farmers.

As opined by da Costa (1996) when information can be exchanged world wide with the aid of data networks, and link between nations, businesses and people will grow, distances will become unimportant, the free market economy will develop to the full, and a very promising new age of international co-operation will have begun in all walks of life.

2.3.1.3. Decision making

Johl and Kapur (1989) said that managing a farm is a continuous process of decision making. Farm manager must make decisions on certain fundamental questions regarding production of enterprise and organization of his farming business. These questions involve what to produce, and how to produce. He must decide what the scale of his farming operations will be and how to equip his farm business.

Alex (1994) defined the decision making as the process of judiciously choosing courses of action from available alternatives for the purpose of crop production.

2.3.1.4. Financial management

Hardakar et al. (1970) stated that financial management comprises both obtaining and using capital and credit wisely.

Osburn and Schneeberger (1978) described financial activities of farmers as acquisition and use of capital, forecasting future needs and arranging for their financing.

Kahlon and Singh (1980) stated that the management of capital resources along with its efficient organisation with other farm resources is very much important for the farmers.

According to Buckett (1981) farmers should examine all sources of capital, decide how much capital is required, when it is wanted and which source should be used during the planning stage and development of capital in accordance with plan.

Kulkarni (1983) defined financial mangement as that part of management which is concerned mainly with raising funds in the most economic and suitable manner, using these funds as profitably (for a given risk level) as possible ; planning future operations ; and controlling current performances accounting, cost accounting, budgeting, statistics and other means.

Johl and Kapur (1989) opined that judicious management of finances of a farm business is very important for increasing the income of the farm and financial management deals with the study of the principles and practices of financing the farm business.

Anantharaman (1991) stated that the objective of financial management is to ensure that adequate cash is on hand to meet required current and capital expenditure and otherwise to assist in maximising profits.

2.3.1.5. Labour management

Kahlon and Singh (1980) pointed out that labour is one of the most predominant resources of the farm.

Kay (1981) suggested that, if labour is treated as an inanimate object, productivity and efficiency suffer and measures of labour efficiency like tillable acres per person, labour cost per tillable acre and work units per person are useful in comparing and evaluating farm business.

According to Harsh et al. (1981) labour management deals with labour needs of individual enterprises, scheduling available labour supply, allocation of work to labourers apart from aspects of human relations.

Padmanabhan (1981) found that quantity of work output per day, quality of work done, interest and skill in doing work were the important criteria for evaluating the agricultural labourer's efficiency.

Barnard and Nix (1986) mentioned that men management is the important aspect in running farm business and defined man management as the skill of controlling and energising an employee in the execution of his tasks so that employee's efforts, sense of responsibility and the attention to detail are the best possible in the circumstances.

Johl and Kapur (1989) referred labour efficiency as the amount of productive work accomplished per man on the farm per unit of time. They stated that the higher the labour efficiency, the greater are the returns from farming.

Kedia (1992) reported that labour management relates to human beings, who are responsive, who feel, think and act. He also said that in the absence of healthy relations between the labour and management, even the latest technology fails to bring desired fruits.

2.3.1.6. Risk management

Hedges (1963) said that change plus unpredictability give rise to the manager's lack of complete knowledge of the future, to uncertainty. This uncertainty is a serious hazard to the manager's financial success. Jaitely (1988) observed that diversification of agriculture is the best remedy for steady trend of agricultural production.

Johl and Kapur (1989) opined that because farming is subject to many risks from storms, dry periods, insect pests, diseases and such other exigencies, investment in agriculture goes comparatively more risky and therefore expensive. They added that their is a need to gather experimental and field data on risk and uncertainty elements involved in production and prices of outputs and availability of inputs, as they actually mould or would modify the production plan of the farmers.

Saikia (1994) found that the personal and local characteristics having a significant bearing on farmers' risk performances were land holding, off farm income and progressiveness of farmers.

Jha and Jha (1995) stated that the presence of risk in agriculture influence farmers' production and investment decisions and they added that diversification strategies reduce risk by spreading it among different crops and animals, which evidently are not exposed to the same risk each thus ensuring that whatever the loss caused by pests occurs as partial rather than total loss.

Meera (1995) opined that farming operations suffer from certain inherent risks and farmers are different in their

capacity to take risks which may reflect upon their behaviour in total.

Sharma and Joshi (1995) said that agricultural production is generally subjected to two major sources of risk, one arising from variabilities in prices and the other in yield.

Sasmal (1996) said that risk and uncertainty in production are important elements in the decision making of the extent of use of the high yielding variety technology.

2.3.1.7. Farm supervision

Fulmer (1976) stated that the need for supervision applies in small and large business alike.

Buckett (1981) opined that one of the most important functions of management is to check on the performance of a plan once it has been implemented and to take any action necessary. He added that, if results are not monitored and appropriate measures adopted at an early stage, it may be too late to exploit favourable trends or to minimise unfavourable aspects before the position becomes too serious or possibly i vable.

Singh (1993) stated that at the farm level, vigorous discipline in operations is an essential condition of effective application of modern technology.

2.3.1.8. Marketing management

Rae (1977) stated that marketing management consists of price determination, choice of market channels, storage decisions, transportation decision and use of marketing intelligence in the case of crop management.

Buckett (1981) stated that successful marketing is one of the key functions of management and at the operational stage it is necessary to make use of every opportunity to market to best advantage, market contracts may be negotiated and produce has to be selected in right condition at the right market.

Harsh et al. (1981) pointed out that marketing has become much more complex with more marketing options now avilable to farmers and more people involved in marketing process.

Massie (1987) viewed marketing management as regulating the level, timing and character of demand for one or more product of the firm and it consists of planning, organising, controlling and implementing of marketing programmes and strategies.

2.3.2. Extent of adoption of recommended cultivation practices

Rogers (1962) defined adoption process as the mental process through which an individual passes from the first hearing about an innovation to its final adoption.

Reddy and Reddy (1972) indicated that extent of adoption of practices like seed rate, seed treatment, green leaf manuring and use of fertilizers were low in paddy. Sharma and Nair (1974) indicated that the adoption of recommeded practices of high yielding variety was far below the recommended level and only nine percent of the participants adopted three practices, i.e., seed treatment, fertilizers and plant protection in combination.

Sawant and Throat (1977) observed that rationality does not bring about critical differences in decision making in adoption of various categories, except those who are the last to adopt an improved farm practice. Differential adoption of farm innovations by farmers was generally observed and it was attributed to some of the personal, social and economic characters of farmers. Rajendran (1978) stated that majority of the small farmers were either low adopters or medium adopters of improved rice technology.

Manivannan (1980) reported that about three fourth of the farmers (72.50 percent) had adopted half of the recommended dose of plant protection measures. Asaithambi (1981) pointed out that one fourth of the big farmers and negligible percentage (2.5 percent) of small farmers had adopted the plant protection measures.

Bhat (1983) observed that in high yielding varieties of paddy and kharif jower higher adoption level was seen compared to wheat and bajra. Reddy (1983) opined that there was uneven or differential pattern of adoption of the recommended practices by farmers. Godhandapani (1985) showed that extent of adoption of nutrient recommendation was found to be medium to high for irrigated groundnut cultivators.

Rahman <u>et</u> <u>al.</u> (1986) reported that seed rates used by vegetable growers were quite high compared to the package of practices recommendations. They also identified that in contrast to the package of practices recommendations of specific chemicals for protecting vegetable crops from insect pests, the growers applied chemicals of their own choice. Chenniappan (1987) revealed that extent of adoption of improved practices for irrigated cotton was medium.

Aziz (1988) indicated that majority of the farmers belonged
to medium group in the extent of drought management practices in
rice and coconut. Jayaraman (1988) reported that 80 percent of
farmers adopted the technology of neemcoated urea for paddy.
Nehru et al. (1988) stated that 64 percent of the lab to land
beneficiary farmers adopted the recommended dose of nitrogen and
72 percent adopted the recommended dose of potash for vegetable
cultivation. Theodore (1988) reported that there was
significant difference in the extent of adoption of farming
practices among contact and other farmers.

Vijayan (1989) pointed out that all of the recommended
practices in the cultivation of Banana var. Nendran except four
practices viz. adoption of fertilizers, desuckering, mulching
and plant protection measures were adopted by almost all
farmers. Saxena et al. (1990) reported that 17.6 percent of
farmers adopted the recommended package of practices in full,
while 49.6 percent adopted partially and 32.8 percent followed
the recommendations to the minimum level on their fields. They
also reported that the plant protection measures had been
adopted by less percent of farmers. Govind (1992) indicated that
there was wide variation in the adoption levels of cultural,
chemical and specific Integrated Pest Management (IPM)
practices of selected pests among IPM and non-IPM farmers for
paddy cultivation.

Jaleel (1992) reported that majority of Kanikar tribes (69 percent) had only lower level of adoption of modern techniques of cultivation. Jnanadevan (1993) reported that in the practice wise adoption of recommended practices of coconut, the adoption of high yielding hybrid varieties for new planting was the least adopted practice, while spacing, filling the pits with top soil at planting time were shown high level of adoption among beneficiary farmers. He also reported that, none of the farmers adopted application of fertilizers according to the recommended doses.

Meera (1995) reported that the farmers of Alappuzha district were significantly higher adopters of plant protection methods than the farmers of Thiruvananthapuram district. She also reported that farmers of both the districts were ignorant about biological, physical and integrated methods of plant protection.

2.4. Independent variables and their relationship with dependent variables.

The two dependent variables in the present study included managerial behaviour and extent of adoption. Since, the studies directly relating to the managerial behaviour were very much limited, factors relating to other areas of management such as

management orientation, managerial efficiency, management attributes etc. were considered and reviewed here.

Many research reports revealed the relationship of adoption behaviour of farmers with different factors. Since a review of all these reports in detail will become volumeness, selected studies with the factors and their relationship are presented in tabular form in the Table:1.

Table:1. Review of studies to show the influence of selected factors on managerial behaviour and adoption.

(a) Relationship of independent variables with managerial behaviour

Independent Variable	Author(s)	Year	Dependent variable	Nature of relationship
1.Land holding	Reddy	1983	management orientation	Positive
	Saraf	1983		No relation
	Walker et al.	1983	"	Negative and significant
	Sree kumar	1985	"	No relation
	Bora	1989	management attributes	Positive
	Nagaraja	1989	management efficiency	Significant
	Ananthara-man	1991	managerial efficiency	Significant
	Gowda	1991	crisis management	Significant

2.Area under banana culti- vation	Nagaraja 1989 (crop-mulberry)	management efficiency	"
	Ananthara- 1991 man (crop-cassava)	managerial efficiency	Significant
3.Irrigation potential	Sagar 1983	management orientation	"
	Singh & Ray 1985	"	"
	Nagaraja 1989	management efficiency	Negative
	Ananthara- man 1991	managerial efficiency	Significant
	Gowda 1991	crisis management	Positive
	Pathak 1992	management behaviour	Significant & postive
4.Socio poli- tical parti- cipation	Reddy 1983	management orientation	Significant
	Saraf 1983	"	No relation
	Sreekumar 1985	"	"
	Ananthara-1991 man	managerial efficiecy	Non signi- ficant
	Gowda 1991	crisis management	Significant & positive
5.Material possession	Reddy 1983	management orientation	Significant
	Gowda 1991	crisis management	"

	Pathak	1992	management behaviour	Significant & positive
6.Mass media exposure	Reddy	1983	management orientation	Significant
	Renuka-radhya	1983	"	"
	Sumathi	1987	"	"
	Bora	1989	management attributes	Positive
	Nagaraja	1989	management efficiency	Significant
	Ananthar-aman	1991	managerial efficiency	Nonsignifi-cant
	Gowda	1991	crisis management	Significant
	Pathak	1992	management behaviour	Significant & positive
7.Closeness with agri-cultural support system	Reddy	1983	management orientation	Positive
	Renukar adhya	1983	"	Positive
	Sree-kumar	1985	"	"
	Sumathi	1987	"	Significant
	Bora	1989	management attributes	Positive
	Naga-raja	1989	management efficency	"

	Anatha-raman	1991	managerial efficency	Significant
	Gowda	1991	crisis management	Significant & positive
	Pathak	1992	management behaviour	"
8.Self confidence	Sumathi	1987	management orientation	Significant
9.Scientific orientation	Kamaru-dheen	1981	"	Positive
	Anantha-raman	1981	managerial efficiency	Significant
10.Credit orientation	Singh & Singh	1975	management performance	Significant
	Samanta	1977	management orientation	Positive
	Kappatt-anavar	1983	"	"
11.Deferred gratification	Nagaraja	1989	management efficency	Significant
	Gowda	1991	crisis management	Significant & positive
12.Creativity			Studies not available	

(b) Relationship of independent variables with adoption.

Independent Variable	Author(s)	year	Nature of relationship
1.Land holding	Manivannan	1980	Significant
	Prakash	1980	Positive&significant
	Godhandapani	1985	Non-significant
	Jayapalan	1985	"
	Balan	1987	Significant
	Chenniappan	1987	Positively significant
	Palani	1987	"
	Aziz	1988	"
	Jayaraman	1988	Non-significant
	Theodore	1988	"
	Gogoi & Gogoi	1989	Positively significant
	Sajeevchand-ran	1989	"
	Vijayan	1989	"
	Athimuthu	1990	"
2.Area under banana cult-vation	Sivarama Krishnan (crop-cassava)	1981	"
	Anantharaman et al. (cassava)	1985	Indirect
	Ananatharaman (cassava)	1991	Significant
	Bony (vegetables)	1991	"

3.Irrigation potential	Perumel & Mariappan	1982	Possitive
	Shivaraja	1986	Positive
	Singh	1989	Positive
	Bony	1991	Positive & significant
4.Socio political participation			
	Ravichandran	1980	Positively significant
	Kamarudheen	1981	"
	Sainath	1982	Positive
	Singh & Ray	1985	Significant
	Bhaskaran& Thampi	1986	Non-significant
	Lalitha	1986	Negative
	Prasannan	1987	Positively significant
	Himantharaju	1988	Non-significant
	Anithakumari	1989	"
	Gangadharan	1993	Positively significant
	Sarmah & Singh	1994	Significant
5.Material possession	Roy et al.	1968	Positive & significant

	Shanmugappa	1978	Positive
	Thimmappa	1981	Significant
6.Mass media exposure	Manivannan	1980	Positive & Significant
	Prakash	1980	"
	Sushama et al.	1981	"
	Jayakrishnan	1984	"
	Anantharaman et al.	1985	"
	Godhandapani	1985	"
	Jayapalan	1985	"
	Nanjayyan	1985	No relation
	Viju	1985	Positive & Significant
	Wilson & Chaturvedi	1985	"
	Lalitha	1986	"
	Theodore	1988	"
	Vijayan	1989	"
	Athimuthu	1990	"
	Govind	1992	"

7.Closeness with
agricultural
support system.

	Reddy & Reddy	1985	Positive
	Sudha	1987	Positive & significant
	Jayaraman	1988	"
	Krishnamoorthy	1988	"
	Palvannan	1988	"
	Syamala	1988	"
	Vijayan	1989	Significant
	Juliana et al.	1991	Positive & significant
	Govind	1992	"
	Jnanadevan	1993	Negative & significant
8.Self confi- dence	Rao	1985	Significant & positive
9. Scientific orientation			
	Jayapalan	1985	Positive
	Nanjayyan	1985	Significant
	Wilson & Cha- turvedi	1985	"
	Krishnaiah	1986	Positive & significant
	Swaminathan	1986	Not signi- ficant

	Balan	1987	Positive
	Prasannan	1987	Positive & significant
	Syamala	1988	Significant
	Anithakumari	1989	Positive & significant
	Sajeevchandran	1989	Positive & significant
	Singh	1989	"
	Bony	1991	Nagative & significant
	Umale et al.	1991	Positive & significant
	Ramachandran	1992	"
	Jnanadevan	1993	"
10.Credit orientation	Bhaskaran	1978	No relation
	Pillai	1978	"
	Suryavanshi et al.	1978	Positive
	Perumal & Mariappan	1982	"
	Reddy et al.	1982	"
	Nanda kumar	1988	Not significant
	Jaleel	1992	"

11.Deferred gra-
tification   Studies not available

12.Creativity

2.5. Indigenous farming practices.

The knowledge of indigenous practices can be of use to the scientists in developing new hypothesis for research in order to blend the indigenous practices adopted by farmers with the modern techniques of crop production.

Denevan (1995) opined that today, it is widely accepted that indigenous knowledge is a powerful resource in its own right and complementary to knowledge available from western scientific resource base.

Meera (1995) opined that comprehending the science underlying indigenous practices would help us to understand the concepts and practices depicting the elements of sustainability to integrate with the modern information system for efficient resource management. She identified the practice of 'controlled application of nutrients for reducing pest and diseases attack' as the most effective and scientifically rational practice in paddy cultivation and in vegetable cultivation, the practice, 'use of thulsikeni in pandals to trap and kill fruit flies'.

Maskey (1995) while describing the realisitc conditions for testing research results stated that management strategies of

most subsistence farmers are adapted to the local culture and environment, as they rely mainly on indigenous knowledge.

Vel (1995) pointed out that farmers' indigenous technical knowledge plays an important role in deciding about agricultural innovations.

Boer and Castellion (1996) reported that farmers in the Andes have many traditional ways of enriching and conserving soil. They described that the sediment trapping technique, lameo, is a low cost technology which only needs labour and local material avoiding the major investment needed to buy inputs.

Altieri (1996) stated that, in this new emerging conception of agricultural development, rural people's knowledge about plants, soils and animals gains unprecedented significance. He continued that scientists involved in small farm development must quickly systematize and incorporate farmers' knowledge, before this wealth of practical knowledge, is lost forever, given that most traditional farming systems are rapidly disappearing in the face of major social, economic and political changes occuring in developing countries.

In the present study, the local practices adopted by the commercial banana growers during the cultivation of banana

which are not recommended in the package of practices, are taken as indigeneous farming practices.

2.6. Marketing channels

Acharya and Agarwal (1987) stated that marketing is critical to better performance in agriculture as farming itself and a marketing system always pays dividend to the producer and safe guards interest of the consumer as well. Channels of distribution play an important role in the marketing of commercial agricultural produces. So in the present study, an attempt was made to identify the marketing channels of banana as given by the respondents. As a part of it, some of the studies related to marketing channels are reveiwed and presented here in order to get an orientation to the subject matter.

2.6.1 Definitions on marketing channels

Mamoria and Joshi (1990) defined a channel of distribution for a product as the route taken by the title to goods as they move from the producer to the ultimate consumer or industrial user. It is a group of interrelated intermediaries who direct products to consumers.

Sandhya (1992) had given a definition to the marketing channel as the routes through which products move from producers to consumers.

2.6.2 Studies related to the marketing channel

Sandhya (1992) opined that the disorganised system of marketing service is a threat to vegetable production. A large number of intermediaries reap the maximum share of consumers' price and the producers get only a marginal benefit over the costs incurred by them in producing these commodities. Patnaik (1995) found that there was an inverse relationship between farmsize and the length of marketing channels.

Some of the studies revealing marketing channels of different crops are presented in a tabular form as follows.

Table:2. Review of studies revealing different marketing channels of crops.

Sl.No	Author	Year	Crop	Marketing Channels
1.	Sindhu and Kahlon	1967	Apple	(a) Producer-Preharvest contractors (b) Producer-Commission agent (c) Producer- Consumer
2	Singh and George	1968	Tomato	Producer-Preharvest contractors
3	Singh and George	1969	Sweet organge	Producer-Pre-harvest contractor
4	Kochar	1971	Apple	(a) Producer-Commission agent (b) Producer-Preharvest contractors
5	Raghubanshi	1971	Hill capsicum	(a) Producer-Village dealers (b) Producer-Commission agent (c) Producer-Retailer (d) Producer-Consumer
6	Singh and Mann	1971	Apples, grapes onion and tomato	Producer - Wholesaler - Retailer - consumer
7	Ravi	1975	Coconut	(a) Producer-Village merchants (b) Producer-Commission agent (c) Producer-Wholesalers (d) Producer-More than one channel
8	Raghubanshi and Tiwari	1976	Tomato	(a) Producer-Primary wholsaler-Sub wholesaler (Mashkor)-Retailer-consumer (b) Producer-Secondary wholesaler-Retailer-consumer (c) Grower-Retailer-consumer
9	Govardhana	1979	Dry chillies	(a) Producer-Trader (b) Producer-Co-operative society-Trader (c) Producer-Commission agent-Trader
10	Shete et al.	1980	Tomato	Producer-Itinerent traders-Commission agents-Retailers
11	Ramaswamy	1981	Brinjal and Bhindi	Producer-Commission agent-Wholesaler- Retailer-Consumer

12	Basavarajappa	1982	Onion	(a) Producer-Trader-cum wholesaler
				(b) Producer-Wholesalers
				(c) Producer-Trader-cum Retailer
				(d) Producer-Retailer
13	John D'silva	1982	Coorg Mandarin oranges	Producer- Preharvest contracter-Retailer-consummer
14	Hugar et al.	1983	Brinjal	(a) Producer-Seller-Commission agent-Retailer- Consumer
				(b) Producer-Seller-Co-operative society-Retailer-Consumer
15	Nagaraj et al.	1985	Fruits and vegetables	(a) Producer-Commission agent-Retailer-Consumer
16	Shashikumar	1987	Potato	(a) Producer-Commission agent
				(b) Producer-Village trader
				(c) Producer-Consumer
17	Subrahmanyam	1988	Vegetables	(a) Producer-Commission agent
				(b) Producer- Consumer
18	Gill et al.	1989	Vegetables	Producer-Wholesaler-Retailer-Consumer
19	Sandhya	1992	Bittergourd and ashgourd	Producer-Commission agent-Wholesaler-Retailer-Consumer
20	Patnaik	1995	Groundnut	(a) Producer-Consumer
				(b) Producer-Decorticators-Consumer
				(c) Producer-Licenced agencies-Consumer

2.7 Economics of banana cultivation

Farmers cultivate crops with an objective of getting some return from it in the form of cash to support the livelihood of their family. They may invest more money in crop production for profit maximisation. Economic aspects of crops are considered by farmers in the selection of a crop for cultivation. Economics of banana cultivation was therefore included in the present study and the related studies are reviewed here.

Achuthan (1965) indicated that the average cost of cultivation of banana var. Nendran per acre was Rs. 1598/-. He found that out of total expenditure per acre, the cost of manures and fertilizers was the most expensive item (42 percent), followed by labour cost (31.3 percent). The other constituents of cost of production in order of magnitude were, cost of props, rent for the land, cost of planting materials and interest on working capital.

Peter (1974) observed that 91 percent of the variation in gross income of banana was explained by labour, expenditure on manures and fertilizers and expenditure on suckers.

Mital and Srivastava (1975) reported that the cost of production of bulb crop onion was Rs. 4,700/- per hectre. Among

cost components, irrigation charges accounted for the highest share followed by cost of manures and fertilizers.

While estimating the cost of cultivation of vegetables, Subrahmanyam and Doss (1981) shown that manures and manuring accounted for nearly 70-75 percent of total cost.

Thomas and Gupta (1987) observed that Rs.6,000/- can be gained by undertaking banana cultivation. Lathabastine and Radhakrishnan (1988) in a study on ecconomics of banana cultivation in Irinjalikkuda block in Trissur district, cost of cultivation per hectare of banana was calculated as Rs.36349/-. The main items of expenditure was found to be human labour (26.98 percent) and manures (24.6 percent).

Thomas et al. (1989) worked out the per hectare cost of cultivation of banana varieties, Nendran and Robusta as Rs.30,150/- and Rs 36,908/- respectively. In the case of Nendran, out of the total cost, 61.27 percent was spent as material cost and 38.73 percent as labour and in Robusta it was 60.57 percent and 39.43 percent respectively. The manures and fertilizers shared the major portion of the total cost for both varieties. The benefit cost ratio of Nendran and Robusta were 1.28 and 1.34 respectively

Reddy et al. (1990) while studying the resource use efficiency in betelvine cultivation, seen that costs and return components for the crop were at high magnitude and it was found that imputed cost of family labour and rental value of land constituted nearly 50 percent of total costs.

Sandhya (1992) while estimating the cost of cultivation of two vegetables, bittergourd and ashgourd, reported that the largest single item of input was human labour. She also found that in the case of bittergourd and ashfourd, additional expenditure in two variable inputs namely manures and fertilizer and land, can increase the total returns.

Anil et al. (1994) while estimating the per hectare cost of cultivation of tissue culture banana, the total expenditure was worked out as Rs.117870/-,the total income as Rs.243000/- and net profit as Rs.125130/-. The benefit-cost ratio obtained was 2.06.

George (1995) worked out the economics of cultivation of sweet potato under experimental condition and recorded a maximum benefit cost ratio of 4.33

2.8 Constraint analysis

Farmers come across a lot of problems during the course of cultivation of crops. Lanjewar and Kalantri (1985) had treated any problem faced by farmers in their farming activities of production, credit and marketing as managerial problems. According to Pandya and Trivedi (1988) constraints are those items of difficulties or problems faced by indiviudals in adoption of technology.

The prbolems faced by farmers in the cultivation and marketing of banana are considered as constraints in the present study. Constraints in farming as identified by different researchers were reviewed and presented below.

Table:3. Constraint analysis.

Sl. No	Researcher	Year	Area of Study	Constraints identified
1	Seshachar	1980	Chilli growers	Lack of knowledge regarding spacing, application of fa rmyard manure and fertilizers and use of plant protection measures.
2	Jaiswal and Arya	1981	Transfer of technology	Relative advantage of the innovation, its conpatibility, simplicity, divisibility and communicability.
3	Norman	1982	Vegetable cultivation	High attack of pests & diseases, high input cost and serious transportation problem.
4	Tripathy et al.	1982	Rice cultivation	Water management, disease, pest control and nitrogen application.
5	Waghmare & Pandit	1982	Adoption of wheat technology	Lack of knowledge, lack of technical guidance, high cost of chemical fertilizers and small size of holdings.
6	Kumbar	1983	Grape cultivation	Lack of knowledge, lack of finance and lack of water in the well.
7	Ananatharaman et al.	1986	Adoption of improved varieties of cassava	Non-availability of seed materials, lack of capital, lack of awareness and lack of knowledge.
8	Ramashbabu	1987	Grape production	Non-availability and high cost of inputs, more diseases and pests, lack of water for irrigation, poor bud burst, problem of weeds, micro-nutrient deficiency, soil salinity and alkalinity.
9	Prasannan	1987	Adoption of coconut cultivation practices	Non-availability of inputs in time, non-avialbility of labour, high labour cost involved and high cost of materials.

