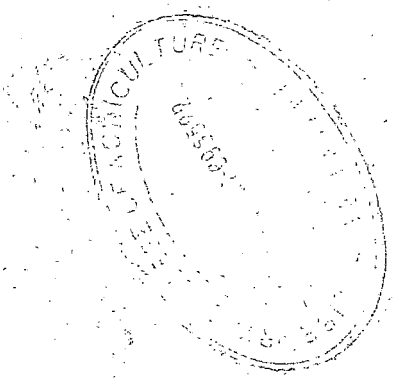
A STUDY ON THE IMPACT OF NATIONAL DEMONSTRATION PROGRAMME ON PADDY CULTIVATION IN TRICHUR DISTRICT

BY
M. KAMARUDEEN



THESIS
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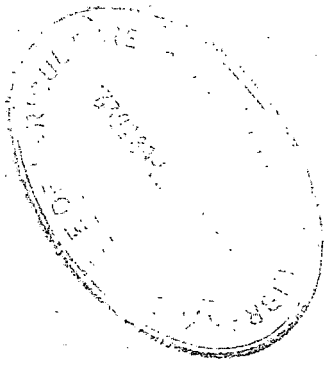
DECLARATION

I hereby declare that this thesis entitled "A study on the impact of National Demonstration Programme on paddy cultivation in Trichur District" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associateship, fellowship, or other similar title, of any other University or Society.

(M. KAMARUDEEN)

Vellayani,
12th October, 1981.



CERTIFICATE

Certified that this thesis, entitled "A study on the impact of National Demonstration Programme on paddy cultivation in Trichur District" is a record of research work done independently by Shri. Kamarudeen, M., under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associateship to him.

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12th October, 1981.

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(M.KAMAHUDEEN)

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CHAPTER I

INTRODUCTION

The rapid development of agriculture is vital to developing India. Best use of available land with latest and intensive methods of crop husbandry is inevitable for the country. Although sophisticated technologies are available in the field of agriculture, the per hectare yield of crops grown in the country are still far below the standard of other countries in the world. The main reason is the failure in the proper transfer of technology from research to adoption.

In the process of the transfer of technology, extension education methods have to play the major role. Demonstrations educate and convince the farmers about the advantages of new technology, since it involves observing, learning by doing and experiencing. A successful demonstration brings about desirable changes in the behaviour of farmers, persuading them towards adopting the improved methods in farming.

Since 1903, result demonstration has been one of the powerful means of teaching improved techniques, when Dr. Seaman A. Knapp realised the importance through his

demonstration on "cotton boll weevil control" near Terrel in Texas. The success of this led to the establishment of Co-operative Extension Service in America. Demonstrations were started in 1928 for educating farmers in India, when the Royal Commission of Agriculture first drafted 'Ocular Demonstration'. But this has undergone a series of changes in its theory and nature of execution. In 1964-65, with the introduction of high yielding varieties, the result demonstrations became the most important channel for the spreading of knowledge on high yielding varieties amongst farmers through 'National Demonstration Programme'. The basic responsibility for technical direction and guidance for demonstration rested with research personnel under the National Demonstration Programme.

In 1967, Indian Council of Agricultural Research took up the National Demonstration Programme under the title, "All India Co-ordinated Project on National Demonstration on Major Food Crops". During the Fifth Five Year Plan, Indian Council of Agricultural Research sanctioned demonstrations in 50 agriculturally intensive districts in the country. One of the centres was Trichur District in Kerala. Thus, in 1974-'75 National Demonstration Programme was started in Trichur District under the

auspices of Kerala Agricultural University. The main object was to demonstrate convincingly to the farmers, the production potentialities of new agricultural technology, designed to obtain maximum production from unit area of land in a unit period of time. It was also meant to bring the agricultural scientists in direct contact with farmers, so that good and bad points of high yielding varieties and package of practices are made known to them.

Since the implementation of the programme, Kerala Agricultural University have conducted 125 crop demonstrations in different parts of Trichur District under the direct supervision and guidance of scientists of the University.

Need for the study

Maximum production cannot be achieved, unless the agricultural technology is understood and adopted by the farmers, who are the target group. The farmers are thus the centre of all agricultural development programmes. Therefore, it was essential to educate the farmers on the latest research findings, in the field of agriculture and provide them with needed skill and experience for adopting the new techniques thus helping them to increase agricul-

tural production.

National Demonstrations provided an opportunity to scientists to prove the results of their research on farmers' field. These demonstrations also offered excellent opportunities for training the farmers on new technology. But invariably the educational aspects of National Demonstration is lost sight of in many cases. Most of the reports on National Demonstration discuss only the high yields obtained from the demonstrations Anonymus (1976, 1977, 1978, 1979 and 1980).

Since the implementation of National Demonstration Programme in Kerala, no efforts have so far been made to conduct an emperical study on the effect of these demonstrations in the dissemination of the demonstrated technology among the farmers in the context of personal, socio-economic and psychological characteristics. Therefore, in the present study an attempt has been made to assess the impact of National Demonstration Programme, on the level of knowledge, attitude and adoption behaviour of farmers neighbouring to demonstration plots in Trichur District.

Objectives of the study

The study has been undertaken with the following objectives:

1. To study the level of knowledge of farmers neighbouring to the National Demonstration plots on the selected cultivation practices of paddy demonstrated under National Demonstration Programme.

2. To study the attitude of farmers neighbouring to the National Demonstration plots towards the selected cultivation practices of paddy demonstrated under National Demonstration Programme.

3. To study the extent of adoption of selected demonstrated cultivation practices of paddy by farmers neighbouring to the Demonstration plots under the National Demonstration Programme.

4. To study the relationship between characteristics of farmers and the impact components viz., level of knowledge, attitude and extent of adoption.

Scope and limitations of the study

The present study envisages to reveal the impact of demonstrations carried out in the farmers field under the National Demonstration Programme in Trichur District. The result of the study shall be of use to the Kerala Agricultural University and other related agencies to

streamline their demonstration programmes. In a way the study also reveals the popularity of the package of practices in the area under study.

It was rather impossible to cover all the 125 demonstration plots in Trichur District by the researcher with the limited time and resources available at his disposal. Further though a number of crops were included in the National Demonstration Programme, paddy being the most important cereal crop of Kerala, was considered for the study. The findings of the study are not intended to make projections for the entire paddy growers in the State. Inspite of these limitations the findings of this study would provide sufficient insight into the matters related to the dissemination of demonstrated practices in the neighbouring areas of demonstration plots within the district.

THEORETICAL ORIENTATION

CHAPTER II

THEORETICAL ORIENTATION

The purpose of this chapter is to discuss in broad outline the conceptual frame of reference used for this study. This will provide a basis for operationalising variables enabling data collection on the problem under investigation. Relevant reviews has also been included in this chapter.

This chapter has been divided as follows:

I. Demonstration, its types and effectiveness.

II. National Demonstration, its effectiveness and impact.

III. Characteristics of farmers.

IV. Theoretical concepts and operational definitions of the selected variables.

V. Hypotheses.

I. Demonstration, its types and effectiveness

a) Concept of demonstration

The concept of demonstrations underwent a change with the beginning of the demonstrations at the Porter's D Farm, Terrel, Texas. Prior to it, the Department of

Agriculture had been saying "come and look at the way we can do things on our model farm; why don't you try the same thing?". But now the entire responsibility for the success or failure, profit or loss rested with only one man, the farmer who had agreed to try and find out for himself whether new method could make noticeable improvement in their crop, according to Baily (1948).

Garg (1961) stated that demonstration is the foundation stone of extension teaching and it is based on "show me idea", showing how to do a demonstration.

Strow (1968) said that a demonstration is a way to show to do something clearly and carefully, that a person can practice what he have done.

b) Types of demonstration

Several extension education specialists like Leagans (1951), Gilbertson and Gallup (1957), Ensminger (1962), Ramakrishnan (1965) and others classified demonstrations into two groups, namely (i) method demonstration, (ii) result demonstration.

(i) Method demonstration

Leagans (1951) defined method demonstration "as a short time demonstration given before a group to show how

to carry out an entirely new practice or an old practice in a better way".

Ramakrishnan (1965) defined method demonstration as those in which a new method or technique is demonstrated, taught or given practice of.

According to Sandhu, Sohal and Grewal (1970) a method demonstration is one which is oriented to show how to carry out a new practice or to improve a skill the people are not doing properly. The combination of seeing and hearing makes a strong impression and gets further strengthened by practice through participation in the demonstration.

(ii) Result demonstration

A result demonstration is a demonstration conducted by a farmer, home maker or other persons under direct supervision of an extension worker to prove the advantage of a recommended practice or combination of practices. It involves careful planning, a substantial period of time, adequate records and comparison of results. It is designed to teach others in addition to the person who conducts the demonstration, according to Gilbertson and Gallup (1957).

Leagans (1951) defined result demonstration "as a way of showing the people the value of a new practice, such demonstrations requires a substantial period of time, where as Kelsey and Hearne (1955) defined result demonstration as a method of teaching designed to show by example the practical application of an established fact, groups of related facts.

Ramakrishnan (1965) stated that result demonstration are those in which two practices or techniques are compared for results. Of the two thus compared, one is an improved one and the other local or existing.

c) Effectiveness of demonstrations

Ensminger and Sanders (1945) stated that result demonstration is the foundation stone in extension teaching and specially useful in the introduction of improved agricultural practices, where the farmers will have the opportunity to see for themselves the performances of the improved practices over the old.

Barewar (1957) reported that 87 per cent of farmers were influenced by demonstrations and 97 per cent by direct influence and 54 per cent by contact with extension agencies.

Khan, Sharma and Kherde (1965) stated that a carefully conducted result demonstration is the most convincing proof of the value of worth of an innovation and builds confidence among farmers to adopt new practices in preference to their own. They further stated that result demonstration is an effective educational tool which forms the basis of agricultural improvement in a village.

Singh and Dikshit (1966) stated that the effectiveness of large scale demonstration increases from awareness to trial but slightly falls at adoption stage.

Sharma (1966) observed that the demonstration served as information source for 50.50 per cent farmers for adopting improved farm practices.

II. National Demonstration, its effectiveness and impact.

a) National Demonstration

National Demonstration is a composite type of result demonstration that has remained as a potent extra force in the Intensive Agricultural Programmes. It is a demonstration conducted by farmers on their plot under the direct supervision and guidance of scientists to show the potentials of science towards increasing yields.

According to Ramaiah (1965) the main objective of National Demonstration was to raise the production level to the maximum extent which will make the farmer to realise what the production potentialities are. He further felt National Demonstration as an opportunity as well as challenge to the research workers to show what they can do for raising agricultural production.

Ramakrishnan (1965) stated that the major factor of National Demonstration Programme was to educate and orient the farmers on the objectives and details of demonstration.

Swaminathan (1966) mentioned that the National Demonstration not only the possibilities for increasing the yield greatly but also the hybrids and varieties can exert a catalystic effect on the minds of farmers and induce them to adopt the new practices.

Kanwar (1969) stated that the features of National Demonstration Programme should aim at to demonstrate the maximum yield potential of a unit area taken under the programme by adopting two, three or even four crop rotations during the agricultural year.

b) Effectiveness of National Demonstration

Shanmughasundaram (1966) reported that the farmers who witnessed the harvesting stage of the National Demonstration plots were very much impressed by the stand and high yield of ragi CO-7.

Singh (1968) stated that National Demonstration is a relatively available information source to the farmers in diffusing information about different aspects for the cultivation of high yielding varieties and multiple cropping. The results showed that 58.00 per cent, 65.00 per cent and 73.00 per cent farmers got information from National Demonstration about the high yielding variety seeds, sowing of high yielding variety seeds, fertilizer application and multiple cropping respectively.

Appalanaidu (1969) stated the National Demonstration conducted by Andhra Pradesh Agricultural University during 1968-'69, the maximum yield was 93.10 quintals per hectare of paddy as against lower yield of 16.80 quintals per hectare which was due to severe attack of gall midge in some cases and severe drought in others.

Kanwar (1969) reported that average yield of National Demonstration plots during 1967-'68 had increased three to nine times over the national average yield.

c) Impact of National Demonstration Programme:

i) Impact of National Demonstration Programme on the level of knowledge of farmers

Radhakrishnamoorthy (1969) after studying the impact of National Demonstration Programme conducted in Andhra Pradesh reported that 50.70 per cent of farmers were aware of National Demonstration, 42.90 per cent had knowledge about crops grown during National Demonstration period, 48.50 per cent of them knew the demonstrator and 12.70 per cent of them had knowledge about the purpose of National Demonstration among which one had correct purpose.

Singh and Singh (1974) reported that there was highly significant difference between the knowledge scores of the respondents of treated(National Demonstration) villages and control villages.

Supe and Salode (1975) observed that the National Demonstration conducted by the change agents were effective in increasing the knowledge level of the educated, scientifically oriented and high socio-economic status farmer participants.

Pathak et al. (1979) found that the difference in knowledge scores are highly significant between National

Demonstration farmers and non-National Demonstration farmers in relation to the improved practices of jute and wheat cultivation, but in the case of rice cultivation it was not significant.

ii) Impact of National Demonstration Programme on the attitude of farmers

Very limited studies were conducted to measure the attitude of farmers towards the practices followed in National Demonstration Programme. Hence, care was taken to include all the available literature.

Singh and Singh (1974) found that the farmers of the treated (National Demonstration) villages had more favourable attitude towards high yielding varieties of wheat than their counterparts in the control villages.

Pathak et al. (1979) reported that there was highly significant difference between the attitude scores of National Demonstration farmers and non-National Demonstration farmers towards multiple cropping followed in National Demonstration Programme.

iii) Impact of National Demonstration Programme on the extent of adoption of demonstrated practices

Mahapatra (1969) observed that National Demonstration trials have successfully attracted the attention of

farmers by their quick adoption of high yielding varieties and their economic level has been improved considerably.

Appa Rao (1971), after conducting a study on the impact of National Demonstration on farmers of selected villages in East Godavari district of Andhra Pradesh, found that there was significant difference in the extent of adoption between the farmers of the demonstration and adjacent villages. In the case of participant farmers, 15.00 per cent were high adopters as against 2.00 per cent in non-participant farmers, 31 per cent participant farmers were low adopters as against 46 per cent in non-participant farmers and the medium adopters were more or equal in both groups.

Jha and Sharma (1972) observed that 79.00 per cent of the farmers had adopted the new practices explained to them through the National Demonstration conducted in preceding season, whereas 80.00 per cent of the adopters of the new practices felt that their decision to adopt the practices was influenced mainly by these demonstrations.

Singh and Singh (1974) reported that the adoption scores of the farmers of the demonstration villages was

significantly higher than the adoption scores of the farmers of the control villages.

Oliver et al. (1975) reported that the extent of adoption was high among farmers in one mile radius as compared to the farmers of other areas. He again reported that 64.00 per cent of the neighbour farmers had adopted more than three practices demonstrated.

Supe and Salode (1975) reported that National Demonstration were effective in helping the scientifically oriented farmers in the adoption of demonstrated farm practices.

Behera and Sahoo (1975) revealed that out of 118 farmers interviewed, only five farmers had adopted the demonstrated practices fully, while 32 had partially adopted.

Anonymous (1979) made a critical study on the impact of National Demonstration on the nature of diffusion of farm innovations and the socio-economic changes of the farmers in the demonstrated and non-demonstrated villages. He found that out of 175 farmers interviewed, 115 had adopted the demonstrated practices, like three crop sequence with rice, rice and millet, Machete weedicide

application, line spacing and application of split doses of nitrogen, which was significant.

Pathak et al. (1979) found that the difference in the mean adoption intensity scores were highly significant between National Demonstration farmers and non-National Demonstration farmers in relation to the improved practices of jute, wheat and paddy.

III. Characteristics of farmers

Studies on the relationship of each of the independent variable namely age, education, income, farm size, social participation, contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation with the dependent variables are reviewed below:

A. Knowledge

1. Age

Bhaskaran and Mahajan (1968) reported that young and middle aged farmers were slightly superior to the old age group in the matter of retention of knowledge about extension methods.

Singh and Prasad (1974) also reported that age had no significant relationship with the knowledge quotient of communication sources of young farmers.

Behera and Sahoo (1975) reported that young farmers had better knowledge and information about the National Demonstration than other farmers.

Kaleel (1978), while studying the impact of Intensive Paddy Development Unit in Kerala, found that age had no significant relationship with the knowledge gained by farmers about the subject matter.

Menon and Prema (1978) reported that age was significantly related to gain in knowledge and retention of knowledge by rural women due to their participation in training camps.

The above studies revealed that age of farmers is an important variable influencing the level of knowledge of farmers. In this study, it was assumed that age of farmers would influence the level of knowledge of farmers on the selected practices followed in National Demonstration Programme.

2. Education

Bhaskaran and Mahajan (1968) found that education of farmers in general had a close positive relationship

with the response to extension teaching, both in respect of retention of knowledge and acceptance of the practice.

Supe and Salode (1975) reported that formal education was significantly related to the level of knowledge of farmers on the demonstrated cultivation practices.

Behera and Sahoo (1975) reported that educated farmers had better knowledge and information about the National Demonstrations than other farmers.

Kaleel (1978) found that education was positively and significantly related to the gain in knowledge of the farmers of the experimental area. Based on the above studies it was assumed that education would influence the level of knowledge on the demonstrated cultivation practices.

3. Income

No study pertaining to the relationship of income and level of knowledge of farmers could be reviewed. However, it is presumed that when the income increases, facilities - both physical and financial to obtain formal education increases, which in turn will increase knowledge.

4. Farm size

Supe and Salode (1975) reported that farm size was not related to the level of knowledge of farmers on the selected practices of Jowar demonstrated under National Demonstration Programme. However, in this study it was assumed that as the size of farm of a farmer increases, income increase. This increases both physical and financial facilities to obtain formal education, which in turn will increase knowledge.

5. Social participation

Copp, Neal and Gross (1969) reported that participation of farmers in formal organisations improved the possibilities of increased social interaction which in turn helped in increasing the level of knowledge about new farm practices by the farmers.

Singh and Prasad (1974) reported that social participation was positively related to the knowledge of communication sources of young farmers.

Kaleel (1978) found a positive and significant relationship between social participation and gain in knowledge farmers of the Intensive Paddy Development Unit areas.

In this study also, it was postulated that social participation would influence the level of knowledge on the demonstrated cultivation practices.

6. Contact with extension agencies

Knight and Singh (1975) reported that contact with extension agencies had positive relationship with gain in knowledge of farmers.

Kaleel (1978) found a positive and significant relationship between contact with extension agencies and gain in knowledge.

Based on the above studies it was decided to include this factor as one of the variables for this study.

7. Cosmopoliteness

Knight and Singh (1975) reported that cosmopoliteness had a positive relationship with gain in knowledge of farmers.

Based on this review, it was postuated that the cosmopoliteness of farmers would increase the level of knowledge of farmers on the practices followed in National Demonstration Programme.

8. Information source utilisation

Menon and Prema (1978) reported that the exposure to mass media was significantly related to gain in knowledge and retention of knowledge by the rural women due to their participation in training camps.

Prasad (1978) found that the use of mass media and use of interpersonal-cosmopolite sources were found to be significantly and positively related with knowledge about improved rice cultivation.

The above studies indicated that the extent of use of different source of information would be related to the level of knowledge of farmers.

9. Scientific orientation

After studying the differential perception of farmers about the attributes of farm innovations, Dhanokar (1970) reported that scientific attitude helped the farmers in understanding the details of practices.

Supe and Salode (1975) reported that scientifically oriented participant farmers had higher knowledge on the demonstrated practices of Jowar under the National Demonstration Programme.

Based on the above studies, it was decided to include scientific orientation as one of the factors influencing the level of knowledge of farmers on the demonstrated cultivation practices.

10. Risk preference

No study closely related to the influence of this variable on the level of knowledge of farmers could be reviewed. However, it was decided to include risk preference as one of the variables affecting level of knowledge of farmers.

11. Management orientation

No closely related study could be reviewed in this context. However, in this study it was decided to include this variable as an independent variables to establish its influence on the level of knowledge of farmers.

B. Attitude

1. Age

Bose (1961) reported that people become better integrated and some what more extreme in their attitude as they grow older.

Singh and Singh (1968) found younger farmers to have significantly favourable attitude towards fertilizers than the old farmers.

Das and Sarkar (1970) reported that there was no significant relationship between age and attitude of people towards improved farm practices.

Menon and Prema (1976) found that age had positive influence on creating a favourable attitude towards applied Nutrition Programme.

For this study also it was assumed that age of the farmers would be a deciding factor for creating a favourable attitude towards the practices followed in National Demonstration Programme.

2. Education

Das and Sankar (1970) reported that education was significantly related with farmers' attitude towards the improved farming practices.

While studying the differential attitude of farmers, Singh and Singh (1971) reported level of education as positively and significantly related to the attitude of farmers towards chemical fertilizers, improved implements and green manuring.

Based on the above studies, it was hypothised that there would be same relationship between the educational level of farmers and their attitude towards the demonstrated practices.

3. Income

Das and Sarkar (1970) reported that annual income of farmers was positively and significantly correlated with attitude towards improved agricultural practices.

Sushama (1979) reported that there was significant relationship between income of tribes and the attitude towards modern living practices in more developed areas.

In this study it was postulated that income of farmers would be related to the attitude of farmers towards the demonstrated cultivation practices.

4. Farm size

Das and Sarka (1970) reported that farm size was positively and significantly related to the attitude of farmers towards improved agricultural practices.

Menon and Prema (1976) found that size of holding had positive influence on creating a favourable attitude towards kitchen gardening.

In the light of the above studies, it was postulated that farm size would be one of the important factors related to the attitude of farmers towards the demonstrated cultivation practices.

5. Social participation

Das and Sarkar (1970), while studying the economic motivation and adoption of farming practices, reported that social participation of farmers was significantly correlated with the attitude of farmers towards improved agricultural practices. In this study also, it was decided to include this factor as one of the variables, assuming that the social participation of farmers would influence to create a favourable attitude towards the demonstrated practices.

6. Contact with extension agencies

No closely related study could be reviewed in this context. However, it is assumed that as the farmers' contact with extension agencies increase, the opportunities to develop a favourable attitude towards the recommended practices also increase. Hence, it was decided to include contact with extension agencies as one of the variables in this study.

7. Cosmopoliteness

According to Rogers and Svenning (1969) the cosmopoliten farmers are likely to be unique individual in that he is motivated to look beyond his environment where most others are content to maintain a localite frame of reference.

In this study also, it was decided to include cosmopoliteness as one of the variables to establish its influence on the attitude of farmers towards the demonstrated practices.

8. Information source utilisation

Murthy (1971) reported that media contact was significantly correlated with the attitude of woman in decision making at the farm operational level.

Prakash (1980) found that there was no significant relationship between information source utilisation pattern and attitude of tribes towards settled agriculture.

For this study it was assumed that information sources utilised by the farmers would be a deciding factor for creating a favourable attitude towards the demonstrated cultivation practices.

9. Scientific orientation

No closely related study could be reviewed in this context. However, it was assumed that knowledge about scientific matters would create a favourable attitude towards modern cultivation practices. Based on the above assumption, it was decided to include scientific orientation as one of the variables to establish its influence on the attitude of farmers towards the deonstrated cultivation practices.

10. Risk preference

No study closely related to relate risk preference with attitude towards the demonstrated practices could be reviewed. However, it was decided to include this factor as one of the variables for this study.

11. Management orientation

No study closely related to management orientation could be reviewed. However, it was decided to include this factor as an independent variable to confirm its influence on the attitude of farmers towards the demonstrated cultivation practices.

C. Adoption

1. Age

This is an important variable studied by many adoption researchers. Wilkening (1952) found a negative relationship between age and adoption behaviour. Pandit (1964) reported that age was positively related with adoption.

Kamalsen (1971) observed an increase in the rate of adoption of agricultural practices with increase in age as expressed by the trainees of the Farmers' Training Camp.

Anbalagan (1976) found that young farmers adopted more number of improved agricultural practices of high yielding varieties of paddy than older farmers.

Appa Rao (1971) reported that age of farmers was not associated with the adoption of demonstrated practices.

Pillai (1978), while studying the impact of Soil Conservation Programme, found that age was negatively and significantly related with adoption of soil conservation practices.

Annamalai (1980) found that there was no significant relationship between age and adoption behaviour of both farmer demonstrators and nearby farmers.

The above studies showed aged of farmers as an important variable determining the adoption of recommended practices. Based on this, it was assumed that age of the farmers would influence the adoption of demonstrated practices.

2. Education

Several researchers have shown that the educational level of farmers was positively related with their adoption behaviour. Notable among them are Wilkening (1953), Van Den Ban (1957), Lionberger (1960), Reddy (1962), Pandit (1964), Rai (1965), Rajendra (1968) and others.

Patel and Singh (1970) observed that farmers with higher education accepted improved practices more readily than farmers with lower education.

Grewal and Sohal (1971) while studying the comparative role of two social systems in the speed of adoption of some farm practices, found greater level of adoption in the group which had higher educational level.

Subramanyan and Lakshmanna (1973) as well as Chandrakandan (1973) reported education of farmers as positively related to the extent of adoption of recommended farm practices.

Supe and Salode (1975) reported that formal education had no significant relationship with the adoption of demonstration practices.

According to Chandrakandan and Subramanyan (1975) education had shown positive and significant relationship with adoption behaviour.

