IMPACT OF FARMERS' INSTITUTIONAL TRAINING ON KNOWLEDGE AND ADOPTION OF IMPROVED PRACTICES OF RAINFED GROUNDNUT IN ANANTAPUR DISTRICT OF ANDHRA PRADESH

Thesis submitted to the
Andhra pradesh Agricultural University
in part fulfilment of the requirements for the
award of the degree of
MASTER OF SCIENCE IN AGRICULTURE
(EXTENSION EDUCATION)

By
GONCHIKAR NARASAPPA, *B.Sc., (Ag.)*

Department of Extension Education
SRI VENKATESWARA AGRICULTURAL COLLEGE
ANDHRA PRADESH AGRICULTURAL UNIVERSITY
TIRUPATI (A.P.)

1991

CERTIFICATE

This is to certify that this thesis entitled "IMPACT OF FARMERS' INSTITUTIONAL TRAINING ON KNOWLEDGE AND ADOPTION OF IMPROVED PRACTICES OF RAINFED GROUNDNUT IN ANANTAPUR DISTRICT OF ANDHRA PRADESH" submitted in part fulfilment of the requirements for the award of the degree of Master of Science in Agriculture in the major subject of EXTENSION EDUCATION of the Andhra Pradesh Agricultural University is a record of bonafide research work carried out by Sri G. NARASAPPA under my guidance and supervision and that the thesis has not formed in whole or part the basis for the award of any degree or diploma or other similar honour or distinction.

The assistance and help received during the course of investigation have been fully acknowledged.

D. Rama Chandra Reddy 9/2/18

(D. RAMACHANDRA REDDY)
MAJOR ADVISER
&
Assistant Professor
Department of Extension Education
S.V.Agricultural College,Tirupati

ACKNOWLEDGEMENT

I express my deep sense of gratitude and indebtedness to Sri D. Ramachandra Reddy, my major adviser and Assistant Professor, Department of Extension Education, S.V. Agricultural College, Tirupati for his kind, constant and able guidance and supervision in carrying out the research and preparation of this thesis.

I am very much grateful to Sri I. Reddi Babu, Professor-cum-Associate Director of Extension and University Head, Department of Extension Education for his kind suggestions and facilities extended to me in connection with the study.

I am also thankful to Dr. V. Satyanarayana, Associate Director, National Agricultural Research Project, Jagtial for his kind help during the study.

I am highly thankful to Dr. Ch. Satyanarayana, Associate Professor, Department of Extension Education, S.V. Agricultural College, Tirupati for his constructive criticisms and valuable suggestions from time to time. I also express my sincere thanks to Sri B. Ramamoorthy Naidu, Associate Professor, Department of Extension Education, S.V. Agricultural College, Tirupati for his assistance and encouragement at various stages of the work.

I shall always remember the valuable and timely guidance and suggestions extended by Dr. S. Rami Reddy, Associate Professor of Agronomy, S.V. Agricultural College, Tirupati.

My thanks are due to Sri K. Nagi Reddy and Sri M. Munikrishna Reddy, Assistant Professors, Department of Extension Education for their kind suggestions and advice in the preparation of the thesis.

I record my sincere thanks to the Deputy Director of Agriculture, and other staff members of the Farmers' Training Centre, Anantapur for their cooperation in connection with the study. I also owe my gratitude to Sri D.T. Naik, Sri C.N. Sreenivasulu and Sri Jonathan, Agricultural Officers, Rayadurg, Kalyandurg and Penukonda respectively for the help they rendered in the collection of data.

Finally, I wish to thank my colleague, Mr. G.M. Rao and other friends who helped me in preparing this thesis.

(G. NARASAPPA) 5-7-81

CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

CHAPTER I

INTRODUCTION

Modernisation of agriculture lies in the development of rural people whose chief means of livelihood is agriculture. The sucess of national programmes largely depends on scientific agriculture based on latest improvements in agricultural technology and its quick dissemination in an effective way for adoption by farming community.

Numerous institutional and non-institutional communication sources are actively engaged in transmitting technical know-how to the farmers. Various extension methods have been used to expose the farmers to latest developments in agriculture. In spite of these efforts in communicating new technology, it has been estimated that only 20 per cent of the available technology has been adopted by the farmers so far and that too by only 10 per cent farmers (Jaiswal and Arya, 1975).

Historically, there has been greater reliance and attention paid by the administrators and extension workers to either individual or mass methods of teaching. It must be remembered that individual methods are more appropriate for ensuring 'adoption' whereas the mass methods are rightfully considered to be

suitable for creating 'awareness' in the most part and 'interest' to some extent. But the group methods of teaching would be considered to promote 'conviction' mostly and 'adoption' to some extent. Farmers training representing group method of teaching is uniquely suited to achieve certain objectives very proficiently. It is effective in imparting new knowledge, teaching new skills and bringing about desirable change in the behaviour of farmers. There is hardly any gain-saying the fact that best results are achieved when all the methods are employed appropriately (Sehal and Singh, 1970).

NEED FOR FARMERS' TRAINING

The success of new strategy of agriculture will largely depend on the ability of extension worker to involve a large number of farmers-- small and big -- in the intensive agricultural production programmes and to impart them knowledge and skills necessary for large scale adoption of the new technology. Scientific farming demands skilled farmers just as an industry needs skilled workers. The farmers should be trained to acquire skills in the same manner as an industrial worker receives training in his branch of work. The farmers' knowledge on improved varieties and their cultivation details based on latest agricultural technology has to be improved for improving the food production. His skills in efficient use of fertilizers and other

chemicals for plant protection need special consideration for reducing the cost of cultivation, thereby increasing the net returns. The basic problem with us is not poverty of natural resources but the underdeveloped human resources. Hence the first task before us is to build our human capital through an effective system of extension training and farmers' education which aim at improving knowledge and skills. Thus, there is a great need for well developed and organised training programme for the farmers. It was with this background that a systematic training programme for farmers was started by Directorate of Extension, Ministry of Agriculture and Irrigation, Government of India in 1966-67 on a pilot basis, in five districts, viz. Akola (Maharastra), Coimbatore (Tamil Nadu), Raichur (Karnataka), Ludhiana (Punjab), and Lucknow (Uttar Pradesh). This programme was extended to 25 districts in 1967-68, 50 districts in 1968-69, 100 districts in 1973-74, 115 districts in 1976-77.

FARMERS' TRAINING AND FUNCTIONAL LITERACY PROGRAMME

The Farmers' Training and Functional Literacy Programme is an effort to translate the concept of linking education with development, particularly for increasing the production by educating the farmers with latest farm technology. The project is a joint enterprise of three Ministries viz. the Ministries of Agriculture, Education

and Information and Broadcasting and Indian Council of Agricultural Research at national level with assistance from United Nations Development Programme/Food and Agricultural Organisation/United Nations' Educational, Scientific and Cultural Organisation in the form of experts, equipment and awarding fellowships for training. It has three components. (1) Farmers' Training (2) Functional Literacy and (3) Farm Broadcasting.

The Ministry of Agriculture provides the farmers' training and field demonstration facilities, the Ministry of Education provides Functional Literacy and the Ministry of Information and Broadcasting relays special types of farm broadcasts through All India Radio for the participants.

Main Features of the Scheme (Perumal, 1975)

1. The farm family namely -- the farmer, farm women and their grown up children engaged in the farm - is treated as a unit and dealt in the matter of training and education.

2. The training is taken to the farmer and demonstrated on farmers' field in their socio-economic environment to familiarise the proven innovations and to create higher credibility among the participants.

3. The training and education is a continuous process designed to provide in-depth knowledge and understanding and to develop skills necessary for efficient use of inputs in the context of rapidly changing technology and also mobilization of local resources.

4. It provides ample opportunities for identification, growth and development of local leadership through the convenors of Gharchamandals organised under Farmers' Training Programme.

5. The scheme has an inbuilt co-ordination at district, state and national levels to provide continuous guidance, direction and support by all concerned.

Objectives of Farmers' Training

The bread objective of farmers' training is to link up the programme of production inputs with the technical know-how through a well organised training programme of institutional, field-oriented and informal voluntary groups (Baroah, 1967).

The programme envisages to put agriculture on a more scientific and self-sustaining basis by creating proper leadership. The following are some of the specific goals of Farmers' Training and Education Programme.

1. To enable the farmers to gain and apply knowledge about new farming methods.

2. To improve farmers' income and aim at more rural employment.

3. To increase the area under high yielding varieties of crops.

4. To increase the area under multiple cropping.

5. To achieve functional literacy among farm people.

6. To increase the productivity.

Types of Farmers' Training

There are two types of training for farmers (Perumal, 1975).

1. Non-institutional Training

National Demonstrations: The focal point of farmers education is demonstrations organised on farmers' field. In each farmers' training district there are 15 national demonstrations to be conducted by specialists seconded by ICAR or State Government and cover all important crops in rotation.

Secondary Demonstrations: Since National Demonstrations are too limited in scope and coverage to take care of needs of entire district, other scientific demonstrations conducted by the state government and voluntary organisations also serve as venue for farmers' training

in the district. Both in case of national and secondary demonstrations farmers' within walking and cycling distance participate in these demonstrations at the time of important crop operations.

Peripatetic Training: In order to link up the organised demonstrations and other educational efforts in each district, there is a peripatetic team of trained and experienced field personnel supported by specially designed and fully equipped audio-visual-cum-exhibition van for holding training camps on high yielding varieties of crops. The farmers from local and neighbouring villages are invited to participate in these camps. The team spesially deals with the dissemination of information of high yielding varieties programme through films, film strips, crop specimens and other audio-visual media. It also provides extension support to National Demonstrations in the district. In the training camps organised for farm women, stress is laid on storage of food grains, balanced nutrition, kitchen gardening, preservation of fruits and vegetables etc.

Farmers and Farm women Discussion Groups: Farmers/ Farm women Discussion Groups are organised in the villages to serve as media for dissemination of latest information and adoption of improved agricultural practices through group discussions. They are provided with low cost transistorised radio sets and are supported by weekly special

broadcasts. The doubts raised are sent to Radio Contact Officer for clarification. Each group has a convener selected from among the members.

Conducted Tours of Farmers: In the context of fast moving developments in agriculture, the progressive farmers have been provided opportunities for visiting other progressive farms and advanced agricultural institutions.

2. Institutional Training

Specialised Subject Matter Training courses for Farmers and Farm women: Specialised subject matter training to suit the changing needs of agriculture is conducted at Farmers' Training Centres, Agricultural Colleges/Universities/Research Stations etc. These courses generally are of 3 to 5-day duration based on need of subject matter area and local conditions.

Training of conveners of charchamandals or Discussion Groups: Specialised courses have been introduced for conveners of Charchamandals. These are of 3-day duration. The conveners are trained in the areas such as development of leadership qualities, role of leaders, acquiring techniques of holding meetings and group discussions.

Staffing pattern of Farmers' Training Centre:

The staffing pattern consists of a District Training Officer, a Radio Contact Officer, four crop production specialists. In the peripatetic team, there is a provision for two training officers, two demonstrators (one each for men and women) and other supporting staff.

Information Support

The All India Radio will play an important role in Farmers' Training and Education Programme. In each district there will be a Radio Contact Officer who will be responsible for collecting information about high yielding varieties from relevant sources at the district level and to pass on the gathered information to farmers through farm broadcasts. He will receive the information relating to farmers' problems from conveners of charchamandals and secure solutions for the same from the specialists concerned and arrange broadcasts. The demonstrations also form a source of information for broadcasts. The All India Radio had set up Farm and Home units to cater to the requirements of farm information.

Organisational Support

For the successful implementation of Farmers' Training and Education Programme minimum necessary organisational support is envisaged at state as well as national level. This support will be in terms of providing equipment, production of audio-visuals like film strips, provision of publicity van and other educational aids. Similarly, at

the national level, there will be staff for providing essential guidance, organising training programme for trainers at the state and field levels and training in effective communication methods and media securing co-ordination between different agencies.

Co-ordination Committees specially for Farmers' Training and Education Programme have been set up at various levels to formulate policies and programmes and provide guidance in the implementation of various activities covered under the scheme.

Farmers' Training Programme in Andhra Pradesh

Farmers' Training programme was in operation in Andhra Pradesh from 1967-68. Three centres were started in 1967-68 at Rajendranagar (Rangareddi district), Sri Kalahasti (Chittoor district; now transferred to Chittoor) and Gopannapalem (West Godavari district). At present there are nine Farmers' Training Centres in Andhra Pradesh. The other centres operating in Andhra Pradesh are located at Samalkot (East Godavari district), Suryapet (Nalgonda district), Karimnagar, Warangal, Kurnool and Anantapur.

STATEMENT OF THE PROBLEM

Keeping in view the importance of Farmers' Training, a research problem entitled "Impact of Farmers' Institutional Training on Knowledge and Adoption of

of Improved Practices of Rainfed Groundnut in Anantapur district (A.P.)" has been formulated to study its impact on farmers in increasing the food production.

SIGNIFICANCE OF THE STUDY

Farmers' Training Programmes have received considerable attention in the context of increasing the agricultural production. Different training programmes like institutional training, non-institutional training etc., are being conducted at Farmers' Training Centres. It is necessary to evaluate these programmes to know the impact they have made on farmers in acquiring new knowledge and adopting improved practices.

It was felt that the findings would provide necessary insights for the teaching staff of Farmers' Training Centre and also for administrators in making suitable adjustments in future training programmes.

OBJECTIVES OF THE INVESTIGATION

The overall objective of the investigation was to study the impact of institutional training of farmers on knowledge and adoption of recommended practices for groundnut crop.

The following were the specific objectives of the study.

1. To study the impact of training on knowledge of the improved practices for groundnut cultivation.
2. To know the differences in adoption of recommended practices for groundnut between trained and untrained farmers.
3. To study the extent of adoption of individual recommended practices by trained and untrained farmers.
4. To identify and study the reasons for non-adoption of recommended practices.
5. To study the association between knowledge and adoption among trained farmers.
6. To find out the relationship of certain socio-economic and personal factors with knowledge and adoption of recommended practices in trained farmers.

LIMITATIONS OF THE STUDY

1. The study was undertaken in only three Blocks of Anantapur district, keeping in view the limitations of time and resources. Hence the results may not be generalised for the entire state, but may hold good under similar conditions.
2. Only one type of training i.e. institutional training related to improved practices for groundnut cultivation was studied. There are other types like Farmers' Discussion groups, Production-cum-demonstration camps for farm men and women, con-

ducted tours etc., which are not included in the study due to paucity of time and resources.

3. In matching the trained farmers with untrained farmers, it is obviously impossible to control all relevant variables not only because of practical difficulties but also because of our limited knowledge of which variables are actually the most important. There may be important variables many of which are unknown to the researcher and have not been controlled in the matching process. Hence there may be chances which are beyond control.

DEFINITIONS OF IMPORTANT TERMS USED

Training: Training is defined as helping trainees to acquire new knowledge and skills. Training consists of mainly telling, showing and guiding people in performance of tasks and then in checking the results (Haas and Ewing, 1950).

Farmers' Training: Farmers' training is an intensive learning activity for a group of selected farmers, assisted by competent trainers to understand and practice the skills required in the adoption of new technology at a place where appropriate facilities exist and at a time and duration considered suitable by the farmers(Sethurao).

Institutional Training: It is the training imparted to a group of selected farmers at Farmers' Training Centres or at Block headquarters for a specified duration by competent trainers to understand and practice the new techniques of scientific agriculture.

Farmers' Training Centre: It is the place where training is imparted to farmers. It may be interpreted as effective learning situation in which elements, viz., trainee, trainer, subject matter, physical facilities and teaching materials and equipment are present.

Knowledge: Knowledge is a body of information possessed by an individual or by a culture (English and English). Knowledge in this study refers to information given by the farmers on recommended package of practices of groundnut.

Adoption: It is a mental process through which an individual passes from learning about an innovation to final adoption (Rogers, 1962).

In this study adoption refers to use of recommended practices either for one or two or three years.

PRESENTATION OF THE THESIS

The thesis is divided into five chapters. In chapter one introduction to the problem, significance, objectives, limitations of the study, definitions of some important terms used etc., are discussed. Second

chapter deals with review of literature pertaining to the study. In chapter three, research methodology adopted in the study is dealt with including location of the study, sampling, variables used and their measurement, statistical tests used etc. Findings and discussions are reported in the chapter four and this is considered to be the body of the thesis. In the last chapter a summary of the thesis along with conclusions and implications is presented.

CHAPTER XI

REVIEW OF LITERATURE

An attempt had been made to review briefly the available literature relevant to the study under the following heads.

1. Education and Training

Wilson and Gallup (1955) defined education as "the production of desirable changes in human behaviour".

Hass and Ewing (1950) defined training as "helping trainees to acquire new knowledge and skills. Training consists mainly of telling showing and guiding people in the performance of tasks and then in checking the results".

Though the concepts of education and training are very often conceived as synonymous Lynton and Pareek (1967) made a distinction between education and training as follows:

"Education is primarily concerned with opening out the world to the student so that he can choose his interest, mode of living and also his career. Training, on the other hand, is primarily concerned with preparing the participants in certain lines of action which are delineated by technology and by organisation

in which he works. Education helps the students to choose and decide his activity. Training helps the participant to improve the performance. Education deals mostly with understanding and knowledge-- Training deals mostly with understanding and skill".

2. Farmers' Training and Education

Sohan Singh (1957) stated, "Adult education is the acquisition of new ideas, skills, attitudes and understanding by people whose primary occupation in life is other than learning or studentship. In content, therefore, it deals with all problems of man and society, in scope, it covers all population except that part of it which belongs to schools, colleges and vocational institutions and inform it variegated as life itself".

Rao (1961) stated that farmers training is an intensive learning activity for a group of selected farmers, assisted by competent trainers to understand and practice the skills required in adoption of new technology, at a place where appropriate facilities exist and at a time and duration suitable to the farmers.

Workshop on Farmers' Training and Education (1966) conducted by Ministry of Food and Agriculture, Government of India, recommended that adult farmers should be given training in the package of practices and in leader-

ship roles. It also suggested that training should be related to a particular problem so that trainees may be benefited by the knowledge gained from within their field and home.

Emphasising the importance of training in increasing the agricultural production, Sanders (1967) said, "Training is necessary for a job to be done properly. It is necessary to bring about a desire on the part of the masses to increase production, to have the know-how for increasing production, and to have the needed support from Government and the public.