10	Ramanathan et al.	1987	Adoption of HYV cassava	High cost of cultivation, non-availability of planting materials in time & better performance of local varieties under poor management, lack of marketing system, less price of tubers of HYV of cassava, lack of adequate knowledge and lack of special devlopemmnt programmes.
11	Abdul and Kaul	1988	Marketing of pine apple	Fluctuating marketing price, heavy cost of transportation and substantial wastage during transportation. consucting fieldtrials.
12	Theodore	1988	Adoption of seed treatment with fungicides	No previous experience of summer ploughing, high cost and non availability of recommended varieties, not practised by neighbouring farmers, no knowledge, complexity, no interest and lack of guidance.
13	Ajayakumar	1989	Grape cultivation	More diseases, poor bud burst, non-availability of labour, micro-nutrient deficiency, rain during pollination, lack of water for irrigation, probelm of weeds, lack of regualted markets, exploitation by middle men and low price for the produce.
14	Prakash	1989	Rice cultivation	High wage rate, small sized holdings incidence of pests and diseases, non availability of inputs in time, lack of co-operation among farmers, low adoption of HYV, lack of irrigation and fragmentation.
15	Sagar	1989	Productivity of crops	Lack of finance, non - availability of inputs, inadequate irrigation and high cost of inputs.
16	Vijayan	1989	Adoption of Nendran banana	Inadequacy of capital, high labour charge, high price of inputs, high prop cost, high cost of pp chemicals and fert., inadequate market facilities, non-availability of equipments for plant protection, poor transport facilities, lack of knowledge about technology and uneconomic holding size

17	Anantharaman	1991	Managerial efficiency of cassava farmers	Lack of awareness, lack of kanowledge, lack of conviction, limited resources lack of timely information, lack of planting materials, high cost of fertilizers and lack of marketing choice.
18	Bony	1991	Commercial vegetable cultivation	High cost of palnt protection chemicals, inadequate marketing, storage and post harvest facilities.
19	Govind	1992	IPM and non-IPM farmers	Lack of assured irrigation, inadequacy of inputs and package deals along with subsidy.
20	Ramachandran	1992	Impact of rice minikit trials on adoption behaviour of farmers	Lack of input supply in time, lack of timely guidance of supervision, lack of information regarding the POP recommen- dations and poor quality of seeds
21	Sandhya	1992	Marketing of vegetables	Perishability, bulkiness and seaonality in production, uncontrolled inorganised & insufficient marketing system, abscence of proper grading and standardisation and involvement of large number of middlemen.
22	Singh and Lahari	1992	Transfer of sugar cane technology	Constraints of institutional (Factor I) extension sytem (factor II), client system/ farmers (Factor III) and technology (Factor IV).
23	Santha et al.	1993	Adoption of improved technology in banana production	Lack of kanowledge and conviction about the practice (Educational constraints same split application recommendation
24	Meera	1995	Differential adoption of plant protection technology	Untimely supply & high cost of inputs, difficulties in finding the dosage of chemical and difficulty in the selection of alternate chemicals.
25	Jayalekshmi	1996	Entreprenarial behaviour	Marketing problem, lack of financial assistance & non avilability of spawn (in mushroom cultivation). Marketing problem, high cost of fruits & lack of financial assistance (fruits & vegetable production).

2.9. Hypotheses developed for the study.

Based on the theoretical orientation and review of literature, the following null-hypothesis were formulated.

1. There would be no significant difference among Nendran, Palayankodan and Red banana growers with respect to their managerial behaviour.

2. There would be no significant difference among Nendran, Palayankodan and Red banana growers with respect to their extent of adoption of recommended cultivation practices.

3. There would be no positive and significant relationship between managerial behaviour and selected characteristics of Nendran, Palayankodan and Red banana growers respectively.

4. There would be no positive and significant relationship between extent of adoption of recommended cultivation practices and selected characteristics of Nendran, Palayankodan and Red banana growers respectively.

2.10. Conceptual model for the study

The two dependent variables of the study are managerial behaviour and extent of adoption of recommeded cultivation practices of Nendran, Palayankodan and Red banana growers. Managerial behaviour is taken as a comprehensive measure of

IV

DV	Socio-psychological and situational factors	DV

MANAGERIAL BEHAVIOUR OF NENDRAN,PALAYAN-KODAN AND RED BANANA GROWERS	Land holding
	Area under banana
	   cultivation
	Irrigatiion potential
	Socio-political
	   participation
	Material possession
	Mass-media exposure
	Closeness with agricultural
	   support system
	Self confidence
	Scientific orientation
	Credit orientation
	Deferred gratification
	Creativity
		EXTENT OF ADOPTION OF NENDRAN, PALAYANKODAN AND RED BANANA GROWERS

DV (left box dimensions):

Planning — D
Information management — I
Decision making — M
Financial management — E
Labour management — N
Risk management — S
Farm supervision — I
Marketing management — O
 — N
 — S

Fig: 1. CONCEPTUAL MODEL FOR THE STUDY

DV - Dependent Variable
I V - Independent Variables

eight functional dimensions of management such as planning, information management, decision making, financial management, labour management, risk management, farm supervision and marketing management. The managerial behaviour and extent of adoption of commercial banana growers are expected to be influenced by the socio-psychological and situational factors like land holding, area under banana cultivation, irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity.

In the figure: 2, it is depicted that the managerial behaviour comprising of eight dimensions and extent of adoption of Nendran, Palayankodan and Red banana growers are influenced by the twelve independent variables (socio-psychological and situational factors).

METHODOLOGY

CHAPTER III

METHODOLOGY

A detailed description of the methods and procedures adopted in conducting the study is presented in this chapter under the following sub headings.

3.1 Locale of the study

3.2 Sampling procedure employed

3.3 Selection of variables

3.4 Measurement of variables

3.5 Identification of marketing channels

3.6 Identification of constraints

3.7 Data collection procedure

3.8 Statistical tools used

3.1. Locale of the study

The study was conducted in Thiruvananthapuram District of Kerala State. The respondents of the study were commercial banana growers. The marketing centres and presence of airport facilitating export of banana attributed commercial banana cultivation in Thiruvananthapuram District and so this District was selected as the locale of study. The convenience of the researcher in the collection, analysis and interpretation of data along with the institutional facilities were also considered for selecting Thiruvananthapuram as the locale of the study.

N

MAP OF KERALA

THIRUVANANTHAPURAM
DISTRICT

ATTINGAL
SUB DIVISION

NEDUMANGAD
SUB DIVISION

✳ ANAD

✳ POTHENCODE

NEYYATTINKARA
SUB DIVISION

✳ VENGANOOR
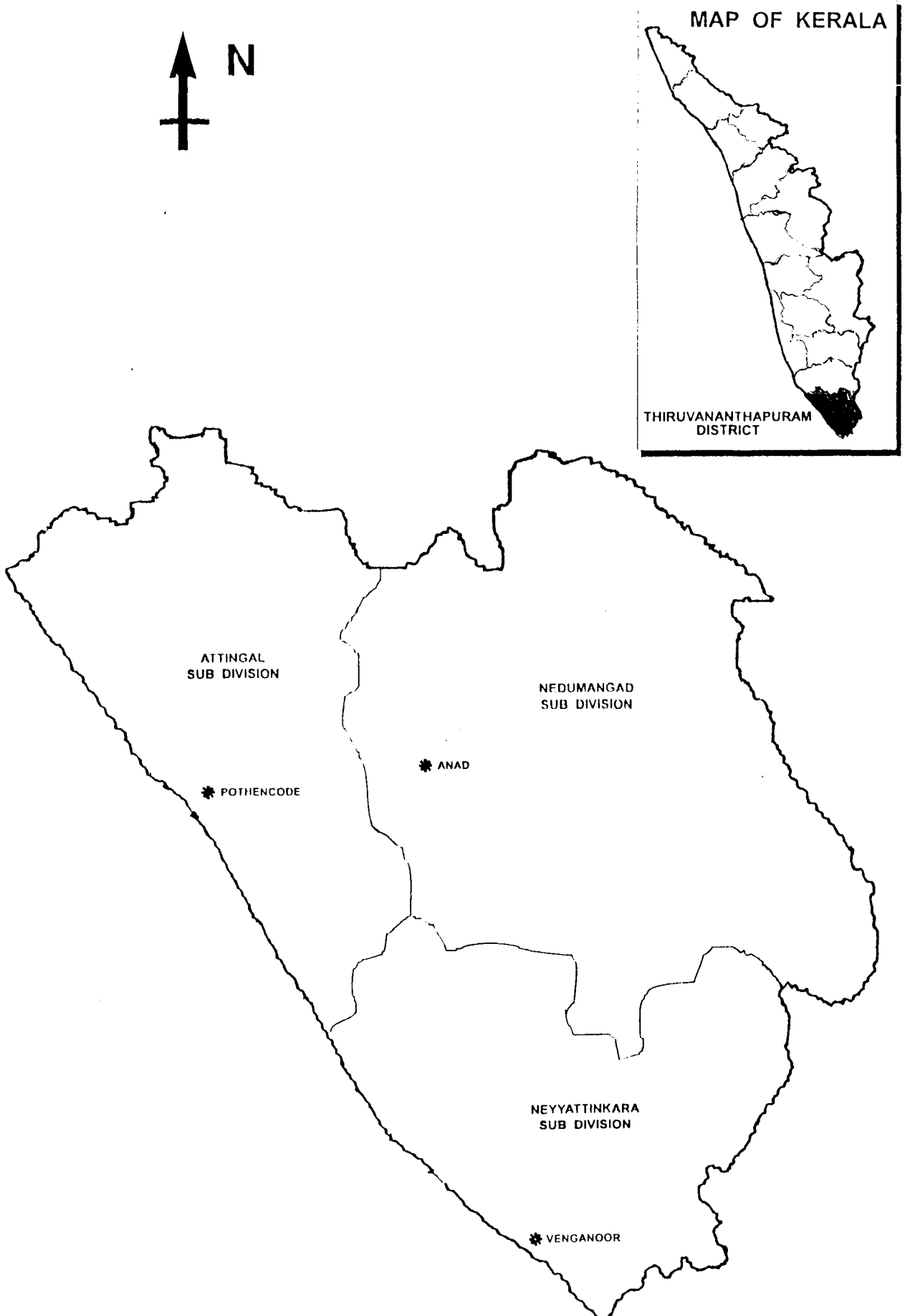
Fig. 2. Map showing the location of the study

3.2. Sampling procedure employed

The respondent farmers were selected from the study area based on stratified two stage sampling method, in proportion to the area of banana growers in selected units.

3.2.1. Selection of Krishibhavans

The three agricultural sub-divisions in Thiruvananthapuram District viz. Neyyattinkara, Nedumangad and Attingal, constituted the strata. From each sub-divisions one Krishibhavan where banana was cultivated extensively was selected at random.

The selected Krishibhavans included Venganoor, Anad and Pothencode which are situated near the major markets of Thiruvananthapuram District such as Chalai, Nedumangad and Pothencode. Access to these markets stood as a favouring factor for commercial banana cultivation ensuring proper marketing in these selected Panchayats.

3.2.2. Selection of respondents

The commercial banana growers of Thiruvananthapuram District constituted the respondents of the study. The banana farmers satisfying the criteria of cultivating banana in at least 25

cents, consequetively for three cropping seasons, including the period of investigation, mainly for the purpose of marketing were selected as respondents.

Table:4. List of Krishibhavans and number of respondents selected for the study.

Sl. No.	Sub-division	Krsihibhavan	No.of banana growers	No. of respondents
1.	Neyyattinkara	Venganoor	373	56
2.	Nedumangad	Anad	346	52
3.	Attingal	Pothencode	280	42
			Total	150

Since the main analysis was done in terms of variety grown, the sample population of one hundred and fifty commercial banana growers grouped into Nendran growers, Palayankodan growers and Red banana growers based on the variety grown.

Table:5. Distribution of respondents according to the variety grown.

Farmer Group	Number of farmers
Nendran growers	75
Palayankodan growers	45
Red banana growers	30
Total	150

3.3. Selection of variables

Through review of literature, discussion with experts and observation of the researcher, nine dimensions of the dependent variable, managerial behaviour and 32 independent variables were selected. For the final selection, a pilot study was conducted.

3.3.1. Pilot study for screening the dimensions of managerial behaviour and independent variables.

A pilot study was conducted among 30 commercial banana growers of Thiruvananthapuram District, selected at random from a non-sample area with the following objectives.

a)   for screening the independent variables

b)   for selecting the dimensions of managerial behaviour

c)   for identifying the marketing channels of banana

d)   for locating the constraints in banana cultivation.

3.2.2. Selection of independent variables and dimensions of managerial behaviour

Simple correlation co-efficients were worked out for selecting the independent variables and dimensions of managerial behaviour. Those variables which were significantly related to the managerial behaviour at 0.05 level of significance were included in the main study.

Table:6. List of independent variables with their respective
correlation co-efficient.

Sl.No.	Independent variables	Correlation co-efficient
1.	Age	0.006
2.	Religion	-0.268
3.	Occupation	0.129
4.	Land holding	0.410*
5.	Caste	-0.048
6.	Education	0.286
7.	Socio-political particiption	0.466**
8.	Material possession	0.545**
9.	House	-0.069
10.	Family type	-0.130
11.	Annual income	0.140
12.	Cosmopliteness	0.190
13.	Mass media exposure	0.362*
14.	Extension contact	0.335
15.	Attitude towards banana cultivation	-0.112
16.	Knowledge about banana cultivation	0.334
17.	Innovativeness	0.129
18.	Self confidence	0.427*

19.	Level of aspiration	0.0070
20.	Economic motivation	0.115
21.	Credit orientation	0.384*
22.	Scientific orientation	0.362*
23.	Competition orientation	0.267
24.	Farming commitment	0.127
25.	Deferred gratification	0.439*
26.	Creativity	0.646**
27.	Independence	-0.0057
28.	Area under banana cultivation	0.362*
29.	Irrigation potential	0.401*
30.	Infrastructural facilities	-0.146
31.	Closeness with agricultural support system	0.397
32.	Farming experience	-0.00092

Table:7. List of dimensions of managerial behaviour with their respective correlation co-efficient.

Sl.No.	Dimensions	Correlation co-efficient
1.	Planning	0.813**
2.	Information management	0.716**
3.	Decision making	0.490**
4.	Financial management	0.783**

5.	Labour management	0.700**
6.	Production management	0.339
7.	Risk management	0.604**
8.	Farm supervision	0.451**
9.	Marketing management	0.406**

----

*   - Significant at 0.05 level

** - Significant at 0.01 level

Twelve independent variables and eight dimesnions of managerial behaviour were selected through the pilot study.

The important variables selected were:

i)   Land holding

ii)   Area under banana cultivation

iii)   Irrigation potential

iv)   Socio-political participation

v)   Material possession

vi)   Mass media exposure

vii)   Closeness with agricultural support system

viii) Self confidence

ix)   Scientific orientation

x)   Credit orientation

xi)   Deferred gratification and

xii)   Creativity.

The selected dimensions of managerial behaviour were:

i)   Planning

ii)   Information management

iii)   Decision making

iv)   Financial management

v)   Labour management

vi)   Risk management

vii)   Farm supervision and

viii)   Marketing management.

3.4. Measurement of variables

This part includes a review on methods of measurement of variables already used by different researchers and the measurement techniques used in the present study.

3.4.1. Measurement of dependent variables.

The dependent variables selected for the study included, managerial behaviour and extent of adoption of recommended cultivation practices of banana.

3.4.1.1. Managerial behaviour

The research works directly relating to the measurement of managerial behaviour were very few. But there were some studies

in which management and related factors were measured using different measurement procedures.

Kahlon and Acharya (1967) developed a management index to measure the management factor. The decisions which contributed to the differences in the low and high income group of farmers was taken as management factor. Such factors were ranked based on research findings and converted into scores and its weighted sum was used as the management index.

Harinath (1971) constructed a management index with nine major items and 79 sub-items. The items and sub-items were ranked and weightages were given based on Fisher and Yate's table. The combined weightage of each sub-item and item were summed up to form the management index.

Samantha (1977) devised a management orientation scale considering three components namely, planning orientation, production orientation and marketing orientation. Each component has six statements with four response categories. The positive statements were given with the scores of 'three', 'two' and 'one' respectively for responses of 'strongly agree', 'disagree' and 'strongly disagree'. The scoring was reversed for negative statements. The management orientation score of an individual was sum of scores for all the statements in the scale.

Shanmugappa (1978) measured the management ability of arecanut growers by scoring 12 selected statements. Each statements was provided with three response categories such as `good', `better' and `best' with `one', `two', and `three' scores respectively. The management ability index was obtained as:

Management
ability index   = $\dfrac{\text{Total score obtained by the farmer x 100}}{\text{Maximum possible score}}$

Similar procedure was followed by Thimmappa (1981) and Sainath (1982) for coconut farmers and grape growers respectively.

Anantharaman (1991) developed a scale to measure the managerial efficiency of cassava farmers. From the 196 items reflecting managerial activities of farmers applicable for various crop enterprises, 30 items screened and finally selected through review of literature, judges rating and item analysis, which were grouped under seven managerial components namely, planning, labour management, information management, financial management, risk management, production management, and marketing management. The scores obtained by individuals on the items grouped into a component was added to derive the component score.

$$\sum_{i=1}^{n} t_1 = t_1 + t_2 + t_3 + \ldots\ldots t_n$$

where

$t_1 \ldots\ldots t_n$ refer to individual's score on items

Managerial efficiency was computed by summing the scores obtained by individuals on components which is denoted as:

$$\sum_{i=1}^{n} c_1 + \ldots\ldots c_n$$ refer to individual's score on components.

Pathak (1992) developed a management behaviour index to measure the management behaviour of farmers, which was taken as a composite measure of six functions such as managerial skill, production orientation, planning orientation, market orientation, farm supervision, and decision making. Managerial skill and decision making were measured with the help of four-point scales developed for the study and other functions were measured by adopting already developed scales with modifications wherever necessary. The Management Behaviour Index was calculated according to the following formula.

$$MBI = \frac{a1}{a2} + \frac{b1}{b2} + \frac{c1}{c2} + \frac{d1}{d2} + \frac{e1}{e2} + \frac{f1}{f2} \times 100$$

Where

MBI - Management Behaviour Index

al, bl, cl, dl, el and fl were the actual scores earned by an individual and a2, b2, c2, d2, e2 and f2 were the maximum possible scores that could be earned by an individual farmer on managerial skill, production orientation, planning orientation, market orientation, farm supervision and decision making scales respectively.

$$\text{Each of the ratios} = \frac{a1}{a2} + \frac{b1}{b2} + \frac{c1}{c2} + \frac{d1}{d2} + \frac{e1}{e2} + \frac{f1}{f2}$$

was the measure of management behaviour and all the pooled ratios gave a composite measure of management behaviour of an individual farmer.

In the present study, the managerial behaviour was operationalised as the behavioural manifestation of an individual towards eight functional, dimensions of management such as planning, information management, decision making, financial management, labour management, risk management, farm supervision and marketing management. The operational definitions of these dimensions are given below.

Planning: refers to the respondent's ability to prioritise work in advance so that efficient utilization of resources is possible.

Information management: refers to the frequency with which a commercial banana grower obtains informations regarding cultivation of banana, its marketing and other technical aspects, from different sources of communication and proper utilization of them for solving problems in cultivation.

Decision making: it is the degree to which a commercial banana grower justifies the selection of most effective means from among the available alternatives for achieving maximum economic profit.

Financial management: it is the ability of the respondent to use the available capital in the most economic and suitable manner and planning future operations through financial accounting, budgeting etc. with an objective of getting maximum profit.

Labour management: refers to the respondent's ability to efficiently utilize the available labour force, satisfying their needs and allocating work on a rational basis, maintaining healthy human relations.

Risk management: refers to the degree to which a commercial banana grower is oriented towards risks and uncertainty and facing problems in the cultivation of banana and its marketing.

<u>Farm supervision</u>: refers to the respondent's ability for ensuring proper execution of farm operations and surveillance against possible damage to banana plants with the ultimate objective of getting higher production.

<u>Marketing management</u>: denotes the degree to which a respondent is oriented towards the selection of marketing channels, price and profit from banana cultivation and marketing.

Hence in the present study, the managerial behaviour was measured using the eight dimensions mentioned above. For measuring the dimensions such as planning, information management, financial management, labour management and marketing management, the measurement procedure developed by Anantharaman (1991) was used with some modifications wherever necessary. The frequency of the cultivation activities of banana, practised by the grower respondent in the previous cropping season were measured in a five point continum. The weightage with reference to the frequency is given below.

Frequency	Score
Always	5
Frequently	4
Sometimes	3
Rarely	2
Never	1

For the second statement under marketing management the scoring pattern was reversed.

The measurement of decision making was done by using the scale developed by Sobhana (1990). Out of the six statements reflecting the decision taking ability, the first statement was measured with a dichotamised response having scores of `Yes' -2 and`No'-1. For all others statements a three point continum was used namely always, sometimes and very rarely with scores of 3,2 and 1 respectively for positive statements and the scoring pattern was reversed for negative statements.

Risk management was measured by using the scale developed by Supe (1969). There was six statements in the scale of which items one and five were negative and all others were positive. The scoring was done on a five point continuum. The scoring procedure was as follows.

Response category	Score	
	for positive statements	for negative statements
Strongly agree	5	1
Agree	4	2
Undecided	3	3
Disagree	2	4
Strongly disagree	1	5

The scores obtained for all the statements were summed up to obtain the individual respondent's risk management score.

The dimension, farm supervision was measured by using the scale developed by Sagar and Ray (1987) with slight modification. Weightages given to the frequency of personal supervision of the farm operations were given below.

Frequency	Score
Most often	4
Often	3
Sometimes	2
Never	1

A managerial behaviour index was developed by taking the composite measure of these eight dimensions. The respondents were categorised into low, medium and high groups of managerial behaviour by adopting the following pattern of categorisation.

Category	Score range
Low	<30
Medium	30-60
High	>60

3.4.1.2. Extent of adoption

Many researchers standardised various methods to quantify adoption behaviour of farmers.

Supe (1969) developed a scale known as cotton practice adoption scale by selecting ten practices of cotton. For each practice, total score for complete adoption was six. The prcatices which were divisible were assigned partial scores for partial adoption.

Singh and Singh (1974) also used an adoption quotient which was a modification of the one developed by Chattopadhyay (1963). According to this, adoption quotient of each respondent was calculated by using the formula:

$$AQ = \frac{e/p \times 100}{N}$$

Where

AQ   -   Adoption quotient

e   -   Extent of adoption of each practice

p   -   Potential for adoption of each practice

N   -   Total number of practices selected.

Earnest (1973), Anantharaman (1977) and Chandrakandan (1982) measured the adoption of agricultural practices based on actual/recommended model.

The method adopted by Vijayan (1989) for calculating the adoption index was modified suitably and used in the present study for measuring the extent of adoption of recommended practices of commercial banana growers. Vijayan (1989) considered the banana variety Nendran alone for finding the extent of adoption. But in this study, three varieties such as Nendran, Palayankodan and Red banana were taken into consideration.

The selection of practices were made in consultation with experts and the Package of Practice Recommendations of the Kerala Agricultural University (1993). Scores are assigned for different practices of banana cultivation.

Table:8. Scoring pattern of extent of adoption of different practices of banana cultivation.

The scoring pattern adopted was as follows:

	>75% adop-tion	50-75% adop-tion	<50% adop-tion	Non-adop-tion
1. Criteria for sucker selection	3	2	1	0
2. Treatment of suckers	3	2	1	0
3. Pit Size	3	2	1	0
4. Spacing	3	2	1	0
5. Manuring	3	2	1	0

6. Fertilizer application   Score

   (a) Split application

   >75% (in 6 split for

   Nendran and 2 split for   3

   Palayankodan and Red banana)
   50-75% adoption   2

   <50% adoption   1

   Non adoption   0

---

b) Quantity of nutrient application

Variety	Recommendation N P K (g/plant)			Ratio (Approx-imately)	Quantity of fertilizer Factum-Urea Potash phos (g/plant)		
Nendran	190	115	300	2:1:3	575	163	500
					Massurie-phos		
Palayankodan	100	200	400	1:2:4	500	500	667
Red banana	160-200	160-200	320-400	2:2:4	100	–	667

Since the quantity of fertilizer applied by respondents in terms of N,P and K per plant vary, separate scores were assigned to the usage of these three nutrients as presented below.

Sl.No.	Variety	Scores for full adoption of		
		N	P	K
1.	Nendran	2	1	3
2.	Palayankodan	1	2	4
3.	Red banana	2	2	4

Hence the total score was calculated as:

Sl.No.	Variety	R (Ratio score)	Adoption score		
			>75% (Rx3)	50-75% (Rx2)	<50% (Rx1)
1.	Nendran	2:1:3	18	12	6
2.	Palayankodan	1:2:4	21	14	7
3.	Red banana	2:2:4	24	16	8

Scores for the fertilizer application have been calculated by the above method.

	>75% adoption	50-75% adoption	<50% adoption	Non-adoption
7. Irrigation	3	2	1	0
8. Intercultural operations				
a) Weeding	3	2	1	0
b) De-suckering	3	2	1	0

c) Mulching	3	2	1	0
d) Inter cropping	3	2	1	0
9. Propping	3	2	1	0

10. Plant protection measures	score
a) If in 3 splits	3
b) If in 2 splits	2
c) Only one application	1
d) Not applying	0

Adoption of index was calculated for each respondent using the formula:

$$e = \frac{\text{Total number of scores obtained by the respondent}}{\text{Maximum number of scores that could be obtained by the respondent.}} \times 100$$

The categorisation procedure adopted is given below.

Category	Score range
Low	<50
Medium	50-75
High	>75

3.4.2. Operationalisation and measurement of independent variables.

3.4.2.1. Land holding.

In the present study, land holding was operationalised as the total land possessed by the respondent in cents.

Land holding was measured as the number of cents of land possessed by the commercial banana grower, owned as well as leased in or leased out. The respondents were categorized into low, medium and high by adopting the following classification.

Category	Land holding
Low	<50
Medium	50 - 200
High	above 200

3.4.2.2. Area under banana cultivation

It is the area put under banana cultivation by the respondent in cents.

In the present study this variable was measured as the number of cents of land kept under banana cultivation, both owned and cultivated by the respondent inculding leased in land.

3.4.2.3. Irrigation potential

Nagaraja (1989) defined the irrigation potential as the proportion of the net area irrigated throughout the year to the total area possessed by a respondent in percentage.

Anantharaman (1991) defined irrigation potential as the proportion of cultivated holding under irrigation.

In the present study irrigation potential was operationally defined as the proportion of net banana cultivating area under various sources of irrigation to the total banana cultivating area possessed by the respondent expressed in percentage.

The procedure followed in measuring the variable, irrigation potential, in the present study is given below.

The respondents were requested to give the number of cents of irrigated land out of the total banana cultivating area. Then the irrigation potential was calculated as:

$$\text{Irrigation potential} = \frac{\text{Net irrigated area under banana cultivation}}{\text{Total area under banana cultivation}} \times 100$$

Following is the weightages assigned with reference to the irrigation percentage.

```
-------------------------------------
Irrigation potential (%)        Score
-------------------------------------
0   - 25                          1
26  - 50                          2
51  - 75                          3
76  - 100                         4
-------------------------------------
```

The respondents who had a score of one was considered as low, two and three as medium and four as high in irrigation potential.

3.4.2.4. Socio - political participation

This refers to the extent and nature of participation of a commercial banana grower in various activities of socio - political organizations.

This variable was measured by adopting the scoring system followed in the socio-economic status scale developed by Venkataramaiah (1983) with some modifications.

The statements were modified in the form of questions and the scores are assigned for the responses of each questions as given below.

Questions	Responses	Score
Whether you are a member of any	No	1
Socio-political organization ?	Yes	2
If yes, in how many organizations ?	One	1
	More than one	2
What is your position in the organization ?	Member	1
	Office bearer	2
Are you an active member/office bearer ?	No	1
	Yes	2
Whether you involve in community works ?	No	1
	Yes	2

The scores ranged from 1 - 10 and the total score obtained by an individual was taken as his socio-political participation score.

Categorization of respondents in to low, medium and high socio-political participation, was done by the following method.

Category	Score range
Low	2 - 4
Medium	5 - 7
High	8 - 10

3.4.2.5. Material possession

In the present study, the variable material possession is operationally defined as the materials owned by the commercial banana grower which helps him in developing his farm and family.

Bhaskaran (1979) and Sindhudevi (1994) studied material possessions as the monetary value of goods possessed by the respondents.

In the present study the variable material possession was measured by using the scoring system followed in the socio-economic status scale developed by Venkataramaiah (1983) with slight modification&the scoring pattern adopted was given below.