Sundaraswamy and Duraiswammy (1975) reported that adoption of recommended practices increased with the increase in the level of education of farmers. He found that 70.00 per cent of farmers among the high adopter category and 37.00 per cent of farmers among the medium adopter category belonged to the highly educated group of farmers.

Rajendran (1978) observed a positive and significant relationship between education and general adoption of the selected agricultural practices.

Based on the above studies, it was decided to include education as one of variables for this study.

3. Income

Many researchers reported the importance of income as a constituent factor influencing the adoption behaviour of farmers.

Hussain (1971) reported that the number of farmers adopting all the package of practices were more among medium and high income groups than amongst those with low income.

Perumal and Duraiswamy (1972) found that the cultivation of hybrid maize was strongly and positively related to the income of farmers.

Chandrakandan (1973) observed that farmers with higher income were better adopters of the agricultural practices of paddy in Tanjore District in Tamil Nadu.

Kaleel (1978) found income as positively related to adoption of recommended package of practices of paddy.

Pillai (1978) also observed a positive and significant relationship between income and adoption of soil conservation measures by farmers.

Based on the above references, it was decided to include income as one of the variables for this study.

4. Farm size

Farm size can be an important factor for adoption of demonstrated practices.

Pathak and Dargan (1971) reported that adoption of improved practice was independent of the size of farm.

Subramanyan and Lakshmanna (1973) as well as Sharma and Nair (1974) observed that size of farm had a positive and significant relationship with the adoption of recommended practices by farmers.

Chandrakandan and Subramanyan (1975) reported that size of farm had positive relationship with adoption.

Supe and Salode (1975) found no relationship between size of holding and adoption of demonstrated cultivation practices by farmers in Kaleel (1978) also found similar results.

Pillai (1978) concluded that size of holding had positive and significant relationship with adoption of the recommended soil conservation practices.

Rajendran (1978) also found a positive and significant relationship between size of holding and adoption of selected agricultural practices by farmers.

It is interesting to note that the above studies give different views regarding the relationship of farm size with the adoption of recommended practices. Hence, it was decided to include farm size as one of the variables

in this study to find out its relationship with the adoption of demonstrated practices.

5. Social participation

Several researchers have revealed that social participation of farmers positively influenced their adoption behaviour. Notable among them are Rahim (1960), Reddy (1962), Reddy and Kivlin (1968), Ram, Iqbal, Singh et al. (1968).

Chandrakandan (1973) found that better social participants were better adopters of farm practices.

Salunke and Thorat (1975) reported that there was a significant relationship between organisational participation and adoption behaviour of small farmers.

Sundaraswamy and Duraiswamy (1975) reported that adoption of recommended practices were more among the farmers who had more social participation.

Supe and Salode (1975) reported that the social participation was not related with the adoption of demonstrated cultivation practices.

Rajendran (1978) found that social participation of farmers was positively and significantly related with the adoption behaviour of farmers.

On the basis of the above studies, it was postulated that social participation of farmers would be one of the important factors influencing the adoption of demonstrated cultivation practices.

6. Contact with extension agencies

Since a number of extension agencies operate in farm front for diffusing the agricultural technology, farmers get more opportunities to contact with these extension agencies and may enhance the adoption of improved technology.

Bose (1961) found that low adoption of improved agricultural practice was due to less contact of farmers with extension agencies. He also observed that the formal and informal agencies significantly influenced the adoption of agricultural practices by the farmers and the frequency of contract with extension agencies was significantly related with the adoption of agricultural practices by the farmers.

Sawhney (1961) also reported that the low adoption of improved agricultural practice was due to less contact of farmers with extension agencies.

Sundaraswamy and Duraiswamy (1975) reported a significant positive association between contact of farmers with extension agencies and the number of practices adopted by them.

Based on the above studies, it was postulated that contact of farmers with extension agencies would influence the adoption of demonstrated practices by the farmers. Therefore it was decided to include this factor as one of the variables for this study.

7. Cosmopoliteness

Fliegal (1960) found that there was no significant reltationship between cosmopoliteness and innovativeness among Brazilian farmers.

Patnaik (1963) also found a positive relationship between the cosmopoliteness and adoption behaviour of farmers.

While studying the adoption behaviour of marginal farmers in relation to their characteristics and value orientation in Bijapur District of Karnataka, Kittur (1976) found that cosmopoliteness was positively related with adoption of farm practices.

Channegowda (1977), Mahadevaswamy (1978) also found a positive relationship between cosmopoliteness and extent of adoption of the recommended practices by farmers.

From the above studies it could be seen that there is some relationship between cosmopoliteness of farmers and adoption of recommended practices. Therefore, in this study also, it was decided to include cosmopoliteness as one of the variables to establish its influence on the adoption of demonstrated cultivation practices.

8. Information source utilisation

Learner (1958), Roy et al. (1968) and Rogers and Svenning (1969) reported that exposure to mass media was positively related to innovativeness of farmers.

Sharma (1966) found that the inter-personal localite source of information was more in the case of low adopters.

Supe (1971) found that the farmers who had used more institutionalised source of information were high adopters than the farmers who had used non-institutionalised source.

Based on the above studies, it was decided to include farmers' information sources utilisation pattern as one of the independent variables to explore its relationship with the adoption of the demonstrated practices.

9. Scientific orientation

Beal and Sibley (1967) found that the farmers' favourable attitude towards science was positively related with the adoption of farm practices.

Reddy and Kivlin (1968) observed that scientific attitude was not related with the adoption of recommended practices by the farmers.

Supe and Salode (1975) reported that the scientifically oriented farmers had high extent of adoption of the demonstrated cultivation practices of jowar.

In this study also this factor was included to find out its nature of influence on the adoption of demonstrated cultivation practices of paddy.

10. Risk preference

A number of research studies have revealed that the risk taking capacity of farmers positively influenced the adoption behaviour of farmers. Notable among them are Ramsey et al. (1959), Fliegal (1959), Rogers and Havens (1961) and Bohlen and Beal (1966).

In studying the relation of farm operators' values and attributes to their economic performance, Hobbs (1964) reported a positive relationship between risk orientation of farmers and adoption of improved farm practices.

Singh (1969) found a positive and significant influence between risk preference and adoption behaviour of farmers.

Nair (1969), while conducting a multivariate study on the adoption of high yielding paddy varieties by the farmers of Kerala State, reported risk orientation as an important variable which affected the adoption behaviour. Singh and Sing (1970) and Roshan Singh and Singh (1970) also found such relationships.

Binswanger (1978) also reported that risk orientation was an important variable in the adoption of new technology by the rural households.

Rajendran (1978) found that risk orientation was positively and significantly related with the general adoption behaviour of the respondents on the selected agricultural practices.

In the light of the above findings, it was postulated that there would be direct relationship between farmers' risk preference and their adoption of the demonstrated cultivation practices.

11. Management orientation

Kahlon and Acharya (1967) indicated higher management input had significant effect on farm income.

Samantha (1977) found that the cultivators with high management orientation were likely to repay the loan in time because they exhibited a high level of adoption.

Shanmughappa (1978) pointed out to the significant relationship between managerial ability of arecanut growers with their adoption of improved cultivation practices.

All the above studies pointed out the positive relationship of managerial ability and adoption of the

improved cultivation practices. It would be worth, thus, to test the validity of these results in the present study in relation to the adoption of the demonstrated cultivation practices of paddy.

IV. Theoretical concepts and operational definitions of the selected variables

Neighbour farmers

In this study, a neighbour farmer is one who is a paddy grower of the same padasekharam* in which one amongst them had demonstrated the cultivation of high yielding varieties of paddy under the National Demonstration Programme organised by the Kerala Agricultural University, Vellanikkara, Trichur.

Control farmers

In this study, a control farmer is one who is a paddy grower of another padasekharam where the cultivation of high yielding varieties of paddy was not demonstrated under the National Demonstration Programme by the Kerala Agricultural University, Vellanikkara, Trichur.

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* A contiguous and agroclimatically uniform area where paddy is the predominant crop.

'Impact' of National Demonstration

Research workers used many methods to measure the impact. Jha and Sharma (1972) measured the impact of the National Demonstration in terms of awareness about demonstration, extent of utilisation of demonstration of a source of information, gain in knowledge, opinion about the demonstration and extent of adoption of the yielding varieties and the package of practices. Supe and Salode (1975) measured impact of National Demonstration through the level of knowledge and extent of adoption of eight demonstrated practices. Behera and Sahoo (1975) used the impression of farmers about the performance of demonstrations and extent of adoption of demonstrated practices to measure the impact of National Demonstration. But, Appa Rao (1975) measured impact in terms of farmers' perception about the purpose of demonstration and extent of adoption of the demonstrated cultivation practices.

In this study, the impact of National Demonstration has been measured in terms of the level of knowledge about the selected demonstrated cultivation practices of paddy, attitude towards the selected demonstrated cultivation practices of paddy and the extent of adoption of the selected demonstrated cultivation practices of paddy

amongst the neighbour farmers as a result of the National Demonstration Programme conducted by the Kerala Agricultural University, Vellanikkara, Trichur during the virippu season of the cropping year 1979.

Knowledge

English and English (1958) defined knowledge as a body of understood information possessed by an individual or by a culture.

Operationally, knowledge is defined as the body of information possessed by an individual with respect to the selected six cultivation practices of paddy demonstrated under National Demonstration Programme.

Attitude

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

Thurstone (1946) defined attitude as the degree of positive or negative affect associated with some psychological object towards which people can differ in varying degrees.

According to Krech and Crutchfield (1948) attitude is an enduring organisation of motivational, emotional, perceptual and cognitive processes with respect to some objects of an individual's world.

For the present study, attitude refers to the degree of favourable or unfavourable disposition as expressed by the respondents towards the selected cultivation practices of paddy demonstrated under the National Demonstration Programme.

Extent of adoption

Wilkening (1952) postulated the adoption of an innovation as a process composed of learning, deciding and action over a period of time.

According to Ramsey et al. (1959), adoption behaviour involved two components - (i) behavioural, which involves the actual use of the practice; (ii) congnitive, which includes obtaining knowledge and critical evaluation of the practices in terms of individual situations.

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

Chattopadhyay (1963), defined adoption as the stage in the adoption process where decision making is complete regarding the use of a practice, and action with regard to such a decision commences.

Rogers and Shoemaker (1971) defined adoption as a decision to continue full use of an innovation as the best course of action.

For this study, the term adoption has been defined as the observable action in the form of practice of selected cultivation practices of paddy demonstrated under the National Demonstration Programme.

Age

Age is defined as the number of years the respondent has completed at the time of this study since his birth.

Education

Education in this study is identical with the level of literacy and refers to the ability of the respondents to read and write and the extent of schooling.

Income

Income is defined as the total annual income in rupees of the respondents. It includes the receipts obtained from main and subsidiary occupations.

Farm size

Farm size has been operationally defined as the number of acres of wet land and garden land owned by a respondent including the one leased in and leased out.

Social participation

In this study, social participation has been operationally defined as the involvement of the respondents in formal and informal social organisations and the frequency of participating in meetings connected with the respective organisations.

Contact with extension agencies

Contact with extension agencies has been operationally defined as the frequency in visiting the extension agencies like Agricultural Demonstrators, Village Extension Officers, Junior Agricultural Officers, Block Development Officers, University Scientists and others in connection with agricultural activities and the respondents' extent of participation in agricultural extension activities conducted in the village.

Cosmopoliteness

According to Rogers and Svenning (1969) cosmopoliteness is the extent of contact with outside village such as visiting nearest town, membership in organisations outside the village.

For this study, cosmopoliteness has been operationally defined as the farmers' extent of contact with outside village, such as visiting the nearest town, the purpose of visit and the membership in organisations outside the village.

Information sources utilisation pattern

According to Wilkening (1952), information sources utilisation pattern are the sources through which information is obtained by an individual. The different sources are mass media, inter-personal-localite sources and inter-personal-cosmopolite sources.

For this study, information source utilisation pattern has been operationalised as the frequency of obtaining information from different sources such as newspaper, radio, extension personnel, agricultural scientists as well as friends and relatives.

Scientific orientation

According to Supe (1969) scientific orientation is the degree to which a farmer is oriented to the use of scientific methods in decision making in farming.

In this study, it has been operationalised as the degree to which a farmer is oriented to the use of scientific methods in decision making in farming.

Risk preference

Supe (1969) defined risk preference as the degree to which a farmer is oriented towards risk and uncertainity and also has the courage to face the problems in farming.

For this study, it has been operationalised as the degree to which a farmer is oriented towards risk and uncertainity and has the courage to face the problems in farming.

Management orientation

In this study, management orientation has been operationally defined as the degree to which a farmer is oriented towards scientific farm management comprising of planning, production and marketing functions on his farm enterprise.

V. Hypotheses

Based on the theoretical orientation and review of literature the following nul hypotheses were formulated:

H_0-1 There will be no significant difference between the neighbour farmers and control farmers with respect to their level of knowledge on the demonstrated cultivation practices of paddy.

H_0-2 There will be no significant difference between the neighbour farmers and control farmers with respect to their attitude towards the demonstrated cultivation practices of paddy.

H_0-3 There will be no significant difference between the neighbour farmers and control farmers with respect to their extent of adoption of the demonstrated cultivation practices of paddy.

H_0-4 There will be no significant difference between the neighbour farmers of the seven National Demonstration padasekharams in respect of their level of knowledge on the demonstrated cultivation practices of paddy.

H_0-5 There will be no significant difference between the neighbour farmers of the seven National Demonstration padasekharam in respect of their attitude towards the demonstrated cultivation practices of paddy.

H_0-6 There will be no significant difference between the neighbour farmers of the seven National Demonstration padasekharams in respect of their mean extent of adoption of the demonstrated cultivation practices of paddy.

H_0-7 There will be no positive and significant relationship between level of knowledge on the demonstrated cultivation practices of paddy and the characteristics of farmers viz. age, education, income, farm size, social participation, contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation.

H_0-8 There will be no positive and significant relationship between attitude towards the demonstrated cultivation practices of paddy and the characteristics of farmers viz. age, education, income, farm size, social participation, contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation.

H_0-9 There will be no positive and significant relationship between extent of adoption of the demonstrated cultivation practices of paddy and the characteristics of farmers viz. age, education,

income, farm size, social participation, contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation.

METHODOLOGY

CHAPTER III

METHODOLOGY

This chapter deals with the materials and methods employed in the study, which are presented in the following sections.

I. Location of study

II. Selection of sample

III. Selection of demonstrated cultivation practices of the study.

IV. Variables selected and their measurement procedures.

V. Data collection procedures.

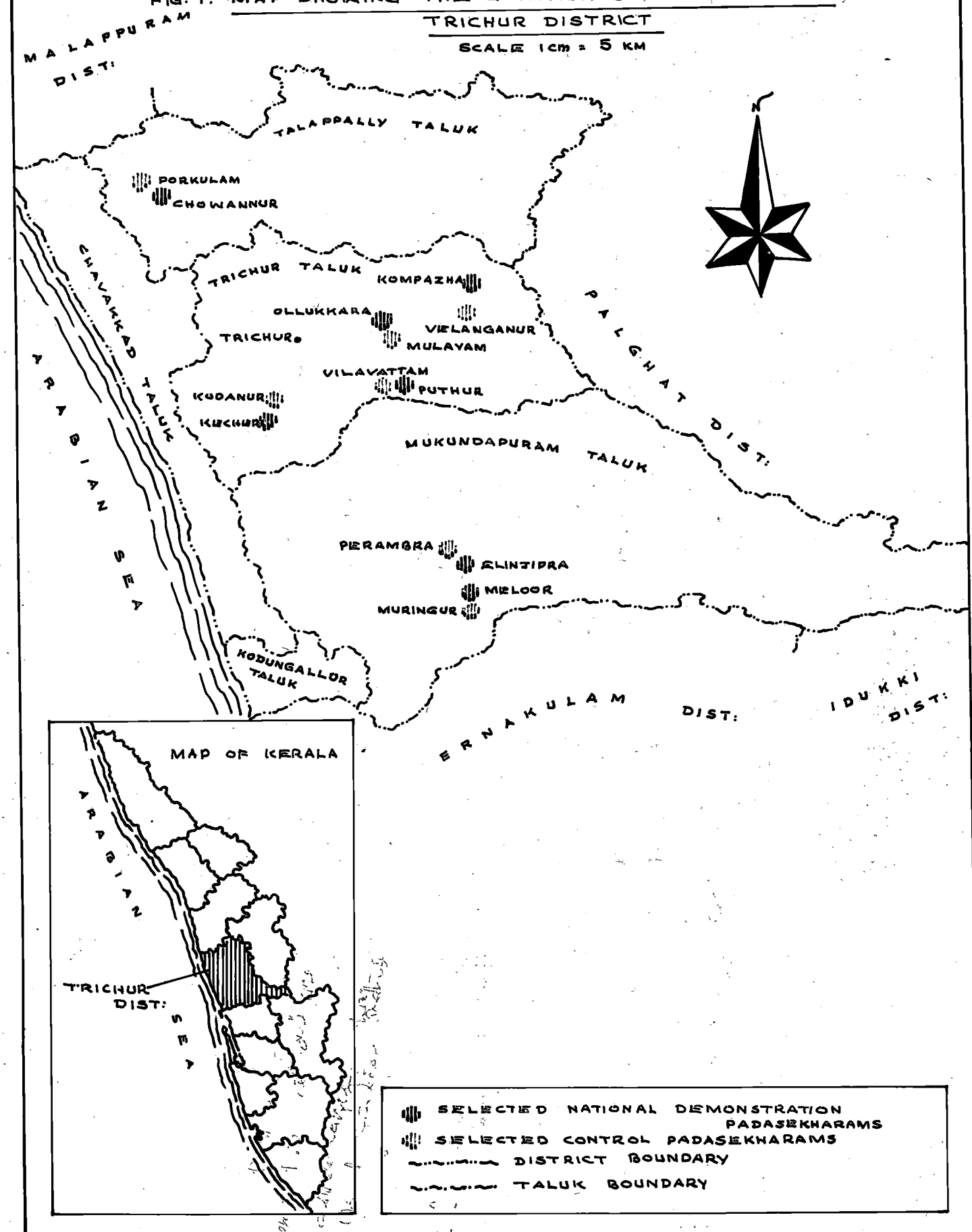
VI. Statistical methods used.

I. Location of study

This study was confined to Trichur District in Kerala State where in the National Demonstration Programme is being implemented by the Kerala Agricultural University. This area was purposively selected since Trichur has been the only district with ongoing programme of National Demonstrations in the State.

FIG: 1. MAP SHOWING THE LOCATION OF THE STUDY IN TRICHUR DISTRICT

SCALE 1cm = 5 KM



Trichur district comprised of 234 villages of which National Demonstration Programme has been implemented in 98 villages within a period of five years. From the list of 25 demonstrations laid out in the year 1979-80, seven demonstrations from the village, viz. Elinjipra, Meloor, Kompazha, Puthur, Chowannur, Kecheri and Ollukkara were selected randomly. The padasekharam, wherein National Demonstration had been conducted formed the location of the study.

Since, the purpose of the study is to find out the impact of the National Demonstration Programme on neighbour farmers, a control group of seven padasekharams were selected from seven villages, within the district where National Demonstration Programme had not been conducted.

As far as possible, to enable proper comparison, the control villages were selected, based on similarities in their agroclimatical situations and infrastructural facilities with that of the demonstration villages.

II. Selection of sample

The sample population comprised of paddy farmers, neighbouring to the selected seven National Demonstration plots and the farmers selected from the control padasekharams.

A sample of 100 farmers from the seven National Demonstration padasekharams and another 100 farmers from seven control padasekharams were selected based on a proportionate random sampling procedure as indicated in the table below.

Table 1: Distribution of selected neighbour farmers and control farmers.

National Demonstration padasekharams.	Paddy growers in the padasekharams	Paddy growers selected for the study.	Control padasekharams.	Paddy growers in the padasekharam.	Paddy growers selected for the study.
Elinjipra	32	17	Perambra	32	16
Meloor	38	20	Muringur	37	19
Kompazha	22	12	Velanganur	27	13
Puthur	31	17	Vilavattam	28	14
Chowannur	27	14	Porkulam	34	17
Kecheri	21	11	Kodanur	19	9
Ollukkara	16	9	Mulayam	24	12
Total:	187	100		201	100

The demonstration year 1979-80 was selected purposively for the study. Thus the sample farmers selected for the study were the farmers neighbouring to National Demonstration plots of the year 1979-80. The recency of demonstration of the practices practiced by the demonstrator farmers and simultan-

eous exposure of the same to the neighbour farmers has been the criteria for fixing up the particular year viz. 1979-'80 for the study. Thus a total number of 200 farmers formed the sample for the study.

III. Selection of demonstrated cultivation practices for the study.

Under the National Demonstration Programme many agronomical and plant protection practices with production potentialities were demonstrated in the farmers field, under the guidance of specialists of Kerala Agricultural University. Of them, six practices were selected for the study in accordance with their popularity as common practices amongst demonstrator farmers as well as based on the opinion of the project leader, subject matter specialists working under the programme. The re-practices were:-

1. The use of high yielding varieties.
2. Seed treatment.
3. Soil testing.
4. Liming.
5. Use of chemical fertilizers.
6. Use of plant protection chemicals.

IV. Variables selected and their measurement procedures

Based on the specific objectives and review of the past studies conducted, the following variables were selected for this study.

A. Dependent variables

1. Level of knowledge on the six demonstrated cultivation practices of paddy.
2. Attitude towards the six demonstrated cultivation practices of paddy.
3. Extent of adoption of the six demonstrated cultivation practices of paddy.

B. Independent variables

1. Age.
2. Education
3. Income
4. Farm size
5. Social participation
6. Contact with extension agencies
7. Cosmopoliteness
8. Information source utilization.
9. Risk preference
10. Scientific orientation
11. Management orientation.

A. Measurement of dependent variables

1. Level of knowledge on the demonstrated cultivation practices of paddy.

According to Cronbach (1949) knowledge test is one in which procedures, apparatus and scoring has been fixed so that precisely the same test can be given at different times and places.

A standardised knowledge test defined by Noll (1957) is one that has been carefully constructed by experts in the light of acceptable objectives or purposes and procedures for administering, scoring and interpreting scores are specified in detail so that the results should be comparable and norms and averages for different age and status have been predetermined.

Shankariah and Singh (1967) measured knowledge of respondents on improved methods of vegetable cultivation, based on the teacher made test as suggested by Anasthasi (1961).

Nair (1969) measured knowledge level of farmers on recommended package of practices of rice using teacher made test with multiple choice questions.

Jaiswal and Dave (1972) computed the knowledge score as follows:

$$\text{Knowledge score} = \frac{\text{Number of correct answers} \times 100}{\text{Total raw scores}}$$

Singh and Singh (1974) developed a knowledge test based on the response of farmers on various aspects of wheat cultivation. The total score of each individual was calculated by the formula.

$$\frac{X_1 \times 100}{N}$$

Where,

X_1 = number of correct answers.

N = total number of questions.

In this study the method used by Nair (1969) was adapted through a pilot study, which is described below.

a) Item collection

The content of knowledge test is composed of questions called items. A large number of items with respect to the selected demonstrated practices for the cultivation of high yielding varieties of paddy where collected in consultation with the project leader, subject matter specialists and farmers who demonstrated the cultivation practices. Altogether

49 items were collected. The items were converted in to multiple choice questions.

b) Item analysis

Item analysis were done to yield the following informations:

i) index of item difficulty;
ii) index of item discrimination; and
iii) index of item validity.

The collected 49 items were administered to 40 farmers. A score of '1' and a score of '0' was given for a correct and incorrect answer respectively. Then the total score for each respondent was calculated. Their responses were then arranged in an ascending order of their scores, ranging from lowest to highest. As suggested by Garret (1973), 27 per cent of the lowest and 27 per cent of the highest scores were taken for calculating item difficulty and item discrimination. Of the respondents, 27 per cent, with lowest scores and 27 per cent, with highest scores were termed as low groups and high groups respectively.

i) Index of item difficulty

The difficulty index of each item was calculated by averaging the percentages of correct answers of low groups and high group respectively.

ii) Index of item discrimination

The discrimination index of each item, its capacity to discriminate the well informed from the poorly informed respondents was calculated using the formula,

$$E = \frac{S_1 - S_2}{N/3}$$

Where,

E	=	discrimination index
S_1 and S_2	=	frequencies of correct answers in high group and low group respectively.
N	=	total number of respondents in the item analysis sample.

iii) Index of item validity

The validity power of each item, its consistency with total scores in the test was gauged by the correlation of item score and the whole test score. Point biserial correlation coefficient was calculated for each item using the following formula.

$$rpbis = \frac{Mp - Mq}{t} \sqrt{pq}$$

Where,

rpbis = point biserial correlation coefficient.

μp	=	mean of the total scores of respondents who gave correct answer to the item.
μq	=	mean of the total scores of respondents who gave incorrect answer to the item.
t	=	standard deviation of the entire sample.
p	=	proportion of respondents who gave correct answers to the item.
q	=	proportion of respondents who gave incorrect answers to the item.

The significance of point biserial correlation coefficient was tested with the help of table value 'r' for (N-2) degrees of freedom.

c) Final selection of items

Those items which had difficulty index ranging from 25 to 75, discrimination index above 0.20 and significant point biserial correlation coefficient were selected for knowledge test. With this presumption, 26 items were selected for inclusion in the final knowledge test.

d) Method of scoring

Each respondent was given one score for correct answer and zero score for incorrect answer.

