RISK MANAGEMENT BEHAVIOUR OF BANANA GROWERS

By

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THESIS

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Dedicated to

My beloved father who inspired me to strive for excellence against all odds

DECLARATION

I hereby declare that this thesis entitled "Risk Management Behaviour of Banana Growers" is a bonafide record of research work done by me during the course of research work 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 University or Society.

Vellanikkara
29th July, 1994

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CERTIFICATE

Certified that this thesis entitled "**Risk Management Behaviour of Banana Growers**" is a record of research work done independently by **Ms. Ranjana Damodaran, T.**, 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.

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CHAPTER I

INTRODUCTION

Banana is the most important fruit in world trade, next only to citrus. It is grown in home gardens either for home consumption or for local market. It is also grown in large plantations for export. Between these two extremes, there are small farmers delivering fruits on a regular or more casual basis for internal markets.

Banana is an annual crop and is harvested in a nearly ripe stage for home use. They are mainly eaten raw after ripening. Various processed products like figs, clarified juice, banana powder, flour, starch, jam, chips, flakes and stem candy are also prepared from the fruits.

Almost all parts of banana plant is used in one way or the other. The male buds, innermost tender pseudostem as well as corm of developing suckers are used for culinary purpose. Green leaves are often used as umbrellas, plates and for wrapping and mulching purposes. Fibre from pseudostem is used for making bags, ropes and in textiles. For manufacturing paper and cloth, the pseudostems are used.

Banana is one of the major fruit crops grown in India. The banana cultivation in India is as old as Indian

civilization. India is considered as the place of origin of banana and many wild species are found to exist in South India and Assam (Samson, 1980). Thcugh this fruit is considered as "Poor man's apple", it is liked and consumed both by poor and rich alike. Considering the year round availability of fruits unlike the seasonal availability of other tree fruits, it has become an inevitable necessity in any household in India, for all functions.

The area under banana cultivation in India is 2,77,919 hectares with an annual production of 47,84,648 tonnes India occupies the second place in world banana production. The major banana producing areas in the country lies in the states of Kerala, Maharashtra, Tamil Nadu, Gujarat, Assam, Andhra Pradesh and Karnataka, of which Kerala, Tamil Nadu and Maharashtra together occupying 49.35 per cent of total area under the crop contributing about 55.19 per cent of total annual production (Shanmugavelu et al., 1992).

Kerala occupies 24.29 per cent of total area under banana in India in 1961 with a production of 14.38 per cent whereas productivity was only 7.4 tonnes per hectare. In 1984-85 the total area under banana in Kerala has gone upto 49,569 hectares and production only 3,15,897 tonnes accounting for 6.6 per cent of total production. The productivity has again gone down to 6.37 tonnes per hectare. The main reasons

for low production and productivity in Kerala could be attributed to the low yielding varieties occupying major share of the area, high intensity of incidence of bunchy top disease, high acidity and poor potash content of soils, erratic rains leading to prolonged drought and finally low care and attention given by farmers (Shanmugavelu et al., 1992).

In the management of banana crop, risk and uncertainty play an important role. Farmers can seldom ensure that their investments, efforts and resources will yield fruitful results. Riskiness is a known factor in the farmers' decision-making and what is more important is his attitude and perception about the risk. Unless the risk factors are brought to light, it will not be possible to improve the cultivation scenario of this crop. With this in mind, it was rightly decided to undertake a study on risk management behaviour of banana cultivators with a view to boost up banana production in the State.

Scope and importance of the study

It is an accepted fact that investment in agriculture is risky. From the planting of a crop to its final harvest and marketing of the produce, the farmer has to face various kinds of risks, be it unforeseen climatic changes, pest attack, disease problem, drought or low market price.

It is opined that Indian agriculture is a gamble with nature which still holds good. However, with the recent advances in agricultural technologies due to research and development effort and the adoption of these technologies by the farmers, the farming scenario is gradually changing. Presently, farmers make earnest efforts either to reduce the risk involved or to face risk by means of adoption of alternative technologies.

Banana which is a very important crop of Kerala is one which is highly risk prone. Sudden climatic variations like cyclones could destroy an entire field of the crop which is not an uncommon occurrence in the State. Besides this, various other risks like low market price, disease problem etc. also cause considerable damage to the crop.

Farmers adopt various strategies to overcome these risks. Adoption of measures to control risks differ with the attitude of farmers towards risk and also their perception about the risk involved. How efficiently a farmer manages the risk determines how well his crop is going to fare. In the case of banana cultivation, the risk management behaviour of the farmer has a definite role. However, no study has been taken up so far to analyse this crucial aspect of farmers' behaviour in relation to risk management. The present study is an attempt in this direction.

Objectives of the study

The study is designed with the following specific objectives.

1. To analyse the attitude of banana cultivators towards risk in farming in general.

2. To analyse the attitude of cultivators towards risk in banana cultivation.

3. To analyse the perception of cultivators about risk in banana cultivation.

4. To study the extent of adoption of risk management practices in banana cultivation.

5. To study the decision-making pattern of cultivators in relation to risk management practices in banana cultivation.

6. To identify the relationship of risk attitude and risk perception with personal, socio-economic and socio-psychological characteristics of the banana cultivators.

Limitations of the study

The study was conducted as a part of post graduate research work and hence it had the inherent limitations of time

and resources. The study was restricted to five panchayaths of Thrissur Agricultural sub-division and as such it may not be possible to generalise the findings for the entire state. However, all efforts have been made to conduct the study as objective and systematic as possible in the selected areas using random sampling procedure. Nevertheless, it is expected that findings of this study would definitely throw light on the risk management behaviour of banana cultivators and pave way for more suitable management practices.

Plan of the study

The thesis is presented as five chapters. The first chapter deals with introduction highlighting the need, scope and importance, objectives and limitations of the study. The second chapter presents the theoretical orientation covering the review of literature pertaining to this study, while the third chapter comprises of the methodology dealing with the description of the study area, selection of respondents, empirical measurement of the selected variables, tools for data collection and statistical techniques used. The fourth chapter deals with the results of the study and also discussion on the results. The final chapter gives the summary and conclusion of the study. The reference and appendix are given at the end.

Review of Literature

CHAPTER II

REVIEW OF LITERATURE

A review of the nature and quantum of research studies already undertaken in various fields on different aspects of the study helps the researchers in designing the theoretical framework for the study. As previous studies in the area of risk management behaviour are scarce, an attempt is made to put together closely related research studies in the area. The survey of literature on different dimensions of the study is presented under the following heads:

1. Concept of risk
2. Attitude towards risk
3. Perception about risk
4. Adoption of risk management practices by farmers
5. Decision making pattern of farmers
6. Relationship between the dependent variables and selected independent variables
7. Conceptual framework of study

1. Concept of risk

Webster's dictionary (1966) defines risk as the possibility of loss, injury or destruction which are involved

in the dangerous mission. When someone or something that creates or suggests a hazard or adverse chance, a dangerous element or factor is often used with qualifiers to indicate the degree of danger or hazard Webster termed this element or factor as risk.

The New Oxford Encyclopaedic Dictionary (1978) defines risk as hazard or chance of bad consequences, losses etc.

Risk and uncertainty are two closely related terms. Risk cannot be explained without mentioning uncertainty.

Knight (1971) distinguished risk from uncertainty. He said that measurable uncertainty is risk, whereas true uncertainty is unmeasurable. Risk gives probabilities of various outcomes. But in uncertainty, probabilities cannot be specified.

Berry (1976) used uncertainty to indicate incomplete knowledge on the part of the actor and defined risk as the possibility of incurring a loss in the course of productive activity.

Roumasset (1977) stated that in modern decision theory, uncertainty is a state of mind in which the individual perceives alternative outcomes to a particular action. Risk

on the other hand has to do with the degree of uncertainty in a given situation.

Another term which is used widely and closely associated with risk is crisis.

Lateef (1980) pointed out that the crisis in Darwinian sense is the ruthless challenge to status quo. People either drown or learn to swim.

Johnston and Taylor (1986) were of the opinion that the term crisis can be substituted by problem without loosing any meaning.

Godelier (1987) stated that crisis is a critical juncture in an irreversible process in which a radical change has become necessary. Crisis is thus, a period of transformation or transition.

Ramegowda (1991) defined crisis as a situation created out of a family or social and or natural environmental factors affecting psycho-socio-economic equilibrium of individuals, families and societies.

Based on the above reviews risk is operationalised as the possibility of incurring a loss in the course of prouctive activity which affects the personal, socio-economic and socio-psychological equilibrium of individual.

2. Attitude towards risk

Allport (1935) defined attitude as a mental and or neural state of readiness, organised through exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.

According to Thurstone (1946), attitude is the degree of positive or negative affect associated with a psychological object.

Bhatia (1978) opined that as a result of social learning and interaction, all individuals acquire certain attitudes towards persons, things, situations and issues.

Binswanger et al. (1979) viewed that virtually for all farmers, attitudes towards risks were strikingly similar, despite the fact that individuals involved have widely different income and wealth levels.

Mason and Halter (1980) indicated in a study conducted at Michigan, U.S.A., that risk averse farmers were more likely to adopt an innovative alternative to a well-integrated agricultural practice threatened with forced discontinuance.

Michael (1988) pointed out in a study on risk, uncertainty and adoption of new agricultural technology by farmers in Oxford, that when the price of rice in general had

been increased and input subsidies ended, the risk aversion rate was found to be relatively low.

Vijayan (1989) reported that risk preference of farmers was positively and significantly associated with cultivation of banana in Thrissur district.

3. Perception about risk

According to Blalock (1963), perception has the following characteristics:

a. It is an individual matter. Thus there may be as many perceptions as there are individuals.

b. It must be dealt with in terms of what an individual actually experiences.

c. It involves not only perceiving the stimuli but also interpreting and describing these stimuli in terms that are meaningful to the individual.

d. Various internal and external factors may influence both the interpretation of the stimulus and the response it is likely to evoke.

e. It is a dynamic phenomenon that may be continually changing within the individual.

According to Bhatia (1978), the simplest definition for perception is the sensation plus meaning, sensation signifying quality and perception on object suggested by that quality.

Anderson (1979) observed that ignorance of the way in which risk perceptions changed in response to new information from either on farm experience or sources beyond the farm was profound.

Ryan (1979) stated that social structure and farm family play an important role in the process of formation of attitudes and perceptions and their effects on the adoption of new technologies.

Sakthivel (1979) pointed out that perceived risk was negatively related with the extent of adoption of practices like seed treatment and plant protection measures by the farmers in Tamil Nadu.

Pandey (1990) observed that when farmers were risk averse, they were likely to put a premium on production method, that reduce the perceived risk.

Hans et al. (1991) opined that the three most important risk resources perceived by farmers were rainfall,

livestock or production prices and world economic, and political situations.

Ramegowda (1991) reported that crisis perception was significantly related to the crisis management practices adopted by the farmers in Karnataka.

4. Adoption of risk management practices

McCrosky (1975) maintained that a number of options existed which a farmer could employ to protect themselves against risk. One of them was parcelization of holdings according to different local risk characteristics.

Laya (1975) reported the reactions of farmers and livestock owners of Sahel to drought as diversification of crops, adoption of other varieties, land clearance, spacing of seed holes and changes in cropping techniques.

Chamala and Crouch (1977) studied the patterns of adaptation and factors associated with economic success in the wool industry in North Westland, Australia. They identified that selling sheep, keeping sheep in agistments, taking off-farm work, growing some irrigated pasture and cutting down family expenditure and selling wethers early were the main management strategies followed by graziers for coping with drought conditions.

Cancian (1979) opined in a study conducted at Semi-Arid Tropics of India, that the low middle rank farmer was more apt to adopt risk in farming than the high middle rank farmer, when the economic status of the farmers were considered.

Knad (1985) stated that the risks of modern cropping system could be managed by proper crop combination, rotation of crops, optimal supply of nutrients, timely observations and minimal use of chemicals.

Longhurst (1986) viewed that for landed households, the most important seasonal strategies included, choice cropping patterns to spread risks by involving mixed cropping, cultivation of secondary crops, particularly root crops and doing off-farm income earning works.

Brammer (1987) opined that to mitigate impact of drought, farmers of Bangladesh used new practices such as irrigation of crops normally grown rainfed, cultivation of famine millets, and transplanting crops that were normally direct seeded, when rain eventually fell. Crop rotation was practiced to compensate the crop losses and late planting to take advantage of reduced flood levels and or changes in market price.

Browman (1987) reported that local peasants in Peru and Bolivia deliberately choose to form mini parcels of land located at different elevations and in different micro-climates. Other risk management strategies applied by the farmers included diversification of production activities, creation of informal social network and formal co-operatives and the development of storage technology.

Ibrahim (1988) summarised the results of field work enquiring into peasant adjustment to drought hazards in the semi-arid areas of Sudan. It was found that new crops had replaced the traditional poor yielding late maturing ones.

Couty (1989) while studying agricultural risks and economic dangers of farmers of Paris reported that small scale farmers continued to provide mixed-cropping or mixed livestock farming because of their desire to minimize the risk of food stringencies and famine.

Mary (1989) indicated that in agro-forestry farms of Minang region in Western Sumatra, great attention was paid to the type of crops and tree spices grown together in each cropping system along with communal measures to reduce risks such as the provision of financial support to families in difficulties.

Taal (1989) reported that to minimise risk and to cope with stress, households of Gambia adopted strategies of choice of cropping patterns, crop storage, reduced consumption, off-farm work, asset disposal and community and kinship ties.

Ramegowda (1991) in his study conducted in dry zones of Karnataka, found that regular weeding, replacement of traditional crops, distress selling of cattle, reducing straw fed to the animals, keeping a portion of land vacant, crop-sharing, migration to cities, taking produce advances, selling farm yard manure, reduction in spending on social functions, taking one meal a day, selling utensils etc. were the adaptation patterns observed among farmers to cope with the drought.

5. Decision-making pattern of farmers

Benjamin (1962) reported that joint decision making appeared to be at its peak in the 'beginning stage' with largest amount of consultation in decision making.

Jurghan and Rahudkar (1963) reported that the farmers of 55 years and above consulted their wives in matters of seasonal farm operation. Also illiterate farmers and those having primary education took the advice of their parents, wives and sons while the farmers having education beyond the middle school made decisions themselves.

Wilkening and Morrison (1963) stated that joint decision making was done where major issues were involved.

Rajagopal and Jagatheswari (1972) indicated that in 81 per cent of urban and 59 per cent of rural households, the husband made decisions either jointly or alone.

Castillo (1977) in a review paper opined that the decision making pattern in the Filipine household is more egalitarian and joint with husband rather than patriarchal.

Faules (1978) identified five types of decision-making patterns. They were: individual decision-making, the interview, group decision-making, the public forum and organisational pattern of decision making.

Badigar (1979) observed that the farm women participated independently more in house aspects and joint decisions were more common in farm aspects.

Cancian (1979) provided a theoretical framework for studying the role of risk and uncertainty in the farmers' "decision-making" process. The patterns he traced suggested that poorer farmer would take a greater role in technological change than they had often been accorded and that past hesitancy on the part of farmers who were well-off in local

terms may be due to more rank protection than to intransigence.

Savarimuthu (1981) indicaated that women made lesser independent decisions on matter relating to farming when compared to collective decision.

6. Relationship between the dependent variables and selected independent variables

Attitude and perception were taken as the dependent variables for the study, for each independent variable, relationship with attitude and perception are separately reviewed.

i. Personal variables

a. Age

Age and attitude

Das and Sarkar (1970) opined that there was significant relationship between age and attitude of farmers towards improved farm practices.

Menon and Prema (1976) reported that age had positive influence in creating a favourable attitude of co-operation towards Applied Nutrition Programme.

Sarkar (1980) reported that the age of farmers and officials were found not related to their attitude towards T&V system.

Nair (1981) observed that the attitude of contact and other farmers towards T&V system was independent of age. But, Cheriyan (1984) noted a positive relationship between age of contact farmers and their attitude towards T&V system.

Kunchu (1989) concluded that age was independent of attitude of cardamom farmers towards developmental schemes.

Age and perception

Bhilegaonker and Dakh (1978) reported that there was no significant relationship between age of farmers and their utility perception of Mobile Farm Advisory Service.

Nandakumar (1980) reported that there was negative and significant relationship between age and perception about impact of Drought Prone Area Programme.

Sudha (1987) opined that age had no relationship with the perception of participants about Lab to Land Programme.

b. Education

Education and attitude

Singh and Singh (1971) reported a positive association

between education and attitude of farmers towards improved agricultural practices.

Reddy and Reddy (1977) could not find any correlation between education and attitude of farmers towards crop loan system.

Pillai (1978) reported positive correlation between education and attitude of farmers towards soil conservation measures.

Mani and Knight (1981) observed negative trend in attitude towards regulated market in the case of participants and non-participants with respect to education.

Vijayakumar (1983), Cheriyan (1984), Anil Kumar (1988), Kunchu (1989) and Latha (1990) based on their studies concluded that educational status and attitude of farmers were positively and significantly related with each other.

Education and perception

Bhilengaonkar and Dakh (1978) in their study on Mobile Farm Advisory Service observed that farmers with high utility perception were having education above middle school level indicating a positive relation.

Pillai (1978) observed that there was no significant relationship between educational status of farmer and his perception about soil conservation measures.

Muthukrishnan (1982) found positive and significant correlation between education and perception about attributes of biogas.

Sundaram (1986) found positive relationship between perception of effectiveness of soil conservation practices and education.

Balan (1987) observed positive relationship between perception of effectiveness of soil test recommendations and education.

Latha (1990) established high positive and significant relationship between education and perception of users of biogas technology.

c. Availability of family labour

Availability of family labour and attitude

It was observed that there was no study reported on the relationship between availability of family labour and the selected dependent variables. However, studies which are closely related are reviewed.

Patel et al. (1978) while analysing the costs and returns of banana cultivation in Girna irrigation project area in Jalgon district indicated that family labour income contributed to about 70 per cent of the total farm business income.

Indiradevi (1983) opined that more than two-fifth of the mandays utilized for banana cultivation in Thrissur district was available as family labour. It was also reported that availability of family labcur declined as family income increased.

d. Experience in banana cultivation

Experience and attitude

Bhasha et al. (1975) stated that total experience was found to be significant in influencing the attitude of Deputy Agricultural Officers towards adaptive research.

Rahiman and Menon (1980) stated that there was significant relationship between experience and attitude of supervisors of Primary Land Mortgage Bank towards training.

Naik (1981) reported that the attitude of officials towards T&V system was significantly related to their experience in agricultural extension service. Cheriyan (1984) also reported similar results.

Experience and perception

Singh and Srivastava (1970) found that experience of extension personnel was not associated with their perception about the nature of their job as an educational one.

Sobhana (1982) opined that experience of Junior Agricultural Officers had no significant relation with their job perception.

e. Prior exposure to risk

It was found that there were no specific studies reported on the relationship between prior exposure to risk and attitude of farmers towards risk and also their perception about risk.

Ramegowda (1991) reported that prior exposure to crisis situations by farmers of dry zone in Karnataka was positively related to their crisis management behaviour.

ii. Socio-economic variables

a. Annual income

Annual income and attitude

Sushama (1979) observed significant relationship between income of the tribes and their attitude towards modern living practices in more developed areas.

Kamarudeen (1981) reported significant association between attitude towards demonstrated practices and income level of farmers of National Demonstration Programme.

Vijayakumar (1983) and Viju (1985) in their studies observed positive relationship between income and attitude of farmers.

Kunchu (1985) found that farmers with low to medium income had only medium level of attitude towards developmental schemes.

Latha (1990) observed high positive relation between income of farmers and attitude towards biogas technology.

Annual income and perception

Bhilegaonker and Dakh (1978) found that farmers with medium income level had high perception of the utility of Mobile Farm Advisory Service indicating a positive relationship.

Muthukrishnan (1982) reported that income and perception of attributes of biogas plants were positively related.

Balan (1987) obtained positive relationship between annual income and perception about effectiveness of soil test recommendations among farmers.

The findings of Latha (1990) revealed positive and significant relation between annual income of users and their perception of biogas technology.

b. Area under banana cultivation

Area under banana cultivation and attitude

Singh and Singh (1971) found that size of holding was positively associated with the attitude of farmers towards improved agricultural practices. Makar and Sohal (1974) and Pillai (1978) also observed the same trend in their studies.

Sushama (1979) in her study on tribals of Kerala observed that no significant relationship existed between farm size and attitude of tribals towards modern living Prakash (1980) also obtained similar results in his study on tribals in settled agriculture.

Mani and Knight (1981) in their study on regulated market revealed positive and significant relationship between area possessed by the participants and their attitude towards regulated market.

Kunchu (1989) reported that farmers with high farm size were found to possess medium to high level of attitude towards developmental schemes.

Latha (1990) indicated positive relationship of farm size with the attitude of users and non-users of biogas technology.

Area under banana cultivation and perception

Pillai (1978) did not notice any significant relationship between perception of simplicity with respect to soil conservation practices and size of holdings.

Muthukrishnan (1982) reported that farmers with larger size of holding had more number of cattle and also perceived the gas plants to be profitable compared to others.

Balan (1987) reported positive relationship between size of holding and perception about soil test recommendations.

Latha (1990) observed negative relationship between farm size and perception about efficiency of biogas technology.

c. Cropping intensity

Since there are no studies reported on the relationship between cropping intensity and attitude of farmers, related studies are reviewed.

Singh and Singh (1970) had indicated that there was no association between cropping intensity and adoption of improved agricultural practices.

Pathak and Mazumdar (1976) and Shukla (1980) reported that cropping intensity is one of the most important variables which influence the adoption behaviour of farmers.

Balan (1987) observed significant relationship between cropping intensity and perception of farmers about utility of soil test recommendations.

d. Irrigation potential

Since studies relating irrigation potential and attitude and also perception of farmers were not available, related studies are reviewed.

Nair (1974) showed that irrigation potential had significant relationship with the extent of adoption of practices in rice cultivation.

Godhandapani (1985) reported negative and significant relationship of irrigation potential with the extent of adoption of improved practices.

Mann (1989) observed significant relation between irrigation potential and adoption of High Yielding Varieties of wheat.

Balan (1987) opined that irrigation potential had no significant relationship with perception of farmers about utility of soil test recommendations.

Latha (1990) reported that extent of availability of perennial source of water was positively and significantly related with attitude of users of biogas technology.

e. Vocational diversification

It was found that there were no studies reported on the relationship between vocational diversification and other dependent variables. However, closely related studies are reviewed.

Chambers (1991) opined that to reduce risk, rainfed farmers complicate and diversify their on-farm and off-farm activities which required new behaviour and attitudes.

Porchezhian (1992) reported that vocational diversification had positive and significant relationship with entrepreneurial behaviour of farmers.

iii. Socio-psychological variables

a. Social participation

Social participation and attitude

Reddy and Reddy (1977) found that attitude of farmers

towards crop loan system was significantly related with their social participation. Balasubramaniam (1977) also obtained similar results.

Pillai (1978) and Kamarudeen (1981) revealed that social participation of farmers was positively and significantly related with their attitude towards demonstrated farm practices.

Naik (1981) concluded that the attitude of contact farmers and other farmers towards T&V system was not associated with their extent of social participation.

Mani and Knight (1981) found that social participation was positively and significantly related with attitude of participants towards regulated market.

Vijaya (1982) and Cheriyan (1984) reported that farmers who had favourable attitude towards T&V system were having better social participation. Similar observations were made by Viju (1985) in his study among tribal farmers.

Sanjeev (1987) did not find any significant relationship between attitude towards training programme and social participation of the trainees.

Latha (1990) reported that there was positive and significant relationship between the attitude towards biogas technology and social participation of the farmers.

Social participation and perception

Bhilegaonkar and Dakh (1978) found that farmers with high utility perception of Mobile Farm Advisory Service had high social participation

Pillai (1978) did not notice any significant relationship between perception and social participation of the farmers.

Muthukrishnan (1982) observed no relationship between perception and social participation of users of biogas technology.

Sundaram (1986) reported that social participation had positive and significant relationship with the perception of effectiveness of soil conservation practices among farmers.