Mathur (1972) has spelled out that the task of farmers training was to provide instruction to primary producer in a specific field as a part of production process. According to him, "farmers education is designed to give the learner the skills necessary to perform more efficiently the vocations to which he belongs and to function more effectively in the environment in which he lives".

3. Impact of Farmers' Training on knowledge

Singh (1968) while analysing farmers training courses in Bihar concluded that in spite of various limitations, the training imparted in agricultural schools proved useful in changing the knowledge of

farmers with respect to improved methods of farming.

Evaluation committee on Farmers' Training and Education Programme (1969) observed that original source of information for many of the farmers in respect of high yielding varieties was the Farmers' Training Programme.

Khuspe (1970) based on his findings of the study in Maharastra concluded that trained farmers differed significantly from untrained farmers with regard to gain in knowledge of package of practices.

Pal (1970) reported that there was significant difference between trained and untrained farmers in knowledge of package of practices for wheat and bajra.

Renukaradhya (1971) found that there was significant gain in knowledge and skills of farmers after they have undergone institutional training at Farmers' Training Centre in Bangalore district.

Somasekharappa (1971) indicated that the gain in knowledge scores of farmers before and after production-cum-demonstration session was highly significant.

Vittal (1971) concluded that training given during production-cum-demonstration camps resulted in increasing the knowledge of farmers significantly.

Trigunayut (1971) while studying the impact of radio on Farmers' Training and Education in Uttar Pradesh reported that there was a significant difference in knowledge due to training between trained and untrained farmers when both the groups were exposed to radio. Similar results were obtained when both the groups were not exposed to radio.

Palled (1972) while working in Mysore on Farmers' Training and Education Programme reported that mean knowledge score of trained farmers was higher than that of untrained farmers.

Sukumaran (1972) reported that knowledge scores of trained farmers were significantly higher than knowledge scores of untrained farmers.

Reddy and Rama Murthy (1973) reported that those farmers who were trained in Functional Literacy Programme had better understanding and knowledge about modern and scientific agriculture than those who were not trained.

Singh (1974) found out that institutionally and non-institutionally trained farmers differed from untrained farmers with respect to knowledge of package of practices of high yielding varieties of wheat in Gwalior district of Madhya Pradesh.

Daulat Singh and Raj Narain (1975) stated that institutional short duration training could be a very effective instrument for bringing about a desired change in the knowledge of farmers about improved agricultural practices. They noticed a significant change in knowledge of improved practices and multiple cropping after training among farmers.

Ganesh (1975) found that impact of training on knowledge was highly significant in respect of water management and hybrid jowar cultivation.

Amar Singh (1977) while evaluating the farmers' training in the districts of Jaipur, Udaipur, Tanjore, Pune and Agra reported that the participating farmers in farmers training were superior to controls with respect to knowledge in all the districts except Tanjore.

Ramakrishna Raju (1978) found that there was significant difference in knowledge of package of practices of high yielding paddy varieties between trained and untrained farmers.

Pathak et al. (1979) while studying the impact of National Demonstrations found that the difference in the knowledge scores was highly significant between national demonstration farmers and non-demonstrating

farmers with respect to improved practices of wheat and jute.

Nandapurkar and Pande (1980) reported that training resulted in gain in knowledge of improved practices to certain extent in Pharbhani district of Maharastra.

4. Impact of Training on Adoption Behaviour of Farmers

Ranjit Singh (1966) concluded that with the poultry training courses at Punjab Agricultural University, Ludhiana poultry farming was popularised and adopted by many young and educated farmers.

Singh (1968) reported that training was very effective in changing the adoption behaviour of farmers with respect to improved farm technology.

Sidhu and Patel (1968) concluded that majority of the trained farmers adopted the improved seeds, manures and fertilizers, improved implements and plant protection measures.

Patel and Patel (1968) while assessing the impact of farmers' training camps at village level, found that most of the trained farmers gained significantly higher adoption scores than untrained farmers.

Evaluation Committee on Farmers' Training and Education Programme (1969) reported that the training camps

have played a significant role in motivating the farmers to adopt improved practices.

Khuspe (1970) concluded that there was significant difference between trained and untrained farmers with regard to adoption of improved practices.

Renukaradhya (1971) reported that level of adoption of high yielding varieties of ragi was higher after the farmers underwent institutional training.

Somasekharappa (1971) concluded that the adoption behaviour of farmers was significantly changed after production-cum-demonstration camps.

Trigunayat (1971) reported that there was no difference in the level of adoption between trained and untrained farmers when both the groups were exposed to radio. But there was significant difference in adoption when both groups were not exposed to radio.

Sukumaran (1972) reported that adoption of package of practices of rice in Kerala was higher in trained farmers than those untrained.

Singh (1974) stated that there was significant difference in extent of adoption of package of practices of wheat between trained and untrained farmers.

Daulat Singh and Raj Narain (1975) reported that institutional short duration training increased the area under improved farm practices and also the productivity of crops.

Ganesh (1975) found that training had a good impact on adoption of improved techniques of jowar cultivation and water management.

Krishna and Jalihal (1976) reported that level of adoption of hybrid maize practices was higher in trained farmers than in untrained farmers.

Amar Singh (1977) concluded that farmers who participated in training camps were superior to non-participant farmers in terms of extent of awareness and adoption in all districts except Tanjore.

Ramakrishna Raju (1978) found that trained farmers had significantly higher adoption scores than untrained farmers with respect to package of practices for high yielding varieties of rice under institutional and non-institutional training.

Nandapurkar and Pande (1980) reported that level of adoption was increased as a result of training given to them.

5. Extent of Adoption of Recommended Practices

Dharmapuri (1968) reported that in groundnut the extent of adoption was high in the case of two practices viz., use of optimum seed rate, and application of farm yard manure. It was medium for two practices i.e. use of improved seed and plant protection. The level of adoption was low in seed treatment and application of recommended dosage of super phosphate.

Ramamurthy Naidu (1968) stated that in groundnut use of improved seed and optimum spacing were followed by majority of the farmers. He also included that level of adoption was medium for practices viz., application of farm yard manure and super phosphate while it was low for seed treatment, weeding and hoeing twice and adoption of plant protection measures.

Somasekharappa (1971) indicated that 79 per cent of the farmers applied fertilizers and 69 per cent of farmers adopted plant protection measures.

Desai (1979) revealed that majority of the participants and non-participants in block demonstrations adopted the practices, namely improved seed, recommended seed rate and correct time of sowing. The complex practices like manures, fertilizers and plant protection were partially adopted by farmers of both the categories.

Dharmapuri (1968) listed the following reasons for non-adoption of improved practices of groundnut.

1. Lack of awareness of the practice.
2. High cost of the inputs like seeds, fertilizers and pesticides.
3. Non-availability of inputs.
4. Lack of equipment like sprayers.

Ramamurthy Naidu (1968) reported that lack of awareness, lack of irrigation, lack of technical help, high cost of the inputs, non-availability of equipment etc., were some of the reasons for non-adoption of improved practices for groundnut.

Bhaskaram (1970) reported that reasons frequently stated by the respondents for non-adoption of some practices were the lack of awareness of the practice, non-availability and high cost of inputs, lack of technical guidance and unsatisfactory personal experience.

Sharma and Nair (1974) found that lack of irrigation, high incidence of pests and diseases, lack of conviction about profitability and lack of finance were the reasons for non-adoption.

Yadkikar and Narayana Rao (1976) stated that high cost of seed, susceptibility to pests and diseases, non-availability of inputs, lack of finance, high cost of

the chemicals, unsatisfactory taste were some of the reasons for non-adoption of hybrid jowar.

Nagendra Nath (1980) reported that the main reasons for non-adoption of certain improved practices of groundnut were illiteracy, poor economic condition of farmers, lack of conviction about utility of improved practice, high initial cost and untimely supply of inputs.

7. Correlation between Knowledge and Adoption

Singh and Singh (1970) and Sharma and Nair (1974) reported that knowledge was positively correlated with adoption of high yielding varieties.

Renukaradhya (1971) and Ganesh (1975) found that there was significant association between knowledge gained due to institutional training and application of the same in the field. They also stated that farmers with average and high knowledge were better in adoption than those who had low level of knowledge.

Singh (1974) and Ramakrishna Raju (1978) reported that there was no significant association between knowledge and adoption of package of practices among trained farmers.

Nagendranath (1980) found that there was positive association between knowledge gained and adoption of improved practices of groundnut among beneficiaries of

Drought Prone Area Programme.

8. Relationship of Certain Personal and Socio-economic Factors with Knowledge and Adoption

Age and Knowledge

Wilson and Gallup (1955) stated that there was an increasingly good response to learning, as the age of the farmers advanced up to 45 years. But the response was less in comparison to younger age group, as the age advanced above 45 years.

Veeraiah (1969) found that young farmers (18-30 years) acquired more knowledge than old farmers.

Trigunayat (1970) reported that there was negative association between age and knowledge in both the farmers training and non-farmers' training districts.

Sastry (1970) and Vittal (1971) concluded that there was no association between age and gain in knowledge, due to training.

Renukaradhya (1971) and Ramakrishna Raju (1978) stated that the gain in knowledge due to training was significant in young farmers compared to old farmers.

Yadkikar and Narayana Rao (1976) reported the existence of positive relation between age and knowledge of farmers who visited National Demonstration Plots.

Venkatappaiah (1977) reported that age of the participants in Functional Literacy Programme was inversely related to acquisition of agricultural knowledge.

Age and Adoption

Rogers (1962) stated that elderly farmers seem to be somewhat less inclined to adopt new practices than younger ones.

Ramamurthy Naidu (1968), Veeraraghava Reddy (1968), Trigunayat (1970) and Ramakrishna Raju (1978) found no association between age and adoption.

Dharmapuri (1968), Renukaradhya (1971), Sinha et al. (1972), Ramuloo (1973) and Nirwal and Arya (1975) reported that young and middle aged farmers are better adopters than old farmers.

Education and Knowledge

Veeraiah (1969) concluded that education and acquisition of knowledge were positively associated.

Sastry (1970), Trigunayat (1970) and Renukaradhya (1971) observed in their studies that there was a positive association between education and gain in knowledge among trained farmers.

Vittal (1971), Ganesh (1975) and Ramakrishna Raju (1978) stated that there was no significant relationship between education and gain in knowledge among trained farmers.

Gupta et al. (1974) found that previous educational background plays a very important role in the attainment of knowledge and confidence about farm technology.

Yadkikar and Narayan Rao (1976) found a positive relation between education and level of knowledge of farmers who visited National Demonstration Plots.

Education and Adoption

Tripathi (1963), Tiwari (1964), Yadava (1964), Dharmapuri (1968), Ramamoorthy Naidu (1968) and Singh (1968) reported the continuous increase in the adoption of innovations as the educational level increased.

Sinha et al. (1972), Kishore and Rai (1975), Gangappa (1975), Singh and Yadav (1978) and Shankar (1979) stated that educational level of farmers significantly influenced adoption behaviour of the farmers.

Renukaradhya (1971) and Ramakrishna Raju (1975) found that there was association between educational level and adoption behaviour of trained farmers.

Trigunayat (1970) concluded that there was no association between education and adoption in farmers' training district, but there was relationship between education and adoption in non-farmers' training districts.

Veeraraghava Reddy (1968), Sharma and Nair (1974), Akhouri and Singh (1974) and Sethu Rao and Krishnan (1976) reported that farmal education was not significantly associated with adoption.

Farm Size and Knowledge

Narayana Rao (1966) and Veeraiah (1969) observed that as the farm size increased gain in knowledge also increased.

Renukaradhya (1971) and Yadkikar and Narayan Rao (1976) stated that there was association between size of the holding and gain in knowledge of trained farmers.

Saatry (1970), Vittal (1971), Ganesh (1975) and Ramakrishna Raju (1978) reported that there was no association between farm size and gain in knowledge among the trained farmers.

Farm size and Adoption

Dharmapuri (1968), Ramamurthy Naidu (1968), Veeraraghava Reddy (1968), Singh and Singh (1970),

Sinha et al. (1972), Singh and Choubey (1974), Sharma and Nair (1974), Nirwal (1975) and Shankar (1979) found that there was positive and significant correlation between farm size and adoption.

Jaiswal et al. (1970) reported that levels of adoption of high yielding varieties did not differ significantly for farmers having different sizes of land holding.

Ranjit Singh and Sharma (1973) reported that small farmers of television village having up to 5 acres of holdings were found as good as those of medium and even large farm group on adoption continuum.

Renukaradhya (1971) found that there was association between the farm size and level of adoption of trained farmers.

Ramakrishna Raju (1978) reported that there was no significant relationship between size of the holding and rate of adoption among trained farmers.

Social Participation and Knowledge

Vittal (1971), Ganesh (1975) and Ramakrishna Raju (1978) stated that there was no relationship between social participation and gain in knowledge among trained farmers.

Social participation and Adoption

Ryon and Gross (1950) in a study of differential acceptance of adopters of hybrid corn established that early adopters had higher social participation in co-operatives.

Tripathi (1963), Tiwari (1964), Yadav (1964) and Varma (1968), Dharmapuri (1968) and Ramamurthy Naidu (1968), Ratanchand and Gupta (1968), Sharma and Nair (1974) found that there was significant and positive association between social participation and adoption.

Ramakrishna Raju (1978) concluded that there was no significant relationship between the social participation and adoption.

Socio-economic status and Knowledge

Bhaskaram and Mahajan (1968); and Narayana Rao and Singh (1973) reported a positive and significant correlation between socio-economic status and knowledge of vegetable growers in respect of improved practices.

Trigunayat (1971), Yadkikar and Narayan Rao(1976) concluded that there was association between knowledge and socio-economic status among trained and untrained farmers.

Socio-economic status and Adoption

Kar et al. (1970) and Ramulee (1973) found that higher socio-economic status to a certain degree facilitates adoption of innovations.

Trigunayat (1971) reported that there was positive association between socio-economic status and adoption among the farmers under Farmers' Training and Education Programme and also in control group.

Rangit Singh and Sharma (1973) stated that socio-economic status was hardly associated with adoption behaviour of farmers in television villages.

Extension contact and knowledge

John Knight (1974) revealed the positive correlation between gain in knowledge and contact with extension agency in respect of interview and mode of presentation.

Yogi Reddy (1980) reported that as the contact with extension agents increased, the gain in knowledge showed a gradual increase.

Extension contact and Adoption

Tiwari (1964), Yadav (1964), Dharmapuri (1968) and Ramamurthy Naidu (1968) reported that farmers who

had higher contacts with change agent were higher adopters of improved agricultural practices.

Kar et al. (1970) found that the relationship between the number of contacts made and the number of innovations adopted was highly correlated.

Sharma and Nair (1974) concluded that there was a positive and significant association between extent of extension contact and adoption.

Economic motivation and Adoption

Das and Sarkar (1970) reported that farmers adopted the new farming practices only for economic gains.

Singh and Singh (1970), Ramuloo (1973), Sharma and Nair (1974) concluded the economic motivation and adoption were significantly and positively related.

Veerasamy and Taj Bahadur (1979) reported that there was association between economic motivation and adoption which suggested that greater the economic motivation, the higher the adoption of rice technology by small farmers.

Risk Preference and Adoption

Singh and Singh (1970), Ramuloo (1973), Sharma and Nair (1974) concluded that risk preference and adoption were significantly and positively associated.

Veerasamy and Tej Bahadur (1979) reported that risk preference had no association with adoption of rice technology by small farmers.

CHAPTER XII

RESEARCH METHODOLOGY

The methodology employed for the study is presented in this chapter. As already stated, this study was an attempt to focuss the impact of Farmers' Institutional Training Programme on acquisition of knowledge and adoption of recommended practices of rainfed groundnut. The details of the methods and materials used in this study are discussed below under the following headings.

1. SAMPLING PROCEDURE

Locale of the study

This study was conducted in selected villages of three panchayat samithi blocks viz., Rayadurg, Kalyandurg and Penukonda of Anantapur district. This district was selected for the purpose of the study because Farmers' Training Centre has been operating in Anantapur since 1975 and no study has been conducted so far on this aspect. Moreover, the investigater hails from this district and it was felt that it would be easy for the researcher in establishing rapport and overcoming some of the socio-cultural barriers. Another reason for selecting this district is that the groundnut crop is being extensively grown under rainfed condition in this district.

Selection of Blocks

There are sixteen Panchayat Samithi Blocks in this district of which three blocks namely Rayadurg, Kalyanadurg and Penukonda were selected on random sampling basis by consulting random numbers.

Selection of Villages

The following criteria were used for selecting the villages.

1. There must be possibility to get as many number of trained farmers as possible in the villages.
2. There must be proper communication facilities to the villages so that the investigator's time and resources are not wasted.
3. The trained farmers must be growing groundnut.

Based on the above criteria the following villages were included in the study.

1. Rayadurg Block: Netrapalli, Vadravannur, Somulapuram Bommakkapalle, Marampalle, B.T.P., Veerapuram, Ithepalle, Herehal.
2. Kalyanadurg Block: Ontimidde, Ulikallu, Thimmaganipalli, C. Kodipalli, Ankampalli, Gangavaram, Narsapur.
3. Penukonda Block: Gonipenta, Somandapalli, Pedapalli, Thurakalapatnam, Guttur.

Selection of Respondents

All the trained farmers in the selected villages were included in the study. Besides trained farmers, other farmers who have not undergone any training were also selected from the same villages for comparison regarding knowledge and adoption. An attempt was made to match trained farmers with untrained farmers in the same village with respect to selected variables.

There were 17 institutionally trained farmers in each of the Rayadurg and Kalyanadurg blocks and 21 farmers in Penukonda block. The number of untrained farmers selected for the study was 55. Thus the sample for the study comprised 55 trained farmers and 55 untrained farmers totalling 110.

2. TOOLS AND TECHNIQUES USED FOR COLLECTION OF DATA

Interview Schedule

The main instrument used for collection of data was interview schedule. Interview schedule was prepared to study the level of knowledge and extent of adoption of recommended practices in a simple, easily comprehensible and unambiguous manner by considering the literature published by the Farmers' Training Centre, Anantapur on package of practices for rainfed groundnut. The schedule was pretested under similar

conditions and suitable modifications were made. The final schedule is given in the Appendix-I.