The total knowledge score for each respondent was calculated by summing up the scores given for each item. Thus the maximum knowledge score that could be obtained by a respondent was 26 and the minimum that could be obtained was zero.

The knowledge score of all the respondents were added together. Mean and standard deviations were worked out, on the basis of which the respondents were categorised into low, medium and high as follows:

Low	(Mean - 1 S.D.)	=	8.78
Medium	(Mean $\pm$ 1 S.D.)	=	8.78 to 19.92
High	(Mean + 1 S.D.)	=	19.92

2. Attitude towards the demonstrated cultivation practices of paddy.

Attitude was measured by attitude scale. An attitude scale is one which assess the degree of affect that individuals may associate with some psychological object.

In this study, the attitude of farmers towards the selected practices of paddy cultivation was measured by means of attitude scales constructed for this purpose. Since six practices were included in this study, six attitude scales were constructed and they were combined to one attitude scale

for calculating the farmers' attitude towards the selected demonstrated practices.

The statements regarding the different aspects of high yielding varieties, seed treatment, soil testing, liming, use of chemical fertilizers and use of plant protection chemicals were collected in consultation with the project leader the subject matter specialists and the experts in the Department of Agricultural Extension and demonstrator farmers. Care was taken to include all the possible statements reflecting the attitude of the respondents towards the subject under study in the universe of content. The collected statements were then edited by comparing against the criteria described by Edwards (1957). Thus, after editing them there were 18, 14, 14, 12, 12 and 13 statements about high yielding varieties, seed treatment, soil testing, liming, fertilizer application and plant protection, respectively.

In the development of attitude scale, Likert (1932) method of summated rating was used. The edited statements were given to 100 rice growing farmers of the Muttakkadu village of Trivandrum District. They were asked to respond to each statements on the following five point continuum.

SA - Strongly agree.

A - Agree

UD - Undecided.

DA - Disagree

SDA - Strongly disagree.

After collecting the response from the farmers, the item were analysed. The purpose of item analysis is to examine how well each item discriminates between persons having different attitudes. On this basis, the items with high discriminating values are retained and others eliminated.

The following steps, as suggested by Edwards (1957) were followed in the item analysis.

The total score was found for each respondent on all items in the preliminary series. The various responses were assigned numerical weights varying from 5 - strongly agree, 4 - agree, 3 - undecided, 2 - disagree and 1 - strongly disagree for positive statements. This order was reversed for negative statements. The total score for a person was the summation of numerical weights assigned to the responses. The scored papers were placed in rank order of the total scores. Twentyfive per cent of the subjects with the highest total scores and the 25 per cent of the subjects with lowest total scores were considered for the final item analysis. It was assumed that these two groups would provide criterian

groups, in terms of which to evaluate an individual statement. In evaluating the responses in high and low groups to the individual statements using 't' ratio, the following formula was used.

$$t = \frac{x_H - x_L}{\frac{SH^2}{mH} \quad \frac{SL^2}{mL}}$$

Where,

x_H	=	the mean score on a given statement for the high group.
x_L	=	the mean score on the same statement for the low group.
SH^2	=	the variance of the distribution of responses of the high group to the statement.
SL^2	=	the variance of the distribution of responses of the low group to the statement.
mH	=	the number of subjects in the high group.
mL	=	the number of subjects in the low group.

The value of 't' is a measure of the extent to which a given statement differentiates between the high and low groups. As an approximate rule of thumb, any value of 't' equal to or greater than 1.75, could be considered. But

in this case, the statements were arranged in the ascending order of magnitude of the 't' values and six statements having the maximum 't' values were selected for the final scale.

This procedure was adopted for each practice and thus there were 36 statements in the final attitude scale.

Reliability of the scale

A scale is reliable only when it will consistently produce the same results when applied to the same sample. Guilford (1954) had defined "reliability as the proportion of variance in obtained test scores". In this scale the reliability was worked out by the test re-test method.

Test, re-test method

The scale was administered to 20 respondents of the Muttakkadu village and collected the responses. The scores of the respondents for each sub scale and the whole scale were added up. The scale was again administered to the same respondents after an interval of 20 days. The scores were added up as in the previous case. The correlation coefficient between the first set of score and the second set of scores were worked out. The reliability of the sub scales

was found to be 0.970, 0.925, 0.906, 0.923, 0.966, 0.909 for high yielding varieties of seeds, seed treatment, soil testing, liming, use of chemical fertilizers and use of plant protection chemicals respectively. The reliability of the whole scale was found to be 0.983. The above results showed that the scale was highly reliable.

Validity of the scale

The validity of the scale depend upon the d fidelity with which it measures that it purports to measure. The scale developed was tested for construct validity.

Construct validity

This was tested by calculating the correlation coefficient between the education scores and attitude scores of 20 farmers of the Muttakkadu village. The education and attitude scores of 20 respondents were scored and correlated. The coefficient of correlation of the sub-scales were found to be 0.844, 0.797, 0.764, 0.835, 0.805 for high yielding varieties seed treatment, soil testing, liming, use of chemical fertilizers, use of plant protection chemicals respectively. The correlation coefficient of the whole scale was found to be 0.829. The above results indicated that the scale had the construct validity.

The responses were collected on a five point continuum as explained earlier. The total attitude score for each respondent was calculated by adding up the scores of each sub scale. Thus maximum attitude scores that could be obtained by an individual in a sub-scale was 36 and minimum that could be obtained was six. Similarly, in the whole scale, score of 180 was the maximum attitude score that could be obtained and 36 was the minimum attitude score that could be obtained by an individual. After computing the attitude scores, the respondents were categorised into group viz. low, medium and high as follows:

Low	(Mean - 1 S.D.)	=	103.47
Medium	(Mean $\pm$ 1 S.D.)	=	103.47 to 153.95
High	(Mean + 1 S.D.)	=	153.95

B. Extent of adoption of the selected demonstrated cultivation practices of paddy.

Many research workers have developed various methods to measure the adoption behaviour. Notable among them were, Wilkening (1952), Duncan and Kreetlow (1954), Marsh and Coleman (1955), Fliegal (1956), Beal and Rogers (1960), Chattopadhyay (1963), Supe (1969), Jaiswal and Dave (1972) Singh and Singh (1974).

Wilkening (1952) used an index for measuring the adoption of improved farm practices. The index of adoption used was the proportion of practices adopted to the total number of practices applicable for that farmer.

Duncan and Kreetlow (1954) used a 25 item index of farm practices adoption which was a modification of the index developed by Wilkening (1952).

Marsh and Coleman (1955) used "practice adoption scores" computed as the percentage of applicable practices adopted.

Fliegal (1956) constructed an 'index of adoption' of farm practices using the correlation of several adoption variables. He used factor analysis of each of the 11 factors selected. A score of one was given for adoption and zero for non-adoption.

Beal and Rogers (1960) studied in detail the adoption of two farm practices. A simple adoption scale was computed which credited individual with one point for adoption and zero point for non-adoption of a practice.

Supe (1969) developed a scale viz. cotton practice adoption scale. He selected ten cultivation practices of cotton and for each practice, the total score for complete

adoption was six. The practice divisible were assigned partial scores for partial adoption.

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

$$\text{Adoption Quotient} = \frac{\Sigma\, e/p \times 100}{N}$$

Where,

Σ	=	the summation
e	=	extent of adoption of each practice.
p	=	potentiality of adoption of each practice.
N	=	total number of practices selected.

In the present study, to measure the extent of adoption of selected demonstrated cultivation practices of paddy, the method developed by Supe (1969) was followed with slight modifications. According to this method, score of three was given for full adoption, two was given for incomplete or improper adoption and one was given for non-adoption.

Extent of adoption is the degree to which a farmer has actually adopted a recommended practice. The extent of adoption of selected demonstrated practices by the respondents during the first crop season (Virippu) of 1980 was considered for this study. The extent of adoption of each individual practice was calculated as follows:-

1. Use of high yielding varieties

1.	Demonstrated variety	Score - 3.
2.	Any other high yielding variety	Score - 2.
3.	Local variety	Score - 1.

2. Seed treatment

1.	Proper seed treatment	Score - 3.
2.	Incomplete/improper seed treatment.	Score - 2.
3.	No seed treatment	Score - 1.

3. Soil testing

1.	Proper soil testing	Score - 3.
2.	Incomplete/improper soil testing.	Score - 2.
3.	No soil testing	Score - 1

4. Liming

1. Proper liming	Score - 3.
2. Incomplete/improper liming	Score - 2.
3. No liming	Score - 1.

5. Use of chemical fertilizers

Use of chemical fertilizers on the basis of soil test results	Score - 3.
Use of chemical fertilizers on the basis of the general package of practices (not on the basis of soil test results)	Score - 2.
No chemical fertilizer application.	Score - 1.

6. Use of plant protection chemicals

Correct/proper use of plant protection chemicals.	Score - 3.
Incorrect/improper use of plant protection chemicals.	Score - 2.
No application of plant protection chemicals.	Score - 1.

After computing the adoption score of the respondents with respect to the six demonstrated practices, they were categorised in to low adopters, medium adopters and high adopters as follows:

Low	(Mean - 1.S.D.)	=	8.41
Medium	(Mean ± 1 S.D.)	=	8.41 to 15.49
High	(Mean + 1 S.D.)	=	15.49

B. Measurement of independent variables

1. Age

In this study age was measured as the number of years completed by the respondent at the time of investigation.

2. Education

In the present study, the education was measured by adapting the scoring system followed in the socio-economic status scale of Trivedi (1963), with suitable modifications. The scoring system used was as follows:-

Illiterate	- 0
Can read only	- 1
Can read and write	- 2
Primary level	- 3
Middle school level	- 4
High school level	- 5
College and above	- 6

3. Income

The income of farmer in a year was calculated by adding the earnings obtained from main and subsidiary occupations.

4. Farm size

In this study the size of holding was measured in terms of the actual area of land cultivated by a respondent.

5. Social participation

In the case of social participation, both membership and holding offices in organisations and the frequency of attending meetings of the organisations were taken in to consideration. The score were assigned as shown below:

(i) Membership in organisations

1. No membership in any organisation - 0
2. Membership in each organisation - 1
3. Office bearer in each organisation - 2

(ii) Frequency of attending meetings

Not attending any of the meetings - 0
Attending few meetings - 1
Attending all meetings - 2

The total scores obtained by a respondent were added together which form the social participation score of an individual.

6. Contact with extension agencies

Jaiswal et al. (1971) used a scoring technique to measure the farmers' contact with extension agencies. The technique used by them was used for this study. The measurement was based on the frequency of meeting by the respondents with Junior Agricultural Officers', Village Extension Officers', Demonstrators' etc. either in the office of these personnel or elsewhere in connection with agricultural activities. The respondents were asked to indicate the frequency of their visit to Junior Agricultural Officers, Village Extension Officers, Demonstrators etc. in connection with agricultural activities and scores were assigned as follows:

Frequency of visit	Score
Never	0
Once in a month	1
Once in a fortnight	2
Once in a week	3
Two or more times in a week	4

7. Cosmopoliteness

The measures utilised to operationalise the concept of cosmopoliteness by past researchers were of the following.

(i) Attitudinal indication

Researchers like Gouldner (1957), Dobriner (1958), Warder (1964), utilized attitudinal indicators in order to measure cosmopoliteness. In this case the respondents were asked to indicate his degree of agreement or disagreement with statements such as "the most rewarding organisation a person can belongs to are local organisations erving local needs (Dobriner, 1958).

(ii) Behavioural indicators

Goldsen and Ralis (1957) utilised the behavioural indicators to measure cosmopoliteness. The respondent was asked to reflect his communcation contact with those external to his social systems.

In this study, cosmopoliteness was measured in terms of the frequency to visit to the nearby towns, purpose of visit and membership in organisations outside the village. The scoring was done as shown below.

Frequency of visit to the nearby town.	Scores
a. Never	0
b. Once in a month	1
c. Once in a fortnight	2
d. Once in a week	3
e. Two or more times in a week.	4

Purpose of visit	Scores
a. Entertainment	0
b. Other purposes	1
c. Personal or professional	2
d. Agricultural	3

Membership in organisations outside the village	Scores
a. Non-member	0
b. Member	1

The total number of scores obtained by an individual was taken as his cosmopoliteness scores.

8. Information source utilisation

The procedure followed by Nair (1969) was adopted in the present study to find out the respondents' information source utilisation.

Each respondent was asked to indicate as to how often he got information regarding scientific farming from different sources like newspapers, radio, extension personnel, agricultural scientists etc. The scoring pattern was as follows:

Frequency of utilising information source	Scores
a. Never	0
b. Once in a month	1
c. Once in a fortnight	2
d. Once in a week	3
e. 2-6 times in a week	4
f. Every day.	5

9. Scientific orientation

The scientific orientation scale developed by Supe, (1969) was used for this study to know the respondents' scientific orientation. His scale consisted of six statements of which one was negative. The responses were collected on a five point continuum as shown below:

Points in the continuum	Scores
Strongly disagree	1
Disagree	3
Undecided	4
Agree	5
Strongly agree	7

The scoring pattern was reverse for negative statements. The total scores thus obtained by an individual was taken as his score for scientific orientation.

10. Risk preference

In the present study risk preference was measured with the help of the scale developed by Supe (1969). As in the case of scientific orientation scale, this scale also consisted of six statements. Out of the six statements, two were negative statements. The responses were collected on a five point continuum as shown below:-

Points in the continuum	Scores
Strongly disagree	1
Disagree	3
Undecided	4
Agree	5
Strongly agree	7

As far, the negative statement was concerned, the scoring pattern reversed. The total scores thus obtained by a respondent was considered as his score for risk preference.

11. Management orientation

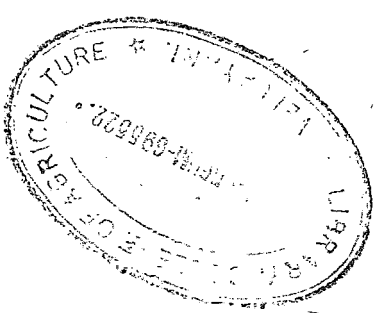
The management orientation scale developed by Samantha (1977) was used for this study, to know the respondents' management orientation. It consisted of 18 statements, six statements each for planning, production

and marketing orientations. In each group, positive and negative statements were mixed, retaining at the same time a more or less psychological order of the statements. In the case of a positive statement, a score of one was given for agreement and zero was given for disagreement. For a negative statement, the scoring pattern was reverse. The sum of the score obtained by a respondent was taken as his score for management orientation.

VI. Data collection procedure

An interview schedule was prepared in english and administered in malayalam. A response sheet was prepared for each respondent mentioning the serial number of questions only. The score given for each answer was entered against the appropriate question number in the response sheet.

The respondents were interviewed individually at their residence or in the field and the purpose of the study was clearly explained to them. The data were collected during April-May, 1981.



VII. Statistical methods used

1. Normal test of significance

A normal test of significance of difference between means was applied to compare the neighbour farmers and control farmers with respect to the selected dependent variables, using the following formula for equal sample sizes.

$$Z = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{S_1^2 + S_2^2}{N}}}$$

Where,

Z	=	computed value for the normal deviate
$\bar{x}_1$	=	mean of sample 1
$\bar{x}_2$	=	mean of sample 2
S_1	=	Standard deviation of sample 1
S_2	=	Standard deviation of sample 2
N	=	Sample size.

2. Analysis of variance

This test was employed to test whether there was significant difference between the farmers of the selected seven National Demonstration padasekharams in respect of

scores on the dependent variables. For those variables for which the 'F' ratio were significant, the critical values were worked out to compare the means.

3. Simple correlation

Simple correlation coefficients were worked out to find the relationship of each of the independent variables with dependent variables. Correlation analysis was also used to find out the inter-relationship between the dependent variables as well as the inter-relationship between independent variables. The significance of correlation was tested at 1 per cent and 5 per cent levels.

The formula used to compute simple correlation was:

$$r_{xy} = \frac{P_{xy}}{x \quad y}$$

Where,

r_{xy} = correlation between x and y.

P_{xy} = Product moment of x and y.

x = Standard deviation of the distribution of x.

y = Standard deviation of the distribution of y.

RESULTS

CHAPTER IV

RESULTS

In this chapter the results of the study are presented in the following sequence.

I. Distribution of neighbour and control farmers according to their level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices and the significance of difference between them with respect the level of knowledge, attitude and extent of adoption.

II. Comparison of mean scores on level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices among the farmers of seven padasekharams of National Demonstration villages.

III. Comparison of mean scores on level of knowledge, attitude and extent of adoption of each demonstrated cultivation practices among the farmers of seven padasekharams of National Demonstration villages.

IV. Correlation between the characteristics of farmers and the dependent variables.

V. Inter-correlation of dependent variables.

VI. Inter-correlation of independent variables.

I. Distribution of neighbour farmers and control farmers according to their level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices and the significance of difference between them with respect of their mean level of knowledge, attitude and extent of adoption.

A. Level of knowledge

A comparison of the level of knowledge of farmers neighbouring to the demonstration plots and control farmers not exposed to the National Demonstration plots was made to find out the difference in their mean knowledge scores, as shown below:

Table 2: Distribution of neighbour and control farmers according to their level of knowledge on the demonstrated practices.

Level of knowledge.	Neighbour farmers (N = 100)		Control farmers (N = 100)	
	Frequency	Percentage	Frequency	Percentage
Low (8.78)	17	17.00	16	16.00
Medium (8.78 to 19.92)	65	65.00	70	70.00
High (19.92)	18	18.00	14	14.00
Total:	100	100.00	100	100.00

It is seen from the table-2 that majority of the neighbour farmers (65.00 per cent) and control farmers (70.00 per cent) had medium level of knowledge. In the case of farmers having low level of knowledge, the percentage of respondents in both groups were almost equal (16.00 per cent of neighbour farmers and 17.00 per cent of control farmers). It is noted that 18.00 per cent of neighbour farmers came under high category as against 14.00 per cent in the control group.

Table 3: Mean scores on the level of knowledge of neighbour and control farmers about the demonstrated cultivation practices and the significance of difference between their mean knowledge scores.

Groups	Mean knowledge scores.	'Z' value
Neighbour farmers	16.24	5.16**
Control farmers	12.54	

** Significant at 0.01 level of probability.

As seen in the table-3, evidenced a wide gap between mean knowledge score of the neighbour farmers (16.24) and that of the control farmers (12.54). The computed 'Z' value also indicated a significant difference between them with respect to their level of knowledge.

B. Attitude

The distribution of the farmers neighbouring to the demonstration and control farmers according to their attitude towards the demonstrated cultivation practices, is depicted in the table below.

Table 4: Distribution of neighbour and control farmers according to their attitude towards the demonstrated practices.

Level of attitude	Neighbour farmers (N = 100)		Control farmers (N = 100)	
	frequency	Percentage.	frequency	Percentage.
Low (103.47)	13	13.00	16	16.00
Medium (103.47 to 153.95)	71	71.00	70	70.00
High (153.95)	16	16.00	14	14.00
Total	100	100.00	100	100.00

The table-4 revealed that majority of neighbour farmers and control farmers belonged to the medium level of attitude category (71.00 per cent of neighbour farmers and 70.00 per cent of control farmers). Only 13.00 per cent of the neighbour farmers were having low attitude as

against to that of the 16.00 per cent in the control group. But, the high attitude category were only 14.00 per cent in the case of control farmers as against the 16.00 per cent in the case of neighbour farmers.

Table 5: Mean scores on the level of attitude of neighbour and control farmers towards the demonstrated cultivation practices and the significance of difference between their mean attitude scores.

Groups	Mean attitude score	'Z' value
Neighbour farmers	133.16	2.53*
Control farmers	124.30	

* Significant at 0.05 level of probability.

The mean attitude scores of the neighbour farmers was 133.16 and that of the control farmers was 124.30 as shown in the table-5. The table clearly indicated the mean attitude scores of the neighbour farmers to be higher than that of the control farmers. This difference was substantiated by the 'Z' value revealing significant difference between the neighbour and control farmers with respect to their mean attitude scores.

C. Extent of adoption

The frequency distribution of the neighbour farmers of the demonstration padasekharam and the control farmers selected for the study, is presented in the table below.

Table 6: Distribution of neighbour and control farmers according to the extent of adoption of the demonstrated practices.

Extent of adoption.	Neighbour farmers (N = 100)		Control farmers (N = 100)	
	frequency	percent-age.	frequency	percent-age.
Low (8.41)	16	16.00	10	10.00
Medium (8.41 to 15.49)	58	58.00	73	73.00
High (15.49)	26	26.00	17	17.00
Total	100	100.00	100	100.00

The data in table-6 revealed that more than half of the neighbour farmers were medium adopters as compared to about three-fourth of the control farmers falling under the same category. Moreover, one-fourth of the neighbour farmers (26.00 per cent) were found to be high adopters as against the one-seventh (17.00 per cent) in the control

group. It was interesting to note that only 10.00 per cent of the control farmers belonged to the low adoption category whereas 16.00 per cent of the neighbour farmers belonged to the same category.

Table 7: Mean scores on the extent of adoption by the neighbour and control farmers and the significance of difference between their mean extent of adoption scores.

Group	Mean adoption scores	'Z' value
Neighbour farmers	12.91	4.21**
Control farmers	10.81	

** Significant at 0.01 level of probability.

Table-7 showed that the mean adoption score of the neighbour farmers and control farmers were 12.91 and 10.89 respectively. It clearly indicated that the mean adoption score of the neighbour farmers was higher than that of the control farmers. It was further proved by the computed 'Z' value, revealing significant difference between the two groups in respect to their mean scores on extent of adoption of the practices demonstrated under the National Demonstration Programme.

II. Comparison of mean scores on level of knowledge, attitude and extent of adoption towards the demonstrated practices among the farmers of seven padasekharams of National Demonstration villages.

A. Level of knowledge

A comparison of the level of knowledge among the farmers neighbouring to the seven National Demonstration plots was made to find out the relative level of knowledge on the demonstrated practices.

The data on the scores, indicating the mean level of knowledge of the farmers, are presented in table below in numerical order of magnitude.

Table 8: Comparison of mean knowledge scores on the demonstrated cultivation practices among the farmers of the seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams		Mean knowledge scores of neighbour farmers. (N=100)	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	18.88		
2.	Elinjipra	(P_2)	16.88		
3.	Kecheri	(P_3)	16.45		
4.	Meloor	(P_1)	15.80	37.87	1.19^{NS}
5.	Kompàzha	(P_7)	15.75		
6.	Chowannur	(P_4)	14.93		
7.	Ollukkara	(P_5)	13.44		

Pooled mean of neighbour farmers: 16.24
Pooled mean of control farmers: 12.54

N.S. Not significant.

It would be seen from the table-8 that the farmers of the seven padasekharams where National Demonstration have been conducted, farmers of Puthur possessed the highest mean knowledge score (18.88) followed by the farmers of Elinjipra (16.88), Kecheri (16.45), Meloor (15.80), Kompazha (15.75), Chowannur (14.93) and Ollukkara (13.44). The farmers of demonstration padasekharam at Ollukkara possessed the lowest mean knowledge score. Even though the mean knowledge scores of the farmers of the seven padasekharams varied considerably, the computed 'F' value did not show significant difference in the mean knowledge scores. This revealed that the level of knowledge about the six demonstrated practices possessed by the farmers of the seven demonstration padasekharams did not differ significantly.

The table-8 also revealed that the farmers of Puthur, Elinjipra and Kecheri had better knowledge on the six demonstrated cultivation practices under study as evidenced by their mean knowledge score above the pooled mean knowledge score of 16.24. It is also seen that the neighbour farmers of all the National Demonstration padasekharams had higher knowledge than the control farmers whose pooled mean knowledge score was only 12.54.

B. Attitude

An attempt has been made to compare the attitude of farmers towards the demonstrated cultivation practices. The data on the mean attitude scores are given in the table below, in their descending order.

Table 9: Comparison of the mean attitude towards the demonstrated cultivation practices among the farmers of the seven demonstration padasekharam.

Sl. No.	National Demonstration padasekharams.		Mean attitude scores.	Man square between samples.	'F' ratio
1.	Puthur	(P_6)	155.47		
2.	Chowannur	(P_4)	135.71		
3.	Meloor	(P_1)	133.55		
4.	Kompazha	(P_7)	130.00	2169.00	2.92*
5.	Elinjipra	(P_2)	128.00		
6.	Kecheri	(P_3)	124.27		
7.	Ollukkara	(P_5)	115.00		

Pooled mean of neighbour farmers: 133.16
Pooled mean of control farmers: 124.30

* Significant at 0.05 level of probability.

C.D. for comparison between P_6 and P_4 - 19.59
C.D. for comparison between P_6 and P_1 - 20.36
C.D. for comparison between P_6 and P_7 - 20.45
C.D. for comparison between P_6 and P_2 - 18.60
C.D. for comparison between P_6 and P_3 - 20.97
C.D. for comparison between P_6 and P_5 - 22.36

As per the table-9, the mean attitude scores revealed that the farmers of the demonstration padasekharam in Puthur village were having the highest attitude scope towards the demonstrated practices and the respondents of the Ollukkara village were having the lowest mean attitude score towards the demonstrated practices. The 'F' ratio indicated that there was significant difference between the respondents of seven padasekharams. The critical differences were worked out and found that the respondents belonging to the padasekharams in the villages viz. Chowannur, Meloor, Kompazha, Elinjipra, Kecheri and Ollukkara were on par in respect of their mean attitude scores. The respondents of the padasekharam in Puthur village possessed stochastically higher attitude scores than the respondents of the remaining six padasekharams selected for the study.

