

# **A STUDY ON FARMERS' FUNCTIONAL LITERACY PROGRAMME**

**R. MURALEEDHARA PRASAD**



## **THESIS**

SUBMITTED IN PARTIAL FULFILMENT OF  
THE REQUIREMENT FOR THE DEGREE  
**MASTER OF SCIENCE IN AGRICULTURE**  
( AGRICULTURAL EXTENSION )  
FACULTY OF AGRICULTURE  
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION  
COLLEGE OF AGRICULTURE, VELLAYANI  
TRIVANDRUM

**1978**

DECLARATION

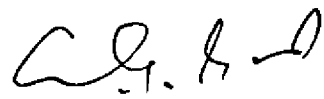
I hereby declare that this thesis entitled "A Study on Farmers' Functional Literacy Programme" is a bonafide record of research work done by me during the course of research and that the thesis has not previously formed the basis for the award to me of any degree, diploma, associate-ship, fellowship or other similar title of any other University or Society.

Vellayani,  
16<sup>th</sup> August, 1978.

  
N. MURALIDHARAN PRASAD

CERTIFICATE

Certified that this thesis, entitled "A Study on Farmers' Functional Literacy Programme" is a record of research work done independently by Shri R. Muralcedhara Prasad, under my guidance and supervision and that it has not previously formed the basis for the award of any degree, fellowship or associate-ship to him.



A.G.G. MENON

Chairman  
Advisory Committee

Professor in Agricultural Extension  
College of Agriculture

Kollayani,

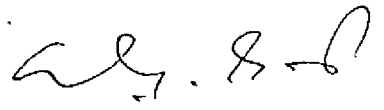
16<sup>th</sup> August, 1978.

APPROVED BY

CHAIRMAN

::

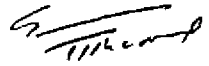
A.G.G. Menon



MEMBERS

::

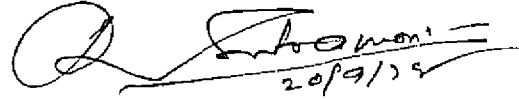
1. E.J. Thomas



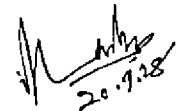
2. A.M. Champi



3. R.S. Aiyer



4. E. Tajudeen



## ACKNOWLEDGEMENT

The author wishes to place on record his deep sense of gratitude and indebtedness to:

Shri A.G.G. Menon, Professor of Agricultural Extension and Chairman of the Advisory Committee, for his many valuable guidance and help and for his indispensable stimulation and encouragement throughout the study and in the preparation of this thesis.

Shri E.J. Thomas (Professor of Agricultural Statistics), Dr. A.H.Thampi (Associate Professor in Agricultural Extension), Dr. R.S. Aiyer (Associate Professor in Agricultural Chemistry) and Dr. E. Tajudeen (Associate Professor in Agronomy), Members of the Advisory Committee for their keen interest, encouragement and critical suggestions.

The author acknowledges the propitious support received from Dr. K. Sivadasan Pillai, Reader in Education, University of Kerala, and Shri K.G. Balakrishna Pillai and Shri P.N. Panicker of Kerala Association for Non-Formal Education (KANFED).

He is grateful to the members and staff of the Department of Agricultural Extension and his colleagues for their help and co-operation.

Profound thanks are due to those farmers who formed the respondents of this study.

His sincere thanks are also due to Kerala Agricultural University for awarding him a merit scholarship.

Vellayani,  
August, 1978.

R. MURALEEDHARA PRASAD

## CONTENTS

		Page
CHAPTER 1		
Introduction	..	1
CHAPTER 2		
Review of Literature	..	6
CHAPTER 3		
Materials and Methods	..	36
CHAPTER 4		
Results	..	59
CHAPTER 5	..	
Discussion	..	94
CHAPTER 6		
SUMMARY	..	112
References	..	i - x
Appendices	..	xi - xxii
Abstract	..	xxiii - xxiv

---

## LIST OF TABLES

	<u>Page</u>
1. Categories of adopters based on the distribution of adoption scores.	60
2. (a) Distribution of farmers according to age	61
(b) Distribution of farmers according to farm size	63
(c) Distribution of farmers according to cropping intensity	64
(d) Distribution of farmers according to irrigation potential	65
(e) Distribution of farmers according to social participation	66
(f) Distribution of farmers according to their knowledge scores	68
(g) Distribution of farmers according to their mass media	69
(h) Distribution of farmers according to use of inter-personal cosmopolite sources	70
(i) Distribution of farmers according to use of inter-personal localite source	72
(j) Mean and mean attitude scores on the attitude scale	73
3. Correlation between the dependent variable (adoption behaviour) and independent variables	74
4. Matrix of correlation coefficients among independent variables in the experimental group.	74

	Page
5. Matrix of correlation coefficients among independent variables in the control group	75
6. Matrix of correlation coefficients among independent variables in the total sample	76
7. Multiple correlation coefficients	80
8. Partial regression coefficients for independent variables	82
9. Standardised partial regression coefficients (Total sample)	85
10. Standardised partial regression coefficients (Experimental group)	86
11. Standardised partial regression coefficients (Control group)	87
12. Highest order partial correlation between adoption behaviour and any of the other variables	89
13. Distribution of farmers according to the reasons for not attending school/drop-out	95



## **INTRODUCTION**

## CHAPTER 1

## INTRODUCTION

Education aims at producing desirable changes in the behaviour pattern of individuals. Adult education attempts to do this among the drop-outs and adults who have not had the benefit of formal schooling. Functional Literacy and Farmers' Training are programmes designed to constitute the most important facets of adult farmer education.

FUNCTIONAL LITERACY PROGRAMME:

Functional literacy is a new concept in the field of adult education emerged from the discussions in the 'World Congress of Ministers of Education on the Eradication of Illiteracy' held at Tehran in 1965. This concept was introduced in Agricultural Extension work in India in the Farmers' Training and Functional Literacy Programme started by the Government of India in 1968 as a comprehensive educational effort to support the High Yielding Varieties Programme in 100 selected districts in the country. An integrated approach was envisaged in the implementation of this programme. The Ministry of Agriculture

was made responsible for all agricultural demonstrations and other farmers' training activities. The Ministry of Education assumed the responsibility for functional literacy and the Ministry of Information and Broadcasting provided radio support through their farm broadcast units assisted by UNDP/FAO/UNESCO. All the States in India except Tripura are covered by this programme. Started in 3 districts in 1967-'68, by 1972-'74, the Farmers' Functional Literacy Programme has brought within its fold 107 districts. Eventually, all the districts in the country will be covered under this programme.

The Farmers' Functional Literacy Programme, which is an integral part of the Farmers' Training Scheme, is designed to help illiterate farmers by providing at once literacy skills, and knowledge and skill in agricultural technology which will be of immediate use to them.

Effective utilisation of sophisticated agricultural technology needs better perception and comprehension of the scientific principles behind the innovations. Studies made in this area have conclusively proved that literate farmers are more equipped to perceive and comprehend these principles better than the illiterate farmers. Further, the attitude of literate farmers tend to be more favourable towards agricultural innovations than illiterate farmers. In this context, Functional Literacy Programme for farmers assumes particular importance.

Though a number of sources including extension agents, radio, demonstrations, etc., are being extensively used to make farmers accept and adopt agricultural innovations, all these media suffer from the limitation that knowledge acquired through them cannot be retained for long and referred to at a future date. But, functional literacy does not suffer from this limitation. In this case, once the required level of retainable literacy is attained, a farmer becomes equipped to acquire more knowledge with his own effort and to comprehend ideas better. In this sense, Functional Literacy is an effective programme, but effectiveness of this programme would depend on the interplay of many intervening variables like social, psychological, situational etc.

The functional literacy component of the Farmers' Training Programme was started in Trivandrum, Trichur, Palghat and Cannanore districts of Kerala during 1973-'74. In Trivandrum district, the programme was implemented in selected six NES Blocks, viz., Perumkadavila, Nemom, Vellanad, Vamanapuram, Kilimanoor and Kazhakkuttam. The administrative structure consists of a Project Officer who is in overall charge of the administration of the literacy centres in a district assisted by the Block Development Officer and General Extension Officer of the concerned Block. An Advisory Committee in the villages where literacy centres are in

operation help the literacy worker in the discharge of his duties.

During the year 1973-'74, 60 literacy centres started functioning in Trivandrum district at the rate of 10 centres in each Block. Intake of each centre was 30 adult illiterate farmers in the age group of 15-45 years. The teachers for these literacy centres were mostly selected from among the educational young farmers of the respective village. They were given necessary orientation training in the methods of teaching adults and in the modern agricultural practices with particular reference to the cultivation of high yielding varieties of rice.

NEED FOR THE STUDY:

Is the Functional Literacy Programme achieving its objective of making its clientele literate? If so, does it help the clientele to improve their efficiency in their vocation? These questions are particularly relevant in the case of practicing farmers. It is not possible to find satisfactory answers to these questions in the absence of empirical evidences.

No systematic study has so far been taken up in the socio-economic context of Kerala to see how far this programme was effective in making the farmers literate, and accept and

adopt new technology in respect of rice. As such empirical evidences on these aspects are lacking. The present study is an attempt in this direction.

OBJECTIVES OF THE STUDY:

The main purpose of the study was to investigate into the impact of Farmers' Functional Literacy Programme (FFLP) on the adoption of improved agricultural technology in respect of rice by the farmer participants of the programme in Trivandrum District.

In the light of the above, the following specific objectives were formulated:

- 1) to study the extent of adoption of improved rice cultivation practices by the participants of Farmers' Functional Literacy Programme vis-a-vis non-participants,
- 2) to study the factors affecting the adoption behaviour of farmer participants of Farmers' Functional Literacy Programme,
- 3) to study the relationship between selected variables and adoption of improved rice cultivation practices by the participants of Farmers' Functional Literacy Programme vis-a-vis non-participants,
- 4) to determine the predictive power of selected variables in explaining the adoption behaviour of the participants of Farmers' Functional

Literacy Programme vis-a-vis non-participants,  
and

- 5) to determine the relative and differential impact of selected variables and functional literacy programme on the adoption behaviour of farmer participants of Farmers' Literacy Programme vis-a-vis non-participants.

#### LIMITATIONS OF THE STUDY:

The present study had the limitations of time and money, as this study was undertaken as a part of the requirements for the M.Sc. (Ag.) Course. So, it was not possible for the investigator to explore the area in greater depth and in a more comprehensive manner. These limitations were taken into consideration in deciding the variables, sample selection and sample size. However, all efforts have been taken to make the study as objective as possible.

The data related to a sample of farmers of Trivandrum district only. But, it is hoped that the findings of the present study, like any other scientific and systematic study on programme evaluation, would provide an insight into the problems and prospects of the programme, which can help in better implementation of the programme in future.

#### ORGANIZATION OF THE THESIS:

The organization of the remaining parts of the thesis

and the content of each Chapter are presented below:

In Chapter 2, which follows this Chapter, viz., Introduction, an analytical review of the studies relating to the impact of Farmers' Functional Literacy Programme and also studies relating to adoption behaviour is given. Included in this Chapter are also theoretical orientation, definition of concepts and derivation of hypotheses.

Chapter 3 deals with the materials used and methods developed for the study in which details regarding sampling, data collection, etc., are given.

In Chapter 4, the results of the study are presented objective-wise.

Chapter 5 is concerned with the discussion on the findings and their interpretations.

Chapter 6 gives a sum-up of the entire study emphasising salient findings.

---



## **REVIEW OF LITERATURE**

## CHAPTER 2

### REVIEW OF LITERATURE

A review of the studies already made in a particular field of investigation helps the researcher to develop a general idea about the problem, to acquaint himself with the various empirical procedures used, and to develop a theoretical framework for the study.

In this Chapter, the review is dealt with in the following three parts:

- (1) Review of studies on:
  - (a) the impact of Farmers' Functional Literacy programme which is the stimulus variable in this study,
  - (b) adoption behaviour, which is the dependent variable in this study.
- (2) Theoretical orientation including the explanation of the dependent variable, identification of specific variables, and theoretical concepts and definition of dependent and independent variables.
- (3) Hypotheses.

The review of literature related to the measurement of variables is presented in the Chapter on Materials and Methods.

(1) (a) THE IMPACT OF FARMERS' FUNCTIONAL LITERACY PROGRAMME:

Though adult education existed in India for a long time in one form or the other and its history is quite old, until the middle of 20th century, no research work was done in this field. For the first time, a pioneering study on "the problems of lapse into illiteracy" was made by Gadgil in 1945. Since then, sporadic efforts were made till 1969. After 1969, the research in the field of adult education gained momentum although continuous and consistent research efforts were not sufficient to meet the requirements in the field.

With regard to Farmers' Functional Literacy Programme, several studies have been carried out in India, mostly by the Directorate of Adult Education. Apart from these studies following different shades of semi-scientific and scientific methodology, there exist certain works which cannot be strictly classified under the head 'research', which still lend support to research. But all these efforts were to find out the attainment of literacy due to the various literacy programmes only.

The first comprehensive study of Farmers' Functional Literacy Programme was made in 1969, within a year of the

launching of the Programme. This was conducted by the Ministry of Agriculture through an Evaluation Committee appointed by the Central Government. The Evaluation Committee (1969) observed that the over-all impact of the Farmer's Training and Functional Literacy Programme has been satisfactory. The response of the farmers to functional literacy facilities has gradually become higher than in routine literacy work, mainly due to its immediate use value which increased the farmer's motivation.

Study conducted by Extension Education Institute, Hyderabad (1970) to assess the impact of functional literacy on agricultural development revealed that there was significant improvement in knowledge, awareness and adoption of improved agricultural practices in the group of farmers enrolled for a longer duration in functional literacy courses.

Paul (1970) made a critical study of the Farmers' Training and Education Programme in relation to the changes in behavioural components of farmers. He concluded that the farmers who participated in the programme differed significantly with regard to the change in knowledge related to new practices, attitude towards farmers' training and adoption of package of practices.

An evaluative study of the impact of functional literacy programme undertaken in the Lucknow District in 1971 by the Directorate of Adult Education has conclusively established the utility of the functional literacy programme in contributing to

agricultural production. Three batches of farmers who had gone through the functional literacy programme were studied in comparison with the control group of farmers, who were similarly situated in all other aspects, but did not have the benefit of the programme. Some of the significant conclusions arising from the study were:

- (1) the farmers trained in the functional literacy programme had much greater knowledge about agricultural innovations;
- (2) the acquisition of functional literacy created a desire for more knowledge and activated self-learning process by farmers; and
- (3) literacy achievement was directly correlated with the knowledge of high yielding varieties of wheat and its related practices.

This study also revealed that the attitude of the trained farmers was more favourable towards adult education than untrained farmers. It was further observed that contact with extension agencies and exposure to radio and newspapers were much greater in the case of those who had undergone functional literacy training than in the control group.

A study of the socio-economic impact of functional literacy in three districts in India, representing Western zone, Southern zone and Northern zone was carried out by the Directorate

of Adult Education in 1972. With regard to agricultural yield, it was observed that in the experimental villages, there was marked increase in the per acre yield of different crops compared to the situation before the treatment was started and to the conditions prevailing in the control group. With regard to annual income, it was revealed that the income of the participating farmers increased substantially. It was also found that farmers who underwent a functional literacy treatment had more favourable attitude towards modernization in general and socio-economic improvement of their respective communities in particular as compared to the prior situation and to the attitudes of farmers who did not participate in the programme.

Qutub et al (1973) investigating into the problem of literacy as an impediment to production came to the conclusion that mass literacy programme had an impact on socio-economic activities. The study revealed that there was a strong favourable feeling among illiterate workers and farmers towards the functional literacy approach.

Reddy and Murthy (1973) studying the impact of functional literacy on agricultural development observed that the functional literates possessed better knowledge about improved agriculture than illiterates. They observed that functional literacy contributed significantly to the adoption of improved agriculture practices by the farmers. They concluded that given the same set

of conditions, functional literacy helps the farmers to gain better knowledge about modern agriculture.

Jaiswal and Arya (1974) studied the problems on diffusion of agricultural innovations and functional education programmes. They identified a set of factors which act as barriers to the transfer of technology and pointed out that these factors interact each other to form a barrier complex. They concluded that functional literacy programme can play a great role in tackling the barriers in the process of transfer of farm technology and suggested that literacy programme must take into account the diversified barriers to the spread of farm technology in a farming community.

Kishore and Rai (1974) found that literacy has positive effect on the final acceptance of improved technologies in agriculture such as adoption of high yielding seeds, improved agricultural implements, fertilisers and plant protection measure.

Sinha and Kolte (1974) very clearly indicated that a combination of functional literacy and farmers' training is the best one for ensuring lasting agricultural development. Both are very important means, but are most effective only when combined with each other.

Veeraraghavan (1974) concluded that literacy achievement was directly correlated with the knowledge of high yielding

variety of wheat and its related practices.

Venkataiah (1977) studied the impact of Farmers' Functional Literacy Programme on the participants in Andhra Pradesh. The study sought to take into account the impact of the programme in relation to certain intervening variables such as age, caste and farm size of the participants. The study revealed that age and literacy skill were significantly related to each other. Age was inversely related to the acquisition of literacy skills. The same was the case with agricultural knowledge of the participants and age. There was positive association between caste of the participants and their literacy skills. The study revealed that the impact of the programme in respect of knowledge on agriculture was found only in the dominant and agricultural castes. It was seen that the mean literacy achievement scores increased significantly with the increase in size of land holding of the participants.

Singh (1977) studying the impact of Farmers' Training Programme came to the conclusion that farmers in the experimental group (who had undergone literacy training) possessed a higher extent of awareness, knowledge and adoption regarding improved agricultural practices as compared to external and internal control.



(b) THE ADOPTION BEHAVIOUR OF FARMERS:

Acceptance and use of improved farming practices is a type of human action. Parsons and Shils (1951) reported that action frame of reference consists of three basic elements, viz., an actor, his orientation and a situation. According to them, human action (1) takes place in situations, (2) oriented towards the achievement of a goal or goals (3) normatively regulated with (4) an expenditure of effort or motivation. Adoption of farm innovations has been conceived as both a process and a point in the process by several researchers. Rogers (1962) defined adoption as a process of thinking and doing in which an individual passes from first hearing about an innovation to its final adoption. Wilkening (1952), Bose and Dasgupta (1962) and Singh (1965) had developed varying adoption models to explain the process of adoption. However, in almost all the models five steps namely awareness, interest, evaluation, trial and adoption were identified. The model advocated by Singh (1965) under Indian conditions consisting of seven stages. These stages are (1) need, (2) awareness, (3) interest, (4) deliberation, (5) trial, (6) evaluation, and (7) adoption.

It has been found by many including (Rogers (1961), Mouluk (1966), and Reddy et al (1969) that farmers could be divided into different categories on the basis of the relative time taken by them in adopting an innovation.

It has been further reported that an individual might make full or partial use of an innovation (Rogers (1961), Chathopadhyaya (1963)). These facts indicate that the farmers differ among themselves with respect to their adoption behaviour.