Rapport

After preparing the schedule, necessary rapport was established with the villagers by making preliminary visits to the villages with the help of Village Development Officers and local leaders. The purpose of the visit was explained to the farmers to elicit proper information. The investigator, thus established friendly relations and gained the confidence of local people.

Collection of data

The data was collected by administering interview schedule. Each respondent was interviewed personally to elicit correct information. The questions were asked in an easy and understable manner. Friendly atmosphere was maintained during the interview so that the respondents express their ideas and feelings freely and frankly.

Preparation of the Report

The data thus collected were coded, analysed and tabulated to make the findings meaningful and easily understandable. The findings of the data were suitably interpreted. Statistical tests were applied to know

the significance of findings wherever possible. Finally conclusions and inferences were drawn.

3. VARIABLES STUDIED AND THEIR MEASUREMENT

In this study the following dependent and independent variables were included.

Dependent Variables

1. Knowledge

One of the main objectives of the study was to find out the difference in knowledge between trained and untrained farmers. For measuring the knowledge level of farmers, a comprehensive list of package of practices for rainfed groundnut was obtained from the Farmers' Training Centre, Anantapur and knowledge test was prepared in consultation with specialists. Thirty five items were included covering package of practices to be followed in the cultivation of groundnut, on the basis of 'teacher-made tests'. Teacher made tests are those developed by the teacher to test the knowledge of students. Equal weightage was given to all items assuming that all items included were equal in difficulty to understand, apply and recall (John, 1963). The farmers were asked to answer the questions. Later the answers were checked by the investigator. All the right answers were given one mark each and each wrong answer with '0'. The

total number of right answers given by the respondent was the knowledge score obtained by him.

The farmers were grouped into high, medium and low knowledge groups based on mean and standard deviation of the whole group, i.e. trained and untrained farmers, as follows:

1. High = Mean + Standard deviation
2. Medium = Mean ± Standard deviation
3. Low = Mean - Standard deviation

2. Adoption

Th measure the extent of adoption of recommended improved practices, the procedure followed by Ramakrishna Raju (1978) was used. A test consisting of 14 items was prepared. Each item represented one recommended practice. All the items were given equal weightage and each practice was given a total score of 3. If the farmer adopts the practice continuously for three years he will get 3 marks. If he adopts for 2 years, he will get 2 marks and for one year one mark. If he fails to adopt the practice he will get zero. Thus the total number of possible marks was 42 for an individual respondent.

As in the case of knowledge test, here also, the farmers were grouped into high, medium and low adopters based on mean and standard deviation of the entire group.

Independent Variables

1. Age

Age was defined as number of completed years. The respondents were classified based on the chronological age as follows:

Young	... Up to 30 years
Middle aged	... 31 - 50 years
Old	... 51 years and above.

2. Education

Education was operationalised as the educational level attained by the respondent in a formal school or college. For measurement and scoring, socio-economic status scale developed by Trivedi (1963) was used with some modifications. For the purpose of analysis farmers were categorised as follows:

a. Illiterates
b. Up to primary
c. Secondary and above.

3. Social participation

The social participation was the position held by the farmer in one or more social organisations like Panchayat, Co-operative Society, Youth Club etc. The social participation was measured and scored according to Socio-economic status scale (Trivedi, 1963). For

the purpose of analysis the respondents were grouped as follows:

a. Participants in social organisations

b. Non-participants in social organisations.

4. Farm Size

The number of standard acres of land possessed by the farmers was the operational definition of the farm size. 2.5 acres of dry land was taken as equivalent to 1 acre of wet land or garden land[1].

Farmers were classified depending upon the size of the farm (Pareek and Trivedi, 1964) as follows:

a. Small farmers ... Up to 5 acres

b. Medium farmers ... 5+ to 10 acres

c. Big farmers ... Above 10 acres.

5. Socio-economic Status

To measure the socio-economic status of the farmers, the scale developed by Trivedi (1963) with some modifications was utilised in the study. This scale consists of nine items namely land, education, number and type of houses, occupation, caste, family type and size, farm power, material possession and social participation and each item has scores based on weightage.

---

1. Source: Andhra Pradesh State Agricultural Land Reforms Act of 1973.

The score on socio-economic status was obtained by summing up the scores on these items for each respondent. This scale was given in the appendix-II. The respondents were grouped into two categories based on the scores obtained by them, viz.,

1. below mean (Low)
2. Mean and above (High)

6. Extension Contact

This was operationalised as the number of times (frequency) a farmer meets the change agents i.e. the Village Level Worker, Assistant Agricultural Officer, Block Development Officer or any other technical personnel for the purpose of obtaining farm information. For each change agent contact, scores were given in the order of 3, 2, 1 and 0 against very often, often, rarely and never respectively. The total score obtained by the respondent on all the items, expressed the degree of extension contact. Based on the mean scores, the respondents were categorised as

Low ... Below mean

High ... Mean and above.

7. Economic Motivation

Economic motivation is defined as the occupational success in terms of profit maximisation and the relative

value placed by a farmer on economic ends (Supe, 1970). The scale developed by Supe (1970) was adopted to measure the extent of economic motivation among the farmers. Based on mean scores the farmers were classified into 2 groups namely;

Low ... Below mean

High ... Mean and above.

8. Risk Preference

Risk preference is the degree to which a farmer is oriented towards risk and uncertainity and has courage to face the problems in farming (Supe, 1970). The scale developed by Supe (1970) was used for quantifying the risk preference. Based on the scores the respondents were categorized into 2 groups.

Low ... Below mean

High ... Above mean

4. STATISTICAL TECHNIQUES USED FOR ANALYSIS OF DATA

1. Arithmetic Mean

It is defined as the sum of all values of observations divided by the total number of observations. Symbolically it is represented as

$$\bar{X} = \frac{\Sigma X}{N}$$

Where $\bar{X}$ = Arithmetic mean
ΣX = The sum of all values of observation
N = The number of observations.

2. Standard Deviation

It is the square root of mean of squares of the deviations measured from the mean.

Symbolically,

$$S.D. = \sqrt{\frac{\Sigma d^2}{N}}$$

Where S.D. = Standard deviation

Σd^2 = The sum of squares of deviations from the mean

N = Total number of observations.

3. Chi-square test

It was used to find out the association between independent variables and dependent variables. The formula used for chi-square (X^2) was

$$X^2 = \sum_{J=1}^{r} \sum_{K=1}^{c} \frac{(O_{jK} - E_{jK})^2}{E_{jK}}$$

In which O_{jK} = the observed frequency in the cell corresponding to the intersection of J^{th} row and K^{th} column.

E_{jK} = the expected frequency in the cell corresponding to the intersection of J^{th} row and K^{th} column.

r = number of rows

c = number of columns

Degrees of freedom for X^2 = (r-1) (c-1)

Where the expected frequencies were small (less than 5) Yates correction for continuity was applied. This correction consists in reducing by 0.5 each observed frequency that is greater than expected and in increasing by 0.5 each observed frequency that is less than expected. This correction should be applied to all cells in the table though only one or two frequencies are small (Ferguson, 1976).

Chi-square in a 2 x 2 table: In 2 x 2 tables the following formula, incorporating yates correction, was used

$$X^2 = \frac{N(|AD-BC|-\frac{N}{2})^2}{(A+B)\ (C+D)\ (A+C)\ (B+D)}$$

Where A, B, C, D are cell frequencies, N is grand total.

4. 't' test

't' test was used to know the significance of difference between mean scores of trained and untrained farmers with respect to knowledge and adoption.

The value of 't' is found by using the formula.

$$t = \frac{M_1 - M_2}{\sigma D}$$ (Garret, 1973)

M_1 = Mean of first group

M_2 = Mean of second group

σD = Standard error of difference between means.

The standard error of difference between 2 sample means when samples are large and independent:

$$D = \sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}} \quad \text{with d.f. } (N_1-1)+(N_2-1)$$

Where S_1 = Standard deviation of first group

S_2 = Standard deviation of second group

N_1 = No. of individuals in the first group

N_2 = No. of individuals in the second group

d.f. = degree of freedom

Standard error of difference between means when samples are small and independent:

$$D = S_D\sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

$$S_D = \sqrt{\frac{\Sigma (X_{1i} - M_1)^2 + \Sigma(X_{2i} - M_2)^2}{(N_1-1) + (N_2-1)}}$$

Where

D = Standard error of difference between means

S_D = Standard deviation

X_{1i} = The first observations in sample

X_{2i} = Observation in second sample

M_1 = Mean of first sample

M_2 = Mean of second sample

N_1 = No. of individuals in the first group

N_2 = No. of individuals in the second group.

5. Co-efficient of correlation

It was calculated to test the relationship between knowledge and adoption among the trained farmers. The formula used for calculation of coeffi-cient of correlation was

$$r = \frac{n.\Sigma XY - (\Sigma X.\Sigma Y)}{\sqrt{n.\Sigma X^2 - (\Sigma X)^2.(n\Sigma Y^2 - (\Sigma Y)^2}}$$ (Garret, 1973)

Where r = Correlation coefficient

n = No. of items paired

X = Sum of items in 'X' variable

Y = Sum of items in 'Y' variable

X^2 = Sum of squares of items in 'X' variable

Y^2 = Sum of squares of items in 'Y' variable

XY = Stands for the total of the product of items in the 2 variables

6. Frequency and Percentage

Frequency and percentages were used to know the distribution pattern of respondents, according to variables. Percentages were used for standardisation of size by calculating the number of individuals that would be in a given category if the total number of cases were 100.

CHAPTER XV

FINDINGS AND DISCUSSION

The data collected during the investigation were analysed and findings of the study are discussed under the following sub-heads.

I. Impact of training on knowledge level of farmers with respect to improved practices of groundnut.

II. Impact of training on adoption of recommended practices of groundnut by farmers.

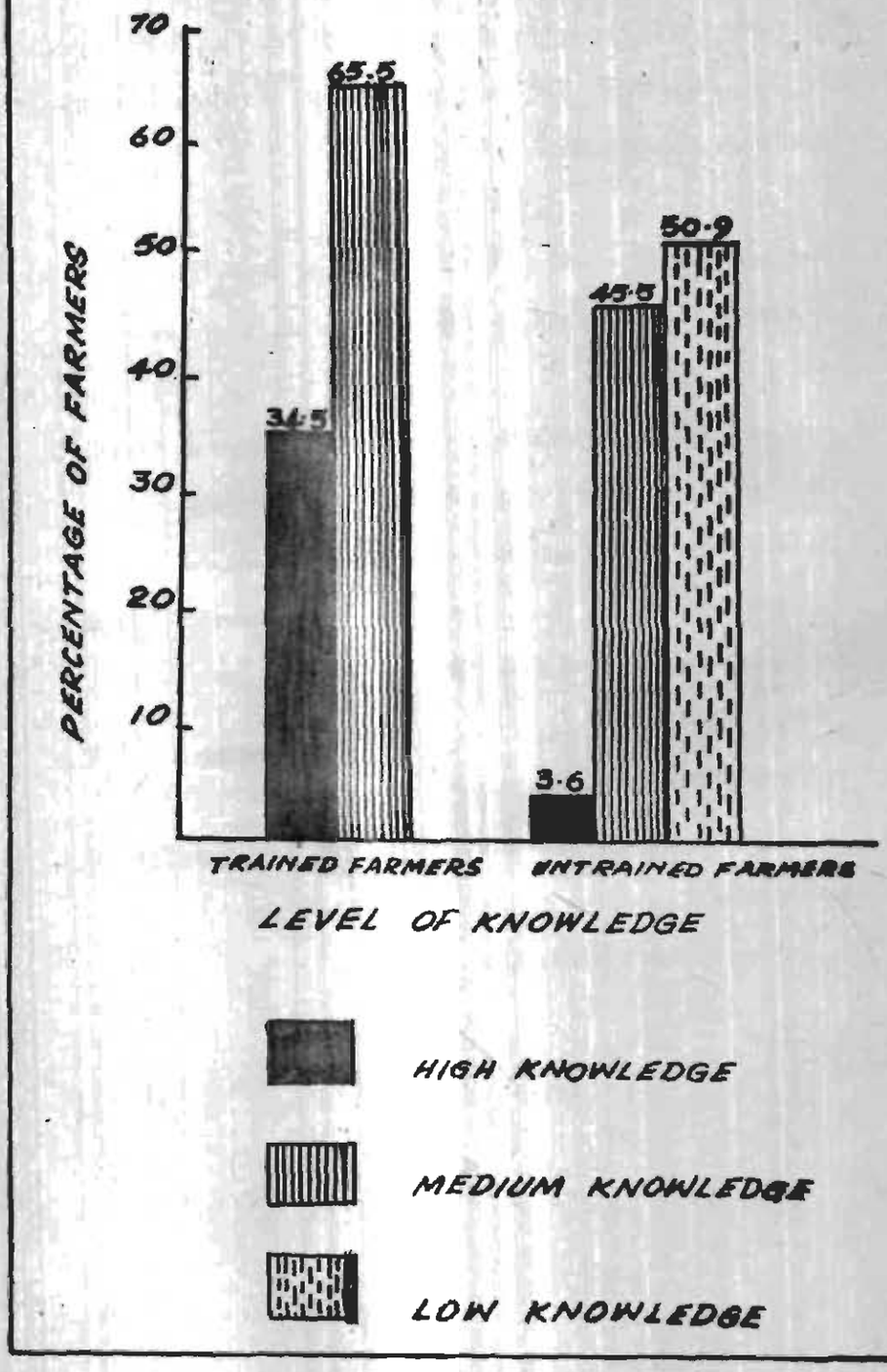
III. Extent of adoption of individual practices of groundnut by trained and untrained farmers.

IV. Reasons expressed by the trained farmers for non-adoption.

V. Correlation between knowledge and adoption.

VI. Association of certain personal and socio-economic factors of trained farmers with knowledge and adoption.

FIG. 1- DISTRIBUTION OF TRAINED AND UNTRAINED FARMERS ACCORDING TO KNOWLEDGE



I. IMPACT OF TRAINING ON KNOWLEDGE LEVEL OF FARMERS WITH RESPECT TO IMPROVED PRACTICES OF GROUNDNUT

To study the impact of training, the trained farmers were matched with untrained farmers and data regarding knowledge was collected. The respondents in both groups were classified into different categories on the basis of mean and standard deviation of entire group and their distribution pattern is presented in the table 1.

TABLE 1

Distribution of trained and untrained farmers according to knowledge

S. No.	Levels of knowledge	Trained farmers		Untrained farmers	
		No.	Per cent	No.	Per cent
1.	High	19	34.54	2	3.65
2.	Medium	36	65.46	25	45.45
3.	Low	-	-	28	50.90
	Total	55	100.00	55	100.00

Mean = 22.65 S.D. = 6.2

It is quite clear from the table 1 and Fig. 1 that out of 55 trained farmers, 34.54 per cent of the farmers were in the high knowledge group and 65.46 per cent were in medium knowledge group. No trained farmer had low knowledge. In contrary to trained farmers, out of 55 untrained farmers, only 3.65 per cent of farmers

had high knowledge, 45.45 per cent had medium knowledge and 50.90 per cent of farmers had low knowledge.

In other words, the level of knowledge of trained farmers was higher than that of untrained farmers.

To find out whether there was significant difference between trained and untrained farmers statistically, mean knowledge scores of both the groups were calculated and 't' value was worked out. The results are presented in the table 2.

TABLE 2

Difference in level of knowledge between trained and untrained farmers

S. No.	Category	No.	Mean knowledge score	Standard deviation	't' value
1.	Trained farmers	55	26.23	3.92	9.67
2.	Untrained farmers	55	18.40	4.52	

't' value = 9.67 Significant at 1% level

It is seen from the table that the mean knowledge score of trained farmer was 26.23 and that of untrained farmers was 18.40.

The calculated 't' value was 9.67 which was found to be significant at 0.01 level. Hence, it is inferred that there was significant difference between trained and untrained farmers with respect to knowledge of package of practices for rainfed groundnut. This difference in knowledge can be attributed to institutional training received by the trained farmers. So training is a necessary ingredient for increasing the knowledge of farmers about new technology.

Similar findings were reported by Renukaradhya (1971), Sukumaran (1972), Singh (1974), Ganesh (1975), Amar Singh (1977) and Ramakrishna Raju (1978).

To know whether the difference in knowledge level of trained and untrained farmers matched on certain personal and socio-economic factors was significant, mean knowledge scores and 't' values were calculated and presented in the table 3.