Possessions	Score
One farm animal / cycle / furniture	1
Two farm animals and / radio	2
3 to 4 farm animals / improved farm-implement/ news paper / electricity	3
5 to 10 farm animals/ gobar gas plant/ pumpset	4
10 farm animals/ tractor/ automobiles	5

Categorization of respondents was done as follows:

Category	Score range
Low	1 & 2
Medium	2 & 4
High	5

3.4.2.6. Mass media exposure

This refers to the number of frequency of mass media information sources used or contacted by the commercial banana grower.

Syamala (1988) developed a measurement procedure by quantifying the frequency of usage of mass media. This was slightly modified to measure the variable mass media exposure in the present study with the scoring pattern as given below.

Frequency	Score
Frequently/Daily	4
Often	3
Sometimes	2
Never	1

The respondents were categorised into low, medium and high in mass media exposure, based in the following pattern.

Category	Score range
Low	5 - 10
Medium	11 - 15
High	20 - 16

3.4.2.7. Closeness with agricultural support system.

This refers to the extent to which the respondent makes contact with the personnel of various agencies and organization related to agriculture.

The index of closeness with agricultural support system developed by Bora (1986) with slight modification was followed to measure this variable in the present study.

The respondents were asked to indicate the extent of contact with each type of agencies on a four-point response category namely most often, often, sometimes and never with scores of 4,3,2 and 1 respectively. The total score of an individual respondent was obtained by adding the score secured in each item.

The respondents were categorized as given below:

Category	Score range
Low	7 - 14
Medium	15 - 21
High	22 - 28

3.4.2.8. Self confidence

This refers to the extent of feeling of a commercial banana grower about his own powers, abilities and resourcefullness to perform any activity which he desires to undertake.

This was measured based on the scale developed by Basavanna (1974) with slight modifications. The scale consisted of eight statements. Responses on the statements were obtained on a five point continuumviz. strongly agree, agree, undecided, disagree and strongly disagree with weightages of 5,4,3,2 and 1 respectively for positive statements and the weightages were reversed for negative statements.

Then the total score was calculated. The categorization of the respondents was done as follows.

Category	Score range
Low	8 - 24
Medium	25 - 32
High	33 - 40

3.4.2.9. Scientific orientation

This refers to the degree to which a commercial banana grower is oriented to the use of scientific methods in the cultivation of banana.

Scientific orientation scale developed by Supe (1969) was used in the present study. The responses were collected on a three point continuumwith the scores as agree - 5, undecided -3 and disagree -1 for positive statements. The scoring pattern was reversed for the negative statements.

The total score thus obtained by an individual was taken as his score for scientific orientation. The respondents were categorized into low, medium and high as follows.

Category	Score range
Low	6 - 18
Medium	19 - 24
High	25 - 30

3.4.10. Credit orientation

This refers to the favourable and positive attitude of a commercial banana grower towards obtaining credit from institutional sources.

The procedures developed by Beal and Sibley (1967) was adopted in the present study to measure the variable, credit orientation with slight modification in scores assigned. The scores given to the responses along with the set of questions are described below:

Questions/Statements	Responses	Score
Do you think, a farmer like you should borrow more for agricultural purpose ?	No	1
	Yes	2
In your opinion, how difficult is to secure credit for agricultural purpose ?	Very difficult	1
	Difficult	2
	Easy	3
	Very easy	4
How a farmer is treated when he goes to secure credit ?	Very badly	1
	Badly	2
	Fairly	3
	Very fairly	4

There is nothing wrong in taking credit from institutional sources	Strongly disagree	1
for increasing farm production.	Disagree	2
	Undecided	3
	Agree	4
	Strongly agree	5
Did you taken credit in the last	No	1
two years for cultivation ?	Yes	2

The total score obtained by each respondent was considered as the score of credit orientation. The categorization of the respondent was done based on the following pattern.

Category	Score range
Low	5 - 9
Medium	10 - 13
High	14 - 17

3.4.2.11. Deferred gratifiaction

In the present study it refers to the postponement of immediate benefits of short range rewards in order to secure more long range goals and the resulting satisfaction.

This variable was measured by following the scale developed by Gowda (1991) with some necessary modifications. The seven statements, both positive and negative were measured in five point continuumwith the following scoring pattern.

Strongly agree   -   5

Agree   -   4

Undecided   -   3

Disagree   -   2

Strongly disagree   -   1

This was for positive statements and for the negative
statements the scoring pattern $_\wedge$ reversed. Total score was
(was)
calculated for an individual respondent by adding the scores.
Categorization of the respondents was done as given below.

Category	Score range
Low	7 - 21
Medium	22 - 28
High	29 - 35

3.4.2.12. Creativity

Creativity is the ability to generate new ideas and solve
probelms. Khandawalla (1990) stated that creativity is the
search for novel ideas and developing them so that they are
appropriate to the context. Kishorekumar (1991) defined crea-
tivity as the function of originality, fluency, flexibility and
elaboration.

In the present study it is operationalised as the ability of the respondent to develop new ideas visualising its possible consequences, which are appropriate to the context, for solving problems.

The scale developed by Reddy (1990) was used for measuring the variable, creativity, in this study. Six positive statements were measured on a five point continuum. The weightages given with reference to the frequency was given below:

Always	–	5
Very often	–	4
Sometimes	–	3
Rarely	–	2
Never	–	1

The creativity of an individual is the total score of all the six statements given. Categorization of respondents in to low, medium and high was done as given below.

Category	Score range
Low	6 – 8
Medium	9 & 10
High	11 & 12

3.5. Identification of marketing channels of banana

Marketing channels of banana were identified by asking the respondents to speak out the channels through which they sell the produce, on priority basis. Then the percentage of the frequencies obtained were calculated and ranked.

3.6. Identification of constraints

One of the objectives of the study was to identify the constraints as experienced by the commercial banana growers in the cultivation of banana. Various researchers have used different methods to identify constraints.

Bony (1991) identified the constraints faced by commercial vegetable growers by collecting the responses of each constraint in a dichotomous response pattern as `most important' and `least important'. The frequency percentage of each constraint perceived as important by the respondents was worked out as follows:

$$\text{Frequency percentage} = \frac{\text{Frequency obtained for a constraint}}{\text{Total number of respondents.}} \times 100$$

The constraints were ranked in order of importance based on the frequency percentage.

The constraints felt by agricultural labourers in relation to welfare schemes were measured by Fathimabi (1993) using correlative index method. The frequency of response to each constraint obtained in three point continum viz. 'most important', 'important' and 'least important' with weightages of 3,2 and 1 respectively, was multiplied by the corresponding weightages and added to get the cumulative index for particular constraint. The constraints were ranked based on the ratio between the cumulative index and the frequency of response for each constraint.

Meera (1995) identified constraints in the adoption of plant protection technology by finding the frequency of responses for each constraint which were ranked to facilitate easy inference.

In the present study, the constraints in the banana cultivation as experienced by the commercial banana growers were identified by following the method adopted by Meera (1995). A list of constraints collected through review of literature, discussion, experience of the researcher and pilot study were given and the respondents were asked to indicate whether they were experiencing the constraints or not in the cultivation of banana. The frequency of responses for each of the constraint was found separately and ranked.

3.7. Data collection Procedure

An interview schedule was prepared for conducting the pilot study, in English (Appendix I). For the main study, the questionnaire for selected variables were suitably modified and translated to Malayalam (Appendix II) facilitating easy responding. The data collection was done from May to June, 1996. The responses were collected by adopting personnel interview by the researcher.

3.8. Statistical Tools Used

For finding out the various correlations in the study, statistical tools like mean, frequency, percentage analysis and simple correlation analysis were used.

3.8.1. Development of an index to assess managerial behaviour

An index was developed to measure the managerial behaviour of commercial banana growers (I) using K component characters viz., planning, information management, decision making, financial management, labour management, risk management, farm supervision and marketing management as follows.

The index $I = W1 \ X1 + W2 \ X2 + \ldots\ldots + Wk \ Xk$

where $Wi = 1/Si^2$

i = 1,2, ... 8 is the weight assigned to the ith character and Si^2 is the estimate of variance for i^{th} character.

3.8.2. Kruskal – Wallis test

Kruskal – Wallis test was employed for comparing the three groups of banana growers with respect to managerial behaviour and extent of adoption.

3.8.3. Step-wise regression analysis

This was applied for selecting those variables which substantially influenced the dependent variable, managerial behaviour.

RESULTS AND DISCUSSION

CHAPTER IV

RESULTS AND DISCUSSION

The results of the study and the discussion based on the results are presented in this chapter under the following sub-heads.

4.1. Socio-economic profile of commercial banana growers.

4.2. Comparison of commercial banana growers with respect to their selected profile characteristics.

4.3. Comparison of commercial banana growers with respect to the dimensions of managerial behaviour.

4.4. Managerial behaviour of commercial banana growers.

4.5. Extent of adoption of commercial banana growers.

4.6. Indigenous farming practices adopted by commercial banana growers.

4.7. Marketing channels of banana.

4.8. Economics of banana cultivation.

4.9. Constraints in banana cultivation as perceived by the commercial banana growers.

4.10 Empirical model of the study.

4.1. Socio-economic profile of commercial banana growers.

Profile characteristics of the respondents under study is presented in Table.9.

Table.9. : Distribution of commercial banana growers based on their selected profile characteristics.

Characteristics	Category	Score range	Frequency	Percentage
1. Land holding	Low	<50	7	5
(cents)	Medium	50-200	126	84
	High	>200	17	11
2. Area under banana	Low	<50	42	28
cultivation	Medium	50-200	105	70
(cents)	High	>200	3	2
3. Irrigation	Low	<50	21	14
potential	Medium	50-75	49	33
	High	>75	80	53
4. Socio-political	Low	2-4	68	45
participation	Medium	5-7	74	49
	High	8-10	8	6
5. Material	Low	1&2	7	5
possession	Medium	3&4	122	81
	High	5	21	14

6. Mass media exposure	Low	5-10	10	7
	Medium	11-15	43	28
	High	16-20	97	65
7. Closeness with agricultural support system	Low	7-14	8	5
	Medium	15-21	54	36
	High	22-28	88	59
8. Self confidence	Low	8-24	3	2
	Medium	25-32	36	24
	High	33-40	111	74
9. Scientific orientation	Low	6-18	9	6
	Medium	19-24	32	21
	High	25-30	109	73
10.Credit orientation	Low	5-9	6	4
	Medium	10-13	69	46
	High	14-17	75	50
11. Deferred gratification	Low	7-21	21	14
	Medium	22-28	51	34
	High	29-35	78	52
12. Creativity	Low	6-8	11	7
	Medium	9 & 10	43	29
	High	11 & 12	96	64

Fig:3. Percentage distribution of commercial banana growers into low, medium & high categories based on their selected characteristics

1-Land holding
2-Area under banana cultivation
3-Irrigation potential
4-Socio-political participation
5-Material possession
6-Mass media exposure
7-Closeness with agricultural support system
8-Self confidence
9-Scientific orientation
10-Credit orientation
11-Deferred gratification
12-Creativity
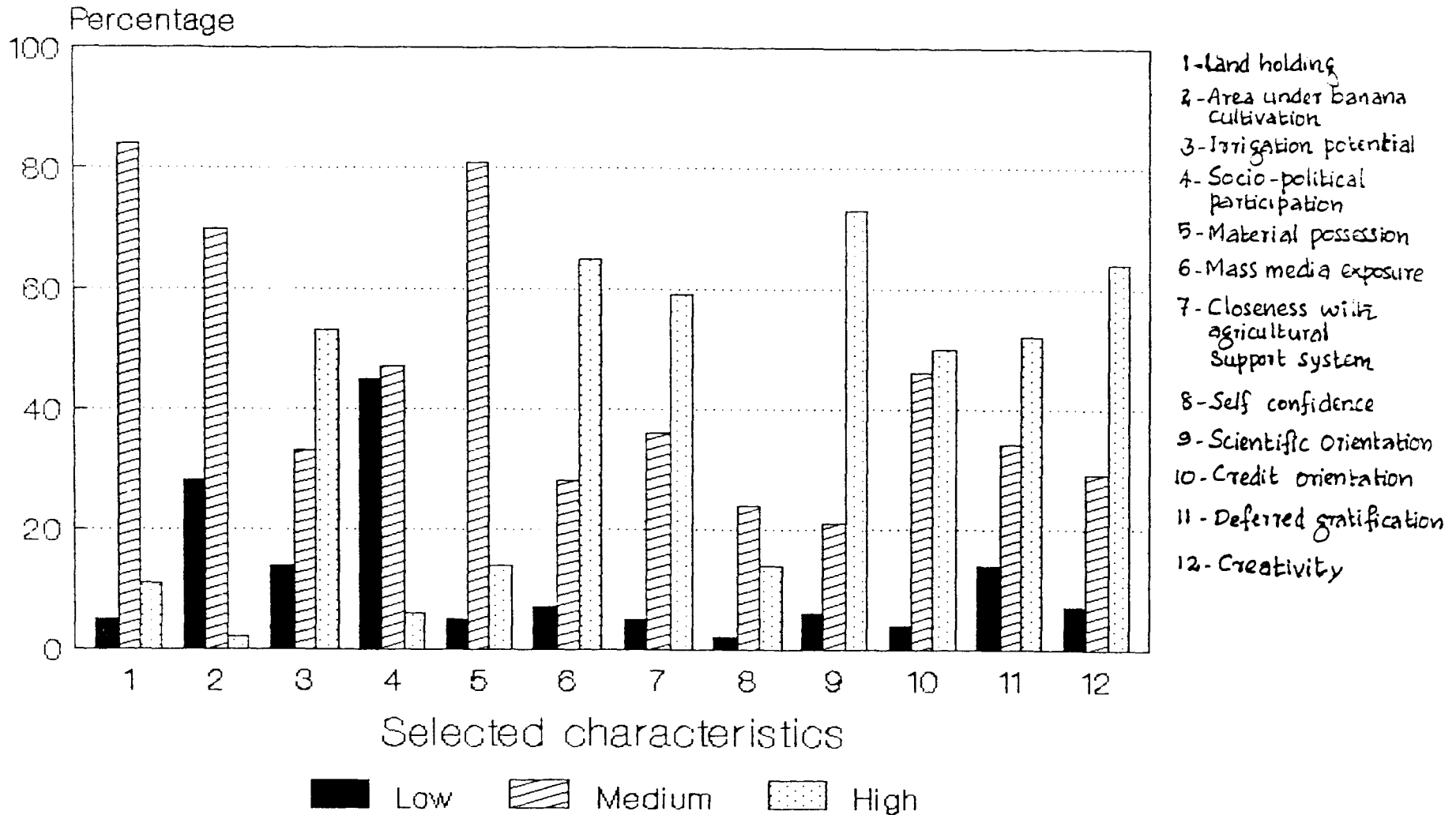
In Table.9 the distribution of commercial banana growers into low, medium and high categories in accordance with the frequency of obtained scores under each selected charcteristic and their calculated percentages were presented. Each profile characteristic is taken separately and a detailed description of the results are given in the following pages.

4.1.1. Land holding

From Table.9 it could be seen that majority of the commercial banana growers (84 percent) belonged to medium category of land holding, 11 percent of them to high category and only a small section of them (five percent) belonged to low category of land holding.

The above results indicate that most of the respondents were having a land holding ranging between 50 to 200 cents. Eleven percent of the respondents were having a land holding of more than 200 cents and only five percent of them below 50 cents. In the present study the farmers cultivating banana in at least 25 cents were taken as respondents. Naturally a farmer cultivating a crop in 25 cents, will have a land holding of more than that.

4.1.2. Area under banana cultivation

The respondents were categorised according to their banana cultivating area ; 70 percent of the growers were found to be

included in the medium group, 28 percent in the low group and only two percent in the high group.

As in the case of total land holding, majority of the respondents (70 percent) cultivated banana in lands ranging from 50 cents to 200 cents. But 28 percent of the respondents kept less than 50 cents of land under banana cultivation as against five percent possessing a total land holding of below 50 cents. Also the 11 percent of respondents possessing a land holding of more than 200 cents, was reduced to two percent when area under banana cultivation is concerned. From this we could infer that a farmer possessing more acrage of land may always not raise banana in that land.

4.1.3. Irrigation potential.

The commercial banana growers were categorised into low, medium and high groups based on their irrigation potential. The results shown that more than half of the respondents (53 percent) had high irrigation potential, 33 percent medium and 14 percent of them had low irrigation potential.

A high irrigation potential of more than 75 percent was exhibited by majority of respondents. Irrigation is one of the important inputs in banana cultivation. The water requirements of the crop is high and those farmers who are capable of

providing good irrigation may go for banana cultivation on a commercial basis. This may be the reason for the high irrigation potential of the respondents. Forty two percent of the respondents were having an irrigation potential ranging between 50 to 75 percent representing the medium group.

4.1.4. Socio-political participation

Almost half of the respondents (49 percent) were characterized by medium socio-political participation, 45 percent by low and only six percent by high socio-political participation.

The data regarding socio-political participation revealed that the commercial banana growers were not having much interest in social activities. Only six percent of them were actively involved in socio-political works. About half of the respondents took part in socio-political activities to some extent, as members of socio-political organizations. Forty five percent of the respondents were either not participating in socio-political activities or their contribution to that field is very low. Since commercial banana cultivation demands constant attention from the part of farmers, they may not get enough time for socio-political activities.

4.1.5. Material possession

Majority of the respondents (81 percent) had medium material possession, while 14 percent had high and five percent had low material possession.

Regarding the material possession, 81 percent of the respondents came under medium category of possessing three to ten farm animals and/or newspaper facilities and/or electricity/biogas/pumpset. Fourteen percent of the respondents possessed ten farm animals and/or tractor/automobiles representing the high group of material possession.As the facilities of electricity which is now available to almost all parts of Kerala, is taken as one of the criteria of medium material possession category, naturally, it might have resulted in an increase of percentage of respondents in medium group.

4.1.6. Mass media exposure

Sixty five percent of the banana growers exhibited high mass media exposure, 28 percent medium and only seven percent exhibited low mass media exposure.

More than half of the respondents showed high mass media exposure. They were frequently exposed to newspapers, radio,

television, farm magazines and other literature on agriculture and agricultural exhibitions. Only seven percent of the respondents had poor mass media exposure. The high literacy rate in Kerala helped to reduce the distance between people and mass medias. This might have attributed to the high mass media exposure of the respondents. The same conclusion was also drawn by Jayalekshmy (1996).

4.1.7. Closeness with agricultural support system.

More than half of the respondents (59 percent) showed high degree of closeness with agricultural support system, 36 percent, medium and only five percent showed low degree of closeness with agricultural support system.

The results indicated that 59 percent of the respondents had close contact with agricultural support system. They were frequently contacting the agricultural officers, agricultural assistants, panchayat officials, co-operative societies, field officers of bank and input dealers. It is noticed that the frequency of contact of farmers with agricultural university was very low. Only a small portion of the respondents came under low group of closeness with agricultural support system. Majority of the commercial banana growers were aware of modern

methods of cultivation and often collected all possible informations in the field of agriculture from the concerned sources. This might have resulted in the high degree of closeness with agricultural support system by the respondents.

4.1.8. Self confidence

Majority of the respondents (74 percent) had high self confidence and 24 percent had medium self confidence. Only two percent of the respondents had low self confidence.

From Table.9 it is revealed that 74 percent of the respondents were having high self confidence. The farmers with high confidence in their abilities and having the capacity of facing any situation may go for commercial banana cultivation, as the risk involved is more.

4.1.9. Scientific orientation

Seventy three percent of the respondents had high scientific orientation, 23 percent medium and six percent had low scientific orientation.

From the results we could infer that majority of the respondents were having high scientific orientation. Six

percent of the respondents were not in a position to accept modern scientific methods and they had a strong orientation towards traditional methods of cultivation. Twenty three percent of the respondents exhibited medium orientation towards scientific cultivation.

4.1.10. Credit orientation

While half of the respondents showed high credit orientation, nearly half of them (46 percent) showed medium and four percent low credit orientation.

Fifty percent of the respondents were having high orientation towards credit. Only a small section of the respondents were with little faith in credit faciltities. The high cost of cultivation and low economic status of farmers might have necessitated financial assistance to them.

4.1.11. Deferred gratification

Fifty two percent of the respondents possessed high degree of deferred gratification, 34 percent medium and 14 percent low deferred gratification.

The results showed that more than half of the respondents were characterised by postponement of immediate satisfaction in anticipation of future rewards. The commercial banana cultivation is undertaken by farmers with an objective of getting maximum profit from it. They invest more money anticipating more returns. From the results it could be inferred that the respondents are giving more value to the future rewards rather than immediate satisfaction.

4.1.12. Creativity.

More than half (63 percent) of the respondents possessed high creative abilities, 29 percent medium and only seven percent possessed low creative abilities.

From the results it could be inferred that respondents were not simply undertaking the cultivation of banana, but possess creative abilities as indicated by the 63 percent of highly creative respondents. They devise novel methods to improve quality of work, develop alternate ways of doing work, improvise ways to get things done if planned arrangements fail, think of new ways of solving problems, visualise unforeseen deviations in planned course of action and use humour to get out of difficult situations.

Thus the socio-economic profile of commercial banana growers revealed the following. Majority of the respondents belonged to medium group of land hloding and area under banana cultivation. More than half of them possessed high irrigation potential, and almost half of them showed medium socio-political participation. Regarding the material possession, majority of them came under medium group. Most of the respondents were high in mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity.

4.2 Comparison of commercial banana growers based on their selected profile characteristics

The mean scores with respect to the selected profile characterists of the three groups of commercial banana growers are presented in Table:10.

Table.10 Rank means of selected profile characterisitics of Nendran, Palayankodan and Red banana growers.

| Sl No | Characteristics | Rank means of banana growers | | | Z |
		Nendran n=75	Palayankodan n=45	Red banana n=30	
1	Land holding	76.50	61.08	94.63	10.85**
2	Area under banana cultivation	76.13	60.30	96.72	12.83**
3	Irrigation potential	81.66	69.07	69.75	3.71

4	Socio-political participation	78.33	81.74	59.07	6.10*
5	Material posse-ssion	73.47	75.83	80.08	0.61
6	Mass media exposure	70.98	74.92	87.67	3.25
7	Closeness with agricultural support system	65.07	84.42	88.18	8.86*
8	Self confidence	73.03	80.82	73.70	1.00
9	Scientific orientation	74.52	70.75	85.07	2.33
10	Credit orientation	73.49	69.19	89.98	4.65
11	Deferred gratifi-cation	67.56	84.58	81.73	5.12
12	Creativity	79.07	70.89	73.48	1.19

* Significant at 0.05 level
** Significant at 0.01 level

The profile characterisitics of land holding, area under banana cultivation, socio-political participation and closeness with agricultural support system were found to be significant. Hence it is inferred that there was significant difference between Nendran, Palayankodan and Red banana growers with respect to these four profile characteristics.

In the case of Red banana growers, the mean scores of land holding, area under banana cultivation and closeness with

agricultural support system were found to be highest followed by Nendran and Palayankodan growers. From this it can be inferred that the Red banana growers possessed more land and they cultivated banana in more area and also their frequency of contact with agricultural support system was more, compared to the other two groups of growers. It is not possible to raise Red banana as other varieties. It needs more investment capacity, rationality in use of inputs and information use ability. For acquiring these, Red banana growers might have frequently contacted with agricultural support system.

4.3. Comparison of commercial banana growers based on the dimensions of managerial behaviour.

The mean scores with respect to the dimensions of managerial behaviour of the three groups of commercial banana growers are presented in Table.11.

Table.11 Rank means of the dimensions of managerial behaviour of Nendran, Palayankodan and Red banana growers.

| Sl.No. | Dimensions | Rank means of banana growers | | | Z |
		Nendran n = 75	Palayankodan n = 45	Red banana n = 30	
1.	Planning	65.59	79.03	86.97	6.01*
2.	Information management	74.07	73.48	82.10	0.89
3.	Decision making	81.77	62.52	79.28	6.48*

Fig: 4 · **Rank means of commercial banana growers with respect to the dimensions of MB.**

Rank means

Dimensions of managerial behaviour

■ Nendran growers   ▨ Palayankodan growers   ▢ Red banana growers

I	— Planning	V	— Labour management.
II	— Information management	VI	— Risk management.
III	— Decision making	VII	— Farm supervision
IV	— Financial management	VIII	— Marketing management.
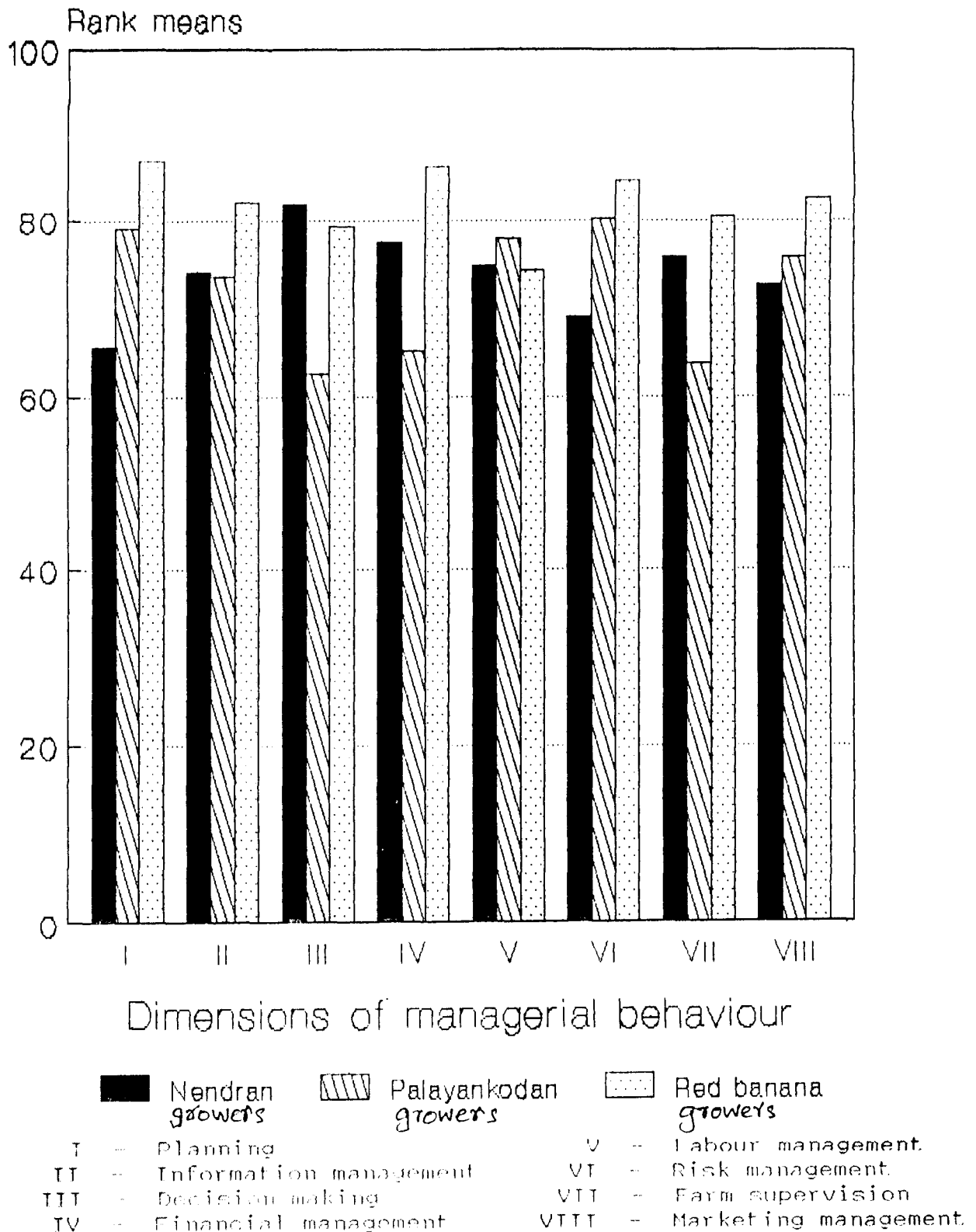
4. Financial management	77.29	65.20	86.48	4.76
5. Labour management	74.66	77.78	74.18	0.22
6. Risk management	69.03	80.12	84.75	3.58
7. Farm supervision	75.69	63.83	80.52	5.60*
8. Marketing management	72.65	75.58	82.50	1.16

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* - Significant at 0.05 level.