The views of Parsons and Shils (1951) and Krech and Crutchfield (1948) on determinants of behaviour underline the importance of personal and situational factors. It emerges out from these views that adoption behaviour is influenced by values and norms of farmers, their perceptual and cognitive abilities and situational factors. Newcomb (1960) stated that human action is a function of interaction among three variables, viz., experience, current values and attitudes and the prevailing situation. Several researchers have shown that adoption is a multi-variate phenomenon influenced by many factors. These studies have established the relationship between different socio-psycho-economic factors and adoption. Lionberger also (1960) reported that quicker adoption of new ideas and practices by some people than others relate in part to the individual himself, the situation in which he lives, his exposure to sources of information, etc.

Lionberger (1960) quoting many authors reported that elderly farmers seemed to be somewhat less inclined to adopt new farm practices than younger ones.

Roy (1960) reported that lack of conviction about utility of improved practices, lack of irrigation facilities and high initial cost of agricultural innovations were the major factors associated with low level of adoption of improved agricultural practices by the farmers.

Reddy (1962) found that the rate of adoption of improved agricultural practices increased along with the increase in farm size. Similarly, economic status, education and social participation were significantly associated with the adoption of improved practices.

Chattopadhyay (1963) reported that change proneness, conservatism and fatalism were found to be significantly related to the adoption behaviour, while the level of aspiration had no significant association with it.

Dasgupta (1965) found that the farmers who had high formal education, functional literacy, high socio-economic status, high extension contact, high social participation and social mobility and good knowledge about practices were more change-oriented and had higher adoption scores.

Moulik (1965) concluded that attitude towards and knowledge of the innovation, individual degree of self-rating of innovation proneness and closeness with the extension, agents positively contributed to the farmers' level of adoption of innovation.

Singh and Babu (1968) reported profitability and productivity preference as the highest ranked values for the adoption of improved farm practices.

Nair (1969) found that the following variables were found to be positively and significantly related to adoption of improved practices of high yielding variety of paddy. They were (1) size of holdings, (2) degree of fragmentation, (3) irrigation potential, (4) social participation, (5) knowledge, (6) attitude, (7) economic motivation, (8) risk orientation, (9) level of striving for past, present and future, (10) market perception, (11) use of mass media, (12) use of inter-personal cosmopolite sources of information, (13) use of inter-personal localite sources of information, (14) contact with extension agency, (15) perception of simplicity-complexity, (16) perception of cost of cultivation, (17) perception of profitability of cultivation of high yielding varieties and (18) perception of suitability of high yielding varieties. He also reported that the relationship of credit orientation and perception of labour need were significant, though not to the same extent as the above mentioned variables. In his study, it was found that education had no significant relationship with adoption.

Singh and Singh (1970) concluded that farm size, educational status of the family, knowledge of package of practices, economic motivation, risk-orientation and mass media

use significantly contributed in explaining the adoption behaviour of farmers.

Crewal and Sohal (1971) reported that the higher educational level of farmers and their family members coupled with much richer previous experience and supported by higher economic status, contributed significantly in favour of refugee farmers in the speed of adoption of farm innovations.

Pathak and Dargan (1971) found that adoption of seeds, fertilizers, implements and plant protection measures was independent of the size of the farm.

Jha and Shaktawat (1972) concluded that higher the economic status of the farmer, greater would be the adoption of hybrid bajra. In their study, adoption also depended upon the availability of irrigation facilities. Farmers' level of education and adoption behaviour were found to be positively and significantly correlated. Farmers' degree of contact with extension agency was found to have positive and significant relationship with adoption of bajra by them. Caste and age were not having significant relationship with the adoption of hybrid bajra.

According to Choukidar and George (1972), farmers who had favourably responded to High Yielding Variety Programme were better educated, had bigger farm size, and had less unfavourable

attitude towards consumption of the variety. They also belonged to the higher caste, and middle socio-economic status category.

Perumal and Duraiswamy (1972) concluded that age did not constitute as a limiting factor among the farmers for either taking up cultivation of hybrid maize or in the choice of extension agencies. They further reported that the cultivation of hybrid maize was strongly and positively related to farmers' education and farm income.

Karim and Mahboob (1974) pointed out that there was a substantial positive relationship between functional literacy and adoption of fertilisers. There was a highly positive relationship between effective farm size and adoption of fertilisers. They also found that the greater the participation of the growers in organisations, the higher was their adoption of fertilisers.

Mathur et al (1974) observed that less literate the farmer, more he uses neighbours, friends and relatives as sources of information, but with a low level of adoption.

Supre and Salode (1975) pointed out that formal education of the farmer participants in National Demonstration was found to be significantly related to their level of knowledge, but not to their adoption of practices. It was also found that both knowledge and adoption level were not related to farm size.

The review of literature reveals that there are only a few studies available on the impact of functional literacy on agricultural development. It is seen that no study on the impact of functional literacy on the adoption of improved agricultural technology has been undertaken in the socio-economic context of Kerala State. The review also reveals that there are not many researches in the area of adoption of farm practices dealing with the inter-relationship of different variables.

(2) THEORETICAL ORIENTATION:

Morstain and Smart (1974) identified social relationships, external expectations, social welfare, professional advancement, escape/stimulation, and cognitive interest as the reasons for participation in adult education courses by the individuals. Mathur (1972) identified four roles of an adult in society. According to him, the role of an adult in economic development was manifested in vocational and professional activities. Adult education gives him the skills by which he can strengthen his initial equipment for his performance in the field of economic development. Farmers' Functional Literacy Programme is based on this role of farmers. Taking this into account, it can be concluded that, of the six variables listed by Morstain and Smart (1974), only one variable, viz., professional-advancement becomes relevant in this study. It is well-known that the acid test for all the efforts

towards the advancement of agriculture is in the nature and extent of adoption of innovations by the farmers. Here what is attempted at is to study whether the participation of farmers in literacy classes have led to their professional advancement, and based on the foregoing discussion, it can be concluded that literacy level attained by the farmers may be expected to have relation with their adoption behaviour.

Parsons and Shils (1951) in their theory of action conceives behaviour as oriented to the attainment of ends in situations, by means of normatively regulated expenditure of energy. Behaviour has been defined by Dzewer (1952) "as the total responses, motor and glandular, which an organism makes to any situation with which it is faced." For the purpose of this study, the concepts of human behaviour are brought down to the lower levels of adoption behaviour.

The adoption of an innovation is an expression of behaviour of an individual. A given adoption behaviour may be conceived as the result of field forces in the immediate behaviour space controlled by an activated need-disposition initiated by stimulus situations. Thus, in this study, adoption behaviour is the dependent variable of a stimulus variable (functional literacy) acted upon by certain intervening or antecedent variables, which are the independent variables.



A review of literature of adoption studies was done (given elsewhere in this Chapter) and this enabled in identifying the variables that could have an influence on the adoption behaviour of farmers. These variables were grouped as personal, socio-psychological, situational and communication variables as done by Nair (1969) for ease and convenience. These variables were given to experts and opinion was sought as to what all variables should be included in the present study after explaining to them the objectives of the study. Based on this, certain variables were selected from among the important variables identified by the experts, the main criteria of selection being amenability to measurement and their relative importance. Though it has been pointed out by many authors that education is an important variable under the personal group of variables, this was not included since the study was mainly focussed on this aspect, wherein, functional literacy was assumed to be a stimulus variable for adoption. The variables selected accordingly, were:

- A. Dependent variable
  - Adoption behaviour
- B. Independent variables
  - I. Personal variable
    - (a) Age
  - II. Socio-psychological variables
    - (a) Social participation

(b) Attitude

(c) Knowledge

III. Situational variables

(a) Farm size

(b) Irrigation potential

(c) Cropping intensity

IV. Communication variables

Information Sources used

(a) Use of mass media

(b) Use of inter-personal cosmopolite sources

(c) Use of inter-personal localite sources.

V. Functional literacy variable

(a) Functional Literacy attainment

VARIABLES SELECTED FOR THE STUDY:

A. Dependent variable

Adoption behaviour

This has been dealt elsewhere in this Chapter.

B. Independent variables

I. Personal variable:

(a) Age: This is an important factor studied by adoption researchers. Wilkening (1952) found negative association between age and adoption behaviour of farmers. But, Deshpande (1962), Rahudker (1962), Shenkaraih (1965) and Perumal and Duraiswamy (1972) did not find any association between age

and adoption. Thus, findings on relationship between age and adoption are not consistent and conclusive.

In this study, it was postulated that there will be relationship between age and adoption of improved practices in rice cultivation.

## II. Socio-psychological variables:

(a) Social participation: Reddy (1962), Das Gupta (1965), Hair (1969), and Karim and Mahboob (1974) reported that social participation has significant positive association with adoption of improved farm practices. It has been indicated that participation in the activities of organizations help to widen the outlook of the farm people and make them receptive to new ideas.

In this study, it was hypothesised that extent of social participation and adoption of improved practices in rice cultivation were related.

(b) Attitude: The Programme Evaluation Organization (1958) and Sethi (1957) pointed out that attitude towards improved farm practices has great influence on the adoption of innovations by farmers. Rogers (1957), Lionberger (1960) and Chattopadhyaya (1963), reported that attitude towards change or change-proneness has positive relationship with adoption behaviour of farmers.

In this present study, it was hypothesised that there

will be relationship between attitude towards functional literacy and adoption of improved practices in rice cultivation.

(c) Knowledge: Dasgupta (1965), Shankaraih (1965), and Nair (1969) have conclusively proved that knowledge of improved practices influences adoption of farm innovations. Supe and Salode (1975) found that formal education of the farmer participants in National Demonstration was found to be significantly resulted to their level of knowledge.

In this study, it was postulated that knowledge on improved rice culture and adoption of improved rice cultivation practices were related.

### III. Situational variables:

(a) Farm size: Farm size has been shown to be highly and positively related with adoption of improved practices by Singh and Singh (1970), and Karim and Mahboob (1974). But Pathak and Dargan (1971) and Supe and Salode (1975) found that adoption of improved practices was independent of the size of the farm.

In this study, it was hypothesised that there will be relationship between farm size and adoption of improved practices in rice cultivation.

(b) Irrigation potential: Roy (1960) reported that lack of irrigation facilities is one of the major factors

associated with the low level of adoption of improved agricultural practices. Nair (1969) and Vyas et al (1969) have established the positive relationship of irrigation facilities in the farm with adoption of high yielding varieties of paddy. Jha and Shaktawat (1972) found that adoption of hybrid bajra depended upon the availability of irrigation facilities.

In this study, it was postulated that irrigation potential and adoption of improved practices in rice cultivation were related.

(c) Cropping intensity: Shankaraih (1965) and Kolte (1967) reported that adopters of improved agricultural practices have higher intensity of cropping than non-adopters. It was, therefore, expected that cropping intensity will have relationship with adoption behaviour.

#### IV. Communication variables:

(a) Use of mass media: Exposure to mass media has been reported to be positively related to innovativeness by research workers like Lerner (1958), Roy et al (1968) and Rogers and Svenning (1969). Therefore, it was expected that there will be relationship between use of mass media and adoption behaviour.

(b) Use of inter-personal cosmopolite sources: Sharma (1966) and Roy et al (1968) found that there was positive relationship

between use of cosmopolite sources of information and adoption. Supe (1971) studying the relation of the adoption behaviour with the use of information sources showed that the farmers who had used more institutionalized sources of information were higher adopters than the farmers who had used non-institutionalized sources.

In this study, it was hypothesised that there will be relationship between use of inter-personal cosmopolite sources and adoption behaviour.

(c) Use of Inter-personal localite sources: Most of the researchers reported that use of inter-personal localite sources of information was more in the case of low adopters (Sharma (1966), Supe (1968). Mathur et al (1974) found that less literate the farmer, more he uses neighbours, friends and relatives as sources of information.

It was expected that there will be relationship between use of inter-personal localite sources and adoption behaviour.

#### V. Functional literacy variable:

(a) Functional literacy attainment: Reddy and Murthy (1973), Kishore and Rai (1974), Karim and Mahboob (1974) have reported that functional literacy attainment was related to the adoption of improved practices. Therefore, it was expected that there will be relationship between functional literacy attainment of farmers and their adoption behaviour.

THEORETICAL CONCEPTS AND DEFINITIONS OF DEPENDENT AND  
INDEPENDENT VARIABLES:

Adoption behaviour: Ward and Herzog (1977) defines human behaviour as "observable actions, verbal responses and demonstrated feelings of a person". Adoption is a type of human behaviour. On the basis of the definition given, for this study, adoption behaviour has been operationally defined as the observable action in the form of use of applicable and improved practices in rice cultivation.

Age: Age is defined as the number of years an individual has completed since his birth, at the time of this study.

Social participation: For this study, social participation has been operationally defined as the participation of an individual in the activities of any organisation, whether formal or informal.

Attitude: 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), attitudes are a function of perception. Katz and Scotland (1959) stated that attitude is a "tendency or disposition to evaluate an object or the symbol of that object in a certain

way". In the light of the above, it can be concluded that attitudes are latent variables which underlie behaviour and which cannot be measured directly. Individuals possess attitudes with varying degrees and determine their behaviour towards objects or innovations.

For this study, attitude is operationally defined as the degree of positive or negative affect associated with the Functional Literacy Programme towards which farmers differ in varying degrees.

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 understood information possessed by an individual in respect of new technology in rice.

Farm size: Farm size is defined as the area of land owned and cultivated by a farmer.

Irrigation potential: Irrigation potential is defined as the presence of sources of water and favourable conditions of availability of water.

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



Information sources: Information sources are conceptualized as the sources through which farmers get information about improved practices in farming. This has been classified into the following three categories (Wilkening, 1962).

1. Mass media:
2. Inter-personal localite sources:
3. Inter-personal cosmopolite sources.

Functional literacy: Education is the process through which human beings acquire understanding and mastery over the environment (Anonymous). Education can be human resources development when it brings out the perfection inherent in a learner. It is seen that adult education has a role different from the formal education imparted in the school. It is to make the adult learner aware of the factors which limit his opportunities of free development, thus enabling him to manage his own affairs (Pattanayak, 1978).

Adult education programme in India with literacy as an indispensable component has been formulated with a view to providing to the adults' skills for self-directed learning leading to self-reliant and active role in their own development and in the development of the environment. Functional literacy is adult education emphasising functions to be performed by the participants in their life situations.

Rogers and Svenning (1969) defined functional literacy as the ability to read and write at a level of competence adequate for carrying out one's functions in one's customary social system. The standard in literacy is not defined with precision in this definition. The Literacy House, Lucknow (1973) has rightly quoted that "there can be no standard and final definition of functional literacy, and is merely indicates an approach and a process, not a formula". In the light of this, functional literacy can be defined at operational level as the ability to read, to comprehend, to write and to do arithmetic at a level of competence adequate for carrying out functions of individual's role in his social system.

The basic concept underlying the functional literacy programme for farmers is that there is direct and positive correlation between physical and human ingredients of farm production, i.e., between the physical inputs such as seeds, fertilizers, water and credit and the knowledge input provided by the human ingredient.

Since the farmers develop the ability to comprehend better due to their participation in functional literacy programme, literacy level attained by farmers is expected to have relation with their adoption behaviour. Literacy may

first influence the use of sources of information, attitude, knowledge etc., and consequently produce desirable changes in the adoption behaviour. The present study has been oriented to assess the impact of functional literacy as a stimulus variable wherein successful participation in functional literacy classes was hypothesised to have relation with the adoption behaviour.

(3) HYPOTHESES:

The following theoretical and empirical hypotheses were formulated on the basis of the review of literature and hypothesised relationships.

- Hypothesis: 1. The age of the farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 2. The number of acres of land owned by a farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 3. The intensity of cropping will influence the score of a farmer on rice-practices-adoption scale.
- Hypothesis: 4. The availability of irrigation source will influence the score of a farmer on rice-practices-adoption scale.
- Hypothesis: 5. The participation of farmers in different organisations will influence their scores on rice-practices-adoption scale.

- Hypothesis: 6. The knowledge about the improved rice culture by a farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 7. The frequency of use of mass media by a farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 8. The frequency of use of inter-personal cosmopolite sources by a farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 9. The frequency of use of inter-personal localite sources by a farmer will influence his score on rice-practices-adoption scale.
- Hypothesis: 10. The favourable attitude of farmers towards functional literacy will influence their scores on rice-practices-adoption scale.
- Hypothesis: 11. The scores on functional literacy tests of farmers will influence their scores on rice-practices-adoption scale.
- Hypothesis: 12. All the antecedent and functional literacy variables together will explain a significant amount of variation in adoption behaviour of farmers of Functional Literacy group.
- Hypothesis: 13. All the antecedent variables together will explain a significant amount of variation in adoption behaviour of farmers in the control group.

Hypothesis: 14. All the antecedent variables together will explain a significant amount of variation in adoption behaviour of farmers as a total sample.

Hypothesis: 15. Each of the variables will have a positive relationship with adoption behaviour after eliminating the influence of all other variables.

---

## **MATERIALS AND METHODS**

## CHAPTER 3

## MATERIALS AND METHODS

This Chapter deals with the description of the study area, sampling techniques, methods of data collection, development of empirical measures for the variables and statistical methods employed to analyse the data.

A. LOCALE, SAMPLING AND DATA COLLECTION:

Locale:

The study was conducted in the Trivandrum district which is the southernmost district in the State of Kerala. The district is bounded by Quilon district in the north, by the Tirunelveli and Kanyakumari district of Tamil Nadu on the east and the south and by Arabian Sea in the west. It is situated between latitudes  $8^{\circ} 17' N$  and  $8^{\circ} 47' N$  and longitudes  $76^{\circ} 41' E$  and  $77^{\circ} 16' E$ . The district has a tropical humid climate, with summer spell between January and May. The soil in this district falls under four types - coastal alluvium, red soils, laterite soils and forest soils. Agriculture is the basic occupation of the people of the district with about 50%

of the population having agriculture as their main source of livelihood. Paddy and topioca are the most important food crops in this district both in area and production. The total population of Trivandrum district as enumerated at the census of 1971 is 21.99 lakhs. A little over 74 per cent of the total population of the district live in rural areas. Only 62.54 per cent of the total population in this district are literates.

There are four taluks in Trivandrum district - Neyyattinkara, Trivandrum, Nedumangad and Chirayinkil. There are twelve blocks in this district. Of these, Farmers' Functional Literacy Programme (FFLP) is implemented only in six N.F.S. Blocks, viz., Kilimanoor, Vamanapuram, Kazhakkuttam, Peruzhkadavila, Nemon and Vellenad.

selection of sample:-

The unit of analysis of the present study is the individual, the farmer. The farmers participating in FFLP in the selected centres and the farmers in the control villages formed the population of the study. The study was confined to the practicing farmers, as adoption behaviour could not be scored for agricultural labourers who also participate in FFLP, because they did not have the required physical facilities to adopt agricultural innovations. In the category of farmers also, rice farmers only were selected, since the study was



restricted to the adoption of new technology in respect of rice farming. To select the respondents, the following procedure was adopted.