Table-9 further evidenced that the farmers of Puthur, Chowannur and Meloor were having higher attitude score than the remaining four padasekharams, when compared with the pooled mean attitude of neighbour farmers. Similarly, farmers of all padasekharams except Kecheri and Ollukkara, were found have scores higher than that of the control group.

C. Extent of adoption

Adoption behaviour of the farmers of the seven National Demonstration padasekharams were compared between themselves in order to find out the relative difference in their extent of adoption of the demonstrated cultivation practices.

Data on the mean adoption scores of the respondents of the seven padasekharams are presented in their descending order in table-10.

Table 10: Comparison of mean extent of adoption scores on the demonstrated cultivation practices among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams		Mean adoption scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	16.47		
2.	Elinjipra	(P_2)	12.76		
3.	Kecheri	(P_3)	12.45		
4.	Chowannur	(P_4)	12.36	46.71	4.42**
5.	Meloor	(P_1)	12.10		
6.	Kompazha	(P_7)	11.92		
7.	Ollukkara	(P_5)	11.00		
Pooled mean of neighbour farmers:				12.91	
Pooled mean of control farmers:				10.81	

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_2	2.22
C.D. for comparison between P_6 and P_3	2.50
C.D. for comparison between P_6 and P_4	2.33
C.D. for comparison between P_6 and P_1	2.13
C.D. for comparison between P_6 and P_7	2.44
C.D. for comparison between P_6 and P_5	2.66

A critical observation of the data presented in Table-10 revealed that the respondents of demonstration padasekharam in Puthur village showed the highest mean adoption score among the seven padasekharams under study. There was not much variation in the mean adoption scores among the respondents of other padasekharams. It was noted that respondents of the padasekharam at Ollukkara exhibited the least mean adoption score among the seven padasekharams. The computed 'F' value clearly corroborated that there was significant difference between the respondents of the seven padasekharams. The critical differences indicated that the respondents of the padasekharam in Puthur village possessed significantly higher mean adoption score than that of the remaining padasekharams. It was further revealed that the mean adoption scores of the respondents of padasekharams located in villages viz. Elinjipra, Kechery, Meloor, Kompazha and Ollukkara were on par.

It was also seen from the table-10 that farmers of only one padasekharam, viz. Puthur had a high adoption score (12.91) above the pooled mean adoption score of neighbour farmers. Farmers of the remaining six padasekharams were found to be below the pooled mean level. At the same time farmers of all the padasekharams were much above than the control group in their adoption behaviour.

III. Comparison of mean scores on level of knowledge, attitude and extent of adoption of each demonstrated practices among the farmers of seven padasekharams of National Demonstration villages.

A comparative analysis of mean scores on level of knowledge, attitude and extent of adoption of each demonstrated practices was made in order to find out the differences in the level of knowledge, attitude and extent of adoption between the farmers of the seven National Demonstration padasekharams. The results of the analysis is presented below in table-11.

A. Comparison of mean level of knowledge scores on each demonstrated practices among the farmers of seven demonstration padasekharams.

1. Use of high yielding varieties

Table 11: Comparison of mean level of knowledge scores on the use of high yielding varieties of paddy among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams		Mean knowledge scores.	Mean squrre between samples.	'F' ratio
1.	Puthur	(P_6)	4.06		
2.	Elinjipra	(P_2)	3.59		
3.	Meloor	(P_1)	3.40		
4.	Kompazha	(P_7)	3.25	99.08	58.63**
5.	Chovannur	(P_4)	3.21		
6.	Ollukkara	(P_5)	3.11		
7.	Kecheri	(P_3)	2.73		

Pooled mean of neighbour farmers:	3.33
Pooled mean of control farmers:	2.58

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_3	1.00
C.D. for comparison between P_2 and P_3	0.82

The table-11 revealed that the farmers of National Demonstration padasekharam at Puthur possessed the highest knowledge score (4.06) about the demonstrated high yielding variety of paddy. The mean knowledge scores of the

respondents of demonstration padasekharam in Kechery village was the least (2.73) in the numerical order. It was interesting to note that the respondents of the remaining five padasekharams received more or less equal mean knowledge scores about the high yielding varieties of paddy.

The mean knowledge scores possessed by the farmers of each padasekharam were further compared with the pooled mean scores of the neighbour farmers. It was found that the respondents of the padasekharam at Puthur, Elinjipra and Meloor were above the pooled mean score (3.33) indicating comparably higher knowledge than the other four villages. Except the farmers of demonstration padasekharam at Kecheri farmers of all other padasekharam received a mean knowledge score above to that of control farmers. The 'F' value indicated that the difference between the mean knowledge scores on high yielding variety was highly significant. However, the critical difference showed that the mean knowledge of the farmers of Puthur and Elinjipra were significantly higher than that of Kecheri.

2. Seed treatment

Table 12: Comparison of mean knowledge scores on seed treatment among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean knowledge scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	3.94		
2.	Elinjipra	(P_2)	3.88		
3.	Kecheri	(P_3)	3.82		
4.	Chowannur	(P_4)	3.43	4.48	1.19 N.S.
5.	Kompazha	(P_7)	3.33		
6.	Meloor	(P_1)	3.15		
7.	Ollukkara	(P_5)	2.11		
Pooled mean of neighbour farmers:			3.38		
Pooled mean of control farmers:			3.85		

N.S. Not significant.

As shown the data in table-12 that the farmers of National Demonstration padasekharam in Puthur village secured the highest mean knowledge score (3.94) on seed treatment closely followed by Elinjipra (3.88) and Kecheri (3.82). The farmers of the demonstration padasekharams in Ollukkara village possessed the lowest mean knowledge, score (2.11). It was observed that except the respondents of the demonstration padasekharam at Kompazha, Meloor and

Kecheri, respondents of all other padasekharams possessed a mean knowledge score above the pooled mean of neighbour farmers. At the same time it was encouraging to note that the farmers of all the padasekharams except Ollukkara possessed higher mean knowledge scores than the pooled mean knowledge score of the control farmers selected for the study.

However the computed critical difference did not indicate any significant difference between the farmers of the seven padasekharams with respect to the mean knowledge scores on seed treatment.

3. Soil testing

Table 13: Comparison of mean knowledge scores on soil testing among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean knowledge scores.	Mean square between samples.	'F' ratio
1.	Kecheri	(P_3)	2.82		
2.	Puthur	(P_6)	2.71		
3.	Ollukkara	(P_5)	2.56		
4.	Kompazha	(P_7)	2.50	1.92	$0.99^{N.S.}$
5.	Elinjipra	(P_2)	2.41		
6.	Meloor	(P_1)	2.05		
7.	Chowannur	(P_4)	1.79		
Pooled mean of neighbour farmers:				2.40	
Pooled mean of control farmers:				1.70	

N.S. Not significant.

A critical observation of the data in table-13 revealed that the mean knowledge score on soil testing possessed by the respondents of the demonstration padasekharam at Kecheri was 2.82 which was highest mean score among the seven padasekharams. The second highest score was obtained by the farmers in the demonstration padasekharam in Puthur village. The respondents in padasekharams viz. Ollukkara, Kompazha and Elanjipra possessed more or less equal mean knowledge scores. The lowest mean score (1.79) was received by the respondents of the padasekharam at Chowannur. However, it was observed that except the farmers of the demonstration padasekharams at Chowannur and Meloor, farmers of all other padasekharams possessed higher mean knowledge scores than the pooled mean of neighbour farmers. It was encouraging to note that the mean knowledge scores of the farmers in all demonstration padasekharams were higher than the pooled mean of control farmers. Though there was variation in the mean knowledge scores, the computed 'F' value indicated that there was no significant difference between the farmers belonging to the seven National Demonstration padasekharam in respect of their knowledge on soil testing.

4. Liming

Table 14: Comparison of mean knowledge scores on the practice of liming among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean knowledge scores.	Mean square between samples.	'F' ratio
1.	Elinjipra	(P_2)	1.76		
2.	Puthur	(P_6)	1.59		
3.	Meloor	(P_1)	1.25		
4.	Ollukkara	(P_5)	1.22	0.99	$1.92^{N.S.}$
5.	Kecheri	(P_3)	1.18		
6.	Kompazha	(P_7)	1.17		
7.	Chowannur	(P_4)	1.07		
Pooled mean, neighbour farmers:			1.33		
Pooled mean, control farmers:			1.43		

N.S. Not significant.

It is observed from the table-14 that the farmers of demonstration padasekharam in Elinjipra secured the highest mean knowledge score (1.76) about liming followed by the farmers of Puthur padasekharam (1.59). The mean knowledge score on liming possessed by the farmers in other

padasekharams were 1.25, 1.22, 1.18, 1.17 and 1.07 respectively. It is also evident from the table that farmers in two padasekharams only, viz. Elinjipra and Puthur gained a high knowledge score than the pooled mean score of control farmers. The computed 'F' value indicated that there was no significant difference between the farmers neighbouring to the seven National Demonstration plots with respect to their mean knowledge score on liming.

5. Use of chemical fertilizers

Table-15: Comparison of mean knowledge scores on the use of chemical fertilizers among the farmers of seven padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean knowledge scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	2.20		
2.	Elinjipra	(P_2)	1.94		
3.	Kecheri	(P_3)	1.91		
4.	Ollukkara	(P_5)	1.89	0.38	$0.30^{N.S.}$
5.	Meloor	(P_1)	1.88		
6.	Chowannur	(P_4)	1.86		
7.	Kompazha	(P_7)	1.83		
Pooled mean of neighbour farmers:				1.93	
Pooled mean of control farmers:				1.36	

N.S. Not significant.

A perusal of the data presented in table-15, presenting villages in their descending order indicated that the farmers of Puthur padasekharam yielded the highest mean knowledge score (2.20) on the use of chemical fertilizers in paddy among the farmers of seven padasekharams. Farmers of all other padasekharams possessed more or less equal values with respect to the mean knowledge score. In comparison with the pooled mean, it was noted that the farmers of padasekharam in Meloor and Elinjipra were having high level of knowledge. It was encouraging to note that farmers of all the seven padasekharams had secured mean knowledge scores higher than the pooled mean knowledge score of farmers of control padasekharams selected for the study. However, the computed 'F' value indicated no significant difference between the farmers of seven National Demonstration padasekharams pertaining to their mean knowledge scores on the use of the fertilizers in paddy.

6. Use of plant protection chemicals

Table 16: Comparison of mean knowledge scores on the use of plant protection chemicals among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration Padasekharams.		Mean knowledge score.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	4.59		
2.	Kecheri	(P_3)	4.01		
3.	Meloor	(P_1)	3.65		
4.	Chowannur	(P_4)	3.50	5.26	2.49**
5.	Kompazha	(P_7)	3.42		
6.	Elinjipra	(P_2)	3.12		
7.	Ollukkara	(P_5)	2.67		

Pooled mean of neighbour farmers:	3.56
Pooled mean of control farmers:	3.30

* Significant at 0.05 level of probability.

C.D. for comparison between P_6 and P_4	1.03
C.D. for comparison between P_6 and P_7	1.07
C.D. for comparison between P_6 and P_2	1.17
C.D. for comparison between P_6 and P_5	1.19
C.D. for comparison between P_3 and P_5	1.29

As seen from table-16 the neighbour farmers of National Demonstration plot at Puthur were having the

highest mean knowledge scores (4.59) than the farmers of the remaining padasekharams. In the case of farmers of Kecheri, Meloor, Chowannur, Kompazha, Elinjipra and Ollukkara, the mean knowledge scores were 4.01, 3.65, 3.50, 3.42, 3.12 and 2.67 respectively. The mean knowledge score of the farmers of padasekharam at Puthur, Kechery and Meloor were higher than the pooled mean score. It was further noted that except the farmers of National Demonstration padasekharam at Elinjipra and Ollukkara, farmers of all other padasekharams were having higher mean knowledge score than that of the pooled mean of the farmers of control padasekharams.

As the computed 'F' value was significant, the critical differences were worked out to compare the means. It was found that the mean knowledge about the use of plant protection chemicals possessed by the farmers of Chowannur, Kompazha, Elinjipra and Ollukkara were significantly lower than that of the farmers of Puthur padasekharam. Moreover, the mean knowledge scores of farmers by Ollukkara was significantly lower than that of farmers of Meloor also.

B. Comparison of mean attitude scores towards each demonstrated practices of paddy among the farmers of seven demonstration padasekharams.

1. Use of high yielding varieties

Table 17: Comparison of mean attitude scores towards the use of high yielding varieties of paddy among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean attitude scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	25.59		
2.	Chowannur	(P_4)	25.00		
3.	Elinjipra	(P_1)	23.59		
4.	Kompazha	(P_5)	23.42	31.05	1.94 N.S.
5.	Meloor	(P_1)	23.15		
6.	Kecheri	(P_3)	21.91		
7.	Ollukkara	(P_5)	21.11		
Pooled mean of neighbour farmers:				23.39	
Pooled mean of control farmers:				21.55	

N.S. Not significant.

An observation of the data in table-17 revealed that the highest mean attitude score towards high yielding variety of paddy was obtained by the farmers of demonstration padasekharam at Puthur (25.59) and the lowest mean

attitude score was obtained by the farmers in demonstration at Ollukkara (21.11). It was noted that the farmers of Chowannur Padasekharam (25.00) received a more or less near value to that of the farmers of Puthur. The mean score for attitude of farmers of Puthur, Chowannur, Elanjipra and Kompazha were higher than their pooled mean attitude score. The farmers of all demonstration padasekharams except Ollukkara had higher mean attitude score when compared to the pooled mean attitude score of the control farmers. However, the 'F' value indicated that there was no significant difference between the farmers of seven padasekharams in respect of their mean attitude scores towards the use of high yielding varieties.

2. Seed treatment

Table 18: Comparison of mean attitude scores towards seed treatment among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration Padasekharams		Mean attitude score.	Mean square between samples.	'F' ratio
1.	Chowannur	(P_4)	23.50		
2.	Puthur	(P_6)	23.18		
3.	Elinjipra	(P_2)	23.18		
4.	Meloor	(P_1)	21.10	31.48	1.06 N.S.
5.	Kompazha	(P_7)	20.75		
6.	Kecheri	(P_3)	20.45		
7.	Ollukkara	(P_5)	18.89		
Pooled mean of neighbour farmers:			21.58		
Pooled mean of control farmers:			20.58		

N.S. Not significant.

Table-18 revealed that the mean attitude score towards seed treatment possessed by the farmers of Chowannur was 23.50, which was the highest mean score among the farmers of seven National Demonstration padasekharams. The farmers of both Puthur and Elinjipra had same score (23.88), which was second to highest. The comparison with the pooled mean score of the neighbour farmers of the seven demonstration plots indicated that farmers of Chowannur, Elinjipra and Puthur were having higher score than the pooled mean. But at the same time the comparison with pooled mean of control farmers showed that except the farmers of Kecheri and Ollukkara all others were above the pooled mean of control farmers. Since the computed 'F' ratio was not significant, it indicated that with respect the attitude of farmers towards seed treatment, farmers of all National Demonstrations padasekharams [illegible].

3. Soil testing

Table 19: Comparison of mean attitude scores towards soil testing among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean attitude score	Mean square between samples.	'F' ratio
1.	Meloor	(P_1)	24.75		
2.	Puthur	(P_6)	24.71		
3.	Elinjipra	(P_2)	23.94		
4.	Chowannur	(P_4)	23.21	34.98	$1.43^{N.S.}$
5.	Ollukkara	(P_5)	21.56		
6.	Kompazha	(P_7)	21.25		
7.	Kecheri	(P_3)	21.18		
Pooled mean of neighbour farmers:			22.94		
Pooled mean of control farmers:			20.58		

N.S. Not significant.

The data in table-19 indicating the mean attitude scores of seven padasekharams, revealed that the farmers of demonstration padasekharam at Meloor had the highest mean attitude score (24.75) towards soil testing, closely followed by Puthur (24.71). Farmers of Kecheri padasekharam received the lowest mean attitude score (21.18). It

was noted that farmers of all the National Demonstration padasekharams except Ollukkara, Kompazha and Kecheri, received mean attitude scores above the pooled mean score of seven demonstrated padasekharams. It was encouraging to observe that the mean attitude scores of neighbour farmers of all the selected demonstrated plots were above to that of control farmers. Though there was difference in the mean attitude scores of farmers surrounding to the National Demonstration plots, the 'F' value did not indicate any significant difference.

4. Liming

Table 20: Comparison of mean attitude scores towards liming among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean attitude score.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	26.96		
2.	Elinjipra	(P_2)	23.50		
3.	Meloor	(P_1)	23.24		
4.	Kompazha	(P_7)	22.60	69.78	2.59*
5.	Kecheri	(P_3)	21.83		
6.	Ollukkara	(P_5)	20.64		
7.	Chowannur	(P_4)	20.22		

Pooled mean of neighbour farmers: 21.71
Pooled mean of control farmers: 21.22

* Significant at 0.05 level of probability.

C.D. for comparison between P_6 and P_2	3.58
C.D. for comparison between P_6 and P_1	3.42
C.D. for comparison between P_6 and P_7	3.86
C.D. for comparison between P_6 and P_3	4.00
C.D. for comparison between P_6 and P_5	3.24

An assessment of the table-20 showed that farmers of demonstration padasekharam at Puthur yielded the highest mean attitude score (26.96) towards liming. In the case of farmers of demonstration padasekharam at Elinjipra, the mean attitude score was 23.50, which was second to the highest. As in the case of use of high yield varieties and seed treatment, the farmers of demonstration padasekharam at Chowannur expressed the lowest attitude towards liming (20.22) among the farmers of seven padasekharams. In comparison with the pooled mean of neighbour farmers, it was seen that the mean attitude scores of the farmers of demonstration padasekharams at Puthur, Elinjipra and Meloor were higher than that of the pooled mean. It was further seen that except the farmers of Ollukkara and Chowannur, all others were having higher mean attitude scores than the pooled mean attitude score of control farmers. The 'F' value indicated significant difference between the mean attitude scores. Hence, the critical difference was worked out and found that except the farmers of demonstration padasekharam at Elinjipra,

all others were significantly lower than Puthur. Similarly, except Puthur farmers of all other padasekharams were on par with respect to their mean attitude score towards liming.

5. Use of chemical fertilizers

Table 21: Comparison of the mean attitude scores towards the use of chemical fertilizers among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean attitude score.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	26.41		
2.	Chowanmur	(P_4)	23.50		
3.	Elinjipra	(P_2)	22.53		
4.	Kompazha	(P_7)	22.25	126.22	8.36**
5.	Meloor	(P_1)	22.10		
6.	Kecheri	(P_3)	21.00		
7.	Ollukkara	(P_5)	20.11		

Pooled mean of neighbour farmers: 22.57
Pooled mean of control farmers: 21.42

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_4 2.85
C.D. for comparison between P_6 and P_2 2.73
C.D. for comparison between P_6 and P_7 2.95
C.D. for comparison between P_6 and P_1 1.91
C.D. for comparison between P_6 and P_3 3.04
C.D. for comparison between P_6 and P_5 3.24
C.D. for comparison between P_4 and P_5 3.34

Table-21 revealed that neighbour farmers of National Demonstration plot at Puthur yielded the highest attitude score (26.41) towards the use of fertilizers in paddy crop. As in the previous case, the farmers of Ollukkara ranked seventh in the order. In comparison with the pooled mean of control farmers, it was noted that farmers of only two National Demonstration padasekharams viz. Puthur and Elinjipra belonged to higher category with respect to the attitude towards fertilizer use. Farmers of all other padasekharams belonged to the lower category. But it was interesting to observe that except the farmers of Kecheri and Ollukkara, all others possessed higher level of attitude than the pooled mean of control farmers.

The 'F' value confirmed that there was significant difference between the mean attitude of neighbour farmers toward fertilizer use. The computed critical difference indicated that farmers of Puthur padasekharam were significantly above than the farmers of all other padasekharams with respect to their mean attitude scores towards fertiliser use. Similarly, it was noted that the mean attitude of farmers of Chowannur was significantly above to that the farmers of Ollukkara National Demonstration padasekharam.

6. Use of plant protection chemicals

Table 22: Comparison of the mean attitude scores towards the use of plant protection chemicals among the farmers of seven padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean attitude score.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	25.82		
2.	Kompazha	(P_7)	21.92		
3.	Ollukkara	(P_5)	21.56		
4.	Meloor	(P_1)	20.60	711.23	21.10**
5.	Chowannur	(P_4)	20.29		
6.	Kecheri	(P_3)	18.73		
7.	Elinjipra	(P_2)	17.24		

Pooled mean of neighbour farmers:	20.88
Pooled mean of control farmers:	21.38

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_1	3.84
C.D. for comparison between P_6 and P_4	4.16
C.D. for comparison between P_6 and P_3	4.48
C.D. for comparison between P_6 and P_2	4.00
C.D. for comparison between P_7 and P_2	4.48

It is observed from the table-22 that the farmers neighbouring to the National Demonstration plot at Puthur was having the highest mean attitude scores (25.82) towards the use of plant protection chemicals. Farmers neighbouring to other demonstration plots at Kompazha, Ollukkara, Meloor, Chowannur, Kecheri and Elinjipra were having a mean attitude scores of 21.92, 21.56, 20.60, 20.29, 18.73 and 17.24 respectively. It was noted that farmers of Puthur, Kompazha and Ollukkara were above the pooled mean attitude scores of both neighbour and control farmers.

The computed 'F' value revealed that there was significant difference between the mean scores of farmers of seven padasekharams with respect to the use of plant protection chemicals. The critical difference for comparison between the scores confirmed that mean attitude scores of the farmers of Puthur was significantly higher than the farmers of all other National Demonstration padasekharams excepting the farmers of Chowannur.

C. Comparison of mean extent of adoption scores on each demonstrated practices among the farmers of seven demonstration padasekharams.

1. Use of high yielding varieties

Table 23: Comparison of the mean extent of adoption scores on the use of high yielding varieties among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.	Mean adoption score.	Mean square between samples.	'F' Ratio
1.	Puthur	2.76		
2.	Meloor	2.55		
3.	Elanjipra	2.29		
4.	Chowannur	2.29	0.67	1.03 N.S.
5.	Kecheri	2.27		
6.	Kompazha	2.25		
7.	Ollukkara	2.22		
Pooled mean for neighbour farmers:		2.38		
Pooled mean for control farmers:		1.90		

N.S. Not significant.

The data in table-23 emit the finding that the farmers neighbouring to the National Demonstration plot at Puthur (2.76) showed the highest extent of adoption,

closely followed by the farmers neighbouring to the demonstration plot at Meloor (2.55). Farmers neighbouring to all the other five demonstration plots showed more or less similar pattern in their extent of adoption of demonstrated high yielding variety of paddy. The extent of adoption of the demonstrated variety was least among the farmers of Ollukkara National Demonstration padasekharam (mean adoption score of 2.22). It was further observed that the mean extent of adoption of the farmers of two demonstration padasekharams only were above the pooled mean extent of adoption scores of neighbour farmers. However, it was encouraging to observe that farmers of all the National Demonstration padasekharams were above the pooled mean of control farmers. The 'F' ratio also did not show any significant variation between the farmers in respect of the extent of adoption of demonstrated high yielding variety of paddy.

2. Seed treatment

Table 24: Comparison of the mean extent of adoption scores on seed treatment among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams	Mean attitude scores.	Mean square between samples.	'F' ratio
1.	Puthur	2.24		
2.	Elinjipra	1.71		
3.	Chowannur	1.71		
4.	Keecheri	1.64	1.71	1.24 N.S.
5.	Meloor	1.60		
6.	Kompazha	1.50		
7.	Ollukkara	1.11		
Pooled mean of neighbour farmers:		1.64		
Pooled mean of control farmers:		1.42		

N.S. Not significant.

It could be seen from the table-24 that the highest extent of adoption of seed treatment was evidenced by the farmers of Puthur and lowest by the farmers of Ollukkara. Despite the farmers of above two padasekharams, all others showed more or less equal in the extent of adoption of seed treatment. Even then, except the farmers neighbouring to National Demonstration plot at Meloor, Kompazha and

Ollukkara, all others had mean extent of adoption scores above the pooled mean of neighbour farmers. At the same time, except the farmers of Ollukkara, farmers of all other padasekharams were above the pooled mean attitude of control farmers. But, the 'F' ratio was not significant, indicating that there was not much difference in the extent of adoption of seed treatment between the farmers of seven National Demonstration padasekharams.

3. Soil testing

Table 25: Comparison of mean extent of adoption scores on soil testing among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean adoption scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	2.65		
2.	Ollukkara	(P_5)	2.33		
3.	Kecheri	(P_3)	1.82		
4.	Chowannur	(P_4)	1.71	0.80	3.59**
5.	Meloor	(P_1)	1.65		
6.	Kompazha	(P_7)	1.58		
7.	Elinjipra	(P_2)	1.47		
Pooled mean of neighbour farmers:				1.88	
Pooled mean of control farmers:				1.52	

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_3	0.689
C.D. for comparison between P_6 and P_4	0.641
C.D. for comparison between P_6 and P_1	0.691
C.D. for comparison between P_6 and P_7	0.660
C.D. for comparison between P_6 and P_2	0.616
C.D. for comparison between P_5 and P_7	0.776
C.D. for comparison between P_5 and P_2	0.734

It was evident from the table-25 that the neighbour farmers of demonstration plot at Puthur had the highest mean adoption score on soil testing (2.65) and farmers of Elinjipra had the lowest mean adoption score (1.47).