The three dimensions namely, planning, decision-making and farm supervision differ significantly among the three categories of respondents. Hence it can be inferred that Nendran, Palayankodan and Red banana growers differ significantly with respect to these dimensions of managerial behaviour.

Planning, decision making and farm supervision are inter related and important for the management of any crop. Planning is essential for decision making. Timely decisions are required for supervising the farm effectively which is ncecessary for the sucessful crop porduction. Regarding the managerial dimension, planning, the mean score was highest for Red banana growers, followed by Palayankodan and Nendran growers. The mean scores of decision making was highest for Nendran growers followed by

Red banana growers and Palayankodan growers. In the case of farm supervision, the highest scorer was Red banana growers, followed by Nendran growers and lastly by Palayankodan growers.

Table.11 indicated that the Red banana growers are having higher degrees of planning and farm supervision. As the cost of cultivation is higher for Red banana, the farmers might have to give more care in planning its cultivation aspects and resource allocation. The risk involved in Red banana cultivation is more as indicated by its higher risk management score. The loss due to disease incidence is higher in Red banana. The net returns from a Red banana plant is also higher than the other two varieties. So rational planning and effective supervision of farm is essential for the commercial cultivation of Red banana.

Regarding the decision making , the Nendran growers scored high values. Among the banana varieties, the demand for Nendran is more. From the marketing point of view, farmers prefer Nendran for cultivation. At the same there is tough competition . Each farmer has to take decisions in each and every aspects of management to get maximum profit. All these factors might have lead to the high decision-making score in Nendran growers.

4.4 Managerial behaviour of commercial banana growers.

The commercial banana growers were categorised in to three groups viz. low, medium and high, according to their managerial behaviour and the distribution is furnished in Table :12.

Table:12 Distribution of commercial banana growers according to their managerial behaviour.

Category	Score range	Frequency	Percentage
Low	<30	18	12
Medium	30-60	57	38
High	>60	75	50

From Table.12 it could be seen that half the respondents had high level of managerial behaviour, 38 percent had medium and only 12 percent of the respondent had low level of managerial behaviour.

Fifty percent of the respondents were having high level of managerial behaviour. For the successful commercial cultivation of any crop the management aspect is very much essential. Farmers may give more attention, invest more money and allocate more resources expecting a proportionate income.

They may carefully plan and prepare calender of operations of crop cultivation well in advance, assess the amount of inputs and finance required for raising the crop, collect informations on practices, price of inputs as well as produce from different sources, make timely decisions, calculate the profit or loss in cultivation and prepare budget for each season of cultivation, evaluate the labour efficiency and provide necessary amenities for the labourers, having willingness to take greater risk, supervise the farm operations and sell their produce to get maximum profit. The majority of the respondents of the present study, have exhibited the above mentioned characteristics. This might have attributed to their higher managerial behaviour.

4.4.1. Comparison of commercial banana growers based on their managerial behaviour.

The mean scores with respect to the managerial behaviour of Nendran, Palayankodan and Red banana growers are presented in Table:13.

Table.13   Rank   means   of managerial   behaviour   of   Nendran,
Palayankodan and Red banana growers.

Category of growers	Rank means of managerial behaviour
Nendran N=75	113
Palayankodan N=45	23
Red banana N=30	60.5

Z value - 125.17 **

** - Significant at 0.01 level of probability

From Table:13. it is clear that there was significant difference between the Nendran, Palayankodan and Red banana growers with respect to their managerial behaviour.

A comparison of the mean scores of the three groups of commercial banana growers with respect to their level of managerial behaviour revealed that, the Nendran growers are superior over Red banana and Palayankodan growers. Hence we could say that the Nendran growers were the best managers. The mean scores of managerial behaviour index of Palayankodan growers was the least and so they were considered as the least managing group.

Fig:5. Rank means of managerial behaviour of
Commercial banana growers
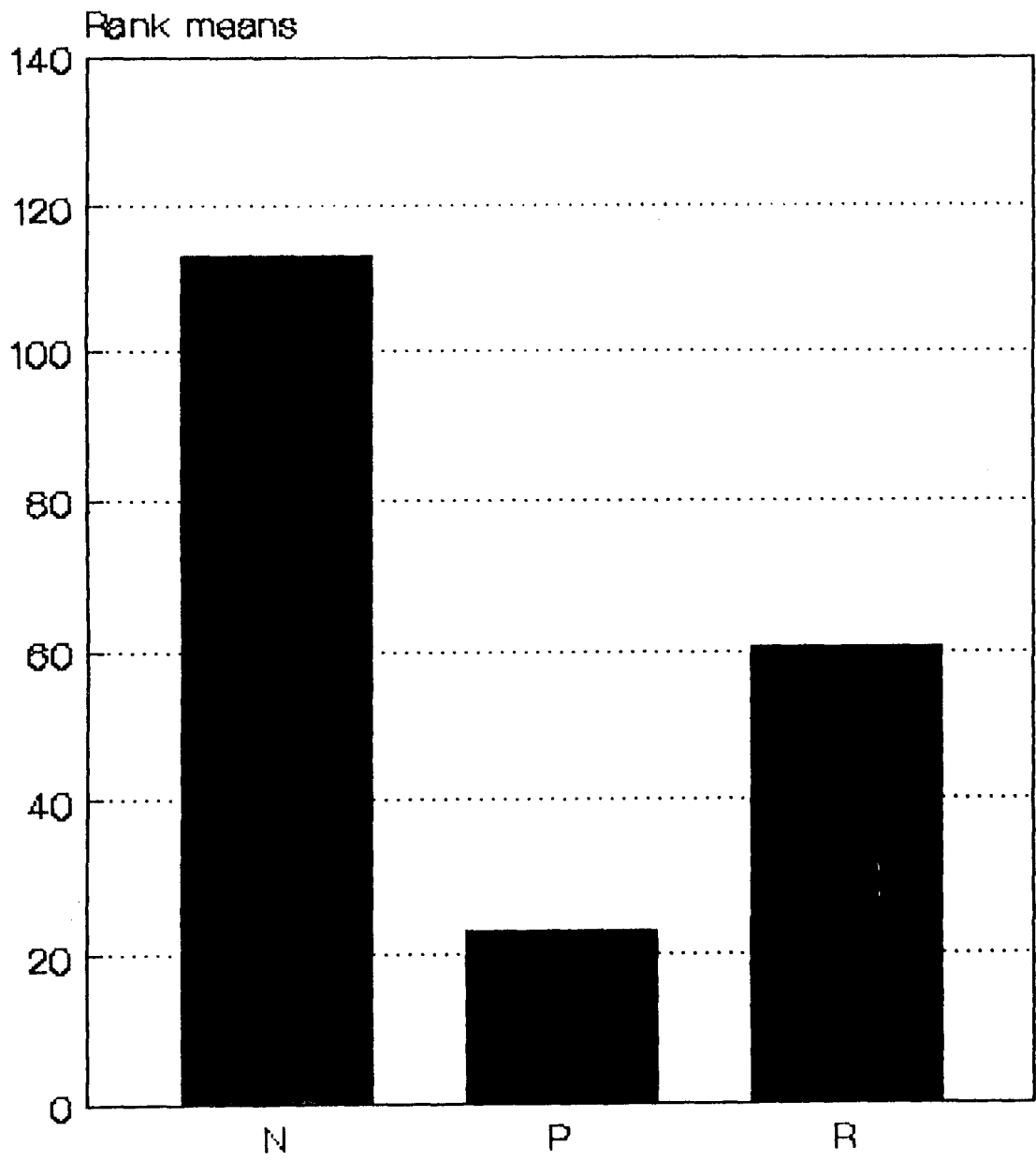
N - Nendran growers

P - Palayankodan growers

R - Red banana growers

Among the 150 respondents of the present study half of them were growing Nendran banana. Even though the area of cultivation of Nendran is less compared to Red banana, the number of farmers cultivating Nendran is more.According to package of practices recommendations, while 2500 Nendran plants were accomodated in 1 ha, for Red banana and Palayankodan the number become reduced to 2150. So more plants can be accomodated in unit area of land in the case of Nendran than in Red banana and Palayankodan. Nendran is the only variety commercially grown with export orientation in Kerala. There is a higher demand for Nendran in local markets due to its versatile acceptability. In addition to it Nendran has a time bound demand among Keralites in festival occasions especialy during Onam season. The duration of the crop is also important. When we workout the economics of banana cultivation, the per day return is more in Nendran followed by Red banana and Palayankodan. Because of these factors, the number of Nendran growers become higher which may indirectly resulted in competition among them. The quality of the produce is also become a criteria for marketing. So for obtaining good quality along with high quantity of produce, the Nendran growers emerged out as best managers of farm and as a result their managerial behaviour has improved to a larger extent.

4.4.2. Relationship of managerial behaviour of Nendran, Palayankodan and Red banana growers with their selected characteristics.

Correlation analysis was done to find out the relationship of managerial behaviour of Nendran, Palayankodan and Red banana growers with their selected characteristics under study. The results are presented in Table:14.

Table:14. Correlation between managerial behaviour and selected characteristics of commercial Nendran, Palayankodan and Red banana growers.

Sl.No.	Characteristics	Correlation co-efficienct of managerial behaviour of growers with selected characteristics		
		Nendran n=75	Palayankodan n=45	Red banana n=30
1	Land holding	0.1867 ns	0.2450 ns	0.3280 ns
2	Area under banana cultivation	0.2685*	0.2295 ns	0.3004 ns
3	Irrigation potential	0.3762**	0.4581**	0.2882 ns
4	Socio-political participation	0.3488**	0.3005*	0.1130 ns
5	Material possession	0.3248**	0.3187*	0.3464 ns

6	Mass media exposure	0.3342**	0.4103**	0.5069**
7	Closeness with agricultural support system	0.4457**	0.5510**	0.5606**
8	Self confidence	0.4900**	0.7528**	0.5280**
9	Scientific Orientation	0.2465*	0.4456**	0.5535**
10	Credit Orientation	0.3381**	0.4006**	0.0714ns
11	Deferred gratification	0.4598**	0.7651**	0.4271*
12	Creativity	0.4801**	0.6517**	0.6022**

ns - not significant   *   - Significant at 0.05 level
                        ** - Significant at 0.01 level

The results presented in Table:14. revealed that there is a positive and significant relationship between the managerial behaviour of commercial Nendran growers and their selected profile characteristics such as irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, credit orientation, deferred gratification and creativity at one percent level and area under banana cultivation and scientific orientation at five percent level of significance. Only one independent variable namely, land holding was found to have a non-significant relationship with the managerial behaviour of commercial Nendran growers.(Fig.6)

Fig. 6. Correlation between managerial behaviour of commercial Nendran growers and their selected characteristics
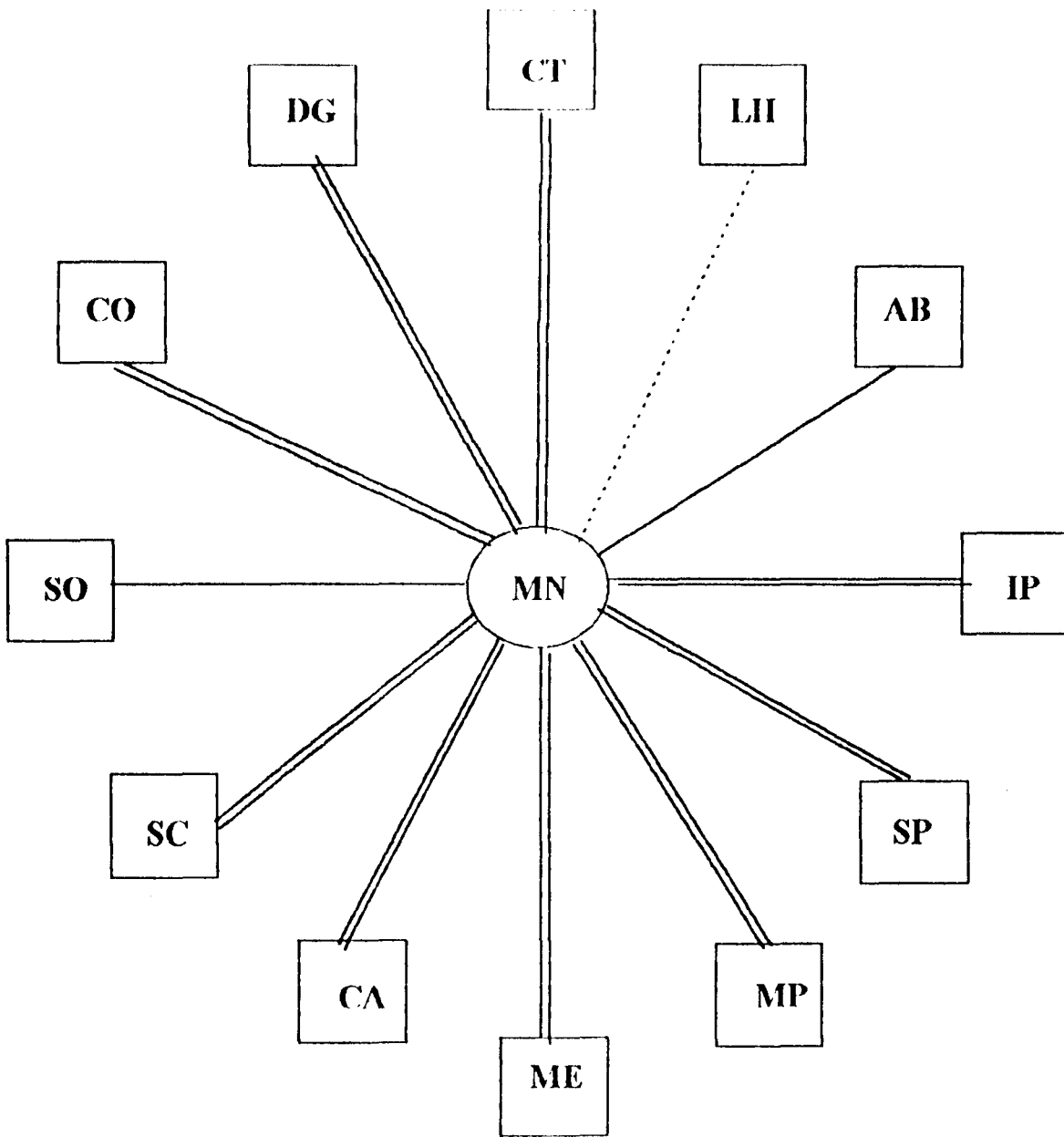
-------- Non significant
———— Significant at 0.05 level
═══════ Significant at 0.01 level

LH - Land holding
AB - Area under banana cultivation
IP - Irrigation potential
SP - Socio - political participation
MP - Material possession
ME - Mass-media exposure
CA - Closeness with agrl. support system

MN - Managerial behaviour of commercial Nendran growers

SC - Self confidence
SO - Scientific orientation
DG - Deferred gratification
CT - Creativity

The results of step-wise regression analysis, conducted for finding out the independent variables which substantially influenced the managerial behaviour of commercial Nendran growers is depicted in Table:15.

Table:15. Step-wise regression analysis of the independent variables influencing managerial behaviour of commercial Nendran growers.

Step No.	Independent variable in regression analysis	F value	Percentage of variation explained
1	Self confidence X8	23.06	24.01
2	Self confidence X8 Creativity X12	19.96	35.69
3	Self confidence X8 Creativity X12 Closeness with agriculturel support system X7	19.29	44.9
4	Self confidence X8 Creativity X12 Closeness with agrculturel support system X7 Mass media exposure X6	15.54	47.03

From Table:15 it could be realised that, the variable 'self confidence' ranked first as the most important variable and it explained 24 percent of variation in the managerial behaviour of

commercial Nendran growers. Creativity emerged as the second variable causing 11.68 percent variation with the managerial behaviour followed by the variables closeness with agricultural support system (9.21 percent variation) and mass media exposure (2.13percent variation). These four variables altogether explained 47 percent of variation in the managerial behaviour of commercial Nendran growers.

The results of the correlation analysis of commercial Palayankodan growers (Table:14) revealed that there existed a positive and significant relationship between the managerial behaviour of commercial Palayankodan growers and their selected profile characteristics like irrigation potential, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity at one percent level and socio-political participation and material possession at five percent level of significance. The independent variables land holding and area under banana cultivation had no significant relationship with managerial behaviour of commercial Palayankodan growers (fig.7).

Fig : 7. Correlation between managerial behaviour of commercial Palayankodan growers and their selected characteristics

---------- Non significiant

———— Significiant at 0.05 level

══════ Significiant at 0.01 level

LH - Land holding
AB - Area under banana cultivation
IP - Irrigation potential
SP - Socio - political participation
MP - Material possession
ME - Mass-media exposure
CA - Closeness with agrl. support system

MP - Managerial behaviour of commercial Palayankodan growers

SC - Self confidence
SO - Scientific orientation
DG - Deferred gratification
CT - Creativity

Table:16. Step-wise regression analysis of the independent
variables influencing managerial behaviour of commercial
Palayankodan growers.

Step No.	Independent variables	F value	Percentage of variation explained
1	Self confidence X8	60.70	58.54
2	Self confidence X8 Deferred gratification X11	39.76	65.44
3	Self confidence X8 Deferred gratification X11 Closeness with agricultural support system X7	30.0	68.73
4	Self confidence X8 Deferred gratification X11 Closeness with agricultural support system X7 Creativity X12	25.73	72.00

In Table:16. the results of step-wise regression analysis
of the independent variables influencing managerial behaviour of
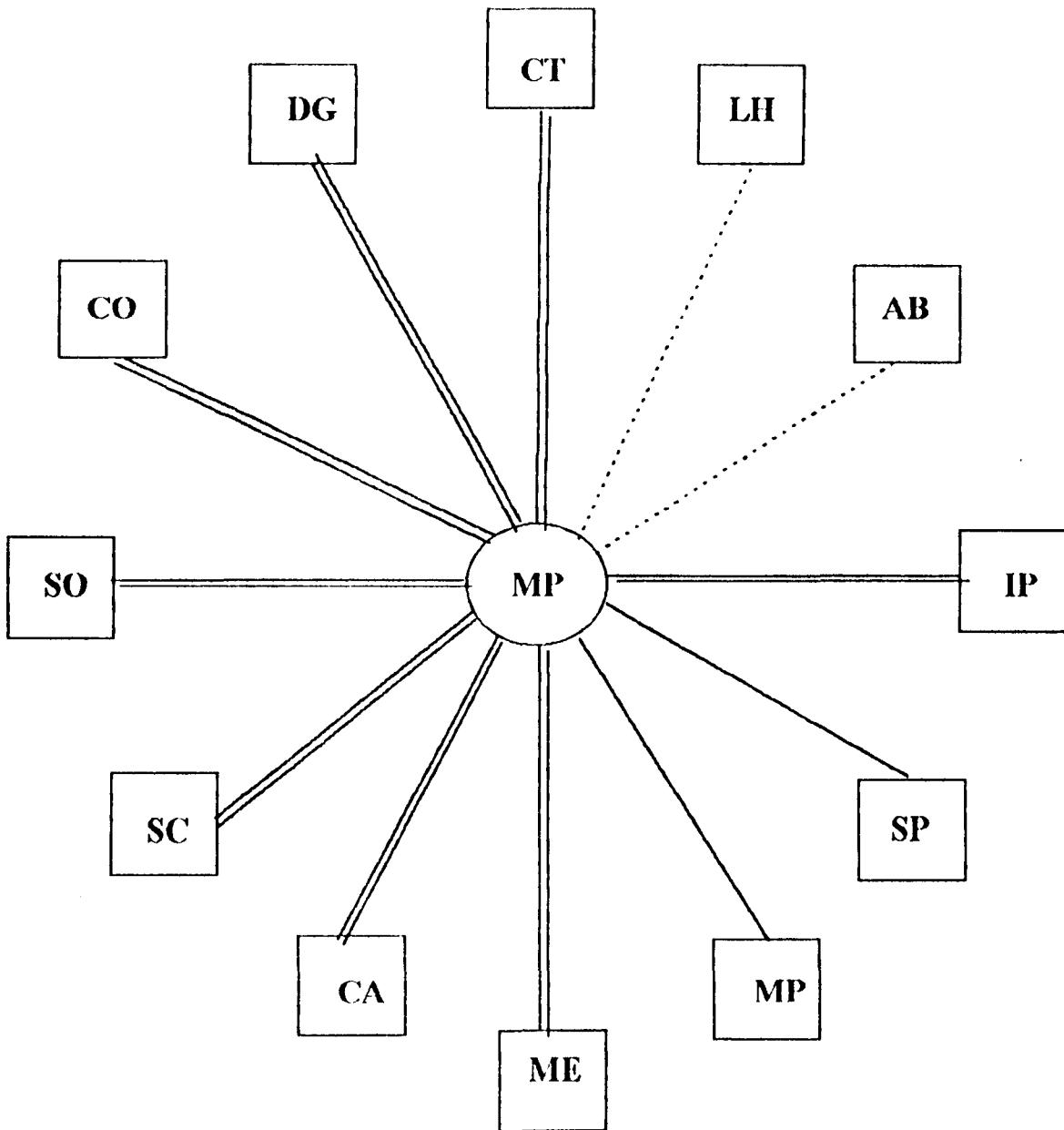commercial Palyankodan growers are presented. Here also the
variable self confidence ranked first as the most important
variable and it explained 58.54 percent variation in the
managerial behaviour of commercial Palayankodan growers. The
variable deferred gratification ranked as the second variable
explaining a variation of 6.9 percent followed by closeness with

agricultural support system (3.29 percent) and creativity (3.27 percent). All these four variables together explained 72.01 percent of variation in the managerial behaviour of Palayankodan growers.

From Table:14. it is also observed that mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, and creativity had positive and significant relationship with managerial behaviour of commercial Red banana growers at one percent level and deferred gratification at five percent level of probability. Hence it is inferred that the characteristics like mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity were influencing positively the managerial behaviour of commercial Red banana growers. The other characteristics such as land holding, area under banana cultivation, irrigation potential, socio-political participation, material possession and credit orientation had no significant relationship with managerial behaviour of commercial Red banan growers (fig.8).

Fig: 8. Correlation between managerial behaviour of commercial Red banana growers and their selected characteristics
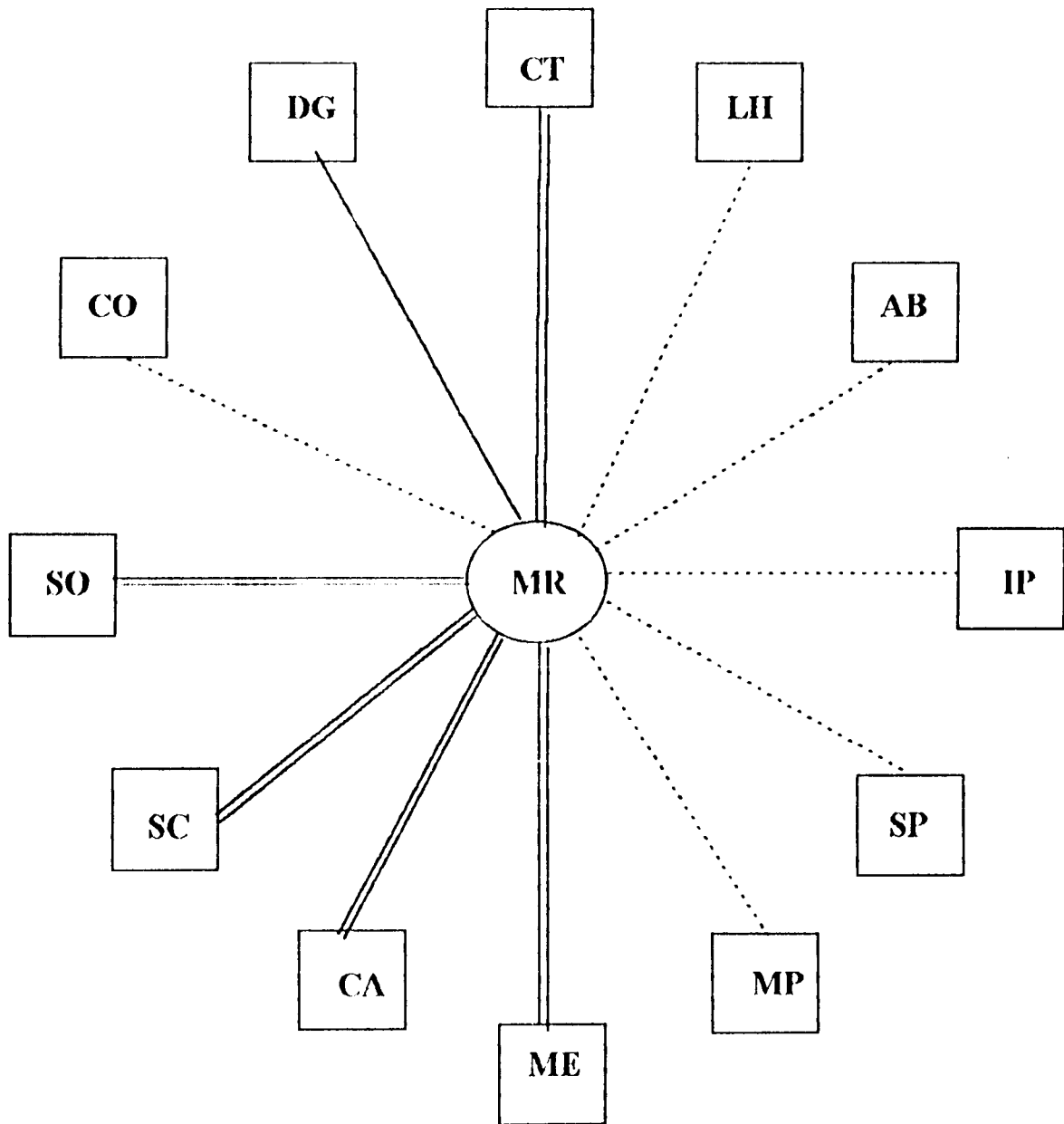
--------- Non signiliciant
———— Significiant at 0.05 level
═════ Significiant at 0.01 level

MR - Managerial behaviour of commercial
        Red banana growers

LH - Land holding
AB - Area under banana cultivation
IP - Irrigation potential
SP - Socio - political participation
MP - Material possession
ME - Mass-media exposure
CA - Closeness with agrl. support system

SC - Self confidence
SO - Scientific orientation
DG - Deferred gratification
CT - Creativity

Table:17. Step-wise regression analysis of the independent variables influencing managerial behaviour of commercial Red banana growers.

Step No.	Independent variables in regression analysis	F-value	Percentage of variation explained
1	Creativity X12	15.94	36.26
2	Creativity X12 Closeness with agricultural support system X7	16.31	54.71
3	Creativity X12 Closness with agricultural support system X7 Self confidence X8	14.73	62.95
4	Creativity X12 Closeness with agricultural support system X7 Self confidence X8 Deferred gratification X11	12.69	70.00

The results of step-wise regression analysis presented in Table:17 revealed that among the twelve independent variables, creativity stood out as the most important variable as it explained variation, in the managerial behaviour of commercial Red banana growers to the extent of 36.26 percent. The other variables are closeness with agricultural support system (18.45 percent variation), self confidence (8.24 percent variation) and deferred gratification (7.05 percent variation). All these

together explained 70 percent variation in the managerial behaviour of commercial Red banana growers.

Thus the independent variables such as mass media exposure, closeness with agricultrual support system, self confidence, deferred gratification and creativity were found to be substantially influencing the managerial behaviour of commercial banana growers.