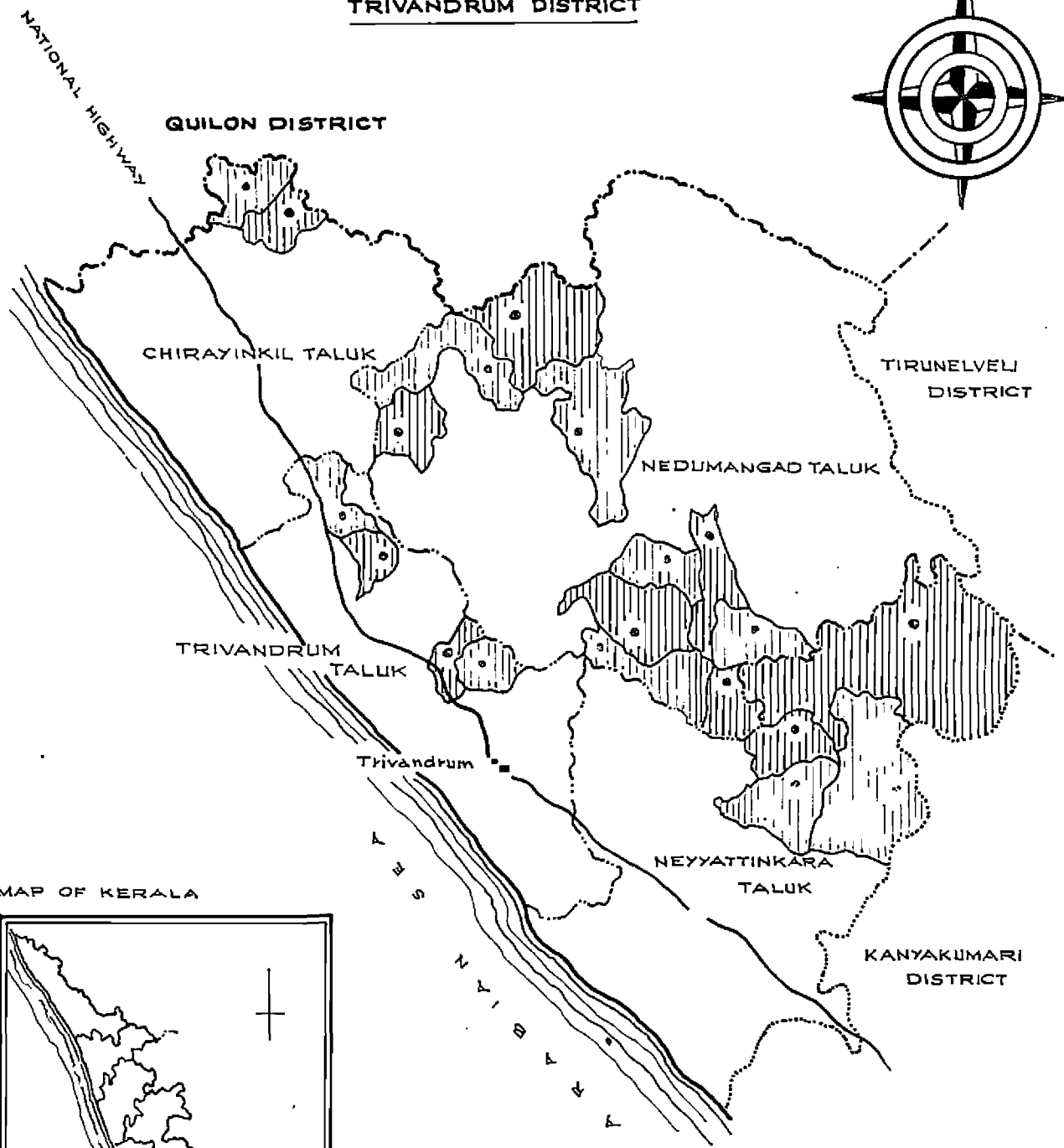
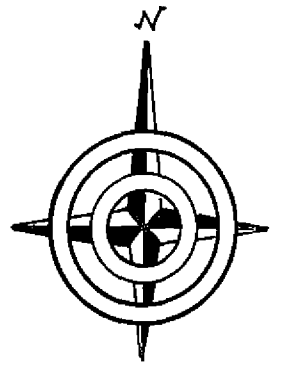
a) Selection of literacy centres:-

The study was not confined to any selected Block as scientific sampling procedures could not be adopted to get the requisite sample size of rice farmers in any single Block. Instead, functional literacy centres distributed in different Blocks were selected using simple random sampling procedure. Respondents were selected from among the participants of Functional Literacy classes conducted during 1976-'77 to ensure that the participants got at least one year to adopt improved practices they became aware of, by participating in the Literacy Programme. Out of the total 60 functional literacy centres in the district, 18 centres were exclusively for women. So these 18 centres were eliminated and a list of the remaining 42 centres was prepared. Of these, two centres where a pilot study for this investigation was made, were left out. Then, using Tippett's Table of Random Numbers, 10 centres were selected at random.

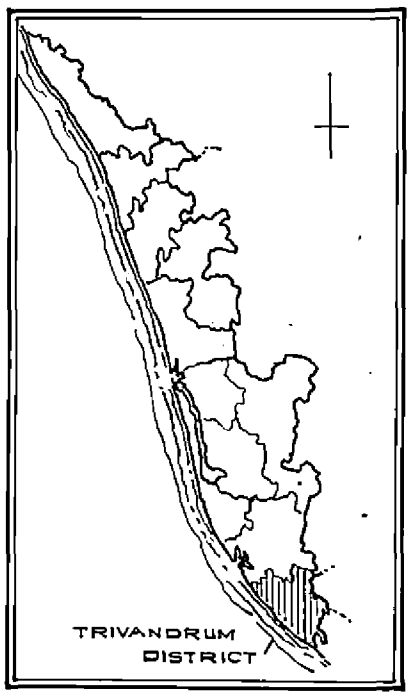
b) Selection of respondents:-




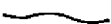


A list of all the rice farmers in the selected literacy centres was obtained from the concerned literacy teachers. The

**MAP SHOWING THE LOCATION OF THE STUDY**  
**TRIVANDRUM DISTRICT**



MAP OF KERALA



-  STATE BOUNDARY
-  DISTRICT BOUNDARY
-  TALUK BOUNDARY
-  VILLAGE BOUNDARY
-  EXPERIMENTAL VILLAGES
-  CONTROL VILLAGES

list contained the names of 87 rice farmers. Data were collected from 75 farmers only, as all the 87 farmers were not physically available at the time of data collection.

A control group was selected from among the rice farmers in the villages adjacent to the experimental villages. Details regarding the personal and situational factors in respect of all the rice farmers in these villages were collected from the Rice Cultivators' Register (Register No.2) maintained by the local Village Officers. A sample of 65 illiterate rice farmers not having significant difference in their personal and situational factors with the experimental group of farmers, was purposively selected for the study.

Thus, the total respondents for the study was 140 farmers, 75 participants of Farmers' Functional Literacy Programmes and 65 non-participants.

#### Collection of data:

A draft interview schedule after consulting relevant literature and experts was constructed for the purpose of data collection which was precoded and tested during the pilot study. The pilot study was conducted in two non-sample functional literacy centres. As many as 18 farmers were interviewed for the pilot study and the responses of the farmers were recorded. The wording and sequence of the questions were modified in the

light of the results of the pilot study and the Schedule was finalised. (APPENDIX - I.)

The data were collected by interviewing the farmer with the help of the schedule by the researcher. The respondents were interviewed individually. The farmers were contacted at their residence or in the field and the purpose of the visit and study was clearly explained to them. On an average, it took about 1 to 1½ hours to interview one farmer. The data were collected during April-May, 1978.

#### B. DEVELOPMENT OF EMPIRICAL MEASURES FOR THE VARIABLES:

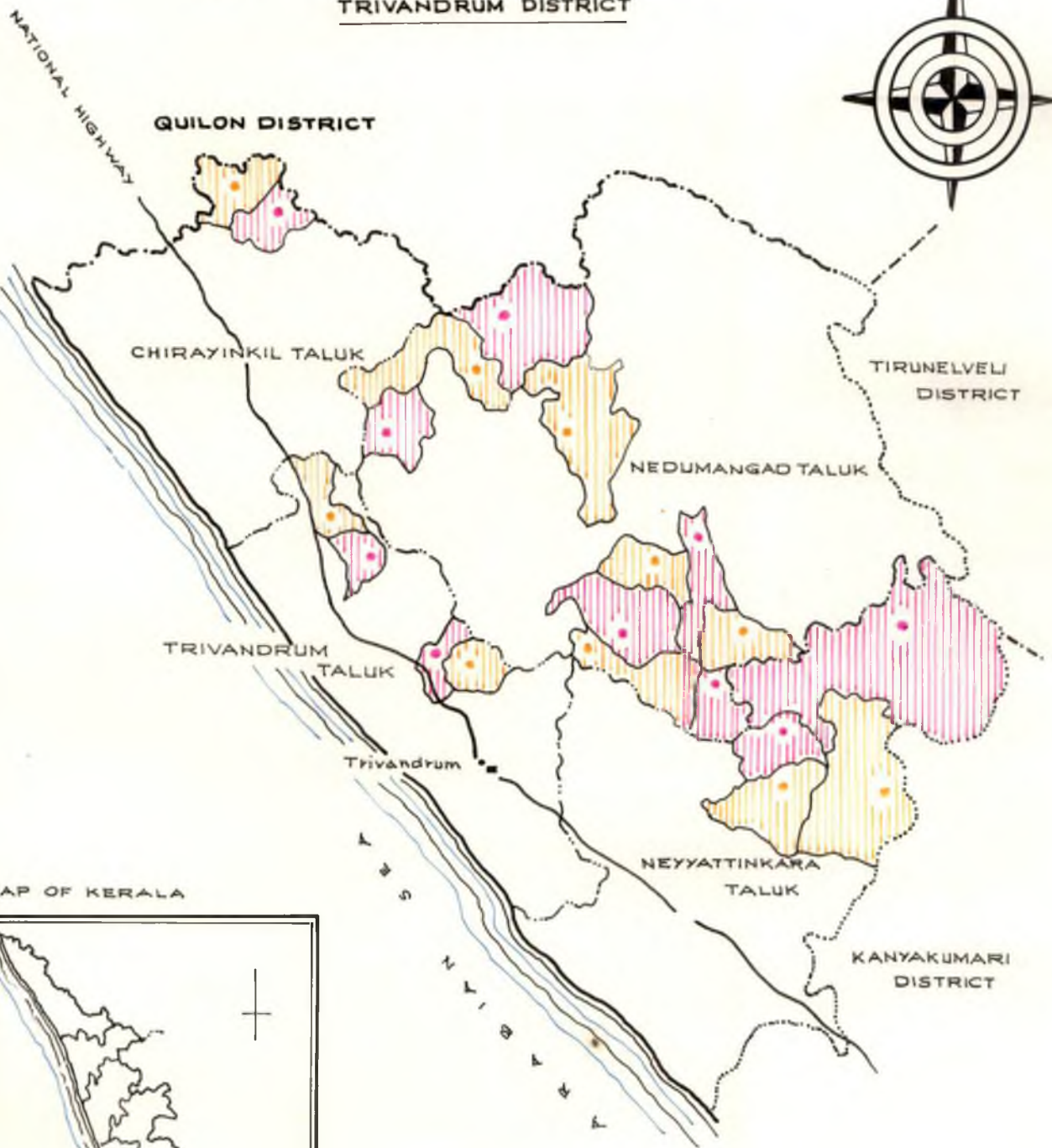
The procedure followed for developing the empirical measurements are given below:

##### Measurement of Adoption Behaviour:

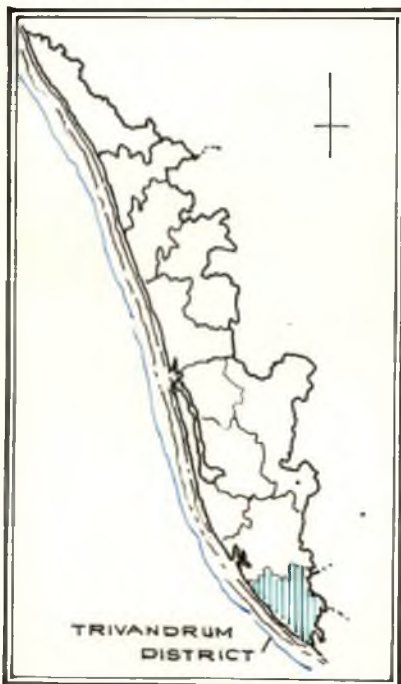
The approach followed to operationalize adoption behaviour in the present study was based on the conclusion derived from a review of the following studies.

Bose (1965) gave more weightage to a farmer who had adopted a practice at an earlier date. Adoption was credited with points equal to number of years during which a farmer had used it, and total adoption score was obtained by summation of scores obtained on each practice.

MAP SHOWING THE LOCATION OF THE STUDY  
TRIVANDRUM DISTRICT



MAP OF KERALA



- STATE BOUNDARY
- - - - - DISTRICT BOUNDARY
- TALUK BOUNDARY
- VILLAGE BOUNDARY
- █ (Pink dot) EXPERIMENTAL VILLAGES
- █ (Orange dot) CONTROL VILLAGES

Chand and Gupta (1966) measured adoption by scoring each year of adoption of an improved practice, to any extent, by a farmer as one unit point.

Majumdar and Majumdar (1967) also used number of years a farmer had adopted a selected practice as the measure of adoption behaviour.

Chattopadhyay (1963) used adoption quotient for measuring adoption behaviour. This is a ratio scale that measures farmer's behaviour on dimensions of applicability, potentiality, extent, time, consistency and differential nature of innovations. Though this quotient is possibly the most comprehensive, this has certain limitations. When the practice is introduced for a long time, it becomes difficult for an individual to recollect the time when he really got aware of it and also when he had actually adopted it.

Beal and Sibley (1967) measured adoption by developing a composite score on a number of practices judged to be applicable to the farmers.

It is logical to think that a measure of the applicable practices and the actual applied practices will give a sufficiently precise and valid measure of the level of adoption. Hence, the procedure of Beal and Sibley was adapted in the present study for measuring adoption behaviour.

Supe (1969) had developed a scale viz., cotton-practices-adoption scale more or less following the procedure of Beal and Sibley. He selected ten practices of cotton and for each practice, the total score for complete adoption was 6. The practices which were divisible were assigned partial scores for partial adoption. For the present study, rice-practices-adoption scale was developed following the procedure detailed below:

#### Rice-Practices-Adoption Scale:

##### Selection of practices:

The scale was developed on the basis of the composite score of a number of single practices which were logically consistent. In the first instance, a package of practices for rice was decided. Based on the recommendations of the Kerala Agricultural University (1976) on package of practices for rice, five practices were selected. The practices were:

- 1) Use of improved seeds
- 2) Seed treatment using mercurial fungicide
- 3) Spacing
- 4) Use of chemical fertilizers
- 5) Use of plant protection measures.

##### Assignment of weights to practices:

The individual item scoring was on the basis of the farmer's response to a question as to whether he had used a

certain practice or not. There were relatively few data on the cost-benefit ratio of the practices, which could guide the investigator in the assignment of weights to the practices. The pilot study conducted by the investigator had revealed that assignment of equal scores to all practices would not be realistic, since all the practices were not judged to be equally important by the farmers. Therefore, specialists in the concerned discipline were consulted and based on their suggestions about the relative importance of each practice, weights were assigned to each practice. Divisible practices were assigned partial scores.

Use of improved seed was given partial score on the basis of the area covered by the improved seed. The scores allotted for this item are given below:

<u>Extent of area under improved seeds:</u>	<u>Score:</u>
No area	.. 0
< 1/4 area	.. 1
1/4 area	.. 2
> 1/4 to < 1/2 area	.. 3
1/2 area	.. 4
> 1/2 to < 3/4 area	.. 5
3/4 area	.. 6
> 3/4 to < Full area	.. 7
Full area.	.. 8

The practice of seed treatment with mercurial fungicide was given a score of 1 if adopted by the farmer. Otherwise, the



score was 0.

Use of recommended spacing between plants and between rows was assigned a score of 1 each. If any one of these spacings alone was adopted, a score of one was given and 0 score was given to those who have not adopted either of the two spacings.

As regards use of fertilisers, based on the opinion of the experts about the relative importance of different fertilisers, a farmer received 0 point if he did not use fertilisers at all; 1 point for the use of phosphatic fertilizers; 2 points for the use of potash fertilisers; and 3 points if he used nitrogenous fertilizers.

Plant protection practices were scored on the basis of the number of applications. A farmer received a score of 1 for one application; a score of 2 for two applications; and a score of three for more than two applications.

Total score obtained by a farmer on the rice-practices-adoption scale was a measure of his adoption behaviour. The maximum score attainable on this scale was 20 and the minimum was zero.

#### MEASUREMENT OF INDEPENDENT VARIABLES:

Age: As was measured as the number of years the respondent

has completed at the time of the interview.

Farm size: Farm size was measured in land units. The number of acres of land cultivated by the farmer was taken as the index of farm size. This included both dry and wet land.

Cropping intensity: The farmer was asked to indicate single cropped, double cropped and triple cropped area of land cultivated by him. He was asked to give the above data for both dry and wet land. Total cropped area per year was obtained by summation of single cropped area, twice the double cropped area and thrice the triple cropped area in acres. Cropping intensity (C.I.) was then calculated using the following formula.

$$C.I. = \frac{\text{Total cropped area}}{\text{Total area cultivated}} \times 100.$$

Irrigation potential:

Assured and effective irrigation which has been one of the most important factors responsible for the adoption of new agricultural technology should naturally form an important variable in the adoption study. Accordingly, though this factor has been selected, difficulty was felt in quantifying the variable. The number of irrigations would be meaningless as it would not give the quantity of water applied. Even the quantity of water applied would not reveal the true picture as the timing of irrigation is the crucial factor. Also, area irrigated would

not yield any significant result. Since there were the above limitations and also it was difficult to get such data, the following simple procedure was used to quantify this variable in terms of the irrigation potential of the farm.

A score of 1 was assigned for a farm if it had irrigation facilities and the score was 0 if no irrigation facilities were available.

Social participation:

The social participation scores were calculated as per the scoring system followed in the Socio-economic status scale of Trivedi (1963). Farmers were asked the question, whether they were participants in any of the organisation, and if so, they were asked to specify the name of organisation/s. The extent of participation in the organization/s was assessed and scored with the help of the following response categories:

Membership in one organisation	..	1
Membership in more than one organisation	..	2
Office-bearer	..	3
Distinctive features (Membership in State level or national level organisations)	..	6

Knowledge:

Cronbach (1949) has defined knowledge test as "one in

which procedures, apparatus and scoring have been fixed so that precisely the same test can be given at different times and places." Lindquist (1957) has given an elaborate procedure to be followed in developing a standardised knowledge test.

Singh and Singh (1974) developed a knowledge test based on the response of the farmers to questions on various aspects of wheat cultivation. The total score of each respondent was calculated by the formula:  $\frac{X_1}{n} \times 100$ , where  $x_1$  = number of correct answers and  $n$  = total number of questions.

For the present study, the teacher-made test including simple question items and constant alternative items (True-False and others) as described by Remmers et al (1967) which is comparatively simple and easy to operate was developed using the procedure detailed below.

The details about the selected improved practices were obtained from the field staff of the Department of Agriculture and also by consulting the relevant literature. Then, based on this, statements were formulated. These statements formed the items to be included in the knowledge test. Care was taken to construct items related to each practices of the package. In this way, 25 items were constructed to develop a knowledge test.

The items were administered to the farmers during the

pilot study. Responses of farmers to each of the items were examined and this revealed that all the farmers had answered certain items, whereas some items were not answered by even a single farmer. Such items were discarded and the remaining items were selected for constructing a knowledge test. Finally, 20 statements were available for construction of the knowledge test.

The maximum score attainable by a farmer for this test was 20 and the minimum 0.

Attitude:

Attitude scale provides one means of assessing the degree of affect that individuals may associate with some psychological object. In this part, attitude component of Farmers' Functional Literacy Programme is being operationalized. An attitude scale was constructed for this purpose. The items making up the attitude scale are called statements.

The statements regarding different aspects of FFLP were collected on the basis of review of literature. These statements were written carefully to include the universe of contents about the psychological object. In addition, experts were also consulted. In this way, 28 statements were collected. The various statements of opinion which were collected were then edited to eliminate items failing to meet the prescribed standards

by comparing against the criteria for attitude statements given by Edwards (1957). There were twenty statements left after editing.

The method of equal appearing intervals of Thurstone and Chave (1929) has been widely used in obtaining scale values for a large number of statements. As per this technique, after the statements have been edited, they were presented to a group of judges who were instructed to sort these into various categories to represent a scale range from "extremely favourable" through "neutral" to "extremely unfavourable" expression of opinion about the issue. The judges were asked to rate each statement on a 7 point continuum in which 1 represented the most unfavourable expression, 4 neutral and 7 most favourable expression of opinion. This was done during the pilot study where functional literacy teachers and the participants of EFIP formed the judges. The judges were asked not to give their own opinion, but merely to estimate the degree of favourableness or unfavourableness expressed by each statement. Tabulations were then made indicating the number of judges who placed each item in each category. From these data, cumulative proportions were computed. The median values in terms of the scale units with reference to the ogives give the scale value for the individual items. A statistical criterion of ambiguity, according to Edwards and Kenny (1949), in this

technique is the distance between the points on the scale marking of the 25th and 75th percentiles. The distance - interquartile range - is called the 'Q' value. 'Q' values were worked out for the 20 statements and finally, 10 statements with low 'Q' values were retained to form the final scale for measuring attitude towards the literacy programme. A small 'Q' value indicated that there is good agreement among the judges while a large 'Q' value indicated lack of agreement. The statements with the lowest 'Q' value is believed to be the least ambiguous. These selected ten statements were equally distributed between favourable and unfavourable statements.

#### Reliability of the scale:

A test score is called reliable when we have reason for believing the score to be stable and trustworthy. Guilford (1954) had defined reliability as "the proportion of the variance in obtained test scores." In this study, the reliability of the scale was found by the test-retest method. This method was resorted to because of its simple nature.

#### Test-retest method:

The scale was administered twice to the 18 farmers selected for the pilot study with an interval of 20 days. The score for each respondent was calculated in both the two sets. Correlation coefficient between the two sets of scores was

calculated. The retest correlation coefficient was 0.859. This shows that the scale is reliable.

Validity of the scale:

The validity of a scale depends upon the fidelity with which it measures what it purports to measure. The scale developed was tested for the following two types of validity.

(a) Content validity: The main criterion for content validity is how well the contents of the scale represents the subject matter under study. The present scale had this validity since all the possible items with the universes of contents had been selected.

(b) Construct validity: This was tested by calculating the correlation coefficient between functional literacy scores and attitude scores. The attitude and functional literacy score of 18 farmers were measured and the correlation between the two scores was calculated. The correlation was 0.711 which was significant. Hence, it was concluded that the scale had the construct validity.

Administration of the scale:

The scale constructed as described above was administered to the farmers during the interview. Responses were obtained with the help of a 5-point Likert format. The



alternative response categories and corresponding scores for favourable statements were (1) Strongly agree - 5; (2) Agree - 4; (3) Undecided - 3; (4) Disagree - 2; and (5) Strongly disagree - 1. Scoring procedure for unfavourable statements were reversed so that favourable response always received maximum score.

The scores obtained by each farmer on each of the statements were summated over all statements to arrive at the total score. The maximum score attainable by a farmer was 50 and the minimum 10. A neutral position or one of undecision obtains a score of 3 for each item, thus making the theoretical mid-point or neutral score on the scale with 10 statements 30. The mean attitude score was obtained by adding up scores of all respondents divided by the number of respondents constituting the sample.

Information sources used:

In the present study, the extent of use of information source was measured for each respondent in the following way. The sources of information for agricultural technology were listed and they were grouped into 3 categories as done by Wilkening (1962). The three categories were (a) mass media, (b) inter-personal cosmopolite sources and (c) inter-personal localite sources. These were treated as three separate variables and extent of use of each variable was measured.

Rogers and Svenning (1969) reported a composite mass media exposure index. Respondent's indications of degree of exposure to each medium in terms of number of radio programmes listened to per week and so on, were combined into a "mass media exposure index" by use of a standard score.

Respondents were asked number of times they were exposed to radio and newspapers in a week and magazines and movies in a month. Alternative responses and corresponding scores were same for all media as follows:

<u>Response category</u>	<u>Points</u>
1 - 2 times	1
3 - 4 times	2
5 - 6 times	3
7 times and above	4

During the pilot study, it was found that farmers were not able to report exactly as to how many times they contacted a particular source during a specific period. Hence the above method was not found suited and the procedure followed by Nair (1969) was adapted in the present study to develop an index of use of information source.

Each respondent was asked to indicate as to how often he got information regarding agricultural technology from each of the listed sources. The possible range of responses and the scoring were as follows:

<u>Response category:</u>			<u>Points:</u>
Most often	(once in a week)	..	3
Often	(once in a month)	..	2
Sometimes	(once in two months)	..	1
Never	..	..	0

Response scores were summed across each item to form the use of information source index. Total scores for each of the three groupings were calculated separately. Thus different use of information source indices were obtained for mass media, inter-personal cosmopolite and inter-personal localite sources.

#### Measurement of functional literacy attainment:

In this study, no scale or test was developed to measure functional literacy. Goldson and Ralis (1957) asked Thai villagers if they could write a letter. Their writing ability was further evaluated by asking them to write something on the interview schedule. Roy et al (1969) measured functional literacy by using a seven word Hindi sentence, which was handed over to the respondent. The score was equal to the number of words correctly read by him. Thus, it is seen that the previous studies attempted to measure functional literacy on the basis of either reading or writing ability of the individuals. But, functional literacy cannot be measured only on the basis of either reading ability or writing ability of the individual.

Rogers and Svenning (1969) pointed out that greater reliability and sensitivity could be obtained by lengthening the functional literacy measure and that comprehension and writing ability measure, should also form a part of the measure in addition to reading ability.

A test which could fulfil the above requirement as suggested by Rogers and Svenning (1969) was difficult to administer to the farmers at the time of interview within the limited time at the disposal of the investigator. Hence, no attempt was made to develop and administer such a test by the investigator. Instead, the final test administered to the participants by the teachers of FFLP on the completion of the course which covered the measurement of 3 R's was made use of to measure this variable. Therefore, scores obtained by the respondents on the tests administered by the teachers was taken as an index of functional literacy attainment. The score sheets were made available by the Project Officer of FFLP. The maximum scores obtainable by a respondent in that test was 100 and the minimum was 0. [The proforma of the test is given as APPENDIX - II].

#### C. METHODS OF STATISTICAL ANALYSIS:

The following statistical analyses were done for interpreting the data.

(a) Simple correlation: This is defined as the degree of

relationship between two variables. When the relationship between the variables is linear, the square of the correlation coefficient gives a measure of the reliability of predicting the dependant variable using the linear regression equation.

The formula used to compute the simple correlation was,

$$r_{xy} = \frac{P_{xy}}{\sigma_x \sigma_y}$$

where  $r_{xy}$  = correlation between x and y

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

$\sigma_x, \sigma_y$  = standard deviations of the distributions of X and Y.

(b) Multiple correlation and regression analysis:

This gives the percentage of variation that a unique set of antecedent and/or stimulus variables explain in the consequent variable. The relative importance of variables included in a multiple regression equation can also be assessed by this:

The following prediction equation was used in the present study to determine the multiple regression.

$$x_0 = a + b_1 x_1 + b_2 x_2 + b_3 x_3 + b_4 x_4 + b_5 x_5 + b_6 x_6 + b_7 x_7 + b_8 x_8 + b_9 x_9 + b_{10} x_{10} + (b_{11} x_{11})$$

where, a = constant

b = the coefficient which appears in the equation which

represents the amount of change in  $x_0$  (adoption behaviour) that can be associated with a given change in one of the  $x$ 's with the remaining independent variables held fixed. This is referred to as partial regression coefficients or partial bs.

The above symbols denoted the following variables:

Dependent variable:	$x_0$	=	Adoption behaviour
Independent variable:	$x_1$	=	Age
	$x_2$	=	Farm size
	$x_3$	=	Cropping intensity
	$x_4$	=	Irrigation potential
	$x_5$	=	Social participation
	$x_6$	=	Knowledge on improved rice culture
	$x_7$	=	Use of mass media
	$x_8$	=	Use of inter-personal cosmopolite sources
	$x_9$	=	Use of inter-personal localite sources
	$x_{10}$	=	Attitude towards functional literacy
	$x_{11}$	=	Functional literacy attainment - [ Only for the experimental group ]

(c) Highest order partial correlation: This gives the net association between any two variables after eliminating influence of all other variables.

The expression used for arriving at the highest order partial correlation was

$$r_{1m.23..(m-1)} = \frac{r_{1m.23..(m-2)} - r_{1(m-1).23..(m-2)} r_{m(m-1).23..(m-2)}}{\sqrt{1 - r_{1(m-1).23..(m-2)}^2} \sqrt{1 - r_{m(m-1).23..(m-2)}^2}}$$

The data were analysed in the Department of Agricultural Statistics, College of Agriculture, Vellayani and in the Computer Centre, Kerala University, Trivandrum.

---

## **RESULTS**



## CHAPTER 4

## RESULTS

In this Chapter, the results are presented under the following heads:

- A. Extent of adoption of improved rice cultivation practices.
- B. Relationship between selected variables and adoption of improved rice cultivation practices.
- C. Predictive power of selected variables in explaining the adoption behaviour.
- D. Relative and differential impact of selected variables and functional literacy programme on the adoption behaviour.
- E. Related findings.

A. EXTENT OF ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:

In this study, there were two groups of farmers to be compared, viz., the experimental group (Group A) and the control group (Group B), besides the total sample (Group C).

The mean and standard deviation (S.D.) of the adoption scores of farmers in the total sample were 11.92 and 3.96 respectively.

The respondents having adoption scores upto the value of mean minus one standard deviation (S.D.) were grouped as low adopters; those having scores between mean plus or minus one S.D. were grouped as medium adopters; and respondents having adoption scores above mean plus one S.D. were grouped as high adopters. Table 1 gives the classification of respondents into various categories of adopters.

Table 1 - Categories of adopters based on the distribution of adoption scores:

Categories	Range of scores	Experimental Group (Group A)		Control Group (Group B)		Total sample (Group C)	
		Frequ- ency	%	Frequ- ency	%	Frequ- ency	%
Low adopters	Below 8	3	4.00	35	53.85	38	27.15
Medium	" 8 to 16	38	50.66	26	40.00	64	45.70
High	" Above 16	34	45.33	4	6.15	38	27.15
Total:		75	100.00	65	100.00	140	100.00

It is seen that only 4 per cent of farmers in Group A were low adopters, whereas 53.85 per cent of farmers in Group B belonged to this category. While 45.33 percent of farmers in Group A were high adopters, only 6.15 per cent of farmers in Group B belonged to this category.

**B. RELATIONSHIP BETWEEN SELECTED VARIABLES AND ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:**

Correlation analysis was done to establish the relationship between variables.

The results of correlation analysis between different independent variables and the dependent variable is presented in Table 3. The correlation coefficients between independent variables are presented in Table 4 through 6.

Age: The distribution of farmers according to age is given in Table 2(a).

Table 2 (a). Distribution of farmers according to age.

Age Group	Group A		Group B		Group C.	
	F	%	F	%	F	%
Below 30	23	30.66	7	10.76	30	21.42
30 - 39	28	37.33	16	24.61	44	31.42
40 - 49	22	29.33	32	49.23	54	38.57
50 and above	2	2.66	10	15.38	12	8.57
Total:-	75	100.00	65	100.00	140	100.00
Mean age:	35.85		41.64		38.54	

It is seen that 97.3 per cent of farmers in FL group are below 50 years of age and in this, 30.6 per cent are below 30 years. In control group, the corresponding figures are 84.6 per cent and 10.7 per cent respectively.

The computed 'r' value between age and adoption for the experimental group was 0.1202, for the control group 0.0178 and for the total sample -0.1933. (Table 3). These computed 'r' values were not significant.

Correlation coefficients between age and other independent variables for the experimental group, control group and total sample were computed. In Group A, social participation and use of inter-personal cosmopolite sources were found to be significantly related with age at 0.05 level of probability. (Table 4). In Group B, there was no significant relationship between age and any independent variable (Table 5). Knowledge on improved rice culture, use of mass media and attitude towards functional literacy were found to be negatively related with age, whereas use of inter-personal localite sources was positively related with age in the total sample (Table 6).

Farm size: The distribution of farmers according to farm size is presented in Table 2 (b).

Table 2 (b). Distribution of farmers according to farm size:

	Group A		Group B		Group C	
	F	%	F	%	F	%
Upto 0.50 acre	16	21.33	19	29.23	35	25.00
0.51 - 1.00 acre	29	38.66	21	32.30	50	35.71
1.01 - 1.50 acres	15	20.00	10	15.38	25	17.85
1.51 - 2.00 acres	8	10.66	7	10.76	15	10.71
Above 2.00 acres	7	9.33	8	12.30	15	10.71
Total:	75	100.00	65	100.00	140	100.00
Mean score	107.83		106.16		107.08	

It is found that 21.3 and 29.2 per cent of farmers in FL and control group respectively owned less than half acres of cultivated land. Only 9.3 and 12.3 per cent of farmers respectively in these two groups owned more than 2 acres of land.

The computed 'r' value between farm size and adoption was not significant for the experimental group, whereas for the control group and total sample, 'r' values were significant. ( $r = .6215$  and  $.2018$  respectively in Table 3.)

Irrigation potential, social participation, use of mass media and use of inter-personal cosmopolite sources were found to be significantly related with farm size in all the three groups. Knowledge on improved rice culture was significantly

related with farm size in the control group and total sample only. It was found that functional literacy attainment was significantly related with farm size in the experimental group (Table 4). In the control group, cropping intensity and attitude towards functional literacy were related with farm size (Table 5).

Cropping intensity: The distribution of farmers according to cropping intensity is shown in Table 2 (c).

Table 2 (c). Distribution of farmers according to cropping intensity:

Score category	Group A		Group B		Group C	
	F	%	F	%	F	%
100 - 124	12	16.00	40	61.53	52	37.14
125 - 149	40	53.33	19	29.23	69	49.28
150 - 174	18	24.00	5	7.69	23	16.42
175 - 199	5	6.66	1	1.53	6	4.28
Total:-	75	100.00	65	100.00	140	100.00
Mean score:	142.07		123.91		133.90	

The table reveals that cropping intensity is less than 150 in the case of 69.3 and 90.7 per cent of farmers from FL and control group respectively. It is seen that the mean score for cropping intensity of farmers in Groups A and B differed significantly.

The calculated 'r' values between adoption and cropping intensity were significant for all the three groups. (r = .3062, .5209 and .5853 for groups A, B and C respectively in Table 3).

Irrigation potential, social participation, knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were positively and significantly related with cropping intensity in all the three groups. Use of inter-personal localite sources was negatively related with cropping intensity in the control group and total sample. Functional literacy attainment was found to be significantly related with cropping intensity in the experimental group (Table 4).

Irrigation potential: The distribution of farmers according to irrigation potential is presented in Table 2 (d).

Table 2 (d). Distribution of Farmers according to irrigation potential.

Score	Group A		Group B		Group C	
	F	%	F	%	F	%
0	44	58.66	51	78.46	95	67.85
1	31	41.33	14	21.53	45	32.14
Total:	75	100.00	65	100.00	140	100.00
Mean score	0.43		0.22		0.32	

It is seen that 58.6 per cent and 78.4 per cent of farmers from FL and control groups respectively did not possess irrigation facilities.

The computed 'r' values between adoption and irrigation potential were significant for all the three groups. ( $r = 0.3572, 0.4647$  and  $0.4219$  for groups A, B and C respectively in Table 3).

Social participation, knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were found to be significantly related with irrigation potential in all the three groups. The use of inter-personal localite sources was negatively related with irrigation potential in the total sample (Table 6). In the experimental group, functional literacy attainment was significantly related with irrigation potential (Table 4).

Social participation: Table 2(e) gives the distribution of farmers according to social participation.

Table 2(e) Distribution of farmers according to social participation:

Score category	Group A		Group B		Group C	
	F	%	F	%	F	%
0	21	28.00	42	64.61	63	45.00
1	35	46.66	21	32.30	56	40.00
2	19	25.33	2	3.07	21	15.00
Total:-	75	100.00	65	100.00	140	100.00
Mean score	0.97		0.40		0.71	



It is seen that as many as 28 per cent and 64.6 per cent of farmers from PL and control groups respectively did not participate in any of the social organization. The mean score values of farmers in Groups A and B differed significantly.

The correlation of co-efficients between adoption and social participation for all the three groups were significant. In the experimental group, this was significant only at 0.05 level of probability.

( $r = 0.2600$ ,  $0.6845$  and  $0.5706$  for groups A, B and C respectively in Table 3).

Knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were significantly and positively related with social participation, whereas use of inter-personal localite sources was negatively related in all three groups. Functional literacy attainment was significantly related with social participation in the experimental group (Table 4).

Knowledge on improved rice culture: The distribution of farmers according to their knowledge scores are shown in Table 2 (f).

Table 2 (f) Distribution of farmers according to their knowledge scores:

Score category	Group A		Group B		Group C	
	F	%	F	%	F	%
Upto 8	0	0	9	13.84	9	6.42
9 - 12	4	5.33	34	52.30	38	27.14
13 - 16	22	29.33	18	27.69	40	28.57
Above 16	49	65.33	4	6.15	53	37.85
Total:	75	100.00	65	100.00	140	100.00
Mean score:	16.93		11.55		14.36	

The table reveals that the farmers in the FL group have better knowledge on improved rice culture when compared to the farmers in the control group. The mean knowledge scores of farmers in Group A and B differed significantly.

The computed 'r' values between knowledge and adoption were significant for all the three groups ( $r = 0.6294$ ,  $0.7805$  and  $0.8710$  for experimental, control and total sample respectively in Table 3).

Use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were significantly and positively related with knowledge on improved

rice culture, whereas use of inter-personal localite sources was negatively related with this variable in all the three groups. Functional literacy attainment was significantly related with knowledge in the experimental group (Table 4).

Use of Mass Media: The distribution of farmers according to their mass media use are shown in Table 2 (g).

Table 2 (g) Distribution of farmers according to their mass media use:

Mass media use index	Group A		Group B		Group C	
	F	%	F	%	F	%
0	8	10.66	47	72.30	55	39.28
1	0	0	3	4.61	3	2.14
2	0	0	5	7.59	5	3.57
3	35	46.66	10	15.38	45	32.14
Above 3	32	42.66	0	0	32	22.85
<b>Total:</b>	<b>75</b>	<b>100.00</b>	<b>65</b>	<b>100.00</b>	<b>140</b>	<b>100.00</b>
<b>Mean index</b>	<b>3.96</b>		<b>0.66</b>		<b>2.43</b>	

It is found that use of mass media is more in the case of farmers in the FL group than those in the control group. The mean mass media use indices of farmers in Groups A and B differed significantly.