TABLE 3

Mean knowledge scores of trained and untrained farmers matched on certain personal and socio-economic factors

Personal and socio-economic groups	Frequency		Mean knowledge scores		't'value
	Trained farmers	Untrained farmers	Trained farmers	Untrained farmers	
1. Age					
Young	24	24	28.62	19.04	11.01**
Middle aged	27	26	25.59	17.38	7.60**
Old	4	5	24.25	16.40	3.01**
2. Education					
Illiterates	6	13	20.30	14.76	6.6**
Primary	30	27	26.00	17.03	11.11**
Secondary	19	15	30.42	23.20	7.29**
3. Farm size					
Small	21	16	23.57	14.50	8.81**
Medium	12	11	27.90	16.00	7.83**
Big	22	18	27.67	20.60	5.99**
4. Social participation					
Yes	13	7	29.3	22.00	4.53**
No	42	48	25.9	18.4	9.00**
5. Socio-economic status					
Low	26	22	25.15	14.91	12.34**
High	29	23	28.50	20.06	8.27**
6. Extension contact					
Low	19	42	25.05	16.45	8.27**
High	36	13	27.08	23.00	4.21**
7. Economic motivation					
Low	12	27	23.80	15.07	11.49**
High	43	28	28.37	20.67	7.55**
8. Risk preference					
Low	12	27	23.68	15.37	8.37**
High	43	28	27.81	20.54	7.49**

**Significant at 0.01 level

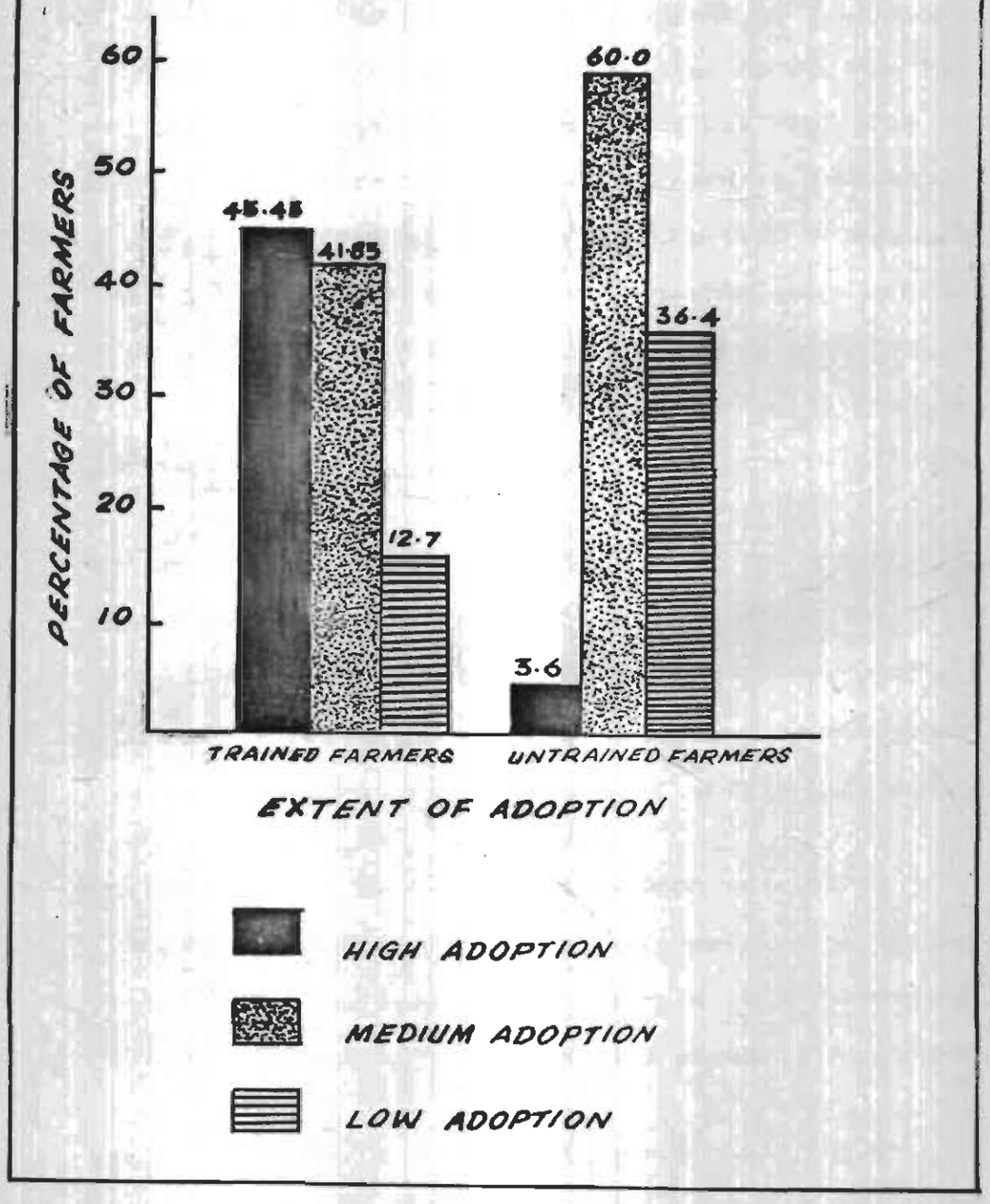
It is evident from the table that different categories of trained farmers classified according to certain personal and socio-economic factors were found superior to their counterparts i.e. untrained farmers. The trained farmers of young, middle and old age groups were superior in level of knowledge to untrained farmers. Similarly, there was much difference between trained and untrained farmers with respect to different categories of education viz., illiterates, primary and above primary levels. The respondents with small, medium and big farm size in trained group were also found superior to their fellow farmers of untrained group.

The level of knowledge of trained farmers matched with untrained farmers on other factors namely social participation, socio-economic status, extension contact, economic motivation and risk preference was significantly higher than that of untrained farmers.

It is also concluded that all the trained farmers gained more knowledge than untrained farmers irrespective of age, education, farm size and other personal and socio-economic factors.

These significant differences in knowledge highlight the effectiveness of training on farmers.

FIG 2-DISTRIBUTION OF TRAINED AND UNTRAINED FARMERS ACCORDING TO ADOPTION



II. IMPACT OF TRAINING ON ADOPTION BEHAVIOUR OF FARMERS WITH RESPECT TO IMPROVED PRACTICES OF GROUNDNUT

To know the impact of training, the trained farmers were matched with untrained farmers and data regarding adoption was collected. Based on the mean and standard deviation of adoption scores of trained and untrained farmers, the respondents were classified into high, medium and low adoption groups and their distribution pattern is presented in the table 4.

TABLE 4

Distribution of trained and untrained farmers according to adoption

S. No.	Adoption categories	Trained farmers		Untrained farmers	
		No.	Per cent	No.	Per cent
1.	High	25	45.45	2	3.64
2.	Medium	23	41.85	33	60.00
3.	Low	7	12.70	20	36.36
	Total	55	100.00	55	100.00

Mean = 15.8 S.D. = 4.38

It is evident from the table 4 and Fig.2 that out of 55 trained farmers 45.45 per cent were in the high adoption group, 41.85 per cent were in the medium adoption group and only 12.70 per cent were in the low adoption category. In the untrained group, only 3.64 per cent of farmers were high adopters. Sixty per cent were in the medium adoption group, and low adopters com-

stituted 36.36 per cent.

It can be concluded that majority of the trained farmers were high adopters and majority of untrained farmers were low adopters. In other words the adoption level of trained farmers was higher than that of untrained farmers.

To find out the difference between trained and untrained farmers with respect to adoption, mean adoption scores were calculated and the significance of difference was statistically tested by using 't' test. The results are presented in the table 5.

TABLE 5

Difference in mean adoption scores of trained and untrained farmers

S. No.	Category	No.	Mean adoption score	Standard deviation	Observed 't' value
1.	Trained farmers	55	17.78	4.14	5.852
2.	Untrained farmers	55	13.83	3.60	

Significant at 0.01 level

It is seen from the table that the mean adoption scores of trained and untrained farmers were 17.78 and 13.83 respectively and the 't' value was 5.852 which was found to be significant at 0.01 level.

Hence it can be concluded that there was significant difference between mean adoption scores of trained and untrained farmers. This difference might be due to institutional training received by farmers. So training is one of the important factors in changing the adoption behaviour of farmers.

These findings were in agreement with the findings of Renukaradhya (1971), Sukumaran (1972), Singh (1974), Daulat Singh and Raj Narain (1975), Ganesh (1975), Amar Singh (1977) and Ramakrishna Raju (1978).

To know the relative adoption behaviour of trained and untrained farmers matched on certain personal and socio-economic factors, mean adoption scores and 't' values were calculated category-wise. The results were presented in the table 6.

TABLE 6

Relative adoption behaviour of trained and untrained farmers matched on personal and socio-economic factors

Personal and socio-economic groups	Trained farmers		Untrained farmers		't' value
	No.	Mean adoption score	No.	Mean adoption score	
1. Age					
Young	24	18.46	24	14.58	3.66**
Middle aged	27	16.78	26	13.87	2.85**
Old	4	16.00	5	12.40	1.31N.S.
2. Education					
Illiterates	6	11.33	13	11.07	0.31N.S.
Primary	30	16.93	27	12.70	4.98**
Secondary	19	20.95	15	18.13	4.78**
3. Farm size					
Small	21	13.86	16	10.62	3.52**
Medium	12	19.16	11	13.18	4.24**
Big	22	15.90	28	16.53	3.96**
4. Social participation					
Yes	13	20.90	7	17.43	2.57*
No	42	16.20	48	13.33	3.36**
5. Socio-economic status					
Low	26	14.88	22	11.14	4.11**
High	29	19.72	33	14.70	6.78**
6. Extension contact					
Low	19	14.00	42	13.00	1.00N.S.
High	36	19.53	13	17.20	2.53*
7. Economic motivation					
Low	12	13.50	27	12.44	1.00N.S.
High	43	19.67	28	15.71	5.03**
8. Risk preference					
Low	12	13.08	27	11.48	1.51N.S.
High	43	18.88	28	15.96	3.6**

** Significant at 0.01 level
* Significant at 0.05 level

N.S: Not significant

It is revealed from the table that young and middle aged farmers of trained group were found significantly superior to untrained farmers of same age group with respect to adoption of improved practices of groundnut. But there was no significant difference between trained and untrained farmers of old age group.

Similarly there was significant difference between trained farmers educated up to primary level and above primary levels and untrained farmers of the same education groups. But no significant difference was noticed between trained and untrained farmers who were illiterates.

The level of adoption in trained farmers was significantly higher than that of untrained farmers, regardless of farm size.

The difference in adoption between trained farmers having social participation and untrained farmers with social participation, was significant at 5 per cent level, but the difference was significant at 0.01 level between trained farmers without social participation and untrained farmers without social participation.

The respondents with low and high socio-economic status groups of trained farmers were found significantly higher than their counterparts.

Farmers belonging to high extension contact, high economic motivation and high risk preference categories in trained farmers had more adoption scores than the farmers of these categories in untrained group.

There was no significant difference between trained farmers of low extension contact, low economic motivation and low risk preference groups and their counterparts.

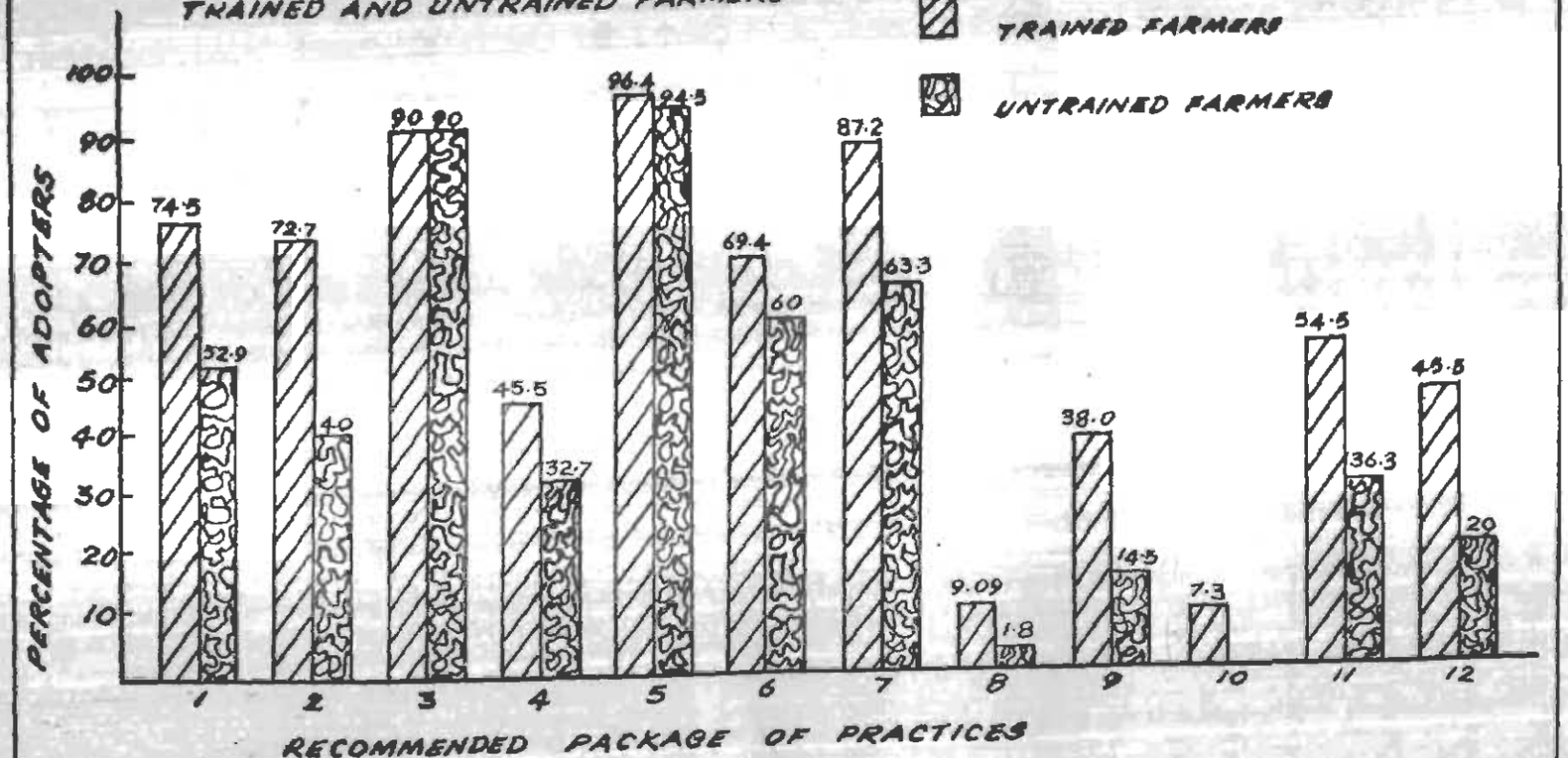
It is, therefore, concluded that training had a good impact on farmers with higher education, high socio-economic status, high extension contact, high economic motivation and high risk preference in changing the adoption behaviour.

III. EXTENT OF ADOPTION OF IMPROVED PRACTICES BY TRAINED AND UNTRAINED FARMERS

The following improved practices for rainfed groundnut were recommended to the farmers during their training programme.

1. Use of improved varieties - T.M.V-2, Junagad-11.
2. Seed rate of 50-60 kg per acre.
3. Adoption of Rhizobium culture if groundnut is grown for the first time.
4. Seed treatment with Capton or Thiram at the rate of 3 gms per kg of seed.
5. Spacing of 30 cm x 10 cm.
6. Use of farm yard manure at 8-10 cart loads.
7. Application of 16 kg Nitrogen per acre in 2 splits (basal + top dressing).
8. Application of 16-24 kg phosphorus basally per acre.
9. Application of potash @ 15-20 kg per acre basally.
10. Use of gypsum @ 100-250 kg per acre during flowering stage.
11. Use of zinc sulphate at the rate of 10-20 kg per acre.
12. Adoption of chemical weed control.
13. Use of plant protection measures.
14. Inter-cropping of groundnut with redgram (6:1) or castor (10:1).

FIG. 3. EXTENT OF ADOPTION OF RECOMMENDED PRACTICES FOR RAINFED GROUNDNUT BY TRAINED AND UNTRAINED FARMERS



1. Improved seed
2. Seed treatment
3. Seed rate
4. Spacing
5. Farm yard manure
6. Nitrogen
7. Super phosphate
8. Potash
9. Gypsum
10. Zinc sulphate
11. Plant protection
12. Intercropping

The extent of adoption of improved practices by trained and untrained farmers is presented in the table 7 and Fig.3.

It is clear from the table 7 and the Fig.3 that 74.54 per cent of the trained farmers used the improved seed as against 50.90 in untrained farmers. The percentage of farmers who adopted seed treatment was 72.72 in trained farmers and 40.00 per cent in untrained farmers. There was no difference in adoption of recommended seed rate between trained and untrained group. Correct seed rate was used by 90.90 per cent of farmers in each group. Correct spacing was adopted by 45.45 and 32.72 per cent of trained and untrained farmers respectively.

There was no much difference between trained and untrained farmers with respect to application of farm yard manure, the percentages being 96.36 and 94.54 respectively. The percentages of farmers adopting recommended dose of nitrogen, phosphorus and potash were 69.06, 87.27 and 9.09 among trained farmers and 60.00, 63.63 and 1.82 among untrained farmers respectively.

Gypsum was used by 38.18 per cent of trained farmers and 14.54 per cent of untrained farmers. Zinc sulphate was used only by trained farmers, that too, by 7.27 per cent only.

Plant protection measures were adopted by 54.54 per cent trained farmers in contrast to 36.36 per cent untrained farmers. Inter-cropping of groundnut with redgram (6:1) or castor (10:1) was adopted by 45.45 per cent of trained farmers, but the percentage of adopters in the untrained group was 20.00

It is concluded from these findings that there was much difference in adoption between trained and untrained farmers with respect to practices namely use of improved seed, seed treatment, application of super phosphate, use of gypsum, adoption of plant protection measures and inter-cropping. But there was not much difference between trained and untrained farmers with respect to practices like optimum spacing, application of farm yard manure, application of nitrogen and potash. Zinc sulphate was adopted by only trained farmers. No farmer had adopted the practices of Rhizobium culture and chemical weed control.

The differential pattern of adoption may be due to institutional training which enlightened the farmers to adopt new practices like gypsum, seed treatment and non-awareness of these practices by untrained farmers.

There was no much difference in adoption behaviour of certain practices. It may be due to the fact, that these practices were already existed and adopted by all farmers.

In general, it may be concluded that use of improved seed, seed treatment, recommended seed rate application of farm yard manure, application of recommended nitrogen and application of super phosphate were adopted by majority of the farmers. The level of adoption was medium for the practices viz., use of optimum spacing, plant protection inter-cropping and use of gypsum while it was low with respect to application of potash and zinc sulphate. No farmer adopted Rhizobium culture and chemical weed control.

IV. REASONS FOR NON-ADOPTION OF CERTAIN IMPROVED PRACTICES BY TRAINED FARMERS

1. Use of improved seed

The reasons expressed by trained farmers for non-adoption are given below.

TABLE 8

Reasons for non-adoption of improved varieties

S. No.	Reasons for non-adoption	Non-adopters	
		No.	Percentage
1.	Non-availability of seed	10	71.40
2.	High cost of the seed	2	14.30
3.	Low market price	2	14.30
	Total	14	100.00

It is seen from the above table that 14 out of 55 farmers did not use improved varieties. Out of 14 non-adopters, majority of them (71.40 per cent) expressed that improved seed was not available in time. The other reasons reported by the farmers were high cost of the seed (14.30 per cent) and low market price (74.30 per cent). All the trained farmers were aware of the improved varieties.

Efforts should be made by the extension agency for supply of seed intime to the farmers and in motivating them to adopt new varieties.

2. Seed treatment

The reasons expressed by 15 non-adopters are furnished in the table below.

TABLE 9

Reasons for non-adoption of seed treatment

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Lack of finance	5	33.33
2.	High cost of chemical	4	26.67
3.	Non-availability of chemical	4	26.67
4.	Technique not known	2	13.33
	Total	15	100.00

The table reveals that majority of the farmers did not adopt this practice because of lack of finance and high cost and non-availability of chemical. Only a few farmers (13.33 per cent) reported that the technique was not known.