Reddy (1983), Sumathi (1987) and Nagaraja (1989) have found significant association of mass media exposuree with management orientation/efficiency. Gowda (1991) showed positive& significant relationship between mass media participation and crisis management. Mass media helps to disseminate knowledge about different aspects of cultivation, its management, findings and developments in the field of agriculture, in addition to the day to day affairs of the world. Agriculture is considered as an entity by the mass media and they try to enrich the farmers. This might have helped the farmers to develop their decision-making ability and economic performance. Therefore the observed significant relation of mass media exposure with farmers' managerial behaviour is logical.

The closeness with agricultural support system was associated positively and significantly with the managerial behaviour of

commercial banana growers. The studies of Bora (1989) and Ananatharaman (1991) were in line with the present findings. The increased contact of the respondents with the agricultural support system like departments of agriculture, credit and input dealers, helped the farmers to improve their knowledge about cultivation aspects, facilitated to utilize the available inputs, created an awareness in them about the importance of agriculture and motivated them to undertake the cultivation in a profitable manner. This would help the farmers in improving planning and thereby the execution of various managerial activities. Thus, obviously, closeness with agricultural support system and managerial behaviour were connected significantly in a positive direction.

Self confidence showed a positive and significant effect on the managerial behaviour of commercial banana growers. In their studies, Rao (1985) and Sumathi (1987) observed a significant relationship between self confidence and farming performance as well as management orientation. Self confidence indicates the exent of feeling of one's own ability and resourcefullness in carrying out any activity which an individual desires to undertake. Self confidence is inevitable

for successful management. Self confidence helps to build up
the constructive aspects of human personality that enable a
person to function effectively in all dimensions of his life. If
a farmer has realistic acceptance of his own abilities, it will
facilitate him to provide opportunity for success and ensure
that the tasks and demands placed on him are suited to his
potential. It will enable the farmer to manage his farm in an
effective manner. Because of these factors self confidence had
been positively influenced the managerial behaviour of the
farmers.

It was found that deferred gratification of commercial
banana growers was connected significantly and positively with
their managerial behaviour. The findings of Nagaraja (1989) and
Gowda (1991) also indicated the same trend of relationship
between deferred gratification and managerial efficiency/crisis
management. The postponement of immediate satisfaction in
anticipation of future rewards might have increased their saving
capacity and thereby economic potential. The financial security
will lead to increase self confidence and risk taking
willingness. This will reflect on the planning, decision-making
etc. and their financial management will improve. Therefore, it

is logical that deferred gratification was significantly related with managerial behaviour of farmers in a positive way.

The creativity of commercial banana growers had a positive and significant contribution to their managerial behaviour. Creativity is the ability to generate new ideas and solve problems. It involves new ways of thinking about old problems. Kishorekumar (1991) said that creativity includes the use and expression of acquired knowledge and experience, as well as the ability to restructure this, the capacity to produce many ideas and many original responses. Creative thinking is needed for decision making. The success of management is very much determined by the quality of judgement in relation to the decisions that are to be taken. According to Buckett (1981) management is a skill which utilises a wide range of abilities. From these it is clear that creativity is positively related to managerial behaviour.

4.5. Extent of adoption of recommended cultivation practices of commercial banana growers.

The commercial banana growers were categorised into low, medium and high adopters based on their adoption index and the results are presented in Table:18.

Table:18. Distribution of commercial banana growers according to their extent of adoption of recommended cultivation practices.

Sl.No.	Category	Score range	Frequency	Percentage
1.	Low	<50	2	1
2.	Medium	50-75	69	46
3.	High	>75	79	53

From Table:18. it can be seen that 53 percent of commercial banana growers were high adopters, 46 percent were medium adopters and only one percent, low adopters.

Majority of the respondents adopted more than 75 percent of the recommended cultivation practices of banana. This shows very clearly that the farmers have adopted scientific cultivation practices by utilizing their managerial skill. For the

successful cultivation, rationality in taking decisions and its proper implementations are very essential. To ensure this they have judiciously considered both aspects. Moreover, to derive maximum profit, the growers have given more attention and care to the banana plants and they try their best to effectively utilize the rupee invested on banana cultivation.

4.5.1. Comparison of the three groups commercial banana growers based on their extent of adoption of recommended cultivation practices.

The mean scores with respect to the extent of adoption of recommended cultivation practices of Nendran, Palayankodan and Red banana growers are presented in Table:19.

Table:19. Rank means of extent of adoption of recommended cultivation practices of Nendran, Palayankodan and Red banana growers.

Category of growers	Rank means of extent of adoption
Nendran N = 75	74.28
Palayankodan N = 45	65.44
Red banana N = 30	102.48

Z value - 15.66**
** - Significant at 1 % level.

Fig: 9.   **Rank means of extent of adoption of Commercial banana growers**
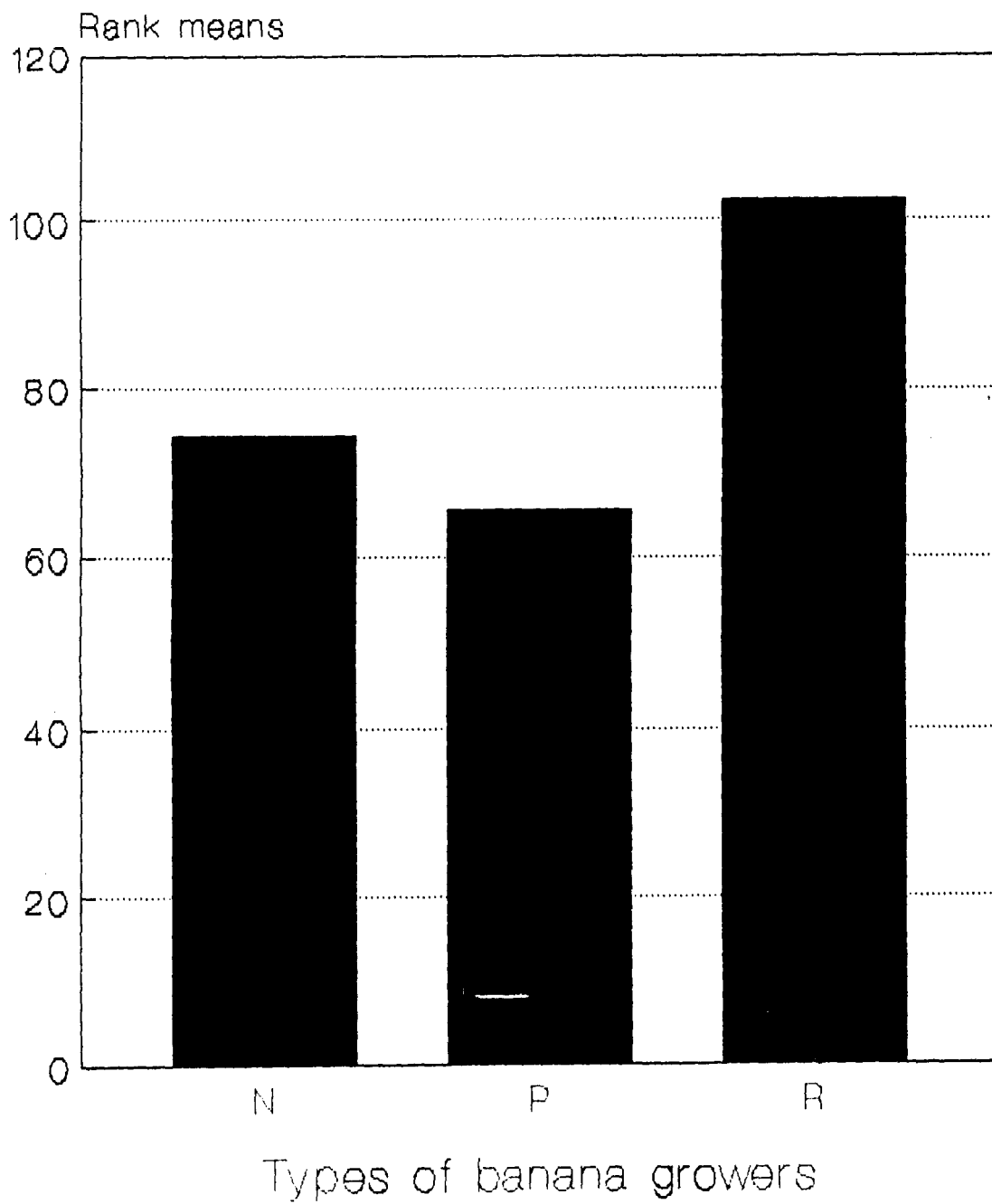
N - Nendran growers

P - Palayankodan growers

R - Red banana growers

Critical value

(1,2) - 16.06

(1,3)   20.02

(2,3) - 18.40

From Table:19. it is clear that there was significant difference between the Nendran, Palayankodan and Red banana growers with respect to their extent of adoption of recommended cultivation practices of banana. The critical values indicate that there is no significant difference between Nendran and Palayankodan growers with respect to the extent of adoption.

The results depicted in Table:19. revealed that the Red banana growers were superior in adoption of recommended cultivation practices than Nendran and Palayankodan growers. Because of the high value of Red banana and its susceptibility to disease and pest attack, the growers may adopt more recommeded cultivation and plant protection practices compared to the other varieties.

4.5.2. Relationship of extent of adoption of recommended cultivation practices of Nendran, Palayankodan and Red banana growers with their selected characteristics.

Simple correlation analysis was done to find out the relationship between extent of adoption of recommended

cultivation practices of Nendran, Palayankodan and Red banana growers with their selected characteristics and the results are presented in Table:20.

Table:20. Correlation between extent of adoption and selected characteristics of Nendran, Palayankodan and Red banana growers.

Sl. No.	Characteristics	Correlation co-efficient		
		Nendran n=75	Palayankodan n=45	Red banana n=30
1.	Land holding	0.2172 ns	0.3670 *	0.4579 *
2.	Area under banana cultivation	0.2134 ns	0.4161 **	0.3986 *
3.	Irrigation potential	0.2460 *	0.4616 **	0.1693 ns
4.	Socio-economic participation	0.3696 **	0.3475 *	0.1000 ns
5.	Material possession	0.3557 **	0.3338 *	0.2413 ns
6.	Mass media exposure	0.2358 *	0.5401 **	0.4814 **
7.	Closeness with agricultural support system	0.3705 **	0.6219 **	0.4078 *
8.	Self confidence	0.3082 **	0.5577 **	0.3709 *
9.	Scientific orientation	0.2681 *	0.4732 **	0.6615 **

10. Credit orientation	0.3003 **	0.2464 ns	0.0731 ns
11. Deferred gratification	0.4390 **	0.5074 **	0.2901 ns
12. Creativity	0.3760 **	0.4908 **	0.5708 **

* - Significant at 0.05 level.
** - Significant at 0.01 level
ns - Not-significant

The results presented in Table:20. revealed that there is a positive and significant relationship between the extent of adoption of recommended cultivation practices of commercial Nendran growers and their selected characteristics such as irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity. Hence it is inferred that these characteristics were positively influencing the extent of adoption of recommended cultivation practices of commercial Nendran growers. Land holding and area under banana cultivation were found to have a non-significant relationship with the extent of adoption of recommended cultivation practices of commercial Nendran growers.(Fig.10).

Fig : 10 Correlation between extent of adoption of recommended cultivation practices of commercial Nendran growers and their selected characteristics
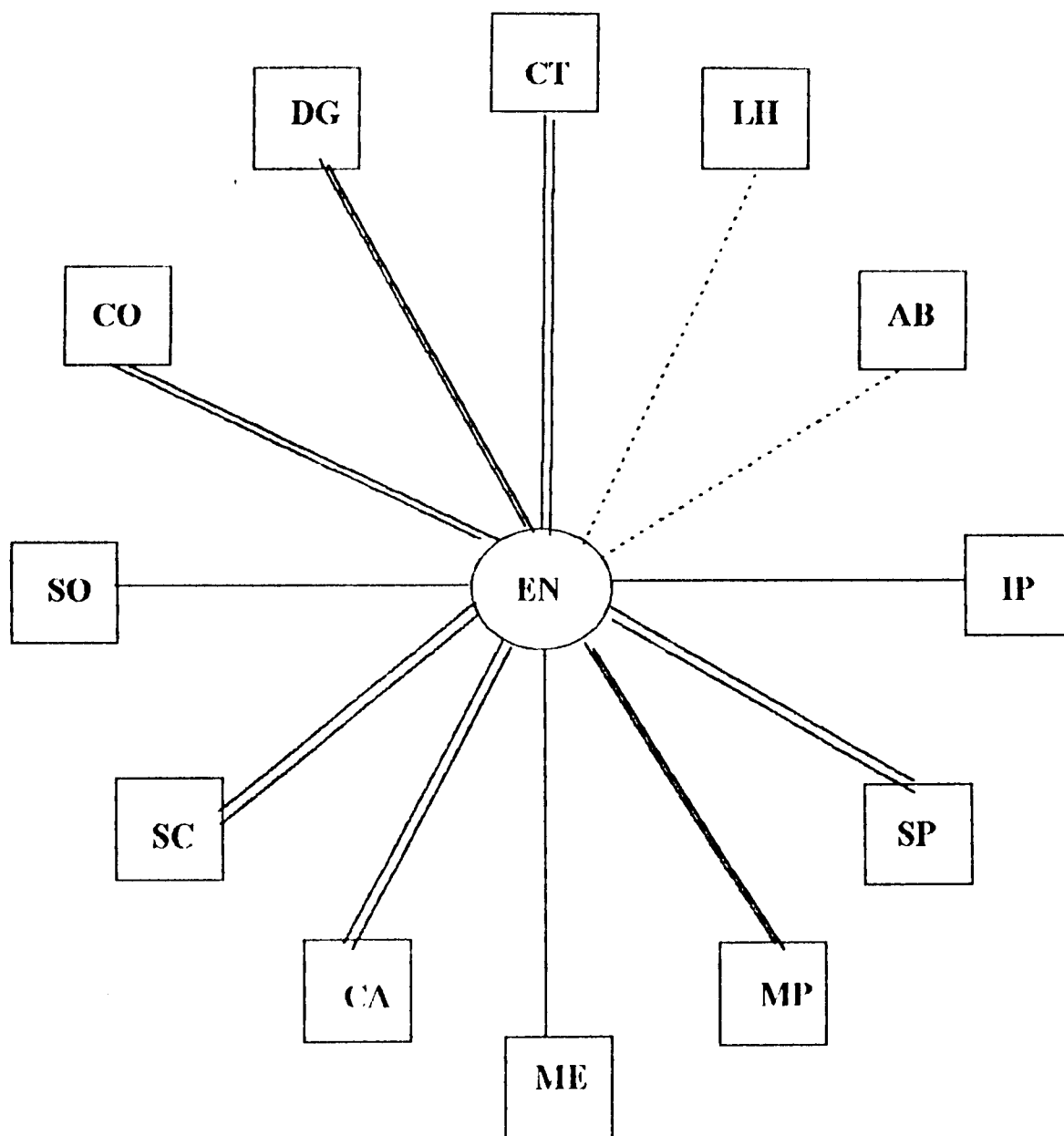
--------- Non significiant
———————— Significiant at 0.05 level   EN - Extent of adoption of commercial
══════════ Significiant at 0.01 level   Nendran growers

LH - Land holding
AB - Area under banana cultivation
IP - Irrigation potential   SC - Self confidence
SP - Socio - political participation   SO - Scientific orientation
MP - Material possession   DG - Deferred gratification
ME - Mass-media exposure   CT - Creativity
CA - Closeness with agrl. support system

From the results presented in Table:20. it could be seen that all the characteristics except credit orientation had a positive and significant relationship with extent of adoption of recommended cultivation practices of commercial Palayankodan growers. So we can infer that the characteristics such as land holding, area under banana cultivation, irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity were influencing positively the extent of adoption of recommended cultivation practices of commercial Palayankodan growers. The independent variable credit orientation had found to be non-significant. (Fig.11).

In the case of Red banana growers, the characteristics such as land holding, area under banana cultivation, mass media exposure, closeness with agricultural support system, self confidence, scientific orienation and creativity were positively and significantly related with extent of adoption of recommended cultivation practices of commercial Red banana growers. Irrigation potential, socio-political participation, material possession, credit orientation and deferred gratification were found to be non-significant. (Fig.12).

Fig : 11 Correlation between extent of adoption of recommended cultivation practices of commercial Palayankodan growers and their selected characteristics
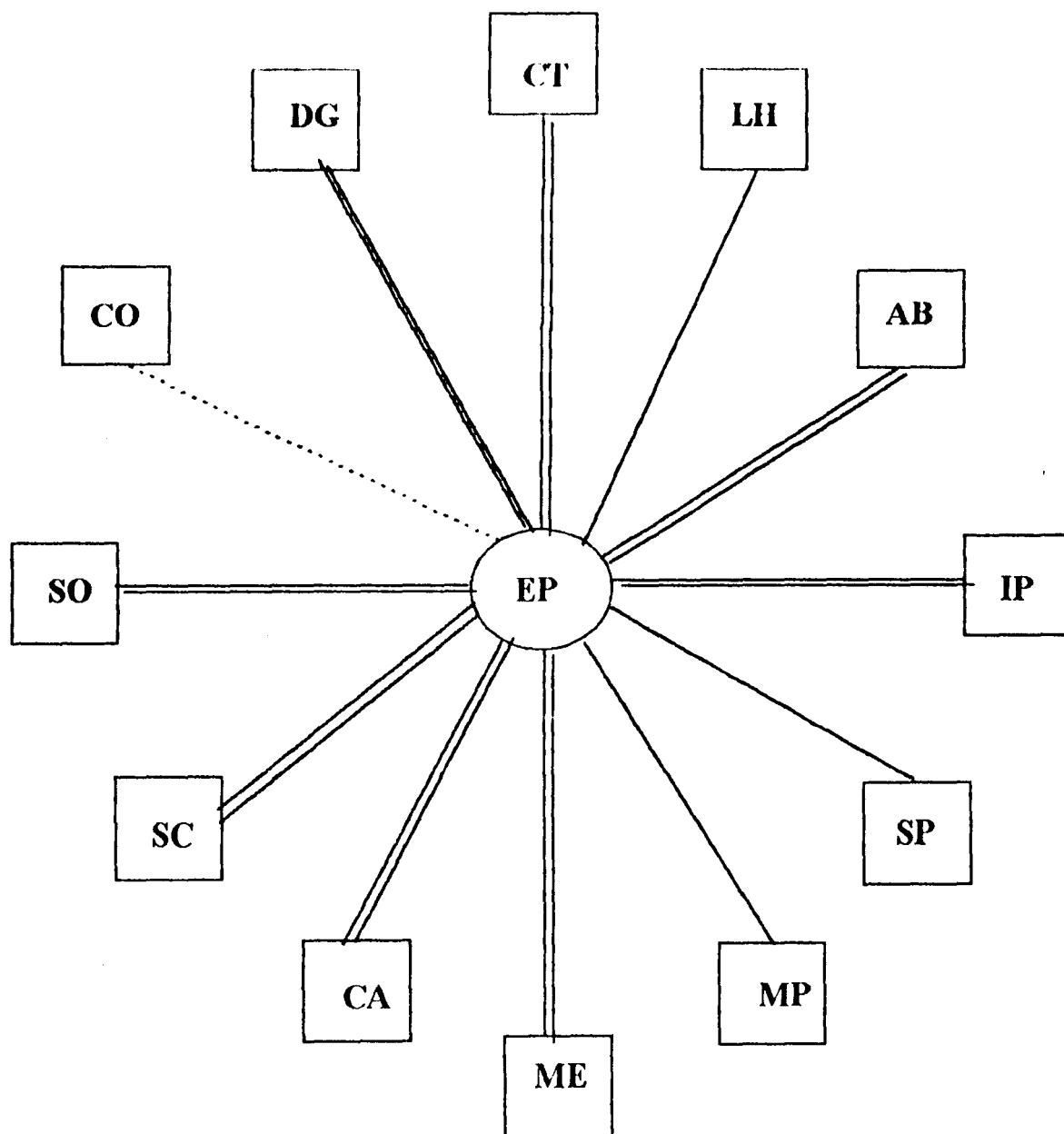
---------- Non significiant
————— Significiant at 0.05 level
═════ Significiant at 0.01 level

EP - Extent of adoption of commercial Palayankodan growers

LH - Land holding
AB - Area under banana cultivation
IP - Irrigation potential
SP - Socio - political participation
MP - Material possession
ME - Mass-media exposure
CA - Closeness with agrl. support system

SC - Self confidence
SO - Scientific orientation
DG - Deferred gratification
CT - Creativity

Fig:12. Correlation between extent of adoption of recommended cultivation practices of commercial Red banana growers and their selected characteristics
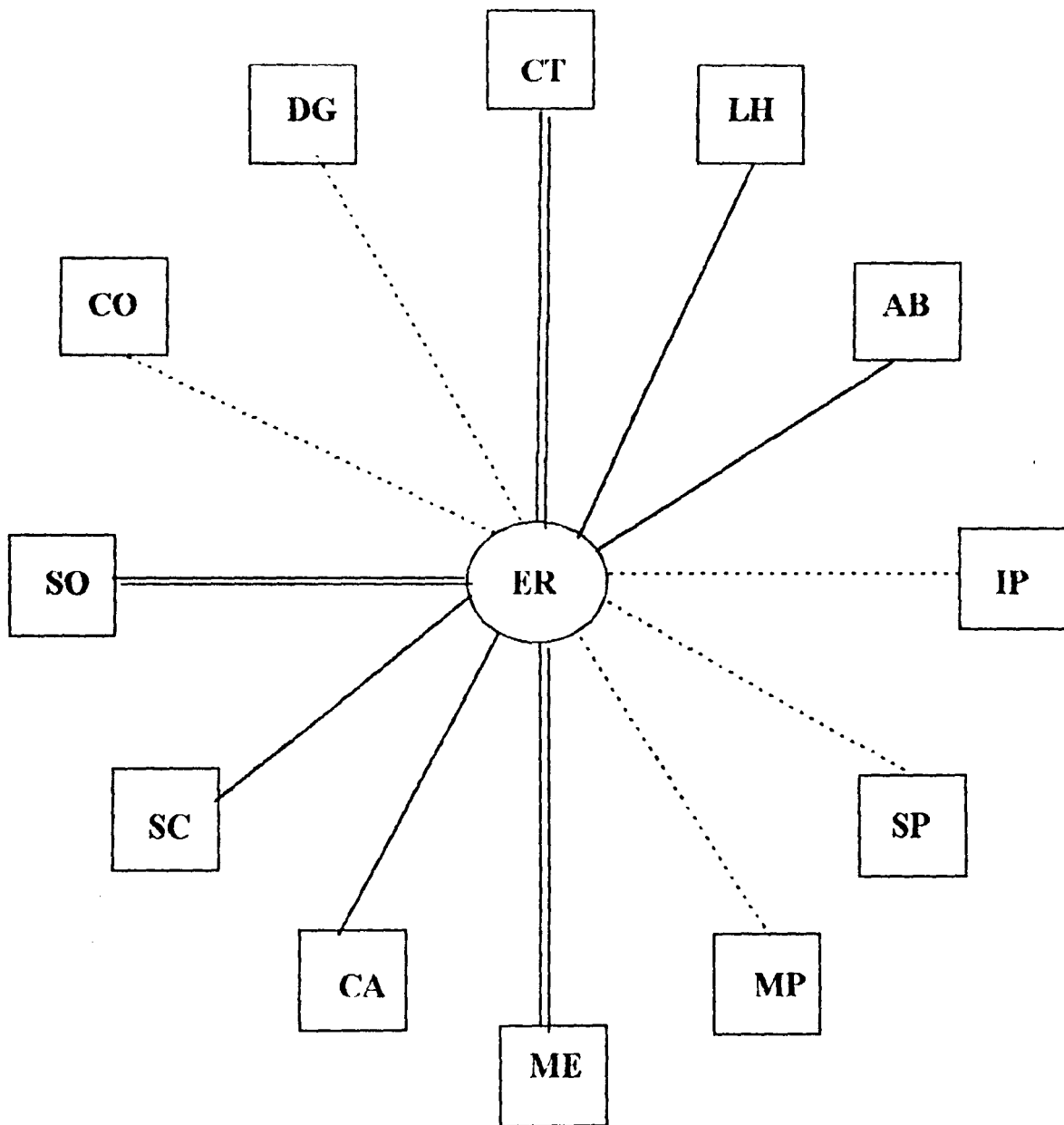
--------- Non significiant

——— Significiant at 0.05 level

═══ Significiant at 0.01 level

ER - Extent of adoption of commercial Red banana growers

LH - Land holding

AB - Area under banana cultivation

IP - Irrigation potential

SP - Socio - political participation

MP - Material possession

ME - Mass-media exposure

CA - Closeness with agrl. support system

SC - Self confidence

SO - Scientific orientation

DG - Deferred gratification

CT - Creativity

4.5.3. Adoption of individual practices by commercial banana growers.

The distribution of practice wise adoption is presented in Table:21.

Table:21. Frequency distribution of adopters based on their adoption score for each practice.

N=150

Practices	Extent of adoption <25%		<50%		50-75%		>75%	
	N	%	N	%	N	%	N	%
1. Sucker selection			7	5	39	26	104	69
2. Treatment of suckers	7	4	10	7	49	33	84	56
3. Pit size			8	5	42	28	100	67
4. Spacing			13	9	72	48	65	43
5. Manuring			19	13	51	34	80	53
6. Fertilizer application	2	1	32	21	62	41	54	36
7. Irrigation			12	8	60	40	78	52
8. Inter cultural operations								
(a) Weeding	6	4	26	17	24	16	94	62
(b) De-suckering			21	14	81	54	48	32
(c) Mulching	9	6	33	22	38	25	70	48
(d) Inter cropping	38	25	20	13	32	22	60	40
9. Propping	5	3	12	8	57	38	76	51
10. Plant protection	15	10	37	25	53	35	45	30

From Table:21. it could be seen that more than 50 percent of the farmers belonged to the category of high level adopters with regard to sucker selection, treatment of suckers, pit size, manuring, irrigation, weeding and propping. In the case of adoption of recommended spacing, 48 percent of the farmers belonged to the category of medium level and 43 percent belonged to high level adoption. The distribution pattern into low, medium and high level of adoption with regard to plant protection was more or less equal respectively 25, 35 and 30 percent respectively.

Since the farmers are mainly cultivating banana as a commercial crop, they are much concerned about net profit. Large majority of the farmers adopted most of recommended practices. In the case of plant protection, the farmers used their rationality and practised only the pertinent plant protection practices. That may be the reason, for the more or less same distribution pattern in all the three categories.

4.6. Indigenous farming practices adopted by commercial banana growers.

The cultivation practices adopted by the commercial banana growers during the cultivation of banana which are not recommended by package of practices at the same having

rationality are taken as indigenous farming practices and the identified practices collected are given below.

(a) Burning dried leaves inside the pit, before planting of banana suckers, for destroying insects and pathogenic organisms.

(b) Dipping the suckers in bordeaux mixture before planting for making it disease free.

(c) Application of lime at the rate of 250g/plant which act as a soil amiliorent.

(d) Application of groundnut cake/neem cake/mahua cake at the rate of 200g/plant to supplement nutrients.

(e) The practice of pouring water from the top of the banana plant, in addition to the application of water to its base, so that a cooling effect can be obtained which in turn helps to prevent the cracking of banana fruits in summer.

(f) As a measure of propping, coconut leaf along with its long petiole is fixed closely to the base of banana plant and the coconut leaflets are firmly tied to it.

(g) For controlling psuedostem borer, furadan granules are placed inside the burrowed holes and plastered it with mud.

(h) Application of common salt to the leaf axils of banana for controlling pests.