Latha (1990) found significant correlation between social participation of users of biogas technology and perception about its efficiency.

b. Mass media exposure

Mass media exposure and attitude

Murthy (1971) reported that mass-media exposure was significantly related with the attitude of women in decision-making at the farm level.

Vijayan (1982) reported that the attitude of farmers towards T&V system was significantly associated with mass media exposure.

Cheriyan (1984) observed significant and positive relationship between attitude of farmers towards T&V system and their exposure to information sources.

Singh and Kunzroo (1985) reported that mass media exposure showed positive and significant relation with attitude of farmers towards sheep and goat farming.

Syamala (1988) opined that mass-media participation was positively and significantly associated with the attitude towards demonstrated practices held by the farmer demonstrators.

Mass media exposure and perception

Balan (1987) reported that utilization of information sources was positively and significantly associated with the

perception of farmers about utility of soil test recommendations.

c. Innovativeness

Innovativeness and attitude

Philip (1984) in his study on the agricultural information support provided through radio to farmers by KAU, reported that innovativeness had no significant relation with attitude of farmers towards programme content.

Syamala (1988) found that innovation proneness exhibited positive but non-significant relationship with the attitude of farmer demonstrators towards National Demonstration Programme.

Latha (1990) reported significant and positive relationship between innovation proneness and attitude towards biogas technology of both users and non-users.

Innovativeness and perception

Sundaram (1986) observed positive and significant correlation between innovation proneness and perception of farmers about the effectiveness of soil conservation practices.

Balan (1987) also reported positive and significant relation between perception about soil testing and innovativeness.

Latha (1990) revealed significant relationship between innovation proneness and perception about efficiency of biogas technology.

d. Self reliance

It was found that there were no studies reported on the relationship between self reliance and other dependent variables. However, some closely related studies are reviewed.

Prasad (1983) opined that there was positive and significant relationship between self reliance and achievement motivation of rice-growers of Kerala, Tamil Nadu and Karnataka.

Sreekumar (1985) reported significant relationship of self reliance of farmers with their management orientation.

Porchczhian (1992) pointed out significant correlation between self reliance and entrepreneurial behaviour of farmers.

e. Achievement motivation

Since there were no studies found reported on the relationship between achievement motivation and the dependent variables, related studies are reviewed.

Desai (1981) found that achievement motivation and economic performance of cotton growers were not significantly associated.

Badachikar (1985) revealed that achievement motivation was significantly related with the economic performance of farmers in drought prone areas of Bijapur district.

Rajanna (1987) observed that there was significant association between level of achievement motivation and training need of field extension personnel.

Naik (1986) and Bonney (1991) reported non-significant association between achievement motivation and extent of adoption of selected recommended practices on paddy and vegetables respectively.

f. Management orientation

Management orientation and attitude

Sreekumar (1985) concluded that management orientation

was positively and significantly associated with attitude of farmers towards bank credit.

Sumathy (1987) found significant relationship between management orientation and risk preference of farmers.

Syamala (1988) reported that management orientation was positively and significantly related to the attitude of farmers towards demonstrated practices.

Management orientation and perception

Sudha (1987) reported no relationship between management orientation of farmers and their perception about Lab to Land Programme.

g. Credit orientation

Since there were no studies reported on the relationship of credit orientation with the dependent variables, closely related studies are reviewed.

Prakash (1980) reported that there was no significant relationship between indebtedness and attitude of tribals towards settled agriculture.

Viju (1985) opined that there was no significant relationship between indebtedness and attitude of tribal farmers towards improved agricultural practices.

Latha (1990) reported significant negative relationship of indebtedness with attitude of users towards biogas technology and also with the perception of efficiency of biogas technology by them.

h. Extension orientation

Extension orientation and attitude

Sreenivasan (1981) in his study on adoption of Dryland Technology reported that extension agency contact of small farmers showed positive and significant relation with their attitude towards the programme.

Sinha et al. (1984) reported that attitude of farmers towards soil conservation programme had positive and significant association with extension contact.

Syamala (1988) concluded that there was positive but non-significant relationship between extension orientation and attitude of farmers towards National Demonstration Programme.

Extension orientation and perception

Shivakumar (1983) reported positive and significant association between degree of contact of farmers with research station and research workers and their perception about research station and research workers.

Sudha (1987) revealed that there was positive significant relationship between extension orientation and perception about Lab to Land Programme of both tribal and non-tribal participants.

Balan (1987) observed positive and significant relationship between extension orientation and perception about soil testing.

7. Conceptual framework of study

Attitude and perception are two important concepts governing human behaviour Kretch and Crutchfield (1948) have pointed out that the particular culture in which a man is brought up can shape his specific beliefs and attitudes. The specific tensions, needs, emotional experiences and perceptions of man are definitely conditioned by the nature of his real world, and by the stimulus patterns to which he is subjected to. These cultural situations create and limit the behaviour of the individual out of which arise his needs, emotions, and perceptions which are organised into beliefs and attitudes.

Triandis and Triandis (1971) stated that people have attitude towards social objects because they help them to organise, simplify and understand the world around them,

protect their self esteem by avoiding unpleasant truths about themselves and allow them to express their fundamental values.

According to Segall et al. (1960), perception is subject to many of the same influences that shape other aspects of behaviour. In particular, each individuals experiences combine in a complex fashion to determine his reaction to a given stimulus situation. Thus to the extent that certain kind of experiences are more likely to occur in some cultures than others, there will be wide differences in perception across the cultures.

The conceptual frame work developed for the study thus assumes that attitude towards risk in farming, attitude towards risk in banana cultivation and perception about the risk play an important role in banana cultivation. Kelman (1974) has emphasised the use of attitude as a dependent variable labelling it as a variable par excellence for the major categories of social psychological research. As suggested by Hochberg (1958), the criteria for restricting perception is that there must be a stimulus physically present. Due to the reasons explained, attitude and perception were taken as dependent variables.

It was conceptualised that there could be significant relationship of the three dependent variables viz., attitude

towards risk in farming, attitude towards risk in banana cultivation and perception about risk in banana cultivation with selected personal, socio-economic and socio-psychological characteristics of the farmers. The risk management behaviour was studied in terms of adoption of risk management practices in banana cultivation. The decision making pattern in the adoption of these practices was also studied. These were treated as consequent behaviour which gets reflected from the dependent variables included in the study (Fig.1).

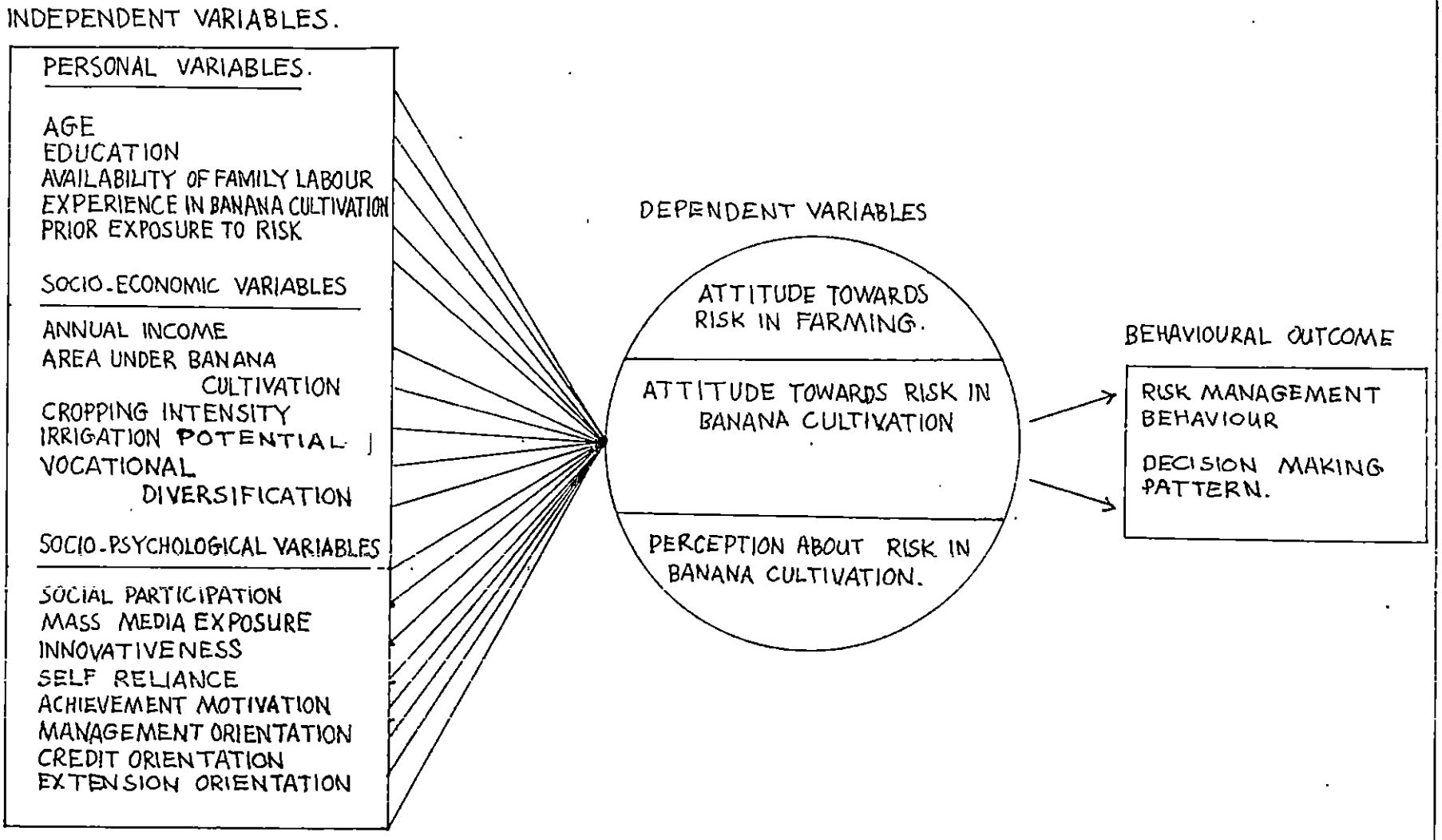

FIG. 1. CONCEPTUAL DIAGRAM SHOWING THE HYPOTHESISED RELATIONSHIP BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES

Methodology

CHAPTER III

METHODOLOGY

The chapter deals with the methods employed in the study, which are presented under the following heads:

1. Location of the study
2. Selection of respondents
3. Selection of the variables for the study
4. Operationalisation and measurement of variables included in the study
5. Procedure of data collection
6. Statistical tools used in the study

1. Location of the study

A. Selection of district

Thrissur district was purposively selected for the study since this district had the maximum area under summer banana in Kerala. Moreover, the prevalence of 'Kazhchakula' cultivation, a practice unique to this district is also another reason for selection of Thrissur district.

The study was conducted in the Thrissur agricultural sub-division which is one of the three agricultural sub-divisions of Thrissur district. This sub-division was purposively selected for the study on the following grounds.

a. The maximum area under irrigated banana is in Thrissur sub-division (Table 1)

b. The maximum loss due to the natural calamities had occurred for the last few years in this agricultural sub-division as per statistics available, and

c. The maximum diversity in cultivation of banana is also observed in this sub-division.

Table 1. Area (sub-divisional-wise) under irrigated banana in Thrissur district (1991-92)

Sl.No.	Name of sub-division	Area (in ha)
1.	Irinjalakuda	2524.0
2.	Thrissur	3476.5
3.	Wadakkancheri	1269.0

Source: Basic data register No. 72 in the Office of the Principal Agricultural Officer, Thrissur

B. Selection of panchayath

Out of the six blocks in Thrissur sub-division, two blocks viz., Kodakara and Ollukkara were purposively selected on the ground that these two blocks covered the maximum area under irrigated banana (Table 2).

Table 2. Area (blockwise) under irrigated banana in Thrissur sub-division (1991-92)

Sl.No.	Name of block	Area (in ha)
1.	Anthikkad	79.0
2.	Cherpu	380.0
3.	Kodakara	1749.0
4.	Ollukkara	1087.0
5.	Puzhakkal	171.5
6.	Thalikkulam	10.0

Source: Crop weather condition file No.TSB6/91-92 in the Office of the Sub-divisional Agricultural Officer, Thrissur

Pudukkad and Thrikkur panchayaths were selected from the Kodakara block which had the maximum area under irrigated banana.

Table 3. Area (panchayath-wise) under irrigated banana in Kodakara block (1991-92)

Sl.No.	Name of panchayath	Area (in ha)
1.	Alagappanagar	203.0
2.	Kodakara	248.0
3.	Mattathur	145.0
4.	Nenmanikkara	58.0
5.	Pudukkad	500.0
6.	Thrikkur	360.0
7.	Varandarappilly	235.0

Source: Crop weather condition file No.KAD4/91-92 in the Office of the Assistant Director of Agriculture, Kodakara

Puthur and Pananchery panchayaths were reported to have maximum area under irrigated banana in Ollukkara block and hence these two panchayaths were selected from Ollukkara block (Table 4).

Table 4. Area (panchayath-wise) under irrigated banana in Ollukkara block (1991-92)

Sl.No.	Name of panchayath	Area (in ha)
1.	Kolazhy	30.0
2.	Madakkathara	72.0
3.	Nadathara	125.0
4.	Ollukkara	90.0
5.	Pananchery	320.0
6.	Puthur	350.0
7.	Vilvattam	100.0

Source: Crop weather condition file No.Pdl 12/91-92 in the Office of the Assistant Director of Agriculture, Ollukkara

Kaiparamba panchayath in Puzhakkal block was purposively selected for the study of 'Kazhchakula' cultivation.

The map showing the areas selected for the study is given in Fig.2.

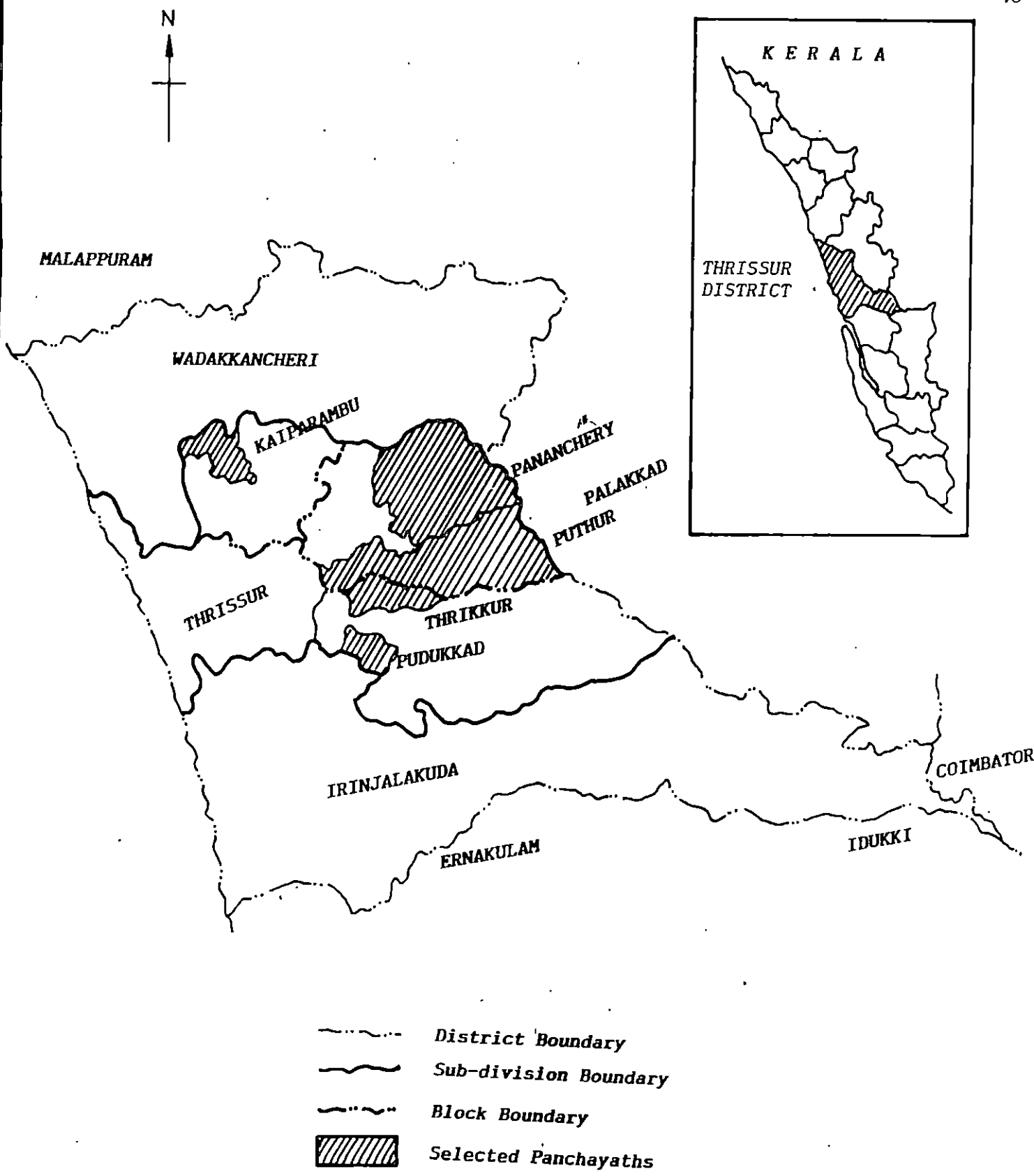

FIG.2 MAP SHOWING THE AREAS SELECTED FOR STUDY

2. Selection of respondents

The study was confined to selected wards in a panchayath identified as large scale banana cultivating areas as reported by the extension personnel in the panchayath. Thus two wards from each panchayath having maximum number of banana cultivators were selected.

The list of farmers cultivating banana in each selected wards were obtained from the respective Krishi Bhavans. Fifteen farmers were selected randomly from each ward. Thus, 30 farmers were selected from each panchayath. A total of 120 farmers were thus selected from the four panchayaths. Another 30 farmers were selected randomly from Kaiparamba panchayath among the farmers who cultivated 'Kazhchakula'. Thus altogether, 150 banana cultivators were selected as respondents for this study.

3. Selection of variables for the study

Based on the objectives, review of relevant literature and discussion with the experts both in the Department of Agriculture and in the Kerala Agricultural University, the following variables were selected for the study.

1. **Dependent variables**

   (i) Attitude towards risk in farming

   (ii) Attitude towards risk in banana cultivation

   (iii) Perception about risk in banana cultivation

2. **Behavioural outcome**

   (i) Risk management behaviour

   (ii) Decision making pattern

3. **Independent variables**

   (i) Personal variables

      a. Age

      b. Education

      c. Availability of family labour

      d. Experience in banana cultivation

      e. Prior exposure to risk

   (ii) Socio-economic variables

      a. Annual income

      b. Area under banana cultivation

      c. Cropping intensity

      d. Irrigation potential

      e. Vocational diversification

   (iii) Socio-psychological variables

      a. Social participation

      b. Mass media exposure

c. Innovativeness

d. Self reliance

e. Achievement motivation

f. Management orientation

g. Credit orientation

h. Extension orientation

4. Operationalisation and measurement of variables included in the study

The above variables were measured following the procedures as detailed below.

1. Dependent variables

(i) Attitude towards risk in farming

This is operationally defined as the positive or negative feeling or affect towards risk held by a farmer towards farming in general.

To measure the attitude towards farming in general, the scale developed by Supe (1969) was adopted. This scale consisted of six statements, of which two were negative. The responses were collected on a five point continuum and the scoring pattern for positive statements was as follows:

Responses in the continuum	Score
Strongly disagree	1
Disagree	3
Undecided	4
Agree	5
Strongly agree	7

For negative statements, the scoring pattern was reversed. The total score obtained by summing up the score for each statement yielded the general risk attitude score towards farming.

(ii) Attitude towards risk in banana cultivation

This is operationally defined as the positive or negative feeling or affect towards risk held by a banana cultivator on the various activities of banana cultivation.

To measure the attitude towards risk with regard to banana cultivation, the respondents were asked to express their opinion on four statements, of which one was positive and the rest negative. The responses to these statements were collected on a dichotomous scale. When the responses were in agreement with positive statement, a score of '1' was given and for disagreeing responses the score was '0'. For negative statements, the scoring pattern was reversed. The total score

obtained by summing up the score for each statement yielded the score for attitude towards risk in banana cultivation.

(iii) Perception about risk in banana cultivation

Risk perception is operationalised as the meaningful sensation and interpretation by the farmer about the risk in banana cultivation. An overall perception about the risk in different activities of banana cultivation was studied.

In the present study, perception was measured using a scale developed for the purpose. The scale was considered asarbitrary since the rigorous procedures of standardisation by estimating reliability and validity of the scale were not attempted in the present case.

Based on relevant review of literature and discussion with experts of Department of Agriculture and Kerala Agricultural University, 20 items related to banana cultivation were identified under three major heads as cultural practices, support and services and natural calamities.

The items selected were:

I. Cultural practices
   1. Planting time
   2. Sucker selection

3. Sucker treatment
4. Spacing and pit-size
5. Fertilizers and manures
6. Irrigation
7. Intercultural operations
8. Preventing pests and diseases
9. Overcoming pests and diseases

II. Supply and services

1. Technical advice
2. Credit and other financial assistance
3. Marketing service
4. Storage facilities
5. Transport facilities
6. Processing facilities
7. Crop insurance

III. Natural calamities

1. Drought
2. Flood
3. Heavy wind
4. Heavy rains

The perception for these 20 items were measured on a five point continuum varying from most risky to least risky.

The scoring pattern was as follows:

Responses in the continuum	Score
Most risky	5
Risky	4
Do not know	3
Less risky	2
Least risky	1

The scores for the perception of a farmer on each item were summed upto get the overall perception score for an individual respondent.

2. Behavioural outcome

(i) Risk management behaviour

For this study, risk management behaviour was measured in terms of the extent of adoption of risk diffusing and risk reducing measures by the farmer. Risk diffusing measures are defined as those practices that are designed to deal with the consequences of losses like storage, salvage operations etc. (Binswanger et al., 1979). Risk reducing measures are defined as those measures which are used before the occurrence of damage like crop diversification, seasonal adjustment of planting time etc. (Binswanger et al., 1979).

In this study, the extent of adoption by a farmer was worked out for the following risk diffusing and risk reducing measures which was considered as an indicator of his risk management behaviour.

1. Adjustment of planting time
2. Selection of good quality disease free sword suckers
3. Recommended sucker treatment
4. Recommended spacing and pit size
5. Application of recommended quantities of fertilizers and manures
6. Recommended irrigation schedule
7. Recommended intercultural operations
8. Application of prophylatic plant protection chemicals
9. Need based application of plant protection chemicals
10. Utilization of technical advice
11. Utilization of credit and other financial assistance
12. Utilization of marketing services
13. Utilization of storage facilities
14. Utilization of transport facilities
15. Utilization of processing facilities
16. Utilization of crop insurance service
17. Utilization of drought managing measures
18. Utilization of flood control measures
19. Utilization of heavy wind reducing measures
20. Utilization of heavy rain control measures

(ii) Decision making pattern

Nandapurkar (1982) defined decision making as the degree to which an individual justifies his selection of the most efficient means from among the available alternatives on the basis of criteria for achieving maximum economic profit.

For this study, decision making pattern of banana farmer is operationally defined as the pattern with which the farmer makes decisions with regard to different activities of banana cultivation. Only the pattern of decision making was studied and not the details of alternatives or options of decision making. The patterns were identified as individual decision making, joint decision making and group decision making.

Individual decision making pattern was considered as one in which the farmer who cultivated banana made all the decisions by himself regarding the different activities in banana cultivation, whereas in joint decision making pattern, family members of the farmer who cultivated banana were also involved in making decisions. Group decision making pattern was one in which a group of banana cultivators in a locality collectively made their decisions in all activities of banana cultivation.

The decision making pattern for all the 20 activities included for adoption was analysed.