Farmers should be provided with subsidies for purchase of chemicals. Extension agents should assist the farmers in getting the chemicals intime and demonstrate the technique of seed treatment.

3. Rhizobium culture

No farmer had adopted this practice. The reasons given by the farmers for not adopting Rhizobium culture are given in the table 10.

TABLE 10

Reasons for non-adoption of Rhizobium culture

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Not aware of the practice	17	30.90
2.	Non-availability of culture	10	18.18
3.	No need for it	10	18.18
4.	Costly	8	14.54
5.	Time consuming	6	10.93
6.	Technique is tedious	4	7.27
	Total	55	100.00

It is seen from the above table that majority of the farmers were not aware of the practice though they were taught about it during their training. Perhaps they might have forgotten about it and so they had not adopted it. The percentage of farmers indicating the non-availability of Rhizobium culture was 18.18. Some farmers stated that there was no need for it. The other farmers expressed that it was a time consuming and laborious practice.

As this practice is a new one, it should be popularised among the farmers by explaining its benefits.

4. Seed rate

Majority of the trained farmers have adopted the recommended seed rate. Only 3 farmers did not use the

recommended seed rate. Three of them reported that they had insufficient seed and others felt that increase in seed rate would increase the cost of cultivation.

TABLE 11

Reasons for non-adoptions of recommended seed rate

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Insufficiency of seed	3	60
2.	Increases the cost of cultivation	2	40
	Total	5	100

Hence, it is necessary to dispel the misconceptions from the minds of farmers.

5. Sowing

30 out of 55 farmers were non-adopters. The reasons given by these trained non-adopters are furnished in the table 12.

TABLE 12

Reasons for non-adoption of recommended spacing

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Wider spacing reduces plant population	18	60.72
2.	Difficult to maintain spacing	10	33.33
3.	Wider spacing increases weed growth	2	5.95
	Total	30	100.00

It is evident from the above table that the main reason for non-adoption of recommended spacing was the false impression of farmers that wider spacing would reduce the plant population and there by decrease the yield. Some farmers reported that it was difficult to maintain correct spacing. Only 2 farmers were of the view that wider spacing would increase the weed growth.

Here again, there is scope for extension agents to set at rest the unfounded misgivings of the farmers.

6. Application of Farm yard manure

Almost all the trained farmers adopted except two. Out of these, one farmer reported that he did not have sufficient quantity of farm yard manure and the other person reported that he had reserved for other crop.

7. Application of recommend dose of Nitrogen

Out of 55 trained farmers, 17 farmers did not use recommended nitrogen. The reasons expressed by the farmers are presented in the table 13.

TABLE 13

Reasons for non-adoption of recommendeded nitrogen

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Lack of finance	10	58.82
2.	Inadequate rainfall	4	23.52
3.	Not beneficial	3	17.66
	Total	17	100.00

The table 13 reveals that the main reason for non-adoption was lack of finance (58.82 per cent) 23.52 per cent of farmers reported that they had no proper irrigation facilities and 17.64 per cent indicated that nitrogen was not beneficial to groundnut.

The fertilizers should be made available to the farmers at cheaper rates so that even small and marginal farmers also apply recommended nitrogen to increase the yield. The extension workers should convince the farmers about the benefits.

8. Application of super phosphate

Majority of the farmers adopted the practice. Only 7 out of 55 trained farmers could not adopt because of their poor financial status.

Hence it is necessary that the farmers are provided with super phosphate at cheaper rates.

9. Application of potash

Out of 55 trained farmers, 50 farmers could not adopt this practice. The following table depicts the reasons for non-adoption.

TABLE 14

Reasons for non-adoption of recommended potash

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Not beneficial	15	30.00
2.	High cost	10	20.00
3.	Lack of finance	9	18.00
4.	Non-availability of potash	9	18.00
5.	Produces unfavourable effect	7	14.00
	Total	50	100.00

The table 14 brings out that the main reason for non-adoption was the feeling developed in the minds that no benefits would be accrued by the application of potash. Some farmers indicated that lack of finance

high cost and non-availability were the reasons for their non-adoption. A few farmers reported that potash would have unfavourable effect.

Though the farmers were trained, they lack confidence on benefits of potash to groundnut crop. The extension officers should demonstrate this practice to the farmers. Fertilizers should be made easily available to the farmers.

9. Use of gypsum

Though gypsum was applied by more than 50 per cent of trained farmers, some farmers (24) did not use. The reasons stated by them are furnished in the table 15.

TABLE 15

Reasons for non-adoption of gypsum

S.No.	Reasons	Non-adopters	
		No.	Percentage
1.	Lack of finance	10	41.66
2.	Non-availability of gypsum	12	50.00
3.	Inadequate rainfall	2	8.34
	Total	24	100.00

It is seen from the table that gypsum was not available to 50.00 per cent of farmers who could not adopt this practice. 41.66 per cent farmers indicated that lack of finance was the reason for not using gypsum.

Only 2 farmers expressed that lack of irrigation facilities hindered its use.

It is the duty of the extension workers and Government Officials to supply. The gypsum to the farmers at reasonable prices, so that the farmers can rise their income.

10. Application of zinc sulphate

Zinc is also one of the essential micro nutrients recommended for groundnut. Only a few farmers (4) adopted this practice and majority of the farmers (51) did not apply.

TABLE 16

Reasons for non-adoption of zinc sulphate

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Lack of finance	17	33.33
2.	Not aware of the practice	13	25.49
3.	High cost	10	19.60
4.	Non-availability	8	15.68
5.	Not beneficial	3	5.90
	Total	51	100.00

A glance at the figures in the table 16 indicates that 33.33 per cent of non-adopters had no adequate finance to apply zinc sulphate and 25.49 per cent were

not aware of the practice. The other reasons expressed by the non-adopters were high cost (19.60 per cent), non-availability of chemical (15.68 per cent) while 5.90 per cent non-adopters felt that it was not beneficial.

The role of extension agency at this juncture is very essential to help the farmers.

11. Adoption of Plant protection measures

Twenty out of 55 trained farmers could not undertake plant protection measures. The reasons are furnished in the table below.

TABLE 17

Reasons for non-adoption of plant protection measures

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Lack of finance	9	45.00
2.	High cost of the chemical	7	35.00
3.	Non-availability of equipment	4	20.00
	Total	20	100.00

It is revealed from the above table 18 that majority of the farmers (45 per cent) could not adopt plant protection measures due to lack of finance. Thirty five per cent felt that it involved high cost and 20 per cent reported that plant protection appliances were not available.

As the farmers are poor, and not able to buy sprayers and other equipment, they may be supplied on subsidy basis or they can be supplied by the authorities on hire. Concerted efforts should be made by officials of Department of Agriculture in this respect as timely plant protection increases the yield considerably.

12. Chemical weed control

No trained farmer adopted chemical weed control. Of course it is not advisable to small farmers. The reasons as expressed by these farmers are given in the table 18.

TABLE 18

Reasons for non-adoption of chemical weed control

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	No shortage of labour	23	41.82
2.	Costlier than hand weeding	22	40.00
3.	Not aware of the practice	10	18.18
	Total	55	100.00

Majority of the trained farmers indicated that there was no need for chemical weed control as the labour is plenty. Moreover, it was costlier than hand weeding. 18.18 per cent farmers were not aware of the practice.

13. Inter-cropping

Inter-cropping of groundnut with redgram (6:1) or castor (10:1) was recommended to the farmers.

Reasons for non-adoption of recommended ratio between main crop and inter-crop are given in the table 19.

TABLE 19

Reasons for non-adoption of inter-cropping at recommended ratio

S. No.	Reasons	Non-adopters	
		No.	Percentage
1.	Inter-crop provides shade to groundnut	16	53.34
2.	Low yields of main crop due to less population	6	20.00
3.	Not convinced about benefits	4	13.33
4.	Inter-crop takes more time to mature	4	13.33
	Total	30	100.00

It is seen from the above table that out of 30 non-adopters, 16 farmers (53.34 per cent) felt that close spacing would provide shade to the groundnut and thereby decrease the yield. While 6 farmers (20 per cent) indicated that this practice would bring down yields of main crop due to less population. Four (13.33 per cent) farmers were not convinced about its usefulness while 4 farmers felt that the inter-crop takes long time to mature.

The farmers should be convinced about the benefits of their practice and confidence should be developed on this practice by the extension officers.

V. CORRELATION BETWEEN KNOWLEDGE AND ADOPTION

To find out the correlation between knowledge and adoption of recommended practices among trained farmers, correlation coefficient (r) was worked out.

TABLE 20

Correlation between knowledge and adoption

Calculated 'r' value	Table value of 'r' at 0.01 level of significance
0.7654	0.3336

Degree of freedom: 53 Significant at 0.01 level

The correlation coefficient worked out between knowledge and adoption was 0.7653 which was significant at 0.01 level. This indicates that there was positive and significant association between knowledge gained due to training and adoption. This may be attributed to the fact that farmers who have good knowledge adopt new farm ideas and practices, if they are sound in their financial position.

Similar findings were reported by Renukaradhya (1971), Ganesh (1975) and Nagendra Nath (1980). Singh (1974) and Ramakrishna Raju (1978) reported that there was no association between knowledge gained due to training and adoption.

VI. ASSOCIATION OF CERTAIN PERSONAL AND SOCIO-ECONOMIC FACTORS OF TRAINED FARMERS WITH KNOWLEDGE AND ADOPTION

The association of certain personal and socio-economic factors like age, education, farm size, social participation, socio-economic status, extension contact, economic motivation and risk preference with knowledge and adoption was studied and it is presented in the following pages.

1. AGE

Age and Knowledge

The association of age with knowledge is presented in the table 21.

TABLE 21

Association of age with knowledge

Age groups	Level of knowledge				Total
	High		Medium		
	No.	Per cent	No.	Per cent	
Young	13	68.42	11	30.55	24
Middle aged	5	26.32	22	61.11	27
Old	1	5.26	3	8.34	4
Total	19	100.00	36	100.00	55

X^2 = 6.09 D.F. = 2 Significant at 0.05 level

It is seen from the table 21 that in the high knowledge group, 68.42 per cent of respondents were young,

26.32 per cent were middle aged and only 5.26 per cent of farmers were in the old age group. In the medium knowledge group, the percentages of farmers in the young, middle and old age groups were 30.55, 61.11 and 8.34 respectively. There were no farmers in low knowledge group. From this it is evident that young farmers had more knowledge than old farmers.

To find out the association between age and knowledge statistically, chi-square test was applied and the chi-square value was found to be significant at 0.05 level. The value of chi-square was 6.09.

It is evident from these findings that the level of knowledge was higher in young and middle age groups than in old age group. This may be attributed to interest in knowing the improved varieties, quest for new knowledge, greater receptive capacity and the prejudice--free minds of young people and conservatism and decreased mental ability of old people.

Similar findings were reported by Wilson and Gallup (1955), Veeraiah (1969), Venukaradhya (1971), Ramakrishna Raju (1978). But there findings were in contrary to the findings of Sastry (1970) and Vittal (1971).

Age and Adoption

TABLE 22

The association of age with adoption

S. No.	Age group	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Young	12	48.00	10	43.48	2	28.60	24
2.	Middle aged	12	48.00	11	47.82	4	57.12	27
3.	Old	1	4.00	2	8.70	1	14.28	4
	Total	25	100.00	23	100.00	7	100.00	55

X^2 = 0.27 d.f. = 4 Not significant

The above table indicates that out of 25 high adopters, 48.00 per cent of the farmers were young, 48 per cent were middle aged and 4 per cent were in the old age group.

Out of 23 medium adopters, the percentages of farmers in the young, middle and old age groups were 43.48, 47.82, 8.70 respectively.

In the low adoption group, 28.60 per cent of farmers were young, 57.12 per cent were middle aged and 14.28 per cent were old.

The chi-square was calculated to test the relationship between age and adoption statistically and it was found to be 0.27 which is non-significant.

Hence, it can be inferred that age had no significant association with adoption. The young and middle aged farmers were distributed almost equally. It may be attributed to the complex nature of adoption which has bearing on many other socio-cultural factors.

These findings were in confirmity with those of Ramamurthy Naidu (1968), Veeraraghava Reddy (1968), Trigunayat (1970), Ramuloo (1973) and Ramakrishna Raju (1978).

2. EDUCATION

Education and Knowledge

The association between education and knowledge is presented in the table 23.

TABLE 23

Association of education with knowledge

S. No.	Educational level	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Illiterates	-	-	6	16.67	6
2.	Up to primary	2	10.52	28	77.78	30
3.	Secondary and above	17	89.48	2	5.55	19
	Total	19	100.00	36	100.00	55

χ^2 = 38.4 d.f. = 2 Significant at 0.01 level

It is seen from the table 23 that in the high knowledge group, majority of the farmers (89.48 per cent) were educated up to secondary level, while only 10.52 per cent of farmers studied up to primary level. There were no illiterates in the high knowledge group. In the medium knowledge group, the percentage of illiterates, those who studied up to primary level and those who studied above primary were 16.67, 77.79 and 5.55 respectively. It is evident from these findings that as the level of education increased, the level of knowledge also increased.

The relationship between education and knowledge was statistically tested and the chi-square value was found to be highly significant at 0.01 level. The value being 38.4. From these it can be inferred that there was significant association between education and knowledge.

The possible reasons for this may be that the rise in educational level increases the ability to grasp facts, analyse them and interpret them. Educated farmers have more information seeking habits and have better access to all communication media.

Similar findings were reported by Veeraiah (1969), Sastry (1970), Trigunayat (1971), Renukaradhya (1971) and Yadkiker (1976).

Education and Adoption

The association between education and adoption is given in the table 24.

TABLE 24

Association between education and adoption

S. No.	Educational level	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Illiterates	1	4.00	2	8.70	3	42.8	6
2.	Up to primary	9	36.00	18	78.30	3	42.8	30
3.	Secondary and above above	15	60.00	3	13.00	1	14.4	19
	Total	25	100.00	23	100.00	7	100.0	55

X^2 = 13.7 d.f. = 4 Significant at 0.01 level

It is clear from the table that in the high adoption group, majority of the farmers (60 per cent) were educated up to secondary level and above while 36.00 per cent was in the primary education group and only 4.00 per cent farmers were illiterates. In the medium adoption groups, the percentages of farmers who were illiterates and those who studied up to primary and secondary levels were 8.70, 78.30 and 13.00 respectively. There were 42.8 per cent of farmers in illiterates group, 42.8 per cent in the primary group and only 14.4 per cent in the above primary group.

To find out whether there was association between education and adoption statistically chi-square value was calculated and it was found to be significant at 0.05 level the value being 13.7.

These findings reveal that there was significant association between education and adoption and the level of adoption was high in the farmers who studied up to secondary level followed by farmers educated up to primary level and illiterates.

It may be due to the fact that higher education enables the farmer to learn more about improved practices which inturn motivate them to adopt new ideas. They understand the economics of high yielding variety well and resort to the cultivation of the same.

Singh (1968), Dharmapuri (1968), Ramamurthy Naidu (1968), Renukaradhya (1971), Sinha et al. (1972), Kishore and Rai (1975), Gangappa (1975), Ramakrishna Raju (1978) and Shankar (1979) reported similar findings. But these findings were not supported by Veeraraghava Reddy (1968), Sharma and Nair (1974) and Sethurao and Krishnan (1976).

3. FARM SIZE

Farm Size and Knowledge

The association of farm size with knowledge is given in the table 25.

TABLE 25

Association of farm size with knowledge

S. No.	Farm size	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Small	2	10.53	19	52.78	21
2.	Medium	6	31.58	6	16.67	12
3.	Big	11	57.89	11	30.56	22
	Total	19	100.00	36	100.00	55

X^2 = 7.1 d.f. = 2 Significant at 0.05 level

This table indicates that in the high knowledge group 57.89 per cent farmers had big farms. 31.58 per cent farmers had medium farms and only 10.53 per cent had small farms. In the medium knowledge group majority of the farmers belonged to small farm size group, 30.56 per cent to big farm size group and 16.67 per cent to medium farm size group. There were no trained farmers in the low knowledge group.

The significance of association between farm size and knowledge was tested statistically, and it was found to be significant at 0.05 level, the chi-square value being 7.11.

These findings indicate that there was significant association between farm size and knowledge. The farmers owning big farms had higher knowledge than medium and small farmers.

This may be attributed to the fact that the relatively greater economic security of the big farmers permit their minds to be free to learn new information and retain it. In contrast, the small farmers have limited economic security and this will give rise to many worries. Hence their minds will not permit them to learn new facts.

Similar results were reported by Veeraiah (1969), Renukaradhya (1971), Yadkikar and Narayana Rao (1976) and Madan Mohan (1979). But the findings of Sastry (1970), Vittal (1971), Ganesh (1975) and Ramakrishna Raju (1978) were in contrast to these findings.

Farm Size and Adoption

TABLE 26

Association of farm size and adoption

S. No.	Farm size	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Small	2	8.00	14	60.86	5	71.40	21
2.	Medium	7	28.00	4	17.40	1	14.30	12
3.	Big	16	64.00	5	21.74	1	14.30	22
	Total	25	100.00	23	100.00	7	100.00	55

X^2 = 11.47 d.f. = 4 Significant at 0.05 level

A cursory examination of the above table throws light on the extent of relationship between farm size and adoption.

High adoption group constituted majority of the big farmers (16 per cent) followed by medium farmers (28 per cent) and small farmers (8 per cent). The percentage of farmers in medium adoption group were 60.86, 21.74 and 17.4 in small medium and big farmers respectively. Among the low adopters, 71.40 per cent farmers were small and the others were medium and big farmers with 14.3 per cent each.

These results reveal that increase in farm size brought about increase in the level of adoption. High level of adoption was found in farmers having big farms.

The results of chi-square test (chi-square value 11.47) showed that there was significant relationship between farm size and adoption.

The probable reasons for the tendency of the big farmers to adopt more are that these farmers are economically sound, they have willingness to take risk and want to get more profit. But the small farmers have limited resources, they cannot afford to adopt costly innovations and they lack motivation to adopt new practices.

These findings were in confirmity with those of Dharmapuri (1968), Ramamurthy Naidu (1968), Renukaradhya (1971), Sinha et al. (1972), Singh and Choubey (1974), Nirwal and Arya (1975) and Shankar (1979) and in contrast to the findings of Jaiswal et al. (1970), Rangit Singh and Sharma (1973) and Ramakrishna Raju (1978).