The correlation coefficients between adoption and use of mass media for all the three groups were significant.

( $r = 0.3313$ ,  $0.5296$  and  $0.6924$  for Groups A, B and C respectively in Table 3).

Attitude towards functional literacy was significantly and positively related with use of mass media, whereas use of inter-personal localite sources was negatively related with the use of mass media in all the three groups. Use of mass media was related with the use of inter-personal cosmopolite sources in the control group (Table 5). In the experimental group, functional literacy attainment was significantly related with the use of mass media (Table 4).

Use of inter-personal cosmopolite sources: The distribution of farmers according to use of inter-personal cosmopolite source is shown in Table 2 (h).

Table 2 (h) Distribution of farmers according to use of inter-personal cosmopolite sources:

Cosmopolite source use Index	Group A		Group B		Group C	
	F	%	F	%	F	%
0	14	18.66	20	30.76	34	24.28
1	14	18.66	5	7.69	19	13.57
2	29	38.66	20	30.76	49	35.00
3	13	17.33	8	12.30	21	15.00
Above 3	5	6.66	12	18.46	17	12.14
Total:	75	100.00	65	100.00	140	100.00
Mean index	1.77		1.94		1.85	

It is found that while 81.3 per cent of the farmers in the FL group use inter-personal cosmopolite sources of information, only 69.2 per cent of the farmers in the control group use this source.

There was significant relationship between use of inter-personal cosmopolite sources and adoption in all the three groups as evident from the Table 3.

( $r = 0.2356$ ,  $0.6344$  and  $0.3029$  for experimental control and total sample respectively). In the experimental group, this was significant only at 0.05 level of probability.

Use of inter-personal cosmopolite sources was positively and significantly related with attitude towards functional literacy whereas the same was negatively related with use of inter-personal localite sources in the experimental and control groups. Functional literacy attainment was related with the use of inter-personal cosmopolite sources in the experimental group. (Table - 4)

Use of inter-personal localite sources: The distribution of farmers according to use of inter-personal localite sources is shown in Table 2(1).

Table 2 (1) Distribution of farmers according to use of inter-personal localite sources:

Localite Source use index	Group A		Group B		Group C	
	F	%	F	%	F	%
0	34	45.33	2	3.07	36	25.71
1	12	16.00	0	0	12	8.57
2	14	18.66	6	9.23	20	14.28
3	15	20.00	11	16.92	26	18.57
Above 3	0	0	46	70.76	46	32.85
Total:	75	100.00	65	100.00	140	100.00
Mean index	1.13		4.46		2.67	

It is seen that 96.9 per cent of farmers in the control group use inter-personal localite sources of information, whereas, only 54.6 per cent of farmers in the experimental use this source. There is significant difference between Groups A and B with regard to mean localite source use indices.

The computed 'r' values between use of inter-personal localite sources and adoption for all the three groups were negative and significant. In the experimental group, this was significant only at 0.05 level of probability.

( $r = 0.2175, 0.3419$  and  $0.6829$  for Groups A, B and C respectively in Table 3)

Use of inter-personal localite sources was significantly and negatively related with attitude towards functional literacy in the experimental group and total sample. Functional literacy attainment was negatively related with the use of inter-personal localite sources in the experimental group (Table 4).

Attitude towards functional literacy:

Table 2 (j) gives the neutral and mean attitude scores on the scale developed to measure the attitude of farmers towards the functional literacy programme.

Table 2 (j). Neutral and mean attitude scores on the scale:

Scale	Neutral score	Mean score	
		Experimental group	Control group
F.L.P.	30	40.73	22.07

It may be seen from the above table that the mean attitude score is much above the neutral score in the experimental group which indicates that the respondents in this group have a very favourable attitude towards functional literacy programme.

Table 3. Correlation between the dependent variable (Adoption behaviour) and independent variables:

Sl. No.	Independent variable	Experimental Group (A) (N = 75)	Control Group (B), (N = 65)	Total Sample (Group C) (N = 140)
1	Age	0.1202	0.0178	0.1933
2	Farm size	0.2077	0.6215**	0.2018**
3	Cropping intensity	0.3062**	0.5209**	0.5853**
4	Irrigation Potential	0.3572**	0.4647**	0.4219**
5	Social participation	0.2600**	0.6845**	0.5706**
6	Knowledge on improved rice culture	0.6294**	0.7805**	0.8710**
7	Use of mass media	0.3313**	0.5296**	0.6924**
8	Use of inter-personal cosmopolite sources	0.2356*	0.6344**	0.3029**
9	Use of inter-personal localite sources	0.2175*	0.3419**	0.6829**
10	Attitude towards FL	0.3972**	0.4033**	0.7673**
11	Functional literacy attainment	0.6176**	-	-

\* Significant at 0.05 level

\*\* Significant at 0.01 level



Table 4. Matrix of correlation coefficients among independent variables in the experimental group (Group A)

N = 75

	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>	X <sub>11</sub>
X <sub>1</sub>	.1670	.1643	.0547	.2182*	.0355	-.1485	.2361*	-.0676	.1171	-.0553
X <sub>2</sub>		-.1120	.3504**	.4217**	.1809	.3770**	.2311*	-.0410	.1514	.3171 **
X <sub>3</sub>			.5563**	.2968**	.5139**	.2872*	.2714*	-.1935	.2170*	.3212 **
X <sub>4</sub>				.3646**	.4783**	.4158**	.2250*	-.0938	.2357*	.3773 **
X <sub>5</sub>					.4015**	.5188**	.2354*	-.2563*	.3105**	.5193 **
X <sub>6</sub>						.5133**	.2699*	-.3085**	.4255**	.6070 **
X <sub>7</sub>							.1926	-.3781**	.2890*	.5693 **
X <sub>8</sub>								-.2756*	.3002**	.2749 *
X <sub>9</sub>									-.2856*	-.3344**
X <sub>10</sub>										.4617**

\* Significant at 0.05 level

\*\* Significant at 0.01 level

X<sub>1</sub> = Age

X<sub>2</sub> = Farm size

X<sub>3</sub> = Cropping intensity

X<sub>4</sub> = Irrigation potential

X<sub>5</sub> = Social participation

X<sub>6</sub> = Knowledge

X<sub>7</sub> = Mass media use

X<sub>8</sub> = Cosmopolite source use

X<sub>9</sub> = Localite source use

X<sub>10</sub> = Attitude

X<sub>11</sub> = Functional literacy attainment

Table 5. Matrix of correlation coefficients among independent variables in the control group (Group B)

(N = 65)

	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>
X <sub>1</sub>	.2194	-.0033	-.0573	-.2271	-.0181	.0552	.0143	.2363	.1417
X <sub>2</sub>		.3381**	.4196**	.5106**	.4533**	.5085**	.4676**	-.1086	.4043 **
X <sub>3</sub>			.6133**	.5364**	.6077**	.5152**	.4289**	-.2507 *	.4132 **
X <sub>4</sub>				.5725**	.5393**	.5820**	.4110**	-.2270	.2809 *
X <sub>5</sub>					.6234**	.4864**	.4991**	-.3772 **	.3291 **
X <sub>6</sub>						.6002**	.6256**	-.2557 *	.3730 **
X <sub>7</sub>							.3742**	-.4483 **	.3522 **
X <sub>8</sub>								-.2823 *	.3596 **
X <sub>9</sub>									-.1762

\* Significant at 0.05 level

\*\* Significant at 0.01 level

- |                                       |   |                                      |
|---------------------------------------|---|--------------------------------------|
| X <sub>1</sub> = Age                  | X <sub>5</sub> = Social participation   | X <sub>9</sub> = Localite source use |
| X <sub>2</sub> = Farm size            | X <sub>6</sub> = Knowledge              | X <sub>10</sub> = Attitude           |
| X <sub>3</sub> = Cropping intensity   | X <sub>7</sub> = Mass media use         |                                      |
| X <sub>4</sub> = Irrigation potential | X <sub>8</sub> = Cosmopolite source use |                                      |

Table 6. Matrix of correlation coefficients among independent variables in the total sample (Group C)

(N = 140)

	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>
X <sub>1</sub>	.1751	-.0727	-.0598	-.0863	-.2404*	-.2879 **	.1279	.3039 **	-.2767 **
X <sub>2</sub>		.0859	.3714**	.4190**	.2187*	.2959 **	.3488 **	-.0559	.0936
X <sub>3</sub>			.5992**	.4985**	.6671**	.5417 **	.2909 **	-.4746 *	.5168 **
X <sub>4</sub>				.4763**	.4791**	.4659 **	.2890 **	-.2592 **	.2756 **
X <sub>5</sub>					.5951**	.6118 **	.2927 **	-.4848 **	.4677 **
X <sub>6</sub>						.7666 **	.2836 **	-.6930 **	.7918 **
X <sub>7</sub>							.1320	-.7148 **	.7376 **
X <sub>8</sub>								-.1348	.0476
X <sub>9</sub>									-.7766 **

\* Significant at 0.05 level

\*\* Significant at 0.01 level

X<sub>1</sub> = Age

X<sub>2</sub> = Farm size

X<sub>3</sub> = Cropping intensity

X<sub>4</sub> = Irrigation potential

X<sub>5</sub> = Social participation

X<sub>6</sub> = Knowledge

X<sub>7</sub> = Mass media use

X<sub>8</sub> = Cosmopolite source use

X<sub>9</sub> = Localite source use

X<sub>10</sub> = Attitude

In the case of control group, the mean attitude score is less than the neutral score which reveals that the attitude of the respondents in this group towards functional literacy programme is unfavourable.

The correlation coefficient between adoption and attitude towards functional literacy were significant for all the three groups.

( $r = 0.3972$ ,  $0.4033$  and  $0.7673$  for experimental, control and total sample respectively in Table 3).

Functional literacy attainment was significantly related with attitude towards functional literacy in the experimental group (Table 4).

Functional Literacy attainment: The computed 'r' value between adoption and functional literacy attainment was  $0.7673$  in the experimental group which was significant thereby indicating that there was relationship between functional literacy and adoption. The high value of 'r' an indication of the high relationship (Table 3).

#### C. PREDICTIVE POWER OF SELECTED VARIABLES IN EXPLAINING THE ADOPTION BEHAVIOUR:

In the previous section, each one of the independent variables was hypothesised to have an amount of independent effect on the dependent variable. The relationship was expressed

in terms of simple correlation coefficients derived. But, adoption behaviour was not solely influenced by any one of these variables, but by all of them, through their reciprocal and inter-active relationships. Thus the need of multiple regression analysis.

In this study, there were three groups of farmers to be compared among themselves including the total sample. Thus there were  $R^2$  values and three multiple regression equations.

The multiple correlation coefficient (R) represented the zero-order correlation between the actual adoption behaviour scores and predicted adoption scores obtained from the independent variables under consideration. If the predicted adoption behaviour score for each farmer would correspond exactly to his actual adoption behaviour score obtained in the study, the multiple correlation coefficient would be unity or 1.00.

The square of the multiple correlation coefficient ( $R^2$ ) represented the proportion of the total variation explained by the independent variables in the regression equation taken together.

It was hypothesised that all the independent variables together will explain a significant amount of variation in the adoption behaviour of farmers in a group. The computed  $R^2$  values for three groups are presented in Table 7.

Table 7. Multiple correlation coefficients:

Sl.No.	Group	R <sup>2</sup>	F
A	Functional literacy	0.5347	6.582 *
B	Control	0.7541	16.560 *
C	Total sample	0.8033	52.682 *

\* Significant at 0.05 level.

The R<sup>2</sup> values were tested for significance with the help of F test. The general formula used for testing the significance of the multiple correlation is given below:

$$F_{k, N-K-1} = \frac{R^2}{1 - R^2} \times \frac{N-K-1}{K}$$

where, F = Variance - ratio test criterion,  
 K = Number of independent variables and  
 N = Number of farmers in the sample.

The 'F' values were significant. In other words, the data supported the original proposition that all the variables taken together will explain a significant amount of variation in the adoption behaviour of farmers.

When the multiple correlation was statistically significant, it was thought desirable to analyse the relative

importance of each independent variable in order to determine which independent variable in order to determine which independent variable was most important. There are two methods. In the first method, the statistical significance of each partial coefficients (partial  $b_s'$ ) were determined. The formula used for testing the significance was:

$$t = \frac{b_1}{S_e(b_1)}$$

where,  $b_1$  = partial coefficient,

$S_e(b_1)$  = standard error of the partial coefficient.

In the present study, the significant  $R^2$  values necessitated partial regression analysis to determine the relative importance of the variables. The partial regression coefficients were, therefore, obtained for the variables included in the regression equation of the respective groups. The partial  $b_s'$  thus obtained were tested for significance with the help of 't' test. The partial  $b_s'$  and corresponding t values are presented in Table 8. The significance of respective partial  $b_s'$  was indicated in the table by asterisk marks.

It was found that knowledge on improved rice culture,

Table 8. Partial regression coefficients for independent variables:

Variable No.	Variable	Functional literary Group (A)		Control Group(B)		Total Sample (C)	
		b	t	b	t	b	t
X <sub>0</sub>	Rice practices adoption scale	-	-	-	-	-	-
X <sub>1</sub>	Age	.192	1.298	.036	.053	.222	.663
X <sub>2</sub>	Farm size	.148	.198	-.213	.149	-.248	.164
X <sub>3</sub>	Cropping intensity	.024	.015	.159	.122	.081	.036
X <sub>4</sub>	Irrigation potential	-.006	.004	-.101	.052	-.245	.174
X <sub>5</sub>	Social participation	-.117	.120	1.383*	5.389	.437*	4.521
X <sub>6</sub>	Knowledge on improved rice culture	.852*	2.889	.357	.277	.427	.931
X <sub>7</sub>	Use of mass media	-.013	.005	-.033	.006	-.021	.009
X <sub>8</sub>	Use of inter-personal cosmopolite sources	.043	.011	.467*	3.751	.523*	3.275
X <sub>9</sub>	Use of inter-personal localite sources	-.387	1.135	.214	.719	.115	.275
X <sub>10</sub>	Attitude towards FL	.873*	3.673	.041	1.138	-.056	.151
X <sub>11</sub>	Functional literacy attainment	1.416*	6.410	-	-	-	-

\* Significant b values.



attitude towards functional literacy and functional literacy attainment were significant in the FL group. Social participation and use of inter-personal cosmopolite sources were found to be significant in the control group and total sample.

In the second method, the independent variables which contributed most to the prediction of adoption behaviour were determined by comparing the standard partial regression coefficients (called beta weights) of the respective independent variables in the regression equation.

Partial coefficients or 'bs' could not be compared as such to their relative abilities to predict changes in the dependent variable, adoption behaviour, unless a correction was made. This became necessary because in the measurement of independent variables, different scales were used. For example, age was measured in years; attitude in scores; adoption in some type of scale, etc. Therefore, comparison of a unit change in one variable with a unit change in another became meaningless without any correction. The correction was made by standardizing each partial 'b' value which was done by utilizing the standard deviation of each variable. A standardized partial b was called the beta weight of the partial coefficient, and was computed by the following formula.

$$\text{Beta weight} = \frac{\text{S.D. of independent variable}}{\text{S.D. of dependent variable}} \times \text{Partial 'b'}$$

The beta weights for the total sample are presented in Table 9, the absolute values of which indicated relative importance of the variables. The beta weights were listed from the largest to the smallest. The most important beta weight was denoted by the variable  $X_5$ , "Social participation", followed by variable  $X_8$  "Use of inter-personal cosmopolite source". Only these two were significant when compared with the 't' values on partial 'bs'. Knowledge and farm size ranked third and fourth respectively, though they were not significant.

The beta weights were also computed for the variables in the experimental group and control group separately. The beta weights for the experimental group is given in Table 10 and for the control group in Table 11.

In the experimental group, the most important beta weight was denoted by the variable  $X_6$  "Knowledge", followed by the variable  $X_{11}$  "Functional Literacy attainment" and variable  $X_{10}$  "Attitude towards functional literacy". Only these three were significant. Use of Inter-personal cosmopolite source ranked fourth though not significant.

In the control group, the most important beta weight was denoted by the variable  $X_5$  "Social participation", followed by variable  $X_8$  "Use of inter-personal cosmopolite source". Only these two were significant. Knowledge and farm size ranked third and fourth respectively, though they were not significant.

Table 9. Standardised Partial Regression Coefficients (Group C)

Rice - Practices - Adoption - Scale and independent variables (Ordered by beta weight)

Rank Order	Variable No.	Name of the variable	Beta weight	't' value on partial 'b'
1	X <sub>5</sub>	Social participation	0.6204	4.521 *
2	X <sub>8</sub>	Use of inter-personal cosmopolitan sources	0.2616	3.2085 *
3	X <sub>6</sub>	Knowledge on improved rice culture	0.1896	0.9312
4	X <sub>2</sub>	Farm size	-0.1172	-0.1635
5	X <sub>4</sub>	Irrigation potential	-0.1057	-0.1740
6	X <sub>3</sub>	Cropping intensity	0.549	0.0363
7	X <sub>1</sub>	Age	0.227	0.6626
8	X <sub>9</sub>	Use of inter-personal local sources	0.147	0.2751
9	X <sub>7</sub>	Use of mass media	-0.0143	-0.009
10	X <sub>10</sub>	Attitude towards functional literacy	-0.0064	-0.1508

\* Significant.

Table 10. Standardised Partial Regression Coefficient (Group A)

Rice - Practices - Adoption - Scale and Independent variables  
(Ordered by beta weight.)

Rank Order	Variable No.	Name of the variable	Beta weight	't' value on Partial 'b'.
1	X <sub>6</sub>	Knowledge on improved rice culture	0.4177	2.889 *
2	X <sub>11</sub>	Functional literacy attainment	0.1631	6.4101 *
3	X <sub>10</sub>	Attitude towards functional literacy	0.1084	3.6726 *
4	X <sub>8</sub>	Use of inter-personal cosmopolite sources	0.0869	0.011
5	X <sub>9</sub>	Use of inter-personal localite sources	-0.0689	-1.1343
6	X <sub>5</sub>	Social participation	-0.0596	-0.1202
7	X <sub>2</sub>	Farm size	0.0579	0.1975
8	X <sub>1</sub>	Age	0.0469	1.2981
9	X <sub>3</sub>	Cropping intensity	0.0203	0.0149
10	X <sub>7</sub>	Mass media	-0.0184	-0.0051
11	X <sub>4</sub>	Irrigation potential	-0.0050	-0.0037

\* Significant.

Table 11. Standardised Partial Regression Coefficient (Group B)

Rice - Practices - Adoption - Scale and Independent variables  
(Ordered by Beta Weight.)

Rank Order	Variable No.	Name of the variable	Beta weight	't' value on partial 'b'.
1	X <sub>5</sub>	Social participation	0.5079	5.389 *
2	X <sub>8</sub>	Use of interpersonal cosmopolite sources	0.2589	3.751 *
3	X <sub>6</sub>	Knowledge on improved rice culture	0.2057	0.2774
4	X <sub>2</sub>	Farm size	-0.1365	-0.1486
5	X <sub>3</sub>	Cropping intensity	0.0930	0.1221
6	X <sub>4</sub>	Irrigation potential	-0.0884	-0.0515
7	X <sub>7</sub>	Use of mass media	-0.0807	-0.006
8	X <sub>10</sub>	Attitude towards functional literacy	0.0411	1.1377
9	X <sub>9</sub>	Use of inter-personal localite sources	0.0285	0.7193
10	X <sub>1</sub>	Age	0.0109	0.0534

Significant.

. RELATIVE AND DIFFERENTIAL IMPACT OF SELECTED VARIABLES  
AND FUNCTIONAL LITERACY PROGRAMME ON THE ADOPTION  
BEHAVIOUR:

To find the net association between any two variable after eliminating the influence of all other variables, highest order partial correlation analysis was required. The partial correlation of the highest order ( $r^*$ ) were computed and are presented below:

(Table 12)

Age: The computed partial  $r^*$  values for the groups A ( $r^* = 0.0419$ ), B ( $r^* = 0.0186$ ), and C ( $r^* = 0.0241$ ) (Table 12) were not significant. In other words, there was no relationship between age and adoption behaviour of farmers in any of the groups.

Farm size: The computed  $r^*$  values for the groups A ( $r^* = 0.0711$ ) B ( $r^* = 0.2151$ ), and C ( $r^* = 0.1486$ ) (Table 12) were not significant. That is, there was no relationship between farm size and adoption of improved rice practices in any of the groups.

---

\* The highest order partial  $r$  is denoted by the symbol  $r^*$  rather than  $r_{0,1,2,\dots,11}$ , etc.

Table 12. Highest order partial correlation between adoption behaviour and any of the other variables:

Variable No.	Variable	Experimental (Group A)	Control Group (B)	Total sample (C)
X <sub>1</sub>	Age	0.0419	0.0186	0.0241
X <sub>2</sub>	Farm size	0.0711	-0.2151	-0.1486
X <sub>3</sub>	Cropping intensity	0.0257	0.1339	0.1035
X <sub>4</sub>	Irrigation potential	-0.0064	-0.1108	-0.1227
X <sub>5</sub>	Social participation	-0.0589	0.5241 *	0.5444 *
X <sub>6</sub>	Knowledge on improved rice culture	0.3859 *	0.2504	0.2989 *
X <sub>7</sub>	Use of mass media	-0.0194	-0.1107	-0.0228
X <sub>8</sub>	Use of inter-personal cosmopolite sources	0.0885	0.3591 *	0.3691 *
X <sub>9</sub>	Use of inter-personal localite sources	-0.0663	0.0373	0.0245
X <sub>10</sub>	Attitude towards functional literacy	0.1138	0.714	0.0128
X <sub>11</sub>	Functional literacy attainment	0.1989	-	-

\* Significant.

Cropping intensity: The relationship between cropping intensity and adoption behaviour was not significant as observed from the computed partial  $r^*$  values for the groups A ( $r^* = 0.0257$ ), B ( $r^* = 0.1339$ ) and C ( $r^* = 0.1035$ ).

Irrigation potential: The partial  $r^*$  values for the groups A ( $r^* = 0.0064$ ), B ( $r^* = 0.1108$ ) and C ( $r^* = 0.1227$ ) (Table 12) did not show any significant relationship between irrigation potential and adoption behaviour of farmers.

Social participation: The computed partial  $r^*$  values for the group A ( $r^* = 0.0589$ ) was not significant which showed that there was no relationship between social participation and adoption behaviour of farmers. Relationship between social participation and adoption behaviour of farmers was significant in groups B and C with partial  $r^*$  values of 0.5241 and 0.5444 respectively.

Knowledge on improved rice culture:  $r^*$  values for the groups A ( $r^* = 0.3859$ ) and C ( $r^* = 0.2989$ ) were significant which established the relationship between knowledge and adoption behaviour of farmers. The absolute value of  $r^*$  in group B ( $r^* = 0.2504$ ) though not significant, was quite high indicating thereby that knowledge had a strong tendency to have positive relationship with adoption behaviour of farmers.



Use of mass media: The non-significant  $r^*$  values for the groups A ( $r^* = 0.0194$ ), B ( $r^* = 0.1107$ ) and C ( $r^* = 0.0228$ ) (Table 12) revealed that use of mass media and adoption behaviour of farmers were not related.

Use of inter-personal cosmopolite sources: The  $r^*$  value for group A ( $r^* = 0.0885$ ) did not show significant relationship between use of inter-personal cosmopolite sources and adoption behaviour of farmers. But the relationship between use of inter-personal cosmopolite sources and adoption behaviour was significant in groups B and C with partial  $r^*$  values of 0.3591 and 0.3691 respectively.

Use of inter-personal localite sources: The partial  $r^*$  values for the groups A ( $r^* = 0.0663$ ), B ( $r^* = 0.0373$ ) and C ( $r^* = 0.245$ ) were not significant which indicated non-significant relationships of use of inter-personal localite sources with the adoption behaviour of farmers.

Attitude towards functional literacy: The non-significant partial  $r^*$  values for the groups A ( $r^* = 0.1138$ ), B ( $r^* = 0.0714$ ) and C ( $r^* = 0.0128$ ) (Table 12) indicate that attitude towards functional literacy had no significant relationship with the adoption behaviour of farmers.

Functional literacy attainment: It was necessary to eliminate the effect of all antecedent variables in order to evaluate the

relative impact of functional literacy on agricultural development. There were functionally literate farmers only in the experimental group and functional literacy tests were administered to them at the time of completion of the literacy classes. Better performance in the test was postulated to have positive association with adoption of improved farm practices. But the partial  $r^*$  value ( $r^* = 0.1989$ ) was not significant, which meant that functional literacy score had no relationship with adoption behaviour of farmers. However, the absolute value of  $r^*$  is high which is an indication that the functional literacy had a strong tendency to have positive relationship with adoption behaviour of farmers.

E. RELATED FINDINGS:

Reasons for not attending school / drop-out:

The very necessity for functional literacy programme hinges on the large scale existence of illiterates either due to non-attendance of schools and / or dropping out of pupils. An attempt was, therefore, made to find out the reasons why the respondents of this study did not attend school / dropped out.

Table 13 gives the distribution of farmers according to the reasons for not attending school / drop-out.

Table 13. Distribution of farmers according to the reasons for not attending school / drop-out:

<u>Reasons for not attending school / drop-out</u>	<u>Frequency</u>	<u>per centage</u>
1. Poverty and lack of finance	71	50.71
2. Disinterestedness	27	19.29
3. Education was considered not necessary for a farmer	19	13.57
4. Unfavourable conditions	23	16.43
	<u>140</u>	<u>100.00</u>

It is seen that 50.71 per cent of farmers did not attend school / dropped-out due to poverty and lack of finance. Other reasons for not attending school / dropping out were disinterestedness (19.29%), education was considered not necessary for a farmer (13.57%) and unfavourable conditions (16.43%).

## **DISCUSSION**

## CHAPTER 5

## DISCUSSION

The present Chapter is devoted to a discussion of the results obtained from the study. The main objective of this study was to investigate the impact of functional literacy in respect of adoption of improved practices in rice cultivation.

A. EXTENT OF ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:

The analysis showed that only 4 per cent of farmers in the experimental group were low adopters as against 53.85 per cent of farmers in the control group. It was seen that 50.66 per cent of farmers in the experimental group were medium adopters as against 40 per cent of farmers in the control group. It was also seen that 45.33 per cent of farmers in experimental group were high adopters whereas only 6.15 per cent of farmers in the control group belonged to this category. These facts indicate that functionally literate farmers were more receptive to adopt improved practices, since the farmers in the two groups were similarly situated in all other aspects except that the control group did not have the benefit of the literacy programme. Participation of farmers in functional

literacy classes might have mentally equipped the farmers in the experimental group to adopt the improved practices. This finding is in agreement with the findings of Reddy and Murthy (1973) and Kishore and Rai (1974) who reported that functional literacy contributed significantly to the adoption of improved agricultural practices by the farmers.

B. RELATIONSHIP BETWEEN SELECTED VARIABLES AND ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:

Correlation analysis was done with a view to:

- a) express the relation between the dependent variable and each independent variable, and
- b) express the relationship between different independent variables.

Age: In this study, the hypothesis in null form was that the age of the farmer will not influence his score on rice-practices-adoption scale. Since there was no significant relationship between these two variables as revealed by the correlation analysis in any of the groups, the null hypothesis was accepted. This finding is in conformity with the findings reported by Deshpande (1962), Bahadkar (1962), Shankariah (1965), and Perumal and Duraiswamy (1972).

In the experimental group, social participation and use

of inter-personal cosmopolite sources were found to be significantly related with age. It is reasonable to believe that as age increases, farmers by virtue of their professional necessity, will come into contact with more persons and more formal organizations outside the locality.

Knowledge on improved rice culture, use of mass media, and attitude towards functional literacy were negatively related with age of farmers in the experimental group. Young farmers are normally more scientific-minded and change-oriented and will have a strong desire to acquire more knowledge about innovations. This nature of young farmers might have contributed to this kind of behaviour on the part of young farmers. Singh and Prasad (1974) reported that farmers in the age group 19-30 had the highest knowledge mean score about the existing communication sources. Earlier studies suggest that young farmers utilize more credible information sources than old farmers. Mass media as a source of information has high credibility with young and innovative farmers and hence there is every possibility of young farmers with progressive outlook utilising this source of information more than older farmers. Previous studies indicate that young farmers have favourable attitude towards innovations and Functional Literacy Programme being a recently introduced

programme in the field of adult education in the State, the young farmers might have developed a favourable attitude towards this programme. These facts justify the negative relationship established between age, and knowledge on improved rice culture, use of mass media and attitude towards functional literacy.

Farm size: In the present study, the null hypothesis was that the number of acres of land owned by a farmer will not influence his score on rice-practices-adoption scale. The results showed that there was significant relationship between these two variables in the control group (Group B) whereas in the experimental group (Group A) the relationship was not significant. Hence the null hypothesis for the former group was rejected, while the same for the latter group was accepted. This shows that in the experimental group, all farmers irrespective of their size of holdings have adopted improved practices. The farmers with small size of holdings in this group might have become convinced about the feasibility and profitability of the improved practices in their farms in spite of the small size due to their participation in functional literacy classes and so they might have adopted the improved practices. This finding is in agreement with the results obtained in the study on high yielding variety programme by the Directorate of Economics and Statistics (1967).



As the farm size increases, the farmer will have more agricultural needs, both in respect of physical and knowledge inputs, than holders of small farms. To meet these needs, the bigger-sized farm-owners are likely to contact various organizations in and outside the locality and also to expose themselves to various mechanised media such as radio, print media, etc., and credible inter-personal sources outside their community. These might be the reasons for the significant relationship obtained between the farm size and social participation, use of mass media and use of inter-personal cosmopolitan sources of information.

While cropping intensity and farm size were negatively correlated in the case of the experimental group, they were positively and significantly related in the case of the control group. Further, it was found that knowledge on improved rice culture was significantly related with farm size in the control group only. These unequivocally bring out one of the favourable aspects of functional literacy programme. Farmers who attended functional literacy classes might have acquired enough knowledge and might have got convinced about the possibility of increasing cropping intensity by adopting newer techniques while farmers in the control group who have not participated in functional literacy classes might not have even been aware of this innovation.

Cropping intensity: The hypothesis in null form for the present study was that the intensity of cropping will not influence the score obtained by a farmer on rice-practice-adoption scale. This hypothesis was rejected since the results revealed that there was significant relationship between adoption behaviour and cropping intensity. Higher cropping intensity enhances the income of the farmer and / or reduces the risk of total failure of the enterprise. Further, those farmers who follow intensive cultivation try to exploit all factors of production for achieving maximum profit from the farm. Introduction of short and medium duration varieties has facilitated the farmers to grow two or more crops in a year by adopting appropriate cultural practices. These facts justify the established relationship between cropping intensity and adoption.

A farmer who follows intensive cultivation should necessarily get technical information, proper guidance and necessary supplies and services, for which he gets himself exposed to every available sources of information such as mass media, cosmopolite sources and also participates in the activities of formal organisations. Such a farmer will have greater skills and management capabilities and knowledge about farming. In the light of the above, the significant relationship

established, in the present study, between cropping intensity and other variables such as social participation, knowledge on improved rice culture, use of mass media, and use of inter-personal cosmopolite sources may be justified.

Irrigation potential: In the present study, the hypothesis in null form was that the irrigation potential of a farm will not influence the score obtained by a farmer on rice-practices-adoption scale. This hypothesis was rejected since the results revealed a significant relationship between the two variables. Irrigation is an important input for growing high yielding varieties of rice, the lack of which will adversely affect the yield. No farmer will be willing to take up cultivation of capital and labour-intensive crops like high yielding varieties of rice, depending entirely upon rain for this important input. Therefore, farmers who do not possess irrigation facilities will be reluctant to adopt the cultivation of high yielding varieties of rice. Though availability of water at the proper time in adequate quantities and application of the same by the farmers are also factors to be considered in this connection, it is reasonable to assume that adoption of improved seeds and appropriate cultural practices in rice including the use of irrigation are inter-related.

Social participation: The null hypothesis for the present

study was that the participation of farmers in the activities of different organizations will not influence their scores on rice-practices-adoption scale. The results revealed that the relationship between these two variables was significant. Hence, the null hypothesis was rejected. There is reason to believe that membership in different organizations particularly formal organisations, helps the farmers to come into contact with progressive farmers and various supply and service agencies and this get chances to expose themselves to various information sources. Such contacts with multiple agencies make the farmers aware of new ideas and practices, which may influence adoption of new practices. This finding is in conformity with those reported by Roy et al (1968), Vyas et al (1969) and Salunkhe and Thorat (1975).

In the case of the inter-relationship of variables, knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were significantly and positively related with social participation, while the use of inter-personal localite sources was negatively related with social participation. Participation in the activities of formal organizations exposes the farmer to a different atmosphere where, very often, emphasis is placed on science and rationality. As such, those farmers who participate

to a greater extent in such formal organizations, become change-oriented, innovative and develop favourable and liberal attitudes towards improved ideas and practices. By coming into contact with formal organizations in and outside the locality, farmers get new pieces of information, which hitherto were unknown to them, thus adding to their existing fund of knowledge. Communication research has revealed that innovators usually use sources of information which are more credible and the same has been found to be true here as well.

Knowledge on improved rice culture: The null hypothesis in this study was that knowledge about improved rice culture and the score of a farmer on rice-practice-adoption-scale are independent. There was significant relationship between knowledge and adoption in the correlation analysis and so, the null hypothesis was rejected. Knowledge about a particular practice is a prerequisite for its adoption. Unless a farmer knows about the improved practices of rice cultivation, he will not be able to adopt those practices. Hence the result. This finding is in complete agreement with the studies reported by Jaiswal (1965), Singh (1968) and Rao (1968).

Use of mass media and use of inter-personal cosmopolite sources were found to be significantly and positively related with knowledge on improved rice culture, while use of inter-personal localite sources was negatively related with this

variable. A farmer, when exposed to impersonal as well as cosmopolite sources of agricultural information might acquire more knowledge on improved agricultural practices than when he is exposed to localite sources which are very often considered less informative, less resourceful and less credible by innovative farmers.

Understandably, functional literacy attainment was also found significantly related with knowledge on improved rice culture in the experimental group. This might be due to the opening of new vistas of knowledge to the farmers in that group due to their attainment of retainable literacy and subsequent use of the retained literacy for acquiring more knowledge through print media. A similar finding has been reported by Veeraraghavan (1974).

Use of mass media: The hypothesis in null form was that the frequency of use of mass media by a farmer will not influence his score on rice-practices-adoption scale. But, the correlation analysis showed that there was significant relationship between these two variables, and hence, the null hypothesis was rejected. It has been proved that exposure to mass media is positively related to innovativeness. (Lerner, 1958). Every exposure of an individual to a mass medium produces some change in knowledge, skills and other aspects of

human behaviour. So naturally the exposures to varied mass media will have cumulative effect in increasing knowledge which influence adoption behaviour. This finding is in agreement with the findings of Roy et al (1968) and Rogers (1962).

Because of the exposure of farmers in both the groups to various programmes related to agriculture and functional literacy through the mass media, they might have developed a favourable attitude towards Functional Literacy Programme. Use of mass media was related with the use of inter-personal cosmopolite sources in the control group, whereas no such relationship was found between these two variables in the experimental group. This difference might be due to the increased use of inter-personal cosmopolite sources independent of the use of mass media by the farmers in the experimental group due to their increased knowledge and understanding about cosmopolite sources through the functional literacy classes.

Use of inter-personal cosmopolite sources:

In the present study, the null hypothesis was that the frequency of use of inter-personal cosmopolite sources by a farmer will not influence the score on rice-practices-adoption scale. There was significant relationship between use of this source and adoption. Hence the null hypothesis was rejected. It is logical to think that the adopters of improved farm

practices who usually seek first hand, accurate and complete information about the practices will prefer the cosmopolite sources of information. This finding is in conformity with those reported by Rahudkar (1962) and Singh and Jha (1965).

The inter-relationships have been found to be same as in the case of the previous variable.

Use of inter-personal localite sources:

The hypothesis in null form was that the frequency of use of inter-personal localite sources by a farmer will not influence his score on rice-practices-adoption scale. There was significant relationship between adoption and use of this source. Hence the null hypothesis was rejected. The relationship was negative and significant in all the groups.

Communication research has revealed that people tend to listen to communication which presents points of view with which they themselves are in agreement. The friends, relatives, and neighbours might neither have been better informed than they themselves were, nor were giving correct information. Since such people may be having a less favourable attitude towards innovations, only those farmers who had similar attitudes might have sought information from them. Hence the negative relationship. This finding is in conformity with those reported by Singh and Jha (1965), Supe (1968) and Kalamegam and Menon (1977).



Attitude towards functional literacy: The farmers in the experimental group were found to have a favourable attitude towards functional literacy. In this study, the null hypothesis was that the favourable attitude of farmers towards functional literacy will not influence their scores on rice-practices-adoption scale. This null hypothesis was rejected since the relationship between these two variables as revealed by the correlation analysis, was significant. Farmers who adopt improved practices, may like to know more about these practices for which consultation of literature becomes necessary. One can achieve the 3 R's, ability to comprehend and develop vocational skills by attending the functional literacy classes. In this sense, it is reasonable to assume that adoption and attitude towards functional literacy are related.

Functional literacy attainment: The hypothesis in null form was that the scores on functional literacy tests of farmers will vary directly with their scores on rice-practices-adoption scale. There was significant relationship between these two variables. Hence the null hypothesis was rejected. Functional literacy classes help the farmers in developing required skills in reading, writing, arithmetic and comprehension and in their vocational functions. Their knowledge about different aspects of agriculture is not only enriched by their participation in functional literacy classes, but also equips them with retainable knowledge facilitating further acquisition of knowledge from print

media by their own efforts. This enables the farmers to make more rational and judicious decisions in respect of farm practices and management. Adoption of improved farm practices is one such decisive action on the part of the farmers. These facts justify the significant relationship between functional literacy and adoption. The results obtained by Reddy and Murthy (1973) and Kishore and Rai (1974) corroborates with the finding in this study.

C. PREDICTIVE POWER OF SELECTED VARIABLES IN EXPLAINING THE ADOPTION BEHAVIOUR:

Multiple correlation and regression analysis was done with a view to:

- (a) determine the predictive power of the variables taken together,
- (b) determine the extent to which each independent variable is related to the adoption behaviour of farmers, and
- (c) determine the relative importance of each independent variable used in the multiple variable analysis.

The variables taken together explained for about 53 per cent variation in the adoption behaviour of farmers in the experimental group. The remaining 47 per cent variation in the adoption behaviour of farmers may be due to factors other than those included in the multiple regression analysis. Computation

of partial b's and standardized partial b's (beta weights) revealed that among the variables in the experimental group, "Knowledge on improved rice culture" obtained the highest value for beta weight, followed by "Functional literacy attainment" and "Attitude towards functional literacy". These three variables were significant accounting for a fairly high percentage of variation in the adoption behaviour of farmers in that group.

Knowledge is an important pre-requisite for adoption of farm innovations. Those farmers who possess adequate knowledge about the improved practices are likely to be more innovative and willing to accept and adopt modern methods of agriculture with little resistance. The present observation that knowledge about improved rice culture to be the most important factor deciding adoption behaviour thus stands justified. Johnson and Haver (1953), Hesse and Miller (1954), and Rogers and Havens (1961) have conclusively stated that knowledge plays an important role in adoption and decision making processes.

Those farmers who had attended functional literacy classes might have enriched their knowledge and might have developed favourable attitude towards improved agricultural practices, thus becoming more prone to the acceptance and adoption of innovations. It can, therefore, be concluded that functional literacy acted as a stimulus to gain knowledge and to put the same into practice. Precisely, this might be the reason why functional

literacy emerged as an important factor deciding adoption behaviour. However, it was rightly observed that attitude towards functional literacy was also important in deciding adoption behaviour.

The factors in the control group explained for about 75 per cent variation in the adoption behaviour of farmers. Only remaining 25 per cent variation in the adoption behaviour of farmers in this group may be due to factors other than those included in the multiple regression analysis. Among the variables in that group, "Social participation" obtained the highest value for beta weight, followed by "Use of inter-personal cosmopolite sources". These two variables were mostly responsible for the observed variation in the adoption behaviour of farmers in the control group.

By becoming a member of formal organizations, a farmer comes into contact with different personnel, agencies, and information sources. Here, he gets himself exposed to a different atmosphere where his behaviour and actions are influenced differently. He gets himself associated with cosmopolite sources of information from where he gets first hand, accurate and complete information regarding improved agricultural technology. These make the farmers aware of new ideas and practices which create in him a tendency to adopt the same. Here again, it is

observed that there was some external stimulus which motivated the farmer to adopt new practices. Social participation and use of inter-personal cosmopolite sources were the motivating stimuli in this case.

The factors in the composite sample explained for about 80 per cent of variation in the adoption behaviour of farmers. The factors which significantly contributed to the variation in this case were the same as those of the control group.

D. RELATIVE AND DIFFERENTIAL IMPACT OF SELECTED VARIABLES AND FUNCTIONAL LITERACY PROGRAMME ON THE ADOPTION BEHAVIOUR:

The net association between adoption behaviour and any other variable was studied with the help of highest order partial correlation. As most of the 'r\*' values were not significant, the findings are interpreted on the basis of absolute 'r\*' values also.

In the experimental group, knowledge on improved rice culture was the only significant factor which established significant relationship with adoption. In the composite sample also, this was one of the three significant factors. This makes it clear that profitable application of modern methods of agriculture does demand the support of adequate knowledge on improved agricultural technology and acquisition of necessary skills. The new strategy of agricultural development which hinges on the use

of improved practices would hardly succeed in the absence of adequate knowledge about these practices. In the control group also, the absolute value of this variable is high, indicating that knowledge bears a positive relationship with adoption behaviour.

In the control group and composite sample, social participation and use of inter-personal cosmopolite sources of information were found to have significant relationship with adoption behaviour of farmers as in the case of regression analysis. The reasons for the emergence of these two factors as important variables in deciding the adoption behaviour of farmers have been explained earlier.

Though functional literacy attainment has not established significant relationship with adoption behaviour, the absolute value of  $r_{FE}$  for functional literacy attainment in the experimental group is quite high, suggesting positive relationship between functional literacy and adoption behaviour. From this, a broad principle that functional literacy can contribute much towards adoption behaviour emerges out.

---

## **SUMMARY**

## CHAPTER 6

## SUMMARY

Adult education is basically intended to make the adult learner "aware of the factors which limit the opportunities of free development, thus enabling him to manage his own affairs". The alphabetic literacy is only one of the means "however important it may be, for attaining this end." During the past few years, India has made some major attempts to widen the concept of adult education and link it up with her major developmental goals. The Farmers' Training and Functional Literacy Programme initiated by the Government of India in 1968 was the first major attempt in this direction. Empirical evidences as to whether this programme has achieved its objective of making its clientele literate and efficient in their vocation are lacking in respect of Kerala, since no systematic study has so far been taken up in the socio-economic context of the State. The present study was an attempt in this direction. The main objective of the study was to investigate the impact of Farmers' Functional Literacy Programme on the adoption of improved agricultural technology in respect of rice by the participants of the Farmers' Functional Literacy Programme.



The investigation was carried out in selected functional literacy centres in Trivandrum District, Kerala. Two types of farmers, viz., those who were exposed to functional literacy - Experimental Group (Group A, N = 75) and those who were not exposed to this treatment - Control Group (Group B, N = 65), constituted the respondents of this study.

Eleven independent variables including the functional literacy factor were selected to study their relationships with adoption behaviour, which was the dependent variable. The other independent variables were age, farm size, cropping intensity, irrigation potential, social participation, knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolitan sources, use of inter-personal localite sources and attitude towards functional literacy.

The data were collected by interviewing the farmers individually with the help of a schedule developed by the investigator for this study and were analysed by simple correlation, multiple correlation and regression and highest order partial correlation.

The findings of the study are summarised and presented below:

A. EXTENT OF ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:

The study revealed that 45.33 and 50.66 per cent of

farmers in the experimental group were high and medium adopters, and only 4 per cent were low adopters. But in the control group 53.85 per cent of farmers were low adopters while only 40 and 6.15 per cent of farmers were medium and high adopters. These findings suggest the role of functional literacy in the adoption of improved agricultural technology. Further, the findings suggest that there is a need to emphasise upon the vocational aspect of the programme so that the adoption level of participant farmers may be raised from medium to high, and then only the programme may be envisaged to make any substantial impact on agricultural development.

**B. RELATIONSHIP BETWEEN SELECTED VARIABLES AND ADOPTION OF IMPROVED RICE CULTIVATION PRACTICES:**

Simple correlation analysis revealed that out of the eleven variables studied, six factors, namely, cropping, intensity, irrigation potential, knowledge on improved rice culture, use of mass media, attitude towards functional literacy and functional literacy attainment were found to be positively and significantly related to the adoption behaviour of farmers in the experimental group. These correlation coefficients were significant at 0.01 level of probability. Two variables, namely, social participation and use of inter-personal cosmopolite sources had positive and significant relationship with the adoption behaviour of farmers in the Group at 0.05

level of probability, while use of inter-personal localite sources was having negative and significant relationship, at 0.05 level of probability. Relationship of age and farm size with adoption was not significant.

Out of the ten variables in the control group, all the factors except age were found to be significantly related with adoption behaviour of farmers at 0.01 level of probability. While the relationships of farm size, cropping intensity, irrigation potential, social participation, knowledge on improved rice culture, use of mass media, use of inter-personal cosmopolite sources and attitude towards functional literacy were positive and significant, that of the use of inter-personal localite sources was found to be negative and significant.

C. PREDICTIVE POWER OF SELECTED VARIABLES IN EXPLAINING THE ADOPTION BEHAVIOUR:

The multiple correlation and regression analysis of data indicated that variables in multiple regression equation for respective groups explained about 53 and 75 per cent variation in adoption behaviour of farmers of experimental group and control group respectively.

In the experimental group, the important variables in the order of their beta weights were knowledge on improved rice

culture, functional literacy attainment, and attitude towards functional literacy. These three variables were significant. However, the most important variable in this group was knowledge on improved rice culture.

The important variables in the order of their beta weights were social participation, use of inter-personal cosmopolite sources of information, knowledge on improved rice culture and farm size in the control group. Of these, only social participation and use of inter-personal cosmopolite sources gave significant partial regression coefficients. Social participation was the most important variable in respect of its beta weight.

D. RELATIVE AND DIFFERENTIAL IMPACT OF SELECTED VARIABLES AND FUNCTIONAL LITERACY PROGRAMME ON THE ADOPTION BEHAVIOUR:

The highest order partial correlation analysis revealed that only one variable viz., knowledge on improved rice culture recorded the highest and significant net association with adoption behaviour of farmers in the experimental group. It was further observed that functional literacy attainment recorded the second highest net association, though the  $r^*$  value for this variable was not significant.

In the control group, social participation and use of inter-personal cosmopolite sources recorded the highest and

significant net association with adoption behaviour of farmers. It was seen that the knowledge on improved rice culture also recorded a high net association, though the  $r^*$  value for this variable was not significant.

E. RELATED FINDINGS:

The study revealed that 50.71 per cent of farmers did not attend school/dropped out due to poverty and lack of finance. Other reasons for not attending school/dropping out were disinterestedness (19.29%), education was considered not necessary for a farmer (13.57%) and unfavourable conditions (16.43%).

F. IMPLICATIONS:

The results of partial correlation analysis indicate that the apparent relationship of the independent variables with adoption behaviour shown in the simple correlation analysis is not due to the inherent capacity of the different variables, but, may be because of their inter-correlation with the other variables.

The square of the multiple correlation co-efficient ( $R^2$ ) of 0.5347 (53%) between the different independent variables and the adoption behaviour of farmers in the experimental group indicates that a good deal of variation in adoption behaviour (47%) remains to be accounted for.

As much as knowledge plays subtle, but important role in decision making process, the main task before the Farmers' Functional Literacy Programme is to increase the knowledge of the participants which may help them to take sound decisions and to accelerate the adoption of improved farm technology. But this is neither an easy nor a simple job. Acquisition and utilization of knowledge depend on several factors directly and indirectly related to it. Therefore, while formulating literacy programmes for farmers, emphasis should be placed on the content, the method of transmission and the order of transmission of the knowledge in the increasing order of complexity for comprehension. These are very important for the gain in knowledge by an individual. The services of experts in the concerned subject areas and the extension specialists may be made use of in devising such a programme.

Further studies should, not only refine the measures used in the present study, but also introduce other relevant variables in order to obtain more conclusive results.

---

## **REFERENCES**

## REFERENCES

- Anonymous (1975) Adult Education and National Development - Concepts and Practices in India. Directorate of Adult Education, Govt. of India.
- \* Beal, G.M. and Sibley, D.N. (1967) Adoption of agricultural technology by the Indians of Guatemala. Rural Sociology Report No.62. Amer. Iowa; Department of Sociology and Anthropology, Iowa State University.
- \* Bose, S.P. and Dasgupta, S. (1962) The Adoption Process. Socio-Agro-Economic Research Organisation Extension Bulletin 1, Department of Agriculture, Govt. of West Bengal.
- Bose, S.P. (1965) Socio-cultural factors in farm efficiency. Ind. J. Ext. Educ., 1 : 194.
- Chand, R and Gupta, M.L. (1966) A Study of the adopters of improved farm practices and their characteristics. Ind. J. Ext. Educ., 1 : 261.
- Chattopadhyay, S.N. (1963) A Study of some psychological correlates of adoption of innovations in farming. Unpubl. Ph.D. thesis, Indian Agri. Res. Inst., New Delhi.
- Choukidar, V.V. and George, P.S. (1972) Adoption behaviour and characteristics of farmers. Ind. J. Ext. Educ. 9(3): 40-53.
- Cronbach, L.J. (1949) Essentials of Psychological Testing. Harper and Bros., New York.
- Dasgupta, S. (1965) Communication and innovation in Indian Villages. Social Forces, 42 : 330-337.



Deshpande, V.R. (1962) Socio-economic aspects of introducing cow-dung gas plant. Unpubl. M.Sc. thesis, Indian Agri. Res. Inst., New Delhi.

Directorate of Economics and Statistics (1967) Report on the High Yielding Variety Programme, Studies in eight districts, Kharif 1966-'67, Ministry of Food, Ag. C.D. and Co-operation, Govt. of India.

Directorate of Adult Education (1971) A Pilot Evaluation Study of Farmers' Functional Literacy Programme, In "Farmers' Functional Literacy Programme - Folder 1", Ministry of Education and Social Welfare, Government of India.

Directorate of Adult Education (1972). Socio-economic impact of Functional Literacy Programme. In "Farmers' Functional Literacy Programme - Folder 1", Ministry of Education and Social Welfare, Govt. of India.

Drewer, J. (1952). A Dictionary of Psychology, Penguin Books Ltd., Middlesex, England.

Edwards, A.L. (1957) Technique of Attitude Scale Construction Appleton Century Crofts, Inc., New York.

Edwards, A.L. and Kenny, K.C. (1949) A comparison of Thurstone and Likert techniques of Attitude scale construction Journal of Applied Psychology 30 : 72-83.

English, H.E. and English A.C. (1958) A Comprehensive Dictionary of Psychological and Psycho-Analytical terms. Longmans Green and Co., New York.

Extension Education Institute (1970) Impact of the Functional Literacy on Agricultural Development, In "Farmers' Functional Literacy Programme - Folder 1", Directorate of Adult Education, Ministry of Education and Social Welfare, Govt. of India.

- Cadgil (1945) Study on the problems of lapse into illiteracy. In H. Venkataiah (1977) Some thoughts about research in Adult Education. Ind. J. Adult Education. 38 (1) : 40.
- \* Goldson, R.K. and Ralis, M. (1957) Factors related to acceptance of innovations in Bang Chen, Thailand, Ithaca, New York : Cornell University, Department of Far Eastern Studies Data Paper, 25.
- Grewal, I.S. and Sohal, T.S. (1971) Comparative role of two Social Systems in the speed of Adoption of some Farm Practices. Ind. J. Ext. Educ. 7 (1 & 2) : 1-6.
- Guilford, J.P. (1954) Psychometric methods Mc Gram Hill Book Co. Inc., New York.
- \* Hess, C.V. and Miller, L.F. (1954) Some Personal, Economic and Social Factors Influencing Dairyman's Action and Success. University Park, Pennsylvania Experiment Station Bulletin, 577.
- Jaiswal, N.K. (1965) A Study of factors associated with low level of adoption of improved agricultural practices. Unpubl. Ph. D. Thesis, Indian Agri. Res. Inst., New Delhi.
- Jaiswal, N.K. and Arya, H.P.S. (1974) Problems in diffusion of agricultural innovations and functional education programmes, Ind. J. Adult Education 35 (8) : 19-26.
- Jha, P.N. and Shaktawat, G.S. (1972) Adoption behaviour of Farmers towards Hybrid Bajra cultivation. Ind. J. Ext. Educ. 7 (1 & 2) : 24-31.
- \* Johnson, G.L. and Haver, C.E. (1953) Decision making Principles in Farm Management. Kentucky Agricultural Experiment Stations Bulletin, 593.

Kalamegan, D.V. and Menon, K.R. (1977). Communication behaviour of small farmers in a progressive village and less progressive village. Madras Agric. J. 64 (5) : 325-329.

Karim, A.S.M Z and Mahboob, S.G. (1974). Relationships of selected characteristic of transplanted Aman rice growers with their adoption of fertilisers in a rural area in Bangladesh. Ind. J. Ext. Educ. 10 (1 & 2) : 16-22.

Katz, D and Scotland, E (1959) A Preliminary statement to a theory of attitude structure and change. In Koch, S (ed.) Psychology, a study of a science, Vol. 3, Mc Graw Hill Book Co., New York.

Kerala Agricultural University (1976) Package of Practices Recommendation, Directorate of Extension Education, Trichur.

Kishore, D and Rai, S.J. (1974) Literacy and adoption of improved farm practices. Ind. J. Adult Education 25 (11): 94-96.

Kolte, R.V. (1967) A study of Differential Characteristics of Farmers having mechanised and non-mechanised farms and problem and factors associated with mechanisation of farms. Unpubl. M.Sc. thesis, Indian Agri. Res. Inst., New Delhi.

Krech, D and Crutchfield, R.S. (1948) Theory and Problems of Social Psychology, Mc Graw Hill Book Co., Inc., New York.

Lerner, D (1958) The Passing of Traditional Society: Modernizing the Middle East, Free Press, New York.

Lindquist, E.F. (1951) Educational measurement, Council on Education, Amer., Washington.

Lionberger, H.F. (1960) Adoption of new ideas and practices. Iowa State University Press, Iowa, Ames.

Literacy House (1973) Literacy Today - A Panorama of Adult Literacy, Lucknow, India, 1 (1 & 2) : 4-6.

Majundar, A.K. and Majundar, P.K. (1967) Adoption and some psychological characteristics of farmers. Ind. J. Ext. Educ. 3 : 138- 142.

Mathur, J.C. (1972) The Concept of Life-long Education for Adults. Ind. J. Adult Education. 33 (11).

Mathur, P.N., Singh, K.N. and Lokhande, M.R. (1974) Source utilization and rate of spread of information on high yielding varieties of wheat in a farming community. Indi J. Ext. Educ. 10 (1 & 2):23-29.

Ministry of Food, Agriculture and Community Development (1969) Report of the Evaluation Committee on Farmers' Functional Literacy Programme. In "Farmers' Functional Literacy Programme - Folder 1", Ministry of Education and Social Welfare, Govt. of India.

Horstain, F.D. and Smart, C.J. (1974) Reasons for participation in Adult Education Courses: A Multi-variable Analysis of Group Differences. Adult Education 24 (2) :

Moulik, T.K. (1965) A study of predictive values of some factors of adoption of nitrogenous fertilisers and the influence of Sources of information on adoption behaviours, Unpubl. Ph.D. thesis, Indian Agri. Res. Insti., New Delhi.

Nair, G.T. (1969) A Multi-variable study on Adoption of High Yielding Paddy Varieties by the Farmers of Kerala State Unpubl. Ph.D. thesis, Indian Agri. Res. Inst., New Delhi.

Newcomb, T.M. (1960) Social Psychology Holt, Rinehart and Winston, Inc., New York.

Parsons, T. and Shils, E.A. (eds.) (1951) Towards a General Theory of Action, Harvard University Press, Massachusetts, Cambridge.

Pathak, S and Dargan, K.S. (1971) Impact of Package Programme Works on Jute growers and their reactions to different improved practices of Jute cultivation. Ind. J. Ext. Educ. 7 (1 & 2): 21-28.

Pattanayak, D.P. (1978) A curriculum for Adult Education Indian J. Adult Education 39 (4) : 9-14.

Paul, R. S. (1970) A critical Study of Farmers' Training and Education Programme in relation to the changes in their Behavioural Components. Unpubl. Ph.D. thesis, Indian Agri. Res. Inst., New Delhi.

Perumal, G and Duraiswamy (1972) Influence of Personal and Situational Characters on the Adoption of Hybrid Maize Cultivation by Farmers of Coimbatore District. Madras, Agri. J. 59 (4) : 209-213.

Programme Evaluation Organisation (1958) Evaluation report of working of community projects and N.E.S. Blocks, Planning Commission, Government of India.