4.7. Marketing channels of banana.

The marketing channels of banana as perceived by the respondents are presented in Table:22.

Table:22. Distribution of marketing channels of banana as given by the respondents.

Sl.No.	Marketing channels	Frequency	Percentage	Rank
1.	Producer - Consumer	10	6.33	4
2.	Producer - Retailer - Consumer	53	33.54	2
3.	Producer - Wholesaler - Retailer - Consumer	57	36.08	1
4.	Producer - Commission-agent - Wholesaler - Retailer - Consumer	29	18.35	3
5.	Producer - Commission-agent - Exporter - Agent - Consumer	9	5.7	5

From Table:22, it could be seen that the most frequently used marketing channel was Producer - Wholesaler - Retailer - Consumer (36 percent) followed by Producer - Retailer - Consumer (33.54 percent) and Producer - Commission agent - Wholesaler - Retailer - Consumer (18 percent). The direct sale was very low (6.33 percent). It could be noted that there existed one more channel that is, Producer - Commission agent - Exporter-Agent-Consumer (5.7 percent).

All the marketing agencies existing in between the producer and consumer is considered as middlemen. The results shows very clearely that the involvement of middlemen in the marketing of banana in so many forms such as commission agent, wholesaler, retailer etc. are present. Eventhough banana cultivation is considered to be an attractive enterprise, it is very much obligatory on the part of government or development agencies to replace these middlemen. If this has been ensured, the farmers would definitely get a good profit and it would further motivate the people to take up banana cultivation as an enterprise.

4.8. Economics of banana cultivation.

The cost of cultivation of the three varieties of banana were worked out in consultation with the growers. The economics of banana with respect to the varieties Nendran, Palayankodan and Red banana is presented in Table:23.

Area - 1 ha.

Labour charge - Rs. 100/-

Variety	Spacing (m)	No:of plants /ha.	No.of bunches considering % of mortality	Duration (Months)
Nendran	2x2	2500	2125(15%)	10
Palayankodan	2.13x2.13	2150	1935(10%)	12
Red banana	2.13x2.13	2150	1612(25%)	18

Table:23. Cost of cultivation of banana Var. Nendran, Palayankodan and Red banana.

Sl No.	Details	Nendran LABOUR/INPUT			Palayankodan LABOUR/INPUT			Red banana LABOUR/INPUT		
		Rate per labour/ Rs	No/quantity	Cost Rs	Rate per labour/ Rs	No/Quantity	Cost Rs	Rate per labour/ Rs	No/Quantity	Cost Rs
1	Clearing of land	10cents	25	2500	10cents	25	2500	10cents	25	2500
2	Earthing up	5cents	50	5000	5cents	50	5000	5cents	50	5000
3	Making irrigation & drainage channels	5 channels (Total 25)	5	500	5channels (Total 20)	4	400	4channels (Total 20)	5	500
4	Taking pits	100 pits	25	2500	100pits	20	2000	70pits	30	3000
5	Planting materials (considering 5% mortality rate)	2 Rs/ sucker	2625	5250	2 Rs/ sucker	2258	4516	3 Rs/ sucker	2258	6774
6	Planting	200	13	1300	200	10	1000	150	15	1500
7	Cowdung	500/ton	25tons	12500	500/ton	21.5tons	10750	500/ton	21.5tons	10750
8	Transporting charge of manures	50Rs/load (5tons/ load)	5 loads	250	50/loads	4 loads	200	50/load	4 loads	200

No	Item									
9	Cowdung application	250	10	1000	200	10	1000	200	10	1000
10	Irrigation after planting (for 1 month, once in 3 days)	250 no.	100 (10x10)	10000	250 no.	90 (9x10)	9000	200 no.	110 (11x10)	11000
11	Gap filling		2	200		1	100		5	500
12	Cost of fertilizers									
a.	Factumphos	8.40/kg	1438 Kg	12079.20	8.40/kg	1075 Kg	9030	8.40/kg	2150	18060
b.	Urea	3.50/kg	408 Kg	1428						
c.	Mop	6.00/kg	1250 Kg	7500	6.00/kg	1434 Kg	8604	6.00/kg	1434	8604
d.	Mussuriphos				2.00/kg	1075 Kg	2150			
13	Fertilizer									
i.	At planting	200 no.	13	1300						
ii.	1 MAP	200 no.	13	1300						
iii.	2 MAP	250 no.	10	1000	150 no.	14	1400	100 no.	22	2200
iv.	4 MAP	250 no.	10	1000	150 no.	14	1400	100 no.	22	2200
v.	5 MAP	250 no.	10	1000						
vi.	After complete bunch emergence	400 no.	6	600						
14.	Irrigation after fertilizer application (6 for Nendran and 2 for others)	500 no.	30 (5x6)	3000	400 no.	10 (5x2)	1000	200 no.	20 (10x2)	2000

#	Item									
15	Irrigation during summer months (Once in 2 days 2 months)	300 no.	240 (8x30)	24,000	300 no.	140 (7x20)	14000	200 no.	330 (11x30)	33000
16	Weeding (hand weeding 4 times)	500m^2	80	8000	500m^2	80	8000	500m^2	80	8000
17	De suckering		5	500		5	500		10	1000
18	Propping	100 no.	25	2500	100 no.	20	2000	50 no.	40	4000
19	Cost of propping materials	Rs.5/plant	2500	12500	Rs.5/plant	2150	10750	Rs.6/plant	2150	12900
20	Phorate	60/Kg	150 Kg	9000	60/kg	80 kg	4800	60/kg	161.25 Kg	9675
21	Application of phorate (thrice)	500 no.	15 (5x3)	1500	500 no.	8 (4x2)	800	250no.	27 (9x3)	2700
22	Wrapping	100 no.	25	2500	100 no.	20	2000	50 no.	40	4000
23	Harvesting	100	25	2500	100	22	2200	50	40	4000
24	Transporting of bunches	100/load 1 load Rs.50/-	25loads	1250	100/load 1 load Rs.50/-	25loads	1250	50/load 1 load Rs.50/-	40 loads	2000
25	Interest on working capital	10% per annum		13545.72	10% per annum	10615		10% per annum		15706.30
	Total (Rs.)			149002.92			116765.00			172769.30

Table:24. Economic analysis

Particulars	Nendran	Palayankodan	Red banana
Average weight of bunch (kg)	10	12	14
Total bunch yield (Kg ha^{-1})	21250	23220	22568
Rate /Kg (Rs)	12	6	13
Income from bunches (Rs)	255000	139320	293384
No. of suckers (3/plant)	6375	5805	4836
Income from suckers (Rs.2/sucker) Rs.	12750	11610	9672
Total income (Rs.)	267750	150930	303056
Total cost of cultivation (Rs.)	149003.00	116765.00	172769.30
Net profit (Rs.)	118747.00	34165	130286.70
Income/plant	107.10	70.20	140.95
Expenditure/plant	54.60	54.30	80.35
Profit/plant	47.50	15.90	60.60
Income/day	877.90	412.40	552.00
Expenditure/day	488.50	319.00	314.70
Benefit - cost (B/c) ratio	1.80	1.30	1.75

Table 25. Comparative economics of production of Nendran, Palayankodan and Red banana varieties of banana (per hectare)

Particulars	Nendran		Palayankodan		Red banana	
	Rs	%	Rs	%	Rs	%
I Material cost						
a Planting materials	5250	3.5	4516	3.9	6774	3.9
b Manures & fert.	33507.2	22.5	30534	26.1	37414	21.7
c Propping materials	12500	8.4	10750	9.2	12900	7.5
d P.P.chemicals	9000	6.0	4800	4.1	9675	5.6
Sub total	60257	40.4	50600	43.3	66763	38.6
II Labour cost						
a Preparatory cultivation	8000	5.4	7900	6.8	8000	4.6
b Planting	3800	2.6	3000	2.6	4500	2.6
c Manures & fert. application	7200	4.8	3800	3.3	5400	3.1
d Irrigation	37000	24.8	24000	20.6	46000	26.6
e Intercultural operations	11200	7.5	10600	9.1	13500	7.8
f Propping	2500	1.7	2000	1.7	4000	2.3
g Plant protection	1500	1.0	800	0.7	2700	1.6

h Transporting charges	1500	1.0	1450	1.2	2200	1.3
i Harvesting	2500	1.7	2000	1.7	4000	2.3
Sub total	75200	50.5	55550	47.6	90300	52.3
III. Interest on working capital	13545.72	9.1	10615.	9.1	15706.3	9.1
Grant total (I+II+III)	149002.92		116765		172769.3	
Net income	267750		150930		303056	
BC ratio	1.80		1.30		1.75	

The cost of cultivatin of Nendran, Palayankodan and Red banana were worked out on the assumption that 2500 plants of Nendran and 2310 plants of Palayankodan and Red banana could be accomodated in one hectare of land. In the case of Nendran variety, the cost of cultivation came to Rs. 149002.92/- per hectare, out of which 50.5 percent was spent as labour costs and 40.4 percent material costs. For all the three varieties, interest on working capital was to found to be 9.1 percent of the total cost of cultivation. It was also found that among the labour costs, irrigation accounted 24.8 per cent and among the material costs, manures and fertilizers accounted 22.5 percent of the total cost of cultivation of Nendran.

The cost of cultivation of Palayankodan was worked out as Rs 116765/- per hectare. Out of the total cost labour costs

accounted 47.6 percent and material costs 43.3 percent. Manures and fertilizers shared the major portion of the total cost (26.1 percent). The labour cost for irrigation came up to 20.4 percent of the total cost of cultivation.

For Red banana the total cost of cultivation was found to be Rs.172769.30. The labour costs accounted to 52.3 percent and material costs 38.6 percent of the total cost of cultivation. Out of the total cost of cultivation Red banana the labour cost for irrigation shared the major portion (26.6 percent) followed by the material cost of manures and fertilizers (21.7 percent).

The net income from Nendran, Palayankodan and Red banana cultivation were worked out as Rs. 267750, 150930 and 303056 respectively and the respective benefit-cost (B/C) ratio were 1.80, 1.30 and 1.75. The benefit-cost ratio was worked out by considering the duration of the variety also. The duration of Red banana is more compared to Palayankodan and Nendran. It was found that the benefit-cost ratio is high in Nendran cultivation. From the results of the study it was also seen that Nendran growers are superior over Red banana and Palayankodan growers with respect to their managerial behaviour.

4.9. Constraints in banana cultivation as perceived by the commercial banana growers.

The growers face a number of constraints in the cultivation of banana. The constraints as perceived by the banana growers are collected and ^the obtained frequency distribution is given in Table:26.

Table:26. Frequency distribution of constraints in banana cultivation as perceived by the commercial banana growers.

	Constraints	Frequency	Rank
I	Production constraints		
i.	Incidence of pest & diseases	107	1
ii.	Labour scarcity	95	2
iii.	Non-availability of inputs	58	3
iv.	Weather problems	54	4
v.	Uneven production	12	5
vi.	Unawareness of plant protection measures	8	6
II.	Economic Constraints		
i.	High cost of material inputs	92	1
ii.	High labour charge	85	2

iii.	Pric fluctuation of the produce	40	3
iv.	Inadequate credit facilities	31	4
v.	High trans-porting charges	29	5
vi.	Inadequate marketing facilities	27	6

The constraints were grouped into production and economic constraints. A cursory look at the results presented in Table 26 reveals that, among the production constraints, incidence of pests and diseases ranked first followed by labour scarcity. Non availability of inputs ranked third followed by weather problems in the fourth position. The other constraints included uneven production and unawareness of plant protection measures.

Among the economic constraints, high cost of material inputs ranked first followed by high labour charge. Price fluctuation of the produce was the third important constraint faced by the commercial banana growers. Inadequate credit facilities ranked fourth and high transporting charges in the fifth position. Inadequate marketing facilities obtained the sixth rank among the economic constraints.

4.10. Empirical model of the study.

Based on the results of present study an empirical model was prepared as given in the figure:12. Among eight dimensions of managerial behaviour only three dimensions viz. planning, decision making and farm supervision were found to be significant. The socio-psychological and situational factors influencing managerial behaviour and extent of adoption of Nendran, Palyankodan and Red banana were given separately.

The managerial behaviour of Nendran growers were influenced by the factors by like area under banana cultivation, irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity. On the other hand the extent of adoption of Nendran growers were influenced by all these factors excepting area under banana cultivation.

The characteristics such has irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity were found to be influencing the

DV

| MANAGERIAL BEHAVIOUR |
| PLANNING |
| DECISION MAKING |
| FARM SUPERVISION |

IV

N
- Area under banana cultivation
- Irrigation potential
- Socio political participation
- Material possession
- Mass-media exposure
- Closeness with agricultural support system
- Self confidence
- Scientific orientation
- Credit orientation
- Deferred gratification
- Creativity
N

P
- Land holding
- Area under banana cultivation
- Irrigation potential
- Socio-political participation
- Material possession
- Mass media exposure
- Closeness with agricultural support system
- Self confidence
- Scientific orientation
- Credit orientation
- Deferred gratification
- Creativity
P

R
- Land holding
- Area under banana cultivation
- Mass-media exposure
- Closeness with agricultural support system
- Self confidence
- Scientific Orientation
- Deferred gratification
- Creativity
R

DV

EXTENT OF ADOPTION OF RECOMMENDED CULTIVATION PRACTICES

DV - Dependent variable
IV - Independent variables
N - Nendran growers
P - Palayankodan growers
R - Red banana growers

Fig: 13. **EMPIRICAL MODEL OF THE STUDY**

managerial behaviour commercial Palayankodan growers and in the case of their extent of adoption all these factors excepting credit orientation were found to be significant. In addition to the *above,* two more factors, land holding and area under banana cultivation were also included in this category.

In the case of Red banana growers the factors such as mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity were found to be influencing their managerial behaviour and the factors like, land holding, area under banana cultivation, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation and creativity were influenced their extent of adoption of recommended cultivation practices.

SUMMARY

CHAPTER V

SUMMARY

Commercialization and modernization has introduced a business content in the farming profession. The success of farming depends on the farmer's ability to understand and adopt many newly developed technologies. For that farmers have to collect all possible informations about the innovations and relate them to their situation and select the best alternative in order to maximise agricultural production. The quality of selection or decision made by farmers depends upon their rational behaviour. Proper planning, decision-making and farm supervision are essential for becoming a successful farmer. Thus management is now acknowledged as the most critical input in agriculture. Research investigations oriented towards the management and prediction of managerial behaviour of farmers have been very few. Banana, an important fruit crop, plays a key role in the state's economy. So the present study was taken up to analyse the managerial behaviour of commercial banana growers with the following specific objectives.

1. To study the socio-economic profile of commercial banana growers.
2. To study the managerial behaviour of commercial banana growers.

3. To study the extent of adoption of recommended cultivation practices by the commercial banana growers.

4. To collect the indigenous farming practices adopted by the commercial banana growers.

5. To identify the major marketing channels of banana .

6. To reveal the constraints in banana cultivation as perceived by the commercial banana growers.

7. To develop an extension strategy for enhancing commercial scientific banana cultivation.

The study was carried out in Thiruvananthapuram District of Kerala. Stratified two stage proportionate sampling method was employed for the selection of respondents. From each agricultural sub-divisions in Thiruvananthapuram District, one Krishibhavan area in which banana was extensively cultivated was selected at random. The selected Krishibhavans included, Venganoor, Anad and Pothencode. The total sample population included 150 banana growers consisting 75 Nendran growers, 45 Palayankodan growers and 30 Red banana growers.

Based on the review of literature and discussion with experts, the two dependent variables viz., managerial behaviour and extent of adoption of recommended cultivation practies of commercial banana growers were selected for the study.

For screening the independent varialdes, and dimensions of managerial behaviour, a pilot study was conducted. Based on the results the profile characteristics such as land holding, area under banana cultivation, irrigation potential, socio-political participation, material possession, mass-media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity were selected as independent variables.

The selected dimensions of managerial behaviour included planning, information management,decision making, financial management, labour management, risk management, farm supervision and marketing management. Among these, planning, information management, financial management, labour management and marketing management were measured by adopting the measurement procedures developed by Anantharaman (1991) with some modifications wherever necessary. The measurement of decision-making was done by using the scale developed by Sobhana (1990). Risk management was measured by using the scale developed by Supe (1969), farm supervision was measured by slightly modifying the scale developed by Sagar and Ray (1987). A managerial behaviour index was developed by taking the composite measure of these eight dimensions.

For measuring the extent of adoption of recommended cultivation practices, the procedure followed by Vijayan (1989) was suitably modified and used in the present study.

Land holding was measured as the number of cents of land possessed by the respondent, owned as well as leased in or leased out. Area under banana cultivation was measured as the number of cents of land kept under banana cultivation, both owned and cultivated by the respondent including the leased in land. The measurement of irrigation potential was done by finding out the percentage of proportion of net banana cultivating area under various sources of irrigation to the total banana cultivating area possessed by the respondent.

The measurement of other independent variables was done by adopting already developed scales with some modifications wherever necessary which is presented below.

Independent variable	Scale developed Author	Year	Modifications.
Socio-political Participation	Venkataramaiah	1983	some modifications
Material possession	"	1983	slight "
Mass-media exposure	Syamala	1988	slight modification

Closeness with agricultural support system	Bora	1986	slight modification
Self confidence	Basavanna	1974	" "
Scientific orientation	Supe	1969	Nil
Credit orientation	Beal&Sibley	1967	slight modification
Deferred gratification	Gowda	1991	slightly modified
Creativity	Reddy	1990	Nil

The respondents were grouped into low, medium and high categories based on the score range.

Marketing channels of banana were identified by asking the respondents to speak out the channels through which they sell the produce, on priority basis. The frequency of responses for the given set of constraints were ranked to identify the constraints in banana cultivation.

Data were collected from the respondents with the help of a well structured and pre-tested interview schedule after a pilot study. The data so collected were analysed with the help of statistical techniques viz. mean, frequency, percentage analysis, simple correlation analysis, Kruskal-wallis test and step - wise regression analysis to derive the results.

The salient findings of the study are summarised and presented below.

Salient findings.

The socio-economic profile of commercial banana growers.

1. Majority of the respondents belonged to medium level category with respect to their land holding, area under banana cultivation, socio-political participation and material possession.

2. Majority of the respondents belonged to high level category with respect to their irrigation potential, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity.

3. There was significant difference among Nendran, Palayankodam and Red banana growers with respect to the profile characteristics like land holding, area under banana cultivation, socio-political participation and closeness with agricultural support system.

Managerial behaviour.

4. There was significant difference among Nendran, Palayankodan and Red banana growers with respect to the dimensions of managerial behaviour such as planning, decision-making and farm supervision.

5. Majority of the respondents possessed high level of managerial behaviour.

6. There was significant difference between Nendran, Palayankodan and Red banana growers with respect to their level of managerial behaviour.

7. Nendran growers were superior over Red banana and Palayankodan growers with respect to their level of managerial behaviour.

8. Positive and significant relationship was obtained between managerial behaviour of commercial Nendran growers and their profile characterstics such as area under banana cultivation, irrigation potential, socio-political participation, material possession, mass-media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity.

9. There existed a positive and significant relationship between the managerial behaviour of commercial Palayankodan growers and their profile characteristics like irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity.

10. There was a positive and significant relationship between the managerial behaviour of commercial Red banana growers and their profile characteristics like mass-media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity.

11. The independent variables viz. self confidence, creativity, closeness with agricultural support system and massmedia exposure substantially influenced the managerial behaviour of Nenɔdran growers.

12. The independent variables which substantially influenced the managerial behaviour of commercial Palayankodan growers were self confidence, deferred gratification, closeness with agricultural support system and creativity.

13. Creativity, closeness with agricultural support system, self confidence and deferred gratification were the independent variables which substantially influenced the managerial behaviour of commercial Red banana growers.

Extent of adoption

14. Majority of the respondents adopted more than 75 percent of the recommended cultivation practices of banana.

15. There was significant difference among Nendran, Palayankodan and Red banana growers with respect to their extent of adoption of recommended cultivation practices of banana.

16. There was a positive and significant relationship between the extent of adoption of recommended cultivation practices of commercial Nendran growers and their selected characteristics such as, irrigation potential, socio-political participation, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, credit orientation, deferred gratification and creativity.

17. The characteristics such as land holding, area under banana cultivation, irrigation potential, socio-political particiaption, material possession, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation, deferred gratification and creativity were positively and significantly related with the extent of adoption of recommended cultivation practices of commercial Palayankodan growers.

18. There was a positive and significant relationship between the extent of adoption of recommended cultivation practices of

commercial Red banana growers and the characteristics such as, land holding, area under banana cultivation, mass media exposure, closeness with agricultural support system, self confidence, scientific orientation and creativity.

19. Majority of the respondents belonged to the category of high level adopters with regard to sucker selection, treatment of suckers, pit size, manuring, irrigation, weeding and propping.

20. In the case of adoption of recommended spacing and fertilizer application, majority of the farmers belonged to medium level.

Marketing channels of banana

21. The most frequently used marketing channel identified was `Producer - Wholesaler - Retailer - Consumer' followed by `Producer - Retailer - Consumer', `Producer - Commission agent - Wholesaler - Retailer - Consumer', `Producer - Consumer' and `Producer - Commission agent - Exporter - Agent - Consumer'.

Economics of banana cultivation

22. Per hactare cost of production of Nendran, Palayankodan and Red banana were found to be Rs. 149002.92, 116765 and 172769.30

respectively. The benefit cost ratio of Nendran, Palayankodan and Red banana were worked out as 1.80, 1.30 & 1.75 respectively.

Constraints in banana cultivation

23. The most important production constraint in the cultivation of banana as given by the respondents was `incidence of pests and diseases' followed by `labour scarcity', `non-availability of inputs', `weather problems', `uneven production' and `unawareness of plant protection measures'.

24. `High cost of material inputs' was the most important economic constraint in the banana cultivation followed by `high labour charge', `price fluctuation of the produce', `inadequate credit facilities', `high transport charges' and `inadequate marketing facilities'.

Recommendations to overcome the constraints in banana cultivation as suggested by the commercial banana growers.

1. Govt. should take appropriate measures to encourage the farmers to take up cultivation.

2. For improving the dignity of farming, social awareness should be created through publications, conferences, discussions, seminars etc.

3. Mobilize the farmers and co-ordinate them to take up cultivation as a group or encourage group farming in banana.

4. Govt. should assist the farmers to form farmers' consortium so that profit will reach in the hands of the producers itself.

5. Most of the farmers are economically backward. So financial assistance should be provided to the farmers for taking up cultivation of crops and improve or re-organise the existing credit facilties.

6. Losses in cultivation should be compensated adequately by the authorities. Govt. should strengthen the crop insurance programme.

7. Govt. should take necessary steps to reduce the price of fertilizers and should increase the subsidy rate of fertilizers.

8. Take necessary steps to provide correct and timely informations to farmers and improve the existing facilities. Study classes should be arranged at Krishibhavan level. Provide notice boards in the Krishibhavan as well as different locations so that the informations will reach the farmers at correct time.

9. Qualified extension persons should visit the farmers' fields frequently for finding out the short - comings and provide suitable remedial measures then and there.

10. Take necessary measures to reduce the problem of labour scarcity and high labour charge.

11. Adopt mechanisation in order to tackle the labour problems.

12. Improve irrigation facilties. Assistance should be given for digging wells and for installing pumpset.

13. Soil conservation measures should be improved.

14. Ensure timely availability of inputs.

15. Ensure good qualities suckers. Short duration, pest and disease resistant varieties of banana should be evolved.

16. Develop low cost propping measures.

17. Improve transporting and marketing facilities.

18. Ensure price stabilization.

Extension strategy for enhancing commercial scientific banana cultivation.

In order to formulate an extension strategy for enhancing commercial scientific banana cultivation, we should know the blocks or constraints in banana cultivation, based on that only it is possible to develop suitable extension strategies to overcome it. Thus the constraints in banana cultivation as perceived by the banana growers were identified and analysed.

The constraints were grouped into production and economic constraints. Incidences of pests and diseases was identified as the most important production constraint in banana cultivation

as perceived by the banana growers. The growth and yield of banana is affected by the incidences of various pests and diseases. The pests include pseudostem borer, rhizome weevil, lace wing, aphid, nematodes etc. Bunchy top disease, kokkan, panama wilt, sigatoka etc. are some of the major diseases affecting banana. If we do not give proper care and attention, the pest and disease may spread and cause severe damage. Any pest or disease attack may have to be diagnised and controlled at the initial stages, otherwise it will be difficult to control them.

Labour scarcity is the second important production constraint. Now-a-days the timely availability of labourers is a big problem. There is a tendency among the labourers to shift from agriculture to non-agricultural jobs. Also the young generations' attitude towards agricultural works is not hopeful. Non-availability of input is yet another problem in banana cultivation. Timely supply of good quality suckers, manures, pesticides, propping materials, etc. are inadequate as far as the demand is considered.

Weather problems is a serious threat to banana cultivation. They include storms, draught, flood etc. which may often cause heavy losses to banana growers. Uneven production is another

problem in banana cultivation. By uneven production it means lack of uniformity in bunch emergence and its maturity which may affect the harvesting of bunches. If there is uniform production, it will be easy for harvesting and marketing. Wrong diagnosis of pests and diseases and lack of knowledge about proper control measures is another problem in banana cultivation.

High cost of material inputs ranked first among the economic constraints. The cost of manures, fertilizers and pesticides are very high and cannot be afforded by the growers. This will result in the increase in cost of cultivation. Second important economic constraint is higher labour charges. The problem of price fluctuation affects the net profit of the growers. The price of the produce varies according to season, market, locality etc. There may be variations in price during the early and later stages of same season which will in turn affect the profit of growers. The other problems include inadequate credit facilities, high transporting charges and inadequate marketing facilities.