4. SOCIAL PARTICIPATION

Social Participation and Knowledge

The relationship between social participation and knowledge is presented in the table 27.

TABLE 27

Association between social participation and knowledge

S. No.	Social participation	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Participants	7	36.84	6	16.67	13
2.	Non-participants	12	63.16	30	83.33	42
	Total	19	100.00	36	100.00	55

X^2 = 2.80 d.f. = 1 Not significant at 0.05 level

It is clear from the table that in the high knowledge group the percentages of farmers having social participation and those having no social participation were 36.84 and 63.16 respectively. Similar trend was

noticed in the medium knowledge group, with 16.67 per cent farmers who had social participation and 83.33 per cent farmers who had no social participation.

To know statistically, the significance of relationship, chi-square test was applied. The chi-square value was 2.80 which was found to be insignificant.

It is inferred from these findings that no significant association was found between social participation and knowledge, since the non-participants in social organisation also had high level of knowledge.

Mere participation in social organisation is not sufficient to acquire new knowledge.

Similar findings were reported by Vittal (1971), Ganesh (1975) and Ramakrishna Raju (1978).

Social Participation and Adoption

Association between the social participation and adoption is presented in the table 28.

TABLE 28

Association between social participation and adoption

S. No.	Social participation	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Participants	11	44.00	2	8.70	-	-	13
2.	Non-participants	14	56.00	21	91.30	7	100.0	42
	Total	25	100.00	23	100.00	7	100.0	55

X^2 = 7.81 d.f. = 2 Significant at 0.05 level

From the table, it is evident that in the high adoption category, 44.00 per cent farmers participated in formal organisations and the remaining 56.00 per cent farmers did not have social participation. In the medium adoption group, majority of the farmers (91.30 per cent) had no social participation and only 8.7 per cent of farmers had social participation. In the low adoption category, no farmer had social participation.

The chi-square value was worked out to find the relationship between social participation and adoption statistically. Chi-square value was significant at 5 per cent level, the value being 7.81.

It is therefore, concluded that the association between the social participation and adoption was significant. There was no much difference between farmers

having social participation and those having no social participation, in the high adoption group. No farmer in the low adoption group had social participation.

It may be due to the fact that the farmers having social participation may not have adequate knowledge of innovation. But they have high economic status. They value highly the opinions held by their neighbours and friends for this is their main source of status and prestige. So they adopt new ideas and practices more than those who have no social participation.

The findings were in line with those of Dharmapuri (1968), Ramamoorthy Naidu (1968) and Sharma and Nair (1974) and in contrary to the findings of Ramakrishna Raju (1978).

5. SOCIO-ECONOMIC STATUS

Socio-economic Status and Knowledge

The relationship of socio-economic status with knowledge is shown in the table 29.

TABLE 29

Relationship of socio-economic status with knowledge

S. No.	Socio-economic status	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Low	4	21.05	22	61.10	26
2.	High	15	78.95	14	38.90	29
	Total	19	100.00	36	100.00	55

X^2 = 6.745 d.f. = 1.00 Significant 0.05 level

From the table it is evident that out of 19 respondents of high knowledge group majority of the respondents (78.95 per cent) had high socio-economic status and only a few farmers (21.05 per cent) had low socio-economic status. On the other hand, in the medium knowledge group 61.10 per cent farmers were in the low socio-economic status group and the remaining 38.9 per cent farmers were in the high socio-economic status group.

The association between socio-economic status and knowledge was statistically tested by using chi-square test. It was found to be significant at 0.05 level the value of chi-square being 6.745.

These findings indicate that the higher the socio-economic status the higher was the level of knowledge and this relationship was significant.

The probable reasons for this may be that farmers having high socio-economic status have greater economic security. They have good contact with extension agency and they want to gain more information about new practices.

These results were in confirmity with those of Shankaraiah (1965), Bhaskaram and Mahajan (1968), Trigunayat (1971), Narayana Rao and Singh (1973) and Yadkikar and Narayana Rao (1976).

Socio-economic Status and Adoption

Table 30 gives the relationship of socio-economic status with adoption.

TABLE 30

Relationship of socio-economic status and adoption

S. No.	Socio-economic status	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Low	5	20.00	15	65.20	6	85.7	26
2.	High	20	80.00	8	34.80	1	14.3	29
	Total	25	100.00	23	100.00	7	100.0	55

X^2 = 12.29 d.f. = 2 Significant at 0.01 level

A critical examination of the above table indicates that in the high adoption group, 80 per cent farmers had

high socio-economic status and only 20 per cent had low status. In the medium adoption group, the percentage of farmers having high and low socio-economic status were 65.2 and 34.8 respectively. Majority of the farmers (85.7 per cent) in the low adoption category had low socio-economic status, and only 14.3 per cent had high socio-economic status.

From this, it can be concluded that as the socio-economic status increased the level of adoption also increased

To test the significance of the relationship, chi-square value was calculated and it was 12.29 which was significant at 0.01 level. Hence it can be inferred that there was highly significant relationship between socio-economic status and adoption.

The farmers with high socio-economic status in general have high education and greater extension contact. They want to get good profits, regardless of cost of innovation. Hence they secure more information about the new practices and adopt the same.

Trigunayat (1971), Ramuloo (1973) and Ghiasuddin (1979) reported similar findings.

6. EXTENSION CONTACT

Extension contact and knowledge

TABLE 31

Association between extension contact and knowledge

S. No.	Extension contact	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Low	7	36.80	21	58.33	28
2.	High	12	63.20	15	41.67	27
	Total	19	100.00	36	100.00	55

X^2 = 2.298 d.f. = 1 Not significant ~~at 0.05 level~~

It is seen from the above table that the 63.20 per cent of high knowledge group farmers had high extension contact and 36.80 per cent had low extension contact. In the medium knowledge group, 58.33 per cent had low knowledge and 41.67 per cent had high knowledge. There were no farmers in the low knowledge group.

To find out the significance of association statistically, the chi-square value was worked out. It was found to be not significant at 5 per cent level. The chi-square value was 2.295.

These findings reveal that the farmers with high extension contact and those with low contact were dis-

tributed almost equally. Hence the association between extension contact and knowledge was not significant.

Though some past findings reported the positive association between extension contact and gain in knowledge, non-significant association in the present study may be due to the fact that farmers who had low extension contact gained the knowledge to the same extent as the other group due to training imparted to them. The farmers may be poor in their ability to grasp and retain the new knowledge.

Extension Contact and Adoption

TABLE 32

Association between extension contact and adoption

S. No.	Extension contact	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Low	7	28.00	14	60.86	7	100.00	28
2.	High	18	72.00	9	39.14	0	-	27
	Total	25	100.00	23	100.00	7	100.00	55

X^2 9.9 d.f. = 2 Significant at 0.01 level

Table 32 reveals that percentage of high adopters was higher (72.00 per cent) in the high extension contact group than in the low extension contact group (28.00 per cent). In the medium adoption category,

60.86 per cent farmers had low extension contact and 39.14 per cent had high extension contact. All the farmers in the low adoption category had low extension contact.

The association between extension contact and adoption was tested statistically, and it was found to be significant at 0.01 level, the value of chi-square being 9.91.

It is concluded from these findings that the farmers who had high extension contact were high adopters.

The possible reasons for this may be that the farmers with high extension contact will have opportunity to see the demonstration plots, farms of progressive farmers and have good knowledge of improved practices.

Similar results were reported by Tiwari (1964), Yadava (1964), Dharmapuri (1968), Ramamurthy Naidu (1968), Sharma and Nair (1974) and Kar et al. (1980).

7. ECONOMIC MOTIVATION

Economic Motivation and Knowledge

The association between economic motivation and knowledge is presented in the table 33.

TABLE 33

Association between economic motivation and knowledge

S. No.	Economic motivation	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Low	1	5.27	11	30.56	12
2.	High	18	94.73	25	69.44	43
	Total	19	100.00	36	100.00	55

X^2 = 4.71 d.f. = 1 Significant at 0.05 level

An overview of the above table indicates that majority of the farmers with high knowledge (94.73 per cent) had high economic motivation and 5.27 per cent farmers had low economic motivation. In the medium knowledge group, 69.44 per cent farmers had high economic motivation and 30.56 per cent farmers had low economic motivation. There were no trained farmers in low knowledge group.

The significance of association was tested using chi-square test and it was found to be significant at 5 per cent level the value of chi-square being 4.71.

It is revealed from the above findings that there was significant association between economic motivation and knowledge. More number of farmers who had high economic motivation was found in the high knowledge group.

Economic motivation significantly contributes in increasing the knowledge level of farmers. This may be due to the fact that the farmers who want to gain more profits will seek more information on new farm technology.

Economic Motivation and Adoption

TABLE 34

Association between economic motivation and adoption

S. no.	Economic motivation	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Low	2	8.00	5	21.74	5	71.43	12
2.	High	23	92.00	18	78.26	2	28.57	43
	Total	25	100.00	23	100.00	7	100.00	55

X^2 = 9.23 d.f. = 2 Significant at 0,01 level

It is clear from the table 34 that in the high adoption group, 92.00 per cent had high economic motivation and the remaining 8.00 per cent farmers had low economic motivation. In the medium adoption group, 21.74 per cent farmers had low economic motivation and 78.26 per cent farmers had high economic motivation. The percentage of farmers in the low adoption group with high and low economic motivation were 71.43 and 28.57 respectively.

Statistically, the association of economic motivation with adoption was tested by using chi-square test. The chi-square value was 9.23. It was greater than table value. Hence it was concluded that the association between economic motivation and adoption was significant.

Economic motivation significantly contributes in explaining the adoption behaviour of farmers. The farmers generally adopt new practices for economic gains.

The findings of Das and Sarkar (1970), Sharma and Nair (1973) and Veerasamy and Tej Bahadur (1979) were contrary to the present findings.

8. RISK PREFERENCE

Risk Preference and Knowledge

TABLE 35

Association between risk preference and knowledge

S. No.	Risk preference	Level of knowledge				Total
		High		Medium		
		No.	Per cent	No.	Per cent	
1.	Low	3	15.78	23	63.88	26
2.	High	16	84.22	13	36.22	29
	Total	19	100.00	36	100.00	55

X^2 = 10.1 d.f. = 1 Significant at 0.01 level

It is clear from the table 35 that out of 19 farmers in the high knowledge group 84.22 per cent farmers had high risk preference and the remaining 15.78 per cent had low risk preference. In the medium knowledge group of farmers, 63.88 per cent and 36.22 per cent had low and high risk preferences respectively.

These findings indicate that majority of the farmers with high risk preference had high knowledge and most of farmers with low risk preference had medium knowledge.

The relationship was tested statistically with chi-square test, and it was found to be significant at 0.01 level. The chi-square value was 10.01. Hence it is concluded that there was significant association between knowledge of trained farmers and their risk preference.

A farmer who takes risk wants more of change for making good profits than to be content with a smaller but less risky profits. Hence the takes keen interest in knowing new facts and ideas.

Risk Preference and Adoption

The association between risk preference and adoption is given in the table 36.

TABLE 36

Association between risk preference and adoption

S. No.	Risk preference	Level of adoption						Total
		High		Medium		Low		
		No.	Per cent	No.	Per cent	No.	Per cent	
1.	Low	6	24.00	14	60.87	6	85.7	26
2.	High	19	76.00	9	39.13	1	14.3	29
	Total	25	100.00	23	100.00	7	100.0	55

X^2 = 8.32 d.f. = 2 Significant at 0.05 level

A cursory view of the above table reveals that in the high adoption group, majority (76 per cent) of the farmers had high risk preference and only 24 per cent farmers had low risk preference. In the medium adoption group, 60.87 per cent farmers had low risk preference and the remaining 39.13 per cent farmers had high risk preference. In the low adoption group, majority of the farmers (85.7 per cent) were in the low risk preference category while only 14.3 per cent farmers were in the high risk preference group.

It is concluded from these findings that the higher the risk preference the higher was the adoption.

The significance of relationship between risk preference and adoption was statistically tested, by

using chi-square test. The chi-square value was 8.32 which was significant at 0.05 level. Hence it is inferred that the relationship of risk preference with adoption was significant.

The reasons for the above findings may be that a farmer who is willing to take greater risks than average farmers unusually does better financially. He takes risk only when he knows his chance of success is high. Hence he adopts any new farming method which increases his profit.

The reports of Singh and Singh (1970), Ramuloo (1973) and Sharma and Nair (1974) were in confirmity with the above findings.

CHAPTER V

SUMMARY AND CONCLUSIONS

The strategy of increasing the agricultural production and improving the economic conditions of the farmers, to a certain extent, depends on level of knowledge, attitude and adoption of improved practices by the farmers. The programme of farmers' training has been acclaimed as an effective tool in stuffing the farmers with prevailing agricultural technology and in developing favourable attitude, confidence and willingness to adopt recommended farm practices.

This study was an attempt to know the impact of institutional training on farmers with the following specific objectives.

1. To study the impact of training on knowledge levels and adoption behaviour of farmers in relation to improved practices of rainfed groundnut.
2. To determine the extent of adoption of improved practices of groundnut by trained and untrained farmers.
3. To identify the reasons for non-adoption by trained farmers.
4. To study the correlation between knowledge and adoption.

5. To find out the association of certain personal and socio-economic factors with knowledge and adoption of improved practices of groundnut.

The study was conducted in selected villages of Rayadurg, Kalyandurg and Penukonda Blocks of Anantapur district. These blocks were selected on random sampling basis. The villages in which training was given to farmers and have good transport facilities were selected in each block. All the trained farmers in the selected villages were included. Similar number of untrained farmers were selected from those villages. The sample of the study consisted of 55 trained farmers and 55 untrained farmers. The data were collected by personal interview technique with the help of structured schedule. The scales developed for the study were used to measure the knowledge and adoption levels of farmers. The data were statistically analysed with the help of 't' test, chi-square test and coefficient of correlation.

The summary of the findings are given below.

1. Impact of Training on knowledge:

There was significant difference between trained and untrained farmers with respect to knowledge of package of practices of groundnut. The knowledge scores of trained farmers were higher than those of untrained

farmers in general when trained farmers were matched with untrained farmers on certain personal and socio-economic factors, it was found here also, that the knowledge level of trained farmers was higher than that of untrained farmers.

2. Impact of Training on Adoption

The findings showed that more number of trained farmers were high adopters of improved practices. The difference in level of adoption was significant between trained and untrained farmers. In general, the adoption level was higher in trained farmers, than in untrained farmers. But there was no significant difference between trained farmers of old age group, low extension contact low economic motivation and low risk preference, groups and their counter-parts.

3. Extent of Adoption of Improved practices by Trained and Untrained Farmers

It was revealed that use of correct seed rate, application of farm yard manure, application of super-phosphate, application of nitrogen use of improved seed and seed treatment were adopted by majority of the farmers - trained or untrained.

The level of adoption was medium for the spacing inter-cropping and use of gypsum. The practices adopted

by the least number of farmers were application of potash and zinc sulphate. No farmers adopted Rhizobium culture and chemical seed control.

There was much difference between trained and untrained farmers with respect to adoption of all improved practices except in adoption of seed rate and application of farm yard manure.

4. Reasons for Non-adoption

Important reasons given by trained farmers for non-adoption of certain improved practices were lack of finance, non-availability of seeds, fertiliser and plant protection chemicals in time, high cost of inputs, lack of confidence on the practice, inadequacy of plant protection equipment and lack of conviction about benefits.

5. Correlation between Knowledge and Adoption

There was positive and significant association between knowledge gained due to institutional training and adoption of improved practices of groundnut.

6. Association of personal and socio-economic factors on Knowledge and Adoption among Trained Farmers

1. Age: There was significant association between age and knowledge, Young farmers gained more knowledge than old farmers. But there was no association between age and adoption.

2. Education: Relationship between education and knowledge and education and adoption was found to be significant.

3. Farm size: There was significant association between farm size and knowledge and farm size and adoption. Trained farmers owning large farms had more knowledge and adopted more than small and medium farmers.

4. Social participation: There was no significant relationship between social participation and knowledge. But significant relationship was found between social participation and adoption.

5. Socio-economic status: Socio-economic status was found to be significantly associated with knowledge and adoption. The socio-economic status increased the level of knowledge and adoption also increased.

6. Extension contact: Extension contact of the farmers was not related with the knowledge. But it was significantly associated with adoption. The higher the extension contact, the higher was the level of adoption.

7. Economic motivation: There was significant association between economic motivation and knowledge and adoption.

8. Risk preference: Willingness to take risks was significantly associated with knowledge and adoption. Level of knowledge and adoption was high in farmers with high risk preference.

IMPLICATIONS OF THE STUDY

Providing training to the farmers at farmers' training centres was found to help the farmers in increasing the knowledge and changing the adoption behaviour of farmers. Training appears to be an invisible input but its results are highly visible. Therefore, frequent training programmes may be organised to boost up the agricultural production along with inducing the behavioural changes. The subject matter content of training programme should include not only package of practices but also other aspects like storage, marketing and farm management. It is necessary to increase the number of training centres to cover as many farmers as possible in a short time.

Though training has made a good impact, the farmers having low education, low extension contact, low economic motivation were not as much responsive as others. Hence, greater extension efforts should be directed towards this stratum of farmers so as to motivate them to learn and get benefits from training programme.

It is not enough, if training is imparted to farmers. The extension workers should help the farmers to gain confidence on some improved practices. It is also necessary to create a general awareness among the people about the various schemes of assistance, sponsored by various extension agencies, commercial banks etc. So that they can

take advantage of them. It will help the poor farmers to adopt new ideas and strengthen economic status. The inputs like seeds and fertilizers should be made available to the farmers easily.

Positive correlation between knowledge and adoption implies that exposure of farmers to latest knowledge about farm practices is essential for the farmers to adopt new practices. Concerted efforts should be made by the extension agency by involving farmers in different aspects of training.

There are other factors like education, farm size, social participation, socio-economic status, extension contact etc., which influence the level of knowledge and adoption. The extension agency should carefully analyse these factors and provide necessary guidance, besides training. Preference should be given, while selecting farmers, to young and middle aged farmers with better education, average farm size, medium socio-economic status and farmers who take risks and have economic motivation.