Mean extent of adoption score of 2.33, 1.82, 1.71, 1.65 and 1.58 were recorded by the neighbour farmers of Ollukkara, Kecheri, Chowanmur, Meloor, Kompasha and Elinjipra. The farmers of National Demonstration padasekharams at Puthur and Ollukkara had evidence higher mean extent of adoption score than the pooled mean extent of adoption score of neighbour farmers. It could be further observed that except the farmers Elinjipra, all others had mean adoption scores above to the pooled mean of the control farmers.

The computed 'F' ratio indicated that there was significant difference between the farmers of seven padasekharams with respect to the extent of adoption of soil

testing. It was confirmed by the computed critical differences that except the farmers of Ollukkara, all others were significantly below to that of Puthur. Similarly the mean extent of adoption of soil testing practice by the farmers of Ollukkara was significantly higher than that of Kompazha and Elinjipra.

4. Liming

Table 26: Comparison of mean extent of adoption scores on liming among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean adoption scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	2.82		
2.	Kecheri	(P_3)	2.09		
3.	Elinjipra	(P_2)	2.09		
4.	Meloor	(P_1)	1.95	0.42	4.98**
5.	Chowannur	(P_4)	1.93		
6.	Ollukkara	(P_5)	1.89		
7.	Kompazha	(P_7)	1.67		
Pooled mean of neighbour farmers:				2.06	
Pooled mean of control farmers:				1.71	

** Significant at 0.01 level of probability.

C.D. for comparison between P_6 and P_3	0.499
C.D. for comparison between P_6 and P_2	0.426
C.D. for comparison between P_6 and P_1	0.426
C.D. for comparison between P_6 and P_4	0.468
C.D. for comparison between P_6 and P_5	0.529
C.D. for comparison between P_6 and P_7	0.480

An assessment of the table-26 showed that the highest mean score on extent of adoption (2.82) of liming was obtained by the farmers of National Demonstration padasekharam at Puthur. Farmers of Kechery and Elinjipra revealed equal mean adoption scores (2.09). The mean extent of adoption scores of the farmers of Meloor, Chowannur and Ollukkara were 1.95, 1.93 and 1.89 respectively. The lowest mean extent of adoption score (1.67) was secured by the farmers in National Demonstration padasekharam at Kompazha. In comparison with the pooled mean score on the extent of adoption of neighbour farmers, it was found that the farmers of Puthur, Kecheri and Elinjipra belonged to higher cateogy in respect of liming. But it was encouraging to observe that except the farmers of Kompazha, the extent of adoption of the farmers of all other padasekharams were above the pooled mean of control farmers.

The high 'F' ratio indicated significant difference between the mean adoption scores of the

Demonstration padasekharams. The computed critical difference confirmed that except the farmers of Kecheri, all others were significantly below with respect to the mean adoption on liming.

5. Use of chemical fertilizers

Table 27: Comparison of mean extent of adoption scores on the use of chemical fertilizers between the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean adoption scores.	Mean square between samples.	'F' ratio
1.	Puthur	(P_6)	2.71		
2.	Meloor	(P_1)	2.53		
3.	Elinjipra	(P_2)	2.25		
4.	Ollukkara	(P_5)	2.22	0.75	$1.67^{N.S.}$
5.	Kecheri	(P_3)	2.18		
6.	Chowannur	(P_4)	2.14		
7.	Kompazha	(P_7)	2.00		
Pooled mean of neighbour farmers:				2.29	
Pooled mean of control farmers:				2.11	

N.S. Not significant.

It was noted from the table-27 that the farmers of Puthur yielded the highest mean extent of adoption score (2.71) and the farmers of Kompazha yielded the lowest mean extent of adoption scores (2.00) with the respect to the use

of chemical fertilizers. It was found that the neighbour farmers of National Demonstration plots at Puthur and Meloor belonged to higher adoption category with respect to the use of chemical fertilizers when compared with the pooled mean of neighbour farmers. As in the case of liming it was encouraging to note that except the farmers of Kompazha, farmers of all other demonstration padasekharams were above the pooled mean of control farmers. However, the 'F' ratio did not show any significant difference between the farmers of seven National Demonstration padasekharams pertaining to the use of chemical fertilizers in their paddy crop.

6. Use of plant protection chemicals

Table 28: Comparison of mean extent of adoption scores on the use of plant protection chemicals among the farmers of seven demonstration padasekharams.

Sl. No.	National Demonstration padasekharams.		Mean adoption scores.	Mean square between samples.	'F' ratio
1.	Kompazha	(P_7)	3.00		
2.	Puthur	(P_6)	2.65		
3.	Kecheri	(P_3)	2.55		
4.	Meloor	(P_1)	2.50	0.89	3.07**
5.	Chowannur	(P_4)	2.50		
6.	Elinjipra	(P_2)	2.47		
7.	Ollukkara	(P_5)	2.11		
Pooled mean of neighbour farmers:			2.54		
Pooled mean of control farmers:			2.14		

* Significant at 0.0 level of probability.

C.D. for comparison between P_7 and P_3	0.440
C.D. for comparison between P_7 and P_1	0.388
C.D. for comparison between P_7 and P_4	0.418
C.D. for comparison between P_7 and P_2	0.400
C.D. for comparison between P_7 and P_5	0.468
C.D. for comparison between P_6 and P_5	0.440

As per the table-28 it was noted that the farmers of Kompazha had the highest mean extent of adoption scores (3.00) and the farmers of Ollukkara had the lowest mean extent of adoption scores (2.11) with respect to the use of plant protection chemicals. The comparison of mean extent of adoption scores of farmers of each padasekharam with the pooled mean of neighbour farmers revealed that the farmers of National Demonstration padasekharam at Kompazha, Puthur and Elinjipra, belonged to the high extent of adoption category. Similarly, the comparison with the pooled mean of control farmers, pointed out that except the farmers of Ollukkara, farmers of all the other six padasekharams were above the pooled mean of control farmers.

The 'F' value was highly significant indicating that there was significant difference between the extent of adoption of plant protection chemicals between the farmers of seven National Demonstration padasekharams.

As per the computed critical difference, farmers of National Demonstration padasekharam at Kompazha was significantly higher than Kecheri, Meloor, Chowannur, Elanjipra and Ollukara. Similarly, the mean extent of adoption plant protection chemicals by the farmers of Puthur was significantly higher than that of the farmers of National Demonstration padasekharam at Ollukkara.

IV. Correlation between the characteristics of farmers and the dependent variables.

A. Correlation between the characteristics of farmers and the level of knowledge on the demonstrated cultivation practices.

The relationship between the characteristics of farmers and level of knowledge on the six demonstrated practices was analysed by computing the coefficient of correlation and the results are presented in table-29.

Table 29: Correlation between characteristics of farmers and level of knowledge on the demonstrated cultivation practices.

Sl. No.	Characteristics of farmers	Correlation coefficient('r' value) Neighbour farmers (N = 100)	Control farmers (N = 100)
1.	Age	-0.0876$^{N.S.}$	-0.0085$^{N.S.}$
2.	Education	0.2570**	0.1608$^{N.S.}$
3.	Income	-0.0316$^{N.S.}$	0.0631$^{N.S.}$
4.	Farm size	-0.0307$^{N.S.}$	0.1859$^{N.S.}$
5.	Social participation	0.4230**	0.1559$^{N.S.}$
6.	Contact with extension agencies	0.4738**	0.1945*
7.	Cosmopoliteness	0.1662$^{N.S.}$	0.1707$^{N.S.}$
8.	Information source utilisation.	0.3445**	0.0459$^{N.S.}$
9.	Scientific orientation.	0.4562**	0.2631**
10.	Risk preference:	0.4279**	0.2394*
11.	Management orientation.	0.4205**	0.1565$^{N.S.}$

N.S. Not significant.
* Significant at 0.05 level of probability.
** Significant at 0.01 level of probability.

The coefficient or correlation 'r' as shown in the table-29 revealed that in neighbour farmers except age, income and farm size all other characters were positively

.related with level of knowledge. But among control farmers, except age all other characters showed positive relationship. It was also noted that except age, income, farm size and cosmopoliteness, all other characters of neighbour farmers were positively and significantly related with their level of knowledge about the demonstrated practices. But in the case of control farmers all the characters except contact with extension agencies, scientific orientation and risk preference, showed no significant relationship with level of knowledge. The characters viz. contact with extension agencies, scientific orientation and risk preference showed positive and significant relationship with level of knowledge in [illegible] of farmers where as cosmopoliteness did not show a significant relationship.

A critical observation of the above table revealed that the contact with extension agencies indicated highest correlation followed by scientific orientation in the case of neighbour farmers. In control farmers, the scientific orientation, followed by risk preference were highly correlated with their level of knowledge.

B. <u>Correlation between the characteristics of farmers and attitude towards the demonstrated cultivation practices</u>.

The relationship between the characteristics of

neighbour and control farmers with the attitude towards the demonstrated cultivation practices was worked out by computing the correlation coefficient. The results of the correlation analysis are presented in Table-30.

Table 30: Correlation between the characteristics of famous and the attitude towards the demonstrated cultivation practices.

Sl. No.	Characteristics of farmers.	Correlation coefficients	
		Neighbour farmers (N = 100)	Control farmers (N = 100)
1.	Age	-0.0309 N.S.	-0.0276 N.S.
2.	Education	0.2894 **	0.5860 **
3.	Income	0.0606 N.S.	0.3282 **
4.	Farm size	0.1340 N.S.	0.2227 *
5.	Social participation	0.3747 **	0.4126 **
6.	Contact with extension agencies	0.4030 **	0.2156 *
7.	Cosmopoliteness	0.1487 N.S.	0.2205 *
8.	Information source utilisation.	0.3539 **	0.3840 **
9.	Scientific orientation	0.5688 **	0.5684 **
10.	Risk preference	0.5838 **	0.5713 **
11.	Management orientation	0.5289 **	0.5123 **

N.S. Not significant.
* Significant at 0.05 level.
** Significant at 0.01 level.

The computed 'r' value as per the table-30 revealed that except age, all other characters indicated positive relationship with attitude towards the demonstrated cultivation practices in the case of both neighbour and control farmers. Education, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation had positive and significant relationship with the attitude of both groups of farmers, except cosmopoliteness in the case of neighbour farmers. At the same time income and farm size were found to be significantly related with the attitude of control farmers only.

It was further observed from the table-30 that among the selected characteristics, risk preference was found to have the highest coefficient of correlation with the attitude of the neighbour farmers, followed by scientific orientation. But in the case of control farmers eduction showed the highest correlation with attitude towards the demonstrated cultivation practices. The character viz. risk preference had the second highest correlation.

C. Correlation between the characteristics of farmers and the extent of adoption of the demonstrated cultivation practices.

The relationship between the characteristics of farmers and the extent of adoption of the demonstrated

cultivation practices were worked out using the correlation analysis. The results are presented in table-31.

Table 31: Correlation between the characteristics of farmers the extent of adoption of the demonstrated cultivation practices.

Sl. No.	Characteristics of farmers	Correlation coefficient	
		Neighbour farmers (N = 100)	Control farmers (N = 100)
1.	Age	-0.0218$^{N.S.}$	0.1496$^{N.S.}$
2.	Education	0.2835**	0.6321**
3.	Income	0.0028$^{N.S.}$	0.1567$^{N.S.}$
4.	Farm size	-0.0427$^{N.S.}$	0.1586**
5.	Social participation	0.3680**	0.4482**
6.	Contact with extension agencies	0.4997**	0.5082**
7.	Cosmopoliteness	0.1409$^{N.S.}$	0.0050$^{N.S.}$
8.	Information source utilisation.	0.3428**	0.5615**
9.	Scientific orientation	0.5350**	0.5142**
10.	Risk preference	0.5307**	0.4080**
11.	Management orientation	0.4985**	0.4495**

N.S. Not significant.

** Significant at 0.01 level.

Table-31 revealed that except farm size in neighbour farmers and age in both groups of farmers, all other characters were having positive relationship with extent of adoption of the demonstrated cultivation practices. The characters viz. education, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and amanagement orientation were found to be positively and significantly related with the extent of adoption of both groups of farmers. The cosmopoliteness of both groups of farmers was never related with the extent of adoption.

It was also observed that the scientific orientation of neighbour farmers had the highest coefficient of correlation with the extent of adoption. The second highest correlation was shown by the character viz. risk preference. On the contrary to this, in the case of control farmers the highest correlation was shown by the character viz. education followed by information source utilisation.

V. Inter-correlation of dependent variables

In order to find out the inter-relationship of the three dependent variables included in the study inter-correlation analysis was employed. Inter-relationship of the dependent variables are presented in table-32.

Table 32: Inter-correlation of the three dependent variables

Variables	Neighbour farmers (N = 100)			Control farmers (N = 100)		
	X_1	X_2	X_3	X_1	X_2	X_3
Level of Knowledge	..	0.6446**	0.7408**	..	0.1496NS	0.2360*
Attitude	..	..	0.7795**	..	..	0.5990**
Extent of adoption.	..	..	..	..	..	..

N.S. Not significant.
* Significant at 0.05 level of probability.
** Significant at 0.01 level of probability.

It was seen from the table-32 that the inter-relationship between knowledge, attitude and adoption were positive in both groups of farmers. The relationship between knowledge and attitude was positive and significant in neighbour

farmers. Knowledge and attitude were significantly related with extent of adoption in both groups of farmers.

VI. Inter-correlation of the independent variables

To test the inter-relationship of the independent variables included in the study, inter-correlation analysis was taken up. Inter-relationship of the independent variables in neighbour and control farmers are presented in table-33 and table-34.

A. Inter-correlation of the independent variables in neighbour farmers.

A glance at the data presented in table-33 revealed the following results. In neighbour farmers education and information source utilisation were negatively and significantly related with age. Education was positively and significantly related with income, farm size, social participation, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation.

Income had positive and significant relationship with farm size, social participation, cosmopoliteness,

Table - 33. Inter-correlation of the independent variables in neighbour farmers

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}
X_1	1.0000	-0.5521**	-0.0283	0.1252	-0.0156	-0.0338	-0.0997	-0.2834**	-0.1273	-0.0109	0.1432
X_2	..	1.0000	0.3706**	0.1949*	0.3877**	0.1910	0.3702**	0.5361**	0.3835**	0.2491*	0.3337**
X_3	..	..	1.0000	0.5465**	0.2702**	0.0176	0.3842**	0.3998**	0.2033*	0.1354	0.0582
X_4	..	..	..	1.0000	0.2335*	0.0173	0.2658**	0.3691**	0.1866	0.0161	0.0684
X_5	..	..	..	..	1.0000	0.6660**	0.2833**	0.6041**	0.4859**	0.5128**	0.3862**
X_6	..	..	..	..	..	1.0000	0.2086*	0.5244**	0.4075**	0.5628**	0.3227**
X_7	..	..	..	..	..	..	1.0000	0.4893**	0.3655**	0.1543	0.1590
X_8	..	..	..	..	..	..	..	1.0000	0.5573**	0.4018**	0.3351**
X_9	..	..	..	..	..	..	..	..	1.0000	0.6849**	0.4777**
X_{10}	..	..	..	..	..	..	..	..	..	1.0000	0.3945**
X_{11}	..	..	..	..	..	..	..	..	..	..	1.0000

* Significant at 0.05 level of probability.
** Significant at 0.01 level of probability.

X_1 - Age
X_2 - Education
X_3 - Income
X_4 - Farm size
X_5 - Social participation
X_6 - Contact with extension agencies
X_7 - Cosmopoliteness
X_8 - Information source utilisation
X_9 - Scientific orientation
X_{10} - Risk preference
X_{11} - Management orientation.

information source utilisation and scientific orientation.

Farm size was positively and significantly related with social participation, cosmopoliteness, information source utilisation.

There was significant positive correlation between social participation and contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation.

Contact with extension agencies was positively and significantly related with cosmopoliteness, information source utilisation, socientific orientation, risk preference and management orientation.

Similarly, the relationship between cosmopoliteness and variables viz. information source and scientific orientation was also significant.

Information source utilisation had positive and significant relationship with scientific orientation, risk preference and management orientation.

Scientific orientation had positive and significant relationship with risk preference and management orientation.

There was a positive and significant correlation between risk preference and management orientation.

B. Inter-correlation of the independent variables in control farmers.

The data on the inter-correlation analysis of the control farmers presented in table-34, revealed the following findings.

Age was negatively and significantly related with education, social participation, cosmopoliteness, information source utilisation and scientific orientation.

Education had positive and significant relationship with income, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation.

Similarly income had positive and significant relationship with farm size, contact with extension agencies, scientific orientation, risk preference and management orientation.

There was significant relationship between farm size on one angle and social participation, contact with extension agencies, cosmopoliteness and management orientation on the other.

Table - 34. Inter-correlation of the independent variables in control farmers.

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}
X_1	1.0000	-0.2878**	0.0912	0.1760	-0.1056	0.0471	-0.2262*	-0.2879**	-0.1944*	-0.1662	-0.1422
X_2	..	1.0000	0.3347**	0.1437	0.4341**	0.3343**	0.1465	0.5917**	0.4961**	0.4020**	0.4202**
X_3	..	..	1.0000	0.3751**	0.1838	0.2637**	0.1472	0.1019	0.3501**	0.2596**	0.2682**
X_4	..	..	..	1.0000	0.1981*	0.2201*	0.2146*	0.0947	0.1691	0.0735	0.2010*
X_5	..	..	..	..	1.0000	0.2437*	0.2573**	0.3536**	0.3481**	0.3240**	0.2192*
X_6	..	..	..	..	..	1.0000	0.1382	0.3029**	0.2759**	0.1481	0.1987*
X_7	..	..	..	..	..	..	1.0000	0.1847	0.1434	0.0230	0.0689
X_8	..	..	..	..	..	..	..	1.0000	0.4119**	0.3303**	0.5114**
X_9	..	..	..	..	..	..	..	..	1.0000	0.7468**	0.5809**
X_{10}	..	..	..	..	..	..	..	..	..	1.0000	0.5110**
X_{11}	..	..	..	..	..	..	..	..	..	..	1.0000

* Significant at 0.05 level of probability.
** Significant at 0.01 level of probability.

X_1 - Age
X_2 - Education
X_3 - Income
X_4 - Farm size
X_5 - Social participation
X_6 - Contact with extension agencies
X_7 - Cosmopoliteness
X_8 - Information source utilisation
X_9 - Scientific orientation
X_{10} - Risk preference
X_{11} - Management orientation.

Social participation was found to be positively and significantly related with contact with extension agencies, cosmopoliteness, information source utilization, scientific orientation, risk preference and management orientation.

Contact with extension agencies had positive and significant relationship between information source utilisation, scientific orientation and risk preference.

Information source utilisation was positively and significantly related with scientific orientation, risk preference and management orientation.

Scientific orientation has positive and significant relationship with risk preference and management orientation.

There was also a positive correlation between risk preference and management orientation in the case of control farmers.

DISCUSSION

CHAPTER V

DISCUSSION

In this chapter a detailed discussion of the results obtained are presented under the following sections.

I. Distribution of neighbour farmers and control farmers according to the level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices and the significance of difference between them with respect to their mean level of knowledge, attitude and extent of adoption.

II. Level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices among the farmers of seven National Demonstration padasekharams.

III. Level of knowledge, attitude and extent of adoption of each demonstrated cultivation practices among the farmers of seven National Demonstration padasekharams.

IV. Relationship between the characteristics of farmers and the dependent variables.

V. Inter-relationship of dependent variables.

VI. Inter-relationship of independent variables.

I. Distribution of neighbour farmers and control farmers according to the level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices and the significance of difference between them with respect to the level of knowledge, attitude and extent of adoption.

A. Level of knowledge

Table-2 showed that two-third of farmers of both neighbour and control groups fell within the medium knowledge score range with regards to the demonstrated practices (65.00 per cent of neighbour farmers and 70.00 per cent of control farmers). At the same time higher percentage of neighbour farmers fell in the high knowledge score category than the control group (18.00 per cent of neighbour farmers and 14.00 per cent of control farmers). This fact also has been evidenced in the table-3 wherein the neighbour farmers had a higher mean knowledge score with significant difference to that of control farmers. This significant superiority of the farmers in demonstration padasekharams over the farmers in control padasekharams, might be due to exposure of the demonstrated crop to the farmers in the demonstration padasekharams.

In the demonstration padasekharam various extension activities such as field days, campaigns, charcha classes

etc., were conducted in collaboration with the Department of Agriculture, Co-operative Societies and Farmer's Training Centre, which are designed to impart knowledge on the demonstrated cultivation practices of paddy. Since such activities were not undertaken in control area, the control farmers showed a low level of knowledge about the demonstrated practices. This result is in conformity with the findings of Singh and Singh (1974), Supe and Salode (1975) and Pathak et al. (1979).

Based on the above discussion, the hypothesis set for the study that there will be no significant difference between the neighbour farmers and control farmers with respect to their level of knowledge on the demonstrated practices was rejected.

B. Attitude

As evidenced from the table-4, more than two-third and almost same number in both groups of farmers studied were having medium attitude (71.00 per cent of neighbour farmers and 70.00 per cent of control farmers) towards the demonstrated cultivation practices. This is on par with the findings in table-2, which evidenced the relativity of knowledge and attitude. The disparity between neighbour

farmers and control farmers under low and high groups evidences proximity of farmers, to the demonstrated crop increasing the attitude of farmers towards the demonstrated practices. This has been supported by the significant 'Z' value between the mean attitude scores of the two groups. Singh and Singh (1974), Pathak et al. (1979) reported similar findings.

Hence, the hypothesis that there will be no significant difference between the neighbour farmers and control farmers in respect of their attitude towards the demonstrated practices was rejected.

C. Extent of adoption

It is encouraging to note from the table-6 that one-fourth of the neighbour farmers belonged to the high adoption category. This itself is a clear evidence of the favourable influence of National Demonstration on the farmers around the demonstration plot. Increased number of medium adopters (73.00 per cent) among the control group was noted which might be due to the low level of attitude towards the demonstrated practices as evidenced by the table-4. Further the findings give a clear picture on the higher adoption behaviour by the neighbour farmers as evidenced by the

distribution of majority of the group amongst the medium and high adoption categories.

The table-7 continues to support the high extent of adoption of the demonstrated practices by the neighbour farmers with the high mean extent of adoption score. The highly significant 'Z' value further proves the superiority of neighbour farmers over the control farmers.

Knowledge is an important pre-requisite for the adoption of farm innovations. The farmers possessing adequate knowledge on the demonstrated cultivation practices are likely to be innovative and willing to adopt such practices without much reluctance. It is quite obvious that the farmers who had participated in demonstration programmes might have been convinced about the utility of the demonstrated practices which might have helped them to develop a favourable attitude towards the practices. The lack of demonstrations in control padasekharams might have been the reason for the low level of adoption of the demonstration cultivation practices among the control group. Hence, the higher extent of adoption of the demonstrated practices, among the farmers neighbouring to the demonstration plots might be due to the impact of National Demonstration Programme. The findings of Appa Rao (1971), Singh and

Singh (1974), Oliver et al. (1975), Supe and Salode (1975), Behera and Sahoo (1975) and Pathak et al. (1979) are in agreement with the finding of the present study.

Therefore, the hypothesis formulated for the study that there will be no significant difference between the neighbour farmers and control farmers with respect to their extent of adoption of the demonstrated practices was rejected.

II. The level of knowledge, attitude and extent of adoption towards the demonstrated cultivation practices among the farmers of the seven National Demonstration padasekharams.

A. Level of knowledge

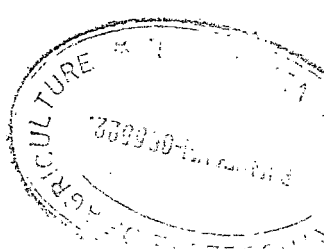
As per the table-8, though the 'F' ratio comparing the level of knowledge of farmers of the seven National Demonstration padasekharams was found to be not significant, the differences in the mean knowledge scores between the range of 18.88 to 13.44 has evidenced a comparative difference in the knowledge between the farmers of the seven padasekharams. The difference has further been dialated with the comparison of their pooled mean knowledge score, wherein farmers of Puthur, Elinjipra and Kecheri found to be in higher knowledge score category.

Farmers in National Demonstration padasekharam at Puthur ranked the highest among the seven padasekharams with respect to the mean knowledge score on the six demonstrated practices. The reason may be due to the successful crop demonstration with an adequate follow up. Moreover, the demonstration padasekharam belonged to a new Intensive Paddy Development Unit area started in this region. Also, the demonstration has been conducted among settler farmers who could be expected to have better knowledge on farming. Whereas the farmers of demonstration padasekharam at Elinjipra had higher knowledge as they were able to acquire and adopt the practices as the region comes under the Lift Irrigation Projects.

In the light of the above discussion, the hypothesis set for the study that there will be no significant difference between the farmers of the seven National Demonstration padasekharams with respect to their level of knowledge on the demonstrated practices was rejected.