Necessary steps are to be taken for solving these problems. For that a three level approach - individual, group and government - is necessary.
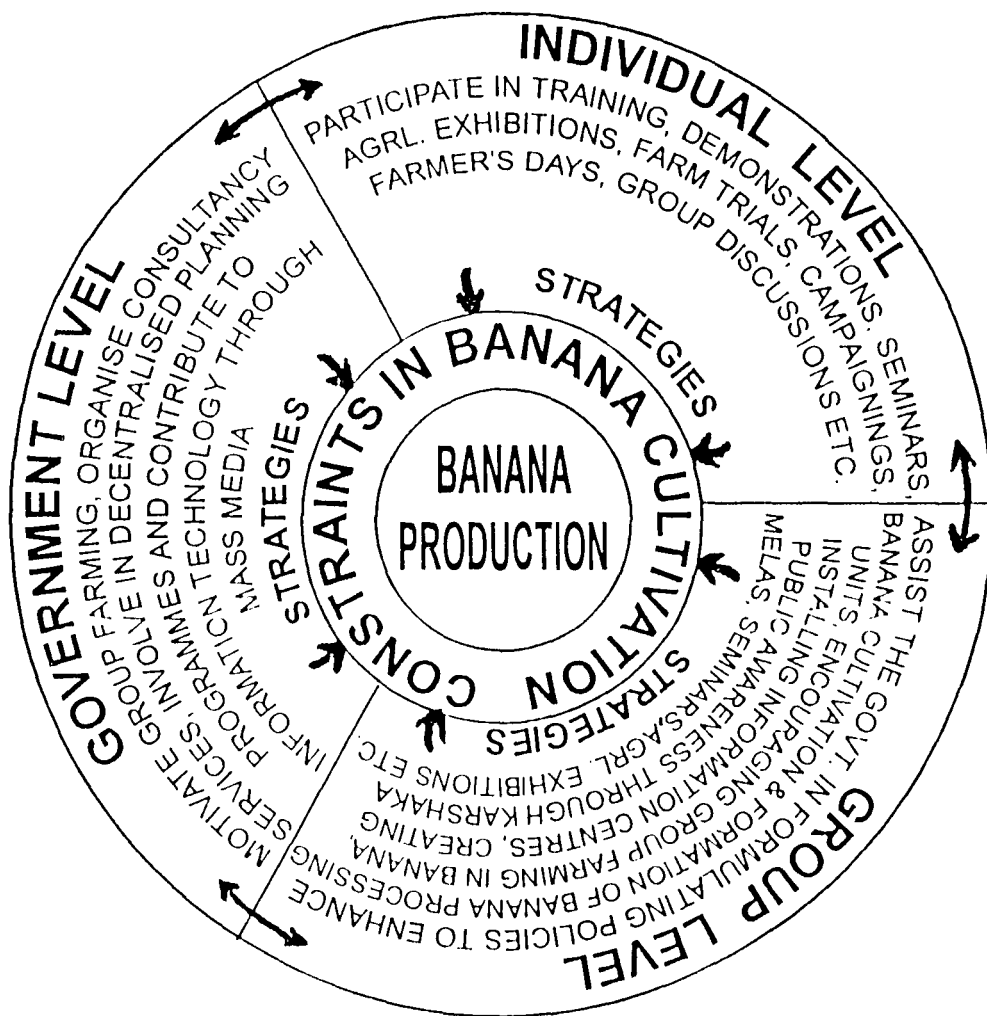
Fig. 14. Strategic model of the study

a. Individual level

Farmer's ability in managing inputs plays a vital role in bridging the technical gap and reaping maximum profit through effective control of cost of cultivation. Each farmer has to plan the course of farm activities, take appropriate and timely decisions on cultivation and marketing aspects of crops& supervise the farm in a best possible manner. With the new technological break – through in agriculture, the decision making processes have become more complex. To help the farmer to take right decisions as to what variety has to grow, how much to grow, how to grow, when and where to buy and sell, proper training in this subject has become necessary. The farmer has to acquire knowledge about all aspects of banana cultivation especially on plant protection measures. Farmer should utilise the services of extension and input systems, particularly with the decentralised planning system. The extension personnels should motivate each of them to participate in various extension programmes, such as trainings, demonstrations, seminars, agricultural exhibitions, farm trials, campaignings, farmer's days, group discussions etc. These approaches mutually influence and enhance the efficiency of the growers in a synergestic way.

b. Group level

The saying of `union is strength' is applicable here. It may be pertinent to tackle a problem at group level rather than individual approach. Going for cultivation of a remunerative cash crop like banana as a group level approach will facilitate favourably in the various dimensions of crop production process such as procurement and carrying out of new technologies, mechanization of land (since there is labour scarcity), getting inputs, labour management, credit management, harvesting, transporting, marketing etc. and there by reduces the cost of cultivation. Over and above, the problem of pest and disease management can be handled in a most effective manner by group farming through the adoption of common integrated pest and disease management practices. Many different innovative ideas can be put together effectively in carrying out the task. Co-operative group farming should be encouraged by the extension personnels by creating an awareness about it among the farming community. The concept of `Janakeeya asutrana programme' (decentralised planning programme) organised by the government is based on group level approach. Agriculture is given a prime importance in this programme and it will be effective for promoting group farming. The extension personnels should involve in public awareness programmes contributing to

publications, news paper columns, leaf lets, and also information support through radio, TV, film shows etc. enhancing the involvement of extension workers, input dealers and farmers.

c. Government level

Government should take appropriate measures to encourage farming. Extension personnels should assist the government in group farming activities. Government should provide subsidies to farmers for reducing the cost incurred in purchasing manures and fertilizers. Insurance should be given to compensate the crop losses due to weather problems. Proper monitoring is to be done to ensure the smooth functioning of the crop insurance programme and there is a need to strengthen the present programme. Information centres should be installed to make the farmers to update their knowledge and create an awareness about various beneficiaries provided by the government. Research works in the direction of reducing cost of cultivation of crops by blending the indigenous and modern technical knowledge, evolving new short duration, high yielding, pest and disease resistant varieties etc. should be encouraged by the government. Co-operative societies should be formed for providing necessary inputs and ensuring easy marketing. Encouraging farmer manned markets/regulated markets is one of the possible alternatives for solving the problems in marketing to some extent as well as in

reducing the problem of middlemen interference and assuring a reasonable price to the producer. The problem of transporting can be reduced by providing enough marketing centres at each locality and implementing transporting services by the government exclusively for agricultural commodities having sufficient packing and storing facilities. The procedures involved in availing credit can be tackled by re-organising the credit structure and proper monitoring and supervision should be provided for ensuring timely repayment. The government should mobilise the farmers and encourage them to take part in group farming activities through extension measures such as campaigning, seminars, exhibitions etc. Government should aid the extension agencies to organise consultancy services to farmers.

Banana is mostly consumed in its raw form. But it can be processed to prepare many products. Starting banana processing units will be helpful for employment generation also. Government should formulate policies to enhance banana processing in order to improve the economic status of growers.

Thus by adopting a three level - individual, group and government - approach, the constraints in banana cultivation can be solved to a great extent.

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APPENDICES

Appendix - 1

QUESTIONNAIRE FOR PILOT STUDY

MANAGERIAL BEHAVIOUR OF COMMERCIAL BANANA GROWERS

IN THIRUVANANTHAPURAM DISTRICT

INTERVIEW SCHEDULE

Respondent No:

Name & Address of the farmer :

Panchayt :   Block :   Sub-Division:

Age   :   Male/Female   Religion:

1. SOCIAL VARIABLES

    1. Socio-economic status

    i. Occupation

    No occupation
    Banana cultivation as the sole occupation
    Banana cultivatrion as the main occupation
    With others as subsidiary

ii Land holding   cents

iii Caste

    SC/ST
    OBC
    Forward

iv Education

    No schooling/Illiterate
    Literate
    Primary School

    Middle School
    High School
    Collegiate

v.   Socio-political particiaption

Without any membership in Socio-political organisation
Membership in one or more socio-political organization.
Official position in one or more socio-political
organization.
Active office bearer.

vi. Possessions.

None
One farm animal
Cycle/furniture.
2 farm animal/bullock and/ radio   3-4 farm animals/improved
farm implements/
News paper/tractor/automobiles.
5-10 farm animals/gobar gas plant/pumpset
10 farm animals/tractor/automobiles

vii.   House

Shed thatched
Mud wall thatched
Brick wall & tiled
Concrete house

viii. Family type.

Single
Nuclear
Joint

ix.   Annual income

2. Cosmopoliteness

i.   How frequently do you go to the nearest town?

(specify the purpose)

ii. For what purpose do you go to the town?

(Specify the purpose)

3. Mass-media exposure:

Please indicate frequency of utilization of mass-media..ls

	Two or more times a week	Once in a week	Once in a fort- night	Once in a month	Never
i. Reads newspaper					
ii. Listens to radio					
iii. Views T.V					
iv. Reads farms magazines & other literature on agriculture.					

4. Extension contact.

i. Are you aware of the offices and institutions providing

scientific information to the farmers.   Yes/No.

ii. (a) Do you contact the officers of such institutions?

(b) If yes specify the periodicity.

(c) For what purpose do you contact the extension agencies?

1.

2.

3.

II. PSYCHOLOGICAL VARIABLES:

1. Attitude towards banana cultivation.

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

Sl. No.	Statements	SA	A	UD	DA	SDA
i.	One should influence others to take up banana cultivation as it is remunerative.					
ii.	Banana cultivation is desirable because it will not lets down one who depend on it.					
iii.	Banana cultivation is a profitable enterprise.					
iv.	One cannot afford banana cultivation because of its high cost of cultivation					
v.	Banana cultivation ensures regular income.					
vi.	Banana cultivation has the status of business.					

2. knowledge about banana cultivation.

Answer the following questions correctly.

i. Best stage of planting of sucker is:

(a) 1-2 month old.   (b) 3-4 month old.   (c) 5-6 month old.

ii. There is different sizes of suckers of same age.

   You will select:-

(a) Biggest one.   (b) Smallest one.   (c) Medium sized.

iii. For planting of banana suckers, farmer A has taken pits of size 40 cm3, farmer B, 50 cm3 and farmer C, 60 cm3 who is appropriate, in your opinion?

(a)   Farmer A, (b) Farmer B, (c) Farmer C.

iv.   In a banana field, 2 MAP, farmer X has given a deep digging and farmer Y a shallow digging. Who is correct?

(a)   Farmer X (b) Farmer Y.   (c) Bothe are wrong.

v.   Mulching is useful for

(a)   Reducing water loss
(b)   Preventing weed growth.
(c)   Increasing bunch yield.
(d)   All the above

vi.   In Summer months, `Farmer A' irrigated the banana plants daily, `Farmer B', once in three days and `Farmer C' once in a week. Who, according to you is rational?

(a) Farmer A. (b) Farmer B   (c) Farmer C

vii.   The rate of application of FYM in kg/plant as per the opinion of Farmers A,B and c is 20, 15 and 10 respectively. Who is most appropriate?

(a) Farmer A. (b) Farmer B.   (c) Farmer C.

viii.   A banana grower applied major quantity of fertilizer after the emergence of bunch. Whether his action is correct?

a) Correct.   b) Wrong

ix   A farmer opined that propping and wrapping are unwanted and need not to be followed. Do you agree with him?

a)   Agree   b) Disagree

x   `Farmer A' said that banana requires more attention during its early growth period (up to 6MAP) `Farmer B' is of opinion that bunch emergence period is important and according to `Farmer c', after the bunch emergence period (up to harvest) is critical. Who is more appropriate?

a)   Farmer A.   (b) Farmer B   (c) Farmer C.

xi   In banana field, `Farmer A' cultivated sweet potato as an intercrop, `Farmer B', cucumber, `Farmer C', amaranthus and `Farmer D' brinjal, Who is correct?

a) Farmer A & B   b) Farmer A & D   C) Farmer B & C

d) Farmer B only.

xii.   Farmer A retained only two suckers, after bunch emergence, Farmer B four suckers and farmer C retained three suckers. Who is more correct?

a) Farmer A.   b) Farmer B.   c)Farmer C

xiii.   Ratooning is not practised in :

a) Njalipoovan   b) Palayankodan   c) Robusta

d) Poovan

xiv.   In a banana field some plants showed slow growth and central spindle of such plants remained half opened and destroyed without further leaf production. This is due to:

a) Bunchytop disease.   b) Banana rhizome weevil

c) Pseudostem borer   d) Kokkan.

xv.   Bunchytop affected plant should be:

a) destroyed   (b) maintained in the field

c) treated with chemicals.

xvi.   For controlling psuedostem borer farmer A applied carbaryl 4 g in one litre water and farmer B used carbofuran 40g/plant. Who is correct?

a)   Farmer A.   b) Farmer B.

xvii.   If you have noticed the attack of rhizome weevil in your banana field, what measures will you adopt for the control of the pest?

3.   INNOVATIVENESS

Please indicate your response

Sl. No.	Statement	Yes	Undecided	No
i.	Do you want to learn new ways of farming?			
ii.	If the agricultural extension worker gives a talk on improved cultivation aspects, would you attend?			
iii.	If the government would help you to establish a farm elsewhere would you move?			
iv	Do you want a change in your life?			
v	Do you want your sons to be agricultural workers?			
vi.	It is better to enjoy today and let tomorrow take care of itself			
vii	The future of man lies in the hands of God.			
viii	One should try to farm the way his parents did.			

4. SELF CONFIDENCE:

Please indicate your extent of agreement/disagreement on following statements by putting a tick (✔) mark in the appropriate column. SA: Strongly agree, A: Agree, UD:Undecided DA : Disagree, SDA: Strongly disagree.

Sl. No.	Statements	SA	A	UD	DA	SDA
i.	I feel no obstacle can stop me from achieving my final goal.					
ii.	I am generally confident of my own ability					
iii.	I am bothered by inferiority feelings.					
iv.	I do not have initiative					
v.	I usually workout things for my-self rather than get some one to show me.					
vi.	I get discouraged easily.					
vii.	Life is a strain for me in much of time.					
viii	I find myself worrying about something or other.					

5. LEVEL OF ASPIRATION :

Here are a few questions regarding some of the areas with which you may be mostly concerned. Don't bother about whether you are really going to make it or not but still you may expect certain of these events to happen in the near future. Please indicate your opinion frankly.

i) What is your extent of education that your children should have?

School level/Colleve level/ Technical or Professional

ii)   What kind of job or work your children should take after their education?

Agricultural/Govt. job/Business or Professtional.

iii)   Compared to previous years what would be the increase in the annual income you expect to get in the next three years?

No increase/ Increase to some more/Double.

iv)   What would you expect to be the increase in your land holding in the next three years?

No increase/Increase to some more/Double the area.

v)   What would be the type of house you expect to have in the next three years?

No improvement/Improve to some extent/Make it a pucca house

vi)   What would be the furniture you expect to possess in the next three years?

No improvement/Improve to some/Definitely furnish well.

vii)What would be the material possession you expect to have in the next three years?

Radio/TV/ Pumpset or biogas plant.

viii)What would be the agricultural implements you exepect to possess?

No increase/Purchase some more/Purchase all the recquired ones.

ix)   What would you expect to be your general content?

Some what better/Mostly better/Certainly better.

x) What would you expect to be the increase in your livestock in the next three years?

No increae/Have one or two animals/Have it on large scale.

6. ECONOMIC MOTIVATION

Please state to what extent you agree or disagree with each of the statments.

Sl. No.	Statements	SA	A	UD	DA	SDA
i	A commercial banana grower should work towards larger economic profit.					
ii	The most successful banana grower is the one who makes the maximum profit.					
iii	A commercial banana grower must earn his living but the important thing in the life cannot be defined in economic terms.					
iv	It is difficult for the banana grower's children to make good start, unless he provide them with economic assistance.					
v	In addition to the job as a farmer I like to take up some other enterprise to earn more money.					
vi	All I want from my job is to make just a reasonable living for the family.					

7. CREDIT ORIENTATION

Give your opinion for the following statements

i. Do you think a farmer like you should borrow for agricultural purpose?

    Yes/No

ii. In your opinion, how difficult is to secure credit for agricultural purpose?

Very difficult/Difficult/Easy/Very easy

iii. How a farmer is treated when he goes to secure credit?

Very badly/Badly/Fairly/Very fairly

iv. There is noting wrong in taking credit from institutional sources for increasing farm production

SDA/DA/UD/A/SA/

v. Did you use credit in the last two years for crop production.

Yes/No

8. SCIENTIFIC ORIENTATION:

Please indicate your agreement or disagreement on following statements.

Sl. No.	Statements	Agree	Undeci-ded	Disagree
i)	New methods of farming give better result to farmers than old methods.			
ii)	The way of farming by our fore-fathers is the best way to farm today.			
iii	Even a farmer with a lot of experience should use new methods of farming.			
iv	A good farmer experiments with new ideas in farming.			
v	Though it taken time for a farmer to learn new methods of farming, it is worthwhile the efforts.			
vi	Traditional methods of farming have to be changed in order to raise the level of living of a farmer.			

9. COMPETITION ORIENTATION:

What is your degree of agreement for the following statements?

Sl. No.	Statements	SA	A	DA	SDA
i)	The key points of sucess in farming should not be revealed to other farmers.				
ii)	A better yield in comparison to the neighbours brings more prestige.				
iii)	It is of no use to keep information of what other farmers are doing.				
iv)	Crop competition should be organised for all important crops.				
v)	Better farming provides opportunity for recognition by the extension officers.				
vi)	It is not good for a farmer to become too ambitious in life.				

10. FARMING COMMITMENT:

SL.	Statements	SA	A	UD	DA	SDA
i)	If I were given a job in city I quit farming.					
ii)	I feel that people simply talk of farming problem they forget that everything depends on how they manage it.					
iii)	I am not willing to take a great deal of effort to develop my farm.					

iv)   I am proud that I am a farmer.

v)   I am prepared to face any problems
      to stay permanently in agriculture.

vi)   I wish my children to be government
      employees rather than a farmer like me.

vii) There is not much to be gained by
      sticking to farming permanently.

viii) For me farming is the best profession
      when compared to other occupations.

ix)   I continue farming simply as it is
      not socially respected to sell away
      my ancesteral property.

x)   I believe that agriculture vocation
      alone pays in long run.

---

11. DEFERRED GRATIFICATION:

SL No.	Statements	SA	A	UD	DA	SDA
i)	I am good at saving money rather than spending it straight away.					
ii)	When I am in a market place I tend to buy a lot which I had not planned to buy.					
iii)	I agree with the philosophy of eat drink and be merry, for tommorrow we may be all dead.					
iv)	I often feel that it is worthwhile to wait and think over before deciding anything.					

v)   I like to spend money for my family as
        soon as I get it.

vi)   I am good at planning things well in
        advance.

vii)   I do not save food grains to face future
        uncertainties.

viii)   I some how manage to keep at least a
        little fodder in reserve for future
        uncertain weather.

ix)   I invest more on farm to expect
        some return in long run.
----

12. CREATIVITY:

SL.   STEATMENTS   ALWAYS VERY   SOME   RARELY NEVER
NO.   OFTEN TIME
----
i)   I devise novel methods to
        improve quality of work.

ii)   I can develop alternate
        ways of doing work.

iii)   I can improvise (performing
        clearly in emergency) ways
        to get things done if planned
        arrangements fail

iv)   I think of new ways of solving
        problems

v)   I visualise unforeseen deviations
        in planned course of action

vi)   I use humour to get out of
        difficult Situations.
----

13. INDEPENDENCE:

SL. No.	statements	Agree	Disagree
i)	If a farmer wants a thing done right he must do it himself.		
ii)	Independence in decision making is the most important quality of a sucessful farmer.		
iii)	A farmer is at his best when he is free, self reliant and avoids all outside help.		
iv)	A financially sucessful farmer is one who stands on his own feet.		
v)	A farmer should teach his children to be able to make their decisions independently.		

C. SITUATIONAL VARIABLES:

1. Land holding

How much land you possess:

Type of land	Leased in	Leased out	Total
Wet land			
Garden land			
Homestead			
Total			

2. Area under banana cultivation   :

3. Irrigation potential :

<div align="right">Area in cents</div>

	Owned	Leased in	Leased out	Total
i) Un irrigated				
ii) Well irrigated				
iii) Canal irrigated				

4. Infrastructural facilities.

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

Facilities	Available timely		Available in adequate quantity	
	Yes	No	Yes	No
i) Seeds				
ii) Fertilizers				
iii) PP chemicals				
iv) Credit				
v) Labour				

5. Closeness with agricultural support system.

Please indicate the extent to which you are in contact with the following personnel.

Personnel	Most often	Often	Sometimes	Never
i) Agrl. Officer				
ii) Agrl. Assistant				
iii) Veterinary Asst. Surgeon				
iv) Agrl. University				
v) Irrigation department				
vi) Panchayat				
vii) Co-operative Society				
viii) Field officer of bank				
ix) Input dealers				

6. Farming experiments

Total number of years in farming:

Less than 5 years/ 6-10 years/ above 10 years

DIMENSIONS OF MANAGERIAL BEHAVIOUR.

Please indicate how often following activities were practised by you in the previous cropping seasons.

1. Planning:

SL No.	Activities	Always	Frequently	Some times	Rarely	Never
i.	Setting an objective of profit target from the crop.					
ii.	Selecting the variety to be grown and season of planting well in advance considering its adaptability and marketability.					
iii.	Preparing calender of various operations of crop cultivation well in advance.					
iv.	Working out operation-wise expenditure before the cultivation starts					
v	Assessing the amounts of inputs needed for raising the crop.					
vi	Estimating the labour requirements.					
vii	Estimating the financial requirements					
viii	Calculating the finance in possession and to be acquired before cultivation starts.					
ix	Planning for alternate means of marketing					

2. Information management.

Sl No.	Activities	Always	Frequently	Some times	Rarely	Never
i.	Getting information on practices and solution to problems from various information sources.					
ii	Discussing information on price of various inputs from different sources.					
iii	Collecting information on price of produce from different sources.					
iv	Recording the technical informations received					

3. Decision making

i. Are you quick in making communication decision? Yes/No

Always Some Very
     times rarely

ii   Do you consider all possible alternatives before arriving at a decision related to your job?

iii   Do you consult with the persons concerned before arriving at decisions related to farming?

iv   Do you find it difficult to make decisions related to farming?

v   Are you good in making timely decisions ?

vi   Do you give priority to your own feelings and emotions than your thoughts while arriving at a decision?

4. Financial Management

Sl. No.	Activities	Always	Frequently	Some times	Rarely	Never
i	Recording the expenditure incured in various operations.					
ii	Recording the income obtained from sales of produce.					
iii	Calculating the profit or loss in the cultivation.					
iv	Fixing wages for labourers based on quantum of work turned out.					
v	Preparing budget for each season of cultivation.					

5. Labour Management.

Sl No.	Activities	Always	Frequently	Some- times	Rarely	Never
i	Evaluating the labour efficiency by assessing the amount of work accomplished per unit time.					
ii	Using available family labour at appropriate time and operation.					
iii	Fixing labourers well in advance to overcome the constraint of labour availability for the operation planned.					
iv	Providing necessary amenities in the field itself for the labourer to reduce the wastage of time by the labourers.					

6. Production Management

i   Timely planting of a crop ensures good yeild :   Yes/No

ii   One should use as much fertilizer as he likes :

iii   Determing fertilizer dose by soil testing saves money :

iv   For timely weed control, one should know
suitable herbicide.

v   Seed rate should be given as recommended by
specialists.   :

vi   With low water rates one should use as much
irrigtion water as available.

7. Risk Management.

Plase indicate your extent of agreement to the following
Statements.

Sl No.	Statement	SA	A	UD	DA	SDA
i	A farmer should grow a large number of of plants to avoid greater risks involved in growing one or two plants.					
ii	A farmer should rather take more of chance in making a bit profit, than less risky profit.					
iii	A farmer who is willing to take greater risk than the average farmer usually does it better financially.					
iv	It is good a farmer to takes risk when he knows his chance of success is high.					
v	It is better for a farmer not to try farming unless most farmers have used it with sucess.					

vi   Trying a antirely new method for a
      farmer involves greater risk, but it
      is worthy.

8.   **Farm supervision.**

Some of the operations followed in banana cultivation is given

below. Please indicate how often do you personally supervise

(MO-Most often, O-Often, S-Sometimes, N-Never)

Sl No.	Statements	MO	O	S	N
i	Examining the suckers before planting for ensuring its quality.				
ii	How often do you supervise the farm operations?				
iii	How often do you visit the field?				
iv	How often do you supervise the irrigation of your plants?				
v	How often do you keep watch for insect attack in banana plants.				
vi	How often do you keep watch for disease attack in banana plants.				
vii	How often do you supervise plant protection operations in your crop?				

തിരുവനന്തപുരം ജില്ലയിൽ വാണിജ്യാടിസ്ഥാനത്തിൽ വാഴകൃഷി
നടത്തുന്നവരുടെ നിർവ്വഹണ സ്വഭാവം- ഒരു പഠനം

1. വ്യക്തിയുടെ ക്രമനമ്പർ

2. പേരും മേൽവിലാസവും

3. കൃഷിഭൂമിയുടെ കണക്ക്

ക്രമനമ്പർ	ഇനം	ഭൂസ്വത്തിന്റെ അളവ് (സെന്റിൽ)
1.	ആകെ കൈവശമുള്ള ഭൂമി	
2.	വാഴനട്ടിരിക്കുന്നത്	
3.	ജലസേചനം ലഭ്യമാക്കുന്നത്.	

4. സാമൂഹ്യരാഷ്ട്രീയ പങ്കാളിത്തം (Socio-political participation)

(i) ഏതെങ്കിലും സാമൂഹ്യരാഷ്ട്രീയ സംഘടനയിൽ അംഗമാണോ ? അല്ല/ ആണ്.

(ii) എത്ര സംഘടനകളിൽ അംഗത്വം ഉണ്ട്? ഒന്ന്/ഒന്നിലധികം

(iii) സംഘടനയിലെ സ്ഥാനം - അംഗം/ ഔദ്യോഗിക ഭാരവാഹി

(iv) കൂടുതൽ ഉത്തരവാദിത്വമുള്ള പ്രവർത്തനമാണോ? അതെ / അല്ല

(v) സാമൂഹ്യക്ഷേമ പ്രവർത്തനങ്ങളിൽ പങ്കെടുക്കാറുണ്ടോ ?   ഉണ്ട് / ഇല്ല.

5. ഭൗതിക സമ്പാദ്യം (Material possession)

താങ്കളുടെ സമ്പാദ്യം താഴെപറയുന്നവയിൽ, ഏതിലുൾപ്പെടുന്നു.?

1 കന്നുകാലി/സൈക്കിൾ/ഉപകരണങ്ങൾ

2 കന്നുകാലികൾ/റേഡിയോ

3-4 കന്നുകാലികൾ/കാർഷിക ഉപകരണങ്ങൾ/പത്രം/വൈദ്യുതി

9. Marketing Management.

Sl No.	Activities	Always	Frequently	Some-times	Rarely	Never
i	Growing those varieties which have more market demand.					
ii	Selling of produce to the nearest market irrespective of the price.					
iii	Marketing the produce sales in terms of whole or part based on overall profit considerations.					
iv	Seeing that the price offered does not come lower than prevailing market price.					
v	Negotiating with the buyers for increase in price of produce.					

III Identification of marketing channel

Marketing channel followed by the respondent

IV Constraints as perceived by the respondent

1.

2.

3.

4.

5.

6.

V Suggestions for improvement.

5-10 കന്നുകാലികൾ/ബയോഗ്യാസ്/പമ്പ്സെറ്റ്

>10 കന്നുകാലികൾ/ട്രാക്ടർ/മോട്ടോർവണ്ടി.

6. ബഹുജനമാധ്യമങ്ങൾ (Mass media exposure) താഴെ കൊടുത്തിരിക്കുന്നമാധ്യമങ്ങൾ എപ്പോഴെല്ലാം ഉപയോഗിക്കുന്നു.?

മാധ്യമം	മിക്കപ്പോഴും/ എല്ലാ ദിവസവും	വല്ലപ്പോഴും	ചിലപ്പോൾ മാത്രം	ഒരിക്കലുമില്ല.
(i) വർത്തമാനപത്രം (ii) റേഡിയോ (iii) ദൂരദർശൻ (iv) കാർഷിക പ്രസിദ്ധീക രണങ്ങൾ (v)കാർഷിക പ്രദർശനങ്ങൾ				

7. കാർഷികകാനുബന്ധ മേഖലയുമായുള്ള സാമീപ്യം (Closeness with agricultural support system)

കാർഷികാവശ്യങ്ങൾക്കായി താഴെപറയുന്ന ഏത് മേഖലയുമായാണ് താങ്കൾബന്ധപ്പെടുക ?