3. Independent variables

(i) Personal variables

a. Age

Age was measured in terms of the number of years the respondent had completed since his birth at the time of the investigation.

b. Education

Education is operationalised as the number of formal years of education an individual had received. The score was assigned as per socio-economic status scale of Trivedi (1963) with slight modifications in the procedure of scoring.

Category	Score
Illiterate	0
Can read only	1
Can read and write	2
Primary school	3
U.P. School	4
High School	5
PDC or equivalent	6
Degree and above	7

c. Availability of family labour

Availability of family labour is operationally defined as the extent of family labour available with each respondent who can be utilized for banana cultivation.

This variable was measured by taking into account the number of members in the family of the respondent who are utilized for banana cultivation by the farmer.

d. Experience in banana cultivation

It is operationally defined as the number of years since a farmer is involved in banana cultivation. This was quantified by asking the respondent to indicate the number of years since he was practising commercial banana cultivation.

e. Prior exposure to risk

Prior exposure to risk is operationally defined as the number of times in which the farmer had to face risks in the previous years in cultivation of banana and had incurred loss due to the risk. It was measured by taking into account the number of years in which the farmer had to face moderate to heavy loss in banana cultivation due to various reasons.

(ii) Socio-economic variables

a. Annual income

Annual income is operationally defined as the total earning of the respondent in an year from on-farm and off-farm sources expressed in terms of rupees. The farm sources included income from different crops, dairy, poultry, etc. while off-farm sources included income from government employment, business and such other vocations.

b. Area under banana cultivation

It is operationally defined as the area of land expressed in terms of the number of cents under banana cultivation, both owned and cultivated by the respondent including land both leased-in and leased-out. This was measured by asking the respondent to indicate his total area under banana cultivation in cents.

c. Cropping intensity

Cropping intensity is defined as the number of crops raised in an year in a unit area by the farmer expressed in percentage.

The procedure followed by Prasad (1978) and as described by Balan (1987) was used for the measurement of cropping intensity. The farmer was asked to indicate single

cropped, double cropped and triple cropped land cultivated by him and was asked to provide the above data for both garden and wet land. Total cropped area per year was obtained by summation of single cropped area, twice the double cropped area and thrice the triple cropped area. The cropping intensity was calculated as below:

$$\text{Cropping intensity} = \frac{\text{Gross cropped area}}{\text{Net cropped area}} \times 100$$

d. Irrigation potential

Irrigation potential is operationalised as the presence of source of irrigation water and favourable conditions for its availability for irrigating the crops raised by the farmer. Though this variable is difficult to be quantified, it was included for the study as effective irrigation is an important factor for summer banana cultivation. Here, though the quantity of water irrigated is quite important, as it was difficult to get the correct quantity of water used for irrigation, the frequency of irrigation as well as the area irrigated only were taken into consideration. The procedure followed by Bonney (1991) was adopted in this study for measuring irrigation potential.

A score of '3' was assigned for a farmer if he had enough source of irrigation providing water throughout the

year and a score of '2' for seasonal availability of water and a score of '1' for unassured and irregular availability of water.

e. Vocational diversification

It is operationalised as taking up supplementary occupations by the farmer related to various enterprises, with a view to increase his income retaining farming as his main occupation.

This was measured following the scoring procedure adopted by Somasundaram (1976) with slight modification as given below:

Category	Score
Only agriculture	1
Agriculture + labour	2
Agriculture + service	3

(iii) Socio-psychological variables

a. Social participation

Social participation is operationally defined as the degree of involvement of the respondents in formal and nonformal social organisations either as member or as office

bearer which also includes their degree of participation in organisational activities.

The procedure followed by Kamaruddeen (1981) was adopted for the measurement of social participation as indicated below:

Category	Score
1. Membership in organisation	
No membership in any organisation	0
Membership in each organisation	1
Office bearer in each organisation	2
2. Frequency of attending meetings	
Never attending any meetings	0
Occasionally attending meetings	1
Regularly attending meetings	2

The score for each social organisation was obtained by multiplying the membership score with frequency score. By adding up the scores of all organisations, the total score for social participation of the farmer was obtained.

b. Mass media exposure

Mass media exposure is operationally defined in this

study as the degree to which the individual respondent is exposed to various mass media sources. This was measured in terms of the frequency of his exposure to different mass media.

The following mass media were considered to assess the frequency of exposure of the respondents. The procedure followed by Karippai (1988) with slight modification was adopted for this study. The mass media used selected were:

1. Television
2. Radio
3. Newspaper
4. Farm magazines
5. Other magazines and literature
6. Films

The frequency of use was measured as follows:

Frequency	Score
Always	3
Often (once in a week)	2
Sometimes (once in a month)	1
Never	0

c. Innovativeness

This is operationalised as the degree to which the respondent was relatively earlier in adopting new ideas.

The procedure followed by Singh and Chowdhari (1977) and adopted by Selvanayagam (1986) was used to measure the innovativeness of a farmer. In this procedure, a question was asked as to when the farmer would prefer to adopt an improved practice in farming. The responses were scored as below:

	Response	Score
1.	As soon as it is brought to my knowledge	3
2.	After I have seen other farmers tried it successfully in the farm	2
3.	I prefer to wait and take my own time	1

Another scale developed by Moulik (1965) was also used in this study. The scale consisted of three sets of statements. Under each set, one statement portrayed 'most agree' response and another 'least agree'response. The three sets in each statement were having the weights of 3, 2 and 1 denoting high, medium and low degree of innovativeness.

The respondents were requested to select one 'most like' and another 'least like' from each set. The ratio of the weights of the 'most like' statement to the 'least like' statement in each set was worked out. Then the ratios of the

three sets of statements were summed up and the average was found out. This score was added up with the score obtained using Singh aand Chowdhari's scale which gave the innovativeness score of a farmer.

d. Self reliance

Self reliance is conceptually related to fiscal orientation and planning.

Borrowing capital for introducing changes in farming and to do it in a planned way pre-suppose confidence in oneself along with the realisation that all environmental factors are not inscrutable supernatural forces beyond our control (Roy et al., 1968).

A single question was used to measure this variable - "How much of your future depends on yourself?." The response to the question by the farmer was measured based on the following scoring system.

Percentage	Score
100	5
75-99	4
50-74	3
25-49	2
Less than 25	1
Not at all	0

e. Achievement motivation

McClelland (1961) defined achievement motivation as a social value that emphasises desire for excellence in order for an individual to attain a sense of personal accomplishment.

To measure this variable, achievement motivation scale developed by Singh (1974) was used. It is a six item scale with 5 alternative responses in each item which were scored from 1 to 5. The respondents were asked to check one of the alternatives for each item. The scores were obtained by summing up all the scores obtained for each item.

f. Management orientation

Management orientation is operationalised as the degree to which a farmer is oriented towards scientific farm management comprising planning, production and marketing functions on his farm enterprise.

For measuring management orientation, Kamaruddeen (1981) used the scale developed by Samantha (1977) which was adopted in this study. It consisted of 18 statements, 6 each for planning, production and marketing orientation. Under each group, positive and negative statements were noted retaining at the same time a more or less psychological order of the statements. For positive statements a score of '1' was

assigned for agreement and '0' fcr disagreement. For negative statements, the scoring was reversed. The scores were summed up corresponding to the response pattern which gave the management orientation score of a respondent. The scores for the three functions, viz., planning, production and marketing were also taken separately.

g. Credit orientation

Credit orientation refers to the responses relating to the need for the credit, use of credit, the difficulties and treatment in securing credit (Beal and Sibley, 1967).

To measure this variable, three opinion seeking questions were asked. Opinion about the need for borrowing money for agricultural purpose was obtained by using the following scoring procedure.

Response	Score
Very much needed	5
Needed	4
Undecided	3
Not needed	2
Not at all needed	1

Opinion about easiness in getting credit from institutional sources for increasing farm production was weighed using the scoring procedure as below.

Response	Score
Strongly agree	5
Agree	4
Undecided	3
Disagree	2
Strongly disagree	1

Opinion about taking credit from institutional sources was measured using the following scoring procedures.

Response	Score
Very easy	5
Easy	4
Moderately difficult	3
Difficult	2
Very difficult	1

The total score was obtained by summing up the scores for each statement.

h. Extension orientation

Extension orientation refers to the extent of contact a farmer had with different extension agencies and also his participation in various extension activities or programmes like meetings, seminars, etc. organised by these agencies.

Bhaskaran (1979) had measured extension orientation taking into account both extension contact and extension participation and the scoring pattern developed by him was adopted. Here the responses for contact of a farmer with different extension personnel were measured as follows:

Response	Score
Often	2
Frequently	1
Never	0

The total score was obtained by adding up all the scores for different extension personnel.

The extension participation was measured by summing up the scores obtained by a farmer for his participation in various extension activities. The scores were assigned for the responses as follows:

Response	Score
Whenever conducted	2
Sometimes	1
Never	0

The total score was obtained by adding up the scores for all extension activities.

The score for extension orientation for a respondent was arrived at by adding up the scores of extension contact and extension participation.

5. Procedure of data collection

A structured interview schedule was prepared for collecting the data which was pre-tested and finalised based on a pilot study. The pilot study was conducted in a non-sample area which closely resembled the area selected for the main study. Thirty banana farmers were interviewed for the pilot study and their responses were recorded. The wordings and sequences were modified so as to remove ambiguity and unwanted items were deleted in the light of the pilot study and the schedule was finalised (The final schedule is given in Appendix-I). The questions in the interview schedule are not in logical sequence as described in the methodology chapter, as the variables were grouped and discussed under three categories in the chapter.

The data collection was done during the months of April-June 1992. The farmer respondents were personally interviewed by the researcher. The respondents were contacted in their houses and rapport established. The questions were put in a conversational manner and responses were transcribed in the schedule itself. In the case of responses which were not clear, rechecking was also done.

6. Statistical tools used in the study

The following statistical procedures were employed to analyse the data.

1. Percentage analysis

Percentages were calculated for making simple comparisons among the different groups.

2. Correlation analysis

Zero order correlation coefficient were calculated to find out the intensity of association between the dependent variable and each of the independent variables.

The formula used was:

$$r = \frac{\Sigma xy - \frac{\Sigma x \, \Sigma y}{n}}{\left[\Sigma x^2 - \frac{(\Sigma x)^2}{n} \quad \Sigma y^2 - \frac{(\Sigma y)^2}{n}\right]}$$

where,

r = correlation coefficient

x = dependent variable

n = number of observations

3. Multiple regression analysis

Multiple regression analysis was done to determine the net contribution of each of the selected independent variables

to the dependent variable and to know the percentage of variation that a set of independent variables jointly explains on the dependent variable. The regression equation employed in the study is of the form

$$y = a + b_1x_1 + b_2x_2 + \text{----------} + b_nx_n$$

where,

y = dependent variable

a = intercept

x_1, ----------, x_n = independent variables

b_1, ----------, b_n = regression coefficients

Coefficient of multiple determinant (R^2) was estimated from the regression equation to know the adequacy of the liner model. A significant R^2 suggest the desirability of regression analysis in predicting the dependent variable. The test of significance of regression coefficients (b's) was carried out with the help of 't' values computed.

4. Step-wise regression analysis

This was employed to get the best subset of independent variables in predicting the dependent variables after eliminating unimportant variables. The best fitting regression equation of dependent variable on a few important independent variables was evolved by applying the procedure suggested by Draper and Smith (1966).

5. Path coefficient analysis

Path analysis explains the cause and effect relationship between dependent and independent variables. If the system consisted of causes and effect is well-defined, it is possible to represent the whole system of variables in the form of a diagram known as "path diagram'.

In path coefficient analysis, the correlation coefficient between a causal factor and effect is split into that due to the direct effect of the causal factor and indirect effect of other factors on this factor.

Path analysis was carried out following the matrix method as given by Singh and Chowdhari (1979).

Path coefficients are standardised regression coefficient. If 'y' is the effect and 'x' is the cause, the path coefficient for the path from cause 'x_1' to the effect 'y' is defined as

$$Piy = bi.\frac{\sigma xi}{\sigma y}$$

where,

bi is the partial regression coefficient of xi on yi

The statistical analyses were done using the computer facility available at the Department of Agricultural Statistics, College of Horticulture, Vellanikkara.

Results and Discussion

CHAPTER IV

RESULTS AND DISCUSSION

Keeping in view the objectives of the study, the results and discussions thereon are presented in the chapter under the following heads:

1. Attitude of farmers towards risk in farming
2. Attitude of farmers towards risk in banana cultivation
3. Perception of farmers about risk in banana cultivation
4. Extent of adoption of risk management practices in banana cultivation
5. Decision making pattern of farmers in relation to adoption of risk management practices in banana cultivation
6. Correlation analysis between selected independent variables and dependent variables
7. Inter-relationship among independent variables
8. Relative importance of selected independent variables in explaining the variation in the dependent variables
9. Results of path analysis

1. Attitude of farmers towards risk in farming

Table 5 presents the distribution of respondents based on their attitude towards risk in farming.

Table 5. Distribution of scores of respondents based on attitude towards risk in farming

Category	Farmers cultivating summer banana (n=120)			Farmers cultivating Kazhchakula (n=30)		
	Class limits	Frequency	%	Class limits	Frequency	%
Low (Below x-1SD)	<31.25	27	22.50	<33.91	2	6.67
Medium (Between x±1SD)	31.25-35.55	59	49.17	33.91-39.63	25	83.33
High (Above x±1SD)	>35.55	34	28.33	>39.63	3	10.00

Regarding attitude towards risk in farming, while about half of the farmers (49.17%) cultivating summer banana were found distributed in the medium category, majority of the farmers (83.33%) cultivating Kazhchakula were found in medium category. The rest 28.33 and 22.50 per cent of the farmers cultivating summer banana were found distributed in the low and high categories respectively, whereas 6.67 and 10.00 per

cent of Kazhchakula cultivators were distributed in low and high categories respectively (Fig.3 and 4).

Attitude by definition is the disposition to behave in a particular way towards specific objects or situations. It need not be static and may change as people interact with the attitude object and the social environment in which it operates. Attitudes develop from social interactions and evolve in the course of it which in turn is affected by social interaction.

In the case of summer banana cultivators, about 50 per cent of the cultivators under study belonged to medium category in the distribution based on attitude towards risk in farming. This may be due to the high level of price risk involved in the cultivation of banana. As the main aim of the cultivator is to obtain maximum prices during Onam season, when the demand is too high, delay of even two or three days for harvesting may reduce the profit even upto 50 per cent or more. This pinpoints the need for timely harvesting and marketing which is highly essential to reduce the price risk. Sometimes price risk can be insured through future markets. But no systematic or scientific future markets operate for banana, as in the case of some other crops. It is the middle men who exploit the poor farmer to the maximum by quoting a much lower price two or three months before harvest and by

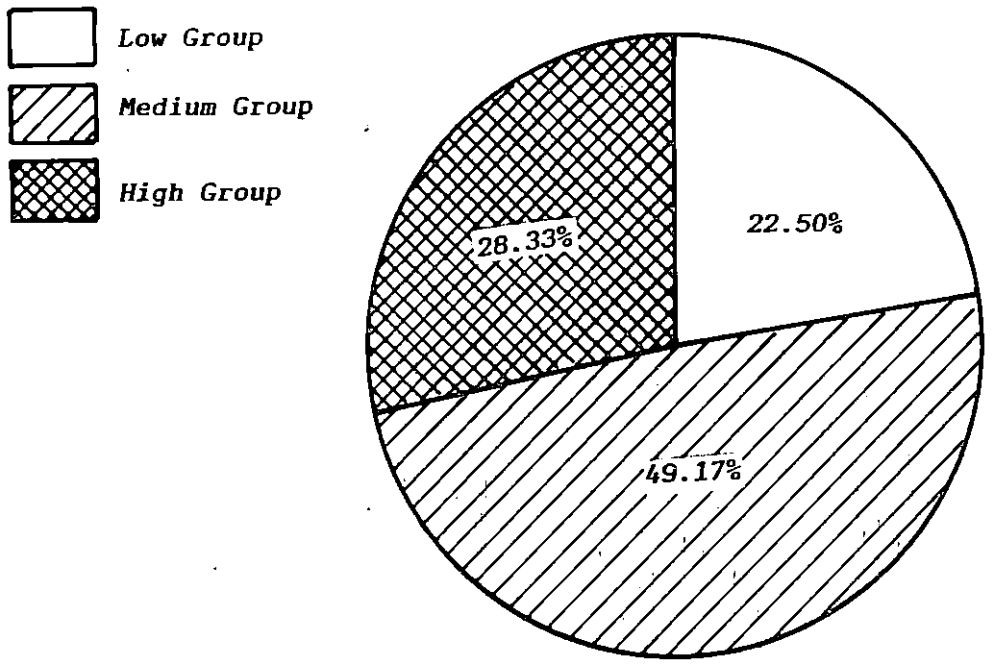

FIG.3 DISTRIBUTION OF SUMMER BANANA CULTIVATORS BASED ON THEIR ATTITUDE TOWARDS RISK IN FARMING

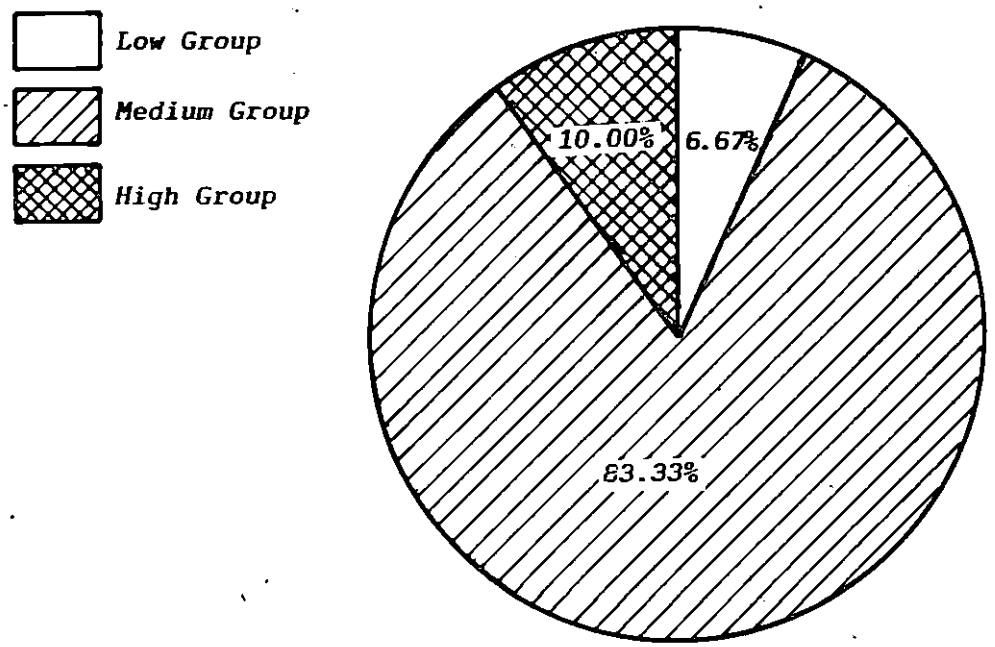

FIG.4 DISTRIBUTION OF KAZHCHAKULA CULTIVATORS BASED ON THEIR ATTITUDE TOWARDS RISK IN FARMING

advancing him the money. Hence it is likely that many farmers might have developed a medium level of attitude towards risk in farming.

On the contrary, for Kazhchakula cultivators, there is no question of price risk. As the very name indicates, this crop is cultivated mainly for 'Kazhcha' or 'show', i.e. for offering or for gift purpose. It is for the external appearance and elegance of the bunches the price is quoted. It always fetches high price for the bunches ranging from Rs.350/- to Rs.1,000/- per bunch. Though this is the case, it was observed that 84.00 per cent of the Kazhchakula farmers were found distributed in the medium category in respect of attitude towards risk in farming. This might be due to the high technology and production risk involved in the cultivation, where the farmers are likely to develop a positive attitude towards risk which night have resulted in the medium level of attitude towards risk in farming.

2. Attitude of farmers towards risk in banana cultivation

The distribution of respondents based on their attitude towards risk in banana cultivation is furnished in Table 6.

Table 6. Distribution of scores of respondents based on attitude towards risk in banana cultivation

Category	Farmers cultivating summer banana (n=120)			Farmers cultivating Kazhchakula (n=30)		
	Class limits	Frequency	%	Class limits	Frequency	%
Low (Below x-1SD)	<1.40	25	20.33	<1.49	3	10.00
Medium (Between x±1SD)	1.40-2.84	57	48.00	1.49-3.63	23	76.67
High (Above x±1SD)	>2.84	38	31.67	>3.63	4	13.33

It was evident from the table that majority of the summer banana cultivators belonged to the medium attitude category (48.00%), while 20.33 per cent of the farmers had low attitude towards risk in summer banana cultivation and 31.67 per cent belonged to the high attitude category. Similarly among the Kazhchakula cultivators, more than three-forth of the respondents were distributed in the medium category (Fig.5 and 6).

More or less similar results as presented in Table 5 were obtained in this case also which indicates that there is no much difference in their attitude towards risk in farming

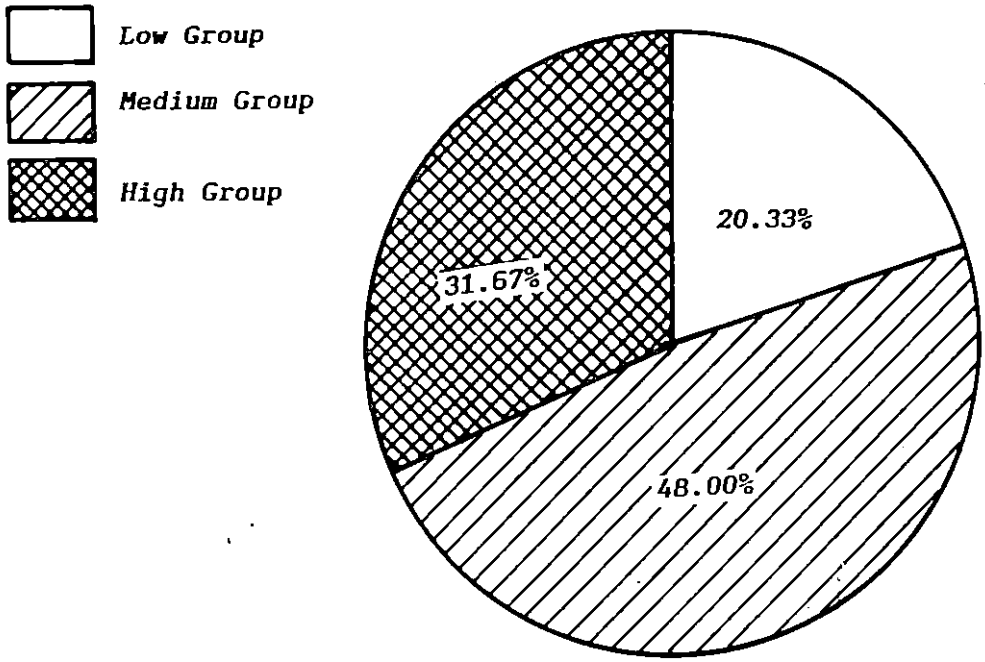

FIG.5 DISTRIBUTION OF SUMMER BANANA CULTIVATORS BASED ON THEIR ATTITUDE TOWARDS RISK IN BANANA CULTIVATION

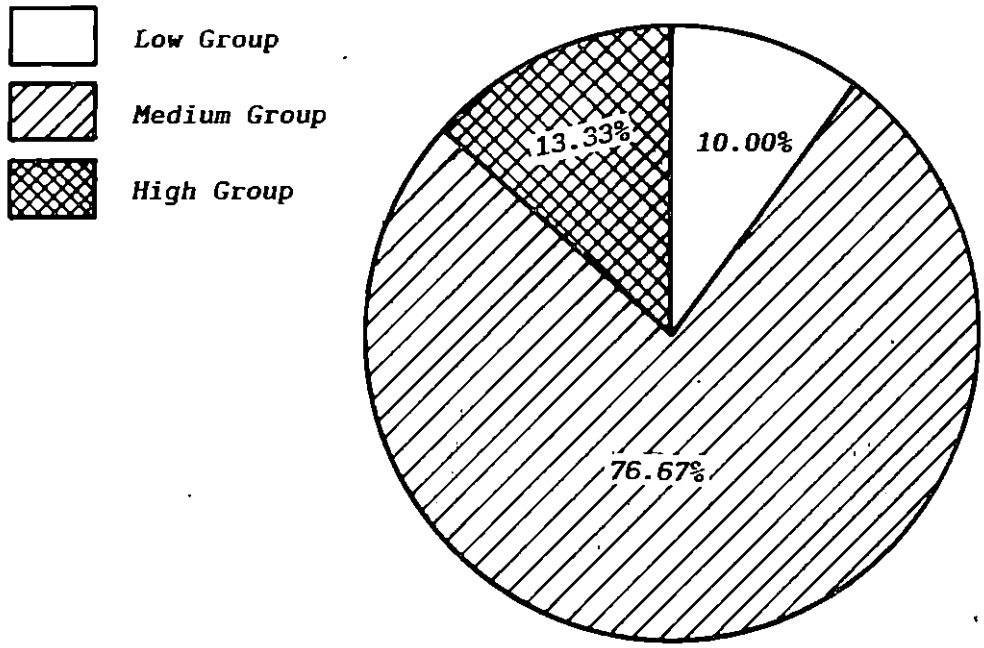

FIG. 6 DISTRIBUTION OF KAZHCHAKULA CULTIVATORS BASED ON THEIR ATTITUDE TOWARDS RISK IN BANANA CULTIVATION

in general and towards banana cultivation in particular. This might be due to the very nature of the banana cultivators as they anticipate some sort of risk in banana cultivation which is reflected in their attitude towards risk in all types of crop enterprises. Majority of the banana cultivators were found to cultivate other crops like paddy, coconut, arecanut etc. and their attitude towards risk in banana cultivation naturally becomes evident in their attitude towards risk in farming in general.