B. Attitude

With a significant difference in the attitude towards the six demonstrated practices between the farmers of seven demonstration padasekharams area, the study revealed an intimate relationship of knowledge with their attitude,



leading to the adoption of farming practices. This implies farmers' belief on specific practices like liming, use of chemical fertilizers, use of plant protection chemicals etc. But, it is seen that the farmers of Elinjipra and Kecheri though fell in the high knowledge category (table-8) have been replaced by Chowanmur and Meloor with regards to the high level of attitude towards the demonstrated cultivation practices (table-9). Still, the table-8 further evidenced that farmers of the five villages except Ollukkara and Kecheri were having attitude scores above to that of the control farmers, which shall be due to the positive influence of National Demonstration programme.

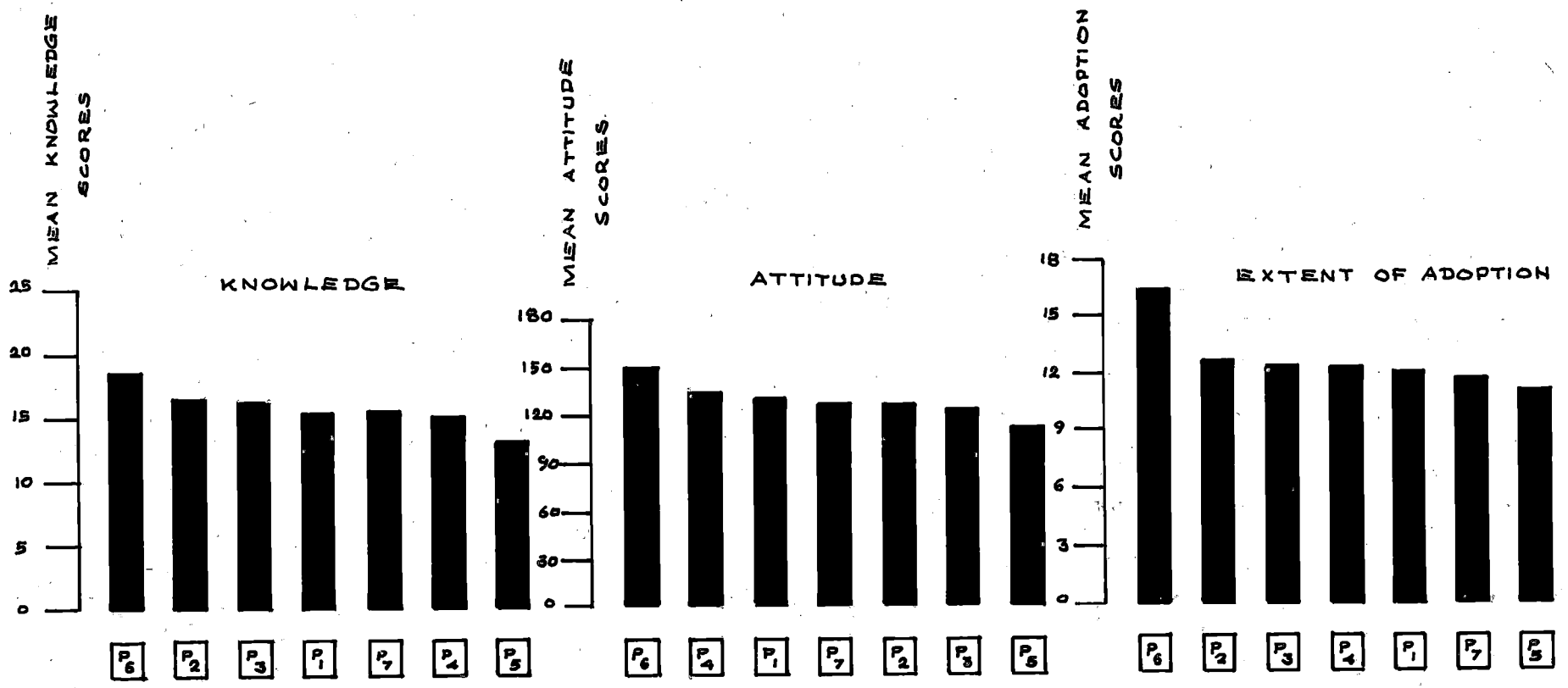
With the support of the above discussion, the hypothesis formulated for the study that there will be no significant difference between the farmers of the seven National Demonstrated padasekharams with respect their attitude towards the six demonstrated practices was rejected.

C. Extent of adoption

The finding in table-10 is on par with that of the previous observations under knowledge and attitude, wherein

the extent of adoption of the demonstrated practices has been comparatively high in National Demonstration padasekharam at Puthur, for which sound reasoning has been endowed to the peculiarities of Puthur as a settlement area and the recency of functioning of the New Intensive Paddy Development Unit. The significant superiority of Puthur in this context may also be due to the success of the demonstration and effective follow up. The above factors might have helped the farmers in National Demonstration padasekharam at Puthur to acquire higher knowledge and develop favourable attitude towards the demonstrated practices, which might have led them to adopt the demonstrated practices. Evidently the farmers of Ollukkara have been found to be least in comparison with the farmers of other padasekharams and even below the control group. This may be reasoned to the failure of crop demonstration during 1979-80, the year of the demonstration considered for the study.

Hence, the hypothesis set for the study, that there will be no significant difference between the farmers of seven National Demonstration padasekharams with respect to the extent of adoption of the six demonstrated cultivation practices was rejected.



P_1 MELOOR P_2 ELINJIPRA P_3 - KECHERI P_4 - CHOWANNUR
P_5 - OLLUKKARA P_6 - PUTNUR P_7 - KOMPAZHA

FIG: 2. COMPARITIVE LEVEL OF MEAN SCORES OF KNOWLEDGE, ATTITUDE & EXTENT OF ADOPTION OF THE DEMONSTRATED CULTIVATION PRACTICES AMONG NEIGHBOUR FARMERS OF SEVEN PADASEKHARAMS (P)

The mean level of knowledge, attitude and extent of adoption towards the demonstrated practices among the farmers of the seven National Demonstration padasekharams have been diagramatically represented in Fig.2.

III. Comparison of mean score on level of knowledge, attitude and extent of adoption of each demonstrated cultivation practice of paddy among the farmers of seven National Demonstration padasekharams.

A. Comparison of mean level of knowledge on each demonstrated practice among the farmers of seven padasekharams.

1. Use of high yielding varieties

As per table-11, it is noted that farmers of National Demonstration padasekharam at Puthur possessed highest knowledge about the high yielding varieties of paddy. The reason for this may be accounted to the multiple effect of success of crop demonstration, peculiarity of settler farmers and the recency in the operation of the Intensive Paddy Development Unit. Table-11 further revealed that farmers of padasekharams at Puthur, Elinjkpra and Meloor were having higher knowledge scores than the farmers of remaining four padasekharams. This indicates that demonstration was effective in the above three padasekharams when compared to other padasekharams. Moreover, the

farmers of these padasekharams might have been more enthusiastic to learn, understand and acquire the advantages of high yielding varieties of paddy.

As the mean level of knowledge of farmers of the seven padasekharam are above the pooled mean of control farmers, it is evident that the National Demonstration has played its role successfully in disseminating the information on the advantages of high yielding varieties of paddy.

2. Seed treatment

It is seen from the table-12 that farmers of Puthur and Elinjipra had sought information on seed treatment in detail than Meloor who also had high knowledge on the use of high yielding varieties. It is also noted that farmers of Kecheri and Chovannur sought more information on seed treatment proceedures, though had a lower use of high yielding varieties. This evidenced the keen interest amongst the farmers of these padasekharams on seed treatment practice irrespective of the variety used. This may be due to the endemic incidence of pests and diseases in these areas.

3. Soil testing

The table-13 revealed that farmers of Kecheri has been expressed highest knowledge on soil testing rather

more than that of Puthur. Further the knowledge on soil testing have been disseminated uniformly to almost all villages where National Demonstration has been conducted. This might be due to the major emphasis given to soil testing as a fundamental practice leading to the application of fertilizers and lime. Ollukkara have been specifically ranked high with regards to the knowledge on this particular practice, which shall be due to its nearness to, and availability of soil testing facilities at the College of Horticulture, Vellanikkara, Trichur.

4. Liming

Table-14 revealed high knowledge on liming among the farmers of Elinjipra and Puthur as in the case of seed treatment and the use of high yielding varieties. This may be due to the progressiveness of the farmers of these two villages having keen interest and enthusiasm to acquire more knowledge about the cultivation of high yielding varieties of paddy. It is interesting to note specifically that in the case of farmers of the other five National Demonstration padasekharams had a lesser knowledge than that of the control group. This shall be due to the application of lime as a common practice in the region.

5. Use of chemical fertilizers

There was no significant difference between the farmers of the seven padasekharam with respect to their mean knowledge scores on the use of chemical fertilizers in paddy cultivation. The application of chemical fertilizers might be demonstrated by the demonstrator farmer of all the seven padasekharams in the presence of neighbour farmers. Also the specialists working in the National Demonstration Programme and the demonstrator farmers might have cleared all the doubts of nearby farmers. This shall be the rationale for not showing significant variation between the farmers of the seven padasekharams in respect of their knowledge on the use of fertilizers.

6. Use of plant protection chemicals

In the case of the use of plant protection chemicals, the level of knowledge of farmers of Puthur, Kecheri and Meloor had been higher than the farmers of other four villages as per the table-16. The frequent incidence of pest and disease in a locality will make the farmers knowledgeable about the control measures to be taken. Therefore, the frequent incidence of pest and disease in the above three areas may be the reason for having high knowledge about the use of plant protection chemicals. But, it is seen that

Elinjipra, though ranked high in the previous practice, viz. use of chemical fertilizers, the farmers of the locality had lesser knowledge on plant protection than that of the control farmers, which might be due to the comparatively lesser incidence of pest and disease in that area.

B. Comparison of mean attitude score on each demonstrated cultivation practice among the farmers of seven National Demonstration padasekharams.

1. Use of high yielding varieties

Farmers in National Demonstration padasekharams at Puthur, Elinjipra and Chowannur have showed higher attitude towards use of high yielding varieties of paddy. This finding is in concurrance with their higher knowledge on high yielding varieties. Neighbour farmers of almost all the seven demonstrations except that of Ollukkara were much better in their attitude towards high yielding varieties of paddy compared to the control farmers. This may be due to the intensive propaganda for the cultivation of high yielding varieties in the locality.

2. Seed treatment

It is seen from the table-18 on seed treatment that farmers of padasekharams at Chowannur, Elinjipra, and Puthur

were having high attitude towards high yielding varieties, simultaneously developed high attitude towards seed treatment also. This may be due to the consciousness of using seed treatment chemicals educated under the National Demonstration Programme. The results on the comparison with the control farmers also evidenced similar results on the use of high yielding varieties wherein the control farmers had lesser knowledge on seed treatment process. This might be due to the lack of conviction on the effective use of seed treatment chemicals.

3. Soil testing

As in the case of attitude towards high yielding varieties and seed treatment, in this table-19 also, farmers of National Demonstration padasekharams at Elinjipra, Puthur, Chowannur have revealed high attitude towards soil testing, along with the farmers of Meloor. Hence, this findingshall also accrue to the same reasoning established for the first two practices. But, it is interesting to note that the mean score on attitude towards soil testing obtained by the farmers of all the seven padasekharams has been above that of control group farmers. This may be due to the emphasis given to soil testing in National Demonstration Programme as a basic practice for fixing the quantity of fertilizer and lime required.

4. Liming

The attitude table-20 on liming revealed the same results as that of the attitude towards the use of high yielding varieties wherein Puthur and Elinjipra, Meloor had higher attitude towards the practices of liming in their paddy fields. Since, knowledge and attitude are related, the high knowledge passessed by farmers on high yielding varieties, soil testing and seed treatment might have resulted to develop higher attitude towards liming. The higher attitude shall also be due to the importance given to soil testing in this padasekharam. But a significant variation has been evidenced in attitude score of farmers between Puthur and other National Demonstration padasekharams except Elinjipra.

5. Use of chemical fertilizers

The finding in table-21 on the attitude of farmers towards the use of chemical fertilizers was in conformity with that of the finding of attitude of farmers towards soil testing and liming. Soil testing is a fundamental practice for fixing the rate of application of fertilizers and lime in a crop. In National Demonstration Programme also much importance has been given to soil testing as a practice. The farmers neighbouring to National Demonstration

could have got the opportunities to see and get convinced of the utility of soil testing. This might be the reason which can be accounted to the high attitude expressed by the farmers of all the seven National Demonstration padasekharams.

6. Use of plant protection chemicals

It is interesting to note from the table-22 that only farmers neighbouring to the National Demonstration padasekharam at Puthur has come up to the higher order in the attitude of farmers towards the use of plant protection chemicals, along with Kompazha and Ollukkara who fell in the lower strata of knowledge scores. At the same time Chowannur and Elinjipra ranked at a lower level though with high attitude towards the use of the plant protection chemicals. In the case of the farmers of Kompazha, the frequent incidence of pest and disease, and frequent use of plant protection chemicals shall be the reason for developing a high attitude towards the use of plant protection chemicals.

C. Comparison of mean extent of adoption scores on each demonstrated cultivation practices among the farmers of the seven National Demonstration padasekharams.

1. Use of high yielding varieties

In table-23 on the extent of adoption of high

yielding varieties of paddy, farmers of National Demonstration padasekharam at Puthur and Meloor ranked highest, since they had high level of knowledge. The general trend of adoption of high yielding varieties of paddy in the National Demonstration padasekharam was found to be much better than the control padasekharams. This might be due to the success of demonstrated crop in terms of yield. The high yield of the varieties visualised through the demonstration might have tempted the farmers to adopt the high yielding paddy varieties.

2. Seed treatment

An observation of the results in table-24 with respect to that extent of adoption of seed treatment, farmers of Puthur, Elinjipra and Chowannur have evidenced higher adoption scores which might be the result of their high level of knowledge and attitude towards seed treatment. This proves the theory of adoption that knowledge and attitude are the pre-requisites for adoption of a practice. The lowest extent of adoption of seed treatment by the farmers of Ollukkara might be due to their lack of sufficient knowledge and favourable attitude towards seed treatment.

3. Soil testing

The table-25 indicated that farmers of National Demonstration padasekharam at Puthur and Ollukkara were having high adoption scores on soil testing. The Puthur farmers in general have possessed higher knowledge and favourable attitude towards soil testing practice. (Table 13 and Table 18) Along with this, the success of crop demonstration, keen interest shown by the local extension workers in collecting soil samples and making arrangements to get the results might have influenced the farmers of Puthur for showing the highest adoption behaviour with respect soil testing. The specifically higher extent of adoption of soil testing by the farmers of Ollukkara might be due to their higher level of knowledge (Table-13) along with the nearest availability of soil testing facilities.

4. Liming

A perusal of the results presented in table-26 indicate that farmers in the National Demonstration padasekharam at Puthur, Kecheri and Elinjipra adopted liming better than that of the farmers of the remaining padasekharams. This shall also be due to the higher level of knowledge and attitude possessed by the farmers of Puthur and Elinjipra. It

was also noted that farmers of Puthur were having significantly higher extent of adoption of liming.

5. Use of chemical fertilizers

The extent of adoption of chemical fertilizers for paddy cultivation by the farmers neighbouring to the seven National Demonstration padasekharam were not differed significantly. This indicates that the demonstration has succeeded in communicating and convincing the information on the use of chemical fertilizers to the farmers neighbouring to all the seven National Demonstration plots. The higher extent of adoption was shown by the farmers in Puthur which might be due to the influence of high level of knowledge and favourable attitude.

6. Use of plant protection chemicals

A critical examination of the results furnished in table-28 indicate that the extent of adoption of plant protection chemicals was highest in the case of the farmers of the National Demonstration padasekharam at Kompazha. As stated earlier the pest and disease incidence of Kompazha is some what endemic which might be the reason for the higher adoption behaviour shown by them. The higher knowledge possessed by the farmers in National Demonstration

padasekharam at Puthur and Kecheri, might have contributed for their higher extent of adoption also. Since in general, the farmers at Ollukkara showed low response to other demonstrated practices, with respect to the use of plant protection chemicals also they showed low extent of adoption.

IV. Relationship between the characteristics of farmers and the dependent variables

The results of correlation analysis pertaining the relationship between the selected characteristics of farmers and the dependent variables viz. level of knowledge, attitude and extent of adoption have been discussed here.

A. Relationship between the characteristics of farmers and the level of knowledge about the demonstrated cultivation practices.

1. Age

The 'r' values presented in table-29 revealed that age was negatively but non-significantly related with level of knowledge of both neighbour and control farmers. This indicated that as the farmers grow old, they lost their interest to acquire new information about the latest technology in rice cultivation. It is quite often seen that young farmers show a higher degree of interest and enthusiasm to know and understand the technological developments in the

field of agriculture than the old farmers. In this case also demonstration of the agricultural practices might have induced the young farmers to know more. The report of Bhaskaran and Mahajan (1968), Behera and Sahoo (1975) are in agreement with the present finding that the young farmers had better knowledge about the demonstrated cultivation practices.

Therefore, the hypothesis set for the study that there will be no positive and significant relationship between age and level of knowledge of neighbour and control farmers was accepted.

2. Education

A glance at the data presented in table-29 revealed that there was significant relationship between level of education and level of knowledge of neighbour farmers, but not with the level of knowledge of control farmers. This indicates that education helps in acquiring more knowledge about demonstrated cultivation practices. The educated farmers are likely to make more contact with the research stations, agricultural scientists and extension workers. The educated farmers neighbouring to the National Demonstration plots might have contacted with the specialists of the Agricultural University to get more information about the practices demonstrated in their village. As there was no demonstration in control padasekharams, all categories of

farmers, literate as well as illeterate, were unexposed to the demonstrated crop. Moreover, even the educated farmers might not have contacted with specialists working in the programme. This might be the reason for the non-significant relationship of education and level of knowledge in control farmers. The present finding that the positive and significant relationship between level of education and level of knowledge of neighbour farmers is supported by the findings of Supe and Salode (1975), Behera and Sahoo (1975).

Based on the above discussion, the hypothesis that there will be no positive and significant relationship between education and level of knowledge of neighbouring and control farmers was accepted in the case of neighbour farmers and the same hypothesis was rejected in the case of control farmers.

3. Income

The 'r' values presented in table-29 pointed out that the income of neighbour and control farmers was not significantly correlated with their knowledge. But the 'r' value in the case of neighbour farmers showed a slight negative tendency. As the income goes down, the interest to know and understand new things may increase. Hence,

the low income neighbour farmers might have studied the demonstrated cultivation practices clearly. Since there were no demonstration programmes in control padasekharams, all farmers irrespective of high or low income were unexposed to the demonstrated paddy crop. This may be the rationale for the non-significant relationship of income and level of knowledge in control farmers.

In the light of the above discussion, the hypothesis set for the study that where will be no positive and significant relationship between income and level of knowledge of both neighbour and control farmers was accepted.

4. Farm size It is brought out from the results of the study that farm size of the control farmers was positively related with the level of knowledge. Farm size and level of knowledge of the neighbour farmers was not related. But, 'r' value in this showed a slight negative correlation also. It is quite often seen that as the farm size decreases, the farmer's try to know all farming techniques applicable to his small farm, so that he can select and use the best one to increase income from his limited land. Hence, naturally the farmers having small farm might have showed more interest to understand the practices demonstrated.

Therefore, the hypothesis formulated for the study that there will be no positive and significant relationship between farm size and level of knowledge on the demonstrated cultivation practices was accepted in the case of both neighbour and control farmers.

5. Social participation

The variable social participation was found to have positive and significant relationship with level of knowledge of the neighbour and control farmers. This shows that social participation is an important variable for increasing their knowledge. Participation of farmers in formal as well as informal organisations will increase their contact with various source of informations. This might have helped them to acquire more knowledge about the demonstrated practices. This finding is in conformity with the findings of Copp, Neal and Gross (1969), Singh and Prasad (1974), Kaleel (1978).

Hence, the hypothesis formulated for the study that there will be no positive and significant relationship between social participation and level of knowledge of neighbour and control farmers about the demonstrated practices was rejected.

6. Contact with extension agencies

As per the results presented in table-29, the relationship between contact with extension agencies and level of knowledge about the demonstrated practice was positive and significant in the case of both neighbour farmers and control farmers. The reason for this relationship may be due to the utilisation of better opportunities for obtaining more information on agricultural technology as a result of the frequent contact with the various extension agencies and participation in extension activities. Knight and Singh (1975) and Kaleel (1978) support this finding.

In the light of the above proposition, the hypothesis formulated in this study that there will be no positive and significant relationship between contact with extension agencies and level of knowledge was rejected.

7. Cosmopoliteness

As seen in table-29, the 'r' values revealed that cosmopoliteness, despite showing a positive trend, was not significantly related with the level of knowledge of both neighbour and control farmers. The reason for the positive association may be that, greater contact with larger society should broaden their mental horizon, enhance knowledge about

the techniques of agricultural production. The non-significant relationship may be due to the equal exposure of the demonstrated crop to all cosmopolite categories of farmers.

With the support of the above discussion, the hypothesis set for the study that there will be no positive and significant relationship between cosmopolite and level of knowledge was accepted.

8. Information source utilisation

The relationship between information source utilisation and level of knowledge was positive and significant in the case of neighbour farmers. But, it was positive and non-significant in the case of control farmers. Knowledge of an individual is influenced by social participation, contact with extension agencies, which in turn is influenced by his utilisation of information sources. The reason for the significant positive relationship may be due to the higher knowledge gained though their contact with demonstrator farmers, specialists of the National Demonstration Programme etc. The present finding is in conformity with that of Prasad (1978).

In view of the above discussion, the hypothesis set for the study that there will be no positive and significant

relationship between information source utilisation and level of knowledge about the demonstrated practices was rejected in the case of neighbour farmers and the same was accepted in the case of control farmers.

9. Scientific orientation

Scientific orientation was found to have positive and significant relationship with the level of knowledge of both neighbour and control farmers (table -29). As the scientific orientation of the farmers increase, the knowledge about different aspects of modern crop production also increase. This might be the reason for the higher knowledge possessed by farmers with higher scientific orientation. This finding is in agreement with the results of Dhanokar (1970), Supe and Salode (1975).

As the scientific orientation was positively and significantly related with level of knowledge, the hypothesis in this context that there will be no positive and significant relationship between scientific orientation and level of knowledge about the demonstrated cultivation practices was rejected.

10. Risk preference

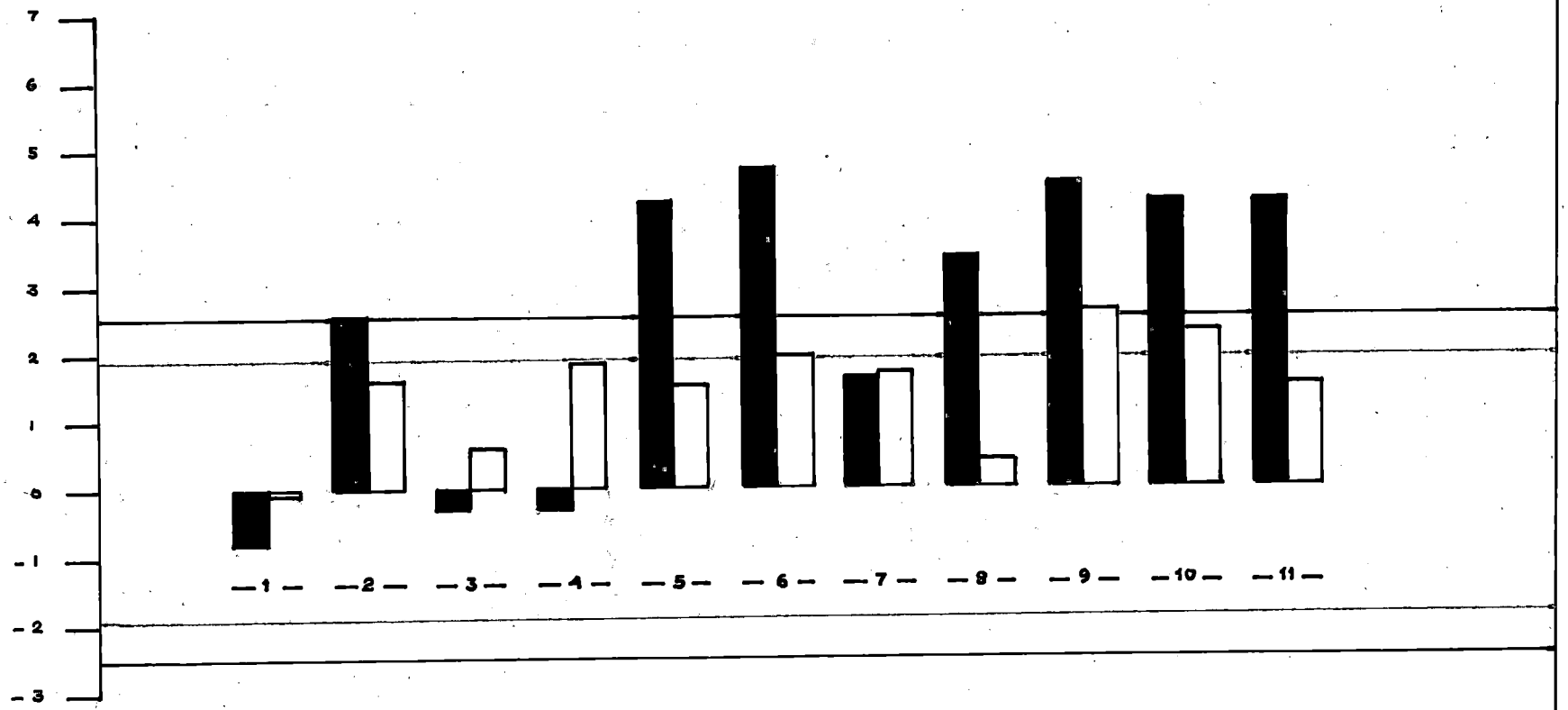
The results furnished in the table-29 pointed out that there was positive and significant relationship between

risk preference and level of knowledge on the demonstrated cultivation practices in the case of both neighbour and control farmers. As the risk preference behaviour increases, the curiosity to know, understand and acquire more information about a particular thing increases. This reason may be attributed to the positive and significant relationship between risk preference and level of knowledge.