	മിക്കപ്പോഴും	പലപ്പോഴും	ചിലപ്പോൾ	ഒരിക്കലുമില്ല.
i കൃഷി ഓഫീസർ ii കൃഷി അസിസ്റ്റന്റ് iii കാർഷിക സർവ്വകലാശാല iv പഞ്ചായത്ത് v സഹകരണസംഘം vi ബാങ്കിലെ ഫീൽഡ് ഓഫീസർ vii കാർഷിക ഉത്പാദ നോപാധി - വിതരണക്കാർ				

8. ആത്മവിശ്വാസം (Self confidence)

താഴെപറയുന്ന പ്രസ്താവനകളുമായി താങ്കൾ യോജിക്കുന്നോ ഇല്ലയോ എന്ന്
പറയുക

പ്രസ്താവന	ശക്തമായി യോജിയ്ക്കുന്നു	യോജിക്കുന്നു	തീരുമാനമില്ല	യോജിയ്ക്കുന്നില്ല	ശക്തമായി വിയോജിക്കുന്നു
i.ലക്ഷ്യം നേടുന്നതിൽ വിന്നും ഒരു പ്രതി - സന്ധിക്കും എന്നെ പിന്തിപ്പിക്കാനാവില്ല					
ii.എന്റെ കഴിവുകളിൽ എനിക്ക് ഉറച്ച വിശ്വാസമുണ്ട്					
iii. അപകർഷതാബോധത്താൽ ഞാൻ വ്യാകുലനാണ്					
iv. എനിക്ക് സ്വന്തമായി ഒരു പന്തിയ സംരഭവും ഏറ്റെടുക്കാനുള്ള കഴിവില്ല					
v. ഞാൻ സാധാരണയായി കാര്യങ്ങൾ ചെയ്യുന്നത് എനിക്കുവേണ്ടിയാണ് അല്ലാതെ മറ്റുള്ളവരുടെ മുന്നിൽ ആളാവാനല്ല					
vi എന്നെ പെട്ടന് നിരുത്സാഹപെടുത്താൻ കഴിയും					
vii ജീവിതം മിക്കപ്പോഴും എനിക്ക് ഒരു ഭാരമാണ്					
viii ഞാൻ എന്തിനെയെങ്കിലും കുറിച്ച് വിഷമിച്ചുകൊണ്ടെ യിരിക്കും.					

9. ശാസ്ത്രീയാഭിമുഖ്യം (Scientific orientation)

താഴെ പറഞ്ഞിരിക്കുന്ന പ്രസ്താവനകളോട് യോജിക്കുന്നോ ഇല്ലയോ എന്നു പറയുക.

പ്രസ്താവന	യോജിക്കുന്നു	തീരുമാനമില്ല	വിയോജിക്കുന്നു
i. നൂതനകൃഷിരീതികൾ പഴയകൃഷി രീതിയേക്കാൾ മെച്ചപ്പെട്ട ഫലം തരുന്നു			
ii. നമ്മുടെ പിതാമഹന്മാർ അനുവർ- ത്തിച്ചിരുന്ന കൃഷിരീതികൾ തന്നെയാണ് ഇന്നത്തെ കൃഷിക്കും യോജിച്ചത്.			
iii. ധാരാളം അനുഭവസമ്പത്തുള്ള കർഷകൻപോലും ആധുനിക കൃഷി വിദ്യകൾ ഉപയോഗിക്കണം			
iv. ഒരു യഥാർത്ഥ കർഷകൻ കൃഷിയിലെ പുതിയ ആശയങ്ങൾ പരിശ്ചിച്ചുനോക്കണം			
v. പുതിയ കൃഷിരീതികൾ പഠി ച്ചെടുക്കുവാൻ അല്പം താമസ മാണെങ്കിലും അവ പ്രയോജന കരമാണ്.			
vi. കൃഷിക്കാരന്റെ ജീവിതനിലവാരം മെച്ചപ്പെടുത്തുവാൻ പരമ്പരാഗത കൃഷിരീതികളിൽ മാറ്റം വരുത്തേണ്ടതാണ്.			

10. വായ്പാഭിമുഖ്യം (Credit orientation)

താഴെ കൊടുത്തിരിക്കുന്ന പ്രസ്താവനകളെക്കുറിച്ച് താങ്കളുടെ ശരിയായ അഭിപ്രായമെന്താണ് ?

i. താങ്കളെപ്പോലെയുള്ള ഒരു കർഷകൻ കാർഷികാവശ്യത്തിനായി വായ്പ എടുക്കേണ്ടതുണ്ടോ ? ഉണ്ട്/ഇല്ല

ii. താങ്കളുടെ അഭിപ്രായത്തിൽ കാർഷികാവശ്യത്തിന് വായ്പ എടുക്കുവാൻ എത്ര മാത്രം പ്രയാസമുണ്ട് ?
വളരെ പ്രയാസം/പ്രയാസം/എളുപ്പം/വളരെഎളുപ്പം

iii. വായ്പയെടുക്കാനെത്തുന്ന ഒരു കർഷകനോട് ബന്ധപ്പെട്ട ഉദ്യോഗസ്ഥന്മാരുടെ പെരുമാറ്റം എങ്ങിനെയാണ് ?
വളരെ മോശമായി/ മോശമായി/നല്ലരീതിയിൽ/വളരെ നല്ലരീതിയിൽ.

iv. കാർഷികോത്പാദനം വർദ്ധിപ്പിക്കുന്നതിനായി സ്ഥാപനങ്ങളിൽ നിന്നും വായ്പ എടുക്കുന്നതിൽ തെറ്റില്ല. എന്താണ് താങ്കളുടെ അഭിപ്രായം ?
ശക്തമായി യോജിക്കുന്നു/യോജിക്കുന്നു/അഭിപ്രായമില്ല/വിയോജിക്കുന്നു/ശക്തമായി വിയോജിക്കുന്നു.

v. കഴിഞ്ഞ രണ്ട് വർഷത്തിനിടയിൽ താങ്കൾ കാർഷികാവശ്യങ്ങൾക്കായി വായ്പ എടുത്തിട്ടുണ്ടോ ? ഉണ്ട്/ഇല്ല

11. മാറ്റസംതൃപ്തി (Deferred gratification)
താഴെപ്പറയുന്ന പ്രസ്താവനകളോട് താങ്കൾ യോജിക്കുന്നുണ്ടോ ?

പ്രസ്താവന	ശക്തമായി യോജിക്കുന്നു.	യോജിക്കുന്നു	തീരുമാനിച്ചില്ല	വിയോജിക്കുന്നു	ശക്തമായി വിയോജിക്കുന്നു
(i) പണം ചെലവാക്കുന്നതിനേക്കാൾ ഉപരി അത് സൂക്ഷിച്ചുവക്കുവാൻ എനിക്ക് കഴിയും					
(ii) ചന്തയിൽ പോകുമ്പോൾ നേരത്തെ വാങ്ങാനുദ്ദേശിച്ചതിൽ നിന്നും വിരുദ്ധമായി പല സാധനങ്ങളും ഞാൻ വാങ്ങാറുണ്ട്.					
(iii) ഇന്ന് തിന്നും കുടിച്ചും സന്തോഷിച്ചും കഴിയുക, ഒരു പക്ഷേ നാളെ നമ്മൾ മരിച്ചേക്കാം എന്ന പ്രമാണത്തോട് ഞാൻ യോജിക്കുന്നു					
iv) എന്തെങ്കിലുമൊരു തീരുമാനം എടുക്കുന്നതിനുമുമ്പ് സമാധാനപൂർവ്വം അതിനെക്കുറിച്ച് ആലോചിക്കണം എന്നെനിക്ക് പലപ്പോഴും തോന്നാറുണ്ട്.					

(V) എന്റെ കൈവശം പണം വന്നാലുടൻ തന്നെ ഞാൻ അതെന്റെ കുടുംബത്തിനുവേണ്ടി ചെലവഴിക്കാൻ ഇഷ്ടപ്പെടുന്നു.					
(VI) നാളത്തെ ഇല്ലായ്മയെ നേരിടാൻ വേണ്ടി ധാന്യങ്ങൾ ശേഖരിച്ചുവക്കാൻ ഞാൻ മിനക്കെടാറില്ല.					
(Vii) ഭാവിയിൽ മെച്ചപ്പെട്ട വരുമാനം കിട്ടുമെന്ന പ്രതീക്ഷയിൽ കൃഷിക്ക് വേണ്ടി കൂടുതൽ തുക ഞാൻ മുടക്കാറുണ്ട്.					

12. സർഗ്ഗാത്മകത (creativity)

താഴെപറയുന്ന പ്രസ്താവനകളോട് താങ്കൾ യോജിക്കുന്നുണ്ടോ ?

പ്രസ്താവന	എല്ലായ്പ്പോഴും	മിക്കപ്പോഴും	ചിലപ്പോൾ മാത്രം	അപൂർവ്വമായി	ഒരിക്കലുമില്ല
i) ജോലിയുടെ ഗുണത്തെ മെച്ചപ്പെടുത്താനായി നൂതന ശൈലികൾ ഞാൻ ആവിഷ്ക്കരിക്കാറുണ്ട്.					
ii) ഒരു ജോലി ചെയ്യുന്നതിനായി പരിധികൾ വികസിപ്പിച്ചെടുക്കാൻഎനിക്ക് കഴിയും.					
iii) അത്യാവശ്യ ഘട്ടങ്ങളിൽ തീരുമാനിച്ചതനുസരിച്ച് കാര്യങ്ങൾ നടക്കാതെവരുമ്പോൾ അത് നേടുവാൻ വേണ്ടി മറ്റ് വഴികൾ കണ്ടെത്താൻ എനിക്ക് കഴിയും					
iv) പ്രശ്നങ്ങൾ പരിഹരിക്കാൻ നൂതന മാർഗ്ഗങ്ങളെക്കുറിച്ച് ഞാൻ ചിന്തിക്കാറുണ്ട്.					
vi) കൃഷിയിൽ സംഭവിക്കാവുന്ന അപ്രതീക്ഷിതവ്യതിയാനങ്ങളെ ഞാൻ മുൻകൂട്ടി കാണാറുണ്ട്.					
(vi) പിരിമുറുക്കമുള്ള സന്ദർഭങ്ങളെ തമാശകളിലൂടെ ലഘൂകരിക്കുവാൻ ഞാൻ ശ്രമിക്കാറുണ്ട്.					

നിർവ്വഹണസ്വഭാവം (Managerial behaviour)

1. ആസൂത്രണം (Planning)

പ്രസ്താവന	എല്ലായ് പ്പോഴും	മിക്കപ്പോ ഴും	ചിലപ്പോൾ മാത്രം	അപൂർവ്വ മായി	ഒരിക്ക ലുമില്ല
(i) നടുന്നതിന് മുമ്പ് തന്നെ വാഴക്കൃഷിയിൽ നിന്നും ഒരു നിശ്ചിത തുക വരവ് കിട്ടുമെന്ന് വിശ്വസിക്കാറുണ്ട്.					
(ii) മൊത്തം കൃഷിപ്പണികൾ കലണ്ടർ രൂപത്തിൽ മുൻകൂട്ടി തയ്യാറാക്കാറുണ്ട്.					
(iii) വിളയിറക്കുന്നതിന് മുൻപ് തന്നെ ഓരോ കൃഷിപ്പണി കൾക്കും വേണ്ടി വരുന്ന ചെലവിനെക്കുറിച്ച് കണ- ക്കുകൂട്ടലുകൾ നടത്താറുണ്ട്.					
(iv) കാർഷിക ഉത്പ്പാദനോ പാധികൾഎത്രമാത്രം വേണ്ടി വരുമെന്ന് നോക്കാറുണ്ട്.					
(v) കൃഷിയിറക്കുന്നതിന് മുമ്പ് തന്നെ കൃഷിയാവശ്യത്തി - നായി കൈവശം എത്രതുക യുണ്ടെന്നും ഇനി എത്ര തുക വേണ്ടിവരുമെന്നും കണക്കുകൂട്ടാറുണ്ട്					
(vi) വിപണന സാധ്യതകൾ മുൻകൂട്ടി കാണാറുണ്ട്.					

2.അറിവിന്റെ വിദ്വ്വഹരണം(Information Management)

പ്രസ്താവന	എല്ലായ് പ്പോഴും	മിക്ക വാറും	ചില പ്പോൾ	അപൂർ വമായി	ഒരിക്കലുമില്ല
(i) കൃഷിപ്പണികൾ, വിവിധ പ്രശ്നങ്ങൾ, അവയുടെ പരിഹാരങ്ങൾ എന്നിവയെ കുറിച്ചുള്ള അറിവ് പലവിധ സ്രോതസ്സുകളിൽ നിന്നും ശേഖരിക്കാറുണ്ട്.					
(ii) കൃഷിസംബന്ധമായി നേടിയ അറിവുകളെക്കുറിച്ച് കൃഷിവികസന ഉദ്യോഗസ്ഥ- രുമായി ചർച്ച ചെയ്യാറുണ്ട്					
(iii) വിവിധ സ്രോതസ്സുകളിൽ നിന്നും കാർഷിക ഉത്പ്പാദന വസ്തുക്കളുടെ വിലനില വാരത്തെ കുറിച്ചുള്ള അറിവ് ശേഖരിക്കാറുണ്ട്.					
(iv) വിവിധ സ്രോതസ്സുകളിൽ നിന്നും കാർഷിക ഉൽപ്പന്ന ങ്ങളുടെ വിലനിലവാരത്തെ ക്കുറിച്ചുള്ള അറിവ് ശേഖരി ക്കാറുണ്ട്.					
(v) ലഭ്യമാകുന്ന സാങ്കേതിക ഇജ്ഞാനം രേഖപ്പെടുത്തി വയ്ക്കാറുണ്ട്.					

3. തീരുമാനം എടുക്കാനാവുള്ള കഴിവ് (Decision - making ability)

ചോദ്യം	ഉണ്ട്/ഇല്ല	എല്ലായ്പ്പോഴും	ചിലപ്പോൾ	അപൂർവ്വമായി
(i) വേഗത്തിൽ തീരുമാനങ്ങളെടുക്കുവാനുള്ള കഴിവുണ്ടോ ?				
(ii) കൃഷികാര്യങ്ങളിൽ തിരുമാനം എടുക്കുന്നതിന് മുമ്പ് അതിന്റെ എല്ലാ വശങ്ങളെക്കുറിച്ചും ചിന്തിക്കാറുണ്ടോ ?				
(iii) കൃഷികാര്യങ്ങളിൽ തീരുമാനമെടുക്കുന്നത് പ്രയാസകരമായ സംഗതിയാണെന്ന് തോന്നിയിട്ടുണ്ടോ ?				
(iv) ശരിയായ സമയത്ത് തീരുമാനം എടുക്കാറുണ്ടോ ?				
(v) തീരുമാനമെടുക്കുമ്പോൾ, നിങ്ങളുടെ വികാരങ്ങൾക്കാണോ, വിചാരങ്ങളെക്കാൾ (ചിന്ത) പ്രധാന്യം നൽകുന്നത് ?				

4. സാമ്പത്തിക നിർവ്വഹണം (Financial Management)

പ്രസ്താവന	എല്ലായ്പ്പോഴും	മിക്കവാറും	ചിലപ്പോൾ	അപൂർവ്വമായി	ഒരിക്കലുമില്ല
(i) പലവിധ കൃഷിപ്പണികൾക്കായി ചെലവായ തുകയെക്കുറിച്ചുള്ള കണക്കുകൾ രേഖപ്പെടുത്തി വയ്ക്കാറുണ്ട്.					
(ii) ഉല്പന്നങ്ങളുടെ വില്പനയിൽ നിന്ന് കിട്ടിയ വരുമാനം എത്രയെന്ന് കുറിച്ചുവയ്ക്കാറുണ്ട്.					
(iii) കൃഷിയിലെ ലാഭനഷ്ടക്കണക്കുകൾ നോക്കാറുണ്ട്.					
(iv) ഓരോ വിളവുകാലത്തേക്കും ബഡ്ജറ്റ് തയ്യാറാക്കാറുണ്ട്.					

5. തൊഴിലാളി നിർവ്വഹണം (Labour Management)

പ്രസ്താവന	എല്ലായ്-പ്പോഴും	മിക്ക പ്പോഴും	ചില പ്പോൾ	അപൂർ-വ്വമായി	ഒരിക്ക ലുമില്ല
i) ഒരു നിശ്ചിന സമയത്ത് ചെയ്യു ന്ന പണിക്കനുസരിച്ച് ജോലി ക്കാരുടെ കാര്യക്ഷമത വിലയിരു-ത്താറുണ്ട്.					
ii) ആവശ്യമനുസരിച്ച് കുടുംബാംഗ-ങ്ങളും കൃഷിപ്പണികളിൽ സഹായിക്കാറുണ്ട്.					
iii) കൃഷിപ്പണിക്കാരുടെ ദൗർലഭ്യം ഒഴിവാക്കാനായി അവരെ മുൻകൂട്ടി ഇടപാടുചെയ്യാറുണ്ട്.					
iv) സമയനഷ്ടം ഒഴിവാക്കാനായി പണിക്കാർക്ക് ആവശ്യമായ സൗകര്യങ്ങൾ കൃഷിയിടത്തിൽ-ത്തന്നെ നൽകാറുണ്ട്.					

6. നഷ്ടസംഭാവ്യത നിർവ്വഹണം (Risk Management)

പ്രസ്താവന	ശക്തമായി യോജി ക്കുന്നു	യോജി ക്കുന്നു	അഭിപ്രാ യമില്ല	വിയോജി ക്കുന്നു	ശക്തമായി വിയോജി ക്കുന്നു.
(i) ഒന്നോ രണ്ടോ വിളയിറക്കു ന്നതിനുള്ള നഷ്ടസാദ്ധ്യത ഒഴി വാക്കാനായി ഒരു കർഷകൻ കൂടുതൽ വിളകൾ കൃഷി ചെയ്യണം					
(ii) ഒരു കർഷകൻ നഷ്ടസാദ്ധ്യ തയില്ലാത്തതും കുറച്ചു ലാഭം തരുന്നതുമായ കൃഷികൾ മാത്രം ചെയ്യാതെ കൂടുതൽ ലാഭമുണ്ടാക്കുന്നവ ഏറ്റെടു- ക്കണം					
(iii) നഷ്ടസാദ്ധ്യതകളെ നേരിടാൻ തയ്യാറുള്ള കർഷകന് മറ്റ് കർഷകരെക്കാൾ കൂടുതൽ നേട്ടമുണ്ടാകും.					
(iv) വിജയസാദ്ധ്യത കൂടുതലുള്ള പ്പോൾ നഷ്ടസംഭാവ്യത ഏറ്റെ ടുക്കുന്നത് ഒരു കർഷകന് നല്ലതാണ്.					
(v) കൃഷിയിലെ പുതിയ ആശയ ങ്ങൾ മറ്റുള്ളവർ പരീക്ഷിച്ചതി നുശേഷം ചെയ്യുന്നതാണ് നല്ലത്.					
(vi) നൂതന ആശയങ്ങൾ പരീക്ഷി ക്കുന്നതിൽ അപകടസാദ്ധ്യത- യുണ്ടെങ്കിലും അത് ഉപകാര പ്രദമായിരിക്കും.					

7. കൃഷിമേൽനോട്ടം (Farm Supervisor)

എപ്പോഴൊക്കെ നിങ്ങൾ കൃഷിയിടത്തിൽ മേൽനോട്ടം നടത്തുന്നുവെന്ന് പറയുക.

പ്രസ്താവന	എല്ലായ്-പ്പോഴും	പലപ്പോഴും	ചിലപ്പോൾ മാത്രം	ഒരിക്കലുമില്ല
(i) ഗുണമേന്മ വിലയിരുത്തുന്ന-തിനായി നടുന്നതിനുമുമ്പ്‌വാഴ ക്കന്നുകൾപരിശോധിക്കാറുണ്ട്.				
(ii) തോട്ടത്തിലെ എല്ലാ കൃഷി-പ്പണികൾക്കും മേൽനോട്ടം നടത്താറുണ്ട്.				
(iii) വാഴകൾക്ക് ജലസേചനം നടത്തുന്നതിൽ ശ്രദ്ധിയ്ക്കാ-റുണ്ട്.				
(iv) വാഴകളിൽ കീടരോഗ ബാധ യുണ്ടോ എന്ന് നോക്കാ-റുണ്ട്.				
(v) സസ്യസംരക്ഷണ പ്രവർത്ത നങ്ങൾക്ക് മേൽനോട്ടം നടത്താറുണ്ട്.				

8. വിപണന നിർവ്വഹണം (Marketing Management)

പ്രസ്താവന	എപ്പോഴായ് പ്പോഴും	മിക്ക പ്പോഴും	ചില പ്പോൾ	അപൂർവ്വ മായി	ഒരിക്കലു മില്ല
(i) വിപണിയിൽ കൂടുതൽ വിറ്റ ഴിയുന്ന വാഴയിനങ്ങളാണ് വളർത്താറുള്ളത്					
(ii) വില പരിഗണിക്കാതെ ഉൽ പ്പന്നങ്ങൾ ഏറ്റവും അടുത്തു- ള്ള വിപണിയിൽ തന്നെ വിൽക്കാറുണ്ട്.					
(iii) നമ്മുടെ ഉൽപ്പന്നങ്ങൾക്ക് കിട്ടുന്ന വില,വിപണിയിലെ വിലയേക്കാൾ കുറയാതി രിക്കാൻ നോക്കാറുണ്ട്.					
(iv) ആകെ കിട്ടുന്ന ലാഭം കണക്കാക്കി ഉൽപ്പന്ന ങ്ങൾ മൊത്തമായോ ചില്ലറയായോ വിൽക്കാ റുണ്ട്.					
(v) ഉൽപ്പന്നത്തിന്റെ വില കൂട്ടിക്കിട്ടാനായി വാങ്ങു ന്നവരുമായി വില പേശാ റുണ്ട്.					

4. ശുപാർശ ചെയ്യപ്പെട്ടിട്ടുള്ള കൃഷിരീതികളുടെ സ്വീകാര്യത
   (Extent of adoption of recommended cultivation practices)

കാർഷിക സർവ്വകലാശാല ശുപാർശ ചെയ്തിട്ടുള്ള കൃഷിരീതി
കൾ (വാഴ കൃഷിയിൽ) താങ്കൾ നടപ്പിറാക്കാറുണ്ടോ ?

1. നടാനുപയോഗിക്കുന്ന വാഴക്കന്നിന്റെ പ്രായം ?
2. നടുന്നതിനുമുമ്പ് വാഴക്കന്നിന് എന്തെങ്കിലും പരിചരണം
   നൽകാറുണ്ടോ?
3. നടുന്നതിന് മുമ്പ് കൃഷിയിടം പരുവപ്പെടുത്താറുണ്ടോ ?
   ഉണ്ട്/ഇല്ല
   നടുന്ന കുഴിയുടെ അളവ്.   :-
4. നടുന്ന അകലം ?
5. ചാണകവളം/പച്ചിലവളം ഇടാറുണ്ടോ?
   ഉണ്ടെങ്കിൽ ഏതുതരം ?   അളവ് :   ഇടുന്ന സമയം:
6 രാസവളം ഉപയോഗിക്കാറുണ്ടോ?   ഉണ്ട്/ഇല്ല
   ഉണ്ടെങ്കിൽ, ഉപയോഗിച്ച വളത്തിന്റെ അളവ" : സമയം
   ഇടുന്ന രീതി

7 വാഴകൾക്ക് ജലസേചനം നടത്താറുണ്ടോ?   ഉണ്ട്/ഇല്ല
   ഉണ്ടെങ്കിൽ   സമയം   വെള്ളത്തിന്റെ അളവ് ജല
   സേചനത്തിന്റെ ഇടവേള
8. നട്ടുകഴിഞ്ഞുള്ള മറ്റ് കൃഷിപ്പണികൾ ചെയ്യാറുണ്ടോ ?
   ഉണ്ടെങ്കിൽ ഏതൊക്കെ ? (i) കളനിവാരണം   (ii) പുതിയിടൽ
(iii) കന്നിളക്കിമാറ്റൽ   സമയം   സമയം
   സമയം
(iv) ഇടവിളയിറക്കാറുണ്ടോ ?   ഉണ്ട്/ഇല്ല

   ഉണ്ടെങ്കിൽ ഏതൊക്കെ വിളകൾ?   1   2   3

9. വാഴകൾക്ക് താങ്ങുകൊടുക്കാറുണ്ടോ?   ഉണ്ട്/ഇല്ല
   ഉണ്ടെങ്കിൽ എങ്ങിനെ ?

10. വേണ്ട സമയത്ത് സസ്യസംരക്ഷണ മാർഗ്ഗങ്ങൾ സ്വീകരിക്കാറുണ്ടോ? ഉണ്ട്/ഇല്ല.
    ഉണ്ടെങ്കിൽ, എന്തൊക്കെയാണ് ചെയ്യുന്നതെന്ന് വ്യക്തമാക്കുക?

(1) വാഴയുടെ മണ്ഡയടപ്പ് രോഗം വരാതിരിക്കാനായി എന്തെങ്കിലും ചെയ്യാറുണ്ടോ?
    ഉണ്ട്/ഇല്ല.

(i) കണ്ടെത്തിയ രോഗം   ഉപയോഗിച്ച   അളവ്
                          കുമിൾനാശിനി

(ii) കണ്ടെത്തിയ കീടബാധ   ഉപയോഗിച്ച   അളവ്
                           കീടനാശിനി

B. വിപണന ശൃംഖല(Marketing channel)

   താഴെകൊടുത്തിരിക്കുന്നതിൽ ഏത് വിപണന ശൃംഖലയെയാണ് താങ്കൾ
   കാർഷികോല്പന്നങ്ങളുടെ വില്പനക്കായി ആശ്രയിക്കുന്നത്.

i) ഉല്പാദകൻ - ഉപഭോക്താവ്
ii) ഉല്പാദകൻ - ചില്ലറ വില്പന- ഉപഭോക്താവ്
iii) ഉല്പാദകൻ - മൊത്തവില്പന- ചില്ലറ വില്പന- ഉപഭോക്താവ്
iv) ഉല്പാദകൻ -   കമ്മീഷൻ ഏജന്റ്- മൊത്തവില്പന - ഉപഭോക്താവ്
v) ഉല്പാദകൻ -   കമ്മീഷൻ ഏജന്റ്- കയറ്റുമതി (വിദേശം)-ഉപഭോക്താവ്
                    (air port)
vi) മറ്റെന്തെങ്കിലും

Managerial Behaviour of Commercial Banana Growers in Thiruvananthapuram District

BY
SANGEETHA, K. G., B.Sc.(Ag.)

ABSTRACT OF THE THESIS
SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE DEGREE
MASTER OF SCIENCE IN AGRICULTURE
(AGRICULTURAL EXTENSION)
FACULTY OF AGRICULTURE
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION
COLLEGE OF AGRICULTURE
VELLAYANI
THIRUVANANTHAPURAM
1997

ABSTRACT

The present study under the title 'Managerial behaviour of commercial banana growers in Thriuvananthapuram District' was undertaken to study managerial behaviour and its relationship with socio-psychological and situational factors of commercial banana growers. The study also revealed their socio-economic profile and extent of adoption of recommended cultivation practices of banana. Further, the indigenous farming practices adopted by the banana growers and the major marketing channels of banana were identified. Then the constraints in banana cultivation as perceived by the respondents were also analysed, based on which an extension strategy for the enhancement of commercial scientific banana cultivation had been formed.

The study was conducted in Thiruvananthapuram district, covering the three sub-divisions by concentrating in three Panchayats using stratified two stage sampling method. A sample of 150 commercial banana growers consisting 15 Nendran growers, 45 Palayankodan growers, and 30 Red banana growers formed the respondents of this study. Personal interview with the help of a well structured and pre-tested interview schedule was adopted to collect the data from the respondents, and suitable statistical techniques were employed for the analysis of data.

The study revealed that majority of the respondents possessed high level of managerial behaviour and there was significant difference among Nendran, Palayankodan and Red banana growers with respect to their level of managerial behaviour.

Majority of the respondents adopted more than 75 percent of the recommended cultivation practices of banana. There was significant difference among Nendran, Palayankodan and Red Banana growers with respect to their extent of adoption of recommended cultivation practices of banana. Majority of the respondents belonged to the category of high level adopters with regard to sucker selection, treatment of suckers, pit size, manuring, irrigation, weeding and propping. In the case of adoption of recommended spacing and fertilizer application, majority of the respondents belonged to medium level.

The most frequently used marketing channel by the respondents was `Producer - Wholesaler - Retailer - Consumer'. The benefit cost ratio of Nendran, Palayankodan and Red banana were worked out as 1.80, 1.30 and 1.75 respectively. `Incidence of pests and diseases' was the most important production constraint and `high cost of material input' was the most important economic constraint in banana cultivation as perceived by the banana growers.