3. Perception of farmers about risk in banana cultivation

The data pertaining to the distribution of respondents based on their perception about risk in banana cultivation is furnished in Table 7.

While about two-third of the summer banana cultivators (66.67%) were found to possess medium perception about risk in banana cultivation, 14.17 and 19.16 per cent of respondents belonged to low and high perception categories respectively. A similar trend was noticed in the case of Kazhchakula cultivators also. More than 63 per cent of the farmers belonged to medium category for perception about risk and 16.67 and 20.00 per cent of the cultivators belonged to low and high categories of perception about risk in banana cultivation respectively (Fig.7 and 8).

Table 7. Distribution of scores of respondents based on their perception about risk in banana cultivation

Category	Farmers cultivating summer banana (n=120)			Farmers cultivating Kazhchakula (n=30)		
	Class limits	Frequency	%	Class limits	Frequency	%
Low (Below x-1SD)	<64.10	17	14.17	<50.12	5	16.67
Medium (Between x±1SD)	64.10-20.80	80	66.67	50.12-64.42	19	63.33
High (Above x±1SD)	>75.20	23	19.16	>64.42	6	20.00

Perception is the organisation of sensory inputs into meaningful experiences. As pointed out by Segall et al. (1966), perception is subject to many influences. In particular, each individual's experience combine in a complex fashion to determine his perception about a stimulus object. Here also as in the case of attitude, medium level of perception about risk was observed. This might be due to their past experience with many kinds of production risks especially that of natural calamities and other such vagaries of nature and also price risks resulting in uncertain prices for their produce which had resulted in medium perception about risk in banana cultivation.

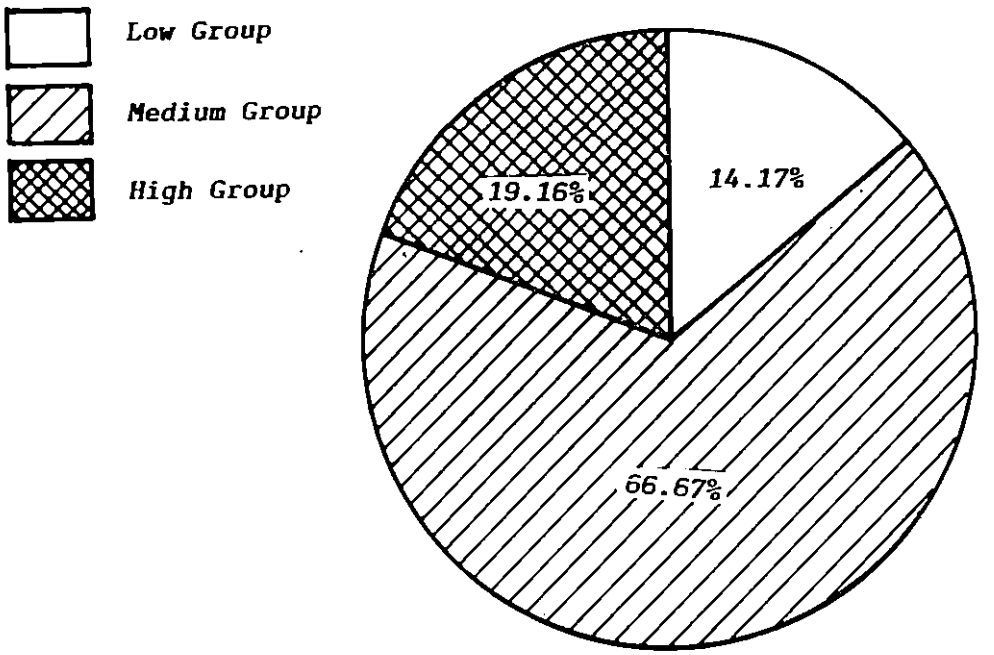

FIG.7 DISTRIBUTION OF SUMMER BANANA CULTIVATORS BASED ON THEIR PERCEPTION ABOUT RISK IN BANANA CULTIVATION

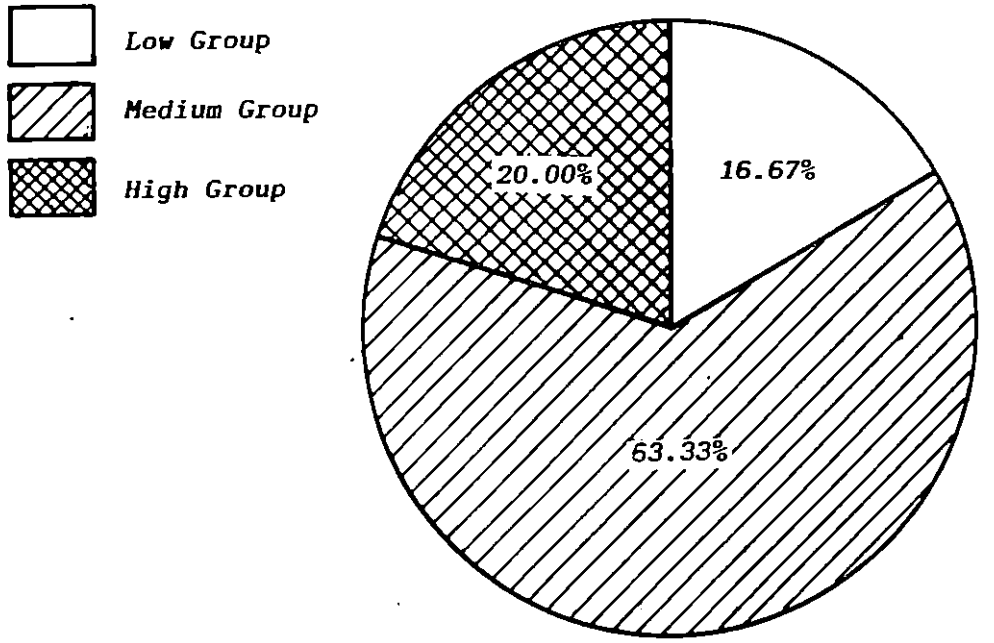

FIG.8 DISTRIBUTION OF KAZHCHAKULA CULTIVATORS BASED ON THEIR PERCEPTION ABOUT RISK IN BANANA CULTIVATION

4. Extent of adoption of risk management practices in banana cultivation

Table 8 presents the extent of adoption of risk management practices by the respondents.

In the case of summer banana, majority of the farmers (97.5%) had adopted adjustment of planting time. More than 80 per cent of the farmers were found to adopt the practices viz. sucker selection, sucker treatment, irrigation, intercultural operations, need based application of plant protection chemicals, utilization of technical advice and adoption of drought management measures. Risk management practices like spacing and pit size, application of fertilizers and manures, prophylactic application of plant protection chemicals, utilisation of marketing services and utilization of transport facilities were found to be adopted by more than 50 per cent of the farmers. Only less than 10 per cent of the summer banana farmers were found to adopt storage facilities and heavy wind reducing measures. None of the farmers were found to utilize processing facilities as well as crop insurance (Fig.9).

All the Kazhchakula cultivators were found to adopt the recommended irrigation schedule. Over 80.00 per cent of Kazhchakula cultivators were found to adopt adjustment of

Table 8. Distribution of respondents based on the extent of adoption of risk management practices in banana cultivation

Sl. No.	Practice	Farmers cultivating summer banana (n=120)				Farmers cultivating Kazhchakula (n=30)			
		Adopted		Non adopted		Adopted		Non adopted	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%
1.	Adjustment of planting time	117	97.50	3	2.50	28	93.33	2	6.67
2.	Selection of suckers	105	87.50	15	12.50	29	96.67	1	3.33
3.	Sucker treatment	98	81.67	22	18.33	22	73.33	8	26.87
4.	Spacing and pit size	68	56.67	52	43.33	28	93.33	2	6.67
5.	Application of fertilizers & manures	90	75.00	30	25.00	15	50.00	15	50.00
6.	Irrigation	98	81.67	22	18.33	30	100.00	--	--
7.	Intercultural operations	108	90.00	12	10.00	29	96.67	1	3.33
8.	Prophylactic application of chemicals	75	62.50	45	37.50	--	--	30	100.00
9.	Need based application of PP chemicals	110	91.67	10	8.33	27	90.00	3	10.00
10.	Utilization of technical advice	107	89.17	13	10.83	2	6.67	28	98.33
11.	Utilization of credit and other financial assistance	56	46.67	64	53.33	--	--	30	100.00
12.	Utilization of marketing services	87	72.50	33	27.50	27	90.00	3	10.00
13.	Utilization of storage facilities	7	5.83	113	94.17	25	83.33	5	16.67
14.	Utilization of transport facilities	84	70.00	37	30.00	22	73.33	8	26.67
15.	Utilization of processing facilities	--	--	120	100.00	--	--	30	100.00
16.	Utilization of crop insurance	--	--	120	100.00	--	--	30	100.00
17.	Adoption of drought management measures	104	86.67	16	13.33	--	--	30	100.00
18.	Adoption of flood control measures	18	15.00	102	85.00	24	80.00	6	20.00
19.	Adoption of heavy wind reducing measures	10	8.33	110	91.67	20	66.67	10	33.33
20.	Adoption of heavy rain control measures	32	26.67	88	73.33	25	83.33	5	16.67

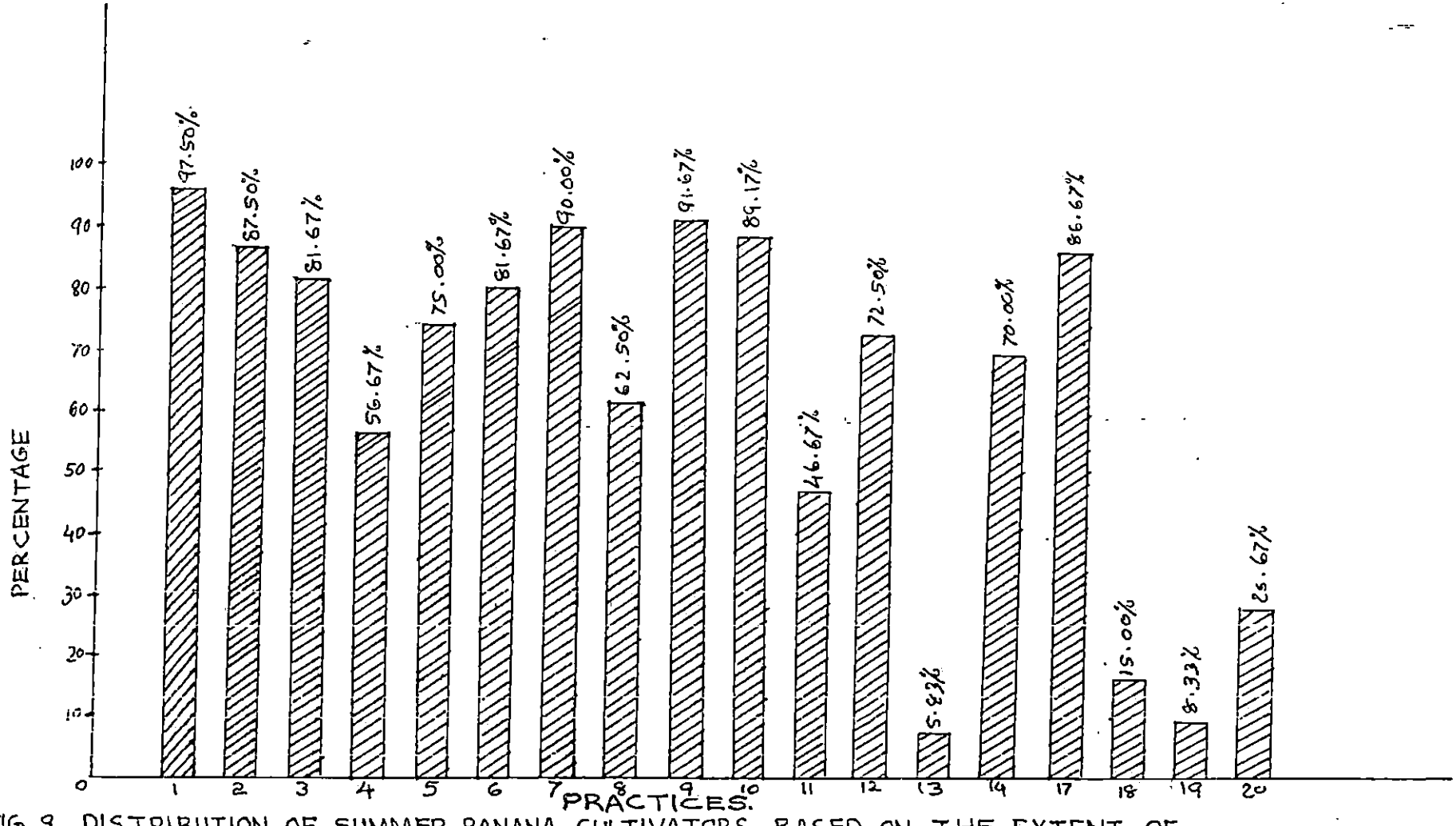

FIG. 9. DISTRIBUTION OF SUMMER BANANA CULTIVATORS BASED ON THE EXTENT OF ADOPTION OF RISK MANAGEMETNT PRACTICES.

PRACTICES:

1. ADJUSTMENT OF PLANTING TIME
2. SELECTION OF SUCKERS
3. SUCKER TREATMENT
4. SPACING AND PIT SIZE
5. APPLICATION OF FERTILIZERS AND MANURS
6. IRRIGATION OF CROPS.
7. INTERCULTURAL OPERATIONS
8. PROPHYLACTIC APPLICATION OF CHEMICALS.
9. NEEDBASED APPLICATION OF PP CHEMICALS.
10. UTILIZATION OF TECHNICAL ADVICE
11. UTILIZATION OF CREDIT AND OTHER FINANCIAL ASSISTANCE
12. UTILIZATION OF MARKETING SERVICES.
13. UTILIZATION OF STORAGE FACILITIES.
14. UTILIZATION OF TRANSPORT FACILITIES.
17. ADOPTION OF DROUGHT MANAGEMENT MEASURES.
18. ADOPTION OF FLOOD CONTROL MEASURES.
19. ADOPTION OF HEAVY WIND REDUCING MEASURES.
20. ADOPTION OF HEAVY RAIN CONTROL MEASURES.

planting time, selection of suckers, spacing and pit size, intercultural operations, need based application of plant protection chemicals, marketing services, storage facilities, flood control measures and heavy rain control measures. Other risk management practices like sucker treatment, application of fertilizers and manures, transport facilities and heavy wind reducing measures were found to be adopted by more than 50 per cent of the farmers. Only less than 10 per cent of the farmers were found to utilize technical advice. None of the Kazhchakula cultivators were found to adopt prophylactic application of plant protection chemicals, credit and other financial assistance and drought management measures. As in the case of summer banana cultivators, none of the Kazhchakula cultivators were found to utilize processing facilities and crop insurance (Fig.10).

As the main intention of summer banana cultivators is to reap maximum profit, they plan in a way by adjusting the planting time such that the banana bunches become ready for the market during August-September which is the Onam season, when there is heavy demand for banana. As a result, it becomes possible for them to avoid the price risk to a large extent which is a very important factor as far as banana cultivation is concerned. It is, therefore, quite obvious

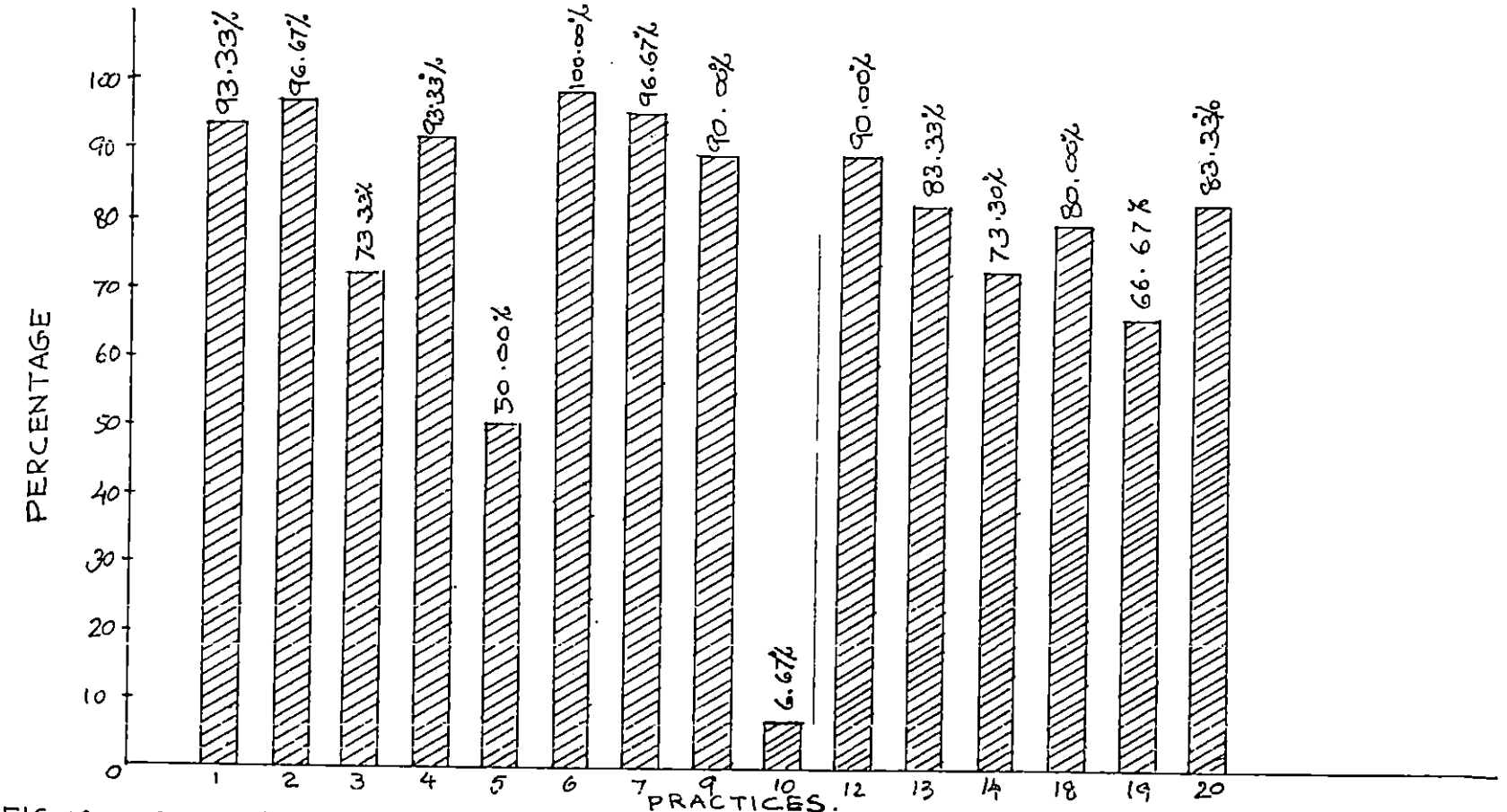

FIG.10. DISTRIBUTION OF KAZHCHAKULA CULTIVATORS BASED ON THE EXTENT OF ADOPTION OF RISK MANAGEMENT PRACTICES.

PRACTICES.

1. ADJUSTMENT OF PLANTING TIME
2. SELECTION OF SUCKERS
3. SUCKER TREATMENT
4. SPACING AND PITSIZE
5. APPLICATION OF FERTILISERS AND MANURES.
6. IRRIGATION OF CROPS.
7. INTERCULTURAL OPERATIONS
9. NEED BASED APPLICATION OF PPCHEMICALS
10. UTILIZATION OF TECHNICAL ADVICE
12. UTILIZATION OF MARKETING SERVICES
13. UTILIZATION OF STORAGE FACILITIES.
14. UTILIZATION OF TRANSPORT FACILITIES.
18. ADOPTION OF FLOOD CONTROL MEASURES.
19. ADOPTION OF HEAVY WIND REDUCING MEASURES.
20. ADOPTION OF HEAVY RAIN CONTROL MEASURES.

that a higher percentage of farmers were found to adopt adjustment of planting time.

As the farmers are very careful about the incidence of pests and diseases from the time of sucker selection onwards, they are also quite aware about the adverse effects of pesticides in an annual crop like banana and so they apply pesticides only if it is very much needed. Hence it was observed that need based application of pesticides was adopted by quite a large number (91.67%) of farmers.

The farmers are well aware that the weeds will not only host collateral pests, but also reduce the size and weight of the bunch, by competing for water and soil nutrients. Hence they are very keen to follow clean cultivation as well as timely intercultural operations. This might have resulted in the adoption of timely intercultural operations by 90.00 per cent of the summer banana cultivators.

Most of the summer banana cultivators are engaged in banana cultivation on a full time basis. Hence almost all farm operations such as irrigation, intercultural operations, and application of fertilizers and manures are being undertaken either by the farmers themselves of by the members of their family. One or two hired labourers are sufficient for carrying out all these operations in the field. The need for

such a low labour input might have resulted in adoption of most of the risk management practices.

As there is no facility for proper storage of the produce and also because banana is a highly perishable produce, utilization of storage facilities is found to be very low. Due to unavailability of the heavy wind protection measures, adoption of this practice was also found to be very low.

It is a fact that majority of the banana cultivators were not aware about the crop insurance scheme as well as the existence of processing facilities. This might have resulted in non-adoption of these two risk diffusing practices.

Unlike the normal banana cultivation, Kazhchakula cultivation is a special type of summer banana cultivation that is being taken up by some farmers which is a unique type of cultivation warranting due attention and care by the farmers. The farmers from the stage of sucker selection bestow special care and attention to the limited number of banana plants which they cultivate as 'Kazhchakula' as it may not be possible for them to manage more number of plants at a time. Kazhchakula cultivation is normally taken up by them in areas with assured water supply for irrigation. It is

therefore quite natural that all the Kazhchakula cultivators had adopted the recommended irrigation practices.

Since limited number of suckers are planted by the farmer, it is possible that individual care can be given to each and every plant. In this way almost all risk management practices are being adopted. The cultivation of 'Kazhchakula' is undertaken in a traditional way by only some farmers in isolated pockets of Thrissur District and as such they are not found keen in obtaining technical information. Hence technical advice by the extension personnel is not considered as a relevant issue by the farmers.