Hence, the hypothesis set for the study that there will be no positive and significant relationship between risk preference and level of knowledge about the demonstrated practices was rejected in the case of both group of farmers.

11. Management orientation

The table-29 revealed that management orientation was positively and significantly related with the level of knowledge of neighbour farmers but not significantly related with control farmers. Well judged management decisions can be accrued only when there is complete and comprehensive information. Thus, a farmer having a high level of knowledge about the demonstrated cultivation practices of paddy would be able to take up correct management decisions. This may be the reason of showing a positive



NEIGHBOUR FARMERS.

CONTROL FARMERS.

0.1940 SIGNIFICANT AT 0.05 LEVEL

0.2540 SIGNIFICANT AT 0.01 LEVEL

INDEPENDENT VARIABLES

1. AGE.
2. EDUCATION.
3. FARM SIZE.
4. INCOME.
5. SOCIAL PARTICIPATION.
6. CONTACT WITH EXTENSION AGENCIES.
7. COSMOPOLITENESS.
8. INFORMATION SOURCE UTILISATION PATTERN.
9. SCIENTIFIC ORIENTATION.
10. RISK PREFERENCE.
11. MANAGEMENT ORIENTATION.

FIG: 3. RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES AND LEVEL OF KNOWLEDGE ON THE DEMONSTRATED PRACTICES

and significant relationship between management orientation and level of knowledge in the case of neighbour farmers. The low level of knowledge of the control farmers might have adversely affected them to take correct management decisions. This is precisely why there was no significant relationship between management orientation and level of knowledge in the case of control farmers.

Based on the above discussion, the hypothesis formulated for the study that there will be no positive and significant relationship between management orientation and level of knowledge was rejected in the case of neighbour farmers and the same was accepted in the case of control farmers.

The relationship between characteristics of farmers and level of knowledge has been diagramatically represented in fig.3.

B. Relationship between the characteristics of farmers and the attitude towards the demonstrated cultivation practices.

1. Age

The 'r' value as per the table-30 revealed that there was negative, but non-significant relationship between age

and attitude of farmers towards the demonstrated cultivation practices. It is quite often seen that the young farmers show a high degree of interest and enthusiasm to acquire more knowledge about scientific practices. As attitude is related to knowledge, the young farmers might have developed favourable attitude towards the demonstrated cultivation practices of paddy. This finding is on par with that of Singh and Singh (1968).

Keeping the above discussion in view, the hypothesis set for the study that there will be no positive and significant relationship between age and attitude of farmers was accepted.

2. Education

Level of education and attitude towards the demonstrated practices was positively and significantly related in the case of both neighbour and control farmers (table-30). Formal schooling has been viewed as a means of increasing knowledge which would instill a favourable attitude towards the use of improved agricultural practices. Similar results were obtained by Das and Sarkar (1970), Singh and Singh (1971).

Therefore, the hypothesis set for the study that there will be no positive and significant relationship

between education and attitude towards the demonstrated cultivation practices was rejected.

3. Income

Income level of the neighbour farmers was not significantly related with the attitude towards the demonstrated practices, but the income level of control farmers was positively and significantly related with their attitude (table-30). Though the low income neighbour farmers had studied and understood the demonstrated practices clearly, they might not have developed favourable attitude towards the demonstrated cultivation practices. In the case of control farmers, the high income farmers might have developed a favourable attitude towards the demonstrated practices.

With the support of the above discussion, the hypothesis formulated for the study that there will be no positive and significant relationship between income and attitude towards the demonstrated practices was accepted in the case of neighbour farmers and the same was rejected in the case of control farmers.

4. Farm size

As in the case of income, the relationship between farm size and attitude towards the demonstrated cultivation

practices was found to be not significant in the case of neighbour farmers, where as the relationship was positive and significant in the case of control farmers. Even though the low income farmers had studied the demonstrated practice well, they might not have developed a favourable attitude towards the practices.

Based on the above discussion, the hypothesis set for the study that there will be no positive and significant relationship between farm size and attitude was accepted in the case of neighbour farmers and same was rejected in the case of control farmers.

5. Social participation

Participation of farmers in formal as well as informal organisations was positively and significantly related with their attitude towards the demonstrated practices, as indicated by the 'r' values in table-30. Interaction between the member farmers in organisations help in exchanging knowledge on new agricultural practices which indirectly help to develop a favourable attitude towards the practices. This finding is in line with the results obtained by Das and Sarker (1970).

On the basis of the above discussion, the hypothesis formulated for the study that there will be no positive and significant relationship between social participation and attitude was rejected.

6. Contact with extension agencies

The results illustrated in the table-30 showed that there was positive and significant relationship between contact with extension agencies and attitude towards the demonstrated practices. The association of farmers with university scientists, experts in the National Demonstration Programme, other extension officers help to increase their knowledge about various crop production practices. Since knowledge is related to attitude, there is rationale to relate their higher knowledge with the higher attitude.

In the light of the above discussion, the hypothesis set for the study that there will be no positive and significant relationship between contact with extension agencies and attitude towards the demonstrated practices was rejected.

7. Cosmopoliteness

A glance at the data presented in table-30 pointed out that cosmopoliteness and attitude towards the demonstrated practices was positively related though not signi-

ficant with respect to neighbour farmers, but it was positively and significantly related in the case of control farmers. The successful crop demonstration might have influenced much in developing a favourable attitude towards the demonstrated practices. In the case of control farmers, the rationale for the positive and significant relationship is that, greater contact with larger society broaden their mental horizon and make them to know more about the techniques of modern crop production. This ultimately lead them to develop a favourable attitude towards the demonstrated practices.

Therefore, the hypothesis set for the study that there will be no positive and significant relationship between cosmopoliteness and attitude towards the demonstrated practices was accepted for neighbour farmers and same was rejected for control farmers.

8. Information source utilisation

The 'r' values as per the table-30 indicated a positive and significant relationship between information source utilisation and attitude of neighbour and control farmers. The more the farmers utilise sources of information on agriculture the more will be their knowledge. The increased

knowledge about the practices ultimately led them to develop a favourable attitude towards the practices. Similar results were reported by Murthy (1974), Prakash (1980) in case of certain closely related studies.

Based on the above discussion, the hypothesis set for the study that there will be no positive and significant relationship between information source utilisation and attitude towards the demonstrated practices was rejected.

9. Scientific orientation

There was positive and significant relationship between scientific orientation and attitude towards the demonstrated cultivation practices, in the case of both neighbour and control farmers, as revealed by the 'r' value in table-30. It is often seen that educated and scientifically based people show a tendency to assess the new facts critically. The critical assessment of each of the practices would have convinced them to develop a favourable attitude towards the demonstrated practices. This may be the reason for the positive and significant relationship between scientific orientation and attitude towards the demonstrated practices.

In the light of the above discussion, the hypothesis formulated for the study, that there will be no positive and

significant relationship between scientific orientation and attitude was rejected in the case of both neighbour and control farmers.

9. Risk preference

An observation of the table-30 indicated that there was significant relationship between risk preference and attitude of neighbour and control farmers towards the demonstrated practices. As the capacity to take risks increases, farmers try to understand the practices clearly which led to the development of favourable attitude towards the cultivation practices.

In the light of the above discussion, the hypothesis postulated in the study that their will be no positive and significant relationship between risk preference and attitude towards the demonstrated practices was rejected.

11. Management orientation

Management orientation was positively and significantly related with the attitude of neighbour and control farmers. Management orientation of a farmer reflects his concerns for achieving higher production. It is sure that unless having a favourable attitude towards crop production,

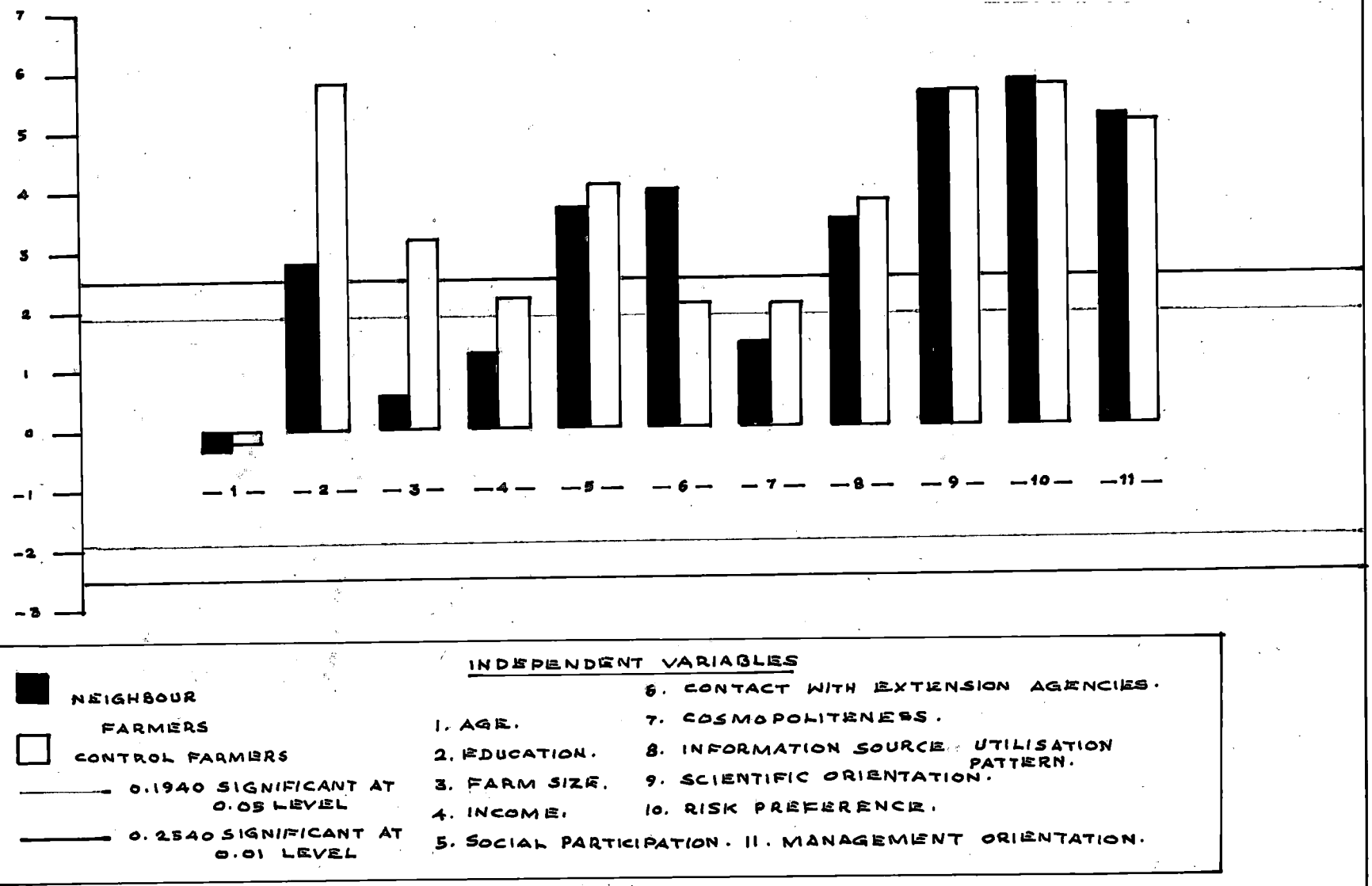


FIG: 4. RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES AND THE ATTITUDE OF FARMERS TOWARDS THE DEMONSTRATED PRACTICES

farmers will not make a planned management decision on crop production. This may be the possible reason for the positive and significant relationship of management orientation and attitude towards the demonstrated cultivation practices.

Hence, the hypothesis set for the study that there will be no positive and significant relationship between management orientation and attitude towards the demonstrated practices was rejected in case of both groups of farmers.

The relationship between the characteristics of farmers and the attitude towards the demonstrated cultivation practices has been diagramatically represented in fig. 4.

C. Relationship between the characteristics of farmers and the extent of adoption of the demonstrated cultivation practices.

1. Age

It is evidenced from the table-31 that age of neighbour and control farmers were not significantly related with the extent of adoption of the demonstrated practices. Moreover, the 'r' values indicated a negative trend also. The young farmers usually ventured to adopt modern practices.

This may be the probable reason for the above result. This is supported by Wilkening (1952), Rai (1965) Anbalagan (1976), Appa Rao (1971), Annamalai (1980).

Hence, the hypothesis that there will be no positive and significant relationship between age and adoption of the demonstrated practices by the neighbour and control farmers was accepted.

2. Education

Level of education was found to be positively and significantly related with the attitude of farmers towards the demonstrated practices. Formal schooling has been valued as means of increasing knowledge which would create a favourable attitude leading to adoption of the recommended practices. Educated people can make better use of mass media, than the uneducated group of farmers. Also, higher education helps them to develop more initiative, which will encourage them to get in contact with the demonstrator farmers, specialists of the University, agricultural scientists and other extension agencies. All these might have contributed to the higher adoption of the demonstrated practices. This finding is on par with the results of Patel and Singh (1970), Grewal and Sohal (1971), Hussain (1971) Subramanyan and Lakshmanna (1973), Chandrakandan (1973)

Supe and Salode (1975), Chandrakandan and Subramoniyan (1975), Sundaraswamy and Duraiswamy (1975) and Rajendran (1978).

With the support of the above discussion, the hypothesis that there will be no positive and significant relationship between level of education and extent of adoption by the neighbouring and control farmers was rejected.

3. Income

The results of the correlation analysis presented in table-31 showed that the income of farmers was positively related with extent of adoption, but the relationship was not significant. Income enables the farmers to take more risks in adopting new innovation in the cultivation of crops. Also income enables them to utilise print media inorder to get more information. This may be the reason for the positive and relationship of income and adoption behaviour. The non-significant relationship may be accounted to the reason that the crop demonstration might have influenced the low, medium and high income farmers.

In view of the above discussion, the hypothesis formulated for the study that there will be no positive

and significant relationship between income and extent of adoption of the demonstrated practice was rejected.

4. Farm size

The 'r' value presented in the table-31 revealed that farm size and the extent of adoption was found to be not significantly related in the case of neighbour farmers and control farmers. As seen the relationship of farm size with knowledge (table-29), the farmers with small size of holdings adopt an intensive cropping procedure to get maximum income. The low income farmers in the demonstration padasekharam might have convinced and adopted the modern cultivation practices.

With reference to the above discussion, the hypothesis that there will be no positive and significant relationship between farm size and extent of adoption of the demonstrated cultivation practices was accepted in the case of both group of farmers.

5. Social participation

As evidenced by the table-31, social participation was found to have positive and significant relationship with extent of adoption of the demonstrated practices, in the case of both neighbour and control farmers. This

result indicated that higher the social participation, higher will be the rate of adoption. Membership in formal organisation and institutions helps the farmers to come in contact with different people, extension agencies, etc. Such contact helped them to acquire more knowledge about the activities going on around them. Social participation helped the farmers to obtain supplies and service necessary to put the acquired ideas in to practice. The acquisition of knowledge and physical imput lead to better adoption. The present finding is in conformity with the studies of Das and Sarkar (1970), Chandrakandan (1973), Salunke et al. (1975), Sundaraswamy and Duraiswamy (1975) and Rajendran (1978).

In view of above discussion, the hypothesis set for the study that there will be no positive and significant relationship between social participation and extent of adoption was rejected.

6. Contact with extension agencies

The 'r' values as per the table-31 indicated that there was significant relationship between contact with extension agencies and extent of adoption of the demonstrated practice. Farmers having contact with change agents, university scientists, participate actively in the extension

programmes which would increase the level of knowledge, develop a favourable attitude leading to adoption. The reports of Sawhney (1961), and Sundaraswamy and Duraiswamy (1975) are in agreement with the present finding.

Based on the above discussion, the hypothesis that there will be no positive and significant relationship between contact with extension agencies and extent of adoption of the demonstrated practices was rejected.

7. Cosmopoliteness

Cosmopoliteness was found to have positive relationship though not significant with the extent of adoption of the demonstrated practices. Greater contact with large society broadens one's mind, which enhances the level of knowledge about the techniques of agricultural production, leading to greater adoption. This may be the rationale for the positive relationship. However, it was noted that the relationship between cosmopoliteness and extent of adoption was not significant.

Hence, the hypothesis formulated for the study that there will be no positive and significant relationship between cosmopoliteness and extent of adoption of the recommended practices was rejected.

8. Information source utilisation

Positive and significant relationship between information source utilisation and extent of adoption was noted as per the table-31. Participation in various organisations, contact with extension agencies and agricultural scientists develop and awareness about the sources of information. The use of various sources of information helps to increase one's knowledge which ultimately had to an appreciable adoption behaviour. This result is in agreement with the reports of Sharma (1966), Roy et al. (1968) Supe (1971).

With the report of the above discussion, the hypothesis that there will be no positive and significant relationship between information source utilisation and extent of adoption of the demonstrated practices was rejected.

9. Scientific orientation

The 'r' value as per the table-31 showed that there was significant relationship between scientific orientation and extent of adoption of the demonstrated cultivation practices in the case of both neighbour and control farmers. Scientifically oriented farmers will normally be having correct perception about the modern cultivation practices. The correct knowledge helps to create a favourable attitude leading to the adoption of the demonstrated practices.

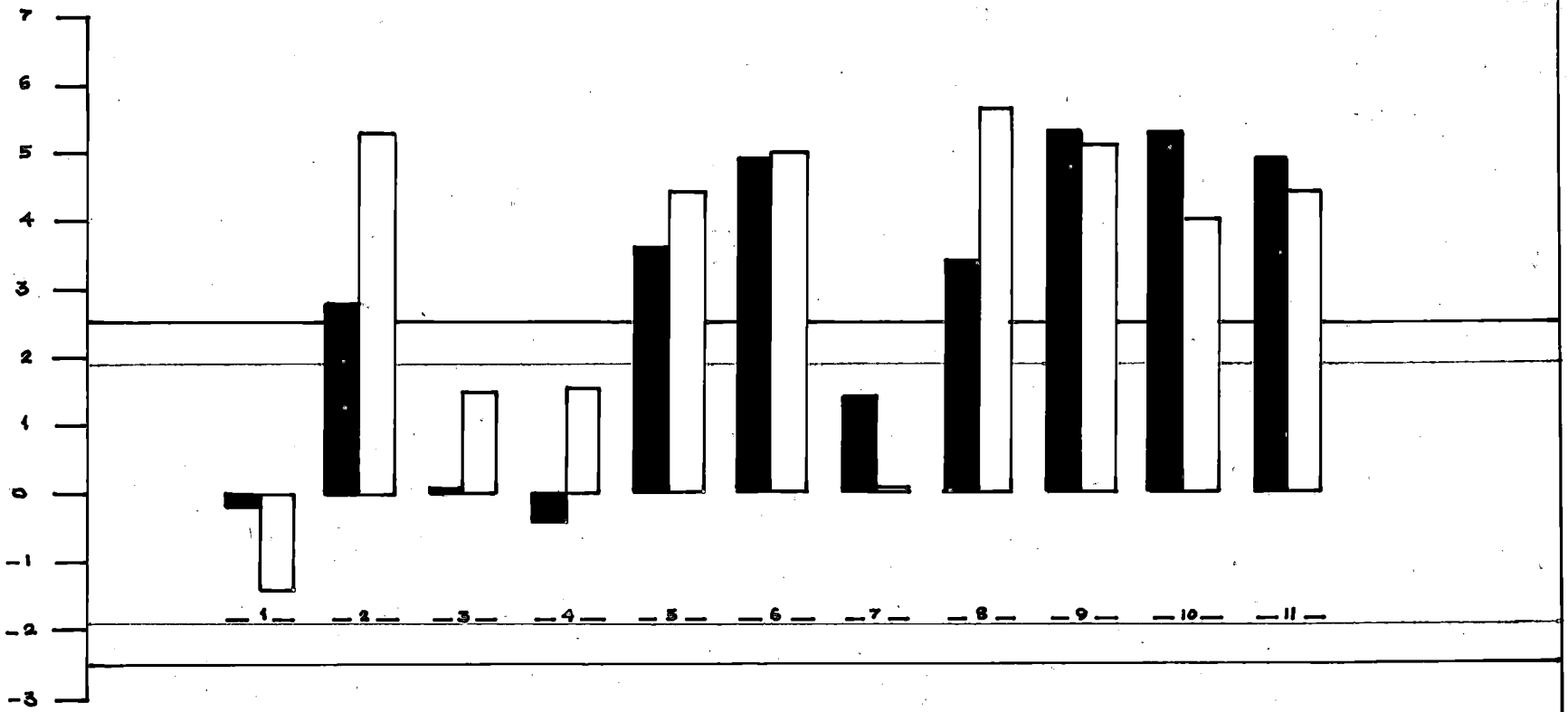
Beal et al. (1967), Supe and Salode (1975) reported similar findings.

In the light of the above discussion, the hypothesis that there will be no significant relationship between scientific orientation and extent of adoption was rejected.

10. Risk preference

The risk preference and extent of adoption of the demonstrated cultivation practices was positively and significantly related in the case of both neighbour and control farmers (table-31). As the risk orientation of farmers increase, the capacity to take more risk in the adoption of new technology also increase. This might be the reason for the higher adoption by the farmers with high risk preference. Similar results were obtained by Nair (1969), Singh and Singh (1970), Roshan Singh and Singh (1970), Rajendran (1978).

Hence, the hypothesis that there will be no positive and significant relationship between risk preference and extent of adoption of the demonstrated practices was rejected.



NEIGHBOUR FARMERS.

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INDEPENDENT VARIABLES

1. AGE.
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9. SCIENTIFIC ORIENTATION.
10. RISK PREFERENCE.
11. MANAGEMENT ORIENTATION.

FIG: 5. RELATIONSHIP BETWEEN THE INDEPENDENT VARIABLES AND THE EXTENT OF ADOPTION OF THE DEMONSTRATED PRACTICES

11. Management orientation

The table-31 depicted a positive and significant relationship between management orientation and the extent of adoption of the demonstrated cultivation practices. A farmer who makes efficient, timely and planned arrangements in his agricultural production, will sure to achieve higher productivity. This may influence their subsequent adoption behaviour favourably. This may be the probable reason for the expression of positive and significant relationship between management orientation and extent of adoption of the demonstrated practices. This finding is in agreement with the findings of Samantha (1977), Shanmukhappa (1978).

In the blight of the above discussion, the hypothesis set for the study that there will be no positive and significant relationship between management orientation and extent of adoption of the demonstrated practices was rejected.

The relationship between the characteristics of farmers and the extent of adoption of the demonstrated cultivation practice has been diagramatically represented in fig. 5.

Inter-relationship of dependent variables

Adoption of demonstrated practices of paddy cultivation was positively and significantly related with the level

of knowledge and attitude in the case of both neighbour farmers and control farmers (Table-33). It is noted that the relationship between level of knowledge and attitude was positive, though not significant, in the case of control farmers. Level of knowledge possessed by a farmer is one of the important components influencing adoption behaviour. Knowledge on the demonstrated agricultural practices is likely to bring about better appreciation of the new technology and also helps in translating the knowledge in to practice. Knowledge has been considered as a pre-requisite for developing a favourable attitude leading to adoption. Many authors have substantiated the influence of knowledge and attitude as forerunners of adoption behaviour. Gaikward et al. (1973) while studying the influence of level of knowledge of farmers on their extent of adoption of improved farm practices postulated that as the level of knowledge passes a certain threshhold the self generated pressure due to incremental knowledge culminates in practice adoption of innovation. The finding of this study is also in agreement with the above proposition. Therefore, it is concluded that variables namely, level of knowledge and attitude towards the demonstrated practices are related, though not significant in control farmers. Similarly, the level of knowledge and attitude are positively and significantly related with the adoption of the demonstrated practices.