The trained farmers should play an important role in disseminating the information on new farm technology to the other farmers. Some incentives like awards may be given to the trained farmers for their achievement and leadership in adoption.

Follow-up measures should be undertaken by the extension personnel to assist trained farmers in application of new knowledge gained. This will also help the trainees to improve their training programme.

Finally research on other types of training like production-cum-demonstration training camps, charcha-mandals for men and women, conducted tours of farmers and training of conveners of charchamandals should be conducted for assessing the impact of Farmers' Training Programme as a whole.

BIBLIOGRAPHY

BIBLIOGRAPHY

Akhouri, M.M.P., and Singh. 1974. Adoption of high yielding varieties as a function of assured irrigation, holding size and education. Indian Journal of Adult Education, Vol. XXXV, No.11, pp. 96-97.

Amar Singh. 1979. Impact of farmers' training programme. Indian Journal of Adult Education, Vol. 38, No.5, p.25.

Baroah, S.R. 1967. Farmers' Training and Education. Indian Journal of Extension Education, Vol. III, p.205.

*Bedi, I.S. and Saxena, R.P. 1965. Improved agricultural practices and behaviouristic pattern of farmers in Uttar Pradesh. A.I.C.C. Econ. Rev. 16: 27-33.

Bhaskaram, K. 1970. Diffusion and adoption of agricultural innovations. Research in Extension Education for Accelerating Development Process. Indian Society of Extension Education, New Delhi, pp. 356-358.

Bhaskaram, K. and Mahajan, B.S. 1968. Effectiveness of Extension methods in gaining knowledge about and acceptance of Agrosan, G.N. seed treatment to cotton. Indian Journal of Extension Education, Vol. IV, Nos. 3 and 4, p. 28.

*Choudhari, K.M. 1965. Factors affecting acceptance of improved agricultural practices -- a study in an I.A.D.P. Economic Research Centre, Gujarat, p. 108.

*Choudhary, K.P. 1967. Farmers' response to farm planning programme in an I.A.D.P. block proceedings of Research Foundation Bull. Bihar Agril. College, Sabour, Vols. 8 and 9, pp. 119-122.

Daulat Singh and Raj Narain. 1975. Farmers' training as an instrument of planned agricultural change. Farmers' Training and Functional Literacy. Indian Adult Education, Association, New Delhi, pp. 84-86.

Desai, G.R. 1977. Impact of Block Demonstration on participant and non-participant farmers of Dharwad district, Karnataka State. Unpublished M.Sc.(Agri.) Thesis, Div. of Agric. Extn., College of Agriculture, Dharwad.

Dharmpuri, K.V. 1968. Adoption of improved agricultural practices in Andhra Pradesh. Unpublished M.Sc.(Ag.) Thesis, Extension Educ. Institute, A.P.Agric.University, Hyderabad.

Das, K.K. and Sarkar, D.R. 1970. Economic motivation and adoption of farm practices. Indian Journal of Extension Education, Vol. VI, Nos. 1 and 2, pp. 103-107.

_____. 1969. Report of the Evaluation Committee on Farmers' Training and Education Programme, Govt. of India.

English, H.B. and English, A.C. 1970. A comparative Dictionary of Psychological and Psychoanalytical terms, New York, Inter discipline, Vol. 7, Spring 1. p. 123.

Ferguson, George, A. 1976. Statistical Analysis in Psychology and Education. Mc Graw-Hill Kogakusha Ltd., New Delhi, p. 201.

Ganesh, T.D. 1975. Impact of training on knowledge and adoption of recommended practices of soil and water-management and hybrid jowar cultivation of Malaprasha Project Command Area farmers. Unpublished M.Sc.(Agri.) Thesis, College of Agriculture, Dharwad.

Gangappa, G.N. 1975. A study of adoption behaviour, consultancy pattern and information source credibility of small farmers in Mysore district of Karnataka. Unpublished M.Sc.(Agri.) Thesis, University of Agril. Science, Bangalore.

Garret, H.E. 1973. Statistics in Psychology and Education, Vakils, Feffer and Simons Private Ltd., Hague Building, 9 Sprott road, Ballard Estate, Bombay-1, p.213.

Gupta, R.K. et al. 1974. A study of some selected correlated affecting differential feed back in communication of agricultural information to the young farmers trainees. Journal of Research, Punjab Agril. University, Vol. XI, No.2, p.219.

*Haas, Knneth, B. and Ewing, C.M. 1950. Tested Training Techniques. New York, Prentice Hall Inc.,p. 32.

Jaiswal, N.K., Roy, N.K. and Singh, B.S.P. 1970. Effect of size of the holding and irrigation facilities on adoption of high yielding varieties. Indian Journal of Exten. Education, Vol. VI, Nos. 1 and 2, p.15.

Jaiswal, N.K. and Arya, H.P.S. 1975. Problems in diffusion of agricultural innovations. Farmers Training and Functional Literacy, Indian Adult Education Association, New Delhi, p. 19.

*John, A.G. 1963. Teacher-made Tests. New York, Harper and Row.

*John Knight. 1974. A study of relative effectiveness of three modes of presentation, preference, listening and post-listening behaviour farm Broadcast Listeners. Unpublished Ph.D. Thesis, Div. of Agric. Extn., I.A.R.I., New Delhi.

Kar, L.N., Mishra, L. and Choudhuri, U.C. 1970. Impact of Extension contacts in influencing farmers in adoption of some selected innovations. Indian Journal of Extn. Education, Vol. VI, Nos. 3 & 4, p. 83.

*Khuspe, T.S. 1970. Differential impact of training and selection criteria on knowledge, attitude and adoption of behaviour of farmers in relation to high yielding varieties. Unpublished Ph.D. Thesis, Div. of Agril. Extn., I.A.R.I., New Delhi.

Kishore, Devesh and Rai, S.J. 1975. Literacy and adoption of improved farm practices. Farmers Training and Functional Literacy, Indian Adult Education Association, New Delhi, pp. 90-94.

Krishna, K.S. and Jalihal, K.A. 1976. Impact of Farmers' Training Camps on adoption of improved Practices of hybrid maize. Indian Journal of Extension Education, Vol. XII, Nos. 1 and 2, pp. 62-64.

Mathur, J.C. 1972. Adult Education for Farmers. Indian Adult Education Association, New Delhi, pp. 12-13.

Ministry of Food and Agriculture, Govt. of India. 1966. Workshop on Farmers' Training and Education.

*Lynton, R.P. and Pareek, U. 1967. What is Training - Training for Development. Irwin Dorsey Press, New York, pp. 6-8.

Nagendra Nath, B.S. 1980. Impact of dryland demonstrations conducted under Drought Prone Areas Programme on farmers of Chittoor district, A.P. Unpublished M.Sc. (Agri.) Thesis, S.V.Agril.College, Tirupati.

Nandapurkar, G.G. and Pande, Sirdesh, K.H. 1980. Imparting mass training to farmers. Indian Journal of Adult Education, Vol. 41, No.12, pp.28-30.

Narayana Rao, R. and Singh, K.N. 1973. Factors associated with knowledge of package concept and package of improved practices for high yielding varieties of rice in A.P. The Journal Research, A.P.A.U., Vol.I, pp.438-456.

Pareek, U. and Trivedi. 1964. Manual of Socio-economic Status Scale (Rural), Manasayana, New Delhi, pp.1-21.

*Pal, R.S. 1970. Critical study of Farmers' Training and Education Programme in relation to the change in their behaviour component. Unpublished Ph.D. Thesis, Div. of Agril. Extension, I.A.R.I., New Delhi.

*Palled, S.S. 1972. Impact of Farmers' Training Functional Literacy and Farm Broadcast Programme in Raichur district (Mysore state). Unpublished Ph.D. Thesis, Div. of Agril. Extension, I.A.R.I., New Delhi.

Patel, P.V. and Patel, A.V. 1968. Impact of Farmers' Training camps conducted at village level on adoption of some improved farm practices in Olpad taluk, Gujarat state. Indian Journal of Extension Education, Vol. IV, Nos. 3 and 4, p. 83.

Pathak, S., Pal, M.K. and Guha Roy, M.L. 1979. Impact of National Demonstration on knowledge, attitude and adoption level of farmers in West Bengal. Indian Journal of Extension Education, 25 (1&2): 49.

Perumal, N. 1975. Farmers Training and Education. Farmers Training and Functional Literacy. Indian Adult Education Association, New Delhi, p. 48.

Ramakrishna Raju, P. 1978. Impact of farmers' training on knowledge, attitude and adoption with respect to high yielding varieties of paddy in Chittoor district of Andhra Pradesh. Unpublished M.Sc.(Ag) Thesis, S.V. Agricultural College, Tirupati.

Ramamoorthy Naidu, B. 1968. Adoption of improved agricultural practices in Chandragiri Panchayat Samithi Block of Chittoor district, A.P. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. Univereity, Hyderabad.

Ramulee, V. 1973. A study of differential characteristics of adopters and non-adopters of high yielding varieties of rice among small farmers in Mahaboobnagar district,(A.P.) Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, Rajendranagar, Hyderabad.

Rangit Singh. 1966. An evaluative study of specialised training of farmers. Unpublished Report, Punjab Agril. University, Ludhiana.

Rangit Singh and Sharma, S.K. 1973. A comparative study of adoption of high yielding varieties by the farmers of T.V.Village and non-T.V. Village. Indian Journal

of Extension Education, Vol. IX, Nos. 3 and 4, pp.92-100.

Ratanchand and Gupta, N.L. 1966. A study of adopters of improved farm practices and their characteristics. Indian Journal of Extension Education, Vol. I, No.4, p. 259.

Ravi Kumar, B. 1979. Impact of National Demonstration on knowledge level and adoption behaviour of participant and non-participant farmers of Dharwad district in Karnataka. Unpublished M.Sc.(Ag.) Thesis, College of Agriculture, Dharwad.

Reddy, S.K. and Ramamurthy, D. 1973. Impact of Functional Literacy on agricultural development. Indian Journal of Adult Education, Vol. XXXIV, No. 7, p.3.

Renukaradhya, B.N. 1971. A study on the impact of Institutional training under Farmers' Training and Education Programme in Bangalore district of Mysore state. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

Rogers, E.M. 1962. Diffusion of Innovations. The Free Press, Glencoe, London, Macmillon, pp.76-86.

*Ryon, H. and Gross, N. 1950. Acceptance and diffusion of hybrid corn in two Iowa communities. Exp. Sta. Resh. Bulletin, p. 372.

Sanders, E.N. 1967. Importance of Extension training in increasing agricultural production. Indian Journal of Extension Education, Vol. III, p. 210.

Sastry, C.R.G.K. 1970. A study of Farmers' Training Programme in selected districts of A.P. Unpublished M.Sc. (Ag.) Thesis, Extension Education Institute, A.P.Agril. University, Hyderabad.

Sethu Rao, M.K. 1975. Application of Lynton-Pareek model in farmers training, Indian Journal of Extension Education, Vol. XI, Nos. 1 and 2, p. 78.

Sethu Rao, M.K. and Krishnan, H.S. 1976. Formal Education is not a must for higher adoption of improved practices. Indian Journal of Adult Education, Vol. XXXVII, No.9, p. 19.

Shankar, R. 1979. Literacy of and adoption of improved agricultural practices (Deoria study). Indian Journal of Agult Education, Vol. 40, No.3, p. 31.

Sharma, S.K. and Nair, G.T. 1974. A multivariable study of adoption of high yielding varieties of paddy. Indian Journal of Extension Education, Vol. X, Nos. 1 and 2, p. 30.

Sidhu, P.S. and Patel, A.U. 1968. A study of opinion of trained farmers and concerned officials on the organisation of farmers' training camps at village level. Indian Journal of Extension Education, Vol. IV, Nos. 3 & 4, P. 49.

*Singh, S.S.D. 1968. An analysis of Farmers' Training Programme in Bihar. Unpublished report, Bihar Agril. College, Sabour.

Singh, A.K. 1974. Impact of Farmers' Training on knowledge, attitude and adoption of with respect to high yielding varieties of wheat in Gwalior district of Madhya Pradesh. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

Singh, K.N. and Choubey, C.L. 1974. Operational farm size and differential adoption of high yielding wheat varieties technology. Indian Journal of Extension Education, Vol. X, Nos. 1&2, p. 42.

Singh, S.N. and Singh, K.N. 1970. A multivariate analysis of adoption behaviour of farmers. Indian Journal of Extension Education, Vol. VI, Nos. 3 & 4, p. 39.

Sinha, P.R.R. 1972. Adoption/non-adoption of some selected farm practices as related to some personal characteristics of the farmers. Journal of Research, Punjab Agril. University, Ludhiana, Vol. IX, No.1, pp. 126-133.

Sohal and Singh, 1970. Farmers Training and Education in India. Research in Extension Education for Accelerated Development Process. Indian Society of Extension Education, New Delhi, pp. 21-22.

Sohan Singh. 1957. History of Adult Education during the British period. Indian Adult Education Association, New Delhi, p. 1.

Somasekharappa, G. 1971. Impact of production-cum-Demonstration training sessions on adoption of improved farm practices and on knowledge of farmers in Bangalore district. Unpublished M.Sc.(Ag.) Thesis, University of Agril. Sciences, Bangalore.

Sukumaran, N. 1972. Impact of farmers' training on knowledge and adoption of high yielding varieties of paddy in Trichur district of Kerala. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

Supe, S.V. 1970. Factors related to different degree of rationality in decision among farmers. Behavioural Sciences and community Development, Vol. 4, No.1, p.29.

*Tiwari, A.N. 1964. A study of characteristics of adoption of improved agricultural practices in C.D. block, Kalyanpur district, M.Sc.(Ag.) Thesis, Govt. Agril. College, Kanpur.

Trigunayat, A.P. 1971. Impact of Radio on Farmers' Training and Education programme in Uttar Pradesh. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

*Tripathi, S.L. 1943. A study of factors associated with the adoption of improved agricultural practices in C.D. block Kalyanpur district, M.Sc.(Ag) Thesis, Govt. of Agril. College, Kanpur.

Trivdei, G. 1963. Measurement of analysis of socio-economic status of rural families. Ph.D. Thesis, I.A.R.I., New Delhi.

Veeraiah, N. 1969. Relative effectiveness of extension methods in acquisition of knowledge about package of practice in I.R-8 paddy cultivation. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

Veeraraghava Reudy. 1968. Adoption of improved agricultural practices of rice cultivation in Andhra Pradesh. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril. University, Hyderabad.

Venkatappaiah, N. 1977. Impact of Farmers Functional Literacy Programme on participants in Andhra Pradesh. Indian Journal of Adult Education, Vol. 38, No. 3.

Vittal, M. 1971. A study of production-cum-Demonstration training camps organised under Farmers' Training Programme in North Arcot district of Tamil Nadu. Unpublished M.Sc.(Ag.) Thesis, Extension Education Institute, A.P. Agril.University, Hyderabad.

Veerasamy, S. and Tej Bahadur. 1979. Some Psychological Correlates of adoption of improved rice technology by small farmers of South Arcot district. Indian J. Extn. Edn. Vol. XV, Nos. 3&4, p. 87.

Wilson, M.C. and Gallup, G. 1955. Extension Teaching Methods. Extension Service Circular 495. Federal Extension Service, U.S. Department of Agriculture.

*Yadava, I.D.R. 1964. A study of Factors associated with adoption of improved seeds in C.D.Block, Kalyanpur district, M.Sc.(Ag) Thesis, Govt. Agril. College, Kanpur.

Yadkikar, D.R. and Narayana Rao, R. 1976. A study on National Demonstrations as centres of education for farmers. Indian Journal of Adult Education, Vol. XXXVII, No. 10, p.23.

Yogi Reddy, M. 1980. A study on Farm School on the Air Programme on irrigated groundnut in Chittoor district of Andhra Pradesh. Unpublished M.Sc.(Ag.) Thesis, Dept. of Extn. Edn., S.V.Agril.College, Tirupati.

* Original not seen

APPENDICES

11. Family details:

a) Type of the family: i) Nuclear
ii) Joint

b) Size of the family

c) Distinctive features of the family

i) Engaged in agriculture

ii) Engaged in business

iii) Engaged in service

iv) Engaged in any other profession

d) No. of earning members in the family

12. Farm power:

	No.
a) Bullocks	--
b) Pumpsets	--
c) Tractors	--
d) Sprayers	--
e) Any other	--

13. Material possession:

	No.
a) Bullock cart	--
b) Improved Agricultural implements	
1) Iron ploughs	--
2) Harrows	--
3) Cultivators	--
4) Weeders	--
c) Cycle	--
d) Chairs	--
e) Modern utensils	--
f) Watches	--
g) Radio	--
Telephone	--

11. Family details:

a) Type of the family: i) Nuclear
ii) Joint

b) Size of the family

c) Distinctive features of the family

i) Engaged in agriculture

ii) Engaged in business

iii) Engaged in service

iv) Engaged in any other profession

d) No. of earning members in the family

12. Farm power:

	No.
a) Bullocks	--
b) Pumpsets	--
c) Tractors	--
d) Sprayers	--
e) Any other	--

13. Material possession:

	No.
a) Bullock cart	--
b) Improved Agricultural implements	
1) Iron ploughs	--
2) Harrows	--
3) Cultivators	--
4) Weeders	--
c) Cycle	--
d) Chairs	--
e) Modern utensils	--
f) Watches	--
g) Radio	--
Telephone	--

14. Houses:

Type	No.
a) Katcha	--
b) Mixed	--
c) Pucca	--

15. Training received:

a) Institutional training

b) Non-institutional training

c) Both

d) No training

16. Economic motivation:

A set of statements are given below which represent economic motivation of farmers. Please state your degree of agreement on disagreement with each statement on the following, 5-point scale.

	SA	A	UD	DA	SDA
1. A farmer should work toward larger yield and economic profits.	7	5	4	3	1
2. The most successful farmers is one who makes the most profit.	7	5	4	3	1
3. A farmers should try any new farming idea which may earn him more money.	7	5	4	3	1
4. A farmer should grow cash crops to increase monetary profits in comparison to growing of food crops for home consumption.	7	5	4	3	1
5. It is difficult for the farmers children to make good start unless he provides them economic assistance.	7	5	4	3	1
6. A farmer must earn his living but the most important thing in life cannot be defined in economic terms.	1	3	4	5	1

17. Risk preference:

A set of statements are given below which represent risk preference of farmers. Please state the degree of agreement or disagreement with each statement on the following 5-point scale.