Qutub, I.Y. Mansour, R.F. and Khater, M.R. (1973) Illiteracy as an impediment to production (An Investigation) Ind. J. Adult Education 34 (2):7-10.

Pahudkar, W.B. (1962) Farmer characteristics associated with the adoption and diffusion of improved farm practices. Ind. J. Ag. Econ. 17 (2) : 82-85.

Rao, B.N., (1968) A Study on preferential adoption of package of practices for high yielding varieties of rice in Andhra Pradesh. Unpubl. M.Sc. thesis, Indian Agri. Res. Inst., New Delhi.

Reddy, M.S.K. (1962) A Study on Adoption of improved agricultural practices as a function of some socio-economic factors and sources of information. Unpubl. M.Sc. thesis, Indian Agri. Res. Inst. New Delhi.

Reddy M., Raghava, V., and Lakshmana, C. (1969) Extent of adoption and adoption categories among the paddy growers in a selected Block in Guntur District. Andhra Agricultural Journal 16 : 43-49.

Reddy, S.K. and Murthy, R. (1973) Impact of Functional Literacy on Agricultural Development. Ind. J. Adult Education, 34 (7) 3-6; 18-20

Remmers, H.H., Coge, H.L. and Ruzzel, J.F. (1967) A Practical Introduction to Measurement and Evaluation, Harper & Row, London & John Weather Hill, Inc., Tokyo.

Rogers, E.M. (1957) Personality correlates of the Adoption of Technological Practices. Rural Soc. 22 : 267-268.

\* Rogers, E.M. (1961) Characteristics of Agricultural Innovators and other Adopter Categories. Wooster Ohio Agricultural Experiment Station Research Bulletin, 1882.

\* Rogers, E.M. and Havens, A.E. (1961) The Impact of demonstration on farmer's attitude towards fertilizers. Wooster, Ohio Agril. Expt. Stn., R. Bul. 891.

Rogers, E.M. (1962) Diffusion of Innovation. Free Press, New York.

Rogers, E.M. and Svenning, L. (1969) Modernization among peasants - The Impact of communication. Reinhart and Winston, Inc., New York.

\* Roy, R.N. (1960) Causes of Success and Failure of Improved Farm Practices, B.A.C. Sabour, Research Foundation Bulletin 2 : 35-37.

Roy, P. Fliegel, F.C. Kivlin, J.E. and Sen, L.K. (1968) Agricultural innovation among Indian Farmers. National Institute of Community Development, Hyderabad.

Koy, P., Paiseanen, P.D. and Rogers, P.M. (1969). The Impact of Communication on Rural Development - An Investigation in Costa Rica and India. National Institute of Community Development, India and UNFSCG, Paris.

Salunkhe, G.V. and Thorat, S.S. (1975). Adoption behaviour of small farmers in relation to their Personal Characteristics. Ind. J. Ext. Educ. 11 (1 & 2) : 67-69.

Sethi, M.L. (1957). Investigations on the extension methods already employed to intensify the use of manures and fertilisers, their limitations and suggested lines of improvement, Associateship thesis, Indian Agri. Res. Inst., New Delhi.

Shankariah, Ch. (1965) A Study of differential characteristics of vegetable and non-vegetable growers and factors associated with adoption of improved practices of vegetable cultivation. Unpubl. B.Sc. thesis, Indian Agri. Res. Inst., New Delhi.

Sherma, D.K. (1966) Role of information sources and communication channels in adoption of improved farm practices by farmers in M.P. Ind. J. Ext. Educ. 2 : 143-48.

Singh, Y.P. (1965). A Study of Communication net works in sequential adoption and key communications. Ph. D. thesis, Indian Agri. Res. Inst., New Delhi.

Singh, B.N. and Jha, P.N. (1965) Utilization of Sources of farm information in relation to adoption of improved agricultural practices, Ind. J. Ext. Educ. 1 : 34-42.

Singh, R.N. (1968) Characteristics of farm innovations associated with the rate of adoption. Ind. J. Agri. Econ. 21 (1) : 71-78

Singh, Y.P. and Babu, V.K. (1968) A Study of Adoption of Improved Farm Practices as a Function of Positive Value, Ind. J. Ext. Educ. 4 (3 & 4) : 71-77.

Singh, S.H. and Singh, K.N. (1970) A multi-variable analysis of adoption behaviour of farmers. Ind. J. Ext. Educ. 6 (3 & 4): 39-44.

Singh, K.M.P. and Singh, K.P. (1974). Impact of National Demonstration in the Adoption of High Yielding Varieties of Wheat. Ind. J. Ext. Educ. 10 (1 & 2) : 65-67.

Singh, S.P. and Prasad, C. (1974) Communication behaviour and source credibility perception of young farmers. Ind. J. Ext. Educ. 10. (1 & 2) : 53-58.

Singh, Amar (1977) Impact of Farmers' Training Programme. Ind. J. Adult Education. 33 (5) : 25-35.

Sinha, P.R.N. and Kolte, N.V. (1974) Adult Education in relation to Agricultural Development. National Institute of Community Development, Hyderabad. and UNFSCO, Paris.

Supe, S.V. (1968) Factors related to different degree of rationality in decision making among farmers in Buldana district, Unpubl. Ph. D. thesis, Indian Agri. Res. Inst., New Delhi.

Supe, S.V. (1971) Farmers' Information Source Credibility and its relation to their rational and adoption behaviour. Ind. J. Ext. Educ. 7 (1 & 2) : 29-33.

Supe, S.V. and Salode, M.S. (1975) Impact of National Demonstration on Knowledge and adoption level of farmer participants. Ind. J. Ext. Educ. 9 (1 & 2) : 36-39.

Thurstone, L.L. and Cheve, F.J. (1929) The Measurement of Attitude. Chicago University Press, Chicago.

Thurstone, L.L. (1946) Comment. American J. Sociology. 52 : 39-50.



Trivedi, G. (1963) Measurement analysis of Socio-economic status of rural families. Unpubl. Ph. D. thesis, Indian Agri. Res. Inst., New Delhi.

Veeraraghavan, J. (1974) Motivation and Adult Education. Ind. J. Adult Education. 35 (4 & 5) : 18-21.

Venkataih, N. (1977) Impact of Farmers' Functional Literacy Programme on the participants in Andhra Pradesh Ind. J. Adult Educ. 38. (3).

\* Vyas, V.S., Tyagi, D.S. and Misra, V.N. (1969) Significance of new strategy of Agricultural Development for small farmers: A Cross sectional study of two areas of Gujarat, Agro-Economic Research Centre, Sardar Patel University.

Ward, W.P. and Herzog, A.H. (1977). Programme of Studies in Non-formal Education - Study Team Reports, Michigan State University, Lansing.

Wilkening, E.A. (1952) Informal leaders and innovators in farm practice Rural Soc. 17. 272-275.

Wilkening, E.A. (1962). Communication and acceptance of recommended farm practices among dairy farmers of Northern Victoria. Rural Soc. 27: 116-117.

\* Original not seen

## **APPENDICES**

APPENDIX - I

INTERVIEW SCHEDULE

Serial No:

Date:

Name of Block

Name and address of Literacy  
Centre:

1 Name and Address of the  
respondent:

2 Age (completed years)

3 Occupation: a) Main  
b) Subsidiary

4 Educational Background:

(a) Did you ever go to school? Yes/No

(b) If no, give reasons for your  
not attending school:

(c) If yes, upto what standard  
did you receive education?  
(Specify)

(d) At what age and year did  
you drop out?

(e) Give reasons for dropping out:

(f) Have you attended any literacy: Yes/No  
Class held before?

(g) If yes, give details:

(i) Place :  
(ii) Duration :  
(iii) Whether completed the course  
or not :

5. Farm size:

(a) Land owned: Wet : Dry

(b) Land cultivated:

	Wet	Dry
	Single/Double/Triple cropped	Single/Double/Triple cropped

6. Irrigation:

Name of Crop	Sources of Irrigation	Mode of Irrigation

7. Crops:

Name of Crop	Area under cultivation		Varieties used
	Irrigated/Unirrigated	Area under varieties HYV/Local Varieties	

8. Participation in organisations:

Organization (Specify the kind of Organization and also its name and address)	Do not Participate	Participate
		As member/As Office bearer (Specify the Office)

9. Knowledge test:

Please give your response to the following questions about the practices recommended for cultivation of high yielding varieties of paddy.

- 1) Generally, high yielding varieties of rice are dwarf  
Yes/No.
- 2) They are responsive to high doses of fertilizer application  
Yes/No.
- 3) They lodge easily  
Yes/No.
- 4) Seed rates vary for broadcasting and for transplanting  
Yes/No.
- 5) The purpose of seed treatment is.....
- 6) The chemical used for treatment is Agrosan/  
Bordeaux mixture.
- 7) Farmyard manure is to be incorporated in the soil at the time of preparation of the main field.  
Yes/No.
- 8) The purpose of application of lime is.....
- 9) Seedlings of short duration rice varieties should be transplanted at 4 to 5 leaf stage  
Yes/No.
- 10) Farmyard manure contains nitrogen, phosphorus and Potassium  
Yes/No.
- 11) The recommended dose of fertilizer for a short duration rice variety like Triveni is 70 : 35 : 35.  
Yes/No.
- 12) Urea is a nitrogenous fertilizer.  
Yes/No.
- 13) How is urea applied in the field
- 14) Phosphatic fertilizers are generally given as basal dose in single dose.  
Yes/No.
- 15) It is not advisable to keep the rice field submerged under water throughout.  
Yes/No.

- 16) The field should be drained about one week before harvest Yes/No.
- 17) Name a commonly used fungicide
- 18) How will you control blast disease?
- 19) Lkalux is an insecticide Yes/No.
- 20) What is the method of controlling rice bug?

10. Information sources used:

a) Please indicate from which of the following sources (other than functional literacy class) you used to obtain technical information about the cultivation of high yielding varieties of paddy and how often?

Source	Most Often (Once in a week)	Often (once in a month)	Sometime (Once in 2 months)	Never
--------	-----------------------------------	-------------------------------	-----------------------------------	-------

1. Mass Media

- a) News paper  
b) Radio  
c) Others (specify)

2. Inter-personal  
cosmopolite sources:

- a) B.D.O.  
b) J.A.O.  
c) V.F.O.  
d) Field  
demonstrations  
e) Others (specify)

3. Inter-personal  
localite sources:

- a) Neighbours  
b) Friends  
c) Relatives  
d) Others (specify)



<u>Sl.No.</u>	<u>Statement</u>	<u>S.A.</u>	<u>A.</u>	<u>UD.</u>	<u>D.A.</u>	<u>SDA</u>
7.	I think adults can learn as easily as children.					
8.	The benefits from this programme are too obscure to justify it.					
9.	The programme provides the farmers with good lessons to lead a democratic way of living.					
10.	The programme of this kind must terminated immediately.					

12. Adoption of improved farm practices in rice cultivation:

1. a) Do you use improved seeds? Yes/No.
  - b) If yes, give the name of variety(ies)used
  - c) Area under H.Y.V.seeds
  - d) Area under local varieties
  - e) When did you start using the improved seeds?
    - i) Before joining the literacy class
    - ii) After joining the literacy class
  - f) Who provided you information about H.Y.V.seeds?
    - i) Literacy classes
    - ii) Other sources (specify)
  
2. a) Do you adopt seed treatment before sowing the seeds? Yes/No.
  - b) If yes, since when?
    - i) Before joining the literacy class
    - ii) After joining the literacy class
  - c) Who provided you information about seed treatment?
    - i) Literacy classes
    - ii) Other sources (specify)



3. a) What is the spacing you follow between rows?  
 b) Give the spacing you follow between plants?  
 c) When did you start adopting the recommended spacing?  
 i) Before joining the literacy class  
 ii) After joining the literacy class  
 d) Who provided you information about this spacing?  
 i) Literacy classes  
 ii) Other sources (specify)
4. a) Do you use chemical fertilisers? Yes/No.  
 b) If yes, give the dose for the variety cultivated by you.
- |                         | Dose |   |   | Amount |
|-------------------------|------|---|---|--------|
|                         | N    | P | K |        |
| High yielding varieties |      |   |   |        |
| Local varieties         |      |   |   |        |
- c) When did you start using the chemical fertilisers?  
 i) Before joining the literacy class  
 ii) After joining the literacy class  
 d) What is the source of information about chemical fertilizers?  
 i) Literacy classes  
 ii) Other sources (specify)
5. a) What are the plant protection measures you follow?  
 1)  
 2)  
 3)  
 b) Since when you are following this?  
 Before joining the literacy class  
 After joining the literacy class

c. What is the coverage of plant protection measure?

Area protected

High Yielding varieties:

Local varieties:

d. Who provided you information about plant protection measures?

a) Literacy classes

b) Other sources (specify)

---

APPENDIX II

പാലക്കാട് ജില്ലാ പബ്ലിക് വർക്കസ്, കിഴക്കൻ ഭാഗം ജില്ല

സംസ്ഥാന പബ്ലിക് വർക്കസ് (1976-77)

പേര് .....

പഠിച്ചതും അല്ലെങ്കിൽ പട്ടണത്തിന്റെ പേര് .....

ജന്മം - 1½ മാസങ്ങൾ

ജനക 100 രൂപ

1 കമ്മ്യൂണിക്കേഷൻ പബ്ലിക് വർക്കസ് 5 വർഷം

1) 3) 5)

2) 4) 10

2 കമ്മ്യൂണിക്കേഷൻ പബ്ലിക് വർക്കസ് വിദ്യാഭ്യാസ രേഖകൾ പൂരിപ്പിക്കുക.

1) കെ---മം 2) കിഴക്കൻ--- 3) തൃനി---

4) മെ---നി 5) വാഴ---ഗം 10

3 പൂരിപ്പിക്കുക:

1) ഒരു കീഴ്വരണം അല്ലെങ്കിൽ ----- ഗ്രാം ജനം.

2) കമ്മ്യൂണിക്കേഷൻ രേഖകൾ പൂരിപ്പിക്കുക ----- ഉൾപ്പെടെ.

3) 10 പ്രമാണങ്ങൾ ----- വർഷങ്ങൾ കടന്നു.

4) 1 പബ്ലിക് വർക്കസ് ----- പബ്ലിക് വർക്കസ് ഉൾപ്പെടെ.

5) ഒരു വർഷം ----- വിവരം

6) കമ്മ്യൂണിക്കേഷൻ പബ്ലിക് വർക്കസ് ----- ഉൾപ്പെടെ.

7) നമ്മുടെ രാജ്യത്തിൽ മുഖ്യ, വെള്ള, -----  
അതിനുള്ളിൽ.

8) കേരളത്തിൽ ----- ജില്ലകൾ ഉൾപ്പെടെ.

9) തൃനിത ഒരു ----- വർഷം.

10) ----- ഒരു കിഴക്കൻ ജില്ലാ പബ്ലിക് വർക്കസ് 10

3				දුර්වල මින	
				සුභසමය සංවිධානය ප්‍රධාන මණ්ඩලයේ	11
3				දුර්වල මින	
				මිනිසුන්ගේ සාමාන්‍ය ජීවිතයේ සහ සමාජයේ	10
				සහ සමාජයේ සහ සමාජයේ සහ සමාජයේ	
				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	8
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	
3				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	8
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	
6				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	7
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	
6				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	6
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	
6				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	5
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	
6				දුර්වල මින	
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	4
				සමාජයේ සහ සමාජයේ සහ සමාජයේ	



- 2) ദേശീയതയുടെ ദൈർഘ്യമെത്രാളെന്ന് പ്രശ്നം എന്ത്?
- 3) അത്യന്തപ്രധാനപ്പെട്ടിട്ടുള്ളതെന്തെല്ലാം നിലനിർത്തിക്കൊണ്ടിരിക്കേണ്ടത് പറ്റുക?
- 4) ദൈവ വാക്യം എന്താണ് എന്ത്?
- 5) ദൈവം എന്തിനെപ്പറ്റി പ്രസംഗിക്കുന്നു?
- 6) ദൈവത്തെക്കുറിച്ച് എല്ലാവിധ കർമ്മകർമ്മങ്ങളിലൂടെയും അറിയാൻ സാധിക്കുമോ?
- 7) കർമ്മങ്ങളെല്ലാം തന്നെ ദൈവത്തിൽനിന്നുതന്നെ ഉത്ഭവിക്കാൻ പറ്റിയല്ലോ എന്ന് എന്തുകൊണ്ട്?
- 8) ദൈവം എന്തിനെക്കുറിച്ചാണ് സംസാരിക്കുന്നത്?
- 9) ദൈവം ദൈവത്തെക്കുറിച്ച് എന്തിനെക്കുറിച്ച് സംസാരിക്കുന്നു?
- 10) ദൈവം ദൈവത്തെക്കുറിച്ച് എന്തിനെക്കുറിച്ച് സംസാരിക്കുന്നു?
- 11) ദൈവത്തെക്കുറിച്ച് എന്തിനെക്കുറിച്ച് സംസാരിക്കുന്നു? 4 എണ്ണം പറയുക? 15

കമ്മ്യൂണിക്കേഷൻ

# **A STUDY ON FARMERS' FUNCTIONAL LITERACY PROGRAMME**

**R. MURALEEDHARA PRASAD**

## **ABSTRACT OF THESIS**

SUBMITTED IN PARTIAL FULFILMENT OF  
THE REQUIREMENT FOR THE DEGREE  
**MASTER OF SCIENCE IN AGRICULTURE**  
( AGRICULTURAL EXTENSION )  
FACULTY OF AGRICULTURE  
KERALA AGRICULTURAL UNIVERSITY

DEPARTMENT OF AGRICULTURAL EXTENSION  
COLLEGE OF AGRICULTURE, VELLAYANI  
TRIVANDRUM

**1978**

## ABSTRACT

In a study carried out in selected functional literacy centres in Trivandrum District employing a control group comparable to the experimental group in all respects except in functional literacy, to investigate the impact of Farmers' Functional Literacy Programme on the adoption of improved agricultural technology in respect of rice by the participants of the programme, it was found that majority (96, ) of farmer participants of the Literacy Programme were either high or medium adopters as against 53.85 per cent of farmers in the control group who were low adopters. Functional literacy attainment was positively and significantly related to the adoption behaviour of farmers.

Though the simple correlation analysis revealed an apparent relationship of most of the selected independent variables with the adoption behaviour of farmers, results of partial correlation analysis indicated that this was not due to the inherent capacity of these independent variables, but because of the inter-correlation of each variable with the other variables.



The factors included in the regression equation explained for 75 per cent variation in the adoption behaviour of farmers in the control group, of which social participation and use of inter-personal cosmopolitan sources gave significant partial regression coefficients. Highest order partial correlation analysis also revealed that these two factors were significantly related with the adoption behaviour of farmers.

The factors included in the regression equation explained for 53 per cent variation in the adoption behaviour of farmers in the experimental group, of which knowledge on improved rice culture, functional literacy attainment and attitude towards functional literacy gave significant partial regression coefficients. Knowledge on improved rice culture obtained the highest value for beta weight which was the only significant variable in the highest order partial correlation analysis. On the basis of this single observation, it is suggested that while formulating similar programmes, emphasis should be placed on the content, the method of transmission and the order of transmission of knowledge in the increasing order of complexity for comprehension.

---