Practically no chemical fertilizers of plant protection chemicals are applied to bananas grown as 'Kazhchakula'. Only well dried farm yard manure and wood ash form the major nutrients for this crop. Because of assured irrigation facilities, drought reducing measures are not adopted by them. Just like summer banana cultivators, due to lack of awareness about crop insurance and processing facilities, 'Kazhchakula' cultivators also were not found to adopt these risk diffusing measures.

5. Decision making pattern of farmers in relation to adoption of risk management practices in banana cultivation

Table 9 presents the decision making pattern of banana

Table 9. Distribution of respondents based on their decision making pattern in relation to adoption of risk management practices in banana cultivation

Sl. No.	Practice	Farmers cultivating summer banana (n=120)						Farmers cultivating Kazhchakula (n=30)					
		Individual		Joint		Group		Individual		Joint		Group	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
1.	Adjustment of planting time	89	74.17	14	11.67	17	14.16	21	70.00	9	30.00	--	--
2.	Selection of suckers	63	52.50	19	15.83	38	31.67	30	100.00	--	--	--	--
3.	Sucker treatment	71	59.17	28	23.33	21	17.50	28	93.33	2	6.67	--	--
4.	Spacing and pit size	71	59.17	28	23.33	21	17.50	25	83.33	5	16.67	--	--
5.	Application of fertilisers and manures	68	56.67	35	29.17	17	14.16	30	100.00	--	--	--	--
6.	Irrigation	70	58.33	30	25.00	20	16.17	24	80.00	6	20.00	--	--
7.	Intercultural operations	108	90.00	7	5.83	15	4.17	18	60.00	12	40.00	--	--
8.	Prohylactic application of plant protection chemicals	41	42.50	53	44.17	16	13.33	--	--	--	--	--	--
9.	Need based application of plant protection chemicals	64	53.33	18	15.00	38	31.67	10	33.33	10	33.33	10	33.33
10.	Utilization of technical advice	47	39.17	17	14.16	56	46.67	--	--	--	--	--	--
11.	Utilization of credit and other financial assistance	55	45.83	32	26.67	33	27.50	--	--	--	--	--	--
12.	Utilization of marketing services	46	38.33	31	25.83	43	35.83	22	73.33	6	20.00	2	6.67
13.	Utilization of storage facilities	--	--	--	--	--	--	22	73.33	8	26.67	--	--
14.	Utilization of transport facilities	49	40.83	59	49.17	12	10.00	27	90.00	2	6.67	1	3.33
15.	Utilization of processing facilities	--	--	--	--	--	--	--	--	--	--	--	--
16.	Utilization of crop insurance	--	--	--	--	--	--	--	--	--	--	--	--
17.	Adoption of drought management practices	74	61.67	28	23.33	18	15.00	--	--	--	--	--	--
18.	Adoption of flood control measures	--	--	19	15.83	101	84.17	22	73.33	6	20.00	2	6.67
19.	Adoption of heavy wind reducing measures	78	65.00	30	25.00	12	10.00	20	66.67	5	16.67	5	16.67
20.	Adoption of heavy rain control measures	3	2.50	10	8.33	107	89.17	24	80.00	4	13.33	2	2.67

cultivators in the adoption of various risk management practices.

It was found that 90.00 per cent of the summer banana cultivators had resorted to individual decision making for intercultural operations. About three-fourth of them had taken individual decisions regarding adjustment of planting time. More than 40.00 per cent of the summer banana cultivators were found to have joint decision making in relation to utilization of transport facilities and prophylactic application of plant protection chemicals.

More than 80.00 per cent of the summer banana cultivators adopted group decisions in adopting flood and heavy rain control measures. Nearly half of summer banana cultivators had resorted to group decisions in adopting technical advice. Decisions about utilizing the marketing services as well as selecting the suckers were taken on group basis by more than one-third of the summer banana cultivators.

Most of the practices adopted by the farmers for cultivation of Kazhchakula were based on individual decisions. All of them were found to take decisions individually for these practices, namely selection of suckers, application of fertilizers and manures and prophylactic application of plant protection chemicals. More than 90.00 per cent of them made

individual decisions in relation to sucker treatment and utilization of transport facilities. Nearly 85 per cent of them had resorted to individual decision making for spacing and pit size. About three-fourth of the 'Kazhchakula' cultivators made individual decision in irrigation, utilization of marketing services, storage facilities and flood and heavy rain control measures. More than one-fourth of the 'Kazhchakula' cultivators made joint decisions about the adjustment of planting time. For need based application of plant protection chemicals, joint decisions and group decisions were made by 33.33 per cent of them. More than one-fifth of the 'Kazhchakula' cultivators took decisions jointly for irrigation, intercultural operations, storage and flood control measures. Group decisions were made by very few 'Kazhchakula' cultivators.

According to Fischer (1980), problem solving requires a high acceptance of the solution. A decision is a choice among alternative proposals, the sum of which constitute all or part of the task performance of group. For summer banana cultivation, out of the three types of decision making pattern, individual decision making pattern was adopted by 90.00 per cent of the farmers for intercultural operations as this was done either by the farmer himself or one of his family members. Similarly the time of planting is also

decided by the individual farmer himself so as to coincide with the period when there is heavy demand for the produce.

Transporting of the bunches to the nearest market cannot be done by an individual farmer alone as it involves high charges for the vehicles to be hired. Therefore, two or three farmers jointly take decision in this matter and transport their bunches hiring a vehicle. The farmers are quite aware that application of plant protection chemicals as prophylactic measure has to be adopted by the farmers in a locality if it has to be effective. With this idea in mind, three or four farmers may jointly take decision on the matter, hire labour and apply plant protection chemicals as a prophylactic measure.

As the productivity of crop depends mainly on assured irrigation, farmers take up the cultivation of this crop by the sides of channels, rivers and/or irrigation projects. The damages due to rain and flood will be a common problem to all of them and for controlling the ill effects of these natural calamities, the farmers are forced to take decisions on a group basis.

Competitive market is the core of 'Kazhchakula' cultivation. As indicated earlier, one bunch of 'Kazhchakula' could fetch a price of Rs.350/- to Rs.1000/-, whereas the

maximum price for one common summer banana bunch is at the most only Rs.100/-. This wide difference in the price of bunches motivates each 'Kazhchakula' cultivator individually to try his level best to get the best bunches and thereby get maximum price. Here each 'Kazhchakula' cultivator makes his own decisions in a competitive spirit so that he can produce better bunches than other farmers. A farmer is not ready to reveal or share with other farmers about the cultivation practices he follows fearing that his trade secret becomes exposed. This phobic concentration of secrecy may have made the farmers to take individual decisions for almost all risk management practices adopted for 'Kazhchakula' cultivation unlike the case with the summer banana cultivators.

6. Correlation analysis between selected independent variables and dependent variables

Correlation analysis was done for the sample of 150 farmers including 'Kazhchakula' growers as they were not taken as a separate group since the number of cultivators were not sufficient for separate analysis.

6.1 Relationship between attitude towards risk in farming and selected independent variables

The results of correlation analysis showing the

relationship between attitude towards risk in farming and selected independent variables is furnished in Table 10.

Prior exposure to risk, farm size and vocational diversification were found to have negative and significant relation with attitude of banana farmers towards risk in farming at 5 per cent level of significance.

Irrigation potential was found to have positive and significant relation with attitude of banana farmers towards risk in farming. The table also revealed that age, annual income and credit orientation were negatively related to attitude of banana cultivators towards risk, though not significant.

Prior exposure to risk had negative and significant relationship with attitude of farmers towards risk. In other words, farmers who had encountered various risks and had enough experience with risks in cultivation may not be willing to face more and more risks in the future. His previous bitter experiences with various risks might have forced him to avoid risks or rather have made him risk averse. Johnson (1971) indicated that in risk management, risk aversion is taken as the norm of attitude towards risk especially in peasant farming communities.

Table 10. Correlation coefficients between attitude towards risk in farming and selected independent variables (n = 150)

Variable No.	Name of variable	Correlation coefficient (r)
x_1	Age	-0.0013
x_2	Education	0.0278
x_3	Family labour	0.0790
x_4	Experience	0.0913
x_5	Prior exposure to risk	-0.1595*
x_6	Annual income	-0.1227
x_7	Farm size	-0.1660*
x_8	Cropping intensity	0.0681
x_9	Irrigation potential	0.4006**
x_{10}	Vocational diversification	-0.1903*
x_{11}	Social participation	0.1266
x_{12}	Mass media exposure	0.1286
x_{13}	Innovativeness	0.1240
x_{14}	Self reliance	0.1105
x_{15}	Achievement motivation	0.0771
x_{16}	Management orientation	0.1166
	a. Planning orientation	0.0262
	b. Production orientation	0.0393
	c. Marketing orientation	0.1088
x_{17}	Credit orientation	-0.1134
x_{18}	Extension orientation	0.0761

* Significant at 0.05 per cent level of significance
** Significant at 0.01 per cent level of significance

Farm size was found to have significant but negative relationship with the attitude of farmers towards risk in farming. Considering the risks involved in banana cultivation, the farmers who cultivate more number of banana plants are likely to incur relatively less loss in comparison with those who cultivate less number of banana because of the simple reason that the former may adopt many risk diffusing and risk reducing measures using their investment. However, farmers with less farm size are not likely to adopt any risk management practices. This situation could be explained by the theory enunciated by Cancian (1979) which relies on the notion that small farmers are generally risk preferring whereas large farmers are generally risk averse.

A negative significant relationship was observed between vocational diversification and attitude towards risk in farming. It could be explained logically that as the farmer takes up diversified vocations, he develops such an attitude that he need not bother much about the risk in farming as diversification will help him to overcome the risks. Chambers (1991) also observed similar negative relationship between vocational diversification and attitude towards risk in rainfed agriculture.

Water is one of the critical factors for the success of farming. Once irrigation water is ensured, it provides him

a favourable condition for raising the crop. Those farmers are likely to be very confident about the crop which in turn develop a positive attitude towards risk. On the contrary, it is likely that the farmers who lack assured water supply will develop negative attitude towards risk which might have resulted in the high positive and significant relationship between irrigation potential and attitude towards risk in farming.

6.2 Relationship between attitude towards risk in banana cultivation and selected independent variables

The results of correlation analysis showing the relationship between attitude towards risk in banana cultivation and selected independent variables is presented in Table 11.

The results revealed positive and significant relation between attitude towards risk in banana cultivation of farmers and family labour, irrigation potential, vocational diversification and self reliance.

Experience in banana cultivation, annual income and farm size were found to have significant negative relationship with attitude towards risk in banana cultivation. Age also was found to have negative relationship with attitude towards risk in banana cultivation, though not significant.

Table 11. Correlation coefficients between attitude towards risk in banana cultivation and selected independent variables

(n = 150)

Variable No.	Name of variable	Correlation coefficient (r)
x_1	Age	-0.1038
x_2	Education	0.0865
x_3	Family labour	0.1625*
x_4	Experience	-0.1740*
x_5	Prior exposure to risk	0.0250
x_6	Annual income	-0.1920*
x_7	Farm size	-0.1620*
x_8	Cropping intensity	0.0414
x_9	Irrigation potential	0.1684*
x_{10}	Vocational diversification	0.1957*
x_{11}	Social participation	0.0159
x_{12}	Mass media exposure	0.0302
x_{13}	Innovativeness	0.0986
x_{14}	Self reliance	0.1616*
x_{15}	Achievement motivation	0.0608
x_{16}	Management orientation	0.0654
	a. Planning orientation	0.0470
	b. Production orientation	0.0551
	c. Marketing orientation	0.0861
x_{17}	Credit orientation	0.0619
x_{18}	Extension orientation	0.0018

* Significant at 5 per cent level of significance

Banana is primarily an annual crop. After planting the suckers, practices like fertilizer application, weeding, irrigation etc. can be done by family members themselves as it does not involve much physical labour. Only for inter-cultural operations and propping, labour may have to be hired. Farmers who utilize more family labour with a view to reduce the cost of cultivation are likely to have positive attitude towards risk. It was observed that about 70.00 per cent of the labour relating to banana cultivation was contributed by the farmer and his family members. This is a peculiarity of banana cultivation. This result was found to be in conformity with Patel et al. (1978) who analysed the costs and returns of banana cultivation in Girna Irrigation Project areas of Jalgon district. Indiradevi (1983) also studied the cost of banana cultivation in Thrissur district and found the significance of family labour in banana cultivation.

Similar to the relationship between irrigation potential and attitude towards risk in farming, the assured water supply results in positive and significant relationship with attitude towards risk in banana cultivation also.

In summer banana cultivation, the availability of irrigation water at the peak season of flowering and fruiting (January to May) determines the size of the bunches and size of fingers. The farmer who lack assured irrigation are likely

to be very much concerned about the crop which in turn develop in them a negative attitude towards risk.

Quite contrary to the relation between vocational diversification and attitude towards risk in farming, increased diversified vocations always reduces the attitude towards risk in banana cultivation. As the farmer has other vocations, he may not bother to take up various risk reducing and risk diffusing measures with a view to minimise the loss that are likely to occur.

Coleman (1971) stated that self structure is one of the major determinants for developing assumptions and attitudes about anything. So when people are highly self reliant, they think that they can maintain their own behaviour. Thus, whenever self reliance of farmers increase, their attitude towards risk in banana cultivation may also increase.

One way to develop attitudes and beliefs is through specific experiences with the object of the attitude. Bitter experiences will usually develop an unfavourable attitude. The various natural calamities and other unfavourable events over a period of years might have made the experienced banana cultivators to develop a natural tendency to avoid risk which

will get reflected in their attitude towards risk. Binswanger et al. (1979) opined that virtually all Indian farmers are risk averse which means that they try to avoid risk whenever they can.

Annual income and farm size are indicators of economic status of the farmer. Such farmers with high income and farm size may not endure to take up activities involving any risk. Probably this might have resulted in negative relationship between annual income and attitude of farmers towards risk in banana cultivation. This might be due to the reason that the large farmers find that they would be loosing much if any crisis arises. However, when farm size decreases, their loss may be small in comparison with large farmers. Cancian (1979) also had opined that large farmers are risk averse compared to small farmers.

6.3 Relationship between perception about risk in banana cultivation and selected independent variables

The results of correlation analysis between perception about risk in banana cultivation and selected independent variables is given in Table 12.

It was observed from the results in Table 12 that, irrigation potential, credit orientation, family labour and farm size were significantly and positively related with

Table 12. Correlation coefficients between perception about risk in banana cultivation and selected independent variables

(n = 150)

Variable No.	Name of variable	Correlation coefficient (r)
x_1	Age	-0.1833*
x_2	Education	-0.0111
x_3	Family labour	0.2529**
x_4	Experience	-0.0391
x_5	Prior exposure to risk	0.0261
x_6	Annual income	0.0933
x_7	Farm size	0.2075**
x_8	Cropping intensity	-0.0147
x_9	Irrigation potential	0.1593*
x_{10}	Vocational diversification	-0.0553
x_{11}	Social participation	-0.0378
x_{12}	Mass media exposure	-0.1095
x_{13}	Innovativeness	-0.0631
x_{14}	Self reliance	-0.1857*
x_{15}	Achievement motivation	-0.0947
x_{16}	Management orientation	-0.0488
	a. Planning orientation	0.0110
	b. Production orientation	-0.1623*
	c. Marketing orientation	-0.1381
x_{17}	Credit orientation	0.1670*
x_{18}	Extension orientation	-0.0728

* Significant at 5 per cent level of significance
** Significant at 1 per cent level of significance

perception of farmers about risk in banana cultivation. Significant negative relationship was observed between perception about risk in banana cultivation and age, production orientation as well as self reliance of the farmers.

In banana cultivation, when more family members are engaged, the farmer naturally expects that his labour cost will be reduced considerably and along with this he develops a feeling that all his family members will be affected if there is crop failure, which results in a perception of high risk. This might have resulted in a positive relationship between family labour and perception about risk in banana cultivation.

Farmers who take up banana cultivation in larger areas may be practicing it since a number of years. It is from their experience they realize that risk is a part of banana cultivation and without facing any risk, it is rather not possible to cultivate this crop. Whenever they cultivate large number of banana, they perceive higher risk in cultivation. Thus a positive relationship between farm size and perception about risk in banana cultivation is but quite natural.

As in the case of attitude towards risk in farming, the relation between irrigation potential and perception about

risk in farming were positively related. This may be due to the simple fact that water is the most risky input for summer banana cultivation without which the whole crop is likely to fail. Hence sufficient irrigation has to be provided for successful summer banana cultivation. Whenever irrigation is not assured, the farmers perceive higher risk in banana cultivation.

Perception about risk in banana cultivation was significantly and negatively associated with self reliance. Self reliance by definition is the way in which one relies upon himself in all his activities and actions. A farmer who is self reliant is likely to develop a behavioural orientation in which he views the society in a different angle than other farmers. Viewed in this perspective, a self reliant person is likely to perceive only less risk in banana cultivation.

Production orientation was found to have significant negative relationship with perception about risk. Production orientation refers to the degree to which a farmer is oriented towards scientific farm management through adoption of scientific practices for increased production. As the ultimate aim of every farmer is to produce maximum potential possible, the orientation towards this function becomes most important. Whenever a farmer adopts all the recommended practices of scientific banana cultivation, he is likely to

incur less yield risk, which may shape his perception accordingly.

Jodha (1977) reported that investment in agriculture is risky in terms of yield and price risk. Whenever credit facilities are available to the farmers, it will act as a sufficient risk reducing measure leading to low perception about risk in banana cultivation. If sufficient credit is not made available at the right time, their perception about risk in banana cultivation is likely to increase. A farmer who perceives high risk in banana cultivation may not be ready to cultivate this crop. This might be the reason for the positive relationship between perception about risk in banana cultivation and credit orientation.

Anderson (1977) featured the relationship of perception about risk associated with new technologies with pre-experiences that differ systematically in a number of previous droughts and other extremes encountered in the case of farmers of Semi-arid Tropics. Thus increase in age conditions the farmer to perceive the risks in banana cultivation in a more natural way.

The significant relationship between the dependent and independent variables is presented in the empirical diagram (Fig.11).

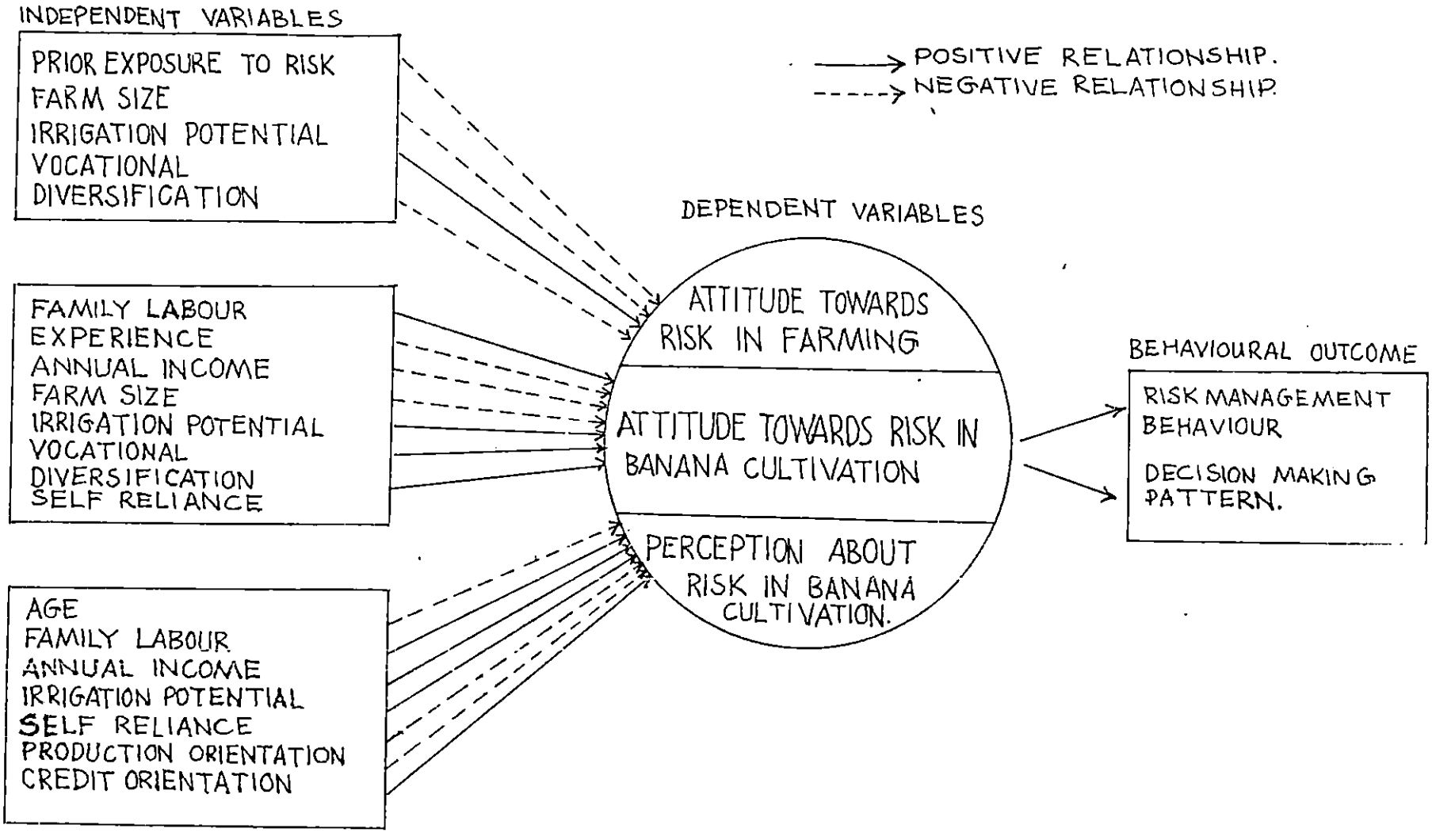

FIG. II. EMPIRICAL DIAGRAM SHOWING THE SIGNIFICANT RELATIONSHIP BETWEEN THE DEPENDENT AND INDEPENDENT VARIABLES

7. Inter-relationship among independent variables

The inter-correlation among independent variables is presented in Table 13. Based on the results in Table 13, relative importance of each independent variable is noted and presented in Table 14.

It was observed from Table 14 that self reliance, achievement motivation and production orientation were related with maximum number of other variables which indicated the importance of these variables. The next important variables in the order of importance were family labour and extension orientation.

Cropping intensity and irrigation potential indicated significant relationship with only one among the 18 independent variables. Hence, these variables were considered less important when inter-relationship among the independent variables were considered.

8. Relative importance of selected independent variables in explaining the variation in the dependent variables

8.1 Relative importance of selected independent variables in explaining the variation in the attitude of farmers towards risk in farming

The results of multiple regression analysis of

Table 13. Correlation matrix showing the interrelationship among independent variables

	x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}	x_{15}	x_{16}	x_a	x_b	x_c	x_{17}	x_{18}
x_1	1.000																				
x_2	-0.4181	1.000																			
x_3	-0.2945	0.0120	1.000																		
x_4	0.6658	-0.4364	-0.1903	1.000																	
x_5	-0.0665	0.0220	0.0467	-0.1246	1.000																
x_6	0.1429	-0.0391	-0.1023	-0.0598	0.1214	1.000															
x_7	0.0313	-0.0909	0.0236	-0.0076	0.0701	0.7933	1.000														
x_8	0.0023	0.0677	-0.1769	0.0156	0.0456	0.0639	-0.0054	1.000													
x_9	0.0494	-0.0887	0.1173	0.1420	-0.1883	-0.1261	-0.1357	-0.1385	1.000												
x_{10}	-0.1205	0.0729	0.1106	-0.1559	0.8427	0.0586	-0.0068	0.0193	-0.1462	1.000											
x_{11}	-0.1239	0.1539	0.0711	-0.0125	-0.0807	0.1732	0.1486	0.0521	0.0096	-0.0227	1.000										
x_{12}	0.0817	0.2819	-0.1016	-0.0046	-0.0592	0.1158	0.0550	0.0642	-0.1416	0.0196	0.2021	1.000									
x_{13}	-0.0246	0.0731	0.1046	-0.1136	0.1271	0.1300	0.1096	0.0598	0.1446	0.0792	0.2200	0.1829	1.000								
x_{14}	-0.1982	0.1051	0.1720	-0.2227	-0.0015	0.1185	0.0496	0.0487	0.0641	0.0603	0.2042	0.2195	0.4155	1.000							
x_{15}	-0.1975	0.0987	0.1737	-0.0482	0.1661	0.1399	0.1836	0.0376	-0.0520	0.1706	0.1253	0.1527	0.1962	0.2855	1.000						
x_a	-0.0057	-0.0186	-0.0060	-0.0188	-0.4797	-0.0610	0.0668	0.0593	0.0342	-0.4860	0.2492	0.1060	0.0492	0.0101	-0.0481	1.000					
x_b	-0.0968	0.0686	0.1219	-0.1844	0.1977	0.2230	0.2487	-0.0056	0.0575	0.1505	0.0249	-0.0808	0.0647	0.0912	0.2714	0.4406	1.000				
x_c	-0.0246	0.1552	0.0319	-0.0508	0.0010	-0.0859	-0.1557	0.0280	0.0190	-0.0251	-0.0522	0.1164	-0.0641	0.0197	-0.0140	0.3344	-0.2048	1.000			
x_{16}	-0.1057	0.1175	0.0668	-0.1038	-0.5060	0.0133	0.0802	0.0423	0.0994	-0.5183	0.1563	0.0710	-0.0167	0.0593	0.0826	0.5411	-0.1304	-0.0959	1.000		
x_{17}	-0.1950	-0.0144	0.2128	-0.2495	0.0871	0.0658	0.1048	0.0424	-0.1156	0.2420	0.0182	-0.1290	0.0946	0.1123	0.0911	0.0336	-0.0330	0.2507	-0.1209	1.000	
x_{18}	0.0625	0.0258	-0.0572	0.0238	-0.1605	0.0872	0.0967	0.0632	0.1184	-0.2255	0.3116	0.1874	0.3757	0.1876	0.1392	0.1868	0.2072	0.1196	-0.0825	0.0996	1.000

Table 14. Relative importance of each independent variable in relation to other independent variables

Variable No.	Name of variable	No. of variables with which significantly related		
		At 1% level	At 5% level	Total
x_1	Age	3	3	6
x_2	Education	3	-	3
x_3	Family labour	3	4	7
x_4	Experience	4	2	6
x_5	Prior exposure to risk	3	2	5
x_6	Annual income	2	1	3
x_7	Farm size	2	1	3
x_8	Cropping intensity	-	1	1
x_9	Irrigation potential	-	1	1
x_{10}	Vocational diversification	4	1	5
x_{11}	Social participation	3	3	6
x_{12}	Mass media exposure	4	2	6
x_{13}	Innovativeness	2	2	4
x_{14}	Self reliance	4	4	8
x_{15}	Achievement motivation	2	6	8
x_{16}	Management orientation	3	2	5
	a. Planning orientation	6	0	6
	b. Production orientation	6	2	8
	c. Marketing orientation	1	1	2
x_{17}	Credit orientation	4	1	5
x_{18}	Extension orientation	3	4	7

Table 15. Results of multiple regression analysis of attitude of farmers towards risk in farming with selected independent variables

Variable No.	Independent variable	Regression coefficient (b)	SE of (b)	't' value
x_1	Age	-0.053	0.035	1.514
x_2	Education	-0.183	0.279	0.655
x_3	Family labour	-1.163	0.818	1.422
x_4	Experience	0.038	0.034	0.115
x_5	Prior exposure to risk	-1.144	0.635	1.802
x_6	Annual income	0.000	0.000	0.299
x_7	Farm size	-0.004	0.008	0.551
x_8	Cropping intensity	0.076	0.012	1.330
x_9	Irrigation potential	0.375	0.091	4.126**
x_{10}	Vocational diversification	-0.001	0.607	0.002
x_{11}	Social participation	0.165	0.127	1.298
x_{12}	Mass media exposure	0.222	0.128	1.729
x_{13}	Innovativeness	0.362	0.297	1.220
x_{14}	Self reliance	0.171	0.462	0.329
x_{15}	Achievement motivation	-0.212	0.170	1.248
x_{16}	Management orientation	-1.446	0.116	1.725
	a. Planning orientation	1.236	1.236	1.253
	b. Production orientation	2.046	2.046	2.273*
	c. Marketing orientation	1.702	1.702	1.997*
x_{17}	Credit orientation	-0.037	0.118	0.312
x_{18}	Extension orientation	-0.076	0.109	0.721

* Significant at 5 per cent level of significance
** Significant at 1 per cent level of significance

R^2 = 0.302 F = 2.63**

attitude of farmers towards risk in farming with independent variables is furnished in Table 15.

The results revealed that only irrigation potential, production orientation and management orientation were significant in explaining the variation in attitude towards risk in farming. Irrigation potential was significant at 1 per cent level of probability whereas production orientation and marketing orientation were significant at 5 per cent level of probability. The coefficient of determination (R^2) was found to be 0.302 which indicated that the variation in attitude towards risk in farming could be explained to an extent of 30.2 per cent when all the 18 variables were put together, which was found to be significant at 0.01 level of probability (F=2.63) as could be observed from Table 16.

Table 16. Analysis of variance of attitude of farmers towards risk in farming with independent variables

Source of variation	df	Total sum of squares of original units	Mean sum of squares of original units	F
Total	149	2188.19		
Regression	21	660.39	31.45	2.63**
Residual	128	1527.01	11.94	

** Significant at 1 per cent level of significance

The relative importance of independent variables in predicting attitude of banana cultivators towards risk in farming is explained by the final step in the step-wise regression analysis, the results of which are furnished in Table 17.

Table 17. Step-wise regression analysis of attitude towards risk in farming with selected independent variables

Sl. No.	Independent variables included	R^2	F
1.	9, 12	0.1954	17.84**
2.	3, 9, 12	0.2077	12.76**
3.	3, 9, 12, 16(b)	0.2147	9.91**
4.	3, 9, 12, 16(a), 16(b)	0.2173	8.00**
5.	3, 9, 12, 16(a), 16(b),5	0.2211	6.76**
6.	All variables included	0.3020	2.63**

** Significant at 1 per cent level of significance

The data in Table 17 revealed that variation in attitude towards risk in farming to an extent of 19.54 per cent could be explained by the two variables namely irrigation potential (X_9) and mass media exposure (X_{12}). When family labour (X_3) was added, the per cent variation enhanced to 20.77 thereby contributing 1.23 per cent of variation. By the

addition of planning orientation and production orientation, the per cent variation was enhanced to 21.73. Along with these variables, when prior exposure to risk was added (X_5), the per cent variation in attitude towards risk enhanced to 22.11. The addition of all variables had resulted in explaining the variation to an extent of only 30.20 per cent.

Irrigation is accorded top-most priority by the farmer for all summer crops. Any variation or change in availability of water affects the yield of crops especially at peak seasons. The farmer who cultivates the summer banana with irrigation is always keen to get maximum returns. Once he is assured of irrigation, he will be ready to adopt the other scientific practices, so that he can get maximum yield. It is possible that he will be aware about the scientific cultivation practices of banana cultivation through newspapers, radio, television and other mass media. Such exposure to various mass media source might have influenced his attitude towards risk in banana cultivation to a great extent. Based on the arguments put forth, it is probable that irrigation potential and mass media exposure had emerged important explaining about two third of the variation caused by all the eighteen variables.

8.2 Relative importance of selected independent variables in explaining the variation of attitude of farmers towards risk in banana cultivation

Table 18 presents the analysis of variance at the final step of regression analysis of attitude of farmers towards risk in banana cultivation.

Table 18. Analysis of variance of attitude of farmers towards risk in banana cultivation and independent variables

Source of variation	df	Total sum of squares of original units	Mean sum of squares of original units	F
Total	149	159.17	--	
Regression	21	28.47	1.36	1.33^{NS}
Residual	128	130.70	1.02	

NS - Not significant

The ANOVA table revealed that 'F' was not significant. Hence multiple regression analysis was not done in the case of attitude of farmers towards risk in banana cultivation. In other words, it means that the independent variables did not contribute significantly towards the variation in the attitude of farmers in respect of risk in banana cultivation.

Table 19. Results of multiple regression analysis of perception of farmers about risk in banana cultivation with selected independent variables

Variable No.	Independent variable	Reg. Coff. (b)	SE of (b)	't' value
x_1	Age	-0.189	0.068	2.771**
x_2	Education	0.068	0.547	0.122
x_3	Family labour	5.073	1.601	3.169**
x_4	Experience	0.119	0.066	1.799
x_5	Prior exposure to risk	3.959	1.242	3.188**
x_6	Annual income	0.000	0.000	0.610
x_7	Farm size	0.012	0.016	0.786
x_8	Cropping intensity	0.011	0.028	0.474
x_9	Irrigation potential	0.263	0.178	0.481
x_{10}	Vocational diversification	-2.553	1.188	2.149*
x_{11}	Social participation	0.095	2.248	0.384
x_{12}	Mass media exposure	0.419	0.251	1.671
x_{13}	Innovativeness	-0.214	0.581	0.369
x_{14}	Self reliance	-2.112	0.905	2.334*
x_{15}	Achievement motivation	-0.885	0.333	2.656*
x_{16}	Management orientation	3.669	1.930	2.262*
	a. Planning orientation	-4.365	1.762	1.555
	b. Production orientation	-2.741	1.685	2.652*
	c. Marketing orientation	-4.469	1.641	2.236*
x_{17}	Credit orientation	0.438	2.232	1.89
x_{18}	Extension orientation	0.191	0.214	0.89

* Significant at 5 per cent level of significance
** Significant at 1 per cent level of significance
R^2 = 0.302 F = 2.63**

8.3 Relative importance of selected independent variables in explaining the variation in perception about risk in banana cultivation

The results of the multiple regression analysis of perception of farmers about risk in banana cultivation with selected independent variables is given in Table 19. The results revealed that age, family labour, prior exposure to risk and achievement motivation were significant at 1 per cent level of probability whereas vocational diversification, self reliance, planning, marketing and management orientation were significant at 5 per cent level of probability. The coefficient of determination (R^2) was found to be 0.330 which indicated that 33 per cent of the variation in perception about risk in banana cultivation could be explained by the 18 independent variables put together which was found to be significant at 0.01 level of probability (F=3.11) as revealed from Table 20.

Table 20. Analysis of variance of perception of farmers about risk in banana cultivation with independent variables

Source of variation	df	Total sum of squares of original units	Mean sum of squares of original units	F
Total	149	8843.49		
Regression	21	2990.16	142.39	3.11**
Residual	128	5853.34	45.72	

** Significant at 1 per cent level of significance

The relative importance of independent variables in predicting perception of banana cultivators about risk in banana cultivation was explained by the final step in the step-wise regression analysis, the results of which are furnished in Table 21.

Table 21. Step-wise regression analysis of perception about risk in banana cultivation with selected independent variables

Sl. No.	Independent variables included	R^2	F
1.	1, 3, 7, 14	0.1897	8.49**
2.	1, 3, 7, 14, 15	0.2106	7.68**
3.	1, 3, 7, 14, 15, 16(c)	0.2230	6.84**
4.	1, 3, 7, 14, 15, 16(c), 16	0.2326	6.15**
5.	All variables included	0.3300	3.11**

** Significant at 1 per cent level of significance

From the Table it was evident that the four variables namely age (X_1), family labour (X_3), farm size (X_7) and self reliance (X_{14}) contributed to 18.97 per cent of variation on perception about risk in banana cultivation. When one more variable namely achievement motivation (X_{15})was added, the extent of variation raised to 21.06 per cent. When all the

variables were included, the extent of variation was to the tune of only 33.00 per cent.

About two-third of the total variation including all variables was explained by the four variables namely age, family labour, farm size and self reliance. When age increases, experience increases which in turn affects the perception of farmers about risk in banana cultivation. As family labour contributes about three-fourth of the manual labour utilized in banana cultivation, it also assumes a very important role in contributing to the variation in perception about risk in banana cultivation. Increase in farm size consequently increases the risk bearing capacity of the banana farmer explaining the contribution of this variable. Finally, the self reliant nature of the banana cultivator which has a great role in influencing the perception about risk in banana cultivation is also likely to contribute very much to the variation in perception. Thus, all the four variables put together could explain about 19.00 per cent of the total variation in perception about risk.

9 Results of path analysis

9.1 Direct and indirect effect of the selected independent variables on attitude towards risk in farming

Table 22 presents the direct and indirect effect of

Table 22. Direct and indirect effect of selected independent variables on attitude towards risk in farming

Variable No.	Independent variable	Direct	Maximum indirect effect through		
			I	II	III
x_1	Age	-0.1452	x_4 0.0811	x_3 0.0335	x_{15} 0.0213
x_2	Education	-0.0330	x_1 0.0607	x_{12} 0.0456	x_9 -0.0348
x_3	Family labour	-0.1139	x_9 0.0460	x_1 0.0427	x_{15} -0.0232
x_4	Experience	0.1218	x_1 -0.0967	x_9 0.0557	x_3 0.0217
x_5	Prior exposure to risk	-0.0695	x_{10} 0.0827	x_9 -0.0739	x_{16} -0.0518
x_6	Annual income	0.0024	x_7 -0.0848	x_9 -0.0494	x_3 -0.0208
x_7	Farm size	-0.1132	x_9 -0.0532	x_{45} -0.0198	x_{11} 0.0093
x_8	Cropping intensity	0.0864	x_9 -0.0543	x_{15} 0.0201	x_{12} 0.0104

Contd.

Table 22 (Contd.)

			x_{12}	x_3	x_7
x_9	Irrigation potential	0.3922	-0.0229	0.0173	0.0154
			x_5	x_9	x_{16}
x_{10}	Vocational diversification	0.0981	-0.0586	-0.0573	-0.0530
			x_{12}	x_{11}	x_7
x_{11}	Social participation	0.0626	0.0327	0.0180	-0.0168
			x_9	x_{15}	x_{13}
x_{12}	Mass media exposure	0.1619	-0.0555	-0.0164	0.0137
			x_9	x_9	x_{14}
x_{13}	Innovativeness	0.0747	0.0567	0.0296	0.0247
			x_{12}	x_{13}	x_{15}
x_{14}	Self reliance	0.0595	0.0355	0.0310	-0.0308
			x_1	x_{12}	x_7
x_{15}	Achievement motivation	0.1077	0.0287	0.0247	0.0208
			x_{10}	x_9	x_5
x_{16}	Management orientation	0.1023	-0.0508	0.0390	0.0352
			x_9	x_{12}	x_{10}
x_{17}	Credit orientation	-0.0351	0.0453	0.0283	0.0237
			x_9	x_{12}	x_{13}
x_{18}	Extension orientation	0.0446	0.0464	0.0303	0.0281

the selected independent variables on attitude of banana farmers towards risk in farming. The matrix of direct and indirect effects of selected independent variables on attitude of farmers towards risk in farming is furnished as Appendix-II.

From the Table it was evident that irrigation potential had the highest direct effect on attitude towards risk in farming followed by mass media exposure. Maximum indirect effect was found due to irrigation potential followed by mass media exposure. Here it is evident that through the direct effect of other variables, irrigation potential had indirectly influenced the attitude towards risk in farming. All the direct and maximum indirect effects of independent variables on attitude towards risk in farming is shown in Fig.12.

The importance of irrigation for crops need not be emphasised again. A shortfall in availability of irrigation water is likely to affect the yield to a great extent. Hence this variable had indicated the maximum direct effect on the attitude of farmers towards farming as well as maximum indirect effect through other variables like family labour, farmsize, cropping, intensity, mass media exposure, innovativeness and credit orientation.

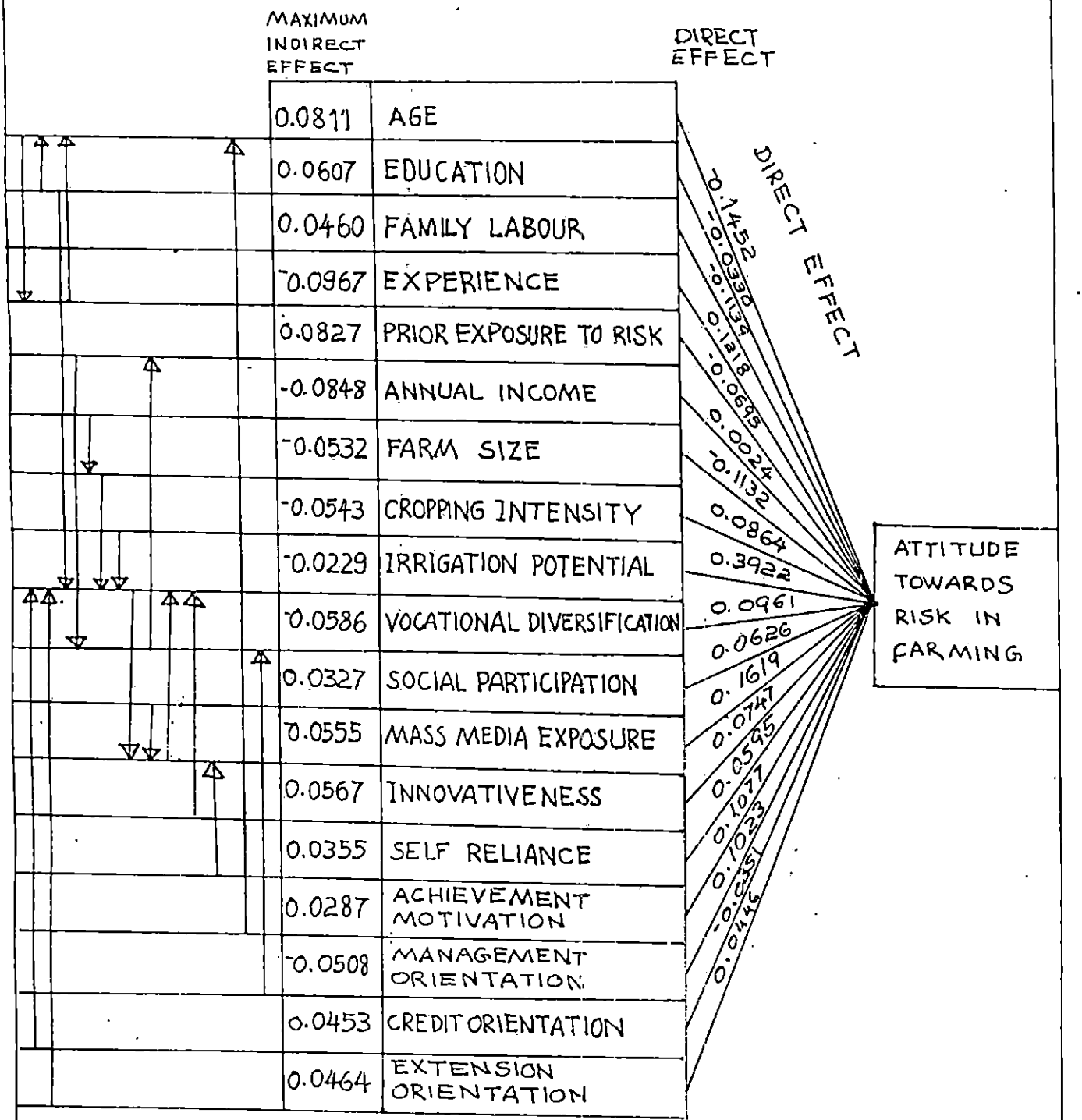

FIG. 12. PATH DIAGRAM SHOWING THE DIRECT AND INDIRECT EFFECT OF SELECTED INDEPENDENT VARIABLES ON ATTITUDE TOWARDS RISK IN FARMING.

9.2 Direct and indirect effect of the selected independent variables on attitude towards risk in banana cultivation

Table 23 presents the direct and indirect effect of the selected independent variables on attitude of farmers towards risk in banana cultivation. The matrix of direct and indirect effects of selected independent variables on attitude of farmers towards risk in banana cultivation is furnished in Appendix-III.

The highest direct effect as revealed from Table 23 was for annual income followed by vocational diversification and experience in banana cultivation. Maximum indirect effect on other variables was observed in the case of annual income followed by vocational diversification and experience in banana cultivation. These three variables thus emerged important as they influenced attitude towards risk in banana cultivation, both directly as well as indirectly (Fig.13).

As the aim of a banana cultivator is to get maximum returns from his crop, it is possible that annual income exhibited a direct as well as indirect effect through other independent variables on his attitude towards risk in farming. Vocational diversification ensures the availability of income, from diverse sources which inturn could explain the direct and indirect effect of this variable on attitude towards risk in

Table 23. Direct and indirect effect of selected independent variables on attitude towards risk in banana cultivation

Variable No.	Independent variable	Direct effect	Maximum indirect effect through		
			I	II	III
x_1	Age	0.1215	x_4 -0.1576	x_3 0.0537	x_6 -0.0489
x_2	Education	-0.0179	x_4 0.1033	x_1 -0.0508	x_{10} 0.0205
x_3	Family labour	-0.1826	x_4 0.0451	x_1 -0.0357	x_6 0.0350
x_4	Experience	0.2368	x_1 0.0809	x_{10} -0.0439	x_3 0.0342
x_5	Prior exposure to risk	-0.1518	x_{10} 0.2371	x_{16} -0.0666	x_6 0.0415
x_6	Annual income	-0.3421	x_7 0.0695	x_3 0.1870	x_5 -0.0184
x_7	Farm size	0.0876	x_6 -0.2714	x_{15} 0.0108	x_5 -0.0106
x_8	Cropping intensity	0.0220	x_3 0.0323	x_6 -0.0219	x_{14} 0.0070

Contd.

Table 23 (Contd.)

			x_{10}	x_4	x_5
x_9	Irrigation potential	-0.0077	-0.0411	-0.0336	0.0286
			x_5	x_{16}	x_4
x_{10}	Vocational diversification	0.1280	-0.1280	-0.0683	0.0369
			x_6	x_{14}	x_{16}
x_{11}	Social participation	0.0009	-0.0092	0.0292	0.0206
			x_6	x_{14}	x_3
x_{12}	Mass media exposure	-0.0360	-0.0396	0.0314	0.0186
			x_{14}	x_6	x_4
x_{13}	Innovativeness	0.0786	0.0594	-0.0445	0.0269
			x_4	x_6	x_{13}
x_{14}	Self reliance	0.1430	0.0527	-0.0406	0.0327
			x_{10}	x_6	x_{14}
x_{15}	Achievement motivation	0.0589	0.0480	-0.0476	0.0408
			x_{10}	x_5	x_4
x_{16}	Management orientation	0.1317	-0.1459	0.0768	0.0246
			x_{10}	x_3	x_1
x_{17}	Credit orientation	-0.0127	0.0681	-0.0389	-0.0237
			x_{10}	x_6	x_{13}
x_{18}	Extension orientation	-0.0346	-0.0635	-0.0298	0.0295

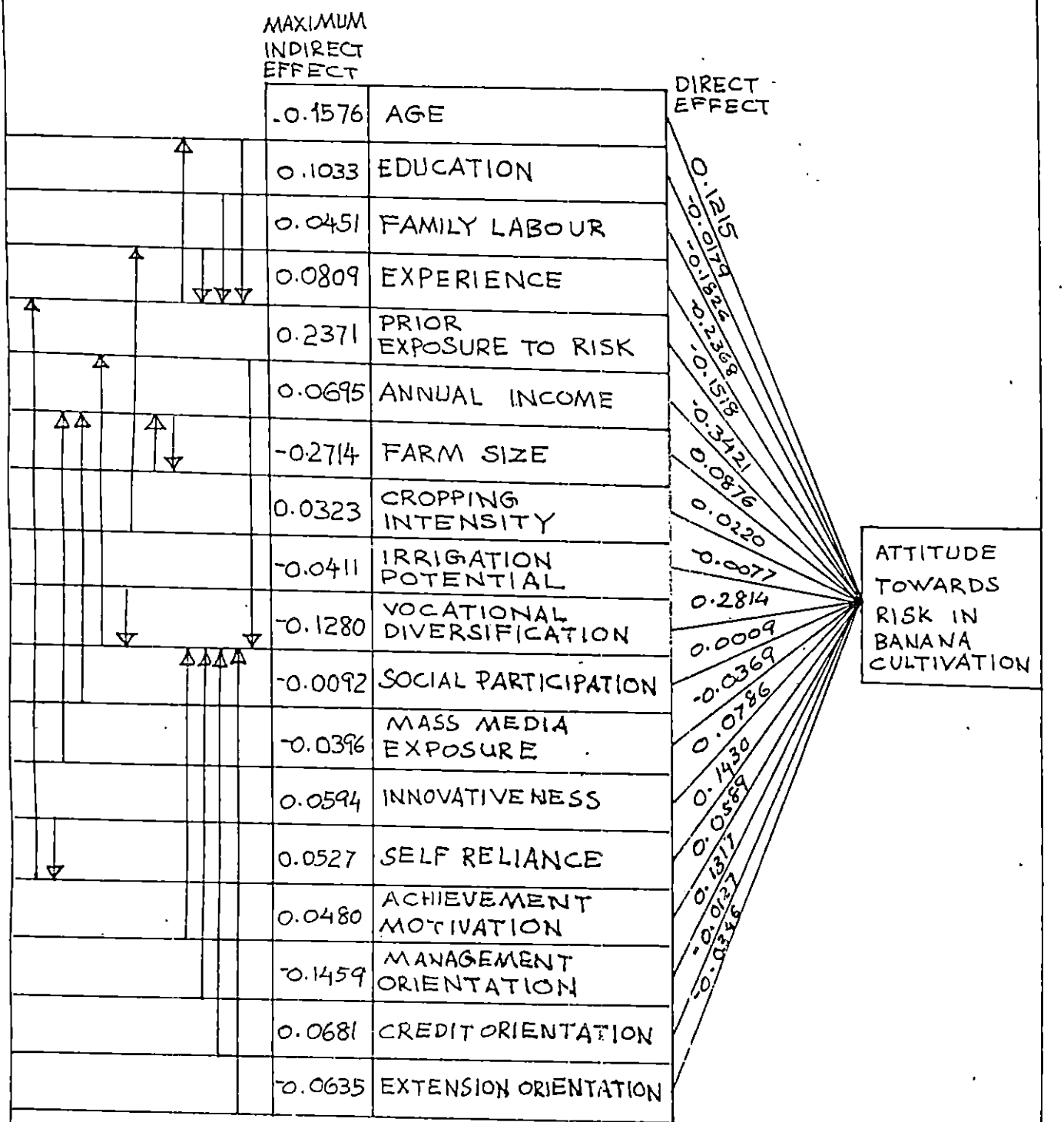

FIG.13. PATH DIAGRAM SHOWING THE DIRECT AND INDIRECT EFFECT OF SELECTED INDEPENDENT VARIABLES ON ATTITUDE TOWARDS RISK IN BANANA CULTIVATION.

banana cultivation. The experience acquired through many years of banana cultivation might have influenced directly and indirectly the attitude towards risk in banana cultivation.

9.3 Direct and indirect effects of the selected independent variables on perception of farmers about risk in farming

Table 24 presents the direct and indirect effects of selected independent variables on perception of farmers about risk in farming. The matrix of direct and indirect effects of selected independent variables on perception of farmers about banana cultivation is furnished in Appendix-IV.

Maximum direct effect on perception of farmers about risk in banana cultivation was due to vocational diversification followed by prior exposure to risk and age. Indirect effect was also found to be maximum due to these three variables. The direct and maximum indirect effect of these independent variable on perception about risk is evident from Fig.14.

As in the case of attitude towards risk in banana cultivation, the previous experience in banana cultivation might have forced a farmer to diversify his vocation. As age increases, experience also increases, and thus the aged farmer who is exposed to various risks in banana cultivation might

Table 24. Direct and indirect effect of selected independent variables on perception about risk in banana cultivation

Variable No.	Independent variable	Direct	Maximum indirect effect through		
			I	II	III
x_1	Age	-0.3203	x_4 0.1255	x_3 -0.0736	x_{10} 0.0518
x_2	Education	0.0070	x_1 0.1339	x_4 -0.0822	x_{10} -0.0712
x_3	Family labour	0.2501	x_1 0.0942	x_{10} -0.0475	x_{17} 0.0470
x_4	Experience	0.1885	x_1 -0.2132	x_{10} 0.0670	x_{17} -0.0551
x_5	Prior exposure to risk	0.3723	x_{10} -0.3622	x_{15} -0.0288	x_4 -0.0235
x_6	Annual income	0.0643	x_7 0.1386	x_1 -0.0458	x_5 0.0452
x_7	Farm size	0.1747	x_6 0.0510	x_{15} -0.0318	x_5 0.0261
x_8	Cropping intensity	0.0392	x_3 -0.0442	x_5 0.0170	x_9 -0.0153

Contd.

Table 24 (Contd.)

			x_5	x_{10}	x_4
x_9	Irrigation potential	0.1107	-0.0701	0.0628	0.0268
			x_5	x_{17}	x_1
x_{10}	Vocational diversification	-0.4298	0.3137	0.0534	0.0386
			x_{14}	x_1	x_5
x_{11}	Social participation	-0.0042	-0.0453	-0.0397	-0.0300
			x_{14}	x_{17}	x_5
x_{12}	Mass media exposure	0.0902	-0.0486	-0.0285	-0.0264
			x_{14}	x_5	x_{10}
x_{13}	Innovativeness	-0.0188	-0.0921	0.0473	-0.0341
			x_1	x_{15}	x_3
x_{14}	Self reliance	-0.2216	0.0635	-0.0494	0.0430
			x_{10}	x_{14}	x_1
x_{15}	Achievement motivation	-0.1731	-0.0733	-0.0633	0.0632
			x_{10}	x_5	x_1
x_{16}	Management orientation	-0.0175	0.2228	-0.1884	0.0338
			x_{10}	x_1	x_3
x_{17}	Credit orientation	0.2206	-0.1046	0.0624	0.0532
			x_{10}	x_5	x_{14}
x_{18}	Extension orientation	-0.0725	0.0969	-0.0672	-0.0416

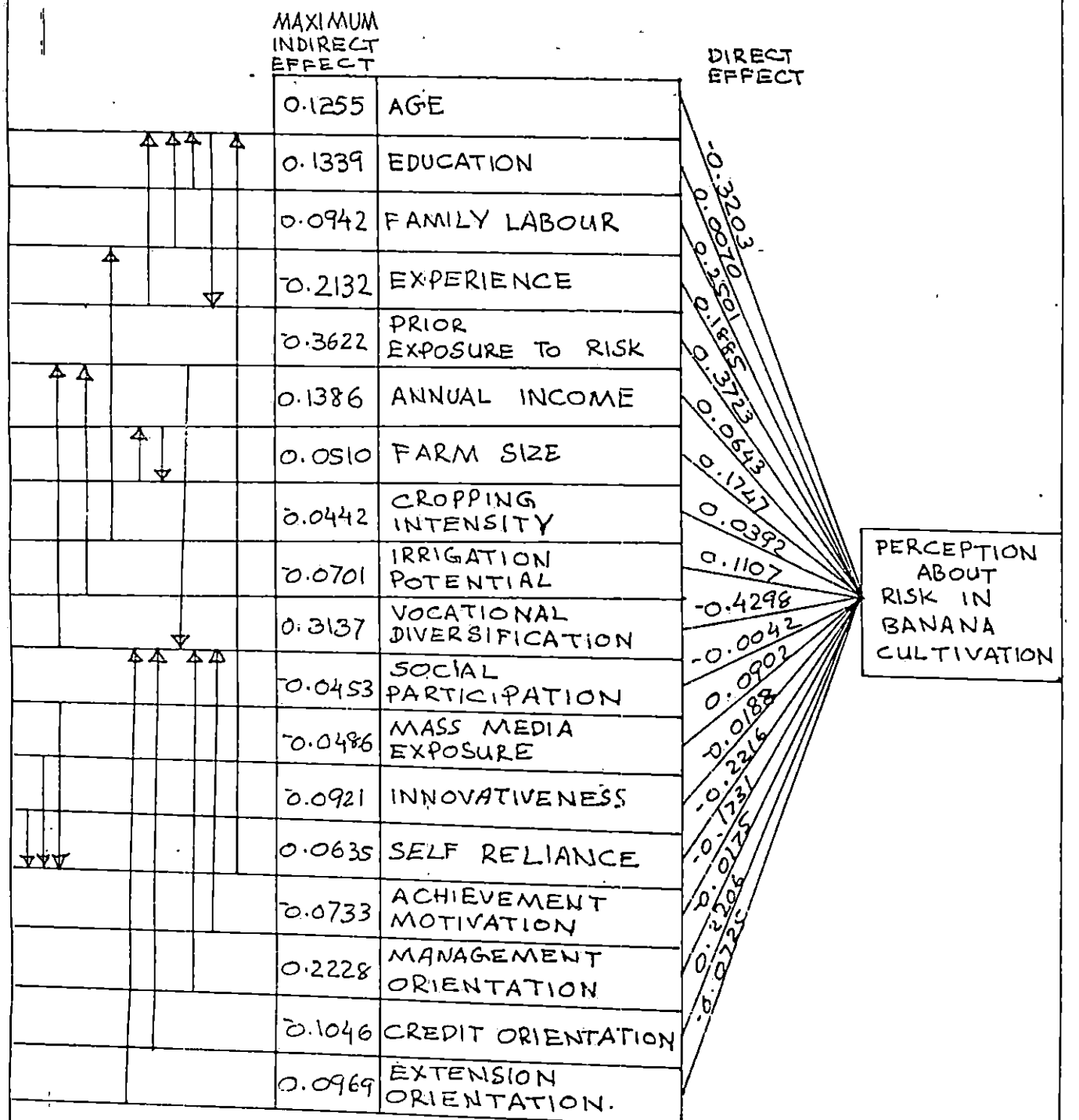

FIG.14. PATH DIAGRAM SHOWING THE DIRECT AND INDIRECT EFFECT OF SELECTED INDEPENDENT VARIABLES ON PERCEPTION ABOUT RISK IN BANANA CULTIVATION.

have a better perception about risk in banana cultivation. Thus directly and also indirectly, through other independent variables, vocational diversification, prior exposure to risk and age of the farmer might have influenced the perception about risk in banana cultivation.

Summary

CHAPTER V

SUMMARY AND CONCLUSION

Kerala has the largest acreage under banana in India and this crop occupies an important place in the economy of the state. When the growth rates of area and production during the last decade are considered, it becomes evident that the production did not commensurate to the increase in area under banana. One of the important reasons could be occurrence of various types of risks involved in banana cultivation right from planting to the final stage of marketing. Eventhough, income from banana cultivation is quite unstable, it is observed that the farmers do not give up its cultivation. Instead, they have developed certain approaches or practices and techniques of their own based on their experiences to combat the element of risk in banana cultivation to a very large extent. However, there are no research studies undertaken to analyse the nature of risk management behaviour of the banana farmers. Against this background, the present study was undertaken with the following specific objectives.

1. To analyse the attitude of banana cultivators towards risk in farming in general.

2. To analyse the attitude of cultivators towards risk in banana cultivation.

3. To analyse the perception of cultivators about risk in banana cultivation.

4. To study the extent of adoption of risk management practices in banana cultivation.

5. To study the decision making pattern of cultivators in relation to risk management practices in banana cultivation.

6. To identify the relationship of risk attitude and risk perception with personal, socio-economic and socio-psychological characteristics of the banana cultivators.

The study was conducted during 1992 in Ollukkara, Kodakara and Puzhakkal blocks of Thrissur Agricultural sub-division in Thrissur district, where summer banana cultivation is practiced on a large scale. Five panchayaths with maximum area under banana cultivation were selected for the study. Two panchayaths namely Puthur and Pananchery from Ollukkara block, two panchayaths namely Trikkur and Padukkad from Kodakara block and one panchayath namely Kaiparamba from Puzhakkal block were selected. Thirty farmers each from the first four panchayaths were selected at random to constitute a

sample of 120 respondents of summer banana cultivators. Thirty farmers who cultivated 'Kazhchakula' were purposively selected from Kaiparamba panchayath to form a sample of 'Kazhchakula' cultivators, thus making a total sample of 150 respondents.

The dependent variables in this study were attitude towards risk in farming, attitude towards risk in banana cultivation and perception about risk in banana cultivation. Adoption of risk management practices and decision making pattern of banana farmers were treated as behavioural outcomes. Age, education, availability of family labour, experience in banana cultivation and prior exposure to risk were the independent variables included under personal variables, whereas annual income, area under banana cultivation, cropping intensity, irrigation potential, and vocational diversification were included under socio-economic variables. The socio-psychological variables selected were social participation, mass media exposure, innovativeness, self reliance, achievement motivation, planning, production and marketing components (taken separately) of management orientation, credit orientation and extension orientation.

Attitude towards risk in farming was measured using the scale developed by Supe (1969). Attitude towards risk in

banana cultivation was measured using an arbitrary scale developed for the study.

Perception of farmers about the risk involved in various aspects of banana cultivation was measured in relation to 20 items along with their adoption and decision making pattern.

The independent variables were quantified using already existing scales or following established procedures.

The data were collected by conducting personal interview with the respondents using well structured and pre-tested schedule developed for the purpose. Percentage analysis, correlation analysis, step-wise regression analysis and path analysis were employed in analysing the data and interpreting results.

The salient findings of the study are:

1. Nearly half (49.17%) of summer banana cultivators and large majority (83.33%) of Kazhchakula cultivators had medium level of attitude towards risk in farming.

2. Nearly half (48.00%) of summer banana cultivators and large majority (76.67%) of Kazhchakula cultivators belonged to the medium category with respect to attitude towards risk in banana cultivation.

3. Majority of summer banana and Kazhchakula cultivators (66.67% and 63.33% respectively) had medium level of perception about risk in banana cultivation.

4. Adjustment of planting time was found to be adopted by a large majority (97.05%) of summer banana cultivators followed by need based application of plant protection chemicals (91.67%). Most (96.67%) of the Kazhchakula cultivators adopted selection of suckers and intercultural operations.

5. While large majority (90.00%) of summer banana cultivators adopted individual decision making for intercultural operations, all the Kazhchakula cultivators were found to take independent decisions for selection of sucker, application of fertilizers and manures as well as prophylactic application of plant protection chemicals. About half of the (49.17%) summer banana cultivators had taken joint decisions for utilization of transport facilities and large majority (89.17%) had taken group decisions for adoption of heavy rain control measures.

6. Irrigation potential recorded significant positive relation with attitude towards risk in farming. Prior exposure to risk, farm size and vocational diversification

had significant negative relation with attitude towards risk in farming in respect of all the banana cultivators.

7. Family labour, irrigation potential, vocational diversification and self reliance had significant positive relation with attitude towards risk in banana cultivation. Experience in banana cultivation, annual income and farm size indicated significant negative relation with attitude towards risk in banana cultivation.

8. Family labour, farm size, irrigation potential, production orientation and credit orientation recorded significant and positive relation with perception about risk in banana cultivation whereas age and self reliance had significant negative relation.

9. The results of multiple regression analysis indicated significant contribution of irrigation potential, production orientation and marketing orientation with respect to attitude towards risk in farming whereas stepwise regression analysis indicated that irrigation potential and mass media exposure contributed significantly to attitude towards risk in farming.

10. The results of multiple regression analysis indicated significant contribution of age, family labour, prior exposure to risk, vocational diversification, self

reliance, achievement motivation, planning orientation, marketing orientation and management orientation in respect of perception about risk in banana cultivation. The step-wise regression analysis indicated that age, family labour, farm size and self reliance contributed significantly to the perception about risk in farming.

11. The results of path analysis revealed that irrigation potential and mass media exposure had the highest direct and indirect effect on attitude towards risk in farming.

12. The results of path analysis brought out that vocational diversification and experience in banana cultivation had the maximum direct and indirect effects on attitude towards risk in banana cultivation.

13. The results of path analysis indicated that vocational diversification, prior exposure to risk and age had the highest direct and indirect effects on perception about risk in banana cultivation.

Implications of the study

From the study it emerged that risk management behaviour is of prime importance in banana cultivation. The factors contributing to high risk in banana cultivation are mainly scanty and ill-distributed rainfall, deficiency of high

potential inputs and non-adoption of appropriate scientific production technologies. The introduction of drought relief schemes and the schemes for providing better irrigation facilities to the farmers are some of the measures adopted by Government to reduce risk in cultivation.

Price risk is mainly due to tied up and forced sales within the villages by the farmer because of shortage of finance, storage facilities, improper market functioning and price manipulation by the middlemen especially at the time of harvest. It is necessary that credit facilities be improved and market functioning well organised, thereby reducing the role of middlemen to the minimum. The present system of crop insurance scheme which is limited to a few crops should be extended to much highly risk prone crop like banana also.

Suggestions for future research

It was noticed that many of the variables included in the present study could not explain significant relationship with dependent variables as revealed from correlation analysis, multiple regression analysis, stepwise regression analysis and path analysis. Hence it is suggested that a more comprehensive study may be undertaken including new and more relevant independent variables after conducting detailed pilot study.

The study was confined to five panchayaths and as such had not covered a cross section of banana cultivators in the State. A comprehensive study including farmers cultivating banana in different areas of the State may be undertaken to draw more reliable and valid generalisations.

The present study had considered risk management behaviour of banana cultivators only. But several variations in risk management behaviour exist among the farmers cultivating different crops. In order to make the study more objective, it would be more appropriate if risk management behaviour of farmers cultivating different crops are taken separately.

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Appendices

APPENDIX-I

RISK MANAGEMENT BEHAVIOUR OF BANANA GROWERS

Interview Schedule

Respondent No. :

Name of Block :

Name of Panchayath:

PART-I

1. Name of the respondent and address :

2. Age (in completed years) :

3. Educational status :

4. a. Farming experience (in years) :

   b. Experience in banana cultivation (in years) :

5. Family size: Adult Children

   a. Do family members engage in banana cultivation?

   Yes/No

   b. If yes, specify the activities in which they are engaged.

   c. No. of family members engaged in banana cultivation.

6. a. Farm size

Wet	Garden land	Total	Area under banana	
			Wet	Garden land

b. Whether the land under banana is owned/leased?

7. **Cropping intensity**

Land particulars	Single	Double	Triple	Total
Wet				
Garden land				
Total				

8. **Annual income** (in rupees)

On farm income	:	
Off farm income	:	
Total		

9. **Mass media exposure:**

Media	Frequency			
	Always (Daily)	Often (once in in week)	Sometimes (once in a month)	Never
a. How often do you watch TV?				
b. How often do you listen to radio?				

c. How often do you read/ listen to reading newspaper?

d. How often do you read farm magazines?

e. How often do you read other magazines and literature?

f. How often do you see films?

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10. Social participation

Sl. No.	Organisation	Nature of membership		Regularity in Attending activities		
		Member	Office bearer	Regularly	Occasionally	Never
1.	Panchayath committee					
2.	Co-operatives					
3.	Agricultural Development Committee					
4.	Group Management Committee					
5.	Block Development Committee					
6.	Rural Club					
7.	Farmers' Organisation					
8.	Others (Specify)					

11. Economic motivation

The new farming practices are taken up by a farmer so that he can increase his income. Below are given some statements. You may indicate your response to each statement by marking ' /' against the appropriate column.

Sl. No.	Statement	Response				
		SA	A	UD	DA	SDA
1.	A farmer should work towards larger yields and economic profits					
2.	The most successful farmer is one who makes more profit					
3.	A farmer should try any new farming ideas which may earn him more money					
4.	A farmer should grow cash crops to increase monetary profits in comparison to growing food crops for his consumption					
5.	A farmer must earn his living but most important thing in life cannot be defined in economic terms					
6.	A farmer should try any new farming ideas which may earn him more money					
7.	It is difficult for farmer's children to make good stand unless provides them with economic assistance					

12. Innovativeness

A. When will you prefer to adopt an improved agricultural practice?

Sl. No.	Statement	Response
1.	As soon as it is brought to my knowledge	Yes/No
2.	After I have seen other farmers tried it successfully in the farm	Yes/No
3.	I prefer to wait and take my own time	Yes/No

B There are 3 sets of statements. From each set, select two statements - One 'most agree' and another 'most disagree'.

1. a. I try to keep myself up-to-date with information on new farming practices, but that does not mean that I try out all new methods on my farm ( )

   b. I feel restless till I try out a new farm practice that I have heard about ( )

   c. They talk of many new farm practices these days, but who knows whether they are better than the old ones? ( )

2. a. From time to time I have heard of several new farm practices and I have tried out most of them in the last few years. ( )

   b. Usually I wait to see the results my neighbours obtain before I try out the new farm practice ( )

   c. Somehow I believe that the traditional ways of farming are the best ( )

3. a. I am cautious about trying a new practice ( )

b. After all our forefathers were wise in their farming practices and I do not see any reason for changing those old methods ( )

c. Often new farm practices are not successful. However, if they are promising, I would surely like to adopt them ( )

13. Self reliance

How much do you feel that your future depends on yourself?

Fully - 100%

75% - 99%

50% - 74%

25% - 49%

1% - 24%

14. Vocational diversification

a. Besides farming do you have any other source of income?

Yes/No

b. If yes, what is/are the source(s) of income. Please give the details

Source/ occupation	Specific feature, if any	Investment	Income	Year of starting	Extent of your involvement in the enterprise

15. Achievement motivation

Give your opinion about the following statements

	Statements	Response				
1.	Success brings relief of further determination and just pleasant feelings	SA	A	UD	DA	SDA
2.	How true it is to say that your efforts are directed towards avoiding failure?	Quite untrue	Not very true	Un sure	Fair-ly true	Quite true
3.	How often do you seek opportunity to excel?	Hardly ever	Sel-dom	About half the time	Freq-uent-ly	Nearly always
4.	Would you hesitate to undertake something that might lead to your failure?	Hardly ever	Sel-dom	About half the time	Freq-uent-ly	Nearly always
5.	In how many spheres do you think you will succeed in doing as well as you can?	Most/Many/Some/Few/Very few				

16. Irrigation facilities

A. Source of irrigation

Sl. No.	Source	Period of water availability			Area under irri-gation (ha)	Crop(s) irri-gated
		Through-out the year	Only during seasons	Irregular availabi-lity		
1.	Tank (Pond)					
2.	Well					
3.	Canal					
4.	River					
5.	Other (Specify)					

B. Methods of irrigation

1. Channel
2. Sprinkler
3. Drip
4. Pot

C. How often do you irrigate banana crop? (Specify)

17. Extension orientation

A. Extension contact

Sl. No.	Extension personnel	Frequency of contact		
		Often	Frequently	Never
1.	Agricultural Assistants			
2.	Village Extension Officers			
3.	Agricultural Officers			
4.	Block Development Officers			
5.	Assistant Director of Agriculture			
6.	Others (Specify)			

B. Extension participation

Sl.	Activities	Frequency of participation		
		Whenever	Sometimes	Never
1.	Meetings			
2.	Seminars			
3.	Exhibitions			
4.	Campaigns			
5.	Demonstrations			
6.	Farmers' Day			
7.	Film shows			
8.	Field Day			
9.	Trainings			
10.	Others (Specify)			

18. Credit orientation

A. State your opinion -

1. How do you feel that a farmer like you should borrow money for agricultural purpose?

   Very much needed / Needed / Undecided / Not needed / Not at all needed

2. What is your opinion about the procedures for getting the credit from the Co-operatives/Banks?

   Very easy / Easy / Moderately difficult / Difficult / Very difficult

3. For increasing farm production there is nothing wrong in taking credit from institutional sources. Do you agree?

   Strongly agree/Agree/Undecided/Disagree/Strongly disagree

B. Have you obtained any credit for agricultural operations?

Yes / No

If yes, mention the following details of borrowings?

Sl. No.	Source	Amount	Rate of interest	Period	Purpose of borrowings
1.	Money lenders				
2.	Neighbours/friends/ relatives				
3.	Co-operative Society				
4.	Nationalised Banks				
5.	Government sources				
6.	Others (Specify)				

19. Management orientation

Give your agreement or disagreement for the following items:

Sl. No.	Statements	Response	
		Agree	Disagree
	a. Planning orientation		
1.	Each year one should think afresh about the crop to the cultivated in each type of land		
2.	It is not necessary to make prior decision about the variety of crop to be cultivated		

Sl. No.	Statements	Response	
		Agree	Disagree
3.	The number of suckers, fertilisers, .P. chemicals needed for raising a crop should be assessed before cultivation		
4.	It is now necessary to think ahead of the cost involved in raising a crop		
5.	One need not consult any agricultural expert for planning		
6.	It is possible to increase the yield through farm production planning		
	b. Production orientation		
1.	Timely planting of a crop ensures good yield		
2.	One should use as much fertiliser as he likes		
3.	Determining the fertiliser dose by soil testing saves time		
4.	For timely weed control one can even use suitable herbicide		
5.	Spacing should be given as recommended by the specialists		
6.	With low water rates one should use as much irrigation water as possible		
	c. Marketing orientation		
1.	Market information is not so useful to a farmer		
2.	A farmer can get good price by grading his produce		

Sl. No.	Statements	Response	
		Agree	Disagree
3.	Processing facilities can help farmer to get better price for his produce		
4.	One should sell his produce to the nearest market irrespective of price		
5.	One should purchase his inputs from the shop where his relatives purchase		
6.	One should grow those crops which have market demand		

20 **Prior exposure to risk**

1. Were you exposed to any kind of risk in banana cultivation earlier?

Yes / No

2. If yes, give details

Year	Nature and extent of risk	Measures undertaken to overcome risk

PART - II

1. Attitude towards risk

a. Please indicate your degree of agreement for the following statements

Sl. No.	Statements	Response				
		SA	A	UD	DA	SDA
1.	A farmer should resort to multiple cropping to avoid greater risk involved in growing a single crop					
2.	A farmer should rather take more of a chance in making a big profit than to be satisfied with a similar but less risky profit					
3.	A farmer who is willing to take greater risks than the average farmer, usually does better financially					
4.	It is good for a farmer to take risks when he knows his chance of success is fairly high					
5.	It is better for a farmer not to try new farming unless most others have used them with success					
6.	Trying an entirely new practice in farming by a farmer involves risks, but it is worth					

b. Please indicate your opinion about the following statements:

1. Cultivation of banana is risky

Yes / No

2. Banana cultivation must be taken up by only those farmers who have other enterprises

Yes / No

3. Whenever I think of banana cultivation, I am worried about the risk

Yes / No

4. Cultivation of banana is like cultivation of any other crops in terms of risk

Yes / No

2. Risk perception

Please indicate your perception of risk in the following items related to the cultivation of banana.

Sl. No.	Items	Perception of risk				
		Most risky	Risky	Do not know	Less risky	Least risky
	A. Cultural practices					
1.	Adjustment of planting time					
2.	Selection of good quality disease-free sword suckers					
3.	Sucker treatment					
4.	Spacing and pit size					
5.	Application of fertilisers and manures					

Sl. No.	Items	Perception of risk				
		Most risky	Risky	Do not know	Less risky	Least risky
6.	Required irrigation for the crop					
7.	Intercultural operations					
8.	Incidence of pest and diseases					
9.	Application of plant protection chemicals					
	B. Support and services					
1.	Availability of technical advice					
2.	Availability of credit and other financial assistance					
3.	Availability of marketing services					
4.	Storage facilities					
5.	Transport facilities					
6.	Processing facilities					
7.	Crop insurance					
	C. Natural calamities					
1.	Drought					
2.	Flood					
3.	Heavy wind					
4.	Heavy rains					

3. **Adoption of risk reducing and risk diffusing measures:**

A. Risk reducing measures

1. Do you adjust planting time of sucker so that the emergence of bunches do not coincide with the peak summer period (March-April)?

Yes / No

If yes, give the following details:

Planting time	Bunch emergence time	Harvest time	How it reduces price risk

2. Do you always select disease-free sword suckers of 3-4 months old and 1.5 to 2 kg weight?

Yes / No

If yes, give the following details:

Source of sucker	Method of selection of suckers	How it reduces the production risk?

3. Do you treat your suckers before planting?

Yes / No

If yes, give the following details:

Treatment adopted	How it reduces cultivation risk?

4. Do you adopt the spacing recommended under package of practices?

Yes / No

If yes, give details

Spacing	Whether it affects cultivation risk? If so, how?

5. Do you adopt pit size recommended under package of practices?

Yes / No

If yes, give details:

Pit size	Whether it affects cultivation risk? If so, how?

6. Do you think, there is risk during the early stages of establishment?

Yes / No

If yes, give the following details:

Source	How it affects cultivation risk?
Pest	
Disease	
Wind	
External forces	

7. Do you use chemical fertilizers for your crop?

Yes / No

If yes, give the following details:

Name of fertilizer used	Qty.	Time of application			How the qty. and time of application reduces risk?
		Applied full as basal dose	Applied full as top dressing	Applied as different growth phases	

8. Do you use manures for your crop?

Yes / No

If yes, give the following details:

Name of manure	Qty.	Time of application			How the qty. and time of application reduces risk?
		Applied full as basal dose	Applied full as top dressing	Applied as different growth phases	

9. Do you adopt prophylactic P.P. measures?

Yes / No

If yes, specify the following:

Time of application	Prophylactic measure undertaken		If chemical		Purpose of application
	Mechanical	Chemical	Qty.	Method of application	

10. Do you follow timely intercultural operations?

Yes / No

If yes, specify the operation:

Type of operation	Time of operation	How it reduces risk?
1. Weeding		
2. Earthing up		
3. Mulching		
4. Propping		
5. Covering up the bunches with dry leaves and dry matter		
6. Removal of early suckers		

B. Risk diffusing measures:

1. Do you adopt timely plant protection measures?

Yes / No

If yes, specify the following

Disease/ pest notice	Control measures undertaken		If chemical			Extent of disease/ pest control achieved
	Mechanical	Chemical	Qty.	Time of application	Mode of application	

2. Do you cut and burn the diseased or pest attacked plant or plant parts?

Yes / No

If yes, why?

3. Do you insure your crop? Yes/No

If yes, give details:

Type of insurance	Period	Amount	Risk coverage

4. Is there any facility for storage? Yes / No

If yes, give details

Type of storing	Quantity stored	Risk coverage

5. a. Do you sell the produce in the farm itself?

Yes / No

b. If there any facility for marketing Yes / No

If yes, give details

Name of market	Distance to the market	Problems faced in marketing

c. Is there any facility for transportation?

Yes / No

Is yes, give details

Type of transport facility availability	Problems in transportation

6. Does the practice of presales before bunch maturation and harvest of the crops prevail in your area?

Yes / No

If yes, give the following details:

Type of sales	Stage of sales	Risk coverage

7. Do you grow other crops along with banana?

Yes / No

If yes, give the following details

Name of intercrop	Area cultivated	Duration of crop	Time of planting	Time of harvesting	Yield	Risk coverage

8. Do you reduce the quantity and number of irrigation, if there is scarcity in water?

Yes / No

If yes, give the following details

Normal irrigation		Reduced during scarcity		
Quantity	No. of irrigation	Quantity	No. of irrigation	Risk

9. Do you reduce the quantity of application of manures and fertilisers during adverse conditions?

Yes / No

If yes, give details

Normal		Reduced		Risk coverage
Quantity of fertiliser/ manure	No. of application	Quantity of fertiliser/ manures	No. of application	

10. In the event of occurrence of drought, would you try to save the crop?

Yes / No

If yes, give the following details

Type of practice	Extent of risk coverage

11. In the event of occurrence of flood, would you try to save the crop?

Yes / No

If yes, give the following details

Type of practice	Extent of risk coverage

12. In the event of occurrence of heavy wind, would you try to save the crop?

Yes / No

If yes, give the following details

Type of practice	Extent of risk coverage

13. In the event of occurrence of heavy rain, would you try to save the crop?

Yes / No

If yes, give the following details

Type of practice	Extent of risk coverage

C. Decision making pattern

Please indicate how you take decision in the case of following activities/operations

Sl. No.		Individual decision making (single)	Joint decision making	Group decision making
1.	Planting time			
2.	Planting material			
3.	Sucker treatment			
4.	Spacing and pit size			
5.	Fertiliser and manures application			
6.	Irrigation			
7.	Application of plant protection manures			
8.	Intercultural operations			
9.	Technical advice			
10.	Credit and financial assistance			
11.	Crop insurance			
12.	Storage			
13.	Processing			
14.	Intercropping			
15.	Transportation			
16.	Marketing			
17.	Overcoming drought			
18.	Overcoming flood			
19.	Overcoming heavy wind			
20.	Overcoming heavy rains			

Appendix II

Matrix of direct and indirect effects of selected independent variables on attitude of farmers towards risk in farming

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	-0.1452	0.0138	0.0335	0.0811	0.0046	0.0003	-0.0035	0.0002	-0.0194	-0.0118	-0.0078	0.0132	-0.0018	-0.0118	0.0213	-0.0108	0.0068	-0.0028
2	0.0607	-0.0330	-0.0014	-0.0531	-0.0015	-0.0001	0.0103	0.0059	-0.0348	0.0071	0.0096	0.0456	0.0055	0.0062	-0.0106	0.0120	0.0005	-0.0011
3	0.0427	-0.0004	-0.1139	-0.0232	-0.0032	-0.0002	-0.0027	-0.0153	0.0460	0.0108	-0.0045	-0.0165	0.0078	0.0102	-0.0187	0.0068	-0.0075	0.0025
4	-0.0967	0.0144	0.0217	0.1218	0.0087	-0.0001	0.0009	0.0013	0.0557	-0.0153	-0.0008	-0.0007	-0.0085	-0.0132	0.0052	-0.0106	0.0087	-0.0011
5	0.0097	-0.0007	-0.0053	-0.0152	-0.0695	0.0003	-0.0079	0.0039	-0.0739	0.0827	-0.0051	-0.0096	0.0095	-0.0001	-0.0179	-0.0518	-0.0031	0.0080
6	-0.0208	0.0013	0.0116	-0.0073	-0.0084	0.0024	-0.0898	0.0055	-0.0494	0.0058	0.0108	0.0187	0.0097	0.0070	-0.0151	0.0014	-0.0023	-0.0039
7	-0.0047	0.0030	0.0027	-0.0009	-0.0049	0.0019	-0.1132	-0.0003	-0.0532	-0.0007	0.0093	0.0089	0.0082	0.0029	-0.198	0.0082	-0.0037	-0.0043
8	-0.0003	-0.0022	0.0201	0.0019	-0.0032	0.0002	0.0006	0.0864	-0.0543	0.0019	0.0033	0.0104	0.0045	0.0029	-0.0041	0.0043	-0.0015	-0.0028
9	-0.0072	0.0029	0.0134	-0.0173	0.0131	-0.0003	0.0154	-0.0120	0.3922	-0.0143	0.0006	-0.0229	0.0108	0.0038	0.0056	0.0102	0.0041	-0.0053
10	0.0175	0.0024	-0.0126	-0.0190	-0.0190	-0.0580	0.0001	0.0008	0.0017	-0.0573	0.0981	-0.0032	0.0059	0.0036	-0.0184	-0.0530	-0.0085	0.0101
11	0.0180	-0.0051	0.0081	-0.0015	0.0056	0.0004	-0.0168	0.0045	0.0038	-0.0022	0.0626	0.0327	0.0164	0.0121	-0.0135	0.0160	-0.0006	-0.0139
12	-0.0119	-0.0093	0.0116	-0.0006	0.0041	0.0003	-0.0062	0.0055	-0.0555	0.0019	0.0127	0.1619	0.0137	0.0131	-0.0164	0.0073	0.0045	-0.0084
13	0.0036	-0.0024	-0.0119	-0.0138	-0.0088	0.0003	-0.0124	0.0052	0.0078	0.0078	0.0138	0.0296	0.0747	0.0247	-0.0211	-0.0017	-0.0033	-0.0168
14	0.0288	-0.0035	-0.0196	-0.0271	0.0001	0.0003	-0.0056	0.0042	0.0251	0.0059	0.0128	0.0355	0.0310	0.0595	-0.0308	0.0061	-0.0039	-0.0084
15	0.0287	-0.0033	-0.0198	-0.0059	0.0001	0.0003	-0.0208	0.0032	-0.0204	0.0167	0.0078	0.0247	0.0147	0.0170	-0.1077	0.0661	-0.0032	-0.0062
16	0.0153	-0.0039	-0.0076	-0.0126	0.0352	0.0000	-0.0091	0.0037	0.0390	-0.0508	0.0098	0.0115	-0.0012	0.0035	-0.0089	0.1023	-0.0012	-0.0083
17	0.0283	0.0005	-0.0242	-0.0204	-0.0061	0.0002	-0.0119	0.0037	-0.0453	0.0237	0.0011	-0.0209	0.0071	0.0067	-0.0098	0.0034	-0.0351	-0.0044
18	-0.0091	-0.0008	0.0065	0.0029	0.0125	0.0002	-0.0110	0.0055	0.0464	-0.0221	0.0195	0.0303	0.280	0.0112	-0.0150	0.0191	-0.0035	-0.0446

Residual - 0.7325

Appendix III

Matrix of direct and indirect effects of selected independent variables on attitude of farmers towards risk in banana cultivation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	0.1215	0.0075	0.0537	-0.1576	0.0101	-0.0489	0.0027	0.0001	-0.0004	-0.0339	-0.0001	-0.0029	-0.0019	-0.0284	-0.0116	-0.0139	0.0025	-0.0022
2	-0.0508	-0.0179	-0.0022	0.1033	-0.0033	0.0134	-0.0080	0.0015	0.0007	0.0205	0.0001	-0.0101	0.0058	0.0150	0.0058	0.0155	0.0002	-0.0009
3	-0.0357	-0.0002	-0.1826	0.0451	-0.0071	0.0350	0.0021	-0.0039	-0.0009	0.0311	-0.0001	0.0037	0.0082	0.0246	0.0102	0.0088	-0.0027	0.0020
4	0.0809	0.0078	0.0347	-0.2368	0.0189	0.0205	-0.0007	0.0003	-0.0011	-0.0439	0.0000	0.0002	-0.0089	-0.0318	-0.0028	-0.0137	0.0032	-0.0008
5	-0.0081	-0.0004	-0.0085	0.0295	-0.1518	0.0415	0.0061	0.0010	0.0015	0.2371	0.0001	0.0021	0.0100	-0.0002	0.0098	-0.0666	-0.0011	0.0062
6	0.0174	0.0007	0.0187	0.0142	-0.0184	-0.3421	0.0695	0.0014	0.0010	0.0165	0.0003	-0.0042	0.0102	0.0170	0.0082	0.0018	-0.0008	-0.0030
7	0.0038	0.0016	-0.0043	0.0018	-0.0106	-0.2714	0.0876	-0.0001	0.0010	-0.0019	0.0001	-0.0020	0.0086	0.0071	0.0108	0.0106	-0.0013	-0.0033
8	0.0003	-0.0012	0.0323	-0.0037	-0.0069	-0.0219	-0.0005	0.0220	0.0011	0.0054	0.0000	-0.0023	0.0047	0.0070	0.0022	0.0056	-0.0005	-0.0022
9	0.0060	0.0016	-0.0214	-0.0336	0.0286	0.0431	-0.0119	-0.0031	-0.0077	-0.0411	0.0000	0.0051	0.0114	0.0092	-0.0031	0.0131	0.0015	-0.0041
10	-0.0146	-0.0013	-0.0202	0.0369	-0.1280	-0.0201	-0.0006	0.0004	0.0011	0.2814	0.0000	-0.0007	0.0062	0.0086	0.0100	-0.0683	-0.0031	0.0078
11	-0.0151	-0.0028	0.0130	0.0030	0.0122	-0.0592	0.0130	0.0011	-0.0001	-0.0064	0.0009	-0.0073	0.0173	0.0292	0.0074	0.0206	-0.0002	-0.0108
12	0.0099	-0.0050	0.0186	0.0011	0.0090	-0.0396	0.0048	0.0014	0.0011	0.0055	0.0002	-0.0360	0.0144	0.0314	0.0090	0.0093	0.0016	-0.0065
13	-0.000	-0.0013	-0.0191	0.0269	-0.0193	-0.0445	0.0096	0.0013	0.0011	0.0223	0.0002	-0.0066	0.0786	0.0594	0.0116	-0.0022	-0.0012	-0.0130
14	-0.0241	-0.0019	-0.0314	0.0527	0.0002	-0.0406	0.0043	0.0011	-0.0005	0.0170	0.0002	-0.0079	0.0327	0.1430	0.0168	0.0078	-0.0014	-0.0065
15	-0.0240	-0.0018	-0.0317	0.0114	-0.0252	-0.0479	0.0161	0.0008	0.0004	0.0480	0.0001	-0.0055	0.0154	0.0408	0.0589	0.0109	-0.0012	-0.0048
16	-0.0128	-0.0021	-0.0122	0.0246	0.0768	-0.0046	0.0070	0.0009	-0.0008	-0.1459	0.0001	-0.0026	-0.0013	0.0085	0.0049	0.1317	-0.0004	0.0065
17	-0.0237	0.0003	-0.0389	0.0591	-0.0132	-0.0225	0.0092	0.0009	0.0009	0.0681	0.0000	0.0046	0.0074	0.0161	0.0054	0.0044	-0.0127	-0.0034
18	0.0076	-0.0005	0.0104	-0.0056	0.0274	-0.0298	0.0085	0.0014	-0.0004	-0.0635	0.0003	-0.0067	0.0295	0.0268	0.0082	0.0246	-0.0013	-0.0346

Residual - 0.8448

Appendix IV

Matrix of direct and indirect effects of selected independent variables on perception about risk in banana cultivation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	-0.3203	-0.0029	-0.0736	0.1255	-0.0247	0.0092	0.0055	0.0001	0.0055	0.0518	0.0005	0.0070	0.0005	0.0439	0.0342	0.0018	-0.0430	-0.0045
2	0.1339	0.0070	0.0030	-0.0822	0.0082	-0.0025	-0.0159	0.0027	-0.0098	-0.0313	-0.0060	0.0254	-0.0014	-0.0233	-0.0171	-0.0021	-0.0032	-0.0019
3	0.0942	0.0001	-0.2501	-0.0359	0.0174	-0.0066	0.0041	-0.0069	0.0130	-0.0475	0.0003	-0.0092	-0.0020	-0.0381	-0.0301	0.0012	0.0470	0.0041
4	-0.2132	-0.0031	-0.0476	0.1885	-0.0464	-0.0038	-0.0013	0.0006	0.0157	0.0670	0.0001	-0.0004	0.0021	0.0494	0.0083	0.0018	-0.0551	-0.0017
5	0.0213	0.0002	0.0117	-0.0235	0.3723	0.0078	0.0122	0.0018	-0.0209	-0.3622	0.0003	-0.0053	-0.0024	0.0003	-0.0288	0.0089	0.0192	0.0131
6	-0.0458	-0.0003	-0.0256	-0.0013	0.0170	0.0643	0.1386	0.0025	-0.0140	-0.0083	-0.0007	0.0104	-0.0011	-0.0108	-0.0065	-0.0007	0.0093	-0.0046
7	0.0100	-0.0006	0.0059	-0.0014	0.0261	0.0510	0.1747	-0.0002	-0.0150	0.0029	-0.0000	0.0050	-0.0021	-0.0110	-0.0318	-0.0018	0.0231	-0.0070
8	-0.0007	0.0005	-0.0442	0.0029	0.0170	0.0041	-0.0009	0.0392	-0.0153	-0.0083	-0.0002	0.0058	-0.0011	-0.0108	-0.0065	-0.0007	0.0093	-0.0046
9	0.0158	-0.0006	0.0293	0.0268	-0.0401	-0.0081	-0.0237	-0.0054	0.1107	0.0628	0.0000	-0.0128	-0.0027	-0.0144	0.0090	-0.0017	-0.0255	-0.0086
10	0.0386	0.0005	0.0276	-0.0294	0.3137	0.0038	-0.0012	0.0008	-0.0162	-0.4298	0.0001	0.0018	-0.0015	-0.0134	-0.0295	0.0091	0.0534	-0.0163
11	-0.0397	0.0011	-0.0178	-0.0024	-0.0300	0.0111	0.0260	0.0020	0.0011	0.0097	-0.0042	0.0182	-0.0041	-0.0453	-0.0217	-0.0027	0.0040	-0.0226
12	-0.0262	0.0020	-0.0254	0.0009	0.0452	0.0079	0.0096	0.0025	-0.0157	-0.0254	-0.0008	0.0902	-0.0034	-0.0486	-0.0264	-0.0002	0.0145	-0.0063
13	0.0079	0.0005	0.0298	-0.0214	0.0473	0.0084	0.0191	0.0023	0.0160	-0.0341	-0.0009	0.0165	-0.0188	-0.0921	-0.0340	0.0003	0.0202	-0.0272
14	0.0635	0.0007	0.0262	-0.0420	-0.0006	0.0076	0.0087	0.0019	0.0071	-0.0259	-0.0009	0.0198	-0.0078	-0.2216	-0.0494	-0.0010	0.0248	-0.0136
15	0.0632	0.0007	0.0430	-0.0091	0.0618	0.0090	0.0321	0.0015	-0.0058	-0.0733	-0.0005	0.0138	-0.0037	-0.0633	-0.1731	-0.0014	0.0201	-0.0101
16	0.0338	0.0008	0.0167	-0.0196	-0.1884	0.0009	0.0140	0.0017	0.0110	0.2228	-0.0007	0.0064	0.0003	-0.0131	-0.0143	-0.0175	0.0074	-0.0135
17	0.0624	-0.0001	0.0532	-0.0470	0.0324	0.0042	0.0183	0.0017	-0.0128	-0.1046	-0.0001	-0.0116	-0.0018	-0.0249	-0.0158	-0.0006	0.0206	-0.0072
18	-0.0200	0.0002	-0.0143	0.0045	-0.0672	0.0056	0.0169	0.0025	0.0131	0.0969	-0.0013	0.0169	-0.0071	-0.0416	-0.0241	-0.0033	0.0220	-0.0725

ABSTRACT

The study was undertaken in selected give panchayaths of Thrissur district, to analyse the extent of risk management behaviour of banana growers in relation to their attitude and perception about risk in banana cultivation. The respondents selected for the study included both summer banana cultivators (n=120) and Kazhchakula cultivators (n=30).

The study revealed that majority of summer banana cultivators as well as Kazhchakula cultivators belonged to medium category in their distribution based on attitude towards risk in banana cultivation and perception about risk in banana cultivation. In the case of summer banana, majority of the farmers were found to adopt the adjustment of planting time while all the Kazhchakula cultivators had adopted the recommended irrigation schedule. It was found that the summer banana cultivators had resorted to individual decision making mostly in the case of intercultural operations while group decision making was observed in the case of flood control measures and heavy rain control measures and for utilizing transport facilities about half of the farmers were taken joint decisions. However almost all practices adopted by the farmers for cultivation of Kazhchakula were based on individual decisions.

Among the selected independent variables prior exposure to risk, farm size, vocational diversification and irrigation potential were found significant in predicting the maximum variation in attitude towards risk in farming. While family labour, irrigation potential, vocational diversification, self reliance, experience in banana cultivation, annual income and farm size were important in predicting attitude towards risk in banana cultivation. Irrigation potential, credit orientation as well as self reliance were found significant in predicting the perception about risk in banana cultivation.

The highest direct and indirect effect on attitude towards risk in farming was due to irrigation potential and man media exposure. Vocational diversification and experience in banana cultivation had the maximum direct and indirect effects on attitude towards risk in banana cultivation. When perception about risk in banana cultivation was analysed, vocational diversification, prior exposure to risk and age had the highest direct and indirect effects.