	SA	A	UD	DA	SDA
1. A farmer should grew large No. of crops to avoid greater risks involved in growing one or two crops.	1	3	4	5	7
2. A farmer should take more of change for making good profit than to be content with a smaller but less risky profits.	7	5	4	3	1
3. A farmer who is willing to take greater risks than the average farmer, unusually does better financially.	7	5	4	3	1
4. It is good for a farmer to take risk when he knows his chance of success is fairly high.	7	5	4	3	1
5. It is better for a farmer not to try new farming methods unless most other farmers have used them with success.	1	3	4	5	7
6. Trying on entirely new method in farming involves risk but it is worth or it.	7	5	4	3	1

18. Extension contact:

During the last year, did you contact, the following officials? If so, how often?

	Yes/No	Very often	Often	Rarely
a) B.D.O.				
b) A.A.O.				
c) V.D.O.				
d) Sub-Asst.				
e) Any other technical personnel				

PART - II

A LEVEL OF KNOWLEDGE

1.	Name two improved varieties of groundnut?	Right/Wrong
2.	What is the optimum time for sowing rainfed groundnut?	Right/Wrong
3.	Which types of soils are best suited for groundnut?	Right/Wrong
4.	What is the seed rate?	Right/Wrong
5.	What is the spacing?	Right/Wrong
6.	a)Do you know about seed treatment?	Yes/No
	b)If yes, name two chemicals for seed treatment? i) ii)	Right/Wrong
7.	How much chemical is required to treat 1 kg of groundnut seed?	Right/Wrong
8.	Do you know about Rhizobium inoculation?	Yes/No
9.	How much FYM is recommended for 1 acre of groundnut?	Right/Wrong
10.	What are the major nutrients required for groundnut?	Right/Wrong
11.	Why should we apply Nitrogenous fertilizers?	Right/Wrong
12.	Can you give the amount of Nitrogen recommended for rainfed groundnut?	Right/Wrong
13.	How many split doses of nitrogen are recommended?	Right/Wrong
14.	Which is the best source of phosphorus for groundnut?	Right/Wrong
15.	Why should we apply phosphatic fertilizers to groundnut?	Right/Wrong
16.	Give the quantity of phosphorus recommended for improved variety of groundnut.	Right/Wrong
17.	Mention the time of application of Phosphatic fertilizers?	Right/Wrong

18. Name two potassic fertilizers used for groundnut. Right/Wrong

19. Give the dosage of potash (K_2O) for groundnut. Right/Wrong

20. Mention the time of application of potassic fertilizers. Right/Wrong

21. a) Do you know gypsum? Yes/No

    b) Why it is used?

22. How much quantity of gypsum is required for the groundnut? Right/Wrong

23. When do you apply gypsum? Right/Wrong

24. a) Do you know Zinc sulphate? Yes/No

    b) How much quantity of zinc sulphate is recommended? Right/Wrong

25. What is the time of application? Right/Wrong

26. How many weedings are recommended for groundnut? Right/Wrong

27. After how many days of sowing should these weedings to be done? Right/Wrong

28. Name two chemicals for controlling weeds with dosages. Right/Wrong

	Chemical	Dosage
a)		
b)		

29. Is it necessary to adopt plant protection measures for groundnut crop? Yes/No

30. Name three important pests of groundnut in your region? Right/Wrong

    a)
    b)
    c)

31. Name the chemicals with dosages for each of these pests. Right/Wrong

	Chemical	Dosage
a)		
b)		
c)		

32. What are the three important diseases? Right/Wrong

a)

b)

c)

33. Name the chemical with dosage for each of these diseases. Right/Wrong

	Chemical	Dosage
a)		
b)		
c)		

34. What is the criteria for harvesting groundnut crop? Right/Wrong

a)

b)

35. Do you know about inter-cropping of groundnut with redgram (6:1) on castor (10:1). Yes/No

B. EXTENT OF ADOPTION

1. Are you using improved varieties? Yes/No

a) If yes, did you use it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the improved variety

ii) High cost of seed

iii) Non-availability of seed in time

iv) Requires high dosage of fertilizers

v) Susceptibility to pests and diseases

vi) Lack of irrigation facilities

vii) Other reasons if any

2. Are you adopting the practice of seed treatment with chemicals? Yes/No

a) If yes, did you adopt it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the practice

ii) High cost of the chemicals

iii) Non-availability of chemical

iv) Technique of seed treatment is not known

v) Takes time

vi) Other reasons if any

3. Are you treating the seed with Rhizobium? Yes/No

a) If yes, did you use it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the practice

ii) Non-availability of Rhizobium culture

iii) Costly

iv) Technique is not known

v) Not convinced about the benefits

vi) Other reasons if any

4. Are you using recommended seed rate? Yes/No

a) If yes, did you adopt this practice in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of optimum seed rate

ii) Insufficiency of seed

iii) High cost of the seed

iv) Susceptibility to pests and diseases

v) Other reasons, if any

5. Are you adopting recommended spacing? Yes/No

a) If yes, did you adopt it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii)1979-80 ( )

b) If not, reasons for non-adoption are

i) Difficult to maintain spacing

ii) High labour cost

iii) Reduces plant population

iv) Other reasons, if any

6. Are you applying recommended quantity of FYM? Yes/No

a) If yes, did you use it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Do not have sufficient quantity of FYM

ii) Reserved for other crops

iii) High transport cost

iv) Needs more labour

v) Other reasons, if any

7. Are you applying recommended dose of nitrogen? Yes/No

a) If yes, did you adopt this in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) High cost of the fertiliser

ii) Non-availability of fertiliser

iii) Not aware of the benefits of nitrogen

iv) Increases pests and diseases

v) Needs more irrigation

vi) Other reasons if any

8. Are you applying recommended dose of super phosphate? Yes/No

If yes, did you adopt this practice in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

If not, reasons for non-adoption are

i) Not aware of the practice

ii) High cost of the fertilizer

iii) Non-availability of fertilizer in time

iv) Leaves unfavourable effects on soils

v) Not beneficial

vi) Other reasons, if any

9. Are you applying potassic fertilizers in groundnut? Yes/No

a) If yes, did you adopt this practice in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii)1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the practice

ii) Cost of the fertilizer is high

iii) Fertilizer is not available in time

iv) Leaves unfavourable effects on soils

v) Not beneficial

vi) Other reasons, if any

10. Are you adopting the practice of application of gypsum to groundnut? Yes/No

a) If yes, did you apply in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the practice

ii) High cost of the chemical

iii) Non-availability of chemical in time

iv) Leaves unfavourable effects on soils

v) Not beneficial

vi) Other reasons, if any

11. Are you using Zinc sulphate to groundnut? Yes/No

a) If yes, did you adopt it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii)1979-80

b) If not, reasons for non-adoption

i) Not aware of the practice

ii) High cost of chemical

iii) Non-availability of chemical

iv) Not beneficial

v) Other reasons, if any

12. Are you adopting chemical weed control methods? Yes/No

a) If yes, did you adopt it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If not, reasons for non-adoption are

i) Not aware of the practice

ii) Costlier than hand weeding

iii) No shortage of labour

iv) Non-availability of chemicals

v) Non-availability of equipment

vi) Other reasons, if any

13. Are you adopting plant protection measures? Yes/No

a) If yes, did you adopting plant protection measures? Yes/No

i) 1977-78 ( ) (ii) 1978-79 ( )

iii)1979-80 ( )

b) If not, reasons for non-adoption are

i)Not aware of the practice

ii) High cost of chemicals

iii) Non-availability of chemicals

iv) Non-availability of plant protection equipment

v) Lack of knowledge in handling of equipment

vi) Non-availability of spare parts

vii) Other reasons, if any

14. Are you adopting inter-cropping in groundnut with redgram (6:1) or castor (10:1) Yes/No

a) If yes, did you adopt it in

i) 1977-78 ( ) (ii) 1978-79 ( )

iii) 1979-80 ( )

b) If no, reasons for non-adoption are

i) Inter-crop provides shade

ii) Inter-crop taken more time to mature

iii) Yield of main crop reduces

iv) Other reasons, if any

SA : Strongly agree

A : Agree

UD : Undecided

DA : Disagree

SDA : Strongly disagree

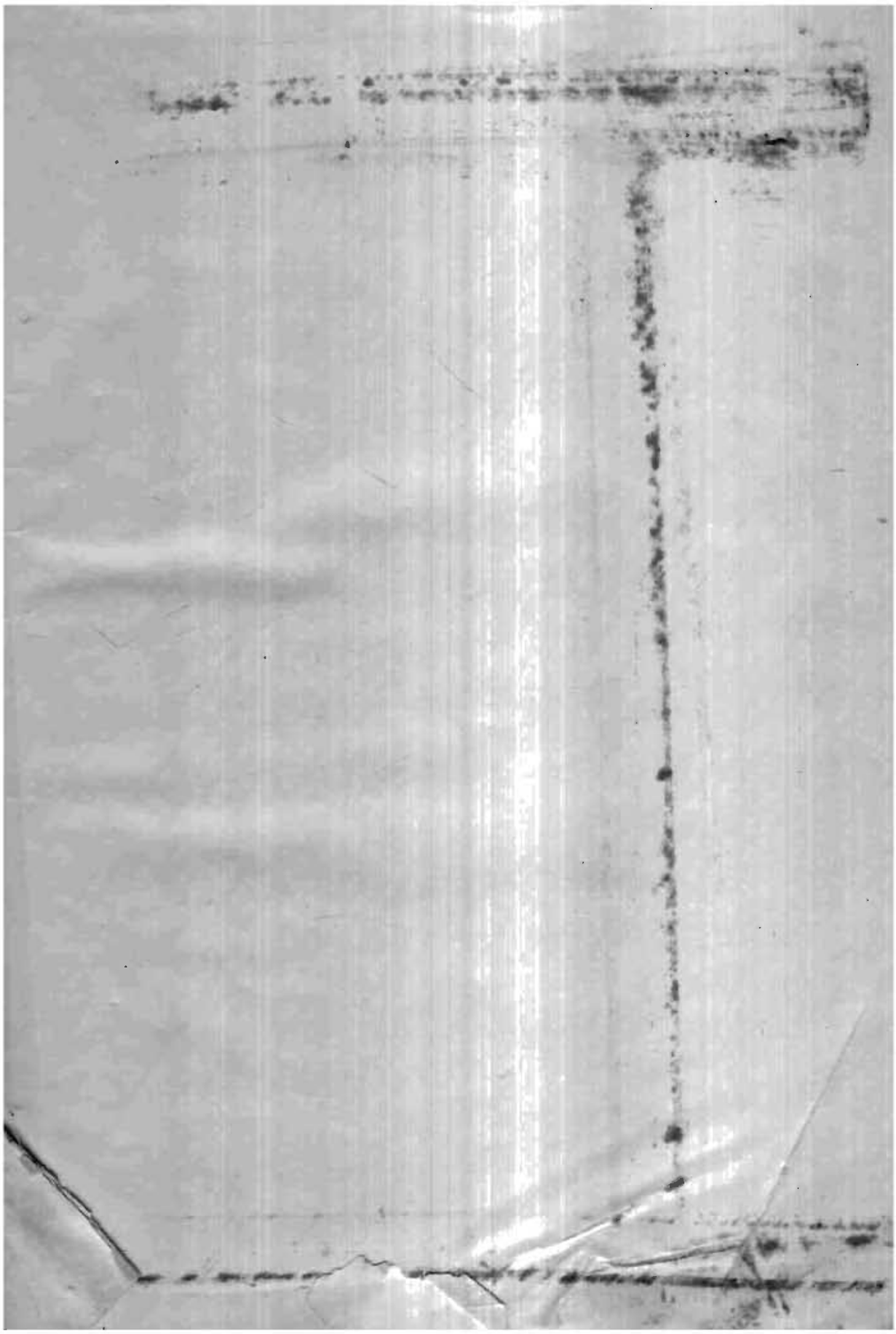
APPENDIX - II

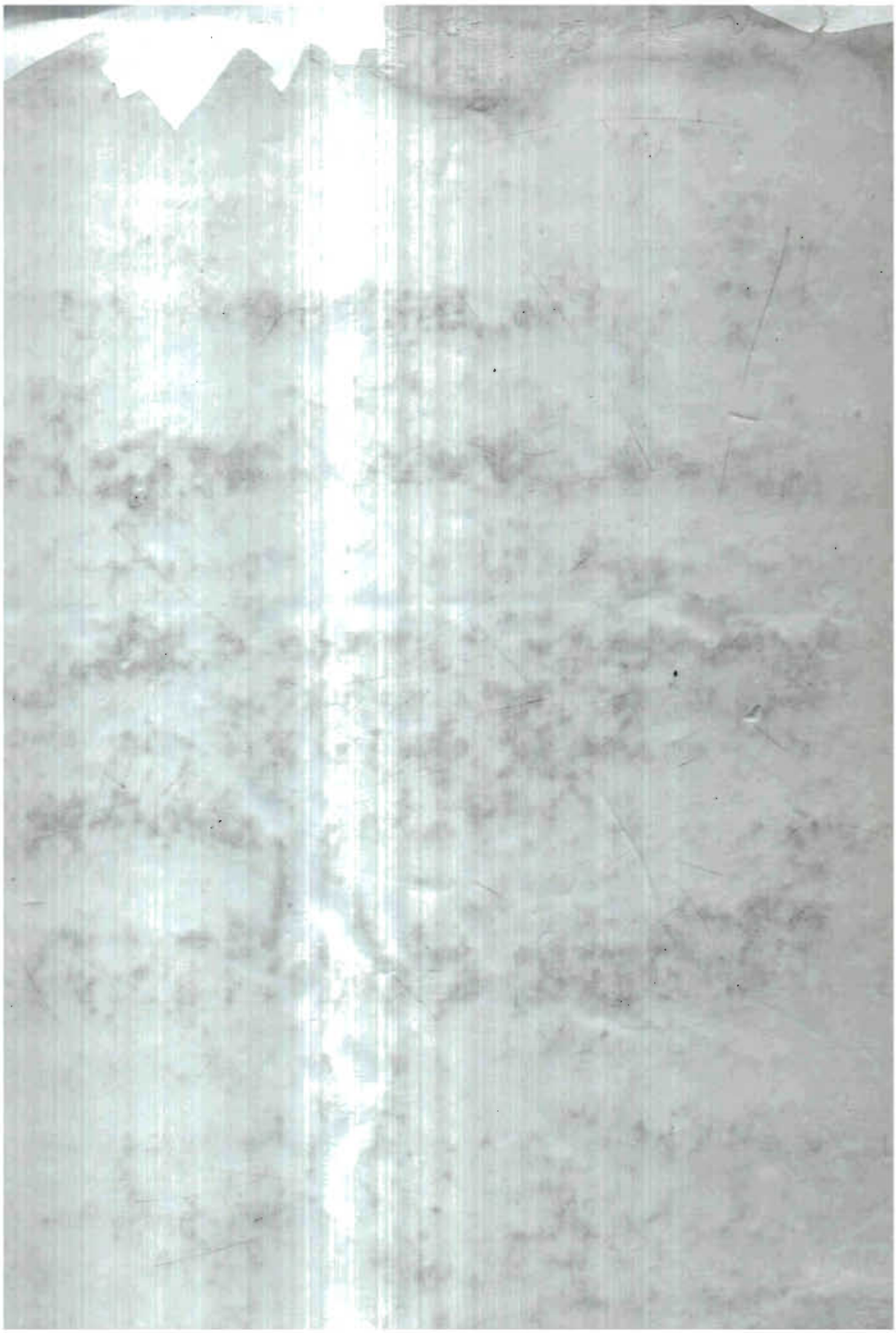
SOCIO-ECONOMIC STATUS SCALE DEVELOPED BY TRIVEDI (1963)

S.No.	Item		Score
1.	Education		
	a) Illiterate		0
	b) Can read only		1
	c) Can read and write		2
	d) Up to primary school		3
	e) Up to middle school		4
	f) High School		5
	g) College		6
2.	Family details		
	a) Type:	Single	1
		Joint	2
	b) Size:	Up to 5	1
		Above 5	2
	c) Distinctive features		2
3.	Number and type of house owned		
	a) Number:	One	1
		Two	2
		Three	3
	b) Type:	Kateha	1
		Mixed	2
		Pucca	3
4.	Material possession		
	a) Bullock cart		1
	b) Cycle		1
	c) Chair		1
	d) Radio		2
	e) Watch		1
	f) Modern uteneils		1
	g) Motor cycle/Scooter		2
	h) Telephone		4

S.No.	Item	Score
5.	Improved Agricultural implements	2
	1) Iron plough	
	2) Harrow	
	3) Cultivator	
	4) Weeder	
6.	Farm power	
	a) Bullocks	-
	b) Pumpsets	4
	c) Tractor	6
	d) Sprayer	3
	Bullocks	
	Nil	0
	One to two	2
	3 to 4	4
	5 to 6	6
	7 to 8	8
7.	Occupation	
	a) Labour	1
	b) Cattle occupation	2
	c) Business	3
	d) Independent profession	4
	e) Cultivation	5
	f) Service	6
8.	Farm size	
	a) Up to 1 acre	1
	b) Up to 5 acres	2
	c) Up to 10 acres	3
	d) Up to 15 acres	4
	e) Up to 20 acres	5
	f) Above 20 acres	6

S.No.	Item	Score
9.	Caste (Modified to suit the locale)	
	a) Detribalised castes	1
	b) Harijans	2
	c) Service castes	3
	d) Artisans	4
	e) Upper castes	5
	f) Vysya	6
	g) Kshatriya	7
	h) Brahmins	8





IMPACT OF FARMERS' INSTITUTIONAL TRAINING ON KNOWLEDGE AND ADOPTION OF IMPROVED PRACTICES OF RAINFED GROUNDNUT IN ANANTAPUR DISTRICT OF ANDHRA PRADESH

Thesis submitted to the
Andhra pradesh Agricultural University
in part fulfilment of the requirements for the
award of the degree of
MASTER OF SCIENCE IN AGRICULTURE
(EXTENSION EDUCATION)

By
GONCHIKAR NARASAPPA, B.Sc., *(Ag.)*

Department of Extension Education
SRI VENKATESWARA AGRICULTURAL COLLEGE
ANDHRA PRADESH AGRICULTURAL UNIVERSITY
TIRUPATI (A.P.)
1981