Inter-relationship of independent variables

In neighbour farmers age was negatively and significantly related to education and information source utilisation, while, in control farmers age showed a negative and significant relationship with education, cosmopoliteness and information source utilisation. The negative and significant relationship between age and education in both group of farmers might be due to availability of increased education facilities, as the years pass by. Hence, the younger generation getting more opportunities for higher education. The relationship of age with information source utilisation in both groups and the relationship of age with cosmopoliteness and management orientation in control farmers might be due to impact of higher education. Education was positively and significantly related with income, social participation, information source utilisation, scientific orientation, risk preference and management orientation in both groups of farmers. This relationship might be due to the fact that highly educated farmers are in a better position to make use of various source of information. They become more accustomed to scientific agriculture and decision making. The positive and significant relationship of education and farm size in the case of neighbour farmers might be due to the highly significant positive relationship of income with farm size. Similarly,

the positive and significant and relationship between education and cosmopoliteness in neighbour farmers explains the high scientific attitude and information source utilisation of high cosmopolite categories. The income of both groups of farmers was positively and significantly related with farm size and scientific orientation. The positive and significant relationship of income with social participation, cosmopoliteness and scientific orientation might be due to the effect of positive relationship of income with education. Increased income is likely to bring about better opportunities to visit places outside the village and better participation in organisations. The same reason may be attributed to the relationship of income with contact with extension agencies, risk preference and management orientation. The farm size was positively and significantly related to social participation and cosmopoliteness of both groups of farmers. They may be having large quantity of farm produce, and for the sale of which they frequently go to markets outside villages and join in various co-operative marketing organisations. Similarly the positive and significant relationship of farm size with contact with extension agencies and management orientation in the case of control farmers might be on account of the relationship of their

income with contact with extension agencies and management orientation. Social participation is positively and significantly related to contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation in both groups of farmers. This explains that farmers having more participation in organisations are likely to get more chances to contact the agricultural scientists, extension workers who in turn help to develop scientific attitudes, risk taking capacity and management decision making. The positive and significant relationship of contact with extension agencies with information source utilisation, scientific orientation, risk preference and management orientation in both groups explains the influence of social participation of the farmers. Contact with extension agencies and cosmopoliteness were positively and significantly related in the case of neighbour farmers. This might be due to the fact that the high cosmopolite farmers make more contact with specialists of the National Demonstration Programme and other extension specialists, since they go frequently to Mannuthy and Trichur. This is substantiated by the positive and significant relationship of cosmopoliteness with information

source utilisation and scientific orientation. The positive and significant inter-relationship between information source utilisation, scientific orientation, risk preference and management orientation in both groups of farmers might be due to the combined influence of education, social participation and contact with extension agencies, information source utilisation. These relationship might have contributed to developing high scientific attitudes, high risk bearing capacity and sound management decisions also. Moreover, it is rationale to think that scientific attitude is necessary to take risks and change in attitude thus brought to take a sound management decision.

SUMMARY

SUMMARY

In 1964-'65, with the introduction of high yielding varieties of paddy, National Demonstration Programme was launched with the purpose of popularising the high yielding varieties in the country. Since 1974-'75, Kerala Agricultural University have been conducting National Demonstrations in different parts of Trichur District. But, no effort has so far been made to make an emperical study on the impact of the programme on the diffusion of the demonstrated technology amongst the farmers. Keeping these facts in view, the present study was undertaken with the following objectives.

1. To study the level of knowledge of farmers neighbouring to the National Demonstration plots on the selected cultivation practices of paddy, demonstrated under the National Demonstration Programme.

2. To study the attitude of farmers neighbouring to the National Demonstration plots towards the selected cultivation practices of paddy demonstrated under the National Demonstration Programme.

3. To study the extent of adoption of the selected demonstrated cultivation practices of paddy by the farmers neighbouring to the National Demonstration plots under the National Demonstration Programme.

4. To study the relationship between the characteristics of farmers and the impact components viz. level of knowledge, attitude and extent of adoption.

For conducting the study, seven padasekharam, viz. Elinjipra, Meloor, Kompazha, Puthur, Chowannur, Kecheri and Ollukkara, where National Demonstration plots had been located were randomly selected out of the 25 demonstrations laid out during the year 1979-80. Another seven control padasekharams from the villages viz. Perambra, Muringur, Velanganur, Vilavattam, Porkulam, Kodanur and Mulayam were selected purposively within the district for the purpose of comparison.

Hundred farmers each were selected on proportionate random sampling basis from the National Demonstration and control padasekharams. Six demonstrated cultivation practices were selected for the study. They were use of high yielding varieties of paddy, seed treatment, soil testing, liming, use of chemical fertilizers, use of plant protection chemicals. Eleven independent variables viz. age, education, income, farm size, social participation, contact with extension agencies, cosmopoliteness, information source utilisation, scientific orientation, risk preference and management orientation were selected to

establish their relationship with the dependent variables namely level of knowledge, attitude and extent of adoption.

The level of knowledge on the demonstrated cultivation practices was measured with the help of the method developed by Nair (1969). Attitude towards the demonstrated cultivation practices was measured with the help of a scale developed, using the method of summated rating suggested by Likert (1932), the extent of adoption of the demonstrated cultivation practices was measured by the procedure developed by Supe (1969) with suitable modifications.

Age was measured based on the completed year of age by the respondent at the time of investigation, education on the basis of their literacy, farm size as the total area in acres cultivated by the respondent and social participation as the extent of participation in organisations. The technique developed by Jaiswal et al. (1971) was used to measure farmers extent of contact with extension agencies. Cosmopoliteness was measured in terms of the frequency of visit to the nearby town, purpose of visit and membership in organisations outside the village. The procedure followed by Nair (1969) was used to compute the respondents extent of utilisation of various information sources. Scientific orientation and risk preference were measured by the scales developed by Supe (1969). The scale developed

by Samantha (1977) was used to measure management orientation. The data were collected by interviewing the respondents individually with the help of a schedule developed for the study. Normal test of significance, analysis of variance test, and correlation methods were used for the analysis of the data.

The findings of the study has been summarised below:-

Level of knowledge on the demonstrated cultivation practices.

The farmers neighbouring to the National Demonstration plots were superior to the farmers of the control padasekharams in respect of the level of knowledge on the six demonstrated cultivation practices of paddy.

Attitude towards the demonstrated cultivation practices.

Farmers neighbouring to the National Demonstration plots developed more favourable attitude towards the demonstrated cultivation practices of paddy than control farmers. High attitude categories were almost equal in both groups of farmers.

Extent of adoption of the demonstrated cultivation practices

High adopters of the demonstrated cultivation practices were more among neighbour farmers than control farmers. But medium adopters were more in control group. The neighbour farmers were superior in respect of the adoption of the demonstrated practices than the control farmers.

Level of knowledge, attitude and extent of adoption with respect to the six demonstrated cultivation practices among the farmers of the seven National Demonstration padasekharams.

The farmers of National Demonstration padasekharam at Puthur secured the highest rank in respect of the level of knowledge, attitude and extent of adoption, closely followed by the farmers of National Demonstration padasekharam at Elinjipra with respect to level of knowledge and extent of adoption and Chowannur with respect to attitude. The farmers of National Demonstration padasekharam at Ollukkara were the lowest in the level of knowledge, attitude and extent of adoption with respect to the six demonstrated cultivation practices of paddy. Farmers neighbouring to the National Demonstration plots at Kecheri, Kompazha and Meloor, in general, belonged to the medium category.

Level of knowledge, attitude and extent of adoption with respect to each of the demonstrated cultivation practices among the farmers of the seven National Demonstration padasekharam.

Farmers of National Demonstration padasekharam at Puthur has been toping amongst the seven padasekharams, possessing high knowledge, attitude as well as extent of adoption pertaining to all the six practices studied viz. use of high yielding varieties of paddy, seed treatment, soil testing, liming, use of chemical fertilizers and use of plant protection chemicals. Farmers of Elinjipra has

followed the farmers of Puthur with regards to the high knowledge on the six practices as well as high attitude towards high yielding varieties, seed treatment, soil testing and liming. But high adoption was evidenced amongst them with regard to seed treatment and liming. Kecheri has followed Puthur and Elinjipra in high adoption of the above two cultivation practices. Though, the farmers of National Demonstration padasekharam at Chowannur exhibited high attitude towards all the practices except use of plant protection chemicals, their high knowledge and adoption had found to be restricted to seed treatment alone. Following the farmers of Chowannur, Meloor farmers evidenced high knowledge and adoption on high yielding varieties of paddy. Of the least, Kompazha and Ollukkara evidenced high knowledge on soil testing alone. Farmers of Ollukkara interestingly also tested their soil for the cultivation of paddy.

Relationship of the characteristics of the farmers with level of knowledge, attitude and extent of adoption.

Education, social, participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation had positive and significant influence on the level of knowledge of the neighbour farmers. Age, income and farm size were negatively related with their level of knowledge.

Positive and significant relationship was noticed between attitude towards the demonstrated cultivation practices and the characteristics of neighbour farmers viz. education, social participation, contact with extension agencies, informations source utilisation, scientific orientation, risk preference and management orientation. Age had a negative relationship with attitude twoards the demonstrated practices.

The characteristics such as education, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation were positively and significantly related with extent of adoption of the demonstrated practices. But age and farm size were negatively related with extent of adoption.

The computation of inter-relationship between the level of knowledge, attitude and extent of adoption showed that extent of adoption was positively and significantly related with level of knowledge and attitude. Attitude also had positive and significant relationship with level of knowledge.

The study conclusively proved that the National Demonstration had a favourable impact in the diffusion of demonstrated technology among the farmers of the demonstration

padasekharams. It also indicated that possession of higher knowledge on the demonstrated cultivation practices and favourable attitude towards the demonstrated cultivation practices enhanced the adoption behaviour of farmers of the demonstration padasekharam.

Suggestions for future research

Further studies on National Demonstration may be taken over in the following lines.

1. In this study, impact of National Demonstration was studied with respect to paddy only. Similar studies on the impact of National Demonstration Programme on other crops included in the programme viz. tapioca, pulses, groundnut, sesamum can be studied.

2. Impact studies may be conducted considering demonstrator farmer as one of the respondents group.

3. Research may be conducted to identify the criteria for use in selection of the demonstrator farmer.

4. Studies may be undertaken to find the variation in the effectiveness of the National Demonstration based on the proximity of the surrounding area.

5. 'Ex-post-facto' approach has been followed in this study. A 'before after' design would permit a more accurate analysis of the influence of demonstrations among farmers.

6. Studies on the leadership qualities and role of the demonstrator farmers towards agricultural development in the demonstration areas are worth consideration.

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* Original not seen

APPENDICES

APPENDIX I

NAME OF THE SEVEN DEMONSTRATOR FARMERS, LOCATION OF DEMONSTRATION AND VARIETY DEMONSTRATED

Sl. No.	Name	Location of demonstration plot.	Variety demonstrated.
1.	Valsala Jose	Elinjipra	Triveni
2.	Verghese	Meloor	Triveni
3.	Abdu	Chowannur	Triveni
4.	Kuttan Nair	Puthur	Triveni
5.	Pathumma	Kecheri	Jyothi
6.	Kesavankutty	Ollukkara	Jyothi
7.	P.S. Mathew	Kompazha	Triveni

APPENDIX II

A STUDY ON THE IMPACT OF NATIONAL DEMONSTRATION PROGRAMME ON PADDY CULTIVATION IN TRICHUR DISTRICT

INTERVIEW SCHEDULE

Part I

1. Respondent No.
2. Village:
3. Block

Part II

1. Age of the respondent in year.
2. Educational leve of the respondent.

   illiterate/can read only/can read and write/primary/middle/ secondary/colleges and above.
3. Income:

   Main Occupation: Rs.
   Subsidiary Occupation: Rs.
4. Farm size:

Type	Area in hectares		
	Owned	leased in	leased out
Garden land			
Wet land			
Total:			

5. Social participation

Sl. No.	Name of organisation	Member	Office bearer	Frequency of participation		
				Attending all the meetings.	Not attending all the meetings.	Not attending any of the meetings.
1.	Panchayat					
2.	Co-operative societies					
3.	Ela Committees					
4.	Farmers Discussion group					
5.	Young farmers club					
6.	Others (specify)					

6. Contact with extension agencies

Sl. No.	Name of Extension agency	Frequency of contact			
		two or more times in a week.	Once in a week.	Once in a fort-night.	Once in a month.
1.	Demonstrator				
2.	Village Extension Officer				
3.	Junior Agricultural Officer				
4.	Block Development Officer				
5.	University Scientists				
6.	Others (specify)				

7. Cosmopoliteness:

a) Frequency of visiting (How many times do you visity the nearby town?

b) Once or more times a week/once in a week/once in a fort-night/once in a month/never.

b) Purpose of visit.
Agricultural/personal or professional/other purposes (specify)/entertainment.

c) Membership in organisations outside the village/town.

Yes/No.

8. Information source utilisation

Sl. No.	Sources of informations.	frequency of utilisation					
		every day.	Two to six times in a week.	Once in a week	Once in a fort-nighrt	Once in a month	Neve
1.	Newspaper						
2.	Radio						
3.	Extension personnel						
4.	Agricultural scientists						
5.	Friends and relatives						
6.	Others (specify)						

9. Scientific orientation

Please state the degree of agreement or disagreement or undecidedness with each of the following statements.

Statements	S.A.	A.	U.D.	D.A.	S.D.A.
i) New methods of farming give better results to a farmer than the old methods.					
ii) *The way of farming by our fore-fathers is still the best way to farm today.					
iii) Even a farmer with lot of farm experience should use new methods of farming.					
iv) A good farmer experiments with new ideas in farming.					
v) Though it takes time for a farmer to learn new methods in farming, it is worth the efforts.					
vi) Traditional methods of farming have to be changed in order to raise the living of a farmer.					

* Negative statment.

10. Risk preference

Please state the degree of agreement or disagreement or undecidedness with each of the following statements.

Statements	S.A.	A.	U.D.	D.A.	S.D.A.
1. *A farmer should grow large number of crops to avoid greater risks involved in growing one or two crops.					
2. A farmer should rather take more of chance in making a big profit than to be content with smaller but less risky profits.					

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 risk when he knows his chance of success is fairly high.	
5. It is better for a farmer not to try new farming methods unless most other farmers have used them with success.	
6. Trying an entirely new method in farming by a farmer involves risks, but it is worth it.	

11. Management Orientation

What is your opinion about the following statements? Please state the degree of your agreement or disagreement to each of the statement given below:

A. Planning orientation	Agree	Disagree
1. Each year one should think a fresh about the crop to be cultivated in each type of land.		
2. It is not necessary to make prior decision about the variety of crop to be cultivated.		
3. The amount of seed, fertilizer, plant protection chemicals need 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 export for crop planning.		
6. It is possible to increase the yield through farm prodcution plan.		
B. Production orientation		
1. Timely planting of a crop ensures good yield.		

2. One should use as much fertilizer as he likes.

3. Determining fertilizer dose by soil testing save time.

4. For timely weed control one should even use suitable herbicide.

5. Seed rate 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 use is not so useful to a farmer.

2. A farmer can get good price by grading his produce.

3. Warehouse can help a 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 more market demand.

Part III

Knowledge of farmers on the demonstrated cultivation practices of paddy.

A. Use of high yielding variety

1. Which of the following variety is a high yielding short duration:

   a) Chitteni b) Chenkaima c) Mashoori

   d) Triveni.

2. What is the duration of Jyothi Variety.

   a) 90-95 days. b) 110 - 115 days. c) 120-125 days.

   d) 125-145 days.

3. Which of the following variety is resistant to Brown plant hopper attack.

a) Jaya b) IR 8 c) Annapurna d) Bharathi

4. When do you transplant the short duration high yielding variety seedlings to the main land.

a) When they are 15 days old.

b) When they are 18 - 20 days old.

c) When they are 25 days old.

d) When they are 35 days old.

5. What should be the spacing given to short duration varieties in the viripu season.

a) 20 cm x 20 cms. c) 25 cms. x 25 cms.

b) 15 cm x 10 cms. d) 10 cms. x 10 cms.

B. Seed treatment

6. What is the purpose of seed treatment with chemical before sowing.

a) to kill the insects present in the seed.

b) to kill the disease causing pathogens present in the seed.

c) to kill the weed seeds present in the seed.

7. Mention the chemical used for wet seed treatment.

a) Agrosen G.N. c) B.H.C.

b) Agallol-3. d) Sevin.

8. Agallol-3 is to be mixed with seeds at the rate of . . .

a) 5 gms per 50 Kgs of seed. c) 50 gms per 50 kgs of seed.

b) 125 gms per 50 kgs of seed. d) 75 gms per 50 kgs of seed.

9. For the wet treatment with Agallol-3, how much time the seed is to be immersed in the solution.

a) 5 minutes. b) 30 minutes

b) 1 day d) 2 days.

10. Mention the chemical used for dry seed treatment.

a) Agallol-3 b) Sevin.

b) DDT d) Agrosen G.N.

11. Agrosan G.N. is to be mixed with the seed at the rate of

a) 5 gms per 50 kgs of seed.
b) 125 gms per 50 kgs of seed.
c) 50 gms per 50 kgs of seed.
d) 75 gms. per 50 kgs of seed.

C. Soil testing

1. What is the purpose of soil testing

a) to apply fertilizers on the basis of soil test results.

b) to know the structure of soil.

c) to apply fertilizers and other amendments on the basis of soil.test results.

2. 2. Soil to a depth of . . . . collected for testing.

a) 6 inches.
b) 10 inches.
c) 15 inches.
d) 20 inches.

3. The optimum time for the collection of soil from paddy fields for testing is.

a) during growth stages of paddy.
b) before starting the land preparation operation.
c) at any time.

4. The minimum quantity of soil to be collected for soil testing.

a) 200 gm.
b) 500 gm.
c) 1 Kg.
d) 2 Kgs.

D. Liming

1. What is the purpose of liming paddy fields

a) to correct soil acidity.

b) to correct soil alkalinity

c) to increase water holding capacity of soil.

d) there is not much use.

2. How will you apply lime in the paddy field.

a) entire quantity as basal dose.

b) Half basal and the other half one month after transplanting.

c) 3/5 basal and 2/5, one month after transplanting the seedlings.

E. Use of chemical fertilizers

1. How will you apply Ammonium sulphate/urea to paddy crop.
   a) Entire quantity as basal dose.
   b) Entire quantity as top dressing.
   c) Split doses in different growth phases.
2. How will you apply super phosphate to paddy crop.
   a) Entire quantity as basal dose.
   b) Entire quantity as top dressing.
   c) Split application in different growth phases.
3. How will you apply Potash fertilizer to paddy crop.
   a) Entire quantity as basal dose.
   b) Entire quantity as top dressing.
   c) Split application in different growth phase.

F. Use of Plant Protection chemicals.

1. What is sevin.
   a) fungicide b) pesticide
   c) weedicide d) fertilizer.
2. Please mention the chemical used for the control of rice stem borer.
   a) Sevin c) Ekalux
   b) BHC d) DDT
3. How much quantity of Ekalux 25 EL is required for an acre of paddy for the control of rice stem borer.
   a) 1000 ml. b) 750 ml.
   c) 500 ml. c) 250 ml.
4. How much quantity of Ekalux granules is required for an acre of paddy for the control of rice stem borere
   a) 20 Kg. b) 15 Kg.
   c) 8 Kg. d) 2 Kg.
5. Please mention the chemical used for the control of blast disease of paddy.
   a) Himosan b) Bordeaux mixture
   c) Sevin d) Ekalux
6. How much quantity of Himason is required for an acre of paddy for the control of blast disease.
   a) 200 ml. b) 500 ml.
   c) 1 litre d) 1.5 ml.

PART IV

Attitude of farmers towards the demonstrated cultivation practices of paddy.

Different people feel differently about the cultivation practices of paddy demonstrated under the National Demonstration Programme. You too may be having some opinion. Here are some statements. Please indicate your response by marking (✓) against each statement in the appropriate column.

A. Use of High yielding varieties	S.A.	A.	U.D.	D.A	SDA
1. If we want to produce enough rice the best way is to cultivate high yielding varieties of paddy.					
2. High yielding varieties are no better than local varieties.					
3. Cultivation of high yielding varieties has brought a new light in the field of agriculture.					
4. It is not profitable to cultivate high yielding varieties of paddy.					
5. The utilisation of more input in the cultivation of high yielding varieties of paddy is fruitful.					
6. As the high yielding varieties of paddy are more frequent in the incidence of pest and disease, it is uneconomic to cultivate.					

B. Seed Treatment	S.A.	A.	U.D.	D.A.	SDA
1. Seed treatment should be practiced by all farmers.					
2. Treated seeds have no advantages over non-treated seeds.					
3. Educational facilities should be increased to make people aware of the need of seed treatment.					
4. As it is a skilled job, an ordinary farmer cannot practice.					
5. Seed treatment is the best way to reduce the incidence of pests and diseases.					
6. It is very difficult to treat the seeds.					

		SA	A	UD	DA	SDA
C.	Soil testing					
1.	If we want to apply the correct doses of fertilizers and lime the best way is to do soil testing.					
2.	Soil testing is only a waste of money and time.					
3.	Soil testing facilities should be increased in our area.					
4.	Soil testing results recommend high doses of fertilizers and lime for paddy cultivation.					
5.	All farmers should test their soil for raising paddy crop.					
6.	Educational facilities should be improved to make the people aware of the importance of soil testing.					
D.	Liming					
1.	Liming improves the fertility status of soil.					
2.	It is not profitable to apply lime.					
3.	The use of lime is essential for better crop yields.					
4.	Educational facilities should be increased to make the people aware of the importance of liming.					
5.	Liming is only a waste of money and time.					
6.	All farmers of my area should apply lime.					
E.	Use of Chemical fertilisers	SA	A	UD	DA	SDA
1.	The yield of paddy has been increased considerably by the use of chemical fertilizers.					
2.	The use of chemical fertilizer is the best way to increase the yield of paddy crop.					

3. The paddy crop fertilized become susceptible to pest and diseases.

4. The use of chemical fertilizers make the soil poor.

5. The application of chemical fertilizers is a practically useful practice.

6. The use of chemical fertilizer is the easiest way to increase the yield of paddy.

F. Use of plant protection chemicals SA A UD DA SDA

1. After the introduction of plant protection chemicals thege has been a reduction in the failure of crop due to pest and diseases.

2. The paddy crop applied with chemicals deteriorates the quality of grains.

3. Application of plant protection chemicals is the easy way to save the crop from pest and disease.

4. Application of plant protection chemicals have created more pollution problems rather than solving pest and disease problems.

5. All paddy cultivators should apply plant protection chemicals.

6. It is worth while to invest much in the use of plant protection chemicals.

Part V

Extent of adoption of demonstrated cultivation practices of paddy.

A. Variety

Have you cultivated high yielding variety Yes/No

If yes name the variety.

1.

2.

B. Seed treatment

Have you done seed treatment Yes/No

If yes,

1. Name of chemical
2. Quantity of chemical
3. Quantity of seed treated
4. Method of seed treatment.

C. Soil testing

Did you test your soil Yes/No

If yes,

Quantity of soil collected:

Place of collection of soil:

Time (season) of collection.

D. Did you apply lime/dolamite Yes/No

If yes,

Based on soil test data:	Qty.	Time
Lime		....
Dolomite....		....

Not based on soil test data:	Qty.	Time
Lime	...	....
Dolomite	...	....

E. Use of Chemical Fertilizers

Did you apply fertilizers. Yes/No

If yes,

Based on soil test data

Basal dose	Top dose	Total
N (.....)..... kg	N (.....)....Kg	N(.....).....kg
P (.....).....kkg	P (.....)....kg	P(.....).....kg
K (.....).....kg	K (.....)....kg	K(.....).....kg

Note based on soil test data

Basal dose	Top dose	Total
N (.....).....kg	N (.....)....kg	N(.....).....kg
P (.....).....kg	P (.....)....kg	P(.....).....kg
K (.....).....kg	K (.....)....kg	K(.....).....kg

F. Use of plant protection chemicals.

Was there any pest/disease attack in your crop during last virippu season

Yes/No.

If yes,

a) Name of pests Name of chemical Dosage

b) Name of diseases Name of chemical Dosage

ABSTRACT

The investigation was undertaken in Trichur district, Kerala, to study the impact of National Demonstration Programme in paddy cultivation among the farmers neighbouring to the demonstration plots. The objective of the investigation were to study.

1. The level of knowledge of farmers neighbouring to the demonstration plots on the selected practices of paddy demonstrated under the programme.

2. The attitude of farmers neighbouring to the demonstration plots towards the selected practices of paddy demonstrated under the programme.

3. The extent of adoption of the selected demonstrated practices of paddy by the farmers neighbouring to the demonstration plots.

4. The relationship between the characteristics of farmers and level of knowledge, attitude and extent of adoption.

The study revealed that the neighbour farmers were superior to the control farmers in respect of their level of knowledge on the demonstrated cultivation practices of paddy. Out of the eleven independent variables selected, education, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation had positive and significant relationship with level of knowledge.

Farmers neighbouring to the demonstration plots possessed more favourable attitude towards the demonstrated practices than the control group. Education, social participation, contact with extension agencies, information source utilisation, scientific orientation, risk preference and management orientation showed positive and significant relationship with attitude towards the demonstrated practices.

The extent of adoption of the demonstrated practices was more among the neighbour farmes than control farmers. The variables such as education, social participation, contact with extension agencies, information source utilisation, scientifi orientation, risk preference and management orientation were positively and significantly related with extent of adoption.

Among the dependent variables, extent of adoption was positively and significantly related to the level of knowledge and attitude. Attitude of neighbour farmers towards the demonstrated practice also evidenced positive and significant relationship with level of knowledge.

Among the farmers of seven demonstration padasekharams selected for the study, farmers of Puthur secured highest rank with respect to the level of knowledge, attitude and extent of adoption. Regarding the individual demonstrated cultivation practices under study, farmers of Puthur

evidenced highest level of knowledge, attitude and extent of adoption with regards to all the six practices, viz. use of high yielding variety, seed treatment, soil testing, liming, use of chemical fertilizers, use of plant protection chemicals, followed by the farmers of Kompazha and Ollukkara ranked lowest with regards to the level of knowledge, attitude and extent of adoption of the